Non-CBI TEST REPORT

Report no.:
300-ELAB-2419-EPA

DANISH TECHNOLOGICAL INSTITUTE
Teknologiparken
Kongsvang Allé 29
DK-8000 Aarhus C
+45 72 20 20 00
info@dti.dk
www.dti.dk

Init.: JSA/
Order no.: 845680
No. of appendices: 33 (CBI)
No. of appendices: 30 (non-CBI)

Requested by:	Company:	Dovre NV
	Address:	Nijverheidsstraat 18
	Postcode/town:	B-2381 Weelde, Belgium
	Country:	Belgium
	Email:	info@dovrefire.com
	Web:	www.dovrefire.com

Product: Wood stove Type: Norflam Harbor Light

Sample: Incomming at DTI, Aarhus: 3. June 2019

Test period: Date of testing: 3-4 June and 6-7 June 2019

Procedure Testing of solid fuel appliance in accordance with DTI method "ELAB-PP-BR-15" based on relevant selection of standards and methods:

ASTM E2515-11	Yes
ASTM E3053-17 (Cordwood)	Yes
US EPA Method 28R in combination with ASTM E2780-10 (Cribwood)	No
CSA B415.1-10	Yes
EPA Communication on alternative method for Cordwood testing	Yes

Result: The stove/ meets the requirements of NSPS §40 CFR Part 60.

Remarks: See paragraph 2 - Remarks.

Terms: Accredited testing was carried out in compliance with international requirements, and the general terms and conditions of The Danish Technological Institute. The test results apply to the tested products only. This test report may be reproduced in extract only if the laboratory has approved the extract in writing. Danish Technological Institute is Notified Body with identification number 1235 and DIN Certco test laboratory, PL 168.

Issued: Date 17.07.2019, Danish Technological Institute, Aarhus, Stoves&Boiler test lab

Signature: Jes Sig Andersen
Senior Specialist

ilac-MRA DANAK
Test reg. no. 300

17-07-2019 16:00:49
Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Jes Sig Andersen, Teknologisk Institut.
This PDF document is only valid if digitally signed with the OCES digital signature for Jes Sig Andersen, Danish Technological Institute.

DANISH TECHNOLOGICAL INSTITUTE

Indhold

1. Introduction 4
1.1. General 4
1.2. Scope of testing 4
1.3. Site 4
1.4. Participants 4
DTI staff 4
Client staff 4
1.5. Test specimen 4
Manufacturers description of the stove 5
Variants 5
2. Aging prior to test 6
3. Summary of test results 6
3.1. Test schedule 6
3.2. Main results 6
3.3. Summary of the HF and MF tests the 3. June 2019 7
3.4. Summary of the HF and LF tests the 4. June 2019 9
3.5. Summary of the HF test the 6. June 2019 11
3.6. Summary of the HF test the 7. June 2019 12
3.7. Anomalies 13
HF filters clogging 13
LF filters clogging 14
Instrument break down 15
3.8. High Fire net fuel consumption 15
3.9. Summary of test results 17
3.10. Weighted average CSA calculation 17
3.11. Test facility conditions 18
3.12. Fuel properties 18
3.13. Summary of test fuel load properties 18
4. Test accomplishment 19
4.1. Remarks 19
4.2. Start-up operation 19
4.3. Sampling arrangement 20
4.4. Sample analysis 21
4.5. Fluepipe and chimney configuration 21
5. Sampling methods 21
5.1. Particulate extraction system 21
5.2. Calculation of PM emission 22
5.3. Calculation of energy efficiency, heat output and emission og CO 22
6. Quality assurance 22

6.1. Instrument calibration 22
6.2. Raw logger data 22
7. Documentation material 22
8. Remarks 23
8.1. Internal correction of gasmeters 23
8.2. Joint Cribwood and Cordwood spreadsheet 23
8.3. Problems with Teflon filters clogging 23
9. Discussion of Results 24
10. Main results 25
11. Test details 27
11.1. Pretest 27
11.2. Data, test run 1 – High fire test, 3. June 2019 28
11.3. Data, test run 2 – Medium fire test, 3. June 2019 29
11.4. Data test run 3 – High fire test, 4. June 2019 30
11.5. Data test run 4 – Low fire test, 4. June 2019 31
11.6. Data test run 5 – High fire test, 6. June 2019 32
11.7. Data test run 6 – High fire test, 7. June 2019 33
12. Test equipment 34
Testing was carried out at test rig C. (EPA setup) 34
13. Appendices 35

DANISH TECHNOLOGICAL INSTITUTE

1. Introduction

1.1. General

This report concerns testing of a free-standing cast iron stove of landscape format, type Norflam Harbor Light.

1.2. Scope of testing

The appliance was tested to demonstrate compliance with the NSPS 2020 limits, using the alternative Cordwood test method broadly accepted by the administrator. Please find the letter of acceptance enclosed in appendix 1

1.3. Site

Testing was accomplished by Danish Technological Institute, Kongsvangsallé 29, DK-8000 Aarhus C, Denmark in accordance to DTI's accredited EPA test procedure ELAB-PP-BR-15 (CBI information).
The test procedure is amended in the CBI report variant, but left out in the non-CBI report variant

1.4. Participants

DTI staff
Testing in the laboratory was accomplished by:

- Jes Sig Andersen, Senior Specialist (lead)
- Rene Lyngsø Hvidberg, Senior Specialist (trainee)

Client staff
The test work was witnessed by:

- Serban Bruma, Dovre NV

1.5. Test specimen

The stove was manufactured by:

Company:	Dovre NV
Address:	Nijverheidsstraat 18
Postcode/town:	B-2381 Weelde, Belgium
Country:	Belgium

The stove weighs 216 kg.

The stove is not equipped with a catalyst.

The dimensions of the firebox are:

Height (back):	187	mm
Height (front):	90	mm
Breadth:	610	mm
Depth:	286	mm
Volume:	0,044	m^3 or 1,554 ft^3 (usable firebox volume)

Provisions of max load limitation of E3053 was not utilized. The usable firebox volume calculated is the full effective firebox space where wood logs can be placed.

Manufacturers description of the stove

General: NORFLAM HARBOR LIGHT 760 is a traditional type solid fuel wood burning stove of landscape format. The stove is equipped with a front-loading door with detachable handle, equipped with a glass pane. The stove is equipped with one air regulator with detachable handle. The stove is non-catalytic. The stove has a top and back flue connector. The Stove carries the NORFLAM name on both left and right-side panel.

Materials of Construction: The unit is constructed primarily of cast iron which is or painted or enameled. The firebox is lined with vermiculite firebricks (right and left side and back) and a cast iron floor. The firebox has double vermiculite twin-baffle plates with two stainless steel tertiary air tubes. The feed door has a 545 mm by 325 mm glass panel and lined with an 8 mm diameter fiberglass gasket.

Air Injection System: Combustion Air enters the firebox through a central 100mm collar opening located at the back of the appliance. The primary combustion air is ducted down through the manifold that is located under the appliance and through the bottom of the hearth.
Secondary air enters the appliance through the manifold and is ducted internally, central on the back of the appliance and entering the firebox through two holes low on the back sides and through multiple hole just underneath the baffle plates. Tertiary air enters the appliance through the manifold and is ducted internally to both sides of the firebox, entering two stainless steel rectangular channels which feed air through two rectangular stainless-steel tubes. Glass wash air enters the appliance through the manifold and is ducted internally to both outer sides of the firebox, ducted underneath the top plate and enters the firebox via the air spoiler in front of the appliance.

Combustion Control Mechanisms: The combustion air inlet is controlled by a single detachable handle located below the fuel loading door. Combustion air control mechanism is a stainless-steel dial disc with control openings for all air ducts. The dial disc covers the manifold and is connected via a cover to the air inlet. The dial disc is controlled by a single lever when pushed left or right.

Internal Baffles: A double vermiculite twin-baffle system with tertiary air is mounted in the upper portion of the firebox. The flame path is forced to the front of the lower baffle where it is mixed with heated air, travels in between the two baffle plates with a second air mixture where it travels up through the opening between the upper baffle and the top plate.

Flue Outlet: The 6” diameter flue outlet is located at the top of the appliance, to the back, and is interchangeable with the cover on the back to establish a rear flue exit.

Variants

BRAND	MODEL	VERSION
NORFLAM	HARBOR LIGHT	760
SIERRA FLAME	LYNWOOD	W76
SBI	CAPE TOWN	1800

The SBI Cape Town is completely based on the NORFLAM HARBOR LIGHT 760 except for the esthetical design, this variant differs in style which is contemporary. This wood stove is technically identical.

The Sierra Lynwood is completely based on the NORFLAM HARBOR LIGHT 760 except for the logo on the side panels. This wood stove is technically identical.

DANISH TECHNOLOGICAL INSTITUTE

2. Aging prior to test

The stove had been aged for more than 50 hours of operation prior to the certification test. Please find documentation in appendix 2.

3. Summary of test results

3.1. Test schedule

The full certification test comprises four HF test runs, one LF test run and one MF test run. The institute was closed the 5. June due to Constitution day.

Date	Test I	Test II	Remarks
3-6-2019	HF test	MF test	Both valid tests
4-6-2019	HF test	LF test	Both valid tests
6-6-2019	HF test	none	Valid test
7-6-2019	HF test	none	Valid test

3.2. Main results

	Burn rate kg dry matter/hour	Emission grams/hour
HF 1, 3. June	4,31	5,91
MF, 3. June	1,67	1,11
HF 2, 4. June	4,59	6,60
LF, 4. June	1,00	0,52
HF 3, 6. June	4,59	6,34
HF 4, 7. June	3,94	5,18

Please see also the full set of main results in section 10

DANISH TECHNOLOGICAL INSTITUTE

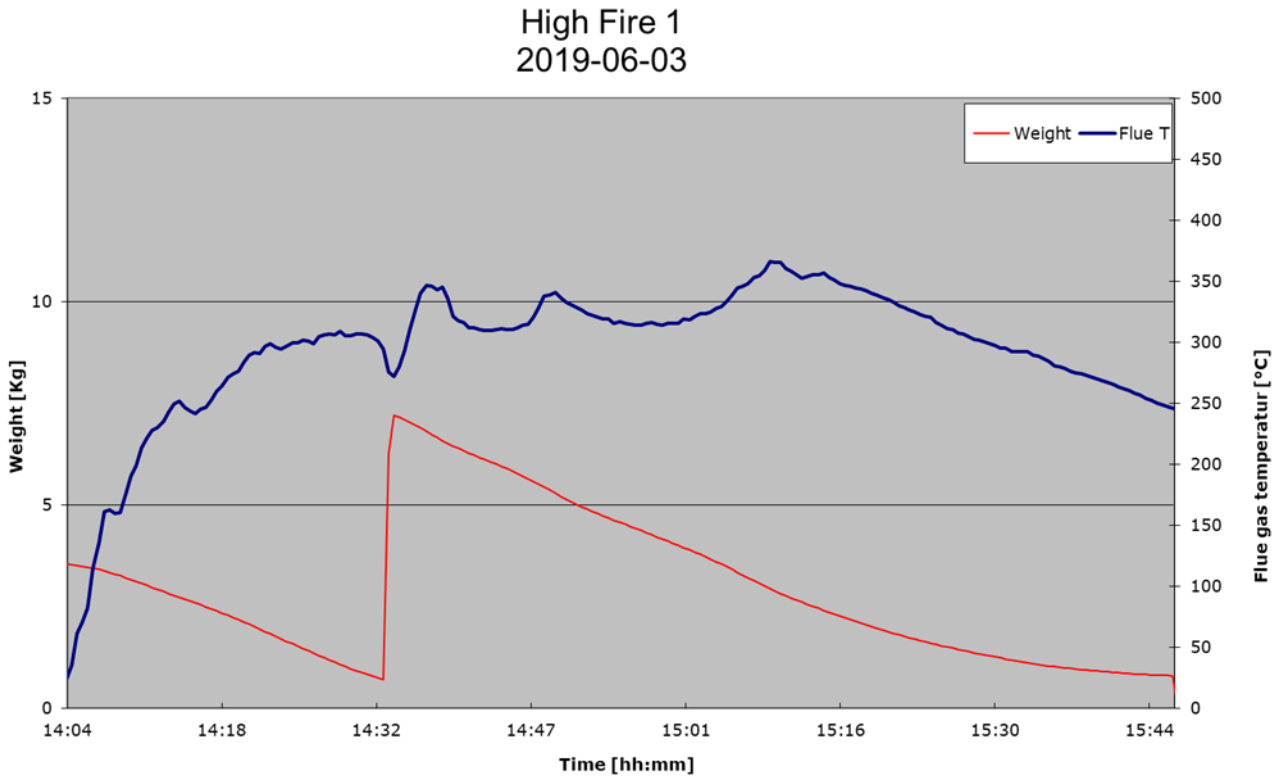
3.3. **Summary of the HF and MF tests the 3. June 2019**

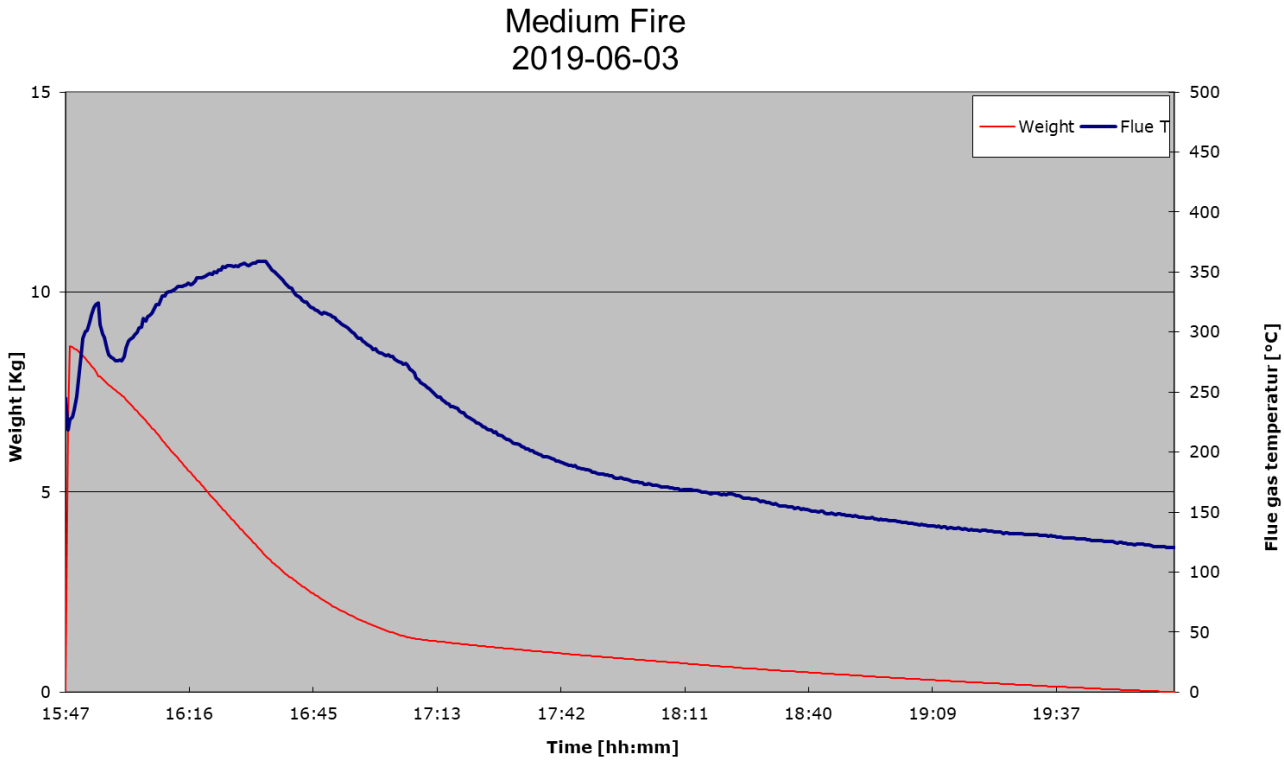
Data logger file Id: 2019-06-03_10:58:31

14:04:07	Ignition of the Cold Start part test using the gas torch for 1 minute. The air valve is set in position Cold start (ignition). In total 3,539 kg kindling and start-up fuel is added
14:05:07	Ignition is over, the door is closed
14:33:20	End of Kindling+Start-up at 727 g, taring of the platform scale, evening out of the embers and begin of High Fire test using 7,267 kg firewood in total
14:34:30	End of loading time at 30 seconds after which the door was closed, and the air valve set in position Cold Start (ignition)
14:39:25	Ignition device closed, and the air valve set in position R100 = maximum combustion air supply
15:04:05	Change of the filter holder arrangement in the split extraction train at the hour
15:47:15	End of High Fire test cycle at 790 g, taring of the platform scale, evening out of the embers, reset of the air valve to position Cold start for ignition
15:47:30	Start of the Medium Fire test using in total 8,698 kg of firewood.
15:48:15	Closing the door after expiry of the loading time 45 seconds
15:54:00	The air valve is adjusted to position R50, an intermediate setting
15:56:35	The air valve is adjusted to position R35.
16:00:58	The air valve is reset to position R50, at the time 15% of the test fuel mass had been combusted.
16:47:45	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 41881,15 nl (normal liters to 0 degr C and 1013 HPa)
20:05:18	The Medium Fire test is done at platform scale reading 0 kg

Please find the corresponding sequence of images in appendix 3

DANISH TECHNOLOGICAL INSTITUTE





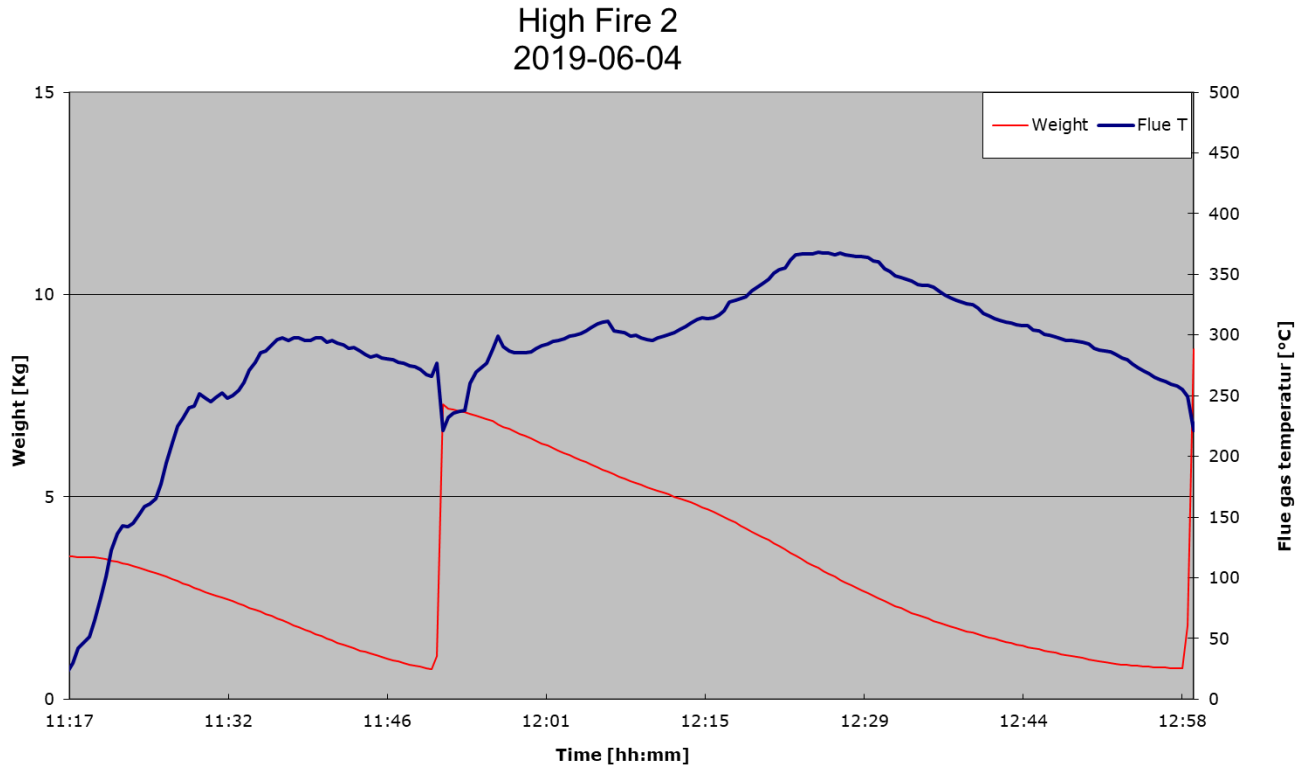
DANISH TECHNOLOGICAL INSTITUTE

3.4. **Summary of the HF and LF tests the 4. June 2019**

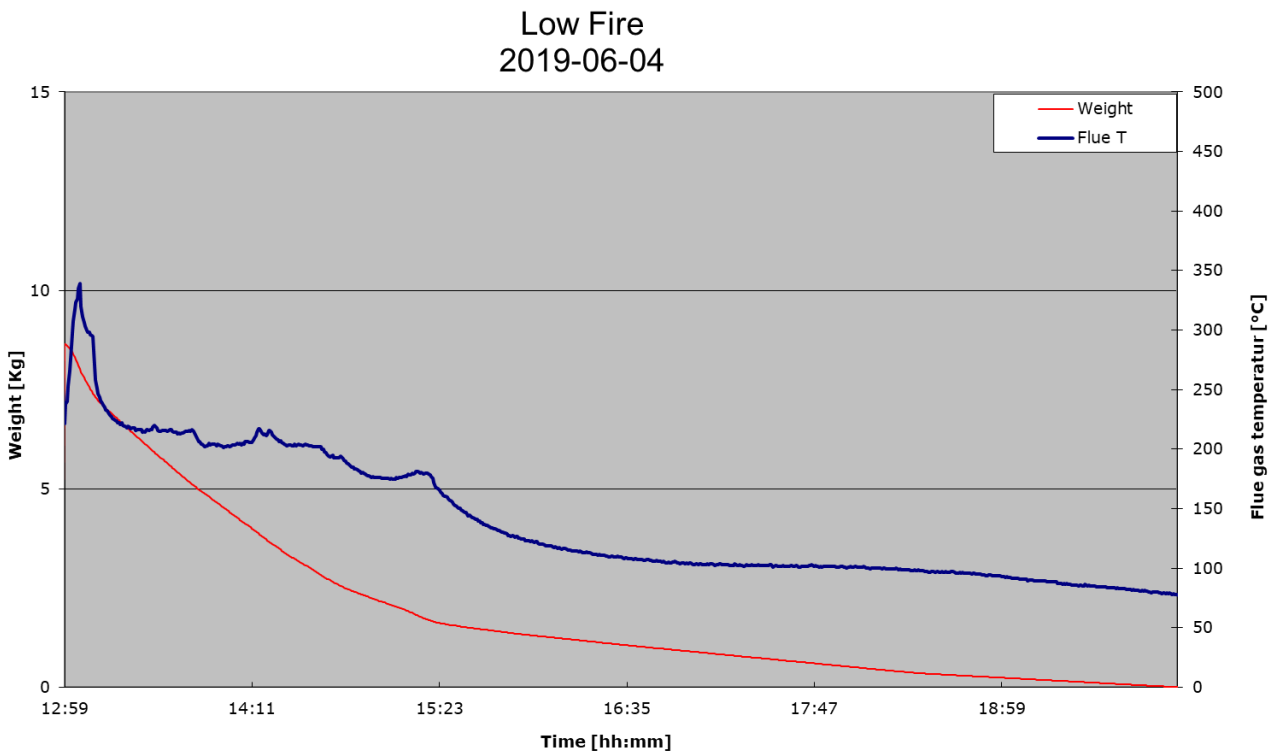
Data logger file Id: 2019-06-04_08-15-09

11:17:51	Ignition of the Cold Start part test using the gas torch for 1 minute. The air valve is set in position Cold start (ignition). In total 3,55 kg kindling and start-up fuel is added
11:18:51	Ignition is over, the door is closed.
11:50:50	End of Kindling+Start-up at 735 g, taring of the platform scale, evening out of the embers.
11:51:15	The HF fuel load of in total 7,303 kg is entered
11:52:15	End of loading time at 60 seconds after which the door was closed
11:57:15	Ignition device closed, and the air valve adjusted to position R100 being the maximum combustion air supply
12:17:51	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 43641,10 nl
12:59:40	End of the High Fire test at 750 g, taring of the platform scale and evening out of the embers. The air valve is reset to position Cold Start (ignition)
12:59:50	The LF fuel load of in total 8,681 kg is entered
13:01:45	End of loading time after 55 seconds
13:07:45	The air valve is adjusted to the intermediate position R50
13:10:50	At 7,38 kg corresponding to 15 % of the test load mass has been combusted, the air valve is set to its final and minimum position, R0
	No signs of clogging
13:38:50	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 25889,13 nl
15:16	PM sampling aborted due to filters clogging
15:20	PM sampling resumed after change of the front filters
20:07:15	The Low Fire test is done at platform scale reading 0 kg

Please find the corresponding sequence of images in appendix 4



DANISH TECHNOLOGICAL INSTITUTE



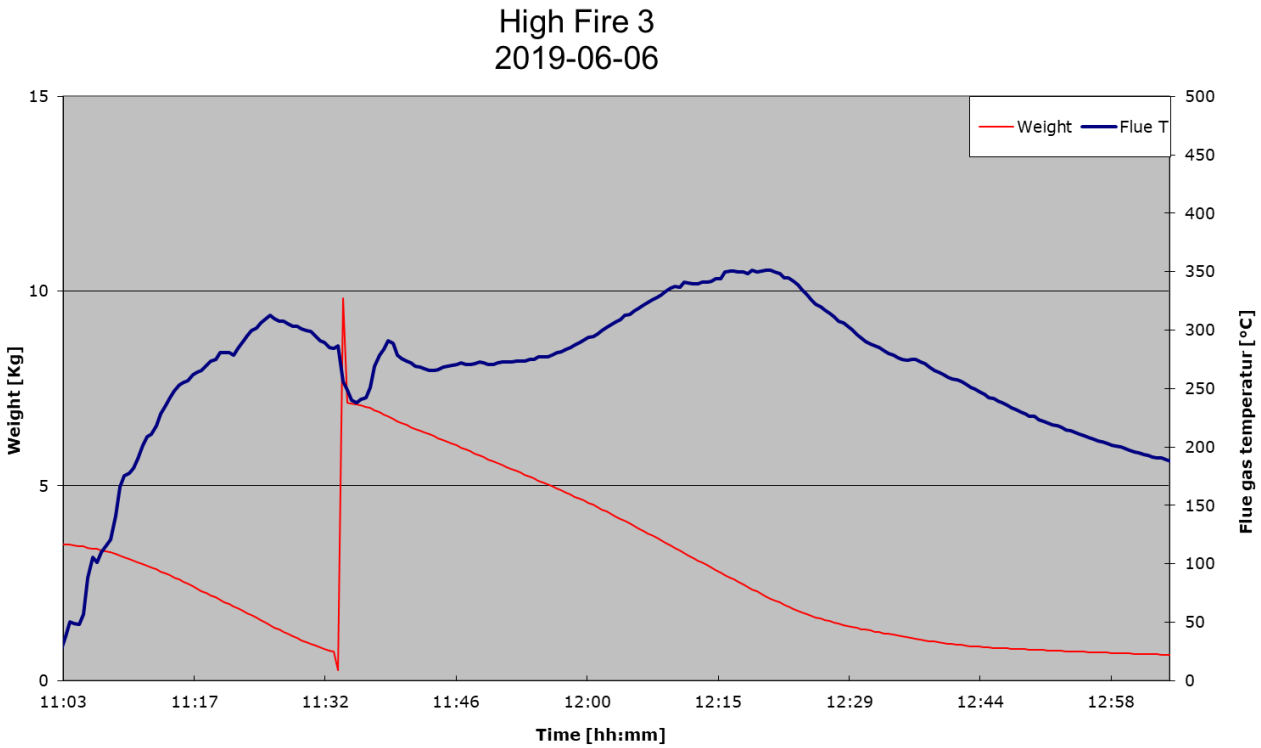
DANISH TECHNOLOGICAL INSTITUTE

3.5. **Summary of the HF test the 6. June 2019**

Data logger file Id: 2019-06-06_08-08-04

11:03:21	Ignition of the Cold Start part test using the gas torch for 1 minute. The air valve is set in position Cold Start (ignition). In total 3,510 kg kindling and start-up fuel is added
11:04:21	Ignition is over, the door is closed.
11:33:21	End of Kindling+Start-up at 730 g, taring of the platform scale, evening out of the embers
11:33:30	The HF fuel load of in total 7,219 kg is entered
11:34:16	End of loading time at 46 seconds after which the door was closed
11:39:25	Ignition device closed, and the air valve adjusted to position R100 being the maximum combustion air supply
12:03:20	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 47179,00 nl
13:04:59	End of the High Fire test at 660 g

Please find the corresponding sequence of images in appendix 5



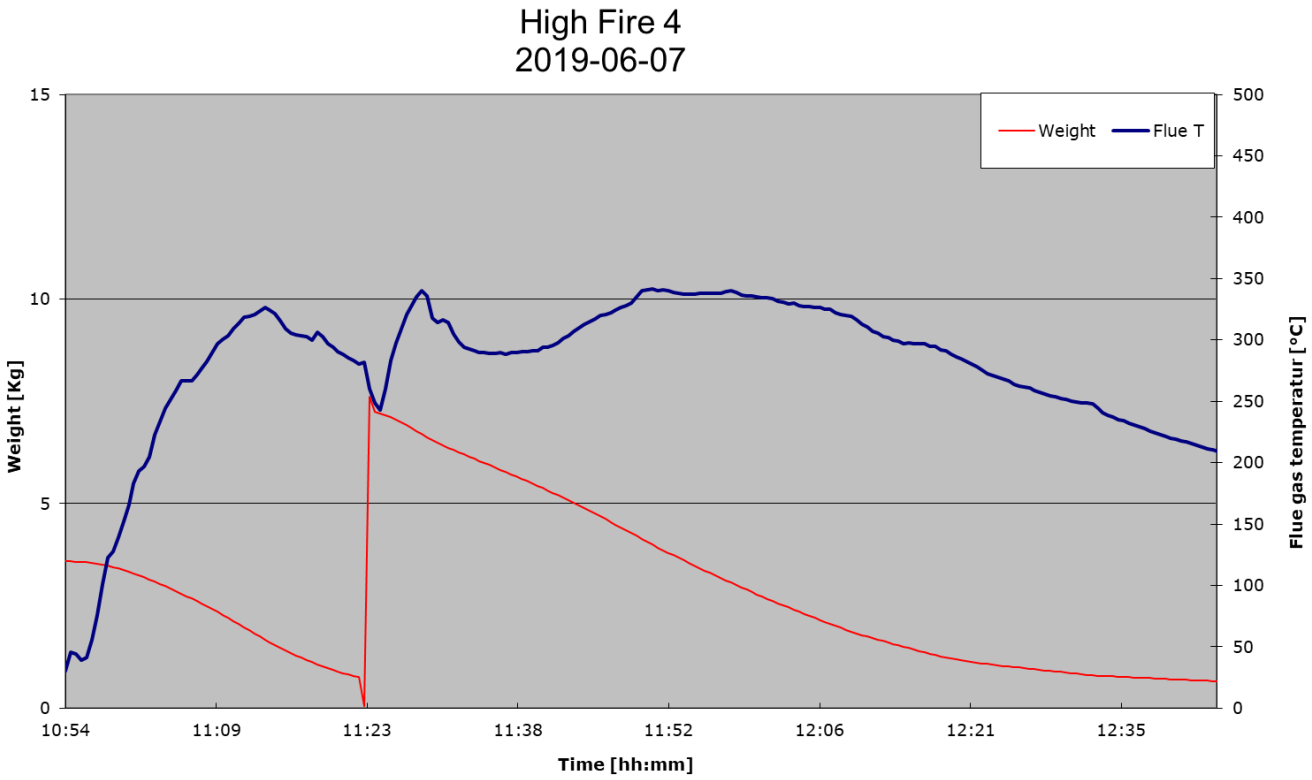
DANISH TECHNOLOGICAL INSTITUTE

3.6. **Summary of the HF test the 7. June 2019**

Data logger file Id: 2019-06-07_08-25-50

10:54:50	Ignition of the Cold Start part test using the gas torch for 1 minute. The air valve is set in position Cold Start (ignition). In total 3,603 kg kindling and start-up fuel is added
10:55:50	Ignition is over, the door is closed.
11:23:20	End of Kindling+Start-up at 730 g, taring of the platform scale, evening out of the embers
11:23:30	The HF fuel load of in total 7,226 kg is entered
11:34:16	End of loading time at 46 seconds after which the door was closed
11:29:30	Ignition device closed, and the air valve adjusted to position R100 being the maximum combustion air supply
11:54:50	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 48011,10 nl
12:44:45	End of the High Fire test at 660 g

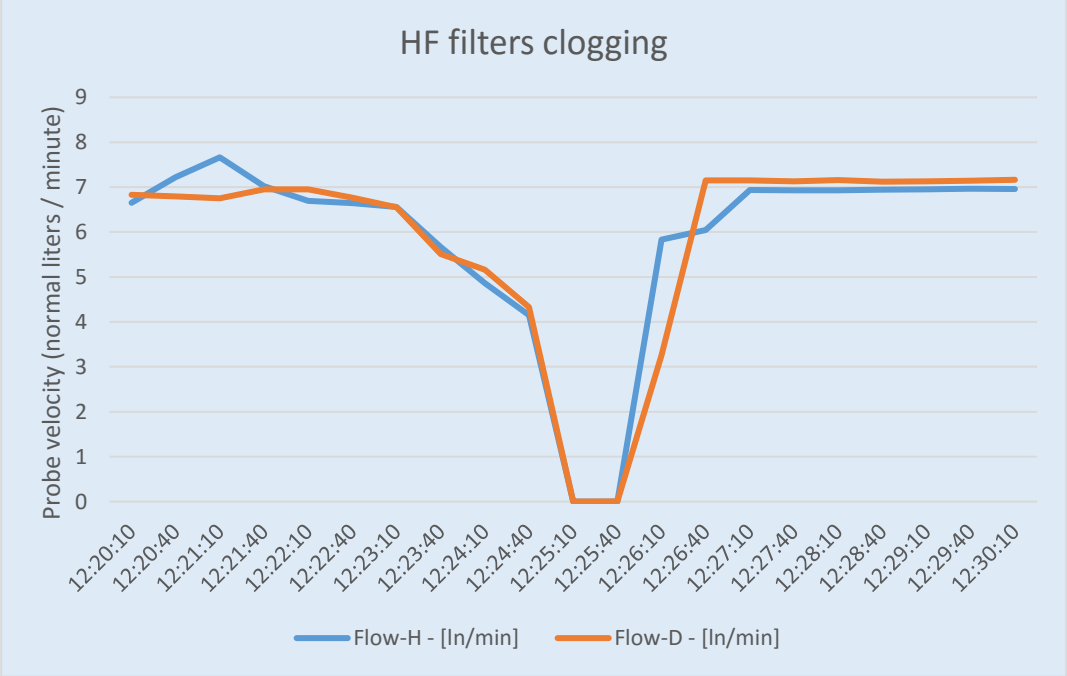
Please find the corresponding sequence of images in appendix 6



DANISH TECHNOLOGICAL INSTITUTE

3.7. **Anomalies**

HF filters clogging
Under the second HF test, the 4. June, the filters took on to clogging at about 12:23 o'clock. PM sampling was suspended temporarily according to advice from Mr Toney per email of 4. December 2018. PM sampling was resumed after replacement of the front filters in both sampling trains and PM sampling was effective again from 12:27 o'clock.



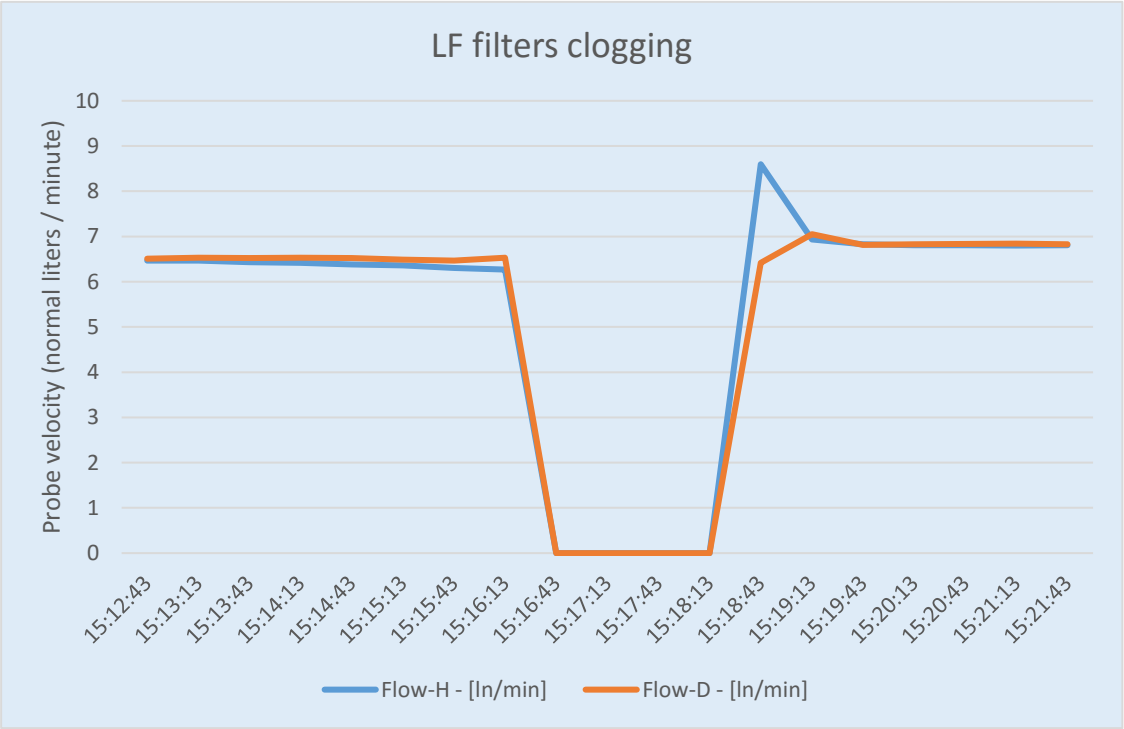
Consequently, there are 3 filters in each set from the HF test; the original front filter, the replacement front filter and the back filter



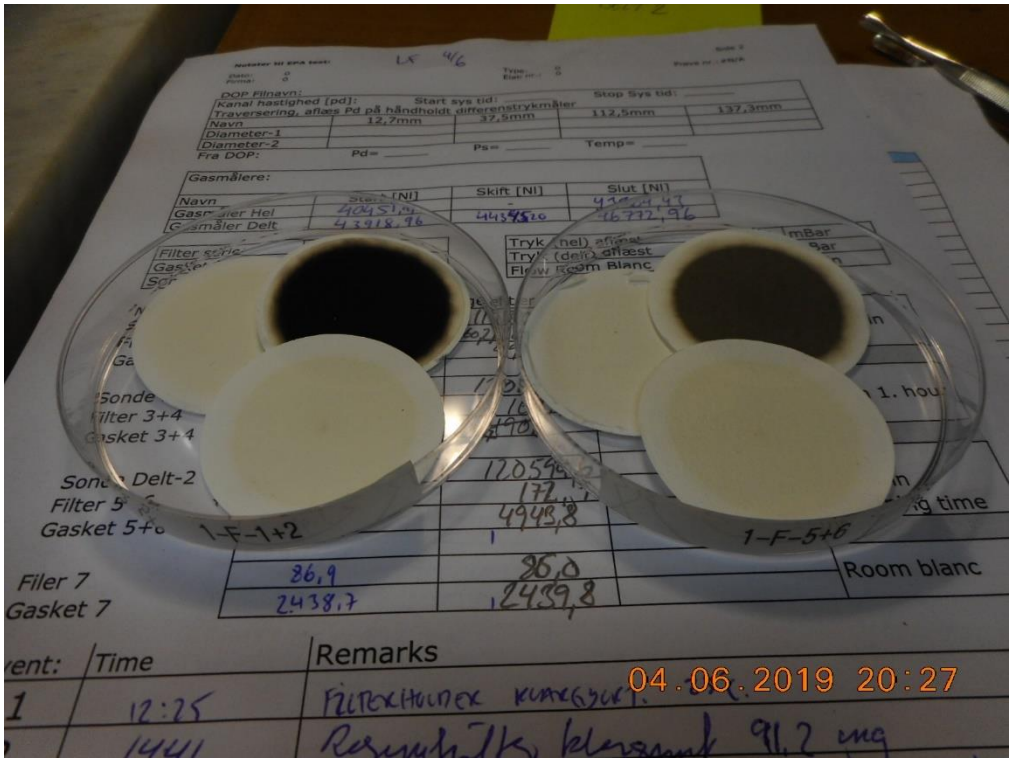
DANISH TECHNOLOGICAL INSTITUTE

LF filters clogging

Also, in the course of the LF testing in the afternoon, the filters again took on to clogging. PM sampling was suspended at 15:16 o'clock and resumed at 15:19 o'clock



Again, there are 3 filters in each set, yet the replacement front filters only received limited PM loading at this stage of the LF test.



DANISH TECHNOLOGICAL INSTITUTE

DTI did earlier discuss the issue with Pall, and it appears the production process of the Teflon-coated filters is hard to control to a uniform layer thickness of the Teflon coating. The layer thickness may vary by as much as a factor x3, which explains the mass variation observed of the unexposed filters and might be the reason why some filters are susceptible to clogging, while others are not.

Instrument break down
Upon commencement of the test the 3. June it turned out that the ordinary air velocity meter could not start. Provisionally, air velocity was measured using the handheld TSI DP-CALC flow meter and pitot tube normally used for duct traverse operation, until, at the end of the test, we had acquired a new hot-wire type of air velocity meter under calibration.

3.8. **High Fire net fuel consumption**

HF 1 date 3. June 2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	1,439	10	WB	1,295
Start-up fuel	2,10	17,3	WB	1,737
HF fuel load	7,267	16,8	WB	6,046
Total mass entered				9,078
Tare prior to loading	-0,735	0	na	-0,735
Bed of embers, end	-0,79	0	na	-0,79
Cascaded tare	-1,525	Total wood consumption		7,553
Net dry fuel mass for PM calc		0		7,553
Net dry fuel mass for burn rate calc				5,256
Test duration (hours)	01:13:15		decimal	1,22
Resulting burn rate HF (kg/h) dry				4,31

HF 2 date 4. June 2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	1,450	10	WB	1,305
Start-up fuel	2,10	17	WB	1,743
HF fuel load	7,303	17,3	WB	6,040
Total mass entered				9,088
Tare prior to loading	-0,727	0	na	-0,727
Bed of embers, end	-0,79	0	na	-0,79
Cascaded tare	-1,517	Total wood consumption		7,571
Net dry fuel mass for PM calc		0		7,571
Net dry fuel mass for burn rate calc				5,250
Test duration (hours)	01:08:35		decimal	1,14
Resulting burn rate HF (kg/h) dry				4,59

DANISH TECHNOLOGICAL INSTITUTE

HF 3; date 6. June 2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	1,445	10	WB	1,301
Start-up fuel	2,065	16,7	WB	1,720
HF fuel load	7,226	17	WB	5,998
Total mass entered				9,018
Tare prior to loading	-0,73	0	na	-0,73
Bed of embers, end	-0,66	0	na	-0,66
Cascaded tare	-1,39	Total wood consumption		7,628
Net dry fuel mass for PM calc		0		7,628
Net dry fuel mass for burn rate calc				5,338
Test duration (hours)	01:31:30		decimal	1,53
Resulting burn rate HF (kg/h) dry				3,50

HF 4; date 7. June 2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	1,444	10	WB	1,300
Start-up fuel	2,159	15,7	WB	1,820
HF fuel load	7,226	17,1	WB	5,990
Total mass entered				9,110
Tare prior to loading	-0,73	0	na	-0,73
Bed of embers, end	-0,66	0	na	-0,66
Cascaded tare	-1,39	Total wood consumption		7,720
Net dry fuel mass for PM calc		0		7,720
Net dry fuel mass for burn rate calc				5,330
Test duration (hours)	01:21:15		decimal	1,35
Resulting burn rate HF (kg/h) dry				3,94

DANISH TECHNOLOGICAL INSTITUTE

3.9. Summary of test results

Test run number	Test designation	First hour emission rate (g/h)	Overall emission rate (g/h)	Burn rate (Kg/h)	Heat output (BTu/h) at HHV	Emission of CO (g/MJ)	Overall efficiency (%) at HHV
1	HF 1	6,98	5,91	4,31	57.684	4,13	69,3
2	MF	4,35	1,11	1,67	21.957	3,66	69,7
3*	HF 2	6,04	6,60	4,59	60.912	6,01	67,8
4	LF	2,28	0,52	1,00	13.784	4,62	73,1
5	HF 3	8,14	6,34	3,50	46.149	5,47	68,4
6	HF 4	8,82	5,18	3,94	53.684	2,93	70,8

*) HF 2 is discarded of in the average calculation, thus utilizing 3 out of in total 4 HF tests accomplished

3.10. Weighted average CSA calculation

Model names	Norflam Harbor Light (+ var)		
Usable Firebox Volume - ft_3	1,554		
Convection air fan	No		
Average for Each Test Run Category	L	M	H
Burn Rate - kg/h DB	1,00	1,67	3,92
PM Emission Rate - g/h	0,52	1,11	5,81
CO Emissions Rate - g/h	63,7	80,3	216,0
Overall Efficiency - CSA B415.1-10			
% HHV Basis	73,1	69,7	69,5
% LHV Basis	78,3	74,6	74,4
Heat Output - Btu/h			
Category Weighting	40%	40%	20%

ASTM E3053 Weighted Averages			
PM Emission Rate - g/h	1,81		
CO Emissions Rate - g/h	101		
Overall Efficiency - CSA B415.1-10			
% HHV Basis	71		
% LHV Basis	76		
Heat Output Range - Btu/h	13784	to	57684

CO Emissions Rate - g/h Arithmetic avg for EPA	120,0

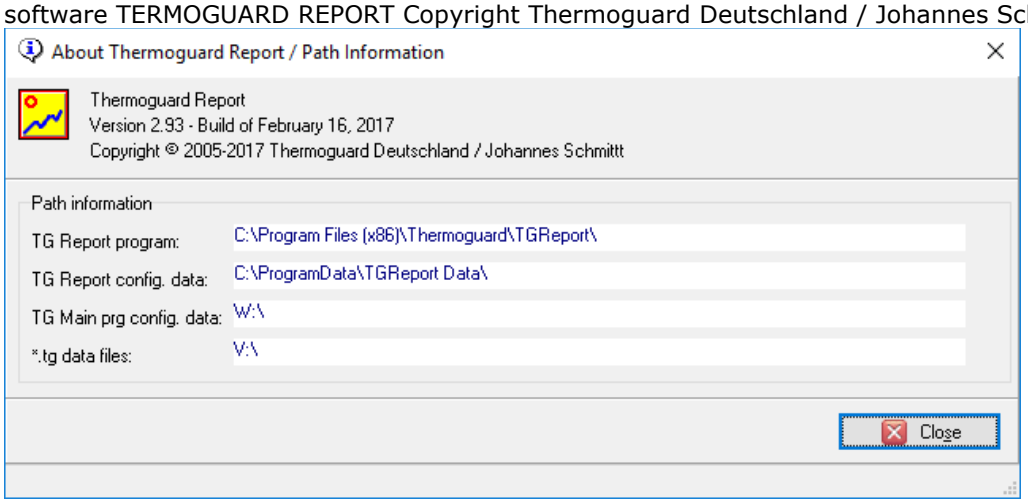
*) please also find the arithmetic CO emi average in the Main results table, chapter 10

DANISH TECHNOLOGICAL INSTITUTE

3.11. Test facility conditions

DTI is located at Kongsvangs allé 29, DK-8000 Århus Denmark, at sea level.
Latitude North: 56,1374
Longitude East: 10,1864
Altitude above sea level: 15 meters

Test facility room temperature, relative humidity and barometric pressure is monitored by the software TERMOGUARD REPORT Copyright Thermoguard Deutschland / Johannes Schmitt



3.12. Fuel properties

The test fuel was Beech wood split and cut according to the manufacturer' written instructions and compliant with the provisions of E3053, clause 8.4
The specific gravity of 0,67 dry weight to dry volume ratio was taken from E3053 Fig 2 page 6.
Similarly, the gross calorific value of 18,8 MJ/kg or 8088 Btu/lb was taken from E3053 Annex A1, table A.1.1 page 17.
The length of the wood logs was 48-50 cm. The basic shape of the wood logs was approximated triangular, trapezoidal or rhombic respecting the minor to major ratio > 40% according to figures 1A and 1B of E3053

The composition of the HF and LF/MF fuel batches was calculated using the standard XLS Wood calculator adjunct to E3053

The nominal mass of the HF fuel load was calculated to 7,048 kg or 15,538 lb
The allowable range of the HF Core load was calculated to 3,2-4,6 kg or 7,0-10,1 lb
The allowable range of the HF Remainder load was calculated to 2,5-3,9 kg or 5,4-8,5 lb

The nominal mass of the LF/MF fuel load was calculated as 8,458 kg or 18,646 lb
The allowable range of the LF/MF Core load was calculated as 3,806-5,498 kg or 8,591-12,12 lb
The allowable range of the LF/MF Remainder load was calculated as 2,96-4,652 kg or 6,526-10,255 lb

3.13. Summary of test fuel load properties

	Core 1	Core 2	Core 3	Remainder 1	Remainder 2	Remainder 3
HF 1 mass (kg)	1,456	1,444	1,465	0,979	0,962	0,961
HF 1 moist. (% DB)	22,3	19,1	21,6	19,5	18,4	19,0
MF mass (kg)	1,782	1,692	1,907	1,300	2,017	
MF moist. (% DB)	21,6	19,7	20,5	20,6	21,9	
HF 2 mass (kg)	1,461	1,448	1,476	0,983	0,992	0,943

DANISH TECHNOLOGICAL INSTITUTE

HF 2 moist. (%DB)	20,1	22,0	19,2	21,6	23,4	18,8
LF mass (kg)	1,801	1,664	1,904	1,299	2,013	
LF moist. (%DB)	20,9	22,1	22,2	21,1	21,5	
HF 3 mass (kg)	1,493	1,572	1,512	1,347	1,302	
HF 3 moist. (% DB)	22,3	22,0	19,9	18,9	19,1	
HF 4 mass (kg)	1,498	1,592	1,489	1,300	1,354	
HF 4 moist. (%DB)	21,8	19,9	21,6	19,3	20,4	

The test fuel was beech wood

Please find the fuel load calculations enclosed in appendices 7-10



LF/MF batch of firewood

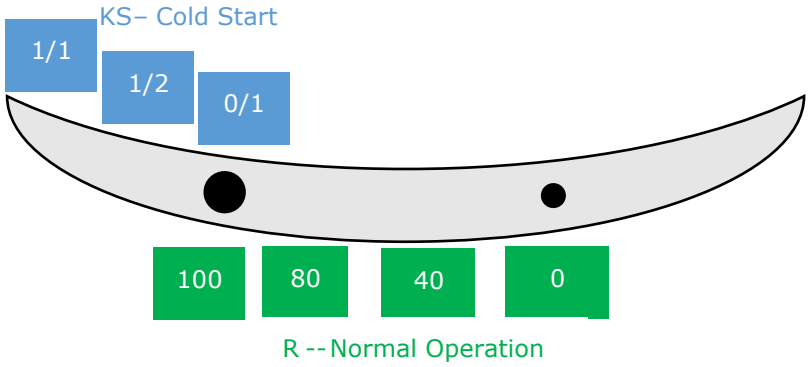
4. Test accomplishment

4.1. Remarks

The certification test was accomplished in mere accordance with the manufacturers detailed written instruction to the test lab. Please find the full instruction amended in appendix 13

4.2. Start-up operation

The Norflam Harbor Light stove has an advanced air control system offering a dedicated Ignition device (Cold start function)
Control of the entire air system is performed by a unitary air valve control of rotary disc type

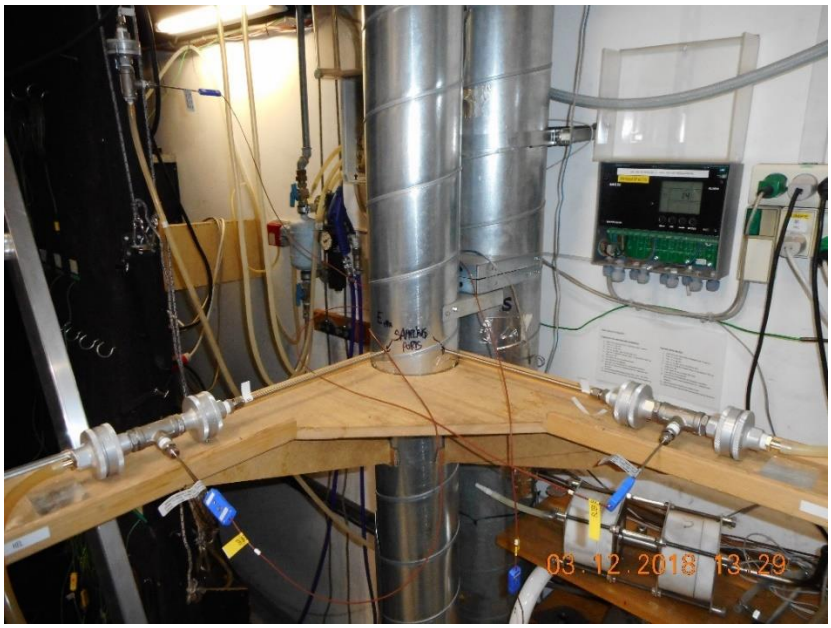


Please find a detailed description of the start-up procedure in the test instruction (appendix 13), Cold start on page 1.

4.3. **Sampling arrangement**

The PM specimen is extracted from the Full Flow Dilution Tunnel by means of a dual probe and filter holder system as specified by ASTM E2515-11, clause 6.1.1.1. The filter holders are of type 47 mm Pall 1235. There are 3 sets of backed-up filter holders for PM sampling and one single filter holder for the room blanc measurement.





4.4. **Sample analysis**

The probes and the filters and gaskets in pairs are weighed to final weight prior to and after exposure to pm material. In both instances final weight is established after a stay of minimum 24 hours in the desiccator cabinet.

Please find the details of all 6 test run pm results in appendix 17.

4.5. **Fluepipe and chimney configuration**

The chimney is composed by single wall uninsulated fluepipe in combination with half insulated system steel chimney compliant with ASTM E3053-17 clause 6.3

The single wall fluepipe extends to 2,55 m above the test rig floor. The insulated system chimney extends to 4,55 m above the test rig floor, in compliance with ASTM E3953-17 clause 8.2.3

Please find a schematic drawing of the chimney configuration in appendix 14

The chimney was connected to the stove by means of a 90 degree elbow connected to the rear flue outlet.

5. **Sampling methods**

5.1. **Particulate extraction system**

The particulate matter is sampled in mere accordance with ASTM E2515-11. Two identical sampling trains are applied. The sampling trains consists each of a set of front and back Pall type 1235 Al 47 mm in-line filter holders. Filter are Pall TX-40 EMFAB Teflon-coated filters 47 mm membrane filters (Emfab).

DANISH TECHNOLOGICAL INSTITUTE

5.2. Calculation of PM emission

The calculations are enclosed in a format following the notation of equations in ASTM E2512-11

Please find the calculation of the High Fire 1 test (#1) in appendix 18; the calculations of the Medium Fire test (#2) in appendix 19, the calculations of the High Fire 2 test (#3) in appendix 20; the calculations of the Low Fire test (#4) in appendix 21, the calculations of the High Fire 3 test (#5) in appendix 22 and , the calculations of the High Fire 4 test (#6) in appendix 23

5.3. Calculation of energy efficiency, heat output and emission og CO

Calculation of energy efficiency, heat output and emission of CO is accomplished using the standard XLS spreadsheet adjunct to the CSA B.415-10 standard (reaffirmed in 2015) The current version is Version 2_4.

Please find the report sheets of all 6 CSA calculations in appendix 24

6. Quality assurance

6.1. Instrument calibration

There is a set of EPA instrument calibration certificates in appendix 16

6.2. Raw logger data

Please find the sets of logger data per day, sampled every 5 seconds and recorded every 30 seconds in appendices 25 (tests the 030619); 26 (tests the 040619); 27 (test the 060619) and 28 (test the 070619)

7. Documentation material

Documentation material:
- Drawings
- Part list
- Installation manual
- User's instruction
- Photos
- Labelling

The documentation is amended to the CBI report variant. Assembly drawings are held in appendix 30 and parts and items drawings are held in appendix 31. The Installation and operation instructions are held in Appendix 32 and the labels are held in Appendix 33.

DANISH TECHNOLOGICAL INSTITUTE

8. Remarks

8.1. Internal correction of gasmeters

The Vögtlin Red-Y gasmeters have internal correction to as well normal temperature (here 0-degree C) and to pressure (here 1013 HPa)
Consequently, in the calculations, the gasmeter temperature end pressure is entered as 0 degr C respectively 1013 HPa.

8.2. Joint Cribwood and Cordwood spreadsheet

The spreadsheet used for calculation of the emissions is a joint Cribwood and Cordwood spreadsheet. When used for a Cordwood test there are some void spaces under the fuel mass calculation. Also, generally the fuel is referred to as 'Cribs' even though for good reasons, for Cordwood, wood logs are used.

8.3. Problems with Teflon filters clogging

Opposed to the ordinary glass fiber filters used for the Cribwood tests, the Pall TX-40 EMFAB Teflon-coated filters are prone to clogging. There is apparently no direct relation to the actual filter load and the risk of clogging. The clogging has been seen to occur after approximately one hour of sampling. Luckily, only one High Fire test and one Low Fire test was disturbed by clogging filters. The High Fires test was discarded of for other reasons, so only one LF test affected by clogging goes into the report and the average calculations.

DANISH TECHNOLOGICAL INSTITUTE

9. Discussion of Results

When temporarily aborting pm sampling (both lines) due to clogged filter, for good reasons the relevant 10 min interval of proportional variation will be odd, compared to those where the pumps are running full time.

DANISH TECHNOLOGICAL INSTITUTE

10. Main results

	High Fire 1	High Fire 2	High Fire 3	High Fire 4
Date	3-6-2019	4-6-2019	6-6-2019	7-6-2019
Run Number	#1	#3	#5	#6
ASTM E2515 Emissions – First Hour (g/hr)	6,98	6,04	8,14	8,82
Emission Rate g/Hr.	5,91	6,60	6,34	5,18
CSA PM Emission factor g/MJ output	0,15	0,16	0,18	0,13
Burn Rate Kg dry/Hr.	4,31	4,60	3,50	3,94
BTU/Hr. (HHV)	57.684	60.912	46.149	53.684
Overall Efficiency (%) HHV	69,3	67,8	68,4	70,8
CO Emissions (g/MJ Output)	4,13	6,01	5,47	2,93
CO Emissions (g/kg Dry Fuel)	53,81	76,55	70,34	38,95
CO Emissions (g/hr)	238,32	366,03	252,47	157,07

Arithmetical particle emission rate, average of 3 HF test runs	5,81 g/h
Arithmetical average energy efficiency (at HHV) of 3 HF test runs	69,5 %
Arithmetical average emission of CO of 3 HF test runs	215,95 g/h

DANISH TECHNOLOGICAL INSTITUTE

The results of High Fire 2, the 4. June was discarded of in the average calculations.
Average values of the 3 remaining HF tests are transferred as an average HF to the table below.

	Average HF	Medium Fire	Low Fire	Void
Date	-	3-6-2019	4-6-2019	
Run Number	-	#2	#4	
ASTM E2515 Emissions – First Hour (g/hr)	7,98	4,35	2,28	
Emission Rate g/Hr.	5,81	1,11	0,52	
CSA PM Emission factor g/MJ output	0,15	0,05	0,04	
Burn Rate KG/Hr.	3,92	1,67	1,00	
BTU/Hr. (HHV)	52.506	21.957	13.784	
Overall Efficiency (%) HHV	69,5	69,7	73,1	
CO Emissions (g/MJ Output)	4,18	3,66	4,62	
CO Emissions (g/kg Dry Fuel)	54,37	47,93	63,51	
CO Emissions (g/hr)	215,95	80,34	63,68	

Weighed particle emission rate, average of 5 test runs	1,81 g/h
Weighted average energy efficiency (at HHV) of 5 test runs	71 %
Arithmetical average emission of CO of 5 test runs for EPA	120,00 g/h
Arithmetical average emission of CO of 5 test runs for EPA	2 g/min

DANISH TECHNOLOGICAL INSTITUTE

11. Test details

11.1. Pretest

The stove had been breaked-in at the client's internal test lab. Documentation of excess of 50 hours of operation has been produced to the third part certifier, prior to commencement of the certification test.

Please find the documentation of conditional pretesting amended in appendix 2

DANISH TECHNOLOGICAL INSTITUTE

11.2. Data, test run 1 – High fire test, 3. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,91	
Dynamic pressure duct, Pd	25,5	Pa
Static pressure duct, Ps	39,4	Pa
Date of testing	3-6 2019	dd-mm yyyy
Start of test	14:04:07	hh:mm:ss
End of test	15:47:15	hh:mm:ss
Test duration	1:43:08	hh:mm:ss
Mean stove surface temperature at the start	24,6	°C
Kindling and Start-up fuel load	3,539	kg
Start-up fuel moisture	19,7	% DB
Test fuel load	7,267	kg
Test fuel moisture	20,2	% DB
Resulting burn rate	4,31	kg (dry matter)/h
Particulate emission rate, first hour	6,98	g/h
Particulate emission rate, overall	5,91	g/h
Sampled gas volume (nl), train 1	685,6	Nl
Captured pm mass, train 1	12,8	mg
Sampled gas volume (nl), train2	684,1	Nl
Captured pm mass, train 2	12,8	mg
Relative deviation in pm emission, train 1 to train 2	1,08	%
Absolute deviation in pm emission, train 1 to train 2	-0,03	g/kg (dry matter)
Mean flow rate probe, train 1	6,77	m/s
Mean flow rate probe, train 2	6,78	m/s
Mean flow rate duct	6,53	m/s
Flue gas temperature (mean)	283	°C
Flue draught (mean)	18	Pa

Parameter	Start value	End value	Units
Ambient temperature	23,8	25,4	°C
Relative humidity	53,5	52,7	%
Barometric pressure	1009,5	1009,5	hPa
Draft in front of the test rig	0,12		m/s
Flue gas temperature	24,9	245	°C

DANISH TECHNOLOGICAL INSTITUTE

11.3. Data, test run 2 – Medium fire test, 3. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,90	
Dynamic pressure duct, Pd	25,5	Pa
Static pressure duct, Ps	39,4	Pa
Date of testing	3-6 2019	dd-mm yyyy
Start of test	15:47:30	hh:mm:ss
End of test	20:05:18	hh:mm:ss
Test duration	04:17:48	hh:mm:ss
Mean stove surface temperature at the start	NA	°C
Kindling and Start-up fuel load	NA	kg
Start-up fuel moisture	NA	% DB
Test fuel load	8,698	kg
Test fuel moisture	21,0	% DB
Resulting burn rate	1,67	kg (dry matter)/h
Particulate emission rate, first hour	4,35	g/h
Particulate emission rate, overall	1,11	g/h
Sampled gas volume (nl), train 1	1747,1	Nl
Captured pm mass, train 1	4,84	mg
Sampled gas volume (nl), train2	1750,5	Nl
Captured pm mass, train 2	4,74	mg
Relative deviation in pm emission, train 1 to train 2	1,01	%
Absolute deviation in pm emission, train 1 to train 2	0,01	g/kg (dry matter)
Mean flow rate probe, train 1	6,75	m/s
Mean flow rate probe, train 2	6,77	m/s
Mean flow rate duct	6,47	m/s
Flue gas temperature (mean)	323	°C
Flue draught (mean)	19	Pa

Parameter	Start value	End value	Units
Ambient temperature	25,0	23,5	°C
Relative humidity	52,9	46,3	%
Barometric pressure	1009,5	1010,5	hPa
Draft in front of the test rig		0,02	m/s
Flue gas temperature	295	120	°C

DANISH TECHNOLOGICAL INSTITUTE

11.4. Data test run 3 – High fire test, 4. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,92	
Dynamic pressure duct, Pd	25,8	Pa
Static pressure duct, Ps	40,3	Pa
Date of testing	4-6-2019	dd-mm yyyy
Start of test	11:17:51	hh:mm:ss
End of test	12:59:40	hh:mm:ss
Test duration	1:41:49	hh:mm:ss
Mean stove surface temperature at the start	23,5	°C
Kindling and Start-up fuel load	3,550	kg
Start-up fuel moisture	21,7	% DB
Test fuel load	7,303	kg
Test fuel moisture	20,7	% DB
Resulting burn rate	4,59	kg (dry matter)/h
Particulate emission rate, first hour	6,04	g/h
Particulate emission rate, overall	6,60	g/h
Sampled gas volume (nl), train 1	684,0	Nl
Captured pm mass, train 1	13,9	mg
Sampled gas volume (nl), train2	681,7	Nl
Captured pm mass, train 2	14,1	mg
Relative deviation in pm emission, train 1 to train 2	0,92	%
Absolute deviation in pm emission, train 1 to train 2	-0,03	g/kg (dry matter)
Mean flow rate probe, train 1	6,68	m/s
Mean flow rate probe, train 2	6,70	m/s
Mean flow rate duct	6,63	m/s
Flue gas temperature (mean)	258	°C
Flue draught (mean)	17	Pa

Parameter	Start value	End value	Units
Ambient temperature	22,9	29,4	°C
Relative humidity	42,2	39,7	%
Barometric pressure	1013,8	1013,4	hPa
Draft in front of the test rig	0,15		m/s
Flue gas temperature	225	135	°C

DANISH TECHNOLOGICAL INSTITUTE

11.5. Data test run 4 – Low fire test, 4. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,92	
Dynamic pressure duct, Pd	25,8	Pa
Static pressure duct, Ps	40,3	Pa
Date of testing	4-6 2019	dd-mm yyyy
Start of test	12:59:50	hh:mm:ss
End of test	20:07:15	hh:mm:ss
Test duration	07:07:15	hh:mm:ss
Mean stove surface temperature at the start	NA	°C
Kindling and Start-up fuel load	NA	kg
Start-up fuel moisture	NA	% DB
Test fuel load	8,681	kg
Test fuel moisture	21,6	% DB
Resulting burn rate	1,00	kg (dry matter)/h
Particulate emission rate, first hour	2,28	g/h
Particulate emission rate, overall	0,52	g/h
Sampled gas volume (nl), train 1	2852,5	Nl
Captured pm mass, train 1	4,6	mg
Sampled gas volume (nl), train2	2854,0	Nl
Captured pm mass, train 2	4,8	mg
Relative deviation in pm emission, train 1 to train 2	0,49	%
Absolute deviation in pm emission, train 1 to train 2	-0,01	g/kg (dry matter)
Mean flow rate probe, train 1	6,63	m/s
Mean flow rate probe, train 2	6,65	m/s
Mean flow rate duct	6,59	m/s
Flue gas temperature (mean)	232	°C
Flue draught (mean)	16	Pa

Parameter	Start value	End value	Units
Ambient temperature	29,4	23,1	°C
Relative humidity	39,7	44,9	%
Barometric pressure	1013,4	1010,9	hPa
Draft in front of the test rig		0,03	m/s
Flue gas temperature	255	77	°C

DANISH TECHNOLOGICAL INSTITUTE

11.6. Data test run 5 – High fire test, 6. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,95	
Dynamic pressure duct, Pd	25,5	Pa
Static pressure duct, Ps	41,6	Pa
Date of testing	6-6 2019	dd-mm yyyy
Start of test	11:03:21	hh:mm:ss
End of test	13:04:59	hh:mm:ss
Test duration	2:01:59	hh:mm:ss
Mean stove surface temperature at the start	24,3	°C
Kindling and Start-up fuel load	3,510	kg
Start-up fuel moisture	21,6	% DB
Test fuel load	7,219	kg
Test fuel moisture	20,5	% DB
Resulting burn rate	4,59	kg (dry matter)/h
Particulate emission rate, first hour	8,14	g/h
Particulate emission rate, overall	6,34	g/h
Sampled gas volume (nl), train 1	800,4	Nl
Captured pm mass, train 1	14,9	mg
Sampled gas volume (nl), train2	803,9	Nl
Captured pm mass, train 2	15,1	mg
Relative deviation in pm emission, train 1 to train 2	0,45	%
Absolute deviation in pm emission, train 1 to train 2	-0,02	g/kg (dry matter)
Mean flow rate probe, train 1	6,60	m/s
Mean flow rate probe, train 2	6,64	m/s
Mean flow rate duct	6,86	m/s
Flue gas temperature (mean)	252	°C
Flue draught (mean)	17	Pa

Parameter	Start value	End value	Units
Ambient temperature	25,0	28,0	°C
Relative humidity	54,1	48,8	%
Barometric pressure	1005,7	1005,8	hPa
Draft in front of the test rig	0,03	0,11	m/s
Flue gas temperature	24,8	182	°C

DANISH TECHNOLOGICAL INSTITUTE

11.7. Data test run 6 – High fire test, 7. June 2019

Parameter	Value	Unit
Pitot factor (F_p)	0,94	
Dynamic pressure duct, Pd	25,5	Pa
Static pressure duct, Ps	40,5	Pa
Date of testing	7-6 2019	dd-mm yyyy
Start of test	10:54:50	hh:mm:ss
End of test	12:44:45	hh:mm:ss
Test duration	1:49:55	hh:mm:ss
Mean stove surface temperature at the start	24,6	°C
Kindling and Start-up fuel load	3,603	kg
Start-up fuel moisture	19,2	% DB
Test fuel load	7,226	kg
Test fuel moisture	20,6	% DB
Resulting burn rate	3,94	kg (dry matter)/h
Particulate emission rate, first hour	8,82	g/h
Particulate emission rate, overall	5,18	g/h
Sampled gas volume (nl), train 1	720,9	Nl
Captured pm mass, train 1	12,1	mg
Sampled gas volume (nl), train2	720,1	Nl
Captured pm mass, train 2	11,3	mg
Relative deviation in pm emission, train 1 to train 2	3,05	%
Absolute deviation in pm emission, train 1 to train 2	0,08	g/kg (dry matter)
Mean flow rate probe, train 1	6,55	m/s
Mean flow rate probe, train 2	6,55	m/s
Mean flow rate duct	6,68	m/s
Flue gas temperature (mean)	275	°C
Flue draught (mean)	18	Pa

Parameter	Start value	End value	Units
Ambient temperature	23,9	24,7	°C
Relative humidity	38,9	34,3	%
Barometric pressure	1014,1	1014,3	hPa
Draft in front of the test rig	0,10	0,10	m/s
Flue gas temperature	23,5	208	°C

DANISH TECHNOLOGICAL INSTITUTE

12. Test equipment

Testing was carried out at test rig C. (EPA setup)

Instrument	Traceability	Instrument number Test rig C
Scale, Mettler, 600 kg, KC 600	ELAB	270-A-1638
Thermo couples, EPA sampling train Type T	ELAB	Id No. 145092
Thermo couples, others, Type T and type K	ELAB	Id No.134396
DOP version II	-	-
Data acquisition unit, HP 34970A	DANAK 200	270-A-1630
Surface temperature, Technoterm 5500	DANAK 200	270-A-0976
Surface temperature, Dan 1200	DANAK 200	270-A-0876
Pressure gauge, Autotran 700 (flue draught)	ELAB	270-A-1632
Pressure gauge, Autotran 700 (Pd)	ELAB	Id No. 145065
Pressure gauge, Autotran 700 (Ps)	ELAB	270-A-1634
Calibrator, Jofra 650 SE	DANAK 200	270-A-0912
Scale, Mettler Toledo (15kg/1g)	ELAB	Id No. 5822
Scale, Mettler Toledo XS4002S (4,1kg/10mg)	ELAB	Id No. 135794
Scale, Mettler Toledo XS204 (220g/0,1mg)	DANAK 200	Id No. 7084
Disa Dantec flow analyser (Air velocity Laboratory)	DANAK 200	Id No. 424 (13486)
TSI Micromanometer and Pitottube (Air velocity Dillution tunnel)	DANAK 200	Id No. 4771 (270-A-2406)
Hygrometer (air humidity) Thermoguard	DANAK 200	Id No. 142357
Barometric reading (atmospheric pressure) Thermoguard / (Ahlborn)	DANAK 200	Id No. 7102
Pitot tube (air velocity in flue)	ELAB	270-A-1631-14
Dust measuring equipment (particle measuring equipment)	-	Id No. 145093
Gas meter, Red-y (-H) (Whole charge, With outlet)	DANAK 200	Id No. 144236
Gas meter, Red-y (-D) (Divided charge with outlet)	DANAK 200	Id. No. 144239
Flow meter (-R) (Room blanc)	DANAK-200	Id No. 144257
Thermo sensor, Dilution tunnel, Pt 100	DANAK 200	270-A-1628
PST leakage meter (Brooks glass tube)	ELAB	Id no. 83013
CO/CO_2 analyser, ABB IR	ELAB	270-A-2276
Spangas CO/CO_2, AGA (High CO and CO_2)	Swedac	Id no. 135573
Spangas CO/CO_2, AGA (Low CO)	Swedac	Id no. 135574
Moisture meter	ELAB	Id No. 145070

DANISH TECHNOLOGICAL INSTITUTE

Vacuum meter (-H) (Main train)	DANAK 200	Id No. 145074
Vacuum meter (-D) (Split train)	DANAK 200	Id No. 145076
Vacuum meter (-R) (Room)	DANKA 200	Id No. 145077
Pressure meter (-H) (Main train)	DANAK 200	Id No. 145078
Pressure meter (-D) (Split train)	DANAK 200	Id No. 145079
Thermometer (Fuel storage room)	ELAB	Id No. 145081

13. **Appendices**

Appendix 1: EPA Letter of acceptance, ALT 126
Appendix 2: Documentation of aging
Appendix 3: Images from the test sequence the 3. June 2019
Appendix 4: Images from the test sequence the 4. June 2019
Appendix 5: Images from the test sequence the 6. June 2019
Appendix 6: Images from the test sequence the 7. June 2019
Appendix 7: High Fire 1 fuel calculator the 3. June 2019
Appendix 8: Medium Fire fuel calculator the 3. June 2019
Appendix 9: High Fire 2 fuel calculator the 4. June 2019
Appendix 10: Low Fire fuel calculator the 4. June 2019

Appendix 11: High Fire 3 fuel calculator the 6. June 2019
Appendix 12: High Fire 4 fuel calculator the 7. June 2019
Appendix 13: Manufacturer's test instructions
Appendix 14: Chimney configuration
Appendix 15: DTI test procedure EPA tests (CBI)
Appendix 16: Set of calibration certificates
Appendix 17: Sample analysis
Appendix 18: HF1 ASTM calculations
Appendix 19: MF ASTM calculations
Appendix 20: HF2 ASTM calculations

Appendix 21: LF ASTM calculations
Appendix 22: HF3 ASTM calculations
Appendix 23: HF4 ASTM calculations
Appendix 24: CSA reports tests #1-#6
Appendix 25: Set of logger data the 3. June 2019
Appendix 26: Set of logger data the 4. June 2019
Appendix 27: Set of logger data the 6. June 2019
Appendix 28: Set of logger data the 7. June 2019
Appendix 29: Description of the stove and its variants
Appendix 30: Assembly drawings (CBI)

Appendix 31: Parts drawings (CBI)
Appendix 32: Manufacturer's Instructions
Appendix 33: Labels

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

FEB 2 8 2018

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Justin White
Hearthstone QHPP, Inc.
#17 Stafford Ave.
Morrisville, VT 05661

Dear Mr. White,

I am writing in response to your letter dated January 12, 2018, regarding wood heaters manufactured by Hearthstone QHPP, Inc. (Hearthstone). This response, dated February 28, 2018, supercedes our previous response (dated February 26, 2018) to correct an inaccuracy regarding required changes to ASTM E3053-17.

You are requesting to use an alternative test method, using cord wood, as referenced in section 60.532(c) of 40 CFR part 60, Subpart AAA, Standards of Performance for New Residential Wood Heaters (Subpart AAA) to meet the 2020 cord wood alternative compliance option. The 2020 cord wood alternative compliance option states that each affected wood heater manufactured or sold at retail for use in the United States on or after May 15, 2020, must not discharge into the atmosphere any gases that contain particulate matter in excess of 2.5 g/hr. Compliance must be determined by a cord wood test method approved by the Administrator along with the procedures in 40 CFR 60.534. You have requested approval to use the procedures and specifications found in ASTM Method E3053-17, a cord wood test method titled, "Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters using Cordwood Test Fuel," in conjunction with ASTM E2515-11 and Canadian Standards Administration (CSA) Method CSA-B415.1-10, which are specified in 40 CFR 60.534.

We understand that Hearthstone is also requesting that the alternative method proposed above be approved to apply broadly to all wood heaters manufactured by Hearthstone meeting the requirements of Subpart AAA, from the approval date of this request until such time that Subpart AAA is revised or replaced to require a different cord wood certification method, providing all requirements of section 60.533 of Subpart AAA are met.

With the caveats set forth below, we approve your alternative test method request for certifying wood heaters using ASTM E3053-17 in conjunction with section 60.534 of Subpart AAA to meet the 2020 cord wood compliance option until such time that Subpart AAA is revised or replaced to require a different cord wood certification method. We also approve application of this alternative method to all wood heaters manufactured by Hearthstone meeting the requirements of Subpart AAA.

As required in Subpart AAA, section 60.354(d), you or your approved test laboratory must also measure the first hour of particulate matter emissions for each test run using a separate filter in one of the two parallel sampling trains. These results must be reported separately and also included in the total particulate matter emissions per run. Also, as required by Subpart AAA, section 60.534(e), you must have your approved laboratory measure the efficiency, heat output, and carbon monoxide emissions of the tested wood heater using CSA-B415.1-10. For measurement of particulate matter emission concentrations, ASTM 2515-11 must be used.

The following change to ASTM E3053-17 must be followed:

1. Coal bed conditions prior to loading test fuel. The coal bed shall be a level plane without valleys or ridges for all test runs in the high, low, and medium burn rate categories.

The following changes to ASTM E2515-11 must be followed:

1. The filter temperature must be maintained between 80 and 90 degrees F during testing.

2. Filters must be weighed in pairs to reduce weighing error propagation; see ASTM 2515-11, Section 10.2.1 Analytical Procedure.

3. Sample filters must be Pall TX-40 or equivalent Teflon-coated glass fiber, and of 47 mm, 90 mm, 100 mm, or 110 mm in diameter.

4. Only one point is allowed outside the +/- 10 percent proportionality range per test run.

A copy of this letter must be included in each certification test report where this alternative test method is utilized.

It is reasonable that this alternative test method approval be broadly applicable to all wood heaters subject to the requirements of 40 CFR part 60, Subpart AAA. For this reason, we will post this letter as ALT-125 on our website at *http://www3.epa.gov/ttn/emc/approalt.html* for use by other interested parties. As noted earlier in this letter, this alternative method approval is valid until such time that Subpart AAA is revised or replaced to require a different cord wood certification method, and at such time, this alternative will be reconsidered and possibly withdrawn.

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

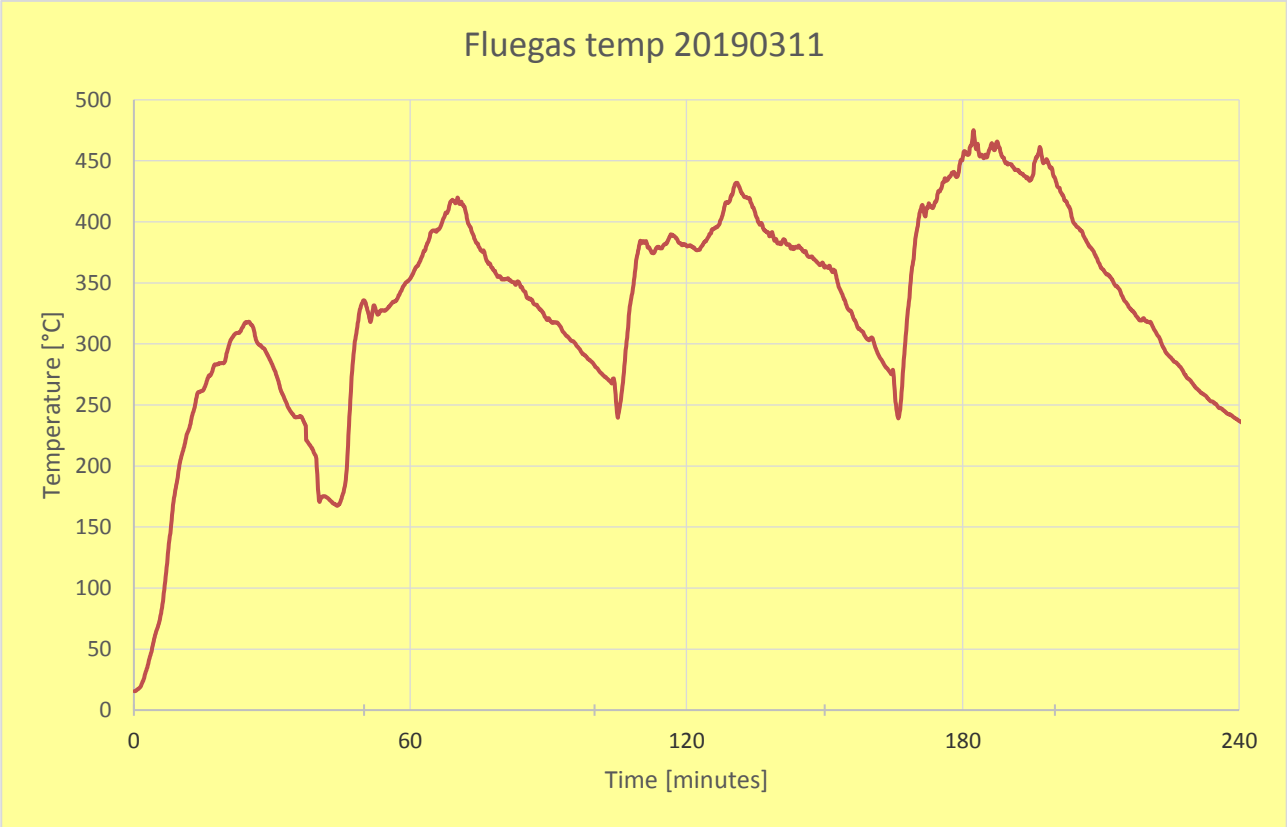
cc: Amanda Aldridge, EPA/OAQPS/OID
Adam Baumgart-Getz, EPA/OAQPS/OID
Rafael Sanchez, EPA/OECA
Michael Toney, EPA/OAQPS/AQAD

Legend:

- CS = Cold Start; HF = High Fire
- The suffixed number indicates the specific part of the load, e.g.:
    - For the CS: CS.1 = part 1, which are the three pieces of 25 cm length placed on the firing grate.
    - For the HF1: HF1.1 = fuel log 1, which is placed in the first layer at the back of the combustion chamber.
    - For the HF3: HF3.4 = fuel log 4, which is placed in the first layer at the front of the combustion chamber.

See the testing instructions by the manufacturer for details on test load composition and build-up in the combustion chamber. For these specific aging cycles the HF wood load is made up of eight logs.

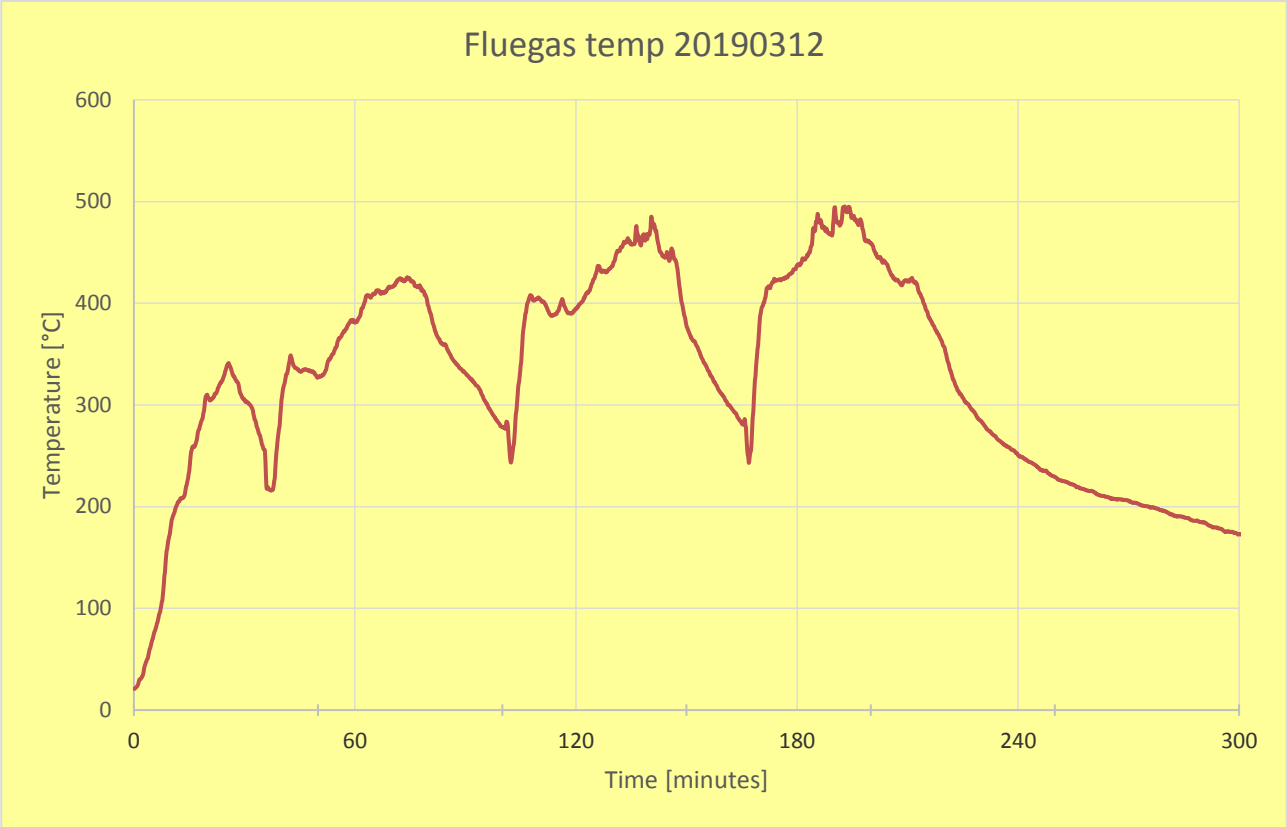
The temperature plots represent complete testing cycles, comprised of the succesion of CS, HF1, HF2, and HF3. The plots are based on Excel data which is embedded with the MS Word version of the document.



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:41:30	~1.00	14.0
		8.30	
HF2.1-to-8	01:46:30	~1.00	14.0
		8.30	
HF3.1-to-8	02:47:30	~1.00	14.0
		8.43	

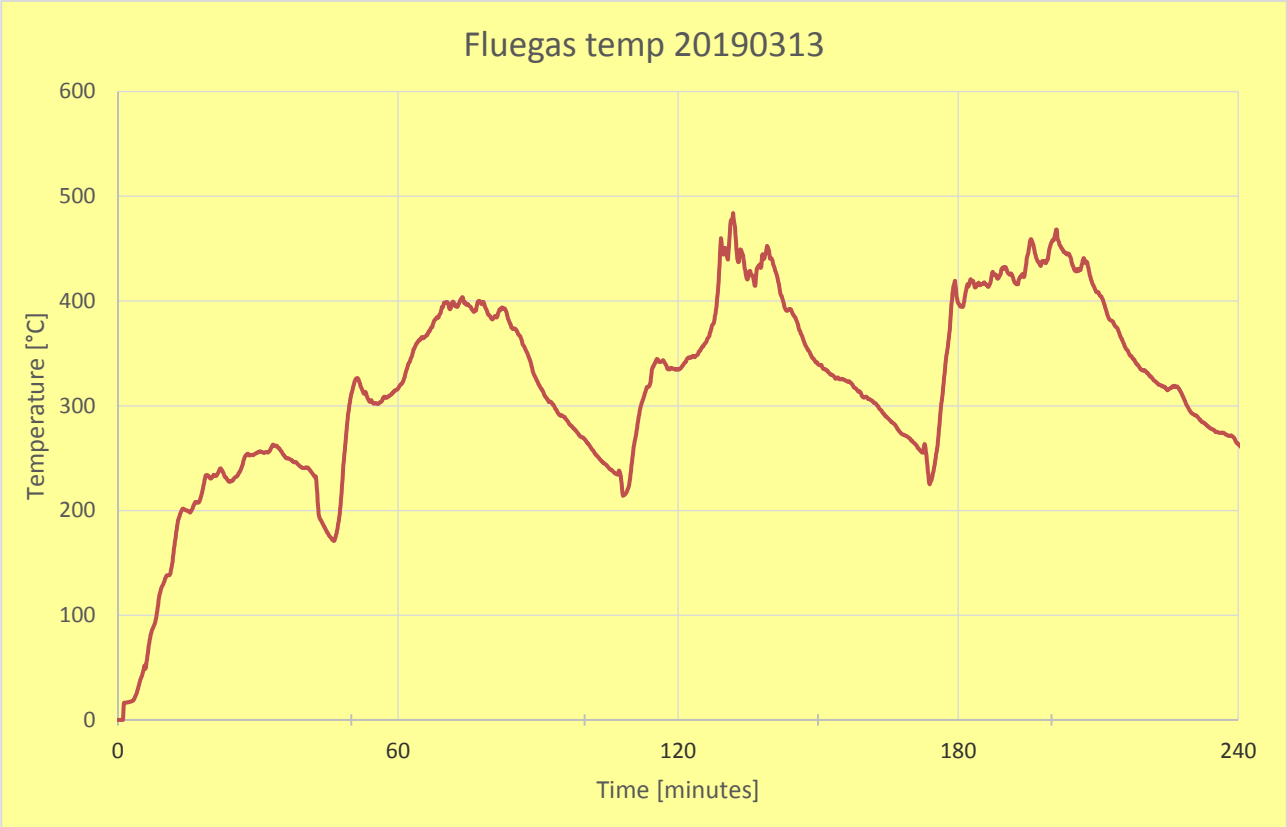
Hours of operation the 11. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:36:00	~1.00	14.0
		8.44	
HF2.1-to-8	01:42:00	~1.00	14.0
		8.80	
HF3.1-to-8	02:47:00	~1.00	14.0
		8.60	

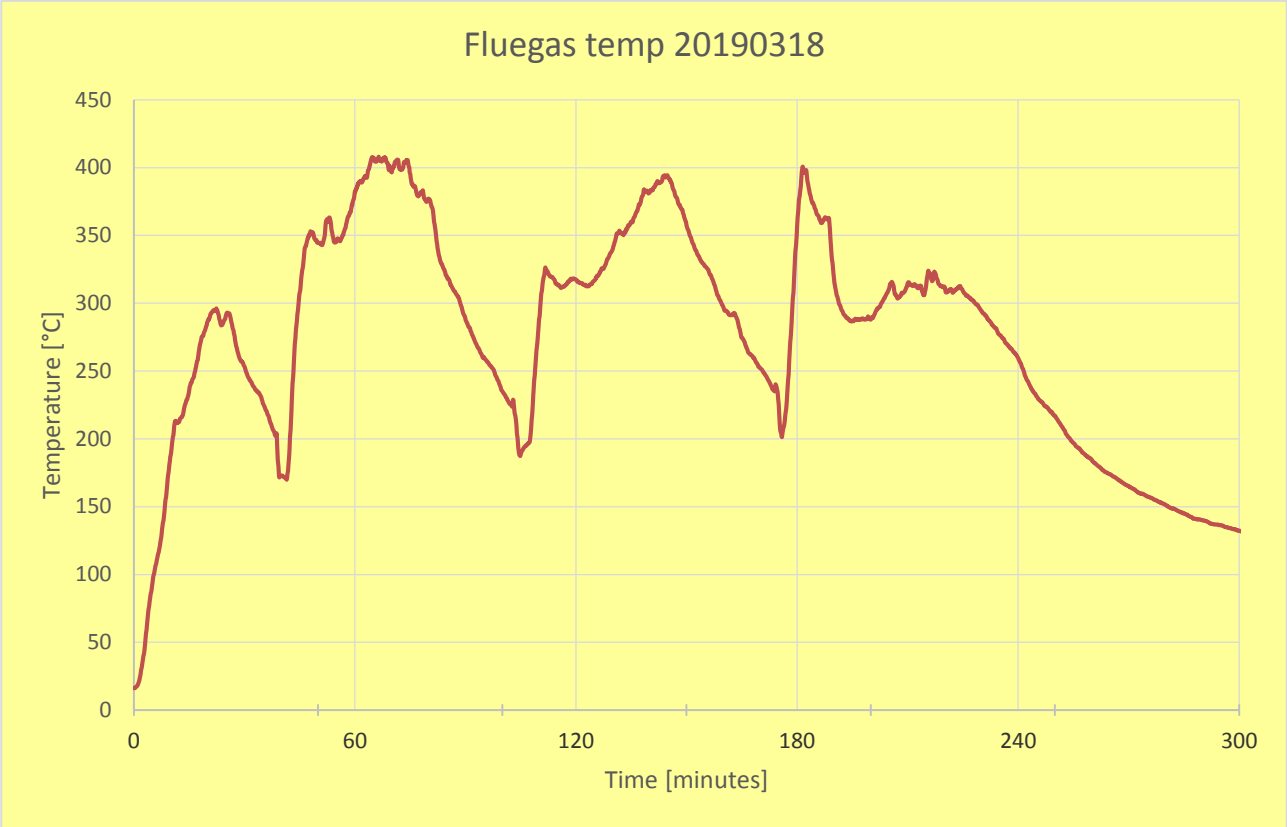
Hours of operation the 12. March 2019: 300 minutes i.e. 05hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:41:00	~1.00	14.0
		8.06	
HF2.1-to-8	01:46:00	~1.00	14.0
		8.23	
HF3.1-to-8	02:52:00	~1.00	14.0
		8.40	

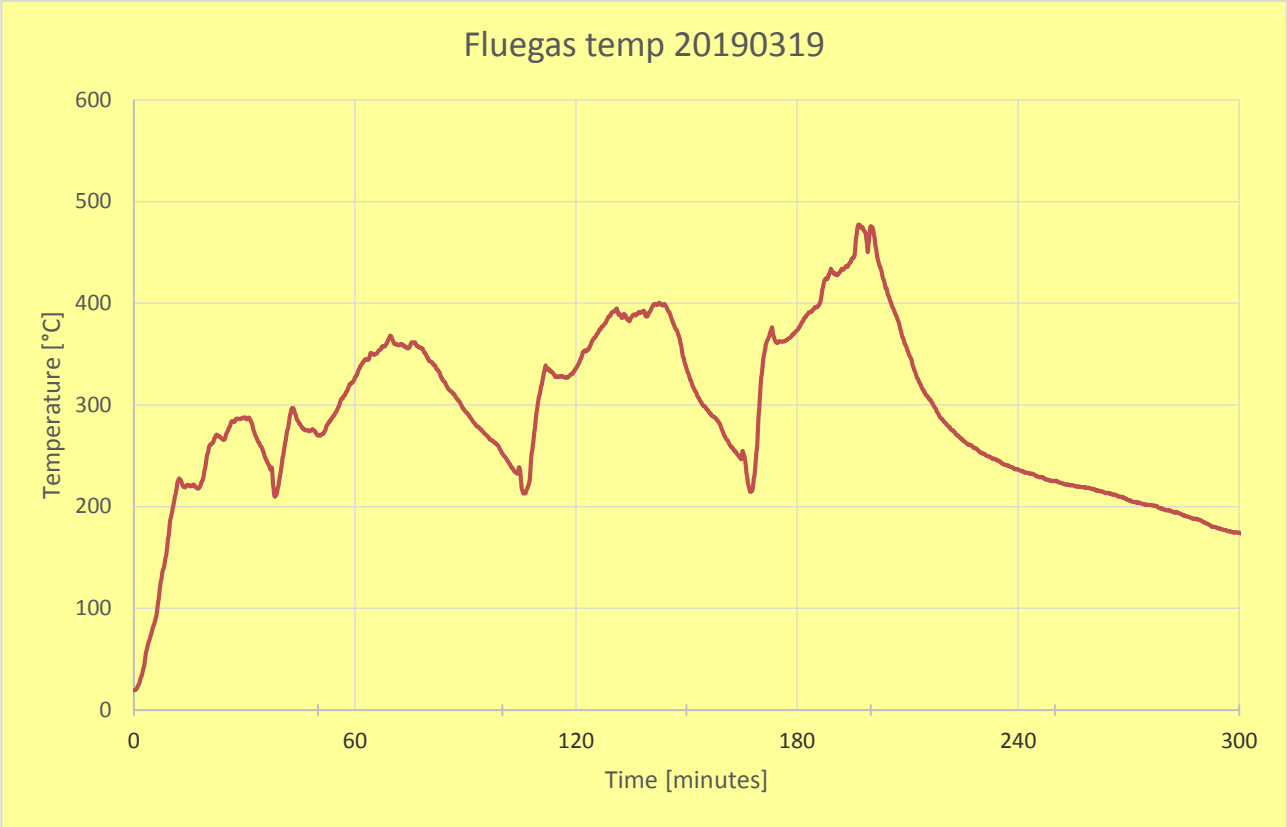
Hours of operation the 13. March 2019: 240 minutes i.e. 04hh00



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:39:00	~1.00	14.0
		8.10	
HF2.1-to-8	01:45:00	~1.00	14.0
		8.30	
HF3.1-to-8	02:56:00	~1.00	14.0
		8.47	

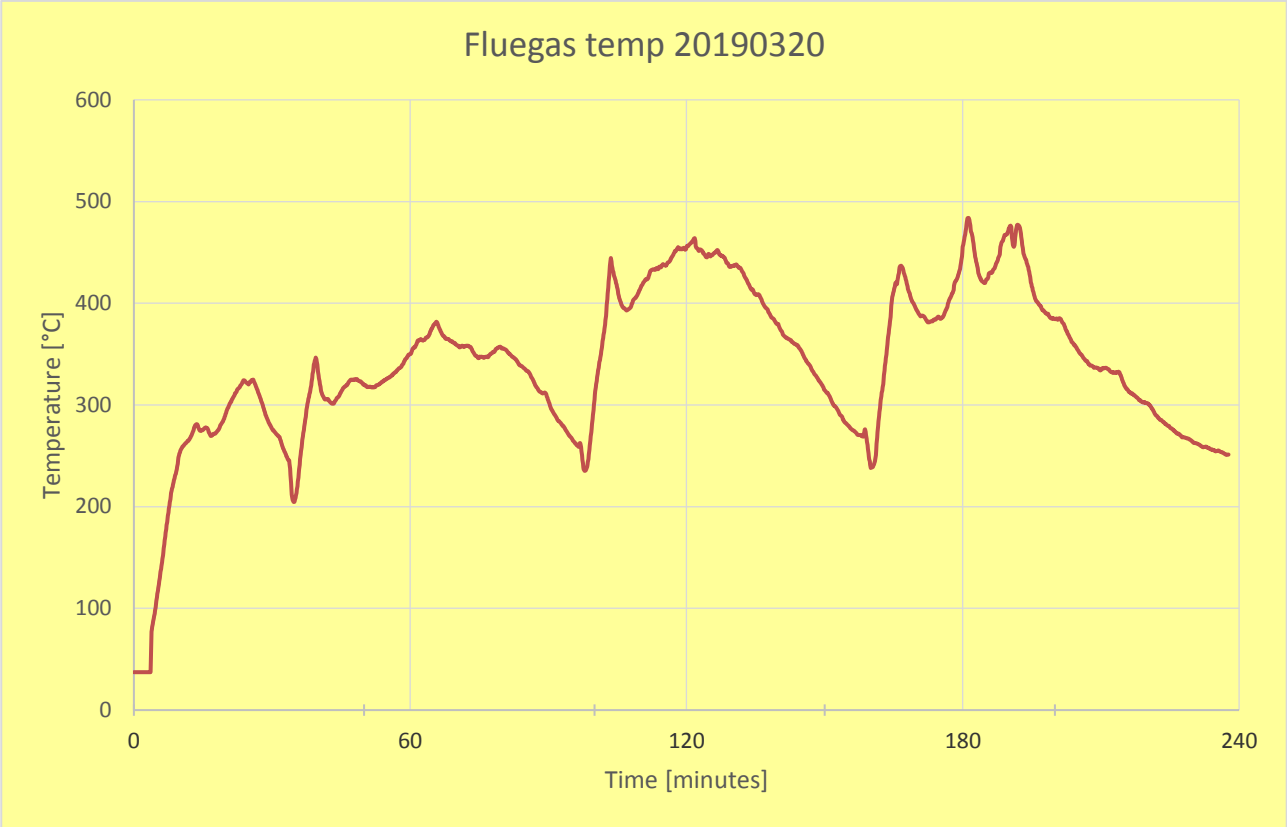
Hours of operation the 18. March 2019: 300 minutes i.e. 05hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:38:00	~1.00	14.0
		8.15	
HF2.1-to-8	01:45:00	~1.00	14.0
		8.70	
HF3.1-to-8	02:47:00	~1.00	14.0
		8.40	

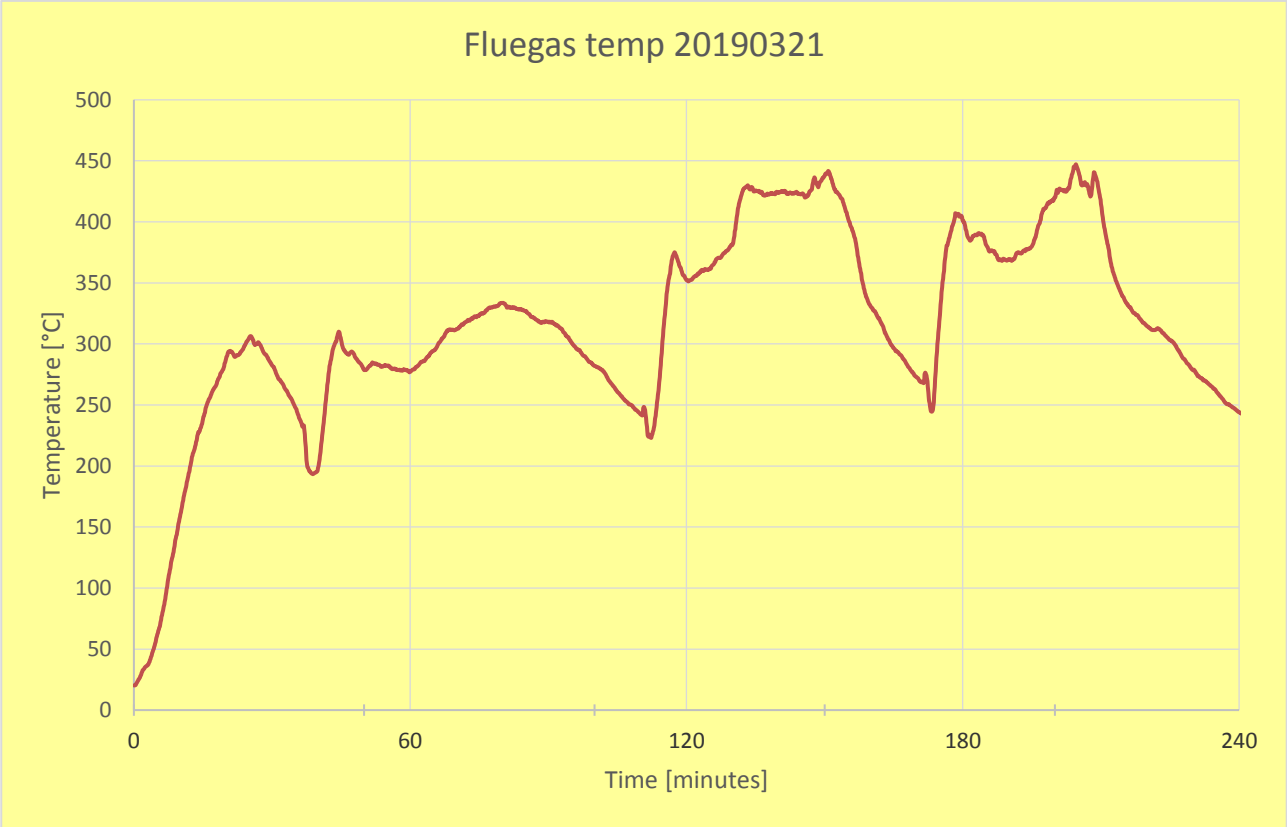
Hours of operation the 19. March 2019: 300 minutes i.e. 05hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:34:00	~1.00	14.0
		8.63	
HF2.1-to-8	01:37:00	~1.00	14.0
		8.61	
HF3.1-to-8	02:40:00	~1.00	14.0
		8.15	

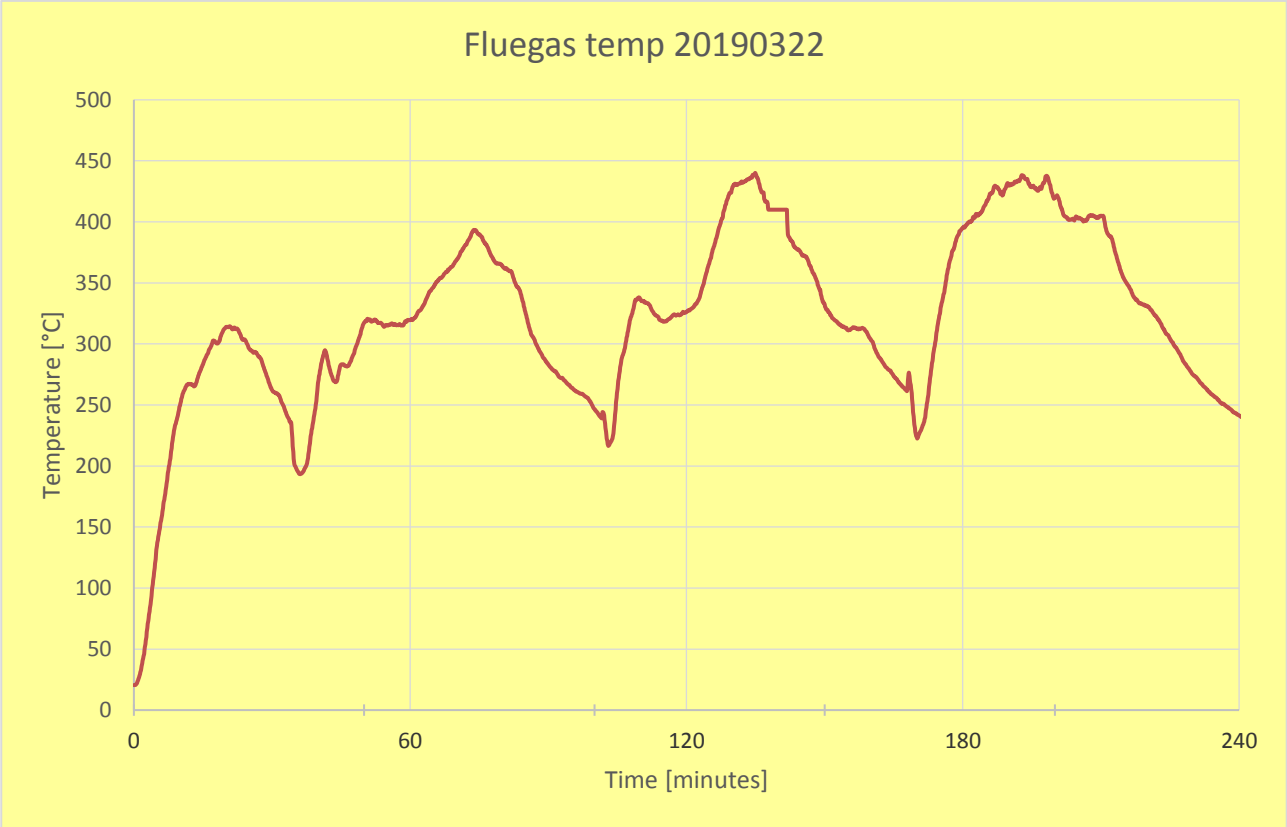
Hours of operation the 20. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:37:00	~1.00	14.0
		8.35	
HF2.1-to-8	01:52:00	~1.00	14.0
		8.36	
HF3.1-to-8	02:53:00	~1.00	14.0
		8.25	

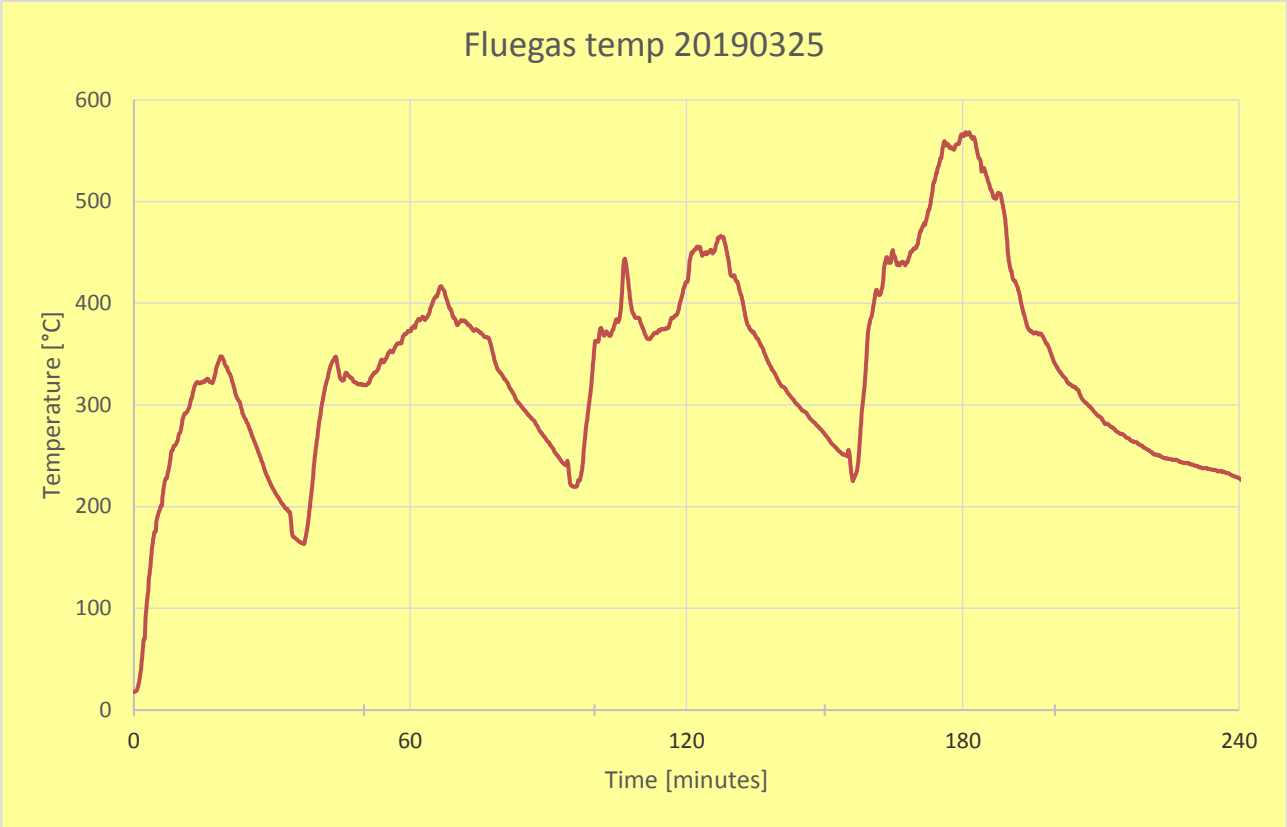
Hours of operation the 21. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:37:00	~1.00	14.0
		8.30	
HF2.1-to-8	01:52:00	~1.00	14.0
		8.25	
HF3.1-to-8	02:53:00	~1.00	14.0
		8.30	

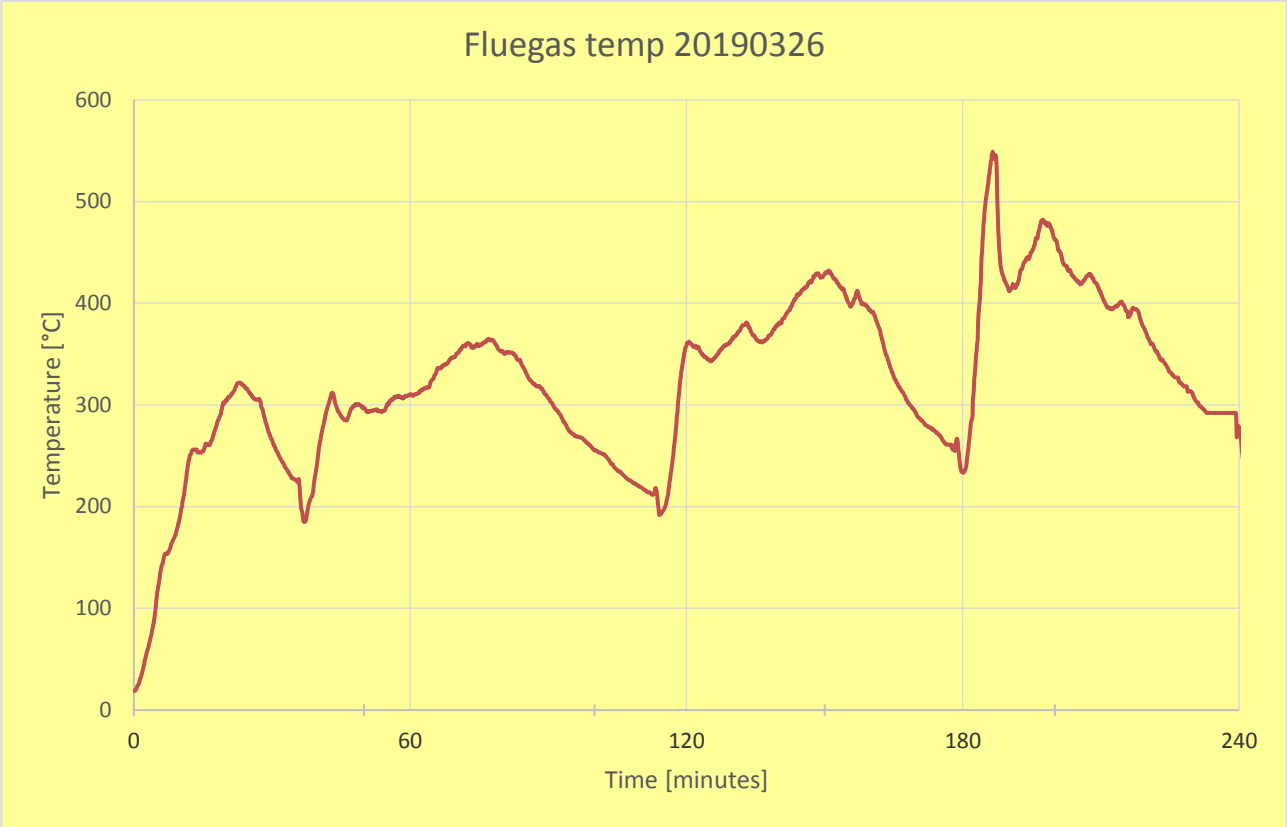
Hours of operation the 22. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:34:00	~1.00	14.0
		8.30	
HF2.1-to-8	01:38:00	~1.00	14.0
		8.40	
HF3.1-to-8	02:37:00	~1.00	14.0
		8.20	

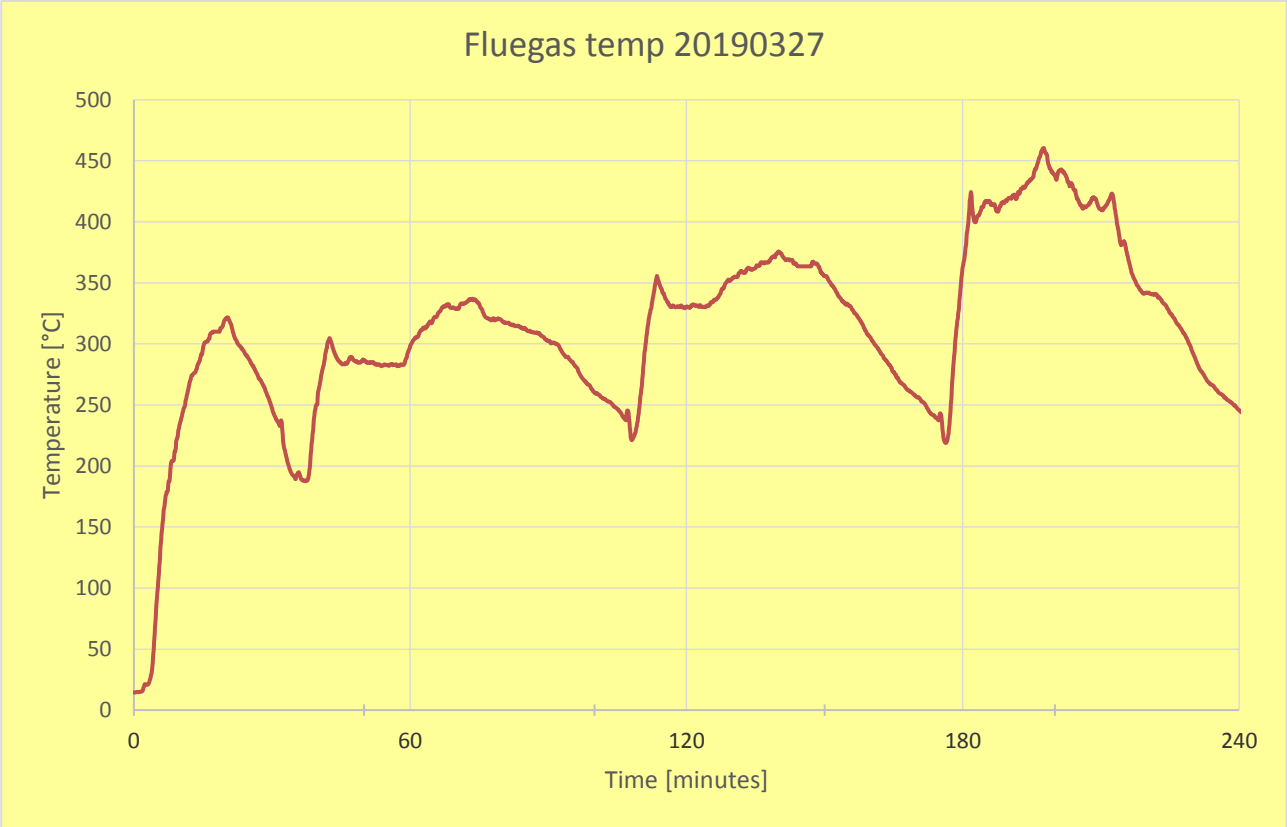
Hours of operation the 25. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:37:00	~1.00	14.0
		8.50	
HF2.1-to-8	01:54:00	~1.00	14.0
		8.30	
HF3.1-to-8	02:59:00	~1.00	14.0
		8.40	

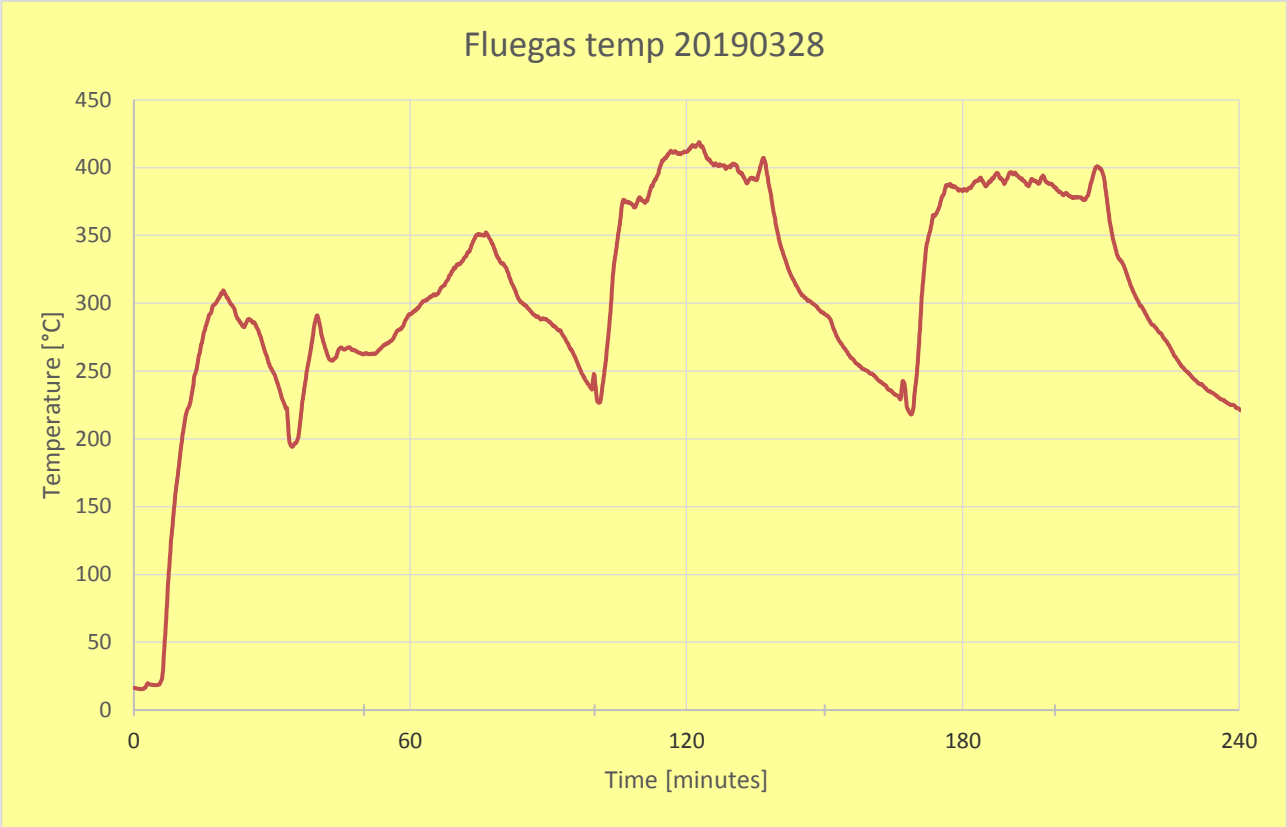
Hours of operation the 26. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:32:00	~1.00	14.0
		8.35	
HF2.1-to-8	01:47:00	~1.00	14.0
		8.40	
HF3.1-to-8	02:55:00	~1.00	14.0
		8.30	

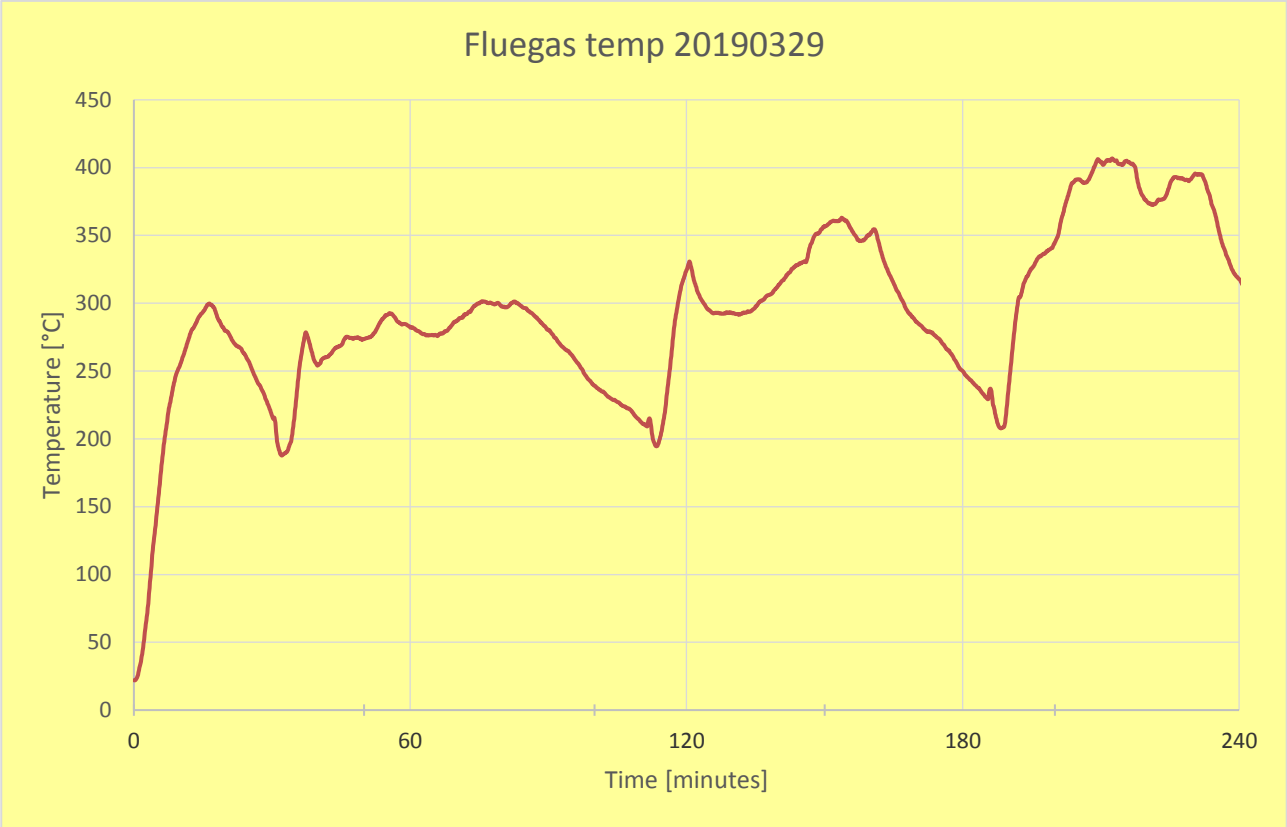
Hours of operation the 27. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:33:00	~1.00	14.0
		8.35	
HF2.1-to-8	01:40:00	~1.00	14.0
		8.30	
HF3.1-to-8	02:48:00	~1.00	14.0
		8.40	

Hours of operation the 28. March 2019: 240 minutes i.e. 04hh00mm



Sampling interval: 6 seconds

Wood log #	Loading time (hh:mm:ss)	Mass (kg)	Fuel moisture (% dry basis)
CS.1	00:00:00	0.50	14.0
CS.2	00:00:00	1.70	14.0
CS.3	00:00:00	1.50	14.0
		3.70	
HF1.1-to-8	00:31:00	~1.00	14.0
		8.30	
HF2.1-to-8	01:52:00	~1.00	14.0
		8.30	
HF3.1-to-8	03:06:00	~1.00	14.0
		8.40	

Hours of operation the 29. March 2019: 240 minutes i.e. 04hh00mm

Accumulated hours of operation total: 3300 minutes i.e. 55hh00mm



1) Installation of stove on the test rig inc TC



2) Preparation of HF fuel load



3) Measurement of fuel moisture (WB)



4) Arrangement of the HF fuel load



5) Preparation of the MF fuel load



6) Pre-heating of the filter holders



7) Arrangement of fuel in the firebox



8) Measurement of air velocity prior to ignition



9) Ignition using the gas torch



10) Loading of the HF fuel load



11) Moisture measurement, MF fuel



12) Arrangement of the MF fuel load



13) Bed of embers at the end of the HF test



14) Loading of the MF fuel load

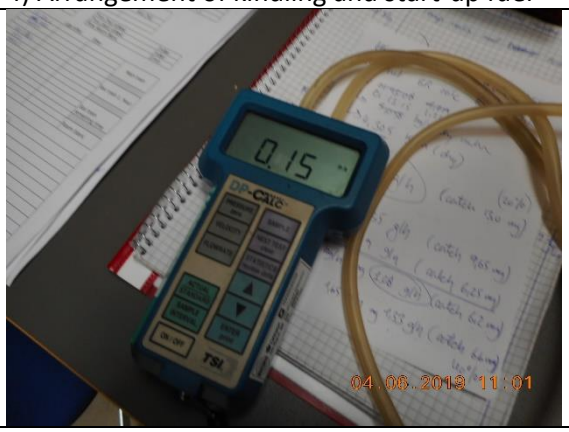


15) Heat preservation in filter holders



16) Air velocity meas at the end of the test

	
9) Bed of embers at the end	10) Close to ending the test

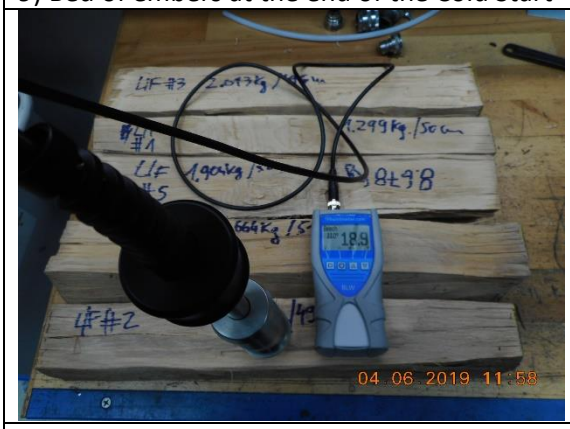
<table>
<tr><td>
</td><td>
</td></tr>
<tr><td>1) Preparation of the HF fuel load</td><td>2) Preparation of the LF fuel load</td></tr>
<tr><td>
</td><td>
</td></tr>
<tr><td>3) Moisture measurement (WB)</td><td>4) Arrangement of kindling and start-up fuel</td></tr>
<tr><td>
</td><td>
</td></tr>
<tr><td>5) Arrangement of the HF fuel load</td><td>6) Air velocity measurement prior to ignition</td></tr>
<tr><td>
</td><td>Image failed, but same procedure with the gas tourch</td></tr>
<tr><td>7) Kindling and Start-up fuel in place</td><td>8) Ignition</td></tr>
</table>



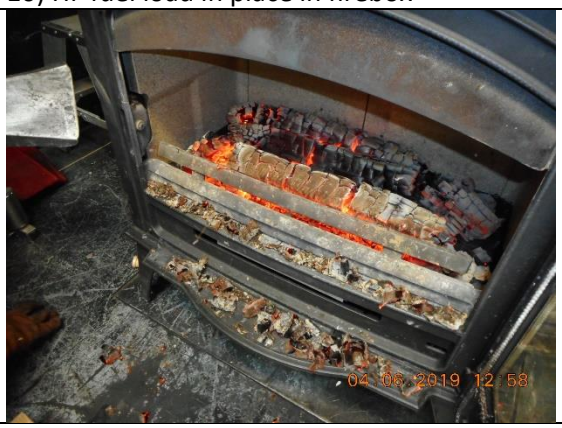
9) Bed of embers at the end of the Cold Start



10) HF fuel load in place in firebox



11) Measurement of LF fuel moisture (WB)



12) Bed of embers prior to entry of the LF load



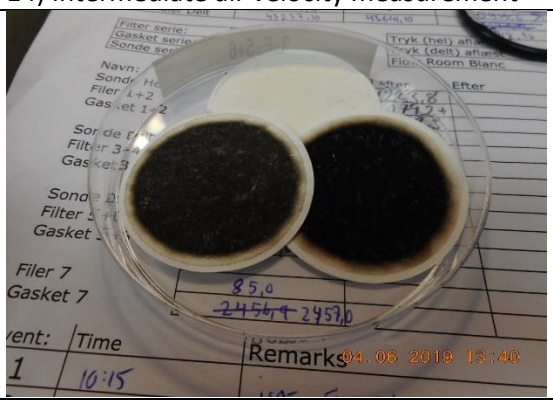
13) LF fuel load in place in the firebox



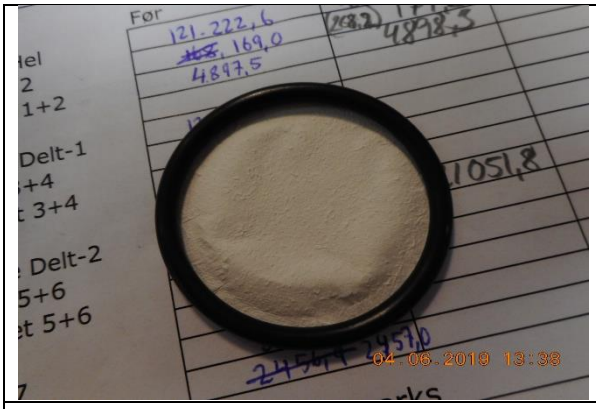
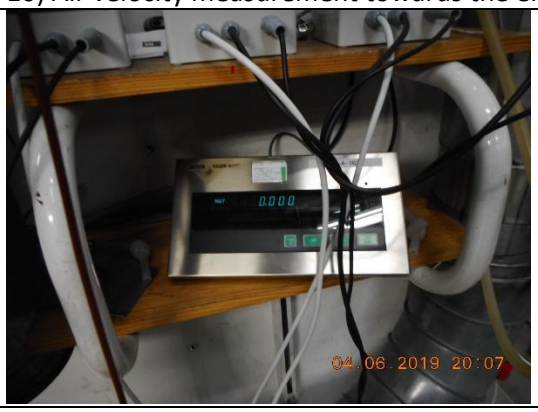
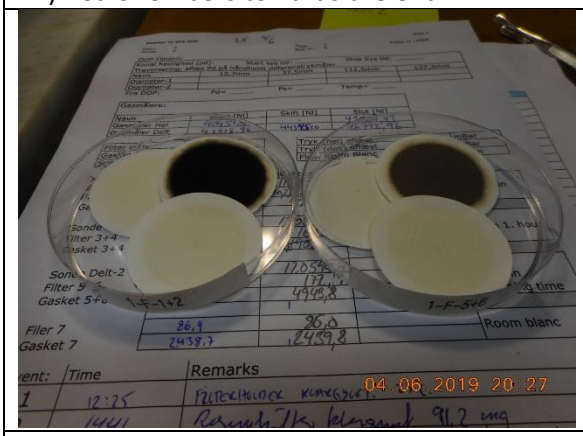
14) Intermediate air velocity measurement



15) Set of 3 exposed main train filters (HF clog)



16) Set of exposed split train filters (HF clog)

	
9) Close up at deformed back filter (HF clog)	10) Air velocity measurement towards the end
	
11) Bed of embers towards the end	12) End of the LF test
	
13) Sets of 3 filters from the LF test (LF clog)	



1) Preparation of the HF fuel load



2) Cleaning of the stove



3) Air velocity measurement prior to ignition



4) HF load after replacement of a log too heavy



5) Arrangement of the HF fuel load



6) Moisture measurement (WB)



7) Ignition and start-up fuel



8) Ignition and start-up fuel in place in firebox



9) Ignition using the gas tourch



10) Flow and pressure meas. equipment



11) Dual PM sampling arrangement



12) Bed of embers at the end of the cold start



13) HF fuel load in place in firebox



14) Bed of embers at the end of the HF test



15) Air velocity measurement at the end

16)



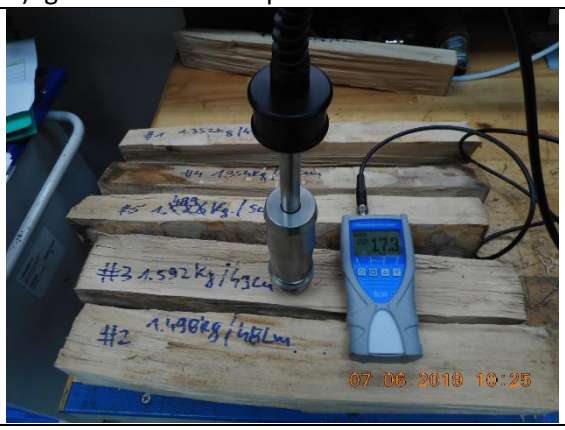
1) Clean stove ready for test



2) Ignition and start-up fuel combined



3) Air velocity measurement prior to ignition



4) Measurement of fuel moisture (WB)



5) Ignition and start-up fuel in place



6) Check of mass



7) Ignition using the gas tourch



8) Bed of embers prior to entry of the HF load



9) HF fuel load in place in the firebox



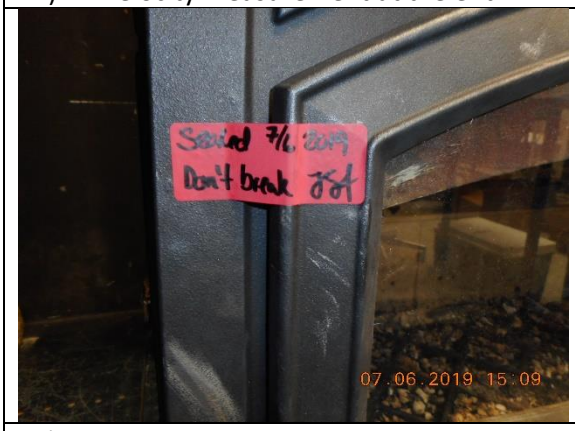
10) Cooling during HF fluegas temp peak



11) Air velocity measurement at the end



12) Stove sealed after the test



13) Close up at one seal

14) no image

15) no image

16) no image

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 10 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For All Usable Firebox Volumes - High Fire Test Only						
Nominal Required Load Density (wet basis)	160,185	kg/m³				
Usable Firebox Volume	0,044	m³				
Total Nom. Load Wt. Target	7,048	kg				
Total Load Wt. Allowable Range	6,700	to	7,400	kg		
Core Target Wt. Allowable Range	3,200	to	4,600	kg		
Remainder Load Wt. Allowable Range	2,500	to	3,900	kg		
Core Load Pc. Wt. Allowable Range	1,100	to	1,800	kg		
Remainder Load Pc. Wt. Allowable Range	0,700	to	3,900	kg		
	Pc. #					
Core Load Piece Wt. Actual	1	1,456	kg	In Range		
	2	1,444	kg	In Range		
	3	1,465	kg	In Range		
Core Load Total. Wt. Actual		4,37	kg	In Range		
	Pc. #					
Remainder Load Piece Wt.	1	0,979	kg	In Range		
(1 to 3 Pcs.)	2	0,962	kg	In Range		
	3	0,961	kg	In Range		
Remainder Load Tot. Wt. Act		2,902	kg	In Range		
Total Load Wt. Actual		7,267	kg	In Range		
Core % of Total Wt.		60%		In Range		
Remainder % of Total Wt.		40%		In Range		
Actual Load % of Nominal Target		103%		In Range		
Actual Fuel Load Density		165,2	kg/m³			
Kindling and Start-up Fuel						
Maximim Kindling Wt. (20% of Tot. Load Wt.)		1,453	kg			
Actual Kindling Wt.		1,439	kg	In Range		
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		2,180	kg			
Actual Start-up Fuel Wt.		2,100	kg	In Range		
Allowable Residual Start-up Fuel Wt. Range	0,727	to	1,453	kg		
Actual Residual Start-up Fuel Wt.		0,730	kg	In Range		
Total Wt. All Fuel Added (wet basis)		10,81	kg			
High Fire Test Run End Point Range	Low		High			
Based on Fuel Load Wt. (w/tares)	0,654	to	0,799	kg		
Actual Fuel Load Ending Wt.		0,790	kg	In Range		

Metric units 2

Mid-Point
1,450
2,300

45-65%
35-55%
95-105%

19,8%

28,9%

Mid-Point
1,090

Mid-Point
0,727

	Fuel Piece Moisture Reading (%-dry basis)					
	1	2	3	Ave.		Pc. Wt. Dry
E	22	23	21,8	22,3	In Range	2,625 lb
F	17,9	19,5	19,8	19,1	In Range	2,674 lb
B	19	20,3	25,6	21,6	In Range	2,655 lb
A	18,6	20,6	19,4	19,5	In Range	1,806 lb
C	18	18,4	18,8	18,4	In Range	1,791 lb
D	17,8	20,6	18,6	19,0	In Range	1,780 lb
Total Load Ave. MC (%-dry basis)				20,2	In Range	
Total Load Ave. MC % (wet basis)				16,8		
Total Test Load Weight (dry basis) →						13,331 lb
Kindling Moisture (%-dry basis)						
	10	10	10	10,0	In Range	1,308 lb
	19,5	18,6	20,9	19,7	In Range	1,755 lb
Total Wt. All Fuel Added (dry basis) →						16,395 lb
Total Wt. All Fuel Burned (dry basis) →						14,875 lb

/ Basis	
1,191	kg
1,213	kg
1,204	kg
0,819	kg
0,813	kg
0,808	kg
6,047	kg
0,593	kg
0,796	kg
7,44	kg
6,747	kg

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 12 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For Usable Firebox Volumes up to 3.0 ft^3 - Low and Medium Fire
Nominal Required Load Density (wet basis)
Usable Firebox Volume
Total Nom. Load Wt. Target
Total Load Wt. Allowable Range
Core Target Wt. Allowable Range
Remainder Load Wt. Allowable Range
Core Load Fuel Pc. Wt. Allowable Range
Remainder Load Pc. Wt. Allowable Range
Core Load Piece Wt. Actual
Core Load Total. Wt. Actual
Remainder Load Piece Wt.
(2 or 3 Pcs.)
Remainder Load Piece Weight Ratio - Small/Large
Remainder Load Tot. Wt. Act
Total Load Wt. Actual
Core % of Total Wt.
Remainder % of Total Wt.
Actual Load % of Nominal Target
Actual Fuel Load Density
Allowable Charcoal Bed Wt. Range (kg)
Actual Charcoal Bed Wt.
Actual Fuel Load Ending Wt.
Total Wt. of Fuel Burned During Test Run lb.

Metric units

192,222	kg/m³						
0,044	m³						
8,458	kg						
8,035	to	8,881	kg				
3,806	to	5,498	kg				
2,960	to	4,652	kg				
				Mid-Point			
1,269	to	2,114	kg	1,692			
0,846	to	2,537	kg	1,692			
Pc. #						Fuel Piece Moisture Readin	
						1	2
1	1,782	kg	In Range		2	22,6	23,6
2	1,692	kg	In Range		3	19,2	21,4
3	1,907	kg	In Range		5	21,2	20,3
	5,38	kg	In Range				
Pc. #							
1	1,300	kg	In Range		1	20,4	23,2
2	2,017	kg	In Range		4	21,8	22
3		kg	NA				
	64%		In Range	≤ 67%		Total Load Ave. MC % (dry	
	3,317	kg	In Range			Total Load Ave. MC % (wet	
	8,698	kg	In Range			Total Test Load Weight (dry	
	62%		In Range	45-65%		Total Fuel Weight Burned D	
	38%		In Range	35-55%			
	103%		In Range	95-105%			
	197,682	kg/m³					
0,920	to	1,690		Mid-Point			
	1,518	kg	In Range	1,305			
	0,000	kg	Valid Test	≥ 90%			
	8,698	kg					

g (%-dry basis)							
3	Ave.		Pc. Wt. Dry Basis				
18,6	21,6	In Range	3,231	lb	1,465	kg	
18,4	19,7	In Range	3,117	lb	1,414	kg	
20	20,5	In Range	3,489	lb	1,583	kg	
18,1	20,6	In Range	2,377	lb	1,078	kg	
22,8	22,2	In Range	3,639	lb	1,651	kg	
	NA	NA	NA	lb	NA	kg	
basis)	21,0	In Range					
basis)	17,3						
basis)			15,853	lb	7,191	kg	
uring Test Run (dry basis)			15,853	lb	7,191	kg	

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 10 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For All Usable Firebox Volumes - High Fire Test Only						
Nominal Required Load Density (wet basis)	160,185	kg/m³				
Usable Firebox Volume	0,044	m³				
Total Nom. Load Wt. Target	7,048	kg				
Total Load Wt. Allowable Range	6,700	to	7,400	kg		
Core Target Wt. Allowable Range	3,200	to	4,600	kg		
Remainder Load Wt. Allowable Range	2,500	to	3,900	kg		
Core Load Pc. Wt. Allowable Range	1,100	to	1,800	kg		
Remainder Load Pc. Wt. Allowable Range	0,700	to	3,900	kg		
	Pc. #					
Core Load Piece Wt. Actual	1	1,461	kg	In Range		
	2	1,448	kg	In Range		
	3	1,476	kg	In Range		
Core Load Total. Wt. Actual		4,39	kg	In Range		
	Pc. #					
Remainder Load Piece Wt.	1	0,983	kg	In Range		
(1 to 3 Pcs.)	2	0,992	kg	In Range		
	3	0,943	kg	In Range		
Remainder Load Tot. Wt. Act		2,918	kg	In Range		
Total Load Wt. Actual		7,303	kg	In Range		
Core % of Total Wt.		60%		In Range		
Remainder % of Total Wt.		40%		In Range		
Actual Load % of Nominal Target		104%		In Range		
Actual Fuel Load Density		166,0	kg/m³			
Kindling and Start-up Fuel						
Maximim Kindling Wt. (20% of Tot. Load Wt.)		1,461	kg			
Actual Kindling Wt.		1,450	kg	In Range		
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		2,191	kg			
Actual Start-up Fuel Wt.		2,100	kg	In Range		
Allowable Residual Start-up Fuel Wt. Range	0,730	to	1,461	kg		
Actual Residual Start-up Fuel Wt.		0,735	kg	In Range		
Total Wt. All Fuel Added (wet basis)			kg			
High Fire Test Run End Point Range	Low		High			
Based on Fuel Load Wt. (w/tares)	0,657	to	0,803	kg		
Actual Fuel Load Ending Wt.		0,750	kg	In Range		

Metric units 2

Mid-Point
1,450
2,300

		1	2	3	Ave.		Pc. Wt. Dry
		Fuel Piece Moisture Reading (%-dry basis)					
Core	1	18,8	22,2	19,2	20,1	In Range	2,683 lb
Core	2	19,8	26,6	19,6	22,0	In Range	2,617 lb
Core	3	18,8	20,4	18,4	19,2	In Range	2,730 lb
Rem	1	18	23,6	23,2	21,6	In Range	1,782 lb
Rem	2	18,6	24,1	27,4	23,4	In Range	1,773 lb
Rem	3	18,7	18,4	19,2	18,8	In Range	1,750 lb
		Total Load Ave. MC (%-dry basis)			20,7	In Range	
		Total Load Ave. MC % (wet basis)			17,2		
45-65%		Total Test Load Weight (dry basis) →					13,334 lb
35-55%							
95-105%		Kindling Moisture (%-dry basis)					
		10	10	10	10,0	In Range	1,318 lb
		Start-up Fuel Moisture Readings (%-dry basis)					
		22,8	19,6	22,6	21,7	In Range	1,726 lb
19,9%					17,3		
		Total Wt. All Fuel Added (dry basis) →					16,379 lb
28,8%		Total Wt. All Fuel Burned (dry basis) →					14,894 lb

Mid-Point
1,095

Mid-Point
0,730

/ Basis	
1,217	kg
1,187	kg
1,238	kg
0,808	kg
0,804	kg
0,794	kg
6,048	kg
0,598	kg
0,783	kg
7,43	kg
6,756	kg

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 12 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For Usable Firebox Volumes up to 3.0 ft^3 - Low and Medium Fire
Nominal Required Load Density (wet basis)
Usable Firebox Volume
Total Nom. Load Wt. Target
Total Load Wt. Allowable Range
Core Target Wt. Allowable Range
Remainder Load Wt. Allowable Range
Core Load Fuel Pc. Wt. Allowable Range
Remainder Load Pc. Wt. Allowable Range
Core Load Piece Wt. Actual
Core Load Total. Wt. Actual
Remainder Load Piece Wt.
(2 or 3 Pcs.)
Remainder Load Piece Weight Ratio - Small/Large
Remainder Load Tot. Wt. Act
Total Load Wt. Actual
Core % of Total Wt.
Remainder % of Total Wt.
Actual Load % of Nominal Target
Actual Fuel Load Density
Allowable Charcoal Bed Wt. Range (kg)
Actual Charcoal Bed Wt.
Actual Fuel Load Ending Wt.
Total Wt. of Fuel Burned During Test Run lb.

Metric units

192,222	kg/m³						
0,044	m³						
8,458	kg						
8,035	to	8,881	kg				
3,806	to	5,498	kg				
2,960	to	4,652	kg				
				Mid-Point			
1,269	to	2,114	kg	1,692			
0,846	to	2,537	kg	1,692			
Pc. #						Fuel Piece Moisture Readin	
						1	2
1	1,801	kg	In Range		2	20,4	23
2	1,664	kg	In Range		3	21,9	23,5
3	1,904	kg	In Range		5	19,5	27,9
	5,37	kg	In Range				
Pc. #							
1	1,299	kg	In Range		1	19,8	22,5
2	2,013	kg	In Range		4	18,8	20,9
3		kg	NA				
	65%		In Range	≤ 67%		Total Load Ave. MC % (dry	
	3,312	kg	In Range			Total Load Ave. MC % (wet	
	8,681	kg	In Range			Total Test Load Weight (dry	
	62%		In Range	45-65%		Total Fuel Weight Burned D	
	38%		In Range	35-55%			
	103%		In Range	95-105%			
	197,295	kg/m³					
0,918	to	1,686		Mid-Point			
	1,485	kg	In Range	1,302			
	0,000	kg	Valid Test	≥ 90%			
	8,681	kg					

g (%-dry basis)						
3	Ave.		Pc. Wt. Dry Basis			
19,2	20,9	In Range	3,285	lb	1,490	kg
20,8	22,1	In Range	3,005	lb	1,363	kg
19,2	22,2	In Range	3,435	lb	1,558	kg
21	21,1	In Range	2,365	lb	1,073	kg
24,9	21,5	In Range	3,652	lb	1,656	kg
	NA	NA	NA	lb	NA	kg
basis)	21,6	In Range				
basis)	17,7					
basis)			15,742	lb	7,140	kg
uring Test Run (dry basis)			15,742	lb	7,140	kg

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 10 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For All Usable Firebox Volumes - High Fire Test Only

Nominal Required Load Density (wet basis)	**160,185**	kg/m^3			
Usable Firebox Volume	0,044	m^3			
Total Nom. Load Wt. Target	7,048	kg			
Total Load Wt. Allowable Range	6,700	to	7,400	kg	
Core Target Wt. Allowable Range	3,200	to	4,600	kg	
Remainder Load Wt. Allowable Range	2,500	to	3,900	kg	
Core Load Pc. Wt. Allowable Range	1,100	to	1,800	kg	
Remainder Load Pc. Wt. Allowable Range	0,700	to	3,900	kg	
	Pc. #				
Core Load Piece Wt. Actual	1	1,493	kg	In Range	
	2	1,572	kg	In Range	
	3	1,512	kg	In Range	
Core Load Total. Wt. Actual		4,58	kg	In Range	
	Pc. #				
Remainder Load Piece Wt.	1	1,347	kg	In Range	
(1 to 3 Pcs.)	2	1,302	kg	In Range	
	3		kg	NA	
Remainder Load Tot. Wt. Act		2,649	kg	In Range	
Total Load Wt. Actual		7,226	kg	In Range	
Core % of Total Wt.		63%		In Range	
Remainder % of Total Wt.		37%		In Range	
Actual Load % of Nominal Target		103%		In Range	
Actual Fuel Load Density		164,2	kg/m^3		
Kindling and Start-up Fuel					
Maximim Kindling Wt. (20% of Tot. Load Wt.)		1,445			
Actual Kindling Wt.		1,440	kg	In Range	
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		2,168	kg		
Actual Start-up Fuel Wt.		2,065	kg	In Range	
Allowable Residual Start-up Fuel Wt. Range	0,723	to	1,445	kg	
Actual Residual Start-up Fuel Wt.		0,730	kg	In Range	
Total Wt. All Fuel Added (wet basis)		10,73	kg		
High Fire Test Run End Point Range	Low		High		
Based on Fuel Load Wt. (w/tares)	0,650	to	0,795	kg	
Actual Fuel Load Ending Wt.		0,660	kg	In Range	

Metric units 2

Mid-Point
1,450
2,300

45-65%
35-55%
95-105%

19,9%

28,6%

Mid-Point
1,084

Mid-Point
0,723

Fuel Piece Moisture Reading (%-dry basis)

	1	2	3	Ave.		Pc. Wt. Dry
2	19	27,8	20	22,3	In Range	2,692 lb
3	19,4	25,6	20,9	22,0	In Range	2,841 lb
5	19	20,1	20,6	19,9	In Range	2,780 lb
1	18	20,4	18,2	18,9	In Range	2,498 lb
4	18	20	19,2	19,1	In Range	2,411 lb
6				NA	NA	NA lb
Total Load Ave. MC (%-dry basis)				20,5	In Range	
Total Load Ave. MC % (wet basis)				17,0		
Total Test Load Weight (dry basis) →						13,223 lb

Kindling Moisture (%-dry basis)

10	10	10	10,0	In Range	1,309 lb

Start-up Fuel Moisture Readings (%-dry basis)

20,1	23,2	21,6	21,6	In Range	1,698 lb

Total Wt. All Fuel Added (dry basis) → 16,229 lb

Total Wt. All Fuel Burned (dry basis) → 14,839 lb

/ Basis	
1,221	kg
1,289	kg
1,261	kg
1,133	kg
1,094	kg
NA	kg
5,998	kg
0,594	kg
0,770	kg
7,36	kg
6,731	kg

Adjunct to ASTM E3053 Wood Heater Cordwood Test Method - May 10, 2017 Version

Cordwood Fuel Load Calculators - 10 lb/ft^3 Nominal Load Density

Core 45-65% of Total Load Weight, Remainder 35-55% of Total Load Weight

Values to be input manually

For All Usable Firebox Volumes - High Fire Test Only						
Nominal Required Load Density (wet basis)	160,185	kg/m³				
Usable Firebox Volume	0,044	m³				
Total Nom. Load Wt. Target	7,048	kg				
Total Load Wt. Allowable Range	6,700	to	7,400	kg		
Core Target Wt. Allowable Range	3,200	to	4,600	kg		
Remainder Load Wt. Allowable Range	2,500	to	3,900	kg		
Core Load Pc. Wt. Allowable Range	1,100	to	1,800	kg		
Remainder Load Pc. Wt. Allowable Range	0,700	to	3,900	kg		
	Pc. #					
Core Load Piece Wt. Actual	1	1,493	kg	In Range		
	2	1,572	kg	In Range		
	3	1,512	kg	In Range		
Core Load Total. Wt. Actual		4,58	kg	In Range		
	Pc. #					
Remainder Load Piece Wt.	1	1,347	kg	In Range		
(1 to 3 Pcs.)	2	1,302	kg	In Range		
	3		kg	NA		
Remainder Load Tot. Wt. Act		2,649	kg	In Range		
Total Load Wt. Actual		7,226	kg	In Range		
Core % of Total Wt.		63%		In Range		
Remainder % of Total Wt.		37%		In Range		
Actual Load % of Nominal Target		103%		In Range		
Actual Fuel Load Density		164,2	kg/m³			
Kindling and Start-up Fuel						
Maximim Kindling Wt. (20% of Tot. Load Wt.)		1,445				
Actual Kindling Wt.		1,444	kg	In Range		
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		2,168	kg			
Actual Start-up Fuel Wt.		2,159	kg	In Range		
Allowable Residual Start-up Fuel Wt. Range	0,723	to	1,445	kg		
Actual Residual Start-up Fuel Wt.		0,730	kg	In Range		
Total Wt. All Fuel Added (wet basis)		10,83	kg			
High Fire Test Run End Point Range	Low		High			
Based on Fuel Load Wt. (w/tares)	0,650	to	0,795	kg		
Actual Fuel Load Ending Wt.		0,660	kg	In Range		

Metric units 2

Mid-Point
1,450
2,300

	Fuel Piece Moisture Reading (%-dry basis)					
	1	2	3	Ave.		Pc. Wt. Dry
2	18,4	23,2	23,8	21,8	In Range	2,702 lb
3	19,8	21,6	18,4	19,9	In Range	2,890 lb
5	21,7	23,6	19,6	21,6	In Range	2,740 lb
1	18,2	20,4	19,4	19,3	In Range	2,488 lb
4	20,2	20	20,9	20,4	In Range	2,385 lb
6				NA	NA	NA lb
	Total Load Ave. MC (%-dry basis)			20,6	In Range	
	Total Load Ave. MC % (wet basis)			17,1		
	Total Test Load Weight (dry basis) →					13,206 lb
	Kindling Moisture (%-dry basis)					
	10	10	10	10,0	In Range	1,313 lb
	Start-up Fuel Moisture Readings (%-dry basis)					
	19,2	19,8	18,6	19,2	In Range	1,811 lb
				15,7 WB		
	Total Wt. All Fuel Added (dry basis) →					16,330 lb
	Total Wt. All Fuel Burned (dry basis) →					14,940 lb

45-65%
35-55%
95-105%

20,0%

29,9%

Mid-Point
1,084

Mid-Point
0,723

/ Basis	
1,226	kg
1,311	kg
1,243	kg
1,129	kg
1,082	kg
NA	kg
5,990	kg
0,595	kg
0,822	kg
7,41	kg
6,777	kg

Procedure for testing the Habor Light of Dovre at the Teknologisk Institut Aarhus, Denmark

For this procedure the Cold Start is treated distinctly from the High Fire. The ASTM E3053-17 document ("EPA cordwood testing") considers the Cold Start as part of the High Fire.

The Usable Firebox Volume of the Harbor Light is rounded up to 45 L. Consequently, the nominal test fuel load weight is 7.25 kg for the High Fire and 8.75 kg for the Low Fire and the Medium Fire.

The recommended wood species are beech (EN) [beuk (NL), bøg (DN), Buche (DE)] and European oak (EN) [eik (NL), eg (DN), Eiche (DE)].

The named quantities, either as mass or length, are with a ±5% tolerance.

Incremental changes w.r.t. the v20180904 document version:

- The hardware/stove has been adapted in order to have a reliable and stable ignition in LF and HF when used with wood having the average moisture content situated in the middle—high region of the allowed range of 19-to-25%d.b..
    - The Pilot Air is taken directly from the outside air; its flow is not anymore regulated by the Air Control Plate;
    - There is left only one Start region active on the ACP, that we will keep naming Cold Start, KS, as before. (The Warm Start, WS, has become obsolete and it is not used anymore, albeit it is still coded on the ACP.)
    - The amount of Primary Air during the KS has been considerably reduced by changing the size of the openings in the firing grate.
- Next to the stove, the procedure has also been adapted:
    - In the HF the test fuel load is made up six pieces (previously there were only five), with three for the core sub-load and another three for the remainder sub-load.
    - Both the HF and the LF/MF use the same Start region.
    - In order to have the Pilots do their job, for both HF and LF, care must be taken at the load preparation / insertion to allow some distance between logs ① and ② and thus create a vertical channel, such that the pyrolysis gas entrained by the Pilot Air flows through this channel and gets burned at the back of the combustion chamber.

Acronyms:

- ACP: Air Control Plate
- Refer to Figure 3 for the positions of the ACP handle:
    - KSM: Cold Start Maximum; the ACP handle is at the left most position
    - x/yKS: the ACP handle is at the x/y fraction of KSM in the Cold Start region
    - Rpct: the ACP handle is at the pct% position in the normal operation Regime. (R100 coincides with 0/1KS, while R0 coincides with 0/1WS.)
- Test phases:
    - CS: Cold Start
    - HF: High Fire
    - MF: Medium Fire
    - LF: Low Fire

Cold Start

The fuel used for the Cold Start is made up from start-up fuel and kindling. The quantities of these were settled experimentally to the maximum allowed in the ASTM document, i.e. 30% for the start-up and 20% for the kindling, both as percentages of the test fuel load weight for the High Fire. The total nominal weight of the start-up and kindling is 3.65 kg.

Start-up fuel:

- weight: 2.20 kg
- moisture content: at the lower limit of the allowed range, that is with an average of 18-19%d.b.
- made up of:
    - three pieces of 25 cm length, amounting to 0.50 kg
    - eight-to-ten pieces of 40 cm length, amounting to 1.70 kg
- build-up in the combustion chamber:
    - layer 1: lay down the three pieces of 25 cm length on the firing grate along the front-to-back direction, one in the middle and the other two symmetrically to the left and right, after the two outermost Primary Air holes in the firing grate
    - layer 2: lay down the pieces of 40 cm length along the left-to-right direction. Place at the back, middle, and front positions the thickest pieces and complete the layer with pieces of intermediate thickness. Place centred left to right. The completed 2nd layer should have some gaps between the pieces to allow vertical air circulation.
    - layer 3: place the leftover 40 cm pieces diagonally. Apply similar gap requirements.

Kindling:

- weight: 1.45 kg
- moisture content: assumed to have reached 10%d.b. after storing it for more than one week at room conditions
- made up of 25 cm long pieces of various thickness
- build-up in the combustion chamber:
    - four layers of square shape, each disposed at 90° angle to the previous one. First layer perpendicular to the direction of the last layer of the start-up fuel. Whole construction placed in the middle of the stove.
    - for each layer use thicker pieces to the sides and in the middle and fill in-between with thinner ones. Similar compactness and ***gap*** req's as by the start-up fuel.
    - the top two layers are made of the thinnest pieces, as these will be ignited with the gas torch.

Ignition and control:

- top-down approach
- put the ACP to the KSM setting
- use portable hand-held gas torch for 1 minute
- ignite the one before the top layer by directing the flame along its pieces, in the gaps; alternate in the middle, to the left, and to the right. (The flame will implicitly heat up also the pieces from the top layer.)
- close the door after 1 minute
- keep the ACP to the KSM setting till the end of the Cold Start

- end the Cold Start when the quantity left on the scale is equal to 10% of the test fuel load weight for the High Fire
- observe the state of the charcoal embers at the end of the Cold Start
    - only the three pieces of 25 cm length at the bottom, placed directly on the firing grate, should be still rigid
    - if any of the 40 cm length pieces is still rigid, do not change its orientation but move it to the front of the combustion chamber. For the next Cold Start reduce the size of the thickest of 40cm length pieces.

Example of sequence op ACP positions for the Cold Start:

Time [min]	0	**1**	*15*	*20*		*~30*
Weight [kg]	3.65		2.50	2.00		0.75
ACP position	KSM		NOP	NOP		
Event	START	End gas torch ignition				STOP

bold font means mandatory, italic font means indicative

High Fire

Refer to Figure 1 for the wood log designations / places inside the combustion chamber.

Fuel Load

- the nominal test load fuel weight for High Fire is 7.25 kg (cf. to fuel load density of 161 kg/m^3 and Usable Firebox Volume of 45 L)
- the fuel load is made up of
  - three logs of 1.00 kg each, marked ①, ④, and ⑥
  - three logs of 1.50 kg each, marked ②, ③, and ⑤
- the length of each fuel piece is 48÷50 cm
- moisture content:
  - pieces ①, ④, and ⑥ at the low side of the allowed range, that is with 18-to-20%d.b. ① is required to be "high-and-*dry*".
  - piece ② in the mid-low part of the allowed range, that is with 20-to-22%d.b.
  - pieces ③ and ⑤ in the mid-high part of the allowed range, that is with 22-to-25%d.b.
- log selection / shaping
  - for position ① choose a convenient shape for promoting a stable flame at the back of the combustion chamber:
    - without any knot
    - of *trapezoidal*, rectangular, or triangular shape, *no square* shape; ① is required to be "*high*-and-dry".
    - for trapezoidal: top side as much as possible parallel with the first baffle
  - for position ② shape the log in order to ease the formation of a vertical ***channel*** between logs ① and ②; see Figure 1.
  - for position ④ a triangular or trapezoidal shape will promote further the stability of the flame at the back of the stove
- simulate the placing of these six logs outside of the stove
  - *channel formation*: by their relative positioning, logs ①, ②, and ④ should assure a vertical channel for the Pilot Air, which enhanced with pyrolysis gas, will reach in the top-back region of the combustion chamber and will get burnt there
  - *stability*: after partial combustion the logs shall keep the initial places; take special care of the column positioning of ③, ⑤, and ⑥
  - *compactness*: logs ②, ③, ④, ⑤, and ⑥ shall not have explicit gaps in-between in order to extend the flame as much as possible towards the end of the High Fire
  - improve the compactness and stability of the aggregate by repositioning the logs and watch for the channel formation as suggested in Figure 1.
  - check the overall dimensions of the aggregate
    - depth: less than 26 cm
    - height: less than 22 cm

Insertion and control:

- put the ACP handle to the WSM position
- load build-up in the combustion chamber:
  - level the charcoal produced during the Cold Start by simply pushing it in the space around the three pieces of 25 cm length
    - keep the three pieces of 25 cm length onto their places, on the firing grate

        - move any rigid fragment from the 40 cm long pieces to the front, do not change its orientation
    - insert the logs centred left-to-right
    - construct the aggregate according to the simulation
    - the first layer: place logs ①, ②, and ③ on the stable bedding made of the three pieces of 25 cm length left from the Cold Start
        - log ① comes at the back of the stove, at 2 cm distance from the back-insulation plates
    - the second layer: place ④ on top of ② and ⑤ on top of ③
    - the third layer: place ⑥ on top of ⑤ and assure for stability
- finish the load insertion within 1 minute, then close the door
- change the ACP to the High Fire setting (R100) at 5 minutes after closing the door. R100 is taken here as the ACP position for the High Fire test.
- observe the stability of the flame at the back of the combustion chamber
- the High Fire is completed when 90% (±1%) of the test fuel load weight is consumed

Example of sequence op ACP positions for the High Fire:

Time [min]	0	**1**		**6**		~85
Weight [kg]	0.75	8.25		*--0.60*		1.55
ACP position	WSM			R100		
Event	START	End loading				STOP

bold font means mandatory, italic font means indicative

Low Fire and Medium Fire

Refer to Figure 2 for the wood log designations / places inside the combustion chamber.

Fuel Load

- the nominal test load fuel weight for LF/MF is 8.75 kg (cf. to fuel load density of 194 kg/m^3 and Usable Firebox Volume of 45 L)
- the fuel load is made up of
  - two logs of 1.65 kg each, marked ① and ④
  - three logs of 1.80 kg each, marked ②, ③, and ⑤
- the length of each fuel piece is 48÷50 cm
- moisture content:
  - pieces ① and ④ at the low side of the allowed range, that is with 18-to-20%d.b. **① is required to be "high-and-*dry*".**
  - piece ② in the mid-low part of the allowed range, that is with 20-to-22%d.b.
  - pieces ③ and ⑤ in the mid-high part of the allowed range, that is with 22-to-25%d.b.
- log selection / shaping
  - for position ① choose a convenient log for promoting a stable flame at the back of the combustion chamber:
    - *without any knot*
    - of *trapezoidal*, rectangular, or triangular shape; *no square* shape. **① is required to be "*high*-and-dry".**
    - for trapezoidal: top side as much as possible parallel with the first baffle
  - for position ② shape the log in order to ease the formation of a vertical ***channel*** between logs ① and ②; see Figure 2.
  - for position ④ a triangular or trapezoidal shape will promote the stability of the flame at the back
  - for position ⑤ a rectangular shape that will increase the height of the aggregate at the front will promote the stability of the flame at the back
- simulate the aggregate of the five logs outside of the stove
  - *channel formation*: by their relative positioning, logs ①, ②, and ④ should assure a vertical channel for the Pilot Air, which enhanced with pyrolysis gas, will reach in the top-back region of the combustion chamber and will get burnt there
  - *stability*: after partial combustion the logs shall keep the initial places
  - *compactness*: logs ②, ③, ④, and ⑤ shall not have explicit gaps in-between in order to reduce the burn-rate
  - improve the compactness and stability of the aggregate by repositioning the logs and watch for the channel formation as suggested in Figure 2.
  - check the overall dimensions of the aggregate
    - depth: less than 26 cm
    - height: less than 22 cm

Insertion and control:

- put the ACP handle to the KSM position
- load build-up in the combustion chamber:
  - to improve the quality of the ember bed at the back of the stove, proceed with the *ember activation*

        - using a suitable tool (small paddle) move the glowing embers from the front to the back of the stove
        - poke gently and *mix* this heap of embers
        - redistribute the embers uniformly over the firing grate
        - the Pilot Air holes at the back-insulation plates shall be left just above the charcoal bed, as suggested in Figure 2. Adjust locally the height of the charcoal bed if necessary.
        - be alert, as the ember preparation together with the load insertion may not exceed 1 minute
    - insert the logs centred left-to-right
    - construct the aggregate according to the simulation
    - the first layer:
        - log ① comes at the back of the stove at 2 cm from the back-insulation plates; push it slightly into the charcoal bed.
        - log ② is placed by respecting the vertical channel formation; push it well into the charcoal bed
        - log ③ can be placed abutted to the log retainer for best stability.
    - the second layer: place ④ on top of ②, watch for the vertical channel, and ⑤ on top of ③ according to the simulation
- finish the ember activation and load insertion within 1 minute, then close the door
- change the ACP to R40 when 0.700 kg is consumed
- change the ACP to the regime setting when the consumed quantity reached 15% from the test load fuel weight or 15 minutes after closing the door, whichever comes first. The regime setting is
    - R0 for the Low Fire and
    - R50 for the Medium Fire
- observe the stability of the flame at the back of the combustion chamber. Under the monitoring of the Pilot Air this flame should now stay alive such that the LF run shows good emissions and good burn-rate ☺.

Example of sequence op ACP position for the Low Fire:

Time [min]	0	**1**		6÷7		~12(**<16**)
Weight [kg]	1.55	10.30		--0.700		--0.600
ACP position	KSM			R40		R0
Event	START	End activation & loading				

bold font means mandatory, italic font means indicative

The sequence of ACP positions shown in this table is driven by the consumed quantity. As of 04/09/18 Dovre is exploring whether a temperature driven approach would lead to a better/more stable ignition in Low Fire. Changing the ACP based on consumed quantity, chimney temperature, and visible amount of black emissions at the end of the chimney appears to be a more versatile approach, but also more complex.

Table 1 gives more insight on how the Air Inlets are changing with the ACP position; this can help on refining the installation specific sequence of ACP positions.

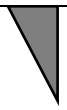
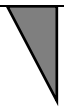
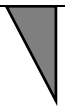
Operation Regions	ACP Handle position	Air Inlets				
		Pilot	Primary	Secondary (St.1)	Airwash (St.2)	Baffle (St.3)
WS Warm Start (Obsolete)	1/1 = WSM	Not regulated	1/1	2/3	0/1	1/2
	2/3				0/1	
	1/3				0/1	
	0/1 ≡ R0		0/1	1/3	0/1	1/1
R Normal Operation	0 = R0 (Rmin)	Not Regulated	0/1	1/3	0/1	1/1
	40 = R40 (R1/2)		0/1			1/1
	80 = R80		0/1			1/1
	100 = R100 (RMax)		0/1	1/1	1/1	1/1
KS Cold Start	0/1 ≡ R100	Not Regulated	0/1	1/1	1/1	1/1
	1/3					
	2/3					
	1/1 = KSM		1/1	3/4	3/4	2/3
		Pilot	Primary	Secondary (St.1)	Airwash (St.2)	Baffle (St.3)

Table 1 Air Inlets set by the position of the Air Control Plate for the two actual operation regions of the stove: KS and R. (WS is obsolete.) The ACP handle position is coded according to Figure 3. The Air Inlet opening is indicated as a fraction of its maximum. Radio volume pictograms show the direction of change of the Air Inlet openings with the turning of the ACP.

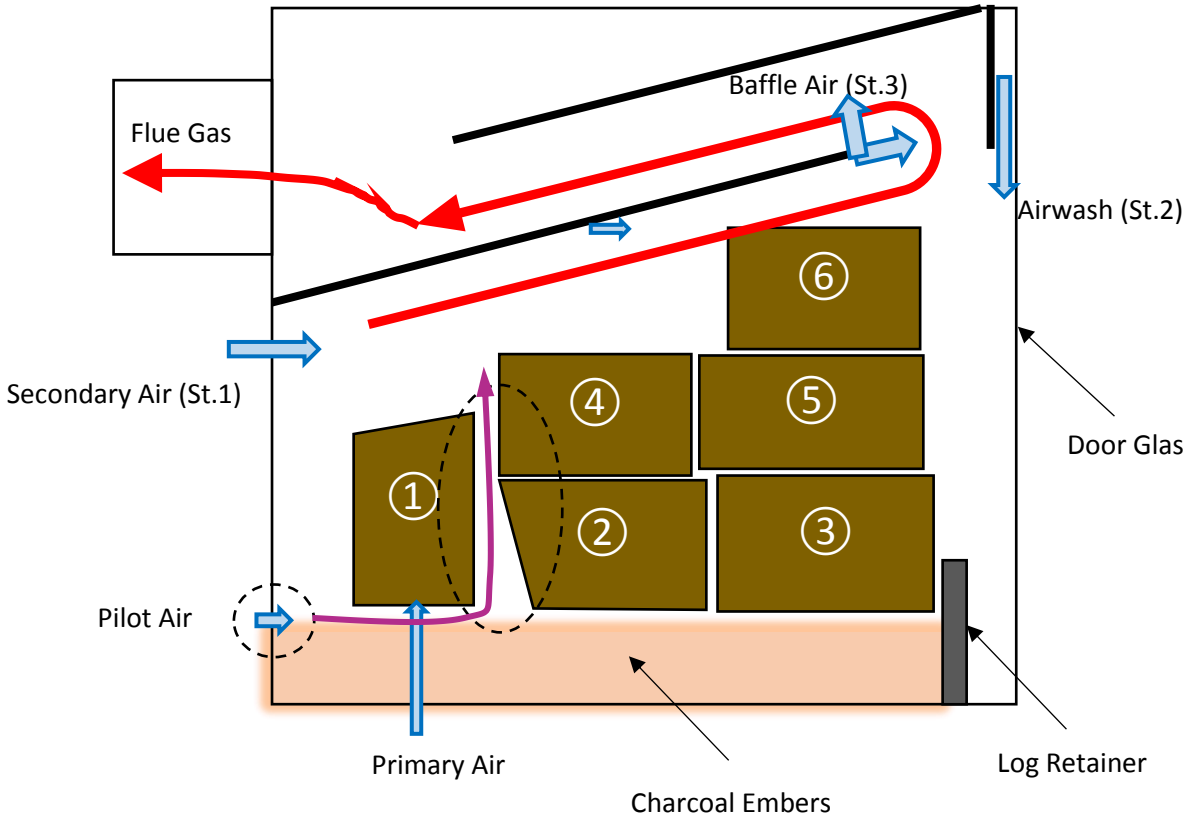


*Figure 1 High Fire wood log positioning inside the combustion chamber; there are six logs used. The Air Inlets are also indicated. It is **important** to shape log ② and to place logs ①, ②, and ④ as indicated in order to enable the pilots do their job and as such to have a stable flame at the back of the stove right away from the ignition phase.*

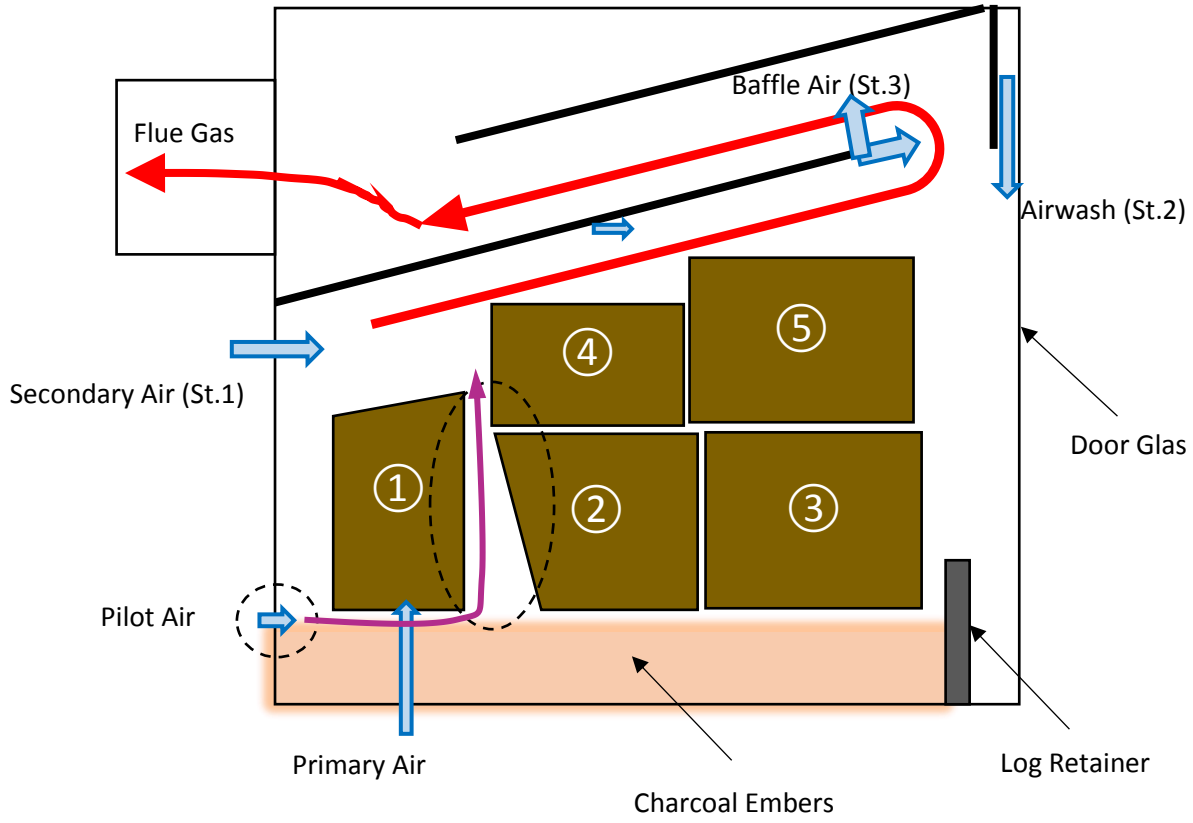


*Figure 2 Low Fire wood log positioning inside the combustion chamber; there are five logs used. The Air Inlets are also indicated. It is **instrumental** to shape log ② and to place logs ①, ②, and ④ as indicated in order to enable the pilots do their job and as such to have a stable flame at the back of the stove right away from the ignition phase. This figure is also applicable to Medium Fire.*

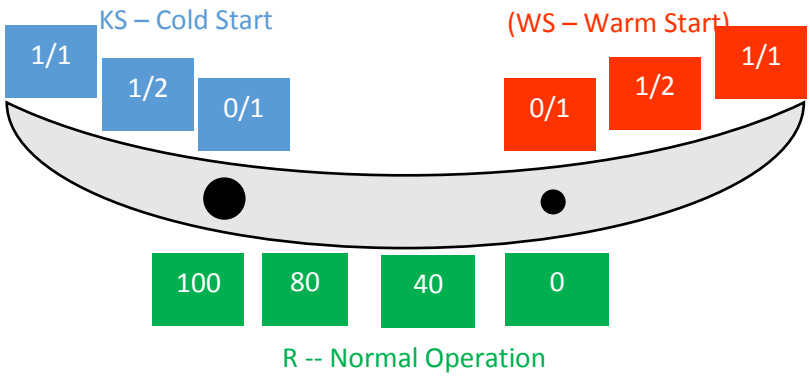
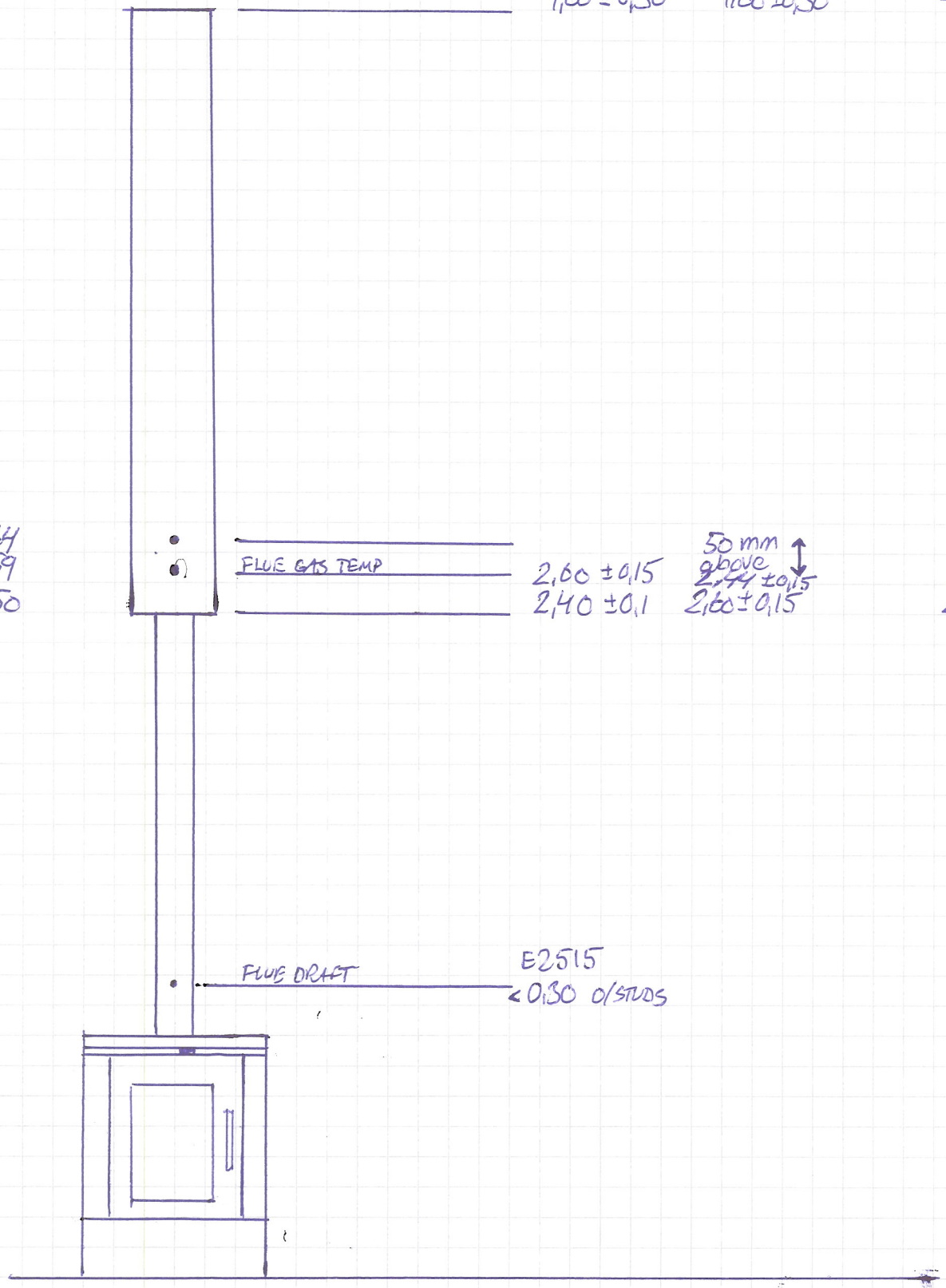


Figure 3 Top view of the bottom plate indicating various ACP handle positions in the two operation regions. The separation between the KS and R regions is marked by a large embossing, while the separation between the WS and R regions is marked by a small embossing. The WS is now obsolete.

EPA SKORSEN

25/10 18 JJ

	E2780-10 CRIB WOOD	CSA B415-1	E3053 CORDWOOD
	4,60 ± 0,30	4,60 ± 0,30	4,60 ± 0,30
2,64 2,59 2,50	FLUE GAS TEMP 2,60 ± 0,15 2,40 ± 0,1	50 mm above 2,44 ± 0,15 2,60 ± 0,15	2,44 ± 0,15 2,60 ± 0,10
	FLUE DRAFT E2515 < 0,30 o/STUDS		



Internt kalibreringscertifikat vedr. kalibrering af vægte i DTI's laboratorier

Obligatorisk for vægte, som anvendes til vejninger, der er omfattet af DTI's DANAK akkrediteringer, bortset fra akkreditering nr. 200. Certifikatet må i uddrag kun gengives, såfremt DTI's kvalitetschef har godkendt uddraget.

Afdeling: DTI/ Energi	Laboratorium: ELAB
Afdelingsnummer: 270	Certifikatnummer: ELAB-36-2018

Dato for kalibrering/klassificering af lodder:	Dato for modtagelse af lodder:	Dato for kalibreringens udførelse:	Certifikatdato:	Vedr. akkr. Nr.:	Sidenummer:
12.11.2014/F1 09.04.2014 /M2 + ukendte 15x20kg fra murværk, 300kg i alt	03.09.2018	04.09.2018	04.09.2018	300	Side 1 af 1

Identifikation den kalibrerede vægt:	Ansvarlig:	Antal bilag:
270-A-1638, KC 600, 600kg, Stand C		

Vægtens max-kapacitet:	Vægtens deling i 1. range:	Vægtens deling i 2. range:	Vægtens kalibreringsværdi i 1. range:	Vægtens kalibreringsværdi i 2. range:	Vægtens serienummer:
600kg	d =1g		e =		

Kontrol af nivellering, nulpunkt og taraindretning

Temperatur: 24

Ved kalibreringens start:

Viser vægten nul i ubelastet tilstand? x ja

Er taraindretningen frakoblet? x ja

Står vægten stabilt og vandret? x ja

Vejeprøve

Overholdt xJa Nej

Belastningspunkt B	Visning, opvejning; I	Visning, nedvejning; I	Evt. tillægslast; opvejning/nedvejning	Fejlvisning, opvejning; F	Fejlvisning, nedvejning; F
0,0kg	0,000kg	0,000		-	-
1,0kg	1,000	1,000		-	-
6,0kg	6,000	6,000		-	-
16,0kg	16,000	16,000		-	-
100,0kg	99,986	99,986	+99,986	-	-
106,0kg	105,986	105,985		-	-0,001
116,0kg	115,983	115,984		-0,003	-0,002
200,0kg	199,939	199,940	+199,939	-	+0,001
206,0kg	205,939	205,939		-	-0,001
300,0kg	299,917	299,917	+299,917	-	-
306,0kg	305,916	305,916		-0,001	-0,001

Undersøgelse af repeterbarhed

Overholdt X Ja Nej

Ca. 10 % af Max	1. vejning	2.vejning	3.vejning	4.vejning	5.vejning
40,0kg	39,999	39,998	39,999	39,999	39,999
Ca. 80 % af Max	1. vejning	2.vejning	3.vejning	4.vejning	5.vejning
80,0kg	79,993	79,992	79,991	79,992	79,992

Prøvning af excentricitet

Overholdt xJa Nej

Ca. 33 % af Max	1. vejning (HB)	2.vejning (VB)	3.vejning (VT)	4.vejning (HT)	DIFF
80,0kg	79,990	79,977	79,977	79,991	**0,014kg**

Metodegrundlag:	Sporbarhed på anvendte lodder (oplys certifikatnummer og dato):	Kalibreringen er udført af:	Godkendt af:
Institutprocedure nr. 900-6.0-1	200-P-22776 (F1) og 200-P-22557 (M2)	REHV	

Grøn

Kalibrering af løse termofølere i EPA stand E

Måleskema til kontrol af temofølere i stand E (EPA)

Dato: 06-09-2018 Udført af: REHV

Brændeovnsprøvestand: D Emne Id nr.: 145092

Certifikat nr.: ELAB-36-2018

#nye korr.

Kalibrator ref.: 270-A-0912 (Jofra)

					(Brugt ved Kalibrering) Aktuel Korrektion		(Ny valgt korr.) Ny Korrektion		Ber.	Ber.	Ber.		
PC indgang	Sand temp.		Vist temp.	Fejl	Konst.	1. gard	Konst.	1. grad	Uden korr.	Ny korr.	Ny fejl.	Krav	
Rum temp.	-1	30	29,9	-0,1	0	1	0,1	1	29,9	30,0	0,0	1	
Filter-1-H	-2	30	29,9	-0,1	0	1	0,1	1	29,9	30,0	0,0	1	
Filter-2-D1	-3	30	29,9	-0,1	0	1	0,1	1	29,9	30,0	0,0	1	
Filter-3-D2	-4	30	29,8	-0,2	0	1	0,2	1	29,8	30,0	0,0	1	
Filter-4-R	-5	30	29,8	-0,2	0	1	0,2	1	29,8	30,0	0,0	1	
Køler-1-H	-6	30	29,8	-0,2	0	1	0,2	1	29,8	30,0	0,0	1	
Køler-2-D	-7	30	29,6	-0,4	0	1	0,4	1	29,6	30,0	0,0	1	
Gasm-H	-8	30	29,6	-0,4	0	1	0,4	1	29,6	30,0	0,0	1	12.09.2018 Kalibrering, Se særskilt kal. Dokument
Gasm-D	-9	30	29,6	-0,4	0	1	0,4	1	29,6	30,0	0,0	1	12.09.2018 Kalibrering, Se særskilt kal. Dokument
Gasm-R	-10	30	29,8	-0,2	0	1	0,2	1	29,8	30,0	0,0	1	
Gas-Disp	-11	30	29,7	-0,3	0	1	0,3	1	29,7	30,0	0,0	1	
Løs føler tilknyttet		30	29,9	-0,1	0	1	0,1	1	29,9	30,0	0,0	2	

Kalibrering af løse termofølere i brændeovnsprøvestand B, C og D

Måleskema til kontrol af temofølere i stand B, C og D

Dato: 04-09-2018 Udført af: REHV

Brændeovnsprøvestand: C Emne Id nr.: 134396

Certifikat nr.: ELAB-36-2018

Kalibrator ref.: 270-A-0912 (Jofra) #Ny indtastet 2018

				(Brugt ved Kalibrering) Aktuel Korrektion		(Ny valgt korr.) Ny Korrektion		Ber.	Ber.	Ber.	
PC indgang	Sand temp.	Vist temp.	Fejl	Konst.	1. gard	Konst.	1. grad	Uden korr.	Ny korr.	Ny fejl.	Krav
Rum temp.	30	30	0					#DIVISION/0!	#DIVISION/0!	######	1,5
Br.rum	85	85,1	0,1	1	1	0,9	1	84,1	85,0	0,0	2
Konv.	85	84,5	-0,5	-0,5	1			85,0	0,0	-85,0	3
Gasmåler	85	85,3	0,3	0,3	1			85,0	0,0	-85,0	2
Disp-T1	85	84,9	-0,1	0,1	1			84,8	0,0	-85,0	2
Disp-T2	85	85,2	0,2	0,2	1			85,0	0,0	-85,0	2
Disp-T3	85	85	0					#DIVISION/0!	#DIVISION/0!	######	2
Disp-T4	85	85,5	0,5	0,5	1			85,0	0,0	-85,0	2
Disp-T5	85	85,5	0,5	0,5	1			85,0	0,0	-85,0	2
Disp-K6	85	85,7	0,7	0,7	1			85,0	0,0	-85,0	2
Disp-K7	85	85,1	0,1	0,1	1			85,0	0,0	-85,0	2
Disp-K8	85	85,7	0,7	0,7	1			85,0	0,0	-85,0	2
Disp T Bag (disponibel-T)	85	85,1	0,1	0,1	1			85,0	0,0	-85,0	2
Disp T side	85	-	#VÆRDI!					#VÆRDI!	#VÆRDI!	#VÆRDI!	2
Dsip 1K	85	-	#VÆRDI!					#VÆRDI!	#VÆRDI!	#VÆRDI!	2
Disp 2K	85	-	#VÆRDI!					#VÆRDI!	#VÆRDI!	#VÆRDI!	2
Røg EN	85	85,8	0,8	1,5	1			84,3	0,0	-85,0	5
Røg EN	250	251,5	1,5	1,5	1	0	0	250,0	0,0	-250,0	5
Røg EN	350	351,4	1,4	1,5	1	0	0	349,9	0,0	-350,0	5
NS røg	85	85,1	0,1	-1	1	-1,9	1	86,1	84,2	-0,8	2
NS røg	250	250,9	0,9	-1	1	-1,9	1	251,9	250,0	0,0	2
NS røg	350	351	1	-1	1	-1,9	1	352,0	350,1	0,1	2
Før Kat.	85	85,5	0,5	3,2	1	1,5	1	82,3	83,8	-1,2	3
Før Kat.	250	253,2	3,2	3,2	1	1,5	1	250,0	251,5	1,5	3
Før Kat.	350	353	3	3,2	1	1,5	1	349,8	351,3	1,3	3
Ovf. Top	85	86,0	1	0,3	1	-1	1	85,7	84,7	-0,3	1
Ovf. Top	250	251,3	1,3	0,3	1	-1	1	251,0	250,0	0,0	1
Ovf. Top	350	351,1	1,1	0,3	1	-1	1	350,8	349,8	-0,2	1
Ovf. Bag	85	84,8	-0,2	-1,1	1	-1,6	1	85,9	84,3	-0,7	1
Ovf. Bag	250	250,5	0,5	-1,1	1	-1,6	1	251,6	250,0	0,0	1
Ovf. Bag	350	350,6	0,6	-1,1	1	-1,6	1	351,7	350,1	0,1	1
Ovf. Side-1	85	84,7	-0,3	-3,4	1	-2	0,99	88,1	85,2	0,2	1
Ovf. Side-1	250	251,9	1,9	-3,4	1	-2	0,99	255,3	250,7	0,7	1
Ovf. Side-1	350	351,7	1,7	-3,4	1	-2	0,99	355,1	349,5	-0,5	1
Ovf. Side-2	85	84,0	-1	0,3	0,9884	0,5	1	84,7	85,2	0,2	1
Ovf. Side-2	250	247,5	-2,5	0,3	0,9884	0,5	1	250,1	250,6	0,6	1
Ovf. Side-2	350	345,2	-4,8	0,3	0,9884	0,5	1	348,9	349,4	-0,6	1
Ovf. Bund	85	84,6	-0,4	-2	0,99	-2	0,99	87,5	84,6	-0,4	1
Ovf. Bund	250	250,7	0,7	-2	0,99	-2	0,99	255,3	250,7	0,7	1
Ovf. Bund	350	349,6	-0,4	-2	0,99	-2	0,99	355,2	349,6	-0,4	1

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-E-20663

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Datalogger**

Fabrikat:	Hewlett Packard A/S	Model:	34970A
Serienr.:	**MY44006319**	Kundemærke:	**270-A-1992**
Område:	mV, V, mA	Klasse:	-
Inddeling:	0,001 mV / 0,00001 V / 0,0001 V	Type:	-
Udgangssignal:	-	Diameter:	-
Tilbehør:	-		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **03-09-2018**

Procedure: D1-7.1 & D1-7.3

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Dennis Dam Sørensen, 72 20 32 27, dds@teknologisk.dk

Godkendt og digitalt signeret 06-09-2018 af:

Jan Nielsen
Cand. Scient

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Jan Nielsen, Teknologisk Institut.

TERMOMETRILABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Voltmeter: Udført på Slot 2, kanal 01(201)

Område	**Input**	**Visning**	**Korrektion**	**Usikkerhed**
	mV	mV	mV	mV
0-100mV	0,0000	0,0003	-0,0003	0,0015
	100,0000	100,0039	-0,0039	0,0029
	V	V	V	V
0-1V	0,000000	0,000000	0,000000	0,000012
	1,000000	1,000034	-0,000034	0,000016
0-10V	0,000000	0,00000	0,00000	0,00012
	1,000000	1,00002	-0,00002	0,00012
	2,000000	2,00004	-0,00004	0,00012
	5,000000	5,00010	-0,00010	0,00013
	10,000000	10,00019	-0,00019	0,00017

Kalibrering af mA loggere:

Område	**Input**	**Visning**	**Korrektion**	**Usikkerhed**
0 - 10 V	mA	V	V	V
Kabel 12, kanal 112	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99992	0,00008	0,00021
Kabel 13, kanal 113	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00049	-0,00049	0,00021

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k=2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

Rumtemperatur: 23 ± 1°C

Sporbarhed:

270-A-2541 Calibrator Fluke 5520A/9855009 sporbar til DANAK reg. nr. 22

TERMOMETRILABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Kalibrering af mA loggere:

Område	**Input**	**Visning**	**Korrektion**	**Usikkerhed**
0 - 10 V	mA	V	V	V
Kabel 26, kanal 301	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00014	-0,00014	0,00021
Kabel 27, kanal 302	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00028	-0,00028	0,00021
Kabel 28, kanal 303	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00078	-0,00078	0,00021
Kabel 29, kanal 304	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00059	-0,00059	0,00021
Kabel 30, kanal 305	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99977	0,00023	0,00021
Kabel 31, kanal 306	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99966	0,00034	0,00021
Kabel 32, kanal 307	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99950	0,00050	0,00021
Kabel 33, kanal 308	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99950	0,00050	0,00021

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k=2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

Rumtemperatur: 23 ± 1°C

Sporbarhed:

270-A-2541 Calibrator Fluke 5520A/9855009 sporbar til DANAK reg. nr. 22

TERMOMETRILABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Kalibrering af mA loggere:
- fortsat

Område	Input	Visning	Korrektion	Usikkerhed
	mA	V	V	V
Kabel 34, kanal 309	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99900	0,00100	0,00021
Kabel 35, kanal 310	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99909	0,00091	0,00021
Kabel 36, kanal 311	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00004	-0,00004	0,00021
Kabel 37, kanal 312	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00071	-0,00071	0,00021
Kabel 38, kanal 313	0,0000	0,00000	0,00000	0,00012
	20,0000	1,99951	0,00049	0,00021
Kabel 39, kanal 314	0,0000	0,00000	0,00000	0,00012
	20,0000	2,00038	-0,00038	0,00021

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k=2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

Rumtemperatur: 23 ± 1°C

Sporbarhed:

270-A-2541 Calibrator Fluke 5520A/9855009 sporbar til DANAK reg. nr. 22

TERMOMETRILABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Thermocouple test - elektromotorisk kraft defineret i DS/EN 60584-1:2014

Type K - med ekstern cold junction v. 0 °C
Slot 2, kanal 02(202)

Simuleret TC-temp. °C	Input mV	Visning °C	Korrektion °C	Usikkerhed °C
0,0	0,0000	0,2	-0,200	0,078
100,0	4,0962	100,2	-0,200	0,078
200,0	8,1385	200,2	-0,200	0,078
400,0	16,3971	400,2	-0,200	0,078
600,0	24,9055	600,2	-0,200	0,078

Type T - med ekstern cold junction v. 0 °C
Slot 2, kanal 03 (203)

Simuleret TC-temp. °C	Input mV	Visning °C	Korrektion °C	Usikkerhed °C
0,0	0,0000	0,0	0,000	0,078
50,0	2,0357	49,9	0,100	0,078
100,0	4,2785	99,9	0,100	0,078
150,0	6,7041	149,9	0,100	0,078
200,0	9,2881	199,9	0,100	0,078

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k=2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

Rumtemperatur: 23 ± 1°C

Sporbarhed:

270-A-1908 Termopar TC type K
270-A-1907 Termopar TC type T
270-A-2541 Calibrator Fluke 5520A/9855009 sporbar til DANAK reg. nr. 22

DANISH TECHNOLOGICAL INSTITUTE	**KONTROL AF TRYKMÅLERE**
CP	**Test af kontinuerligt registrerende trykmålere**
Side 1 af 1	**Udstedt af: ELAB**

Logbog/kontrol – Autotran 700/ACI tryktransmittere

Emne nr.: Id nr. 148230 (0-25,4Pa)

Placering: Stand C, Røgtræk

Dato: 06-09-2018

Certifikat nr.: ELAB-36-2018

Signatur: KMSA

Ref. Udstyr: 270-A-2406 TSI

Ca. Målepunkt [Pa] (0-25,4Pa)	Ca. Målepunkt [PA] (0-60Pa)	Reference [Pa] (1 decimal)	Aflæst tryk [Pa] (1 decimal)	Fejl [Pa]
0	0	0,0	0,1	+0,1
4	5	3,8	4,0	+0,2
8	10	8,5	8,5	+0,0
12	15	12,1	12,3	+0,2
16	20	17,0	17,3	+0,3
20	40	20,6	20,7	+0,1
24	55	25,0	25,4	+0,4

Grøn OK

Internt kalibreringscertifikat vedr. kalibrering af flowmeter før røggasanalysatorer		Afdeling: DTI/	Laboratorium:
		Energi	ELAB
		Afdelingsnummer:	Certifikatnummer:
		270	ELAB-36-2018

Placering af Trykmåler	Reference Trykmåler	Dato for kalibreringens udførelse:	Certifikatdato:
Pd Stand C	270-A-2406 TSI	06-09-2018	
Vedr. akkr. Nr.:	Trykmålerens instrumentnummer:		Udført af:
300	148231		KMSA

Flowmåler:

Ref.	Aflæst	Fejl	Korrigeret	Ny Fejl
Pa	Pa	Pa	Pa	Pa
0,0	0,1	0,1	0,1	0,1
5,0	4,9	-0,1	5,0	0,0
10,5	10,3	-0,2	10,6	0,1
15,5	15,2	-0,3	15,7	0,2
20,3	19,8	-0,5	20,4	0,1
41,6	40,6	-1,0	41,8	0,2
56,9	55,0	-1,9	56,7	-0,3

1. grad	1,03
Konstant	0,0

DANISH TECHNOLOGICAL INSTITUTE	**KONTROL AF TRYKMÅLERE**
CP	**Test af kontinuerligt registrerende trykmålere**
Side 1 af 1	**Udstedt af: ELAB**

Logbog/kontrol – Autotran 700/ACI tryktransmittere

Emne nr.: Id nr. 94839 (0-254Pa)

Placering: Stand C, Ps

Dato: 06-09-2018

Certifikat nr.: ELAB-36-2018

Signatur: KMSA

Ref. Udstyr: 270-A-2406 TSI

Ca. målepunkt [Pa] (0-25,4Pa)	Ca. målepunkt [Pa] (0-250 Pa)	Reference [Pa] (1 decimal)	Aflæst tryk [Pa] (1 decimal)	Fejl [Pa]
0	0	0,0	0,0	0,0
4	5	5,2	5,1	-0,1
8	10	10,4	10,3	-0,1
12	20	21,4	21,1	-0,3
16	50	50,5	50,5	0,0
20	100	102,4	102,2	-0,2
24	240	242,9	242,3	-0,6

Grøn

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-T-22737

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Termometer, Temperaturkalibrator**

Fabrikat:	Jofra Instruments	Model:	650 SE
Serienr.:	**901326**	Kundemærke:	**270-A-912**
Område:	Maks. 650 °C	Inddeling:	0,1 °C

Periode: Modtaget: 29-08-2018 Kalibreret: **30-08-2018**

Procedure: D1-5.1

Bemærkninger: Aksial inhomogenitet og temperaturinstabilitet for kalibratoren er undersøgt i overensstemmelse med EURAMET cg-13 Version 3.0 (02/2015). Kalibreringen er foretaget med en referenceføler med en diameter på 5,8 mm og et isoleringrør (foret med mineraluld) med en diameter på ca. 25 mm og en højde på ca. 150 mm. Isoleringsrøret er placeret omkring føleren ovenpå blokken.

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Søren Lindholt Andersen, 72 20 17 98, soan@teknologisk.dk

Godkendt og digitalt signeret 27-09-2018 af:

Søren Andersen

Søren Lindholt Andersen
Konsulent, Ph.d.

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Søren Lindholt Andersen, Teknologisk Institut.

TEMPERATURLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

Føler mærket: 270-A-912

Reference-værdi °C	Aflæsning °C	Fejl °C	Usikkerhed °C	Note
30,06	30,00	-0,06	0,24	
85,17	85,00	-0,17	0,24	
150,31	150,00	-0,31	0,24	
250,48	250,00	-0,48	0,24	
350,67	350,00	-0,67	0,24	
500,91	500,00	-0,91	0,24	
651,31	650,00	-1,31	0,24	

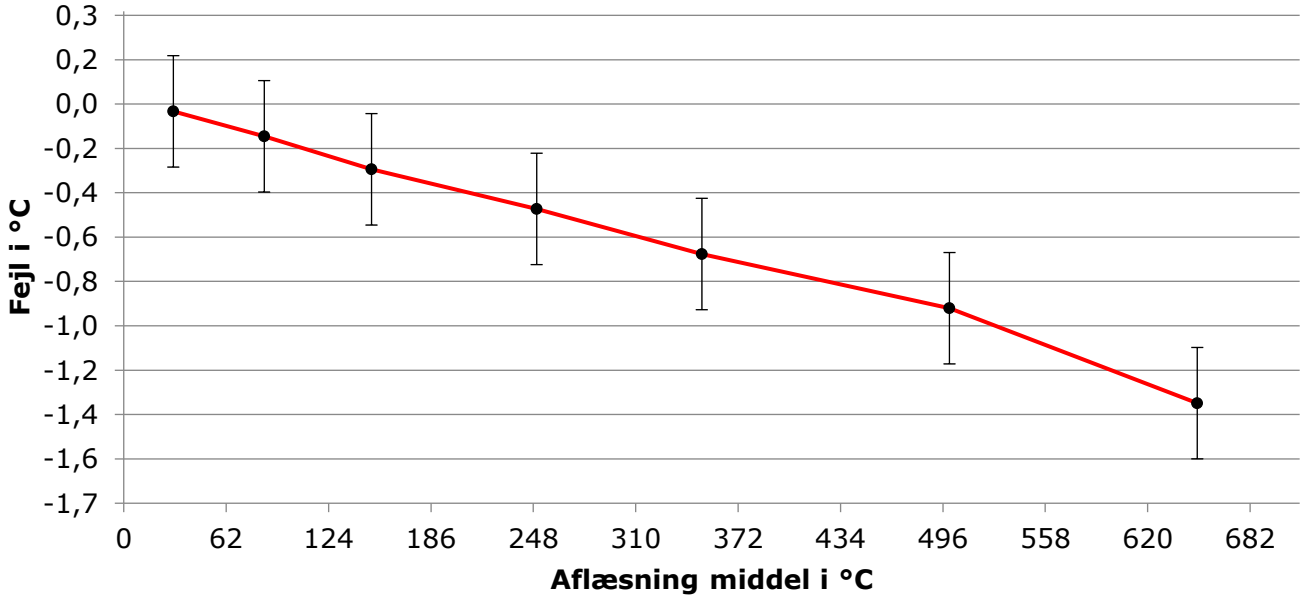
Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

TEMPERATURLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Fejlkurve

Føler mærket: 270-A-912



Kun de markerede punkter er målt.

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren $k=2$, således at dækningssandsynligheden svarer til ca. 95 %.
Alle temperaturer er i henhold til ITS90

Kalibreringsforhold:

Rumtemperatur:	22,7 °C ± 1,3 °C
Relativ fugtighed:	55,0 %rh ± 4,6 %rh
Barometerstand:	1014,3 mbar ± 2,5 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Internt kalibreringscertifikat vedr. kalibrering af vægte i DTI's laboratorier

Obligatorisk for vægte, som anvendes til vejninger, der er omfattet af DTI's DANAK akkrediteringer, bortset fra akkreditering nr. 200. Certifikatet må i uddrag kun gengives, såfremt DTI's kvalitetschef har godkendt uddraget.

Afdeling: DTI/ Energi	Laboratorium: ELAB
Afdelingsnummer: 270	Certifikatnummer: ELAB-36-2018

Dato for kalibrering/klassificering af lodder:	Dato for modtagelse af lodder:	Dato for kalibreringens udførelse:	Certifikatdato:	Vedr. akkr. Nr.:	Sidenummer: Side 1 af 1
12.11.2014/FI og 09.04.2014/M2	03.09.2018	03.09.2018	03.09.2018	300	

Identifikation den kalibrerede vægt: 270-A-1989	Ansvarlig:	Antal bilag:

Vægtens max-kapacitet:	Vægtens deling i 1. range:	Vægtens deling i 2. range:	Vægtens kalibreringsværdi i 1. range:	Vægtens kalibreringsværdi i 2. range:	Vægtens serienummer:
15kg	d = 1g		e =		

Kontrol af nivellering, nulpunkt og taraindretning

Temperatur: 23

Ved kalibreringens start:

Viser vægten nul i ubelastet tilstand? x ja

Er taraindretningen frakoblet? x ja

Står vægten stabilt og vandret? x ja

Vejeprøve

Overholdt xJa Nej

Belastningspunkt B - kg	Visning, opvejning; I	Visning, nedvejning; I	Evt. tillægslast;a opvejning/nedne jnig	Fejlvisning, opvejning; F	Fejlvisning, nedvejning; F
0,000	0,000	0,000		-	-
0,005	0,005	0,005		-	-
0,050	0,050	0,050		-	-
0,200	0,200	0,200		-	-
0,600	0,599	0,599		-0,001g	-0,001g
1,000	0,999	0,999		-0,001g	-0,001g
2,000	1,998	1,998		-0,002g	-0,002g
7,000	6,994	6,993	+5,000738	-0,006g	-0,007g
12,000	11,990	11,990	+10,00164	-0,010g	-0,010g

Undersøgelse af repeterbarhed

Overholdt xJa ☐Nej

Ca. 10 % af Max	1. vejning	2.vejning	3.vejning	4.vejning	5.vejning
1,000kg	0,999	0,999	0,999	0,999	0,999
Ca. 80 % af Max	1. vejning	2.vejning	3.vejning	4.vejning	5.vejning
10,000kg	9,992	9,992	9,992	9,991	9,992

Prøvning af excentricitet

Overholdt xJa ☐Nej

Ca. 33 % af Max	1. vejning	2.vejning	3.vejning	4.vejning	Diff.:
5,000kg	4,995	4,996	4,996	4,996	0,001kg

Metodegrundlag: Institutprocedure nr. 900-6.0-1	Sporbarhed på anvendte lodder (oplys certifikatnummer og dato): **200-P-22776 (F1) og 200-P-22557 (M2)**	Kalibreringen er udført af: REHV	Godkendt af:

Grøn

Y:\Labspace\LAB2C_Labspace\Kalibrering Arbejdskopi\2018\EPA-Certifikater\09-Id-5822-270-A-1989-ELAB-36-2018.docx

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvangs Allé 29
8000 Aarhus C
Tlf. +45 72 20 20 00

info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR:
200-A-162-890

Rekvirent: **Teknologisk Institut**
Kongsvang Allé 29,
8000 Aarhus
Att.: Max Bjerum

Emne:

Type:	Digital Vægt	Kundemærke:	7084
Fabrikat:	Mettler Toledo	Måleområde:	0-220 g
Model:	XS 204	Serienr.:	B042079566

Modtaget dato: 22-10-2018 Kalibreringsdato: 22-10-2018

Testmetode: Auto D1-10.1

Kalibreringssted: Teknologisk Institut, Kongsvang Allé 29 - 0

Sporbarhed: Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Bemærkninger: Resultatet af kalibreringen fremgår af de efterfølgende sider

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt dette.

Udført af:

Dato: 22-10-2018

Lars H. Hudecek - Faglig Ansvarlig

Ivan Sand - Automobilteknik

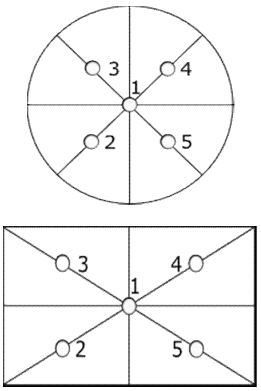
ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Ivan Sand, Teknologisk Institut.

Måleresultater:

Ekcentrisk belastning

Position	Deling	1	2	3	4	5
	[g]	[g]	[g]	[g]	[g]	[g]
Visning	0,0001	50,0000	50,0000	50,0002	50,0001	49,9999
Fejl		0,0000	0,0000	0,0002	0,0001	-0,0001
Største Fejl:		0,0002				



Placering af målepunkter

Repeterbarhed

Anvendt masse	Deling	Målt 1	2	3	4	5
[g]	[g]	[g]	[g]	[g]	[g]	[g]
100,0000	0,0001	100,0002	100,0002	100,0002	100,0002	100,0002
200,0000	0,0001	200,0002	200,0002	200,0002	200,0002	200,0003

Linearitet

Reference masse	Deling	Målt I1	I2	Imiddel	Fejl	Udv. måle-usikkerhed	Dæknings faktor
[g]	[g]	[g]	[g]	[g]	[g]	[g]	
0,001000	0,0001	0,0010	0,0010	0,001000	0,000000	0,000064	2,00
0,050000	0,0001	0,0500	0,0500	0,050000	0,000000	0,000079	2,00
0,50000	0,0001	0,5000	0,5000	0,50000	0,00000	0,00012	2,00
5,00000	0,0001	5,0000	5,0000	5,00000	0,00000	0,00022	2,00
20,00000	0,0001	20,0000	20,0000	20,00000	0,00000	0,00036	2,00
49,99999	0,0001	50,0000	50,0000	50,00000	0,00001	0,00053	2,00
99,99999	0,0001	100,0002	100,0002	100,00020	0,00021	0,00095	2,00
150,0000	0,0001	150,0002	150,0002	150,0002	0,0002	0,0015	2,00
220,0000	0,0001	220,0006	220,0006	220,0006	0,0006	0,0022	2,00

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k, som for en t-fordeling, med det relevante antal frihedsgrader, giver en dækningssandsynlighed på ca. 95%

Omgivelser:

Temperatur	**22,4** ± 1 °C
Luftfugtighed	**43** ± 5 %RH
Lufttryk	**1023** ± 5 hPa
Beregnet Luftdensitet	**1,201** ± 0,012 kg/m3

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-L-21099

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Lufthastighedsmåler**

Fabrikat:	Disa	Model:	54N50
Serienr.:	**121**	Kundemærke:	**13486**
Område:	0 - 100 cm/s	Inddeling:	0,1 cm/s
Type:	-	Udgangssignal:	cm/s
Tilbehør:	Føler: serienr.: 0166		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 04-09-2018 Kalibreret: **06-09-2018**

Procedure: D1-2

Bemærkninger: Instrumentet er kalibreret med konnektor på føler pegende vinkelret til flowet.
Instrumentet er aflæst i cm/s, men angivet i certifikatet som m/s

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Søren Haack, 72 20 23 38, sorh@teknologisk.dk

Godkendt og digitalt signeret 07-09-2018 af:

John Frederiksen
Ingeniør

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for John Frederiksen, Teknologisk Institut.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

Dato: 2018.09.06 Cert nr: 200-L-21099

KALIBRERINGSCERTIFIKAT

ANEMOMETER

Måleområde: 0 - 2 m/s

Luft temperatur °C	Luft massefylde kg/m^3	Reference hastighed m/s	Emnets visning m/s	Fejl m/s	Usikkerhed m/s
24,06	1,182	0,050	0,020	-0,030	0,020
24,06	1,182	0,202	0,149	-0,053	0,020
24,06	1,182	0,403	0,284	-0,119	0,020
24,06	1,182	0,605	0,440	-0,165	0,021
24,06	1,182	0,706	0,508	-0,198	0,021
24,06	1,182	0,706	0,509	-0,197	0,021
24,06	1,182	0,605	0,438	-0,167	0,021
24,06	1,182	0,403	0,285	-0,118	0,020
24,06	1,182	0,202	0,147	-0,055	0,020
24,06	1,182	0,050	0,020	-0,030	0,020

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LABORATORIEBETINGELSER OG SPORBARHED

Laboratoriebetingelser:

Rumtemperatur (°C) :	24,1	± 0,6
Relativ luftfugtighed (%) :	58	± 10
Barometerstand (mbar) :	1014,4	± 1

Referencer:

Dette kalibreringscertifikat er omfattet af DANAK akkreditering
og EA's og ILAC's multilaterale aftaler for kalibrering,
hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-04/2.

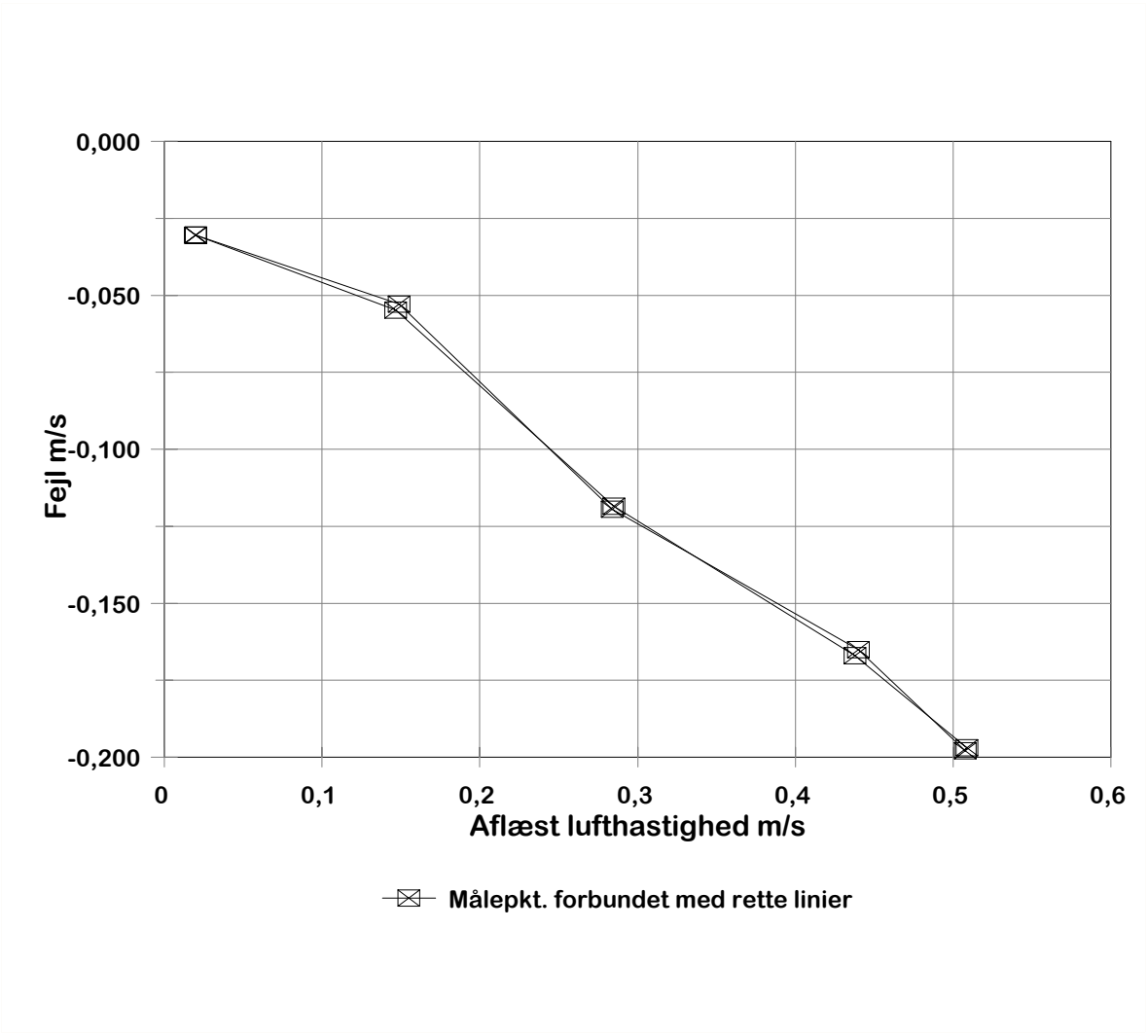
LUFTLABORATORIET

TEKNOLOGISK INSTITUT

Dato : 2018.09.06 Cert nr 200-L-21099

KALIBRERINGSCERTIFIKAT

FEJLKURVE



Sand hastighed = Aflæst - Fejl (med fortegn)

Usikkerhed: 0,020 m/s til 0,021 m/s

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24527

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Mikromanometer**

Fabrikat:	TSI	Model:	8705-M-GB
Serienr.:	**56050491**	Kundemærke:	**270-A-2406**
Område:	-1245 - 3735 Pa	Inddeling:	0,1 Pa
Type:	DP-CALC		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **05-09-2018**

Procedure: D1-3.2

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 06-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: -1245 - 3735 Pa

Reference Op 1	Aflæsning Op 1	Reference Ned 1	Aflæsning Ned 1	Reference Op 2	Aflæsning Op 2	Reference Ned 2	Aflæsning Ned 2
Pa	Pa	Pa	Pa	Pa	Pa	Pa	Pa
0,01	0,0	0,00	-0,1	0,01	0,0	0,00	-0,1
1,98	2,0	2,01	1,9	1,96	1,9	2,04	1,9
9,97	10,0	9,98	10,0	9,97	10,1	9,97	10,0
19,75	19,9	20,26	20,4	19,78	19,9	20,28	20,4
29,77	30,0	30,28	30,5	29,77	30,0	30,28	30,5
99,72	100,6	100,16	101,1	99,78	100,6	100,17	101,0
199,79	201,6	200,02	201,9	199,71	201,5	200,00	201,8
300,28	303,0	300,42	303,2	300,33	303,1	300,36	303,2

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

Måleområde: -1245 - 3735 Pa

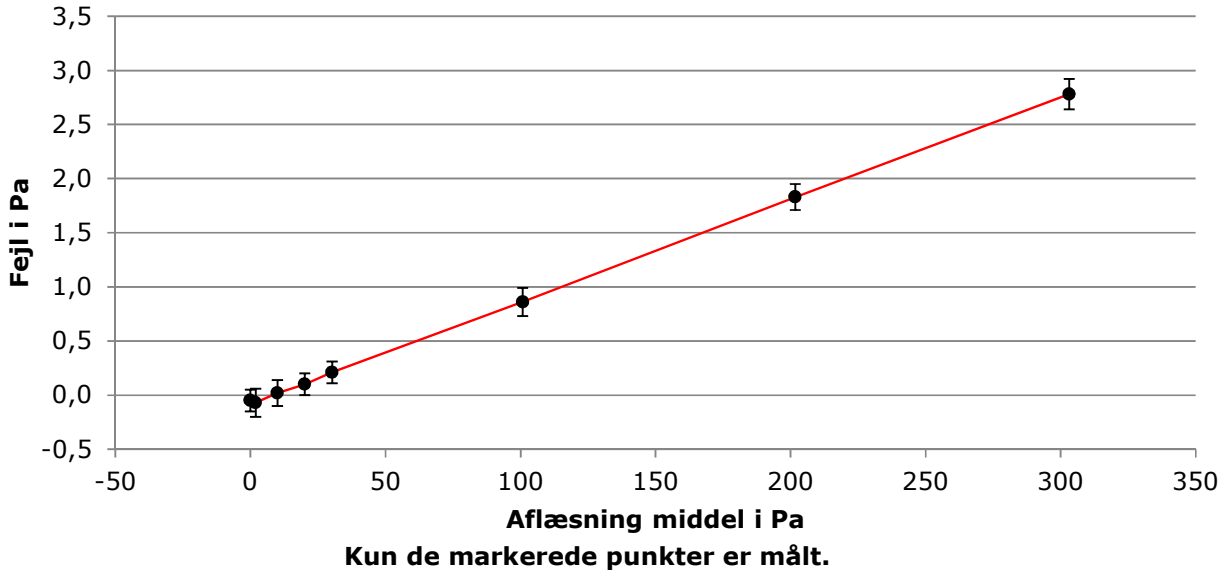
Reference middelværdi Pa	Aflæsning middelværdi Pa	Opløsning Pa	Hysterese Pa	Fejl Pa	Usikkerhed Pa
0,00	-0,04	0,1	0,04	-0,05	0,10
2,00	1,93	0,1	0,09	-0,07	0,13
9,97	10,00	0,1	0,07	0,02	0,12
20,02	20,12	0,1	0,01	0,10	0,10
30,02	30,23	0,1	0,03	0,21	0,10
99,96	100,82	0,1	0,07	0,86	0,13
199,88	201,71	0,1	0,02	1,83	0,12
300,35	303,13	0,1	0,03	2,78	0,14

Maks. hysterese:	0,09	Pa
Maks. fejl:	2,78	Pa
Maks. relativ fejl i forhold til måleområdet:	0,056	%

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Alle værdier under 'Op' og 'Ned' er afrundede middelværdier af 10 målinger (rådata). Værdierne under 'Fejl' er ligeledes afrundede middelværdier af samme rådata (evt. 2 gange, dvs. 20 eller 40 målinger). Der kan derfor forekomme uoverensstemmelse mellem måleresultater og fejl, da alle tal afrundes til 2 betydende cifre, jf. EA4/02.
Fejl = aflæsningsværdi - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Luft
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	64,5 %rh ± 4,2 %rh
Barometerstand:	1020 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-U-22989

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Relativ fugtmåler, Luft fugtighed og Rum temperatur i ELAB**

Fabrikat:	Thermoguard	Model:	57713
Serienr.:	**OK + 02457265**	Kundemærke:	**142357**
Område:	0 - 100 %RH / -40 - +80 °C	Inddeling:	0,1 %RH / 0,1 °C
Tilbehør:	Føler S/N: OK+02427057		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **05-09-2018**

Procedure: D1-6.1

Bemærkninger: Aflæsning er foretaget vha. software.
Kalibrering er foretaget i to-trykgenerator.

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Mette Pedersen, 72 20 12 32, mo@teknologisk.dk

Godkendt og digitalt signeret 06-09-2018 af:

Peter Friis Østergaard
Konsulent, PhD

ilac-MRA DANAK
CAL Reg.nr. 200

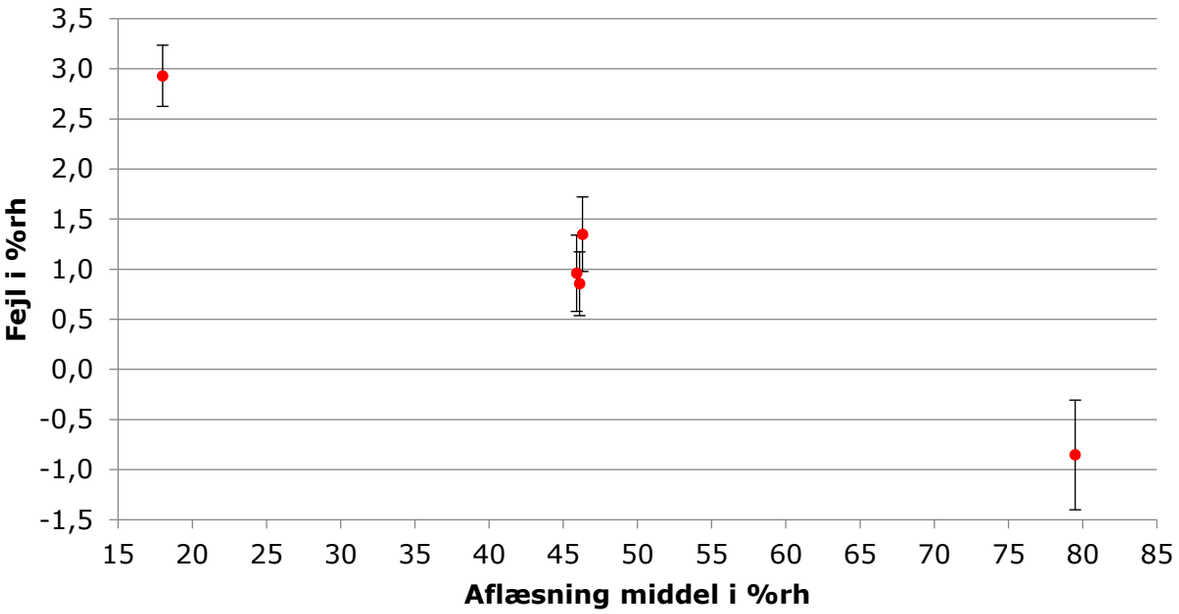
Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Peter Friis Østergaard, Teknologisk Institut.

KALIBRERINGSCERTIFIKAT
Resultater

Reference-værdi °C	Reference-værdi %rh	Aflæsning %rh	Fejl %rh	Usikkerhed %rh	Note
17,96	44,95	46,30	1,35	0,37	
22,05	15,07	18,00	2,93	0,31	
22,07	44,94	45,90	0,96	0,38	
22,09	80,35	79,50	-0,85	0,55	
28,09	45,25	46,10	0,85	0,32	

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

KALIBRERINGSCERTIFIKAT
Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

KALIBRERINGSCERTIFIKAT
Resultater

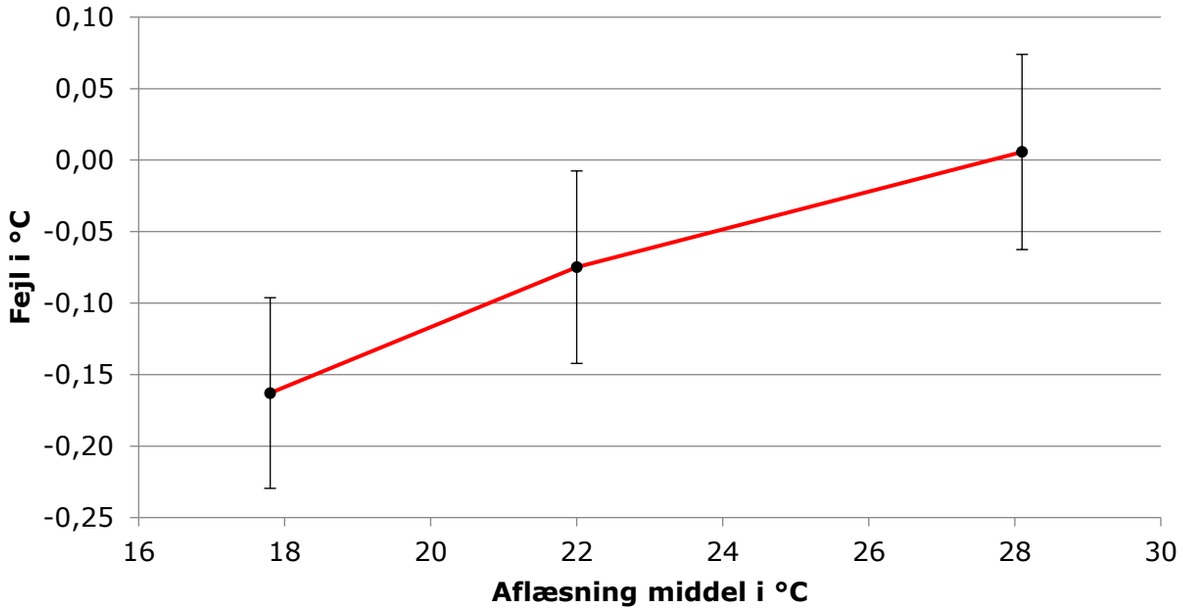
Reference-værdi °C	Aflæsning værdi °C	Fejl °C	Usikkerhed °C	Note
17,963	17,80	-0,163	0,067	
22,075	22,00	-0,075	0,067	
28,094	28,10	0,006	0,068	

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

FUGTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren $k = 2$, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:
Rumtemperatur: 22 °C ± 3 °C

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24401

Rekvirent: Teknologisk Institut, Pressometri
Kenn Øholm
Kongsvang Allé 29
8000 Århus C

Emne: **Barometer**

Fabrikat:	Ahlborn	Model:	Almemo FD A612-SA
Serienr.:	**08120625**	Kundemærke:	**270-A-2617**
Område:	700 - 1050 mbar abs	Inddeling:	0,1 mbar abs
Tilbehør:	Displayenhed: Ahlborn, Almemo 2490, Kundemærke: 270-A-2618.		

Periode: Modtaget: 27-03-2018 Kalibreret: **18-04-2018**

Procedure: D1-6.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 24-04-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

KALIBRERINGSCERTIFIKAT

Målinger

Måleområde: 700 - 1050 mbar a

Reference	Aflæsning	Reference	Aflæsning	Reference	Aflæsning	Reference	Aflæsning
Op 1		Ned 1		Op 2		Ned 2	
mbar a	mbar a	mbar a	mbar a	mbar a	mbar a	mbar a	mbar a
950,08	950,1	950,08	950,2	950,08	950,1	950,08	950,2
970,08	970,1	970,08	970,2	970,08	970,2	970,08	970,2
990,08	990,1	990,08	990,2	990,08	990,1	990,08	990,2
1.010,08	1.009,9	1.010,08	1.010,0	1.010,08	1.009,9	1.010,08	1.010,0
1.030,09	1.029,8	1.030,09	1.029,9	1.030,09	1.029,8	1.030,09	1.029,9
1.050,09	1.049,5	1.050,09	1.049,6	1.050,09	1.049,5	1.050,09	1.049,6

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

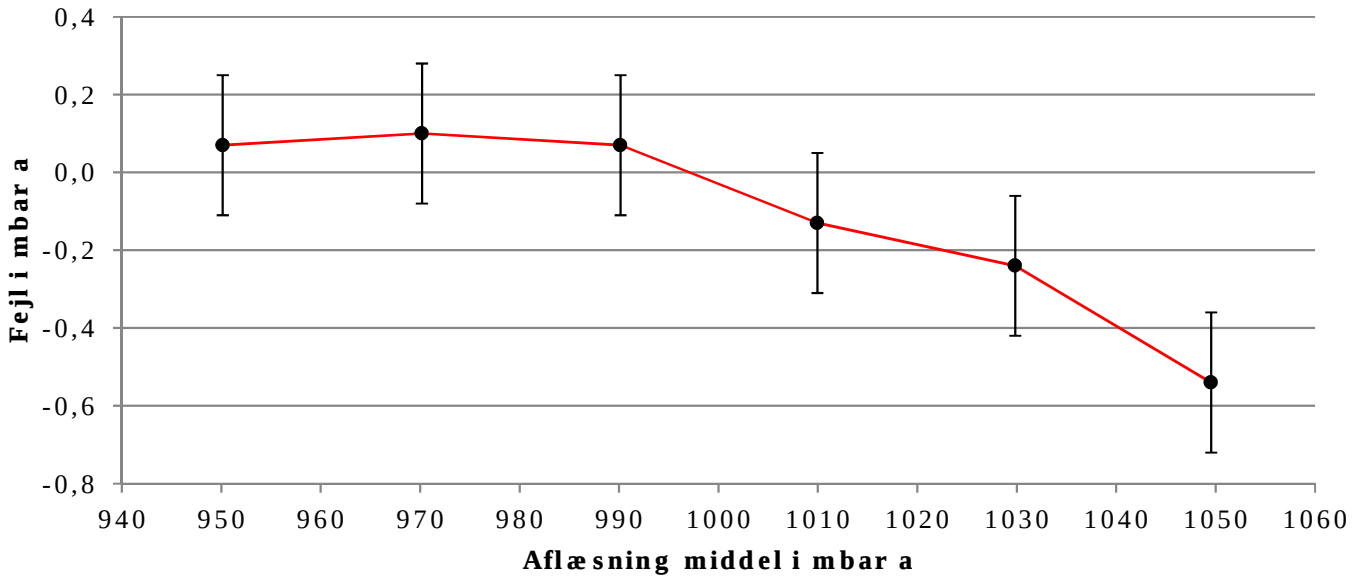
Måleområde: 700 - 1050 mbar a

Reference middelværdi mbar a	Aflæsning middelværdi mbar a	Opløsning mbar a	Hysterese mbar a	Fejl mbar a	Usikkerhed mbar a
950,08	950,15	0,1	0,10	0,07	0,18
970,08	970,18	0,1	0,05	0,10	0,18
990,08	990,15	0,1	0,10	0,07	0,18
1.010,08	1.009,95	0,1	0,10	-0,13	0,18
1.030,09	1.029,85	0,1	0,10	-0,24	0,18
1.050,09	1.049,55	0,1	0,10	-0,54	0,18

Maks. hysterese:	0,10 mbar a
Maks. fejl:	-0,54 mbar a
Maks. relativ fejl i forhold til måleområdet:	0,15 %

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,6 °C ± 0,3 °C
Relativ fugtighed:	46,2 %rh ± 4,2 %rh
Barometerstand:	1026 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

ilac-MRA DANAK CAL Reg. nr. 9 CIPM MRA

Id nr. 144236

Kalibreringscertifikat

Task nr.:	118-31693
Certifikat nr.:	9.8-19243
Side:	1 af 3

OBJEKT:

Prøveemne:	Masseflowmåler
Fabrikat:	Red-y
Id nr.	Hel
Serie nr.:	198703
Størrelse:	10 nl/min N2

REKVIRENT: Teknologisk Institut
Teknologiparken, Kongsvang Allé 29
8000 Århus C
Att.: Torben Nørgaard Jensen

SKALA//SKALAINDDELING: 0 - 10 nl/min // 0,1 nl/min

PRØVNINGSBETINGELSER:

Prøvningsmetode/medie:	Gennemstrømning med nitrogen.
Middelbarometerstand:	1016,5 mbar
Omgivelsestemperatur:	20 ± 1 °C

PRØVNINGSOMFANG: Kalibrering ved : 0,5; 2,5; 5,0; 7,5 og 10 nl/min
Resultater opgives i nl/min
(1 nl/min = 1 l/min ved 0 °C, og 1013,25 mbar.)

KALIBRERING iht.: FORCE instruktion nr. 60.2.02.
KALIBRERINGSDATO: 2018-09-05
KALIBRERINGSRESULTAT: Resultater, se side 2.

SPORBARHED: Prøveanlæg: FORCE nr.: C02-006 Se side 3.

BEMÆRKNINGER: Teknisk vurdering: Ingen bemærkninger.

UDSTEDELSESDATO: 2018-09-11

Preben Bendt Toftdahl Jensen
Opgaveansvarlig

Jesper Busk
Underskriftsberettiget

Certifikat må kun gengives i uddrag med FORCE Technology´s skriftlige tilladelse.
De 'Almindelige betingelser' på bagsiden er en integreret del af vor ydelse.

OBJEKT:

Prøveemne:	Masseflowmåler	Qmax:	10 nl/min
Fabrikat:	Red-y	Qmin:	0 nl/min
Id nr.	Hel	Scale division:	0,1 nl/min
Serie nr.:	198703		
Størrelse:	10 nl/min N2		

Referenceværdier

Virkeligt flow	Ucmc
nl/min	±nl/min
10,012	0,017
7,467	0,013
4,959	0,008
2,4760	0,0042
0,51123	0,00087

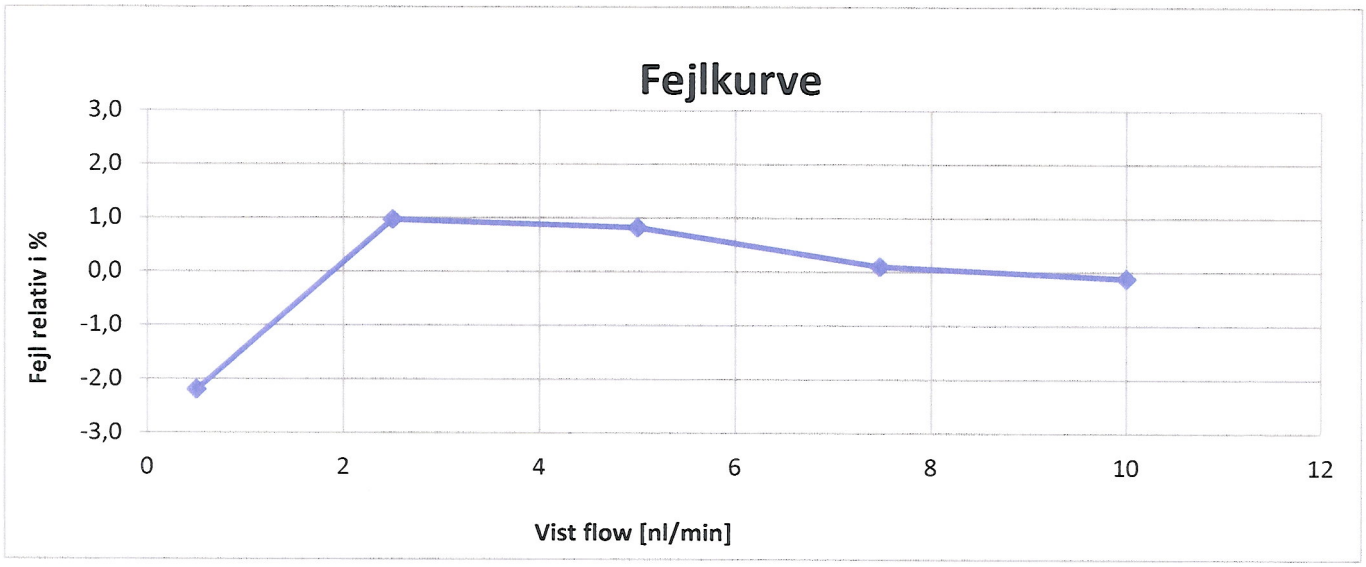
Udstyr under kalibrering

Vist flow	Standard-usikkerhed	Fejl Relativ	Ekspanderet usikkerhed	Dæknings-faktor (k)	Tryk	Tempera-tur
nl/min	nl/min	%	±%		mbara	°C
10,00	0,03	-0,12	0,60	2,00	1020,4	20,5
7,48	0,03	0,10	0,90	2,00	1020,2	20,5
5,00	0,03	0,82	0,97	1,65	1020,0	20,5
2,50	0,03	0,97	1,93	1,65	1020,5	20,5
0,50	0,03	-2,20	9,32	1,65	1020,3	20,5

"Ucmc" er 0,17% af "Virkeligt flow".
"Vist flow" er middelværdi af visninger aflæst i målerens display. Antallet af aflæsninger var 5-8.
I "Standardusikkerhed" er et bidrag fra standardafvigelsen knyttet til "Vist flow" samt et bidrag fra aflæsningernes afrundingsfejl.
"Fejl relativ" blev beregnet med formlen: ("Vist flow" - "Virkeligt flow")/"Virkeligt flow"x100
"Ekspanderet usikkerhed" blev beregnet med formlen:

$$\frac{k}{"Virkeligt\ flow"} \times \sqrt{\left(\frac{"Ucmc"}{2}\right)^2 + "Standardusikkerhed"^2} \times 100$$

"Temperatur" og "Tryk" blev målt efter måler.



Målepunkter er forbundet med rette linier

LABORATORIETS KONTROLUDSTYR

De med x mærkede arbejdsnormaler er anvendt til kalibreringen.

	Arbejdsnormaler:	FORCE nr:	Sporbarhed:	Kalibreret:	Certifikat nr:
	Anlæg: FORCE nr. C02-006.				
x	Small tube 1-750 ml/min	A00-070	Trescal	14-09-2016	401-20675
x	Medium tube 1-10000 ml/min	A00-069	Trescal	21-12-2017	401-21145
	Big tube 1-50000 ml/min	A00-068	Trescal	14-09-2016	401-20673
	Øvrigt udstyr:				
x	Temperaturmålere	A70xxx		kalibreres i.h.t. instruktioner	
x	Trykmålere	A80xxx		kalibreres i.h.t. instruktioner	

Laboratoriets måleevne:

I beregningen af måleevnen Ucmc er medtaget alle betydende bidrag bortset fra målerens standardafvigelse og afrundingsfejl, som medtages i beregningen af den rapporterede ekspanderede usikkerhed.

Måleevnen Ucmc er: ±0,17% relativ.

Ekspanderet usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k, således at dækningssandsynlighed svarer til ca. 95 %.

* VSL, Holland via FORCE Technology´s nationale referencelaboratorium i Vejen.

ilac-MRA DANAK CAL Reg. nr. 9 CIPM MRA FORCE TECHNOLOGY

Kalibreringscertifikat

Id nr. 144239

Task nr.: 118-31693
Certifikat nr.: 9.8-19242
Side: 1 af 3

OBJEKT:
Prøveemne: Masseflowmåler
Fabrikat: Red-y
Id nr. 144239 / Delt
Serie nr.: 198691
Størrelse: 10 nl/min N2

REKVIRENT:
Teknologisk Institut
Teknologiparken, Kongsvang Allé 29
8000 Århus C
Att.: Torben Nørgaard Jensen

SKALA//SKALAINDDELING: 0 - 10 nl/min // 0,1 nl/min

PRØVNINGSBETINGELSER:
Prøvningsmetode/medie: Gennemstrømning med nitrogen.
Middelbarometerstand: 1016,4 mbar
Omgivelsestemperatur: 20 ± 1 °C

PRØVNINGSOMFANG: Kalibrering ved : 0,5; 2,5; 5,0; 7,5 og 10 nl/min
Resultater opgives i nl/min
(1 nl/min = 1 l/min ved 0 °C, og 1013,25 mbar.)

KALIBRERING iht.: FORCE instruktion nr. 60.2.02.
KALIBRERINGSDATO: 2018-09-05
KALIBRERINGSRESULTAT: Resultater, se side 2.

SPORBARHED: Prøveanlæg: FORCE nr.: C02-006 Se side 3.

BEMÆRKNINGER: Teknisk vurdering: Ingen bemærkninger.

UDSTEDELSESDATO: 2018-09-11

Preben Bendt Toftdahl Jensen
Opgaveansvarlig

Jesper Busk
Underskriftsberettiget

Certifikat må kun gengives i uddrag med FORCE Technology´s skriftlige tilladelse.
De 'Almindelige betingelser' på bagsiden er en integreret del af vor ydelse.

OBJEKT:

Prøveemne: Masseflowmåler
Fabrikat: Red-y
Id nr. 144239 / Delt
Serie nr.: 198691
Størrelse: 10 nl/min N2

Qmax: 10 nl/min
Qmin: 0 nl/min
Scale division: 0,1 nl/min

Referenceværdier

Virkeligt flow	Ucmc
nl/min	±nl/min
10,008	0,017
7,456	0,013
4,969	0,008
2,4916	0,0042
0,52187	0,00089

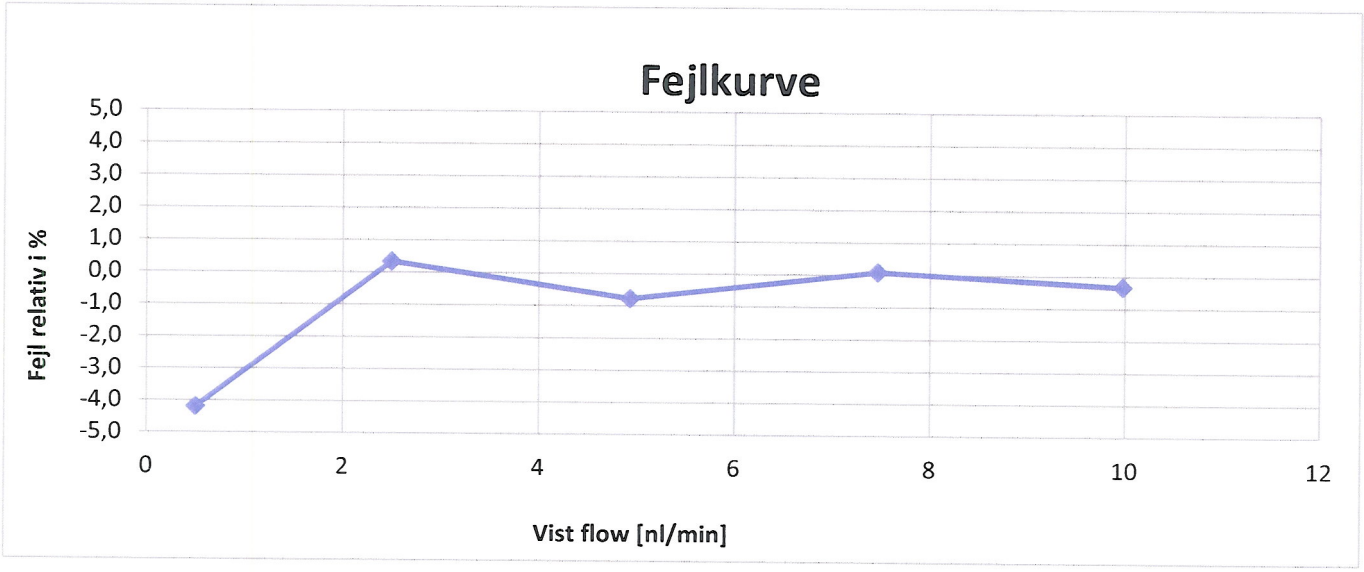
Udstyr under kalibrering

Vist flow	Standard-usikkerhed	Fejl Relativ	Ekspanderet usikkerhed	Dæknings-faktor (k)	Tryk	Tempera-tur
nl/min	nl/min	%	±%		mbara	°C
9,98	0,03	-0,33	0,68	2,00	1020,5	20,4
7,46	0,03	0,09	0,93	2,00	1020,2	20,4
4,93	0,03	-0,78	1,09	1,65	1020,0	20,4
2,50	0,03	0,34	1,92	1,65	1020,4	20,4
0,50	0,03	-4,19	9,13	1,65	1020,3	20,4

"Ucmc" er 0,17% af "Virkeligt flow".
"Vist flow" er middelværdi af visninger aflæst i målerens display. Antallet af aflæsninger var 5-10.
I "Standardusikkerhed" er et bidrag fra standardafvigelsen knyttet til "Vist flow" samt et bidrag fra aflæsningernes afrundingsfejl.
"Fejl relativ" blev beregnet med formlen: ("Vist flow" - "Virkeligt flow")/"Virkeligt flow"x100
"Ekspanderet usikkerhed" blev beregnet med formlen:

$$\frac{k}{"Virkeligt\ flow"} \times \sqrt{\left(\frac{"Ucmc"}{2}\right)^2 + "Standardusikkerhed"^2} \times 100$$

"Temperatur" og "Tryk" blev målt efter måler.



Målepunkter er forbundet med rette linier

LABORATORIETS KONTROLUDSTYR

De med x mærkede arbejdsnormaler er anvendt til kalibreringen.

	Arbejdsnormaler:	FORCE nr:	Sporbarhed:	Kalibreret:	Certifikat nr:
	Anlæg: FORCE nr. C02-006.				
x	Small tube 1-750 ml/min	A00-070	Trescal	14-09-2016	401-20675
x	Medium tube 1-10000 ml/min	A00-069	Trescal	21-12-2017	401-21145
	Big tube 1-50000 ml/min	A00-068	Trescal	14-09-2016	401-20673
	Øvrigt udstyr:				
x	Temperaturmålere	A70xxx		kalibreres i.h.t. instruktioner	
x	Trykmålere	A80xxx		kalibreres i.h.t. instruktioner	

Laboratoriets måleevne:

I beregningen af måleevnen Ucmc er medtaget alle betydende bidrag bortset fra målerens standardafvigelse og afrundingsfejl, som medtages i beregningen af den rapporterede ekspanderede usikkerhed.

Måleevnen Ucmc er: ±0,17% relativ.

Ekspanderet usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k, således at dækningssandsynlighed svarer til ca. 95 %.

* VSL, Holland via FORCE Technology´s nationale referencelaboratorium i Vejen.

Kontrol af flowmåler for Rumblank.

Dato:	28-09-2018	Int.:	MXB	Ref.: Id nr. 144239 (Delt)	
Id nr.:	144257	Cert nr.:	ELAB-39-2018	T_rum:	**23**

Flowmeter Rumblank l/m	Ref. Delt. nl/m		Ref. d.d. **23** °C l/m
		Faktor	1,0842
6	5,2		5,6
7	6,2		6,7
8	7,2		7,8

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-T-22735

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Termometer, Modstandstermometer**

Fabrikat:	Kamstrup A/S	Model:	81 41221101002100085
Serienr.:		Kundemærke:	**270-A-1629 BUND KANAL**
Område:	0 - 100 °C	Type:	Pt-100 med FlexTop transmitter
Udgangssignal:	4 - 20 mA	Diameter:	8 mm.

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **10-09-2018**

Procedure: D1-2.2

Bemærkninger: Kalibreringen er foretaget i væskebad ved sammenligning med referenceføler. Føleren er neddyppet til og med forskruningen. Ved 0 °C er kalibreringen udført med ispunkt som reference.

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Bjørn Kjærsgaard Nielsen, 72203534, bjni@teknologisk.dk

Godkendt og digitalt signeret 18-09-2018 af:

Søren Andersen

Søren Lindholt Andersen
Konsulent, Ph.d.

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Søren Lindholt Andersen, Teknologisk Institut.

KALIBRERINGSCERTIFIKAT
Resultater

Føler mærket: 270-A-1629

4 - 20 mA ~ 0 - 100 °C

Reference-værdi °C	Reference-værdi mA	Aflæsning mA	Fejl mA	Usikkerhed mA	Note
0,0000	4,0000	4,0011	0,0011	0,0036	
30,0037	8,8006	8,8249	0,0243	0,0028	
49,9976	11,9996	12,0307	0,0311	0,0040	
99,9989	19,9998	20,0312	0,0313	0,0051	

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

TEMPERATURLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

Føler mærket: 270-A-1629

4 - 20 mA ~ 0 - 100 °C

Reference-værdi °C	Aflæsning mA	Beregnet °C	Fejl °C	Usikkerhed °C	Note
0,000	4,001	0,007	0,007	0,022	
30,004	8,825	30,155	0,152	0,018	
49,998	12,031	50,192	0,194	0,025	
99,999	20,031	100,195	0,196	0,032	

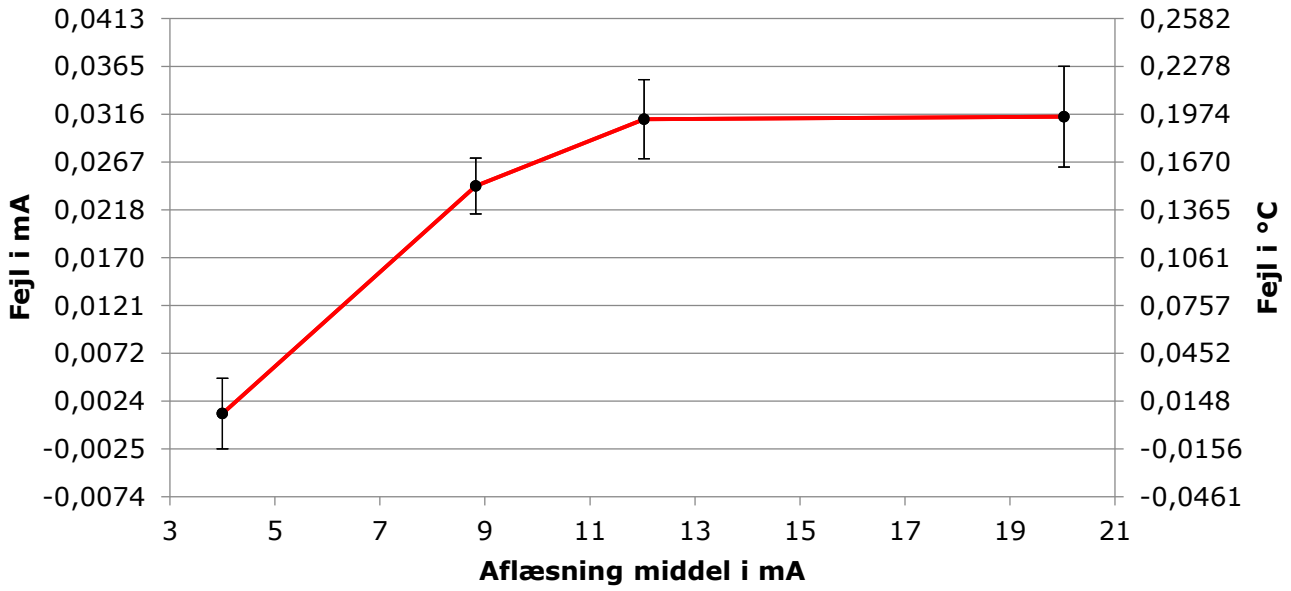
Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Beregnet - referenceværdi.

TEMPERATURLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Fejlkurve

Føler mærket: 270-A-1629



Kun de markerede punkter er målt.

Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren $k = 2$, således at dækningssandsynligheden svarer til ca. 95 %.
Alle temperaturer er i henhold til ITS90

Kalibreringsforhold:

Rumtemperatur:	22,9 °C ± 2,1 °C
Relativ fugtighed:	53,5 %rh ± 5,6 %rh
Barometerstand:	1015,8 mbar ± 6,3 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-L-21096

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Flowmåler, Brændeovns lækagetester**

Fabrikat:	Brooks	Serienr.:	**P20438; 0112030/489315001; B2110016701**
Kundemærke:	**Id nr. 83013**	Område:	0 - 21 m3/h
Udgangssignal:	Skala		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 03-09-2018 Kalibreret: **03-09-2018**

Procedure: D2-1

Bemærkninger: Rør nr. 1: 0,09 - 0,9 m³/h Referenceflow er omregnet til normalbetingelserne: 20°C og 1013,25 mBar Måleren er aflæst midt på kugle.

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Søren Haack, 72 20 23 38, sorh@teknologisk.dk

Godkendt og digitalt signeret 04-09-2018 af:
John Frederiksen
Ingeniør

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for John Frederiksen, Teknologisk Institut.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 0,09 - 0,9 m³/h

Luft temperatur °C	Kalibrering Tryk mBar abs.	Reference flow m^3/h	Reference flow m^3n/h	Emnets visning m^3n/h	Fejl m^3n/h	Usikkerhed m^3n/h
23,96	1337,80	0,08	0,10	0,12	0,02	0,01
23,96	1311,40	0,19	0,24	0,24	-0,00	0,01
23,96	1291,80	0,31	0,39	0,38	-0,01	0,02
23,96	1271,40	0,49	0,60	0,58	-0,02	0,02
23,96	1253,00	0,65	0,80	0,76	-0,04	0,03
23,96	1239,10	0,80	0,96	0,90	-0,06	0,03
23,96	1239,10	0,79	0,96	0,90	-0,06	0,03
23,96	1257,30	0,66	0,81	0,76	-0,05	0,03
23,96	1278,20	0,48	0,60	0,58	-0,02	0,02
23,96	1307,10	0,28	0,36	0,38	0,02	0,02
23,96	1323,80	0,18	0,23	0,24	0,01	0,01
23,96	1345,20	0,07	0,09	0,12	0,03	0,01

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LABORATORIEBETINGELSER OG SPORBARHED

Laboratoriebetingelser:

Rumtemperatur (°C) :	24,1	± 0,6
Relativ luftfugtighed (%) :	57	± 10
Barometerstand (mbar) :	1023,8	± 1

Referencer:

Dette kalibreringscertifikat er omfattet af DANAK akkreditering
og EA's og ILAC's multilaterale aftaler for kalibrering,
hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

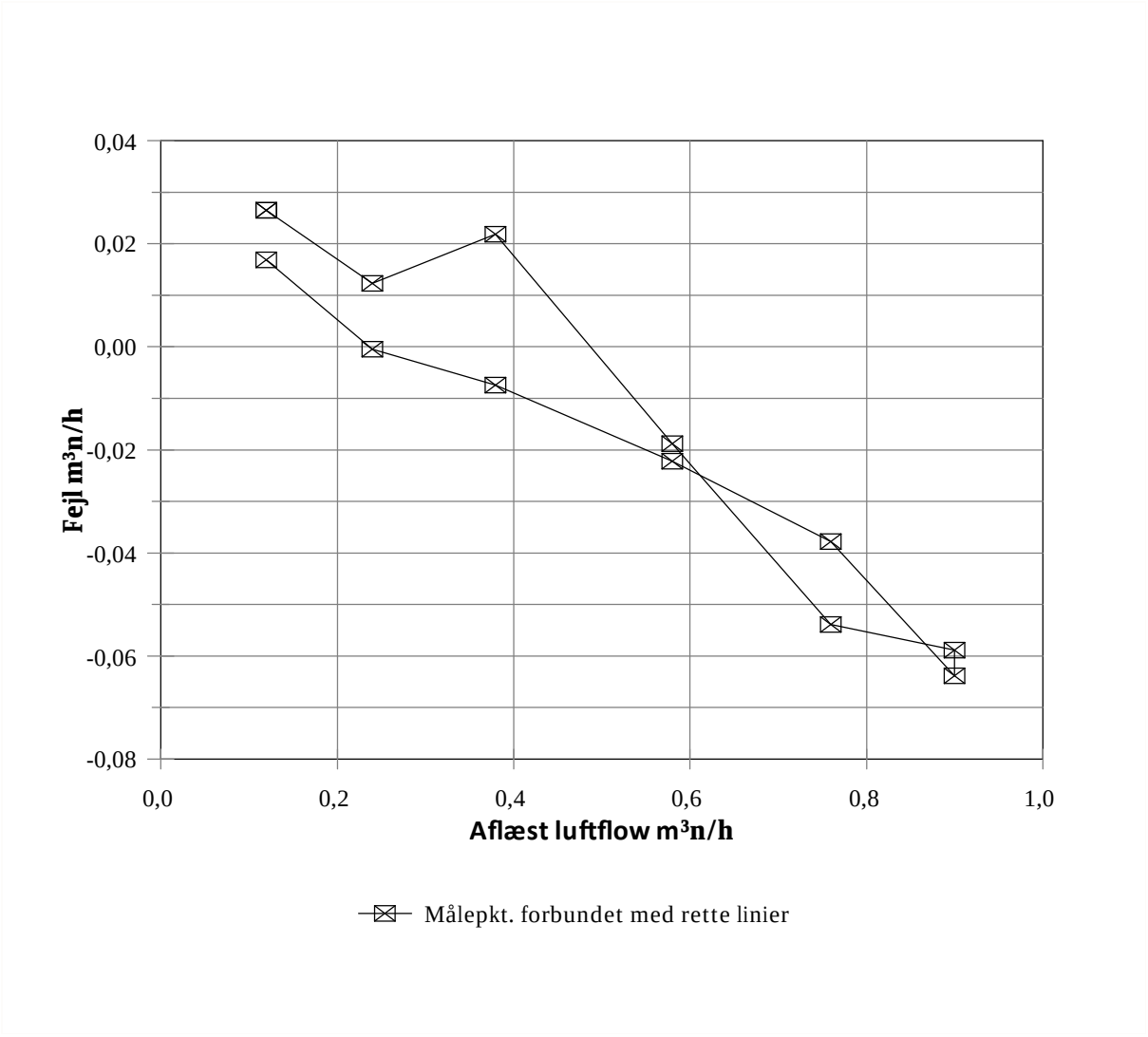
LUFTLABORATORIET

TEKNOLOGISK INSTITUT

Dato: 2018.09.03 Cert. nr.: 200-L-21096

KALIBRERINGSCERTIFIKAT

FEJLKURVE



Sand Luftflow = Aflæst - Fejl (med fortegn)

Usikkerhed:

0,01 m^3n/h til 0,03 m^3n/h

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-L-21097

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Flowmåler, Brændeovns lækagetester**

Fabrikat:	Brooks	Serienr.:	**P20438; 0112030/489315001; B2110016701**
Kundemærke:	**Id nr. 83013**	Område:	0 - 21 m3/h
Udgangssignal:	Skala		

Rekvisitionsnr.: TNJ

Periode:	Modtaget: 03-09-2018	Kalibreret:	**03-09-2018**

Procedure: D2-1

Bemærkninger: Rør nr. 2: 0,5 - 5 m³/h
Referenceflow er omregnet til normalbetingelserne: 20°C og 1013,25 mBar

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Søren Haack, 72 20 23 38, sorh@teknologisk.dk

Godkendt og digitalt signeret 04-09-2018 af:
John Frederiksen
Ingeniør

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for John Frederiksen, Teknologisk Institut.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 0,5 - 5,0 m³/h

Luft temperatur °C	Kalibrering Tryk mBar abs.	Reference flow m^3/h	Reference flow m^3n/h	Emnets visning m^3n/h	Fejl m^3n/h	Usikkerhed m^3n/h
24,26	1245,10	0,72	0,87	0,80	-0,07	0,11
24,26	1218,10	0,87	1,03	1,00	-0,03	0,10
24,26	1163,60	1,40	1,58	1,50	-0,08	0,12
24,56	1756,20	1,64	2,80	2,50	-0,30	0,09
24,56	1677,90	2,40	3,92	3,50	-0,42	0,11
24,56	1621,80	2,99	4,72	4,25	-0,47	0,12
24,56	1563,90	3,62	5,49	5,00	-0,49	0,14
24,56	1569,20	3,59	5,48	5,00	-0,48	0,14
24,56	1635,00	2,89	4,58	4,25	-0,33	0,12
24,56	1686,70	2,33	3,83	3,50	-0,33	0,11
24,56	1762,80	1,59	2,73	2,50	-0,23	0,09
24,26	1164,50	1,39	1,58	1,50	-0,08	0,12
24,26	1223,80	0,85	1,02	1,00	-0,02	0,10
24,26	1236,00	0,72	0,87	0,80	-0,07	0,11

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LABORATORIEBETINGELSER OG SPORBARHED

Laboratoriebetingelser:

Rumtemperatur (°C) :	24,4 ± 0,6
Relativ luftfugtighed (%) :	56 ± 10
Barometerstand (mbar) :	1023,5 ± 1

Referencer:

Dette kalibreringscertifikat er omfattet af DANAK akkreditering
og EA's og ILAC's multilaterale aftaler for kalibrering,
hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

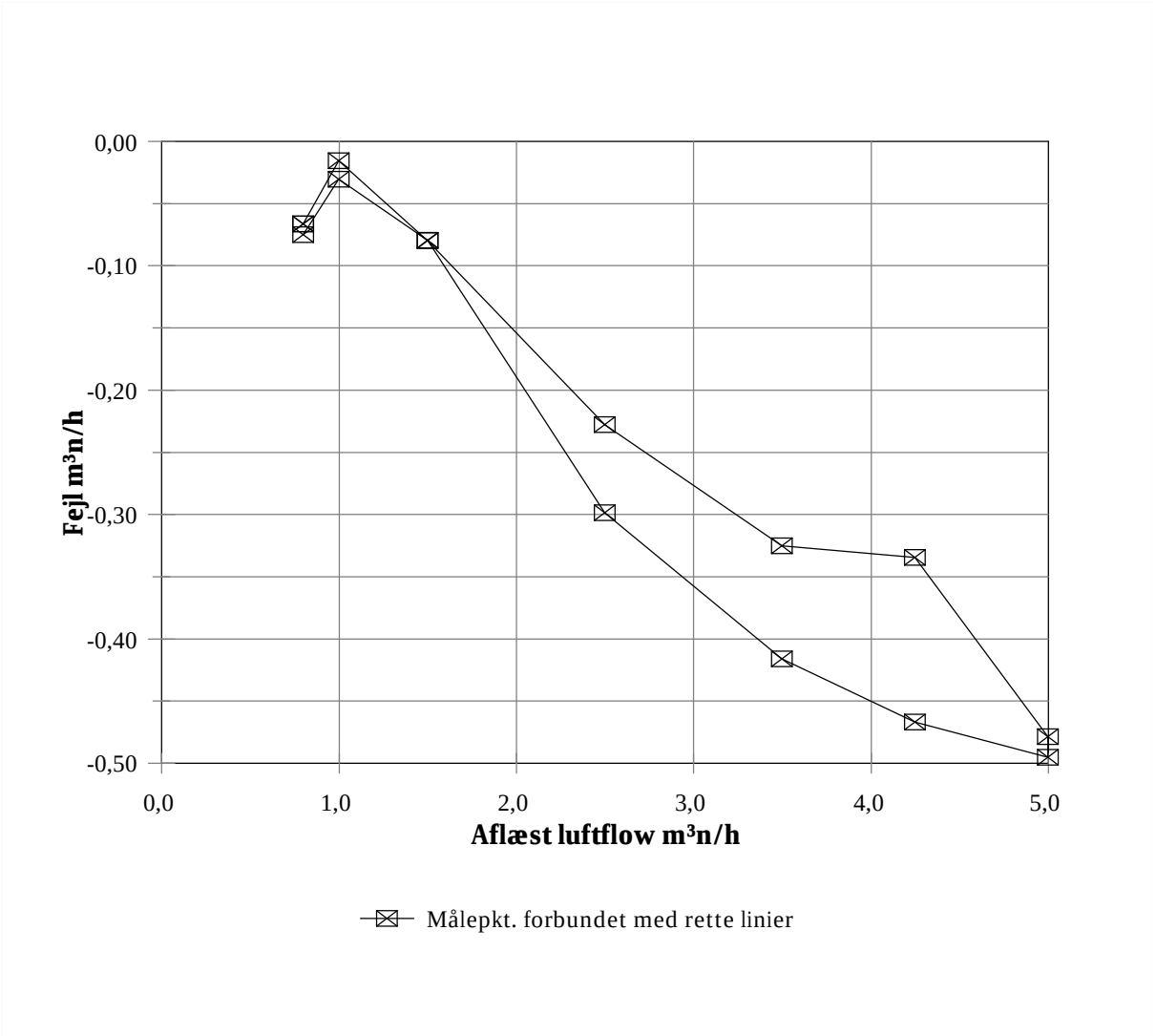
LUFTLABORATORIET

TEKNOLOGISK INSTITUT

Dato: 2018.09.03 Cert. nr.: 200-L-21097

KALIBRERINGSCERTIFIKAT

FEJLKURVE



Sand Luftflow = Aflæst - Fejl (med fortegn)

Usikkerhed:

0,09 m^3n/h til 0,14 m^3n/h

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-L-21098

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Flowmåler, Brændeovns lækagetester**

Fabrikat:	Brooks	Serienr.:	**P20438; 0112030/489315001; B2110016701**
Kundemærke:	**Id nr. 83013**	Område:	0 - 21 m3/h
Udgangssignal:	Skala		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 03-09-2018 Kalibreret: **03-09-2018**

Procedure: D2-1

Bemærkninger: Rør nr. 3: 2,7 - 21 m³/h Referenceflow er omregnet til normalbetingelserne: 20°C og 1013,25 mBar

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Søren Haack, 72 20 23 38, sorh@teknologisk.dk

Godkendt og digitalt signeret 04-09-2018 af:
John Frederiksen
Ingeniør

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for John Frederiksen, Teknologisk Institut.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 2,7 - 21 m³/h

Luft temperatur °C	Kalibrering Tryk mBar abs.	Reference flow m^3/h	Reference flow m^3n/h	Emnets visning m^3n/h	Fejl m^3n/h	Usikkerhed m^3n/h
24,66	4178,80	0,72	2,94	3,50	0,56	0,04
24,66	4033,40	1,81	7,09	7,00	-0,09	0,06
24,66	3805,20	3,16	11,68	11,00	-0,68	0,10
24,66	3604,80	4,44	15,56	14,50	-1,06	0,14
24,66	3422,60	5,91	19,66	17,50	-2,16	0,18
24,66	3420,60	5,84	19,41	17,50	-1,91	0,18
24,66	3666,00	4,33	15,44	14,50	-0,94	0,14
24,66	3872,20	3,17	11,94	11,00	-0,94	0,10
24,66	4060,40	1,82	7,16	7,00	-0,16	0,07
24,66	4176,00	0,75	3,06	3,50	0,44	0,04

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LABORATORIEBETINGELSER OG SPORBARHED

Laboratoriebetingelser:

Rumtemperatur (°C) :	24,6 ± 0,6
Relativ luftfugtighed (%) :	56 ± 10
Barometerstand (mbar) :	1023,6 ± 1

Referencer:

Dette kalibreringscertifikat er omfattet af DANAK akkreditering
og EA's og ILAC's multilaterale aftaler for kalibrering,
hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Usikkerhed:

Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

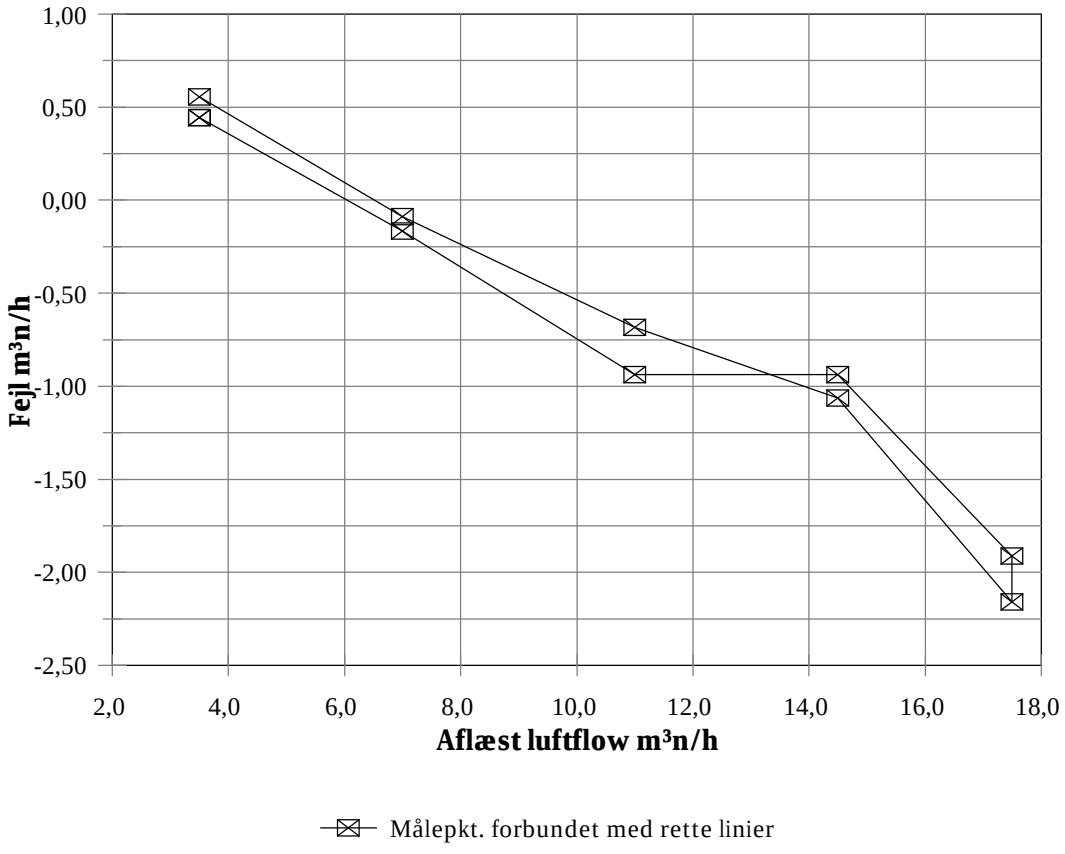
LUFTLABORATORIET

TEKNOLOGISK INSTITUT

Dato: 2018.09.03 Cert. nr.: 200-L-21098

KALIBRERINGSCERTIFIKAT

FEJLKURVE



Sand Luftflow = Aflæst - Fejl (med fortegn)

Usikkerhed:

0,04 m^3n/h til 0,18 m^3n/h

Kalibrering Humimeter, Fugtmåler

Måleskema til kontrol af Fugtmåler(EPA)

Dato:	06-09-2018	Udført af:	REHV
		Emne Id nr.:	145070
Certifikat nr.:	ELAB-36-2018		
Kalibrator ref.:	148135 (test block)		

Fremgangsmetode: Fugtmåler kontrolleres op imod test block fra samme producent. Er visningen indenfor range er grundkalibrering OK.
https://www.youtube.com/watch?v=wmGgFWhd_Yk

1- Sørg for der ikke er fugt på nålene.

2- Tænd og aflæs rumtemperatur: 24 (range 20-26°C)

3- Find "Test Block"

4- Test side 1 "22,0" ved at sætte de to flanger fra "test block'en" på de to møtrikker nålene er monteret med

5- Noter hvad apparatet måler: 22,3% (range 21,5-22,5%)

6- Test side 2 "41,0" ved at sætte de to flanger fra "test block'en" på de to møtrikker nålene er monteret med

7- Noter hvad apparatet måler: 41,5% (range 39,5-42,0%)

8- Er visningerne uden for det anbefalede range kan punkter sidst i denne video følges, alternativt sendes apparat til kalibrering.

9- Apparat bruges normalt kun som rettesnor for fugtniveau, ikke til endelig fugtangivelse. Til endeligt fugtangivelse benyttes ovn i mellemgang.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24528

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Vacuummeter, EPA (-H)**

Fabrikat:	Wika	Serienr.:	**N/A**
Kundemærke:	**145074**	Område:	0 - -1 bar
Klasse:	1,6	Inddeling:	0,05 bar
Diameter:	60 mm		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **04-09-2018**

Procedure: D1-2.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 05-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

KALIBRERINGSCERTIFIKAT

Målinger

Måleområde: 0 - -1 bar

Reference	Aflæsning	Reference	Aflæsning
Ned 1		Op 1	
bar	bar	bar	bar
-0,0500	-0,06	-0,0500	-0,06
-0,2001	-0,21	-0,2001	-0,21
-0,4001	-0,41	-0,4001	-0,41
-0,6002	-0,61	-0,6002	-0,61
-0,8003	-0,81	-0,8003	-0,81
-0,9504	-0,95	-0,9504	-0,95

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Resultater

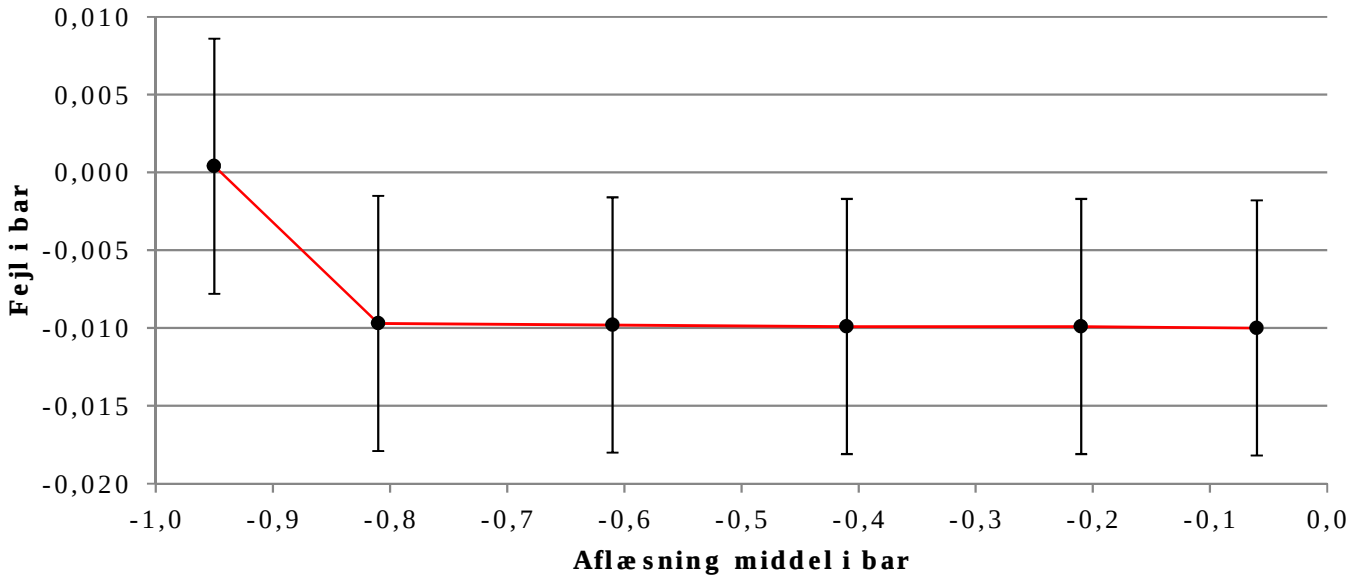
Måleområde: 0 - -1 bar

Reference middelværdi bar	Aflæsning middelværdi bar	Opløsning bar	Hysterese bar	Fejl bar	Usikkerhed bar
-0,0500	-0,0600	0,01	0,0000	-0,0100	0,0082
-0,2001	-0,2100	0,01	0,0000	-0,0099	0,0082
-0,4001	-0,4100	0,01	0,0000	-0,0099	0,0082
-0,6002	-0,6100	0,01	0,0000	-0,0098	0,0082
-0,8003	-0,8100	0,01	0,0000	-0,0097	0,0082
-0,9504	-0,9500	0,01	0,0000	0,0004	0,0082

Maks. hysterese:	0,0000 bar
Maks. fejl:	-0,0100 bar
Maks. relativ fejl i forhold til måleområdet:	1,0 %

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,9 %rh ± 4,2 %rh
Barometerstand:	1019,5 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24529

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Vacuummeter, EPA (-D)**

Fabrikat:	Wika	Serienr.:	**N/A**
Kundemærke:	**145076**	Område:	0 - -1 bar
Klasse:	1,6	Inddeling:	0,05 bar
Diameter:	60 mm		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **04-09-2018**

Procedure: D1-2.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 05-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: 0 - -1 bar

Reference Ned 1 bar	Aflæsning bar	Reference Op 1 bar	Aflæsning bar
-0,0500	-0,04	-0,0500	-0,04
-0,2001	-0,19	-0,2001	-0,19
-0,4001	-0,39	-0,4001	-0,39
-0,6002	-0,60	-0,6002	-0,60
-0,8003	-0,80	-0,8003	-0,80
-0,9504	-0,95	-0,9504	-0,95

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Resultater

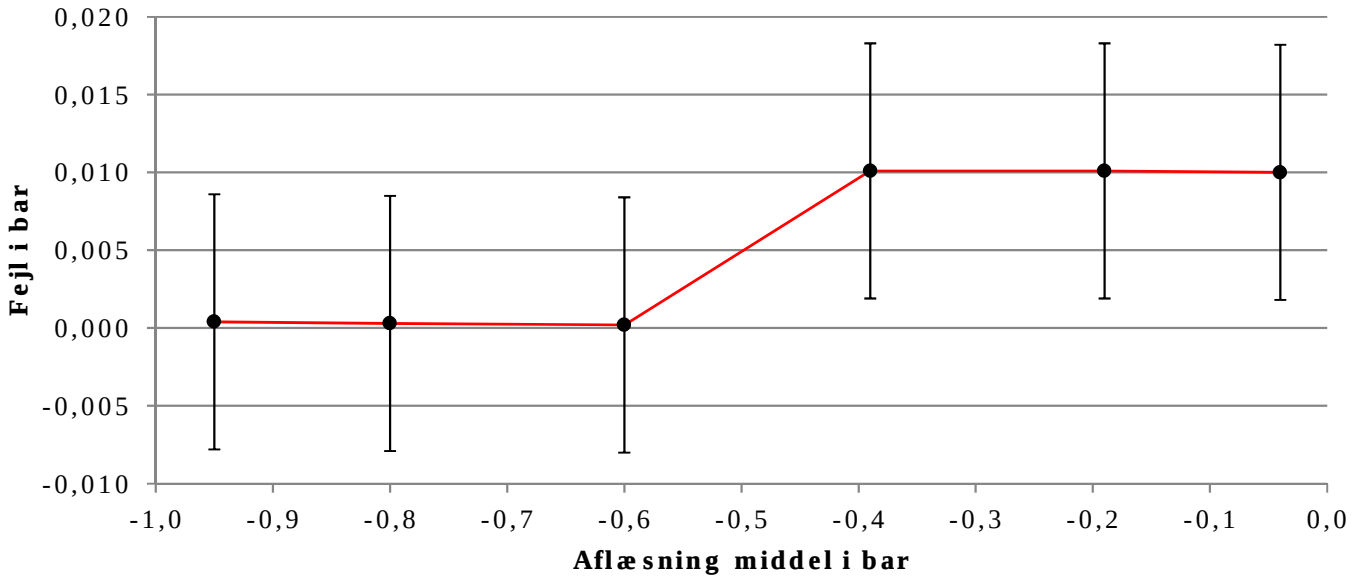
Måleområde: 0 - -1 bar

Reference middelværdi bar	Aflæsning middelværdi bar	Opløsning bar	Hysterese bar	Fejl bar	Usikkerhed bar
-0,0500	-0,0400	0,01	0,0000	0,0100	0,0082
-0,2001	-0,1900	0,01	0,0000	0,0101	0,0082
-0,4001	-0,3900	0,01	0,0000	0,0101	0,0082
-0,6002	-0,6000	0,01	0,0000	0,0002	0,0082
-0,8003	-0,8000	0,01	0,0000	0,0003	0,0082
-0,9504	-0,9500	0,01	0,0000	0,0004	0,0082

Maks. hysterese:	0,0000 bar
Maks. fejl:	0,0101 bar
Maks. relativ fejl i forhold til måleområdet:	1,0 %

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,9 %rh ± 4,2 %rh
Barometerstand:	1019,5 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24530

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Vacuummeter, EPA (-R)**

Fabrikat:	Wika	Serienr.:	**N/A**
Kundemærke:	**145077**	Område:	0 - -1 bar
Klasse:	1,6	Inddeling:	0,05 bar
Diameter:	60 mm		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **04-09-2018**

Procedure: D1-2.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 05-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: 0 - -1 bar

Reference	Aflæsning	Reference	Aflæsning
Ned 1		Op 1	
bar	bar	bar	bar
-0,0500	-0,04	-0,0500	-0,04
-0,2001	-0,19	-0,2001	-0,19
-0,4001	-0,39	-0,4001	-0,39
-0,6002	-0,60	-0,6002	-0,60
-0,8003	-0,79	-0,8003	-0,79
-0,9504	-0,94	-0,9504	-0,94

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

Måleområde: 0 - -1 bar

Reference middelværdi bar	Aflæsning middelværdi bar	Opløsning bar	Hysterese bar	Fejl bar	Usikkerhed bar
-0,0500	-0,0400	0,01	0,0000	0,0100	0,0082
-0,2001	-0,1900	0,01	0,0000	0,0101	0,0082
-0,4001	-0,3900	0,01	0,0000	0,0101	0,0082
-0,6002	-0,6000	0,01	0,0000	0,0002	0,0082
-0,8003	-0,7900	0,01	0,0000	0,0103	0,0082
-0,9504	-0,9400	0,01	0,0000	0,0104	0,0082

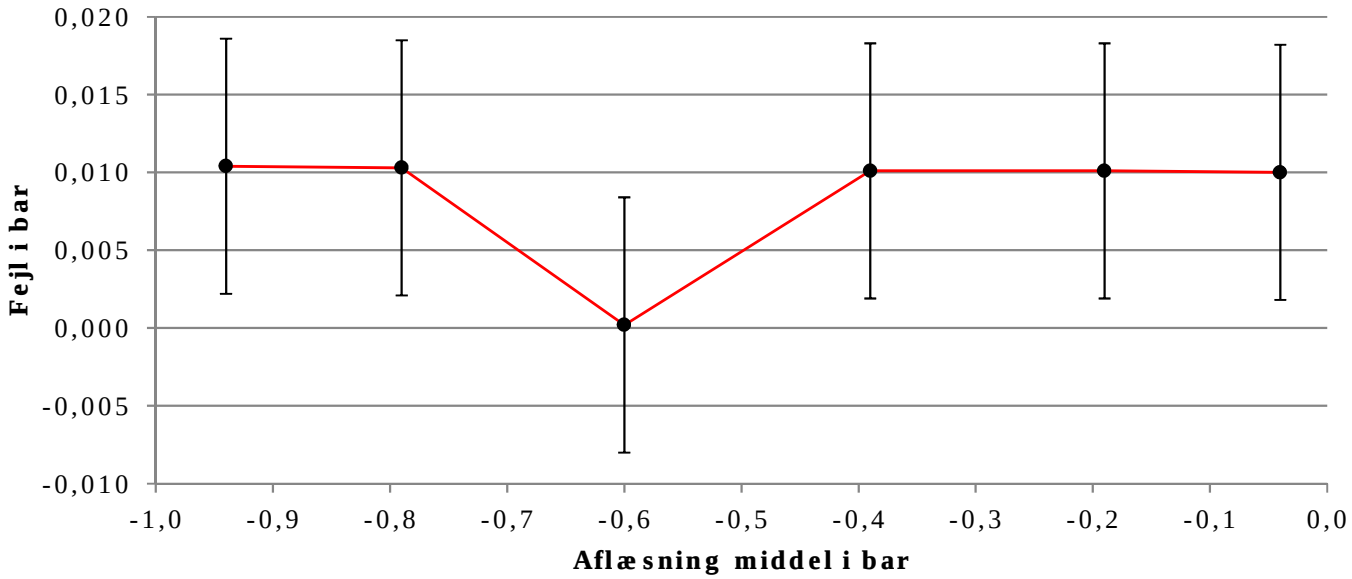
Maks. hysterese:	0,0000 bar
Maks. fejl:	0,0104 bar
Maks. relativ fejl i forhold til måleområdet:	1,0 %

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,8 %rh ± 4,2 %rh
Barometerstand:	1019,4 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24531

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Manometer, EPA (-H)**

Fabrikat:	WIKA	Serienr.:	**N/A**
Kundemærke:	**145078**	Område:	0 - 10 mbar
Klasse:	1,6	Inddeling:	0,2 mbar
Diameter:	100 mm.		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **04-09-2018**

Procedure: D1-2.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 05-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: 0 - 10 mbar

Reference	Aflæsning	Reference	Aflæsning
Op 1		Ned 1	
mbar	mbar	mbar	mbar
0,00	0,00	0,00	0,00
2,00	2,20	2,00	2,20
4,00	4,40	4,00	4,40
6,00	6,60	6,00	6,60
8,00	8,76	8,00	8,76
9,15	10,00	9,15	10,00

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT
Resultater

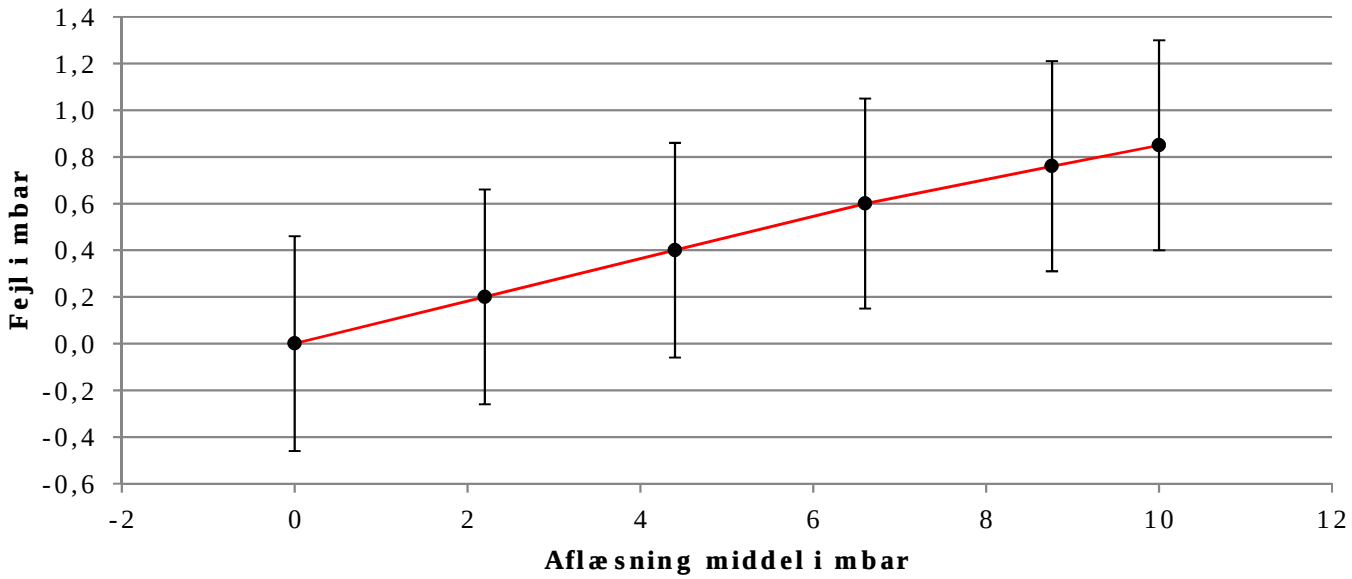
Måleområde: 0 - 10 mbar

Reference middelværdi mbar	Aflæsning middelværdi mbar	Opløsning mbar	Hysterese mbar	Fejl mbar	Usikkerhed mbar
0,00	0,00	0,04	0,00	0,00	0,46
2,00	2,20	0,04	0,00	0,20	0,46
4,00	4,40	0,04	0,00	0,40	0,46
6,00	6,60	0,04	0,00	0,60	0,45
8,00	8,76	0,04	0,00	0,76	0,45
9,15	10,00	0,04	0,00	0,85	0,45

Maks. hysterese:	0,00 mbar
Maks. fejl:	0,85 mbar
Maks. relativ fejl i forhold til måleområdet:	8,5 %

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,1 %rh ± 4,2 %rh
Barometerstand:	1019,1 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

TEKNOLOGISK
INSTITUT

Teknologiparken
Kongsvang Allé 29
Bygning 14
8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24532

Rekvirent: Teknologisk Institut, Biomasse og bioraffinering
Max Bjerrum
Kongsvang Allé 29
8000 Århus C

Emne: **Manometer, EPA (-D)**

Fabrikat:	WIKA	Serienr.:	**N/A**
Kundemærke:	**145079**	Område:	0 - 10 mbar
Klasse:	1,6	Inddeling:	0,2 mbar
Diameter:	100 mm.		

Rekvisitionsnr.: TNJ

Periode: Modtaget: 29-08-2018 Kalibreret: **04-09-2018**

Procedure: D1-2.1

Bemærkninger:

Vilkår: Kalibreringen er udført i henhold til gældende vilkår fastlagt af DANAK, jf. www.danak.dk, og i henhold til Teknologisk Instituts almindelige vilkår, som er gældende på tidspunktet for aftaleindgåelsen. Kalibreringsresultater gælder udelukkende for det kalibrerede emne. Kalibreringscertifikatet må kun gengives i uddrag, hvis laboratoriet skriftligt har godkendt uddraget.

Kalibreret af: Kenn Øholm, 72 20 34 98, koh@teknologisk.dk

Godkendt og digitalt signeret 05-09-2018 af:

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

Dette PDF dokument er kun gyldigt, hvis det er digitalt signeret med OCES digitalsignaturen for Mette Pedersen, Teknologisk Institut.

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Målinger

Måleområde: 0 - 10 mbar

Reference	Aflæsning	Reference	Aflæsning
Op 1		Ned 1	
mbar	mbar	mbar	mbar
0,00	0,00	0,00	0,00
2,00	2,16	2,00	2,16
4,00	4,24	4,00	4,24
6,00	6,36	6,00	6,36
8,00	8,40	8,00	8,40
9,55	10,00	9,55	10,00

TRYKLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

Resultater

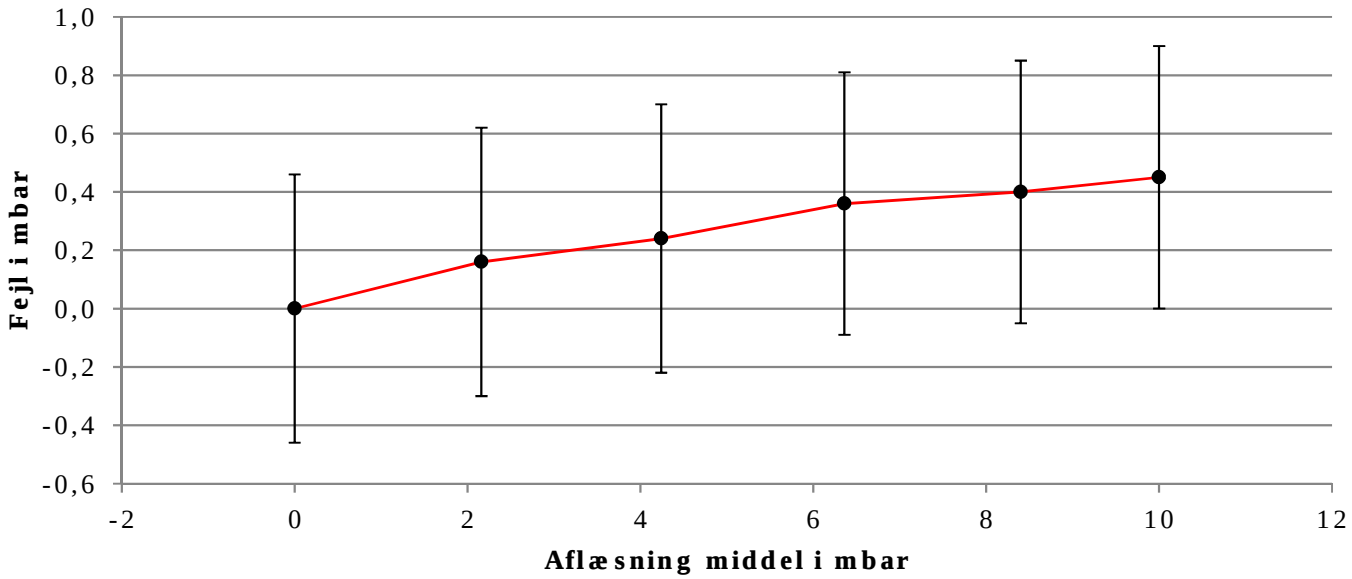
Måleområde: 0 - 10 mbar

Reference middelværdi mbar	Aflæsning middelværdi mbar	Opløsning mbar	Hysterese mbar	Fejl mbar	Usikkerhed mbar
0,00	0,00	0,04	0,00	0,00	0,46
2,00	2,16	0,04	0,00	0,16	0,46
4,00	4,24	0,04	0,00	0,24	0,46
6,00	6,36	0,04	0,00	0,36	0,45
8,00	8,40	0,04	0,00	0,40	0,45
9,55	10,00	0,04	0,00	0,45	0,45

Maks. hysterese:	0,00 mbar
Maks. fejl:	0,45 mbar
Maks. relativ fejl i forhold til måleområdet:	4,5 %

KALIBRERINGSCERTIFIKAT

Fejlkurve



Kun de markerede punkter er målt.

Bemærkninger:
Fejl = aflæsning middel - referenceværdi.
Den beregnede standardusikkerhed inkluderer relevante korttidsbidrag samt den halve hysterese fra det kalibrerede emne.
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden af målingen multipliceret med dækningsfaktoren k=2, således at dækningssandsynligheden svarer til ca. 95 %.

Kalibreringsforhold:

Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,1 %rh ± 4,2 %rh
Barometerstand:	1019,1 mbar ± 2,0 mbar

Sporbarhed:
Dette kalibreringscertifikat er omfattet af DANAK akkreditering og EA's og ILAC's multilaterale aftaler for kalibrering, hvilket sikrer, at målingerne er sporbare til SI enhedssystemet.

Kalibrering af løse termoføler i EPA stand E

Måleskema til kontrol af temoføler i stand E (EPA)

Dato:	10-09-2018	Udført af:	REHV
Brændeovnsprøvestand:	D	Emne Id nr.:	145081
Certifikat nr.:	ELAB-37-2018		
Kalibrator ref.:	270-A-0912 (Jofra)		

Display	Sand temp.	Vist temp.	Fejl
Temp. Brænderum	25	25,5	0,5

28.09.2018
Y:\Labspace\LAB2C_Labspace\Kalibrering Arbejdskopi\2018\EPA-Certifikater\29-Id-169522-ELAB-39-2018.docx
MXB

Kontrol af lækage efter pumper i forbindelse med EPA målinger på stand E.

Dato: 28.09.2018 Int.: MXB Ref.: 270-A-2406 (TSI)

Id nr.: 169522 Cert nr.: ELAB-39-2018

Kontrol af lækage efter pumpen på ”Hel” serie

Startværdi: 1530 Pa

Slutværdi efter 1 minut: 1460 Pa

Kontrol af lækage efter pumpen på ”Delt” serien

Startværdi: 1750 Pa

Slutværdi efter 1 minut: 1520 Pa

Kontrol af lækage efter pumpen på ”Rum” serien

Startværdi: 1600 Pa

Slutværdi efter 1 minut: 1540 Pa

(Krav er startværdi < 1800Pa og slutværdi >1300Pa ved 1 minuts måletid)

Sample analysis, HF 1 3. June 2019

Sample analysis, test run #1				
Filter series:	(1-4)	1		
Gasket series:	(1-4)	1		
Probe series:	(A-B-C)	A		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	119803,1		119803,5	Main train
Filter 1+2	182,8		192,0	
Gasket 1+2	4914,3		4917,5	
Split probe 1H	120123,6		120124,1	Split train, 1. hour
Filter 3+4	190,5		196,6	
Gasket 3+4	4903,2		4905,5	
Split probe remaining	120593,9		120594,1	Split train, remaining time
Filter 5+6	177,4		179,6	
Gasket 5+6	4941,9		4943,4	
Room probe	-		-	Room blanc
Filter 7	81,8		81,6	
Gasket 7	2438,7		2438,8	

Sample analysis, MF 3. June 2019

Sample analysis, test run #2				
Filter series:	(1-4)	2		
Gasket series:	(1-4)	2		
Probe series:	(A-B-C)	B		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	120157,5		120158,1	Main train
Filter 1+2	173,2		174,4	
Gasket 1+2	4884,4		4888,9	
Split probe 1H	120030,4		120030,8	Split train, 1. hour
Filter 3+4	17702		178,1	
Gasket 3+4	4905,4		4909,6	
Split probe remaining	120683,5		120683,9	Split train, remaining time
Filter 5+6	163,7		160,6	
Gasket 5+6	4915,5		4918,8	
Room probe	-		-	Room blanc
Filter 7	81,5		80,2	
Gasket 7	2482,6		2484,0	

Sample analysis, HF 2 4. June 2019

Sample analysis, test run #3				
Filter series:	(1-4)	3		
Gasket series:	(1-4)	3		
Probe series:	(A-B-C)	C		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	121222,6		121224,2	Main train
Filter 1+2+xtra front filter	256,2		267,8	
Gasket 1+2	4897,5		4898,2	
Split probe 1H	120717,0		120717,9	Split train, 1. hour
Filter 3+4	177,9		185,0	
Gasket 3+4	4895,5		4895,1	
Split probe remaining	121051,2		121051,9	Split train, remaining time
Filter 5+6+ extra front filter	253,4		257,0	
Gasket 5+6	4968,0		4970,2	
Room probe	-		-	Room blanc
Filter 7	85,0		85,0	
Gasket 7	2457,0		2457,2	

Test run #3 was discarded of in the average calculation, thus the results of 3 out of in total 4 High Fire tests are taken into consideration.

Sample analysis, LF 4. June 2019

Sample analysis, test run #4				
Filter series:	(1-4)	1		
Gasket series:	(1-4)	1		
Probe series:	(A-B-C)	A		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	119804,6		119805,3	Main train
Filter 1+2+xtra front filter	259,4		260,3	
Gasket 1+2	4914,8		4917,8	
Split probe 1H	120124,7		120125,1	Split train, 1. hour
Filter 3+4	168,8		169,6	
Gasket 3+4	4903,8		4905,5	
Split probe remaining	120594,2		120594,8	Split train, remaining time
Filter 5+6+xtra front filter	263,0		263,0	
Gasket 5+6	4942,4		4943,7	
Room probe	-		-	Room blanc
Filter 7	86,9		86,0	
Gasket 7	2438,7		2439,8	

Sample analysis, HF 3 6. June 2019

Sample analysis, test run #5				
Filter series:	(1-4)	**2**		
Gasket series:	(1-4)	**2**		
Probe series:	(A-B-C)	**B**		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	120159,3		120160,9	Main train
Filter 1+2	185,1		195,2	
Gasket 1+2	4885,3		4888,5	
Split probe 1H	120032,1		120033,1	Split train, 1. hour
Filter 3+4	178,3		185,0	
Gasket 3+4	4906,1		4907,9	
Split probe remaining	120684,2		120684,7	Split train, remaining time
Filter 5+6	181,4		184,2	
Gasket 5+6	4916,2		4918,5	
Room probe	-		-	Room blanc
Filter 7	92,6		91,8	
Gasket 7	2482,7		2483,6	

Sample analysis, HF 4 7. June 2019

Sample analysis, test run #6				
Filter series:	(1-4)	1		
Gasket series:	(1-4)	1		
Probe series:	(A-B-C)	A		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	119805,0		119806,1	Main train
Filter 1+2	182,8		190,0	
Gasket 1+2	4914,8		4918,6	
Split probe 1H	120125,1		120126,6	Split train, 1. hour
Filter 3+4	183,2		189,5	
Gasket 3+4	4903,6		4906,6	
Split probe remaining	120594,9		120595,1	Split train, remaining time
Filter 5+6	184,2		183,8	
Gasket 5+6	4942,4		4943,1	
Room probe	-		-	Room blanc
Filter 7	95,9		95,2	
Gasket 7	2438,6		2439,4	

Calculations PM

ASTM E2780 and E2515

EN-NS-EPA-Ber 3-47 14-06-2019 MXB

Manufacturer:	Norflam (Dovre)
Type:	Harbor Light
ELAB no.:	2419
Order number:	0
Testdate:	03-06-19
File Name:	3-47 HF 030619 emi calc
Testrun:	HIGH run at valve setting R100
Fil dato og tid (Start):	03-06-19 10:58:58

Weight of test fuel spacers, dry basis, kg

E2780

$$Equation\ (1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$$Equation\ (2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$$

M_CPnwb	7,553	kg (wet basis)
FM_CPn	0	% (dry basis)

M_Cdb = Σ[(7,6) x (100 / (100 + 0))] kg (dry basis)

M_Cdb = 7,553 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$$Equation\ (3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$$

M_Cdb	7,553	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,553 / 0,02 kg (dry) / m3

D_Cdb = 377,65 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg
E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,553	kg (dry basis)

M_FTAdb = 0 + 7,553 kg (dry basis)

M_FTAdb = 7,553 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,553	kg (dry basis)
θ	103,13	min

$$BR = \frac{60 \times 7,553}{103}$$

BR = 4,39412

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,60	mmVS	P_Dynamisk	25,50	Pa		
T_s	296,60	K	T_Kanal	23,60	°C		
P_s	756,83	mmHg	P_s	100911	Pa	Ps_Tryk	-39 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}60\right)^{0{,}5} \times \left(\frac{296{,}60}{756{,}83 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,49 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	5,81	m/s	(Average)
V_scent	6,49	m/s	(Average)

$$F_p = \frac{5{,}81}{6{,}49}$$

F_p = 0,8953 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,8953	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,46	mmVS	P_Dynamisk	24,11	Pa
T_s	321,54	K			
P_s	756,84	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}8953 \times 34{,}97 \times 0{,}99 \times (2{,}46)^{0{,}5} \times \left(\frac{321{,}54}{756{,}84 \times 29{,}00}\right)^{0{,}5}$$

$$V_s = 5{,}88 \text{ m/s (V_scent)}$$

Average gas flow rate in dilution tunnel:

E2515

$$Equation\,(3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	5,881919	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	756,8384	mmHg	P_s	####	Pa	Ps_Tryk	-38 Pa
T_s	321,5382	K	T_Kanal	48,5	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 5{,}9 \times 0 \times \left(\frac{293 \times 757}{321{,}54 \times 760}\right)$$

$$Q_{std} = 5{,}54617 \text{ dscm/min}$$

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,68558	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	103,1333	min			

V_mc = 0,68558 - (0 - 0) x 103

V_mc = 0,68558 dscm

$$V_mc(std) = 0{,}3855 \times 0{,}68558 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,73502 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,4	mg
m_f	9,2	mg
m_g	3,2	mg

m_n = 0,4 + 9,2 + 3,2

m_n = 12,8 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	12,8	mg
V_m(std)	0,735018	dscm

$$C_s = 0{,}001 \times \frac{12{,}8}{0{,}73502}$$

C_s = 0,01741 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,017415	g/dscm
c_r	-0,000157	g/dscm
Q_std	5,546173	dscm/min
θ	103,1333	min

E_T = (0 - -0) x 5,5 x 103

E_T = 10,0506 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,41608	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,41608 - (0 - 0) x 60

V_mc = 0,41608 dcm

$$V_{mc(std)} = 0{,}3855 \times 0{,}41608 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,44613 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,5	mg
m_f	6,5	mg
m_g	2,3	mg

m_n = 0,5 + 6,5 + 2,3

m_n = 9,3 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	9,3	mg
V_m(std)	0,446129	dscm

$$C_s = 0{,}001 \times \frac{9{,}3}{0{,}44613}$$

C_s = 0,02085 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,020846	g/dscm
c_r	-0,000157	g/dscm
Q_std	5,546173	dscm/min
θ	60	min

E_T = (0 - -0) x 5,5 x 60

E_T = 6,98903 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,26801	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	43,13333	min			

V_mc = 0,26801 - (0 - 0) x 43

V_mc = 0,26801 dcm

$$V_mc(std) = 0{,}3855 \times 0{,}26801 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,28737 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,2	mg
m_f	2,2	mg
m_g	1,5	mg

m_n = 0,2 + 2,2 + 1,5

m_n = 3,9 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	3,9	mg
V_m(std)	0,287365	dscm

$$C_s = 0{,}001 \times \frac{3{,}9}{0{,}28737}$$

C_s = 0,01357 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,013572	g/dscm
c_r	-0,000157	g/dscm
Q_std	5,546173	dscm/min
θ	43,13333	min

E_T = (0 - -0) x 5,5 x 43

E_T = 3,28411 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

K_1	0,3855	K/mmHg			
V_mr	0,65299	dcm			
Y	1	Gasmåler Faktor			
P_bar	757,1856	mmHg	P_bar	1009,5	mBar
Delta_H	0	mmVS			
T_m	298,3988	K	T_Gasmåler	25,3988	°C

$$V_mr(std) = 0,3855 \times 0,65299 \times 1 \times \left(\frac{757,2 + \frac{0}{13,6}}{298}\right)$$

V_mr(std) = 0,63876 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	-0,1	mg
V_m_r(std)	0,638758	dscm

$$C_r = 0,001 \times \frac{-0,1}{0,63876}$$

C_r = -0,00016 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	103,13	min
V_mi	67,50997	l
V_s	5,88	m/s
T_m	301,7926	K
T_si	315,8634	K
V_m	685,58	l
V_si	6,48	m/s
T_s	321,5382	K
T_mi	301,528	K

$$PR = \frac{103{,}13 \times (67{,}5 \times 5{,}88 \times 301{,}8 \times 316)}{10 \times (686 \times 6{,}48 \times 321{,}5 \times 302)} \times 100$$

PR = 90,6476 -

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

Manufacturer:	Dovre
Type:	Norflam Harbor Light
ELAB no.:	2419
Order number:	0
Testdate:	3-6 2019
File Name:	3-46 MF 030619 calc
Testrun:	MF test, run at valve reduced to pos R50 after 15% combusted
Fil dato og tid (Start):	03-06-19 10:58:58

Weight of test fuel spacers, dry basis, kg

E2780

$$Equation\,(1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$$Equation\,(2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$$

M_CPnwb	8,698	kg (wet basis)
FM_CPn	20,91898	% (dry basis)

M_Cdb = Σ[(8,7) x (100 / (100 + 21))] kg (dry basis)

M_Cdb = 7,193246 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$$Equation\,(3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$$

M_Cdb	7,193246	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,193246 / 0,02 kg (dry) / m3

D_Cdb = 359,6623 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg
E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,193246	kg (dry basis)

M_FTAdb = 0 + 7,19325 kg (dry basis)

M_FTAdb = 7,193246 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,193246	kg (dry basis)
θ	257,80	min

$$BR = \frac{60 \times 7,19325}{258}$$

BR = 1,674146

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,60	mmVS	P_Dynamisk	25,50	Pa		
T_s	297,20	K	T_Kanal	24,20	°C		
P_s	757,20	mmHg	P_s	100961	Pa	Ps_Tryk	-39 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}60\right)^{0{,}5} \times \left(\frac{297{,}20}{757{,}20 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,49 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	5,81	m/s	(Average)
V_scent	6,49	m/s	(Average)

$$F_p = \frac{5{,}81}{6{,}49}$$

F_p = 0,8953 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,8953	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,50	mmVS	P_Dynamisk	24,55	Pa
T_s	311,70	K			
P_s	757,21	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}8953 \times 34{,}97 \times 0{,}99 \times (2{,}50)^{0{,}5} \times \left(\frac{311{,}70}{757{,}21 \times 29{,}00}\right)^{0{,}5}$$

$V_s = 5{,}84$ m/s (V_scent)

Average gas flow rate in dilution tunnel:

E2515

$$Equation\,(3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	5,843305	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	757,2095	mmHg	P_s	####	Pa	Ps_Tryk	-39 Pa
T_s	311,704	K	T_Kanal	38,7	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 5{,}8 \times 0 \times \left(\frac{293 \times 757}{311{,}7 \times 760}\right)$$

$Q_{std} = 5{,}686381$ dscm/min

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	1,74705	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	257,8	min			

V_mc = 1,74705 - (0 - 0) x 258

V_mc = 1,74705 dscm

$$V_{mc(std)} = 0{,}3855 \times 1{,}74705 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 1,873032 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,6	mg
m_f	1,2	mg
m_g	4,5	mg

m_n = 0,6 + 1,2 + 4,5

m_n = 6,3 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	6,3	mg
V_m(std)	1,873032	dscm

$$C_s = 0{,}001 \times \frac{6{,}3}{1{,}87303}$$

C_s = 0,003364 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,003364	g/dscm
c_r	6,29E-05	g/dscm
Q_std	5,686381	dscm/min
θ	257,8	min

E_T = (0 - 0) x 5,7 x 258

E_T = 4,838572 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,40083	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,40083 - (0 - 0) x 60

V_mc = 0,40083 dcm

$$V_{mc(std)} = 0{,}3855 \times 0{,}40083 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,429777 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,4	mg
m_f	0,9	mg
m_g	4,2	mg

m_n = 0,4 + 0,9 + 4,2

m_n = 5,5 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	5,5	mg
V_m(std)	0,429777	dscm

$$C_s = 0{,}001 \times \frac{5{,}5}{0{,}42978}$$

C_s = 0,012797 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,012797	g/dscm
c_r	6,29E-05	g/dscm
Q_std	5,686381	dscm/min
θ	60	min

E_T = (0 - 0) x 5,7 x 60

E_T = 4,344771 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

V_m	1,3497	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	197,8	min			

V_mc = 1,3497 - (0 - 0) x 198

V_mc = 1,3497 dcm

$$V_mc(std) = 0,3855 \times 1,3497 \times 0,9991 \times \left(\frac{760 + \frac{0}{13,6}}{273}\right)$$

V_mc(std) = 1,447173 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,4	mg
m_f	-3,1	mg
m_g	3,3	mg

m_n = 0,4 + -3,1 + 3,3

m_n = 0,6 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	0,6	mg
V_m(std)	1,447173	dscm

$$C_s = 0,001 \times \frac{0,6}{1,44717}$$

C_s = 0,000415 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,000415	g/dscm
c_r	6,29E-05	g/dscm
Q_std	5,686381	dscm/min
θ	197,8	min

E_T = (0 - 0) x 5,7 x 198

E_T = 0,395594 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

K_1	0,3855	K/mmHg			
V_mr	1,628863	dcm			
Y	1	Gasmåler Faktor			
P_bar	757,5606	mmHg	P_bar	1010	mBar
Delta_H	0	mmVS			
T_m	299,159	K	T_Gasmåler	26,159	°C

$$V_{mr(std)} = 0,3855 \times 1,62886 \times 1 \times \left(\frac{757,6 + \frac{0}{13,6}}{299}\right)$$

V_mr(std) = 1,590099 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	0,1	mg
V_m_r(std)	1,590099	dscm

$$C_r = 0,001 \times \frac{0,1}{1,5901}$$

C_r = 6,29E-05 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	257,80	min
V_mi	67,74132	l
V_s	5,84	m/s
T_m	302,4306	K
T_si	323,6035	K
V_m	1747,05	l
V_si	6,50	m/s
T_s	311,704	K
T_mi	302,7884	K

$$PR = \frac{257{,}80 \times (67{,}7 \times 5{,}84 \times 302{,}4 \times 324)}{10 \times (1747 \times 6{,}50 \times 311{,}7 \times 303)} \times 100$$

$$PR = 93{,}24477 \; -$$

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

Manufacturer:	Dovre
Type:	Norflam Harbor Light
ELAB no.:	1234
Order number:	
Testdate:	4-6 2019
File Name:	3-46 HF 040619 emi calc
Testrun:	HF test, valve at R100 after 6 min a CS (ignition)
Fil dato og tid (Start):	04-06-19 08:15:36

Weight of test fuel spacers, dry basis, kg

E2780

$$Equation\ (1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$$Equation\ (2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$$

M_CPnwb	7,571	kg (wet basis)
FM_CPn	0	% (dry basis)

M_Cdb = Σ[(7,6) x (100 / (100 + 0))] kg (dry basis)

M_Cdb = 7,571 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$$Equation\ (3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$$

M_Cdb	7,571	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,571 / 0,02 kg (dry) / m3

D_Cdb = 378,55 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg
E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,571	kg (dry basis)

M_FTAdb = 0 + 7,571 kg (dry basis)

M_FTAdb = 7,571 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,571	kg (dry basis)
θ	101,82	min

$$BR = \frac{60 \text{ x } 7,571}{102}$$

BR = 4,46155

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,63	mmVS	P_Dynamisk	25,80	Pa		
T_s	296,00	K	T_Kanal	23,00	°C		
P_s	757,57	mmHg	P_s	101010	Pa	Ps_Tryk	-40 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}63\right)^{0{,}5} \times \left(\frac{296{,}00}{757{,}57 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,52 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	5,98	m/s	(Average)
V_scent	6,52	m/s	(Average)

$$F_p = \frac{5{,}98}{6{,}52}$$

F_p = 0,9176 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,9176	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,59	mmVS	P_Dynamisk	25,39	Pa
T_s	320,85	K			
P_s	757,57	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}9176 \times 34{,}97 \times 0{,}99 \times \left(2{,}59\right)^{0{,}5} \times \left(\frac{320{,}85}{757{,}57 \times 29{,}00}\right)^{0{,}5}$$

$$V_s = 6{,}18 \text{ m/s (V_scent)}$$

Average gas flow rate in dilution tunnel:

E2515

$$Equation\,(3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	6,177734	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	757,5665	mmHg	P_s	####	Pa	Ps_Tryk	-41 Pa
T_s	320,8464	K	T_Kanal	47,8	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 6{,}2 \times 0 \times \left(\frac{293 \times 758}{320{,}85 \times 760}\right)$$

$$Q_{std} = 5{,}84328 \text{ dscm/min}$$

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,684	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	101,8167	min			

V_mc = 0,684 - (0 - 0) x 102

V_mc = 0,684 dscm

$$V_{mc(std)} = 0{,}3855 \times 0{,}684 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,73332 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	1,6	mg
m_f	11,6	mg
m_g	0,7	mg

m_n = 1,6 + 11,6 + 0,7

m_n = 13,9 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	13,9	mg
V_m(std)	0,733324	dscm

$$C_s = 0{,}001 \times \frac{13{,}9}{0{,}73332}$$

C_s = 0,01895 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,018955	g/dscm
c_r	0,000313	g/dscm
Q_std	5,843278	dscm/min
θ	101,8167	min

E_T = (0 - 0) x 5,8 x 102

E_T = 11,0911 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,4038	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,4038 - (0 - 0) x 60

V_mc = 0,4038 dcm

$$V_mc(std) = 0{,}3855 \times 0{,}4038 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,43296 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,9 mg
m_f	7,1 mg
m_g	-0,4 mg

m_n = 0,9 + 7,1 + -0,4

m_n = 7,6 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001 g/mg
m_n	7,6 mg
V_m(std)	0,432962 dscm

$$C_s = 0{,}001 \times \frac{7{,}6}{0{,}43296}$$

C_s = 0,01755 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,017554 g/dscm
c_r	0,000313 g/dscm
Q_std	5,843278 dscm/min
θ	60 min

E_T = (0 - 0) x 5,8 x 60

E_T = 6,04462 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,27786	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	41,81667	min			

V_mc = 0,27786 - (0 - 0) x 42

V_mc = 0,27786 dcm

$$V_mc(std) = 0{,}3855 \times 0{,}27786 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,29793 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,7	mg
m_f	3,6	mg
m_g	2,2	mg

m_n = 0,7 + 3,6 + 2,2

m_n = 6,5 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	6,5	mg
V_m(std)	0,297927	dscm

$$C_s = 0{,}001 \times \frac{6{,}5}{0{,}29793}$$

C_s = 0,02182 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,021817	g/dscm
c_r	0,000313	g/dscm
Q_std	5,843278	dscm/min
θ	41,81667	min

E_T = (0 - 0) x 5,8 x 42

E_T = 5,25464 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

K_1	0,3855	K/mmHg			
V_mr	0,649147	dcm			
Y	1	Gasmåler Faktor			
P_bar	757,9356	mmHg	P_bar	1010,5	mBar
Delta_H	0	mmVS			
T_m	296,416	K	T_Gasmåler	23,416	°C

$$V_mr(std) = 0,3855 \times 0,64915 \times 1 \times \left(\frac{757,9 + \frac{0}{13,6}}{296}\right)$$

V_mr(std) = 0,63988 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	0,2	mg
V_m_r(std)	0,63988	dscm

$$C_r = 0,001 \times \frac{0,2}{0,63988}$$

C_r = 0,00031 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	101,82	min
V_mi	67,93643	l
V_s	6,18	m/s
T_m	299,6633	K
T_si	301,5407	K
V_m	684,00	l
V_si	6,46	m/s
T_s	320,8464	K
T_mi	298,7463	K

$$PR = \frac{101,82 \times (67,9 \times 6,18 \times 299,7 \times 302)}{10 \times (684 \times 6,46 \times 320,8 \times 299)} \times 100$$

$$PR = 91,1105 \; -$$

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

EN-NS-EPA-Ber 3-46 06-06-2019 MXB

Manufacturer:	Dovre
Type:	Norflam Harbor Light
ELAB no.:	2419
Order number:	
Testdate:	4-6 2019
File Name:	3-46 LF 040619 calc
Testrun:	Run at R0 after 6 min CS and further 3 min at R50
Fil dato og tid (Start):	04-06-19 08:15:36

Weight of test fuel spacers, dry basis, kg

E2780

$$Equation\ (1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$$Equation\ (2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$$

M_CPnwb	8,681	kg (wet basis)
FM_CPn	21,50668	% (dry basis)

M_Cdb = Σ[(8,7) x (100 / (100 + 22))] kg (dry basis)

M_Cdb = 7,144463 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$$Equation\ (3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$$

M_Cdb	7,144463	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,144463 / 0,02 kg (dry) / m3

D_Cdb = 357,2232 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg
E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,144463	kg (dry basis)

M_FTAdb = 0 + 7,14446 kg (dry basis)

M_FTAdb = 7,144463 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,144463	kg (dry basis)
θ	427,42	min

$$BR = \frac{60 \text{ x } 7,14446}{427}$$

BR = 1,002927

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,63	mmVS	P_Dynamisk	25,80	Pa		
T_s	302,40	K	T_Kanal	29,40	°C		
P_s	758,66	mmHg	P_s	101155	Pa	Ps_Tryk	-40 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}63\right)^{0{,}5} \times \left(\frac{302{,}40}{758{,}66 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,58 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	6,04	m/s	(Average)
V_scent	6,58	m/s	(Average)

$$F_p = \frac{6{,}04}{6{,}58}$$

F_p = 0,9176 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,9176	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,63	mmVS	P_Dynamisk	25,79	Pa
T_s	303,95	K			
P_s	758,66	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}9176 \times 34{,}97 \times 0{,}99 \times \left(2{,}63\right)^{0{,}5} \times \left(\frac{303{,}95}{758{,}66 \times 29{,}00}\right)^{0{,}5}$$

$$V_s = 6{,}05 \text{ m/s (V_scent)}$$

Average gas flow rate in dilution tunnel:

E2515

$$Equation\,(3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	6,05497	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	758,6551	mmHg	P_s	####	Pa	Ps_Tryk	-41 Pa
T_s	303,9479	K	T_Kanal	30,9	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 6{,}1 \times 0 \times \left(\frac{293 \times 759}{303{,}95 \times 760}\right)$$

$$Q_{std} = 6{,}054259 \text{ dscm/min}$$

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	2,85252	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	427,4167	min			

V_mc = 2,85252 - (0 - 0) x 427

V_mc = 2,85252 dscm

$$V_mc(std) = 0{,}3855 \times 2{,}85252 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 3,058219 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,7	mg
m_f	0,9	mg
m_g	3	mg

m_n = 0,7 + 0,9 + 3

m_n = 4,6 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	4,6	mg
V_m(std)	3,058219	dscm

$$C_s = 0{,}001 \times \frac{4{,}6}{3{,}05822}$$

C_s = 0,001504 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,001504	g/dscm
c_r	7,51E-05	g/dscm
Q_std	6,054259	dscm/min
θ	427,4167	min

E_T = (0 - 0) x 6,1 x 427

E_T = 3,697833 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,42624	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,42624 - (0 - 0) x 60

V_mc = 0,42624 dcm

$$V_mc(std) = 0{,}3855 \times 0{,}42624 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,457022 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,4	mg
m_f	0,8	mg
m_g	1,7	mg

m_n = 0,4 + 0,8 + 1,7

m_n = 2,9 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	2,9	mg
V_m(std)	0,457022	dscm

$$C_s = 0{,}001 \times \frac{2{,}9}{0{,}45702}$$

C_s = 0,006345 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,006345	g/dscm
c_r	7,51E-05	g/dscm
Q_std	6,054259	dscm/min
θ	60	min

E_T = (0 - 0) x 6,1 x 60

E_T = 2,277716 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$Equation\,(7_1)$ $Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$

$Equation\,(7)$ $Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$

V_m	2,42776	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	367,4167	min			

V_mc = 2,42776 - (0 - 0) x 367

V_mc = 2,42776 dcm

$$V_mc(std) = 0{,}3855 \times 2{,}42776 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 2,603089 dscm

$Equation\,(12)$ $m_n = m_p + m_f + m_g$

m_p	0,6	mg
m_f	0	mg
m_g	1,3	mg

m_n = 0,6 + 0 + 1,3

m_n = 1,9 mg

$Equation\,(13)$ $C_s = K_2 * \frac{m_n}{V_{m(std)}}$

K_2	0,001	g/mg
m_n	1,9	mg
V_m(std)	2,603089	dscm

$$C_s = 0{,}001 \times \frac{1{,}9}{2{,}60309}$$

C_s = 0,00073 g/dscm

$Equation\,(15)$ $E_T = (C_s - C_r) * Q_{std} * \theta$

c_s	0,00073	g/dscm
c_r	7,51E-05	g/dscm
Q_std	6,054259	dscm/min
θ	367,4167	min

E_T = (0 - 0) x 6,1 x 367

E_T = 1,456487 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm} \right)$$

K_1	0,3855	K/mmHg			
V_mr	2,711703	dcm			
Y	1	Gasmåler Faktor			
P_bar	759,0232	mmHg	P_bar	1011,95	mBar
Delta_H	0	mmVS			
T_m	298,0804	K	T_Gasmåler	25,0804	°C

$$V_mr(std) = 0,3855 \times 2,7117 \times 1 \times \left(\frac{759 + \frac{0}{13,6}}{298} \right)$$

V_mr(std) = 2,661878 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	0,2	mg
V_m_r(std)	2,661878	dscm

$$C_r = 0,001 \times \frac{0,2}{2,66188}$$

C_r = 7,51E-05 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	427,42	min
V_mi	68,29245	l
V_s	6,05	m/s
T_m	301,1889	K
T_si	325,4258	K
V_m	2852,52	l
V_si	6,75	m/s
T_s	303,9479	K
T_mi	301,6316	K

$$PR = \frac{427{,}42 \times (68{,}3 \times 6{,}05 \times 301{,}2 \times 325)}{10 \times (2853 \times 6{,}75 \times 303{,}9 \times 302)} \times 100$$

PR = 98,14808 -

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

Manufacturer:	Norflam (Dovre)
Type:	Harbor Light
ELAB no.:	2419
Order number:	0
Testdate:	43622,3
File Name:	3-46 HF 060619 emi calc
Testrun:	High Fire run at valve setting R100 (max air supply)
Fil dato og tid (Start):	43622,3

Weight of test fuel spacers, dry basis, kg

E2780

$$Equation\ (1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$$Equation\ (2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$$

M_CPnwb	7,628	kg (wet basis)
FM_CPn	0	% (dry basis)

M_Cdb = Σ[(7,6) x (100 / (100 + 0))] kg (dry basis)

M_Cdb = 7,628 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$$Equation\ (3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$$

M_Cdb	7,628	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,628 / 0,02 kg (dry) / m3

D_Cdb = 381,4 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg
E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,628	kg (dry basis)

M_FTAdb = 0 + 7,628 kg (dry basis)

M_FTAdb = 7,628 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,628	kg (dry basis)
θ	121,63	min

$$BR = \frac{60 \text{ x } 7,628}{122}$$

BR = 3,76278

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,60	mmVS	P_Dynamisk	25,50	Pa		
T_s	298,00	K	T_Kanal	25,00	°C		
P_s	754,00	mmHg	P_s	100533	Pa	Ps_Tryk	-42 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}60\right)^{0{,}5} \times \left(\frac{298{,}00}{754{,}00 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,52 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	6,19	m/s	(Average)
V_scent	6,52	m/s	(Average)

$$F_p = \frac{6{,}19}{6{,}52}$$

F_p = 0,9493 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\ (9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,9493	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,66	mmVS	P_Dynamisk	26,12	Pa
T_s	321,95	K			
P_s	753,99	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}9493 \times 34{,}97 \times 0{,}99 \times (2{,}66)^{0{,}5} \times \left(\frac{321{,}95}{753{,}99 \times 29{,}00}\right)^{0{,}5}$$

$$V_s = 6{,}51 \text{ m/s (V_scent)}$$

Average gas flow rate in dilution tunnel:

E2515

$$Equation\ (3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	6,508207	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	753,9926	mmHg	P_s	####	Pa	Ps_Tryk	-43 Pa
T_s	321,9463	K	T_Kanal	48,9	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 6{,}5 \times 0 \times \left(\frac{293 \times 754}{321{,}95 \times 760}\right)$$

$$Q_{std} = 6{,}10589 \text{ dscm/min}$$

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,80041	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	121,6333	min			

V_mc = 0,80041 - (0 - 0) x 122

V_mc = 0,80041 dscm

$$V_{mc(std)} = 0{,}3855 \times 0{,}80041 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,85813 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	1,6	mg
m_f	10,1	mg
m_g	3,2	mg

m_n = 1,6 + 10,1 + 3,2

m_n = 14,9 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	14,9	mg
V_m(std)	0,858129	dscm

$$C_s = 0{,}001 \times \frac{14{,}9}{0{,}85813}$$

C_s = 0,01736 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,017363	g/dscm
c_r	0,000133	g/dscm
Q_std	6,105888	dscm/min
θ	121,6333	min

E_T = (0 - 0) x 6,1 x 122

E_T = 12,7964 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,39651	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,39651 - (0 - 0) x 60

V_mc = 0,39651 dcm

$$V_{mc(std)} = 0{,}3855 \times 0{,}39651 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,42515 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	1	mg
m_f	6,7	mg
m_g	1,8	mg

m_n = 1 + 6,7 + 1,8

m_n = 9,5 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	9,5	mg
V_m(std)	0,425145	dscm

$$C_s = 0{,}001 \times \frac{9{,}5}{0{,}42515}$$

C_s = 0,02235 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,022345	g/dscm
c_r	0,000133	g/dscm
Q_std	6,105888	dscm/min
θ	60	min

E_T = (0 - 0) x 6,1 x 60

E_T = 8,13742 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

V_m	0,40738	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	61,63333	min			

V_mc = 0,40738 - (0 - 0) x 62

V_mc = 0,40738 dcm

$$V_mc(std) = 0,3855 \times 0,40738 \times 0,9991 \times \left(\frac{760 + \frac{0}{13,6}}{273}\right)$$

V_mc(std) = 0,4368 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,5	mg
m_f	2,8	mg
m_g	2,3	mg

m_n = 0,5 + 2,8 + 2,3

m_n = 5,6 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	5,6	mg
V_m(std)	0,4368	dscm

$$C_s = 0,001 \times \frac{5,6}{0,4368}$$

C_s = 0,01282 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,012821	g/dscm
c_r	0,000133	g/dscm
Q_std	6,105888	dscm/min
θ	61,63333	min

E_T = (0 - 0) x 6,1 x 62

E_T = 4,7745 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

K_1	0,3855	K/mmHg			
V_mr	0,770279	dcm			
Y	1	Gasmåler Faktor			
P_bar	754,3728	mmHg	P_bar	1005,75	mBar
Delta_H	0	mmVS			
T_m	298,733	K	T_Gasmåler	25,733	°C

$$V_mr(std) = 0,3855 \times 0,77028 \times 1 \times \left(\frac{754,4 + \frac{0}{13,6}}{299}\right)$$

V_mr(std) = 0,74985 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	0,1	mg
V_m_r(std)	0,749851	dscm

$$C_r = 0,001 \times \frac{0,1}{0,74985}$$

C_r = 0,00013 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	121,63	min
V_mi	67,20132	l
V_s	6,51	m/s
T_m	301,6647	K
T_si	304,5004	K
V_m	800,41	l
V_si	6,45	m/s
T_s	321,9463	K
T_mi	299,9508	K

$$PR = \frac{121{,}63 \times (67{,}2 \times 6{,}51 \times 301{,}7 \times 305)}{10 \times (800 \times 6{,}45 \times 321{,}9 \times 300)} \times 100$$

PR = 97,9796 -

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

Manufacturer:	Dovre
Type:	Norflam Harbor Light
ELAB no.:	1234
Order number:	0
Testdate:	43623,4
File Name:	3-46 HF 070619 emi calc
Testrun:	Run at valve at R100 (maximum combustionair supply)
Fil dato og tid (Start):	43623,4

Weight of test fuel spacers, dry basis, kg

E2780

$Equation\ (1) \qquad M_{Sdb} = (M_Swb) * (\frac{100}{100 + FM_S})$

M_swb	0	kg (wet basis)
FM_s	0	% (dry basis)

M_sdb = (0) x (100 / (100 + 0)) kg (dry basis)

M_sbd = 0 kg (dry basis)

Weight of test fuel crip, excluding nails and spacers, dry basis, kg

E2780

$Equation\ (2) \qquad M_{Cdb} = \Sigma(M_{CPnwb}) * \left(\frac{100}{100 + FM_{CPn}}\right)$

M_CPnwb	7,72	kg (wet basis)
FM_CPn	0	% (dry basis)

M_Cdb = Σ[(7,7) x (100 / (100 + 0))] kg (dry basis)

M_Cdb = 7,72 kg (dry basis)

Density of fuel crip, excluding spacers and nails, dry basis, kg/m3

E2780

$Equation\ (3) \qquad D_{Cdb} = \frac{M_{Cdb}}{V_C}$

M_Cdb	7,72	kg (dry basis)
V_C	0,02	m3

D_Cdb = 7,72 / 0,02 kg (dry) / m3

D_Cdb = 386 kg (dry) / m3

Total weight of fuel crip excluding nails, dry basis, kg

E2780

$$Equation\ (4) \qquad M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

M_Sdb	0	kg (dry basis)
M_Cdb	7,72	kg (dry basis)

M_FTAdb = 0 + 7,72 kg (dry basis)

M_FTAdb = 7,72 kg (dry basis)

Burn rate, kg (dry/h)

E2780

$$Equation\ (5) \qquad BR = \frac{60 * M_FTAdb}{\theta}$$

M_FTAdb	7,72	kg (dry basis)
θ	109,92	min

$$BR = \frac{60 \times 7,72}{110}$$

BR = 4,2141

Air velocity in tunnel at traverse measurements:

E2515

$$Equation\,(9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	1,00	(Direckt)					
K_p	34,97	-					
C_p	0,99	-					
ΔP_avg	2,60	mmVS	P_Dynamisk	25,50	Pa		
T_s	296,90	K	T_Kanal	23,90	°C		
P_s	760,35	mmHg	P_s	101380	Pa	Ps_Tryk	-41 Pa
M_s	29,00	g/g mole					

$$V_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}60\right)^{0{,}5} \times \left(\frac{296{,}90}{760{,}35 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,48 m/s (V_scent)

Pitot tube factor for center:

E2515

$$Equation\,(1) \qquad Fp = \frac{Vstrav}{Vscent}$$

V_strav	5,90	m/s	(Average)
V_scent	6,48	m/s	(Average)

$$F_p = \frac{5{,}90}{6{,}48}$$

F_p = 0,9112 -

Air velocity in dilution tunnel during test charge

E2515

$$Equation\ (9) \qquad Vs = Fp * Kp * Cp * \sqrt{\Delta Pavg} * \sqrt{\frac{Ts}{Ps * Ms}}$$

F_p	0,9112	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,54	mmVS	P_Dynamisk	24,86	Pa
T_s	322,31	K			
P_s	760,34	mmHg			
M_s	29,00	g/g mole			

$$V_s = 0{,}9112 \times 34{,}97 \times 0{,}99 \times \left(2{,}54\right)^{0{,}5} \times \left(\frac{322{,}31}{760{,}34 \times 29{,}00}\right)^{0{,}5}$$

$$V_s = 6{,}07 \text{ m/s (V_scent)}$$

Average gas flow rate in dilution tunnel:

E2515

$$Equation\ (3) \qquad Qstd = 60 * (1 - Bws) * Vs * A * \left(\frac{Tstd * Ps}{Ts * Pstd}\right)$$

B_ws	0,02	-					
V_s	6,072552	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	760,3424	mmHg	P_s	####	Pa	Ps_Tryk	-41 Pa
T_s	322,3138	K	T_Kanal	49,3	°C		
P_std	760	mmHg					

$$Q_{std} = 60 \times (1 - 0{,}02) \times 6{,}1 \times 0 \times \left(\frac{293 \times 760}{322{,}31 \times 760}\right)$$

$$Q_{std} = 5{,}73859 \text{ dscm/min}$$

Measurements sample train 1 entire charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,7209	dcm			
K_1	0,3855	K/mmHg			
Y	0,999	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	109,9167	min			

V_mc = 0,7209 - (0 - 0) x 110

V_mc = 0,7209 dscm

$$V_mc(std) = 0{,}3855 \times 0{,}7209 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,77288 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	1,1	mg
m_f	7,2	mg
m_g	3,8	mg

m_n = 1,1 + 7,2 + 3,8

m_n = 12,1 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	12,1	mg
V_m(std)	0,772885	dscm

$$C_s = 0{,}001 \times \frac{12{,}1}{0{,}77288}$$

C_s = 0,01566 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,015656	g/dscm
c_r	0,000146	g/dscm
Q_std	5,738593	dscm/min
θ	109,9167	min

E_T = (0 - 0) x 5,7 x 110

E_T = 9,78299 g

Measurements sample train 2 first hour of charge

E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13{,}6}}{Tm}\right)$$

V_m	0,39087	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	60	min			

V_mc = 0,39087 - (0 - 0) x 60

V_mc = 0,39087 dcm

$$V_{mc(std)} = 0{,}3855 \times 0{,}39087 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,4191 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	1,5	mg
m_f	6,3	mg
m_g	3	mg

m_n = 1,5 + 6,3 + 3

m_n = 10,8 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	10,8	mg
V_m(std)	0,419098	dscm

$$C_s = 0{,}001 \times \frac{10{,}8}{0{,}4191}$$

C_s = 0,02577 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,02577	g/dscm
c_r	0,000146	g/dscm
Q_std	5,738593	dscm/min
θ	60	min

E_T = (0 - 0) x 5,7 x 60

E_T = 8,82263 g

Measurements sample train 2 from 1 hour and rest of charge
E2515

$$Equation\,(7_1) \qquad Vmc = \mathrm{Vm} - (\mathrm{Lp} - \mathrm{La}) * \theta$$

$$Equation\,(7) \qquad Vmc(std) = K1 * Vmc * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

V_m	0,32923	dcm			
K_1	0,3855	K/mmHg			
Y	0,9991	Gasmåler Faktor			
P_bar	759,9983	mmHg	P_bar	1013,25	mBar
Delta_H	0	mmVS			
T_m	273	K	T_Gasmåler	0	°C
L_p	0	m3/min			
L_a	0	m3/min			
θ	49,91667	min			

V_mc = 0,32923 - (0 - 0) x 50

V_mc = 0,32923 dcm

$$V_mc(std) = 0,3855 \times 0,32923 \times 0,9991 \times \left(\frac{760 + \frac{0}{13,6}}{273}\right)$$

V_mc(std) = 0,35301 dscm

$$Equation\,(12) \qquad m_n = m_p + m_f + m_g$$

m_p	0,2	mg
m_f	-0,4	mg
m_g	0,7	mg

m_n = 0,2 + -0,4 + 0,7

m_n = 0,5 mg

$$Equation\,(13) \qquad C_s = K_2 * \frac{m_n}{V_{m(std)}}$$

K_2	0,001	g/mg
m_n	0,5	mg
V_m(std)	0,353007	dscm

$$C_s = 0,001 \times \frac{0,5}{0,35301}$$

C_s = 0,00142 g/dscm

$$Equation\,(15) \qquad E_T = (C_s - C_r) * Q_{std} * \theta$$

c_s	0,001416	g/dscm
c_r	0,000146	g/dscm
Q_std	5,738593	dscm/min
θ	49,91667	min

E_T = (0 - 0) x 5,7 x 50

E_T = 0,36392 g

Room blanc

E2515

$$Equation\,(8) \qquad Vmr(std) = K1 * Vmr * Y * \left(\frac{Pbar + \frac{\Delta H}{13,6}}{Tm}\right)$$

K_1	0,3855	K/mmHg			
V_mr	0,696875	dcm			
Y	1	Gasmåler Faktor			
P_bar	760,7109	mmHg	P_bar	1014,2	mBar
Delta_H	0	mmVS			
T_m	298,279	K	T_Gasmåler	25,279	°C

$$V_mr(std) = 0,3855 \times 0,69687 \times 1 \times \left(\frac{760,7 + \frac{0}{13,6}}{298}\right)$$

V_mr(std) = 0,68513 dscm

$$Equation\,(14) \qquad C_r = K_2 * \frac{m_r}{Vm_{r(std)}}$$

K_2	0,001	g/mg
m_r	0,1	mg
V_m_r(std)	0,685135	dscm

$$C_r = 0,001 \times \frac{0,1}{0,68513}$$

C_r = 0,00015 g/dscm

Proportional Rate first 10 minutes

E2515

$$Equation\,(16) \qquad PR = \frac{\theta * (V_{mi} * V_s * T_m * T_{si})}{10 * (V_m * V_{si} * T_s * T_{mi})} * 100$$

θ	109,92	min
V_mi	65,1319	l
V_s	6,07	m/s
T_m	301,3455	K
T_si	320,7282	K
V_m	720,90	l
V_si	6,69	m/s
T_s	322,3138	K
T_mi	300,4984	K

$$PR = \frac{109{,}92 \times (65{,}1 \times 6{,}07 \times 301{,}3 \times 321)}{10 \times (721 \times 6{,}69 \times 322{,}3 \times 300)} \times 100$$

PR = 89,8983 - (Integer 90)

Notation and units

E2780

Equation (1)	M_Swb	weight of all test fuel spacers, wet basis, kg
	FM_S	average fuel moisture of all test fuel spacers, % dry basis
	M_Sdb	weight of all test fuel spacers, dry basis, kg
Equation (2)	M_CPnwb	weight of each test fuel piece n in fuel crip, excluding nails and spacers, wet basis, kg
	FM_CPn	avarage fuel moisture of test fuel piece n in fuel crip, % dry basis,
	n	individual test fuel pieces that comprise the test fuel crip, as applicable
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
Equation (3)	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	V_C	Volume of fuel crib, m3
	D_Cdb	density of fuel, crib, excluding spacers and nails, dry basis, kg/m3
Equation (4)	M_Sdb	weight of all test fuel spacers, dry basis, kg
	M_Cdb	weight of fuel crib, excluding nails and spacers, dry basis, kg
	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
Equation (5)	M_FTAdb	total weight of fuel crip excluding nails, dry basis, kg
	θ	total length of test rin, min.
	BR	dry burn rate, kg/h

E2515

Equation (9)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	K_p	-	Pitot Tube Constant 34,97 m/sec
	C_p	-	Pitot tube coefficient, dimentionless (assigned a value of 0.99)
	ΔP_avg	mmVC	Average velocity pressure in dilution tunnel, mm water
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	M_s	g/g mole	The dilution tunnel dry gas molecular weight (may be assumed to be 29 g/g mole)
	V_s	m/s	Average gas velocity in the dilution tunnel
Equation (1)	F_p	-	Adjustment factor for center of tunnel pitot tube placement
	V_strav	m/s	Average gas velocity calculated after the multipoint Pitot traverse
	V_scent	m/s	Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse
Equation (3)	B_ws	-	Water vapor in the gas steam, proportion by volume (assumed to be 0.02 (2.0%))
	V_s	m/s	Average gas velocity in the dilution tunnel
	A	m2	Cross-sectional area of tunnel
	T_std	K	Standard absolute temperature, 293K
	P_s	mm Hg	Absolute average gas static pressure in dilution tunnel
	T_s	K	Absolute average gas temperature in the dilution tunnel
	P_std	mmHg	Standard absolute pressure, 760 mm Hg
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
Equation (7)	V_m	dcm	Volume of gas sample as measured by dry gas meter
	L_p	m3/min	Leakage rate observed during the post-test leakcheck
	L_a	m3/min	Maximum acceptable leakage rate for either a oretest og post-test leak-check, equal to 0.0003 m3/min
	θ	Min	Total sampling time
	V_mc	-	V_m - (L_p - L_a) * θ
	K_1	K/mm Hg	0.3855 K/mm Hg
	Y	-	Dry gas meter calibration factor
	P_Bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mc(std)	dscm	Volume of air sample measured by the dry gas meter, corrected to standard conditions
Equation (12)	m_p	mg	mass of particulate from probe
	m_f	mg	mass of particulate from filters
	m_g	mg	mass of particulate from gaskets
	m_n	mg	Total amount of particulate matter collected
Equation (13)	K_2	g/mg	0.001
	m_n	mg	Total amount of particulate matter collected
	V_m(std)	dscm	Volume of gas sample measured by the dry gas meter, corrected to standard conditions
	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
Equation (15)	c_s	g/dscm	Consentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions
	c_r	g/dscm	Consentration of particulate matter room air, dry basis, corrected to standard conditions
	Q_std	dscm/min	Average gas flow rate in dilution tunnel
	θ	Min	Total sampling time
	E_T	g	Total particulate emissions
Equation (8)	K_1	K/mm Hg	0.3855 K/mm Hg
	V_mr	dcm	Volume of room air sampled as measured by dry gas meter
	Y	-	Dry gas meter calibration factor
	P_bar	mm Hg	Barometric pressure at the sampling site.
	ΔH	mmVC	Average pressure at the outlet of the dry gas meter or the avarage differential pressure across the orifice meter
	T_m	K	Absolute average dry gas meter temperature
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (14)	K_2	g/mg	0.001
	m_r	mg	mass of particulate from the filter, filter gasket, and probe assembly from the room air blank filter holder assembly
	V_mr(std)	dscm	Volume of room air sample measured by the dry gas meter, corrected to standard conditions
Equation (16)	θ	Min	Total sampling time
	V_mi	dcm	Volume of gas sample as measured by dry gas neter during each 10-min interval, i, of the test run
	V_s	m/s	Average gas velocity in the dilution tunnel
	T_m	K	Absolute average dry gas meter temperature
	T_si	K	Absolute average gas temperature in the dilution tunnel during each 10-min interval, i, of the test run
	V_m	dcm	Volume of gas sample as measured by dry gas meter
	V_si	dcm	Volume of gas sampled as measured by dry gas meter during each 10-min interval, i, of the test run
	T_s	K	Absolute average gas temperature in the dilution tunnel
	T_mi	K	Absolute avarage dry gas meter temperature during each 10-min interval, i, of the test run
	PR	-	Proportional Rate Variation - Calculated PR for each 10-min interval, i, of the test run

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 3. June 2019
Run: #1
Control #: R100
Test Duration: 73,02133333
Output Category: High

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	69,3%	74,2%
Combustion Efficiency	96,0%	96,0%
Heat Transfer Efficiency	72%	77,3%

Output Rate (kJ/h)	57.684	54.719	**(Btu/h)**
Burn Rate (kg/h)	4,43	9,76	**(lb/h)**
Input (kJ/h)	83.272	78.993	**(Btu/h)**

Test Load Weight (dry kg)	5,39	11,88	**dry lb**
MC wet (%)	16,8		
MC dry (%)	20,19		
Particulate (g)	10,385		
CO (g)	290		
Test Duration (h)	1,22		

Emissions	**Particulate**	**CO**
g/MJ Output	0,15	4,13
g/kg Dry Fuel	1,93	53,81
g/h	8,53	238,32
lb/MM Btu Output	0,34	9,60

Air/Fuel Ratio (A/F)	8,78

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 3. June 2019
Run: #2
Control #: R50
Test Duration: 257,563
Output Category: Medium

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	69,7%	74,6%
Combustion Efficiency	96,6%	96,6%
Heat Transfer Efficiency	72%	77,2%

Output Rate (kJ/h)	21.957	20.828	**(Btu/h)**
Burn Rate (kg/h)	1,68	3,69	**(lb/h)**
Input (kJ/h)	31.512	29.893	**(Btu/h)**

Test Load Weight (dry kg)	7,20	15,86	**dry lb**
MC wet (%)	17,3		
MC dry (%)	20,92		
Particulate (g)	4,79		
CO (g)	345		
Test Duration (h)	4,29		

Emissions	**Particulate**	**CO**
g/MJ Output	0,05	3,66
g/kg Dry Fuel	0,67	47,93
g/h	1,12	80,34
lb/MM Btu Output	0,12	8,50

Air/Fuel Ratio (A/F)	13,88

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 4. June 2019
Run: #3
Control #: R100
Test Duration: 68,01616666
Output Category: High

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	67,8%	72,6%
Combustion Efficiency	94,3%	94,3%
Heat Transfer Efficiency	72%	77,0%

Output Rate (kJ/h)	60.912	57.781	**(Btu/h)**
Burn Rate (kg/h)	4,78	10,54	**(lb/h)**
Input (kJ/h)	89.899	85.279	**(Btu/h)**

Test Load Weight (dry kg)	5,42	11,95	**dry lb**
MC wet (%)	17,3		
MC dry (%)	20,92		
Particulate (g)	11,195		
CO (g)	415		
Test Duration (h)	1,13		

Emissions	**Particulate**	**CO**
g/MJ Output	0,16	6,01
g/kg Dry Fuel	2,07	76,55
g/h	9,88	366,03
lb/MM Btu Output	0,38	13,97

Air/Fuel Ratio (A/F)	8,69

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 4. June 2019
Run: #4
Control #: R50
Test Duration: 427,6111667
Output Category: Low

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	73,1%	78,3%
Combustion Efficiency	95,5%	95,5%
Heat Transfer Efficiency	77%	82,0%

Output Rate (kJ/h)	13.784	13.076	**(Btu/h)**
Burn Rate (kg/h)	1,00	2,21	**(lb/h)**
Input (kJ/h)	18.851	17.883	**(Btu/h)**

Test Load Weight (dry kg)	7,15	15,75	**dry lb**
MC wet (%)	17,7		
MC dry (%)	21,51		
Particulate (g)	3,715		
CO (g)	454		
Test Duration (h)	7,13		

Emissions	**Particulate**	**CO**
g/MJ Output	0,04	4,62
g/kg Dry Fuel	0,52	63,51
g/h	0,52	63,68
lb/MM Btu Output	0,09	10,74

Air/Fuel Ratio (A/F)	14,10

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 6. June 2019
Run: #5
Control #: R100
Test Duration: 91,027
Output Category: High

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	68,4%	73,3%
Combustion Efficiency	94,9%	94,9%
Heat Transfer Efficiency	72%	77,2%

Output Rate (kJ/h)	46.149	43.777	**(Btu/h)**
Burn Rate (kg/h)	3,59	7,91	**(lb/h)**
Input (kJ/h)	67.480	64.012	**(Btu/h)**

Test Load Weight (dry kg)	5,45	12,00	**dry lb**
MC wet (%)	17		
MC dry (%)	20,48		
Particulate (g)	12,855		
CO (g)	383		
Test Duration (h)	1,52		

Emissions	**Particulate**	**CO**
g/MJ Output	0,18	5,47
g/kg Dry Fuel	2,36	70,34
g/h	8,47	252,47
lb/MM Btu Output	0,43	12,71

Air/Fuel Ratio (A/F)	10,09

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer: Norflam (Dovre)
Model: Harbor Light
Date: 7. June 2019
Run: #6
Control #: R100
Test Duration: 81,01950001
Output Category: High

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	70,8%	75,9%
Combustion Efficiency	97,2%	97,2%
Heat Transfer Efficiency	73%	78,0%

Output Rate (kJ/h)	53.684	50.925	**(Btu/h)**
Burn Rate (kg/h)	4,03	8,89	**(lb/h)**
Input (kJ/h)	75.807	71.911	**(Btu/h)**

Test Load Weight (dry kg)	5,44	12,00	**dry lb**
MC wet (%)	17,1		
MC dry (%)	20,63		
Particulate (g)	9,485		
CO (g)	212		
Test Duration (h)	1,35		

Emissions	**Particulate**	**CO**
g/MJ Output	0,13	2,93
g/kg Dry Fuel	1,74	38,95
g/h	7,02	157,07
lb/MM Btu Output	0,30	6,80

Air/Fuel Ratio (A/F)	9,33

VERSION: **2,4** **15-04-2010**

		Ambient temperature	Main train filter temp	Split train 1H filter temp	Split train rem. filter temp
Datotid	Scantime	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]	Filter-3-D2 - [°C]
14:04:07	Start of CS&HF				
14:04:31	3,066	23,881409	30,063614	29,60174	
14:05:01	3,065	23,868219	29,149607	28,809467	
14:05:32	3,067	23,886675	28,875835	28,572029	
14:06:02	3,067	23,949934	28,701061	28,438925	
14:06:32	3,066	24,245174	28,761267	28,453491	
14:07:02	3,067	24,408386	28,686901	28,424759	
14:07:32	3,065	24,168699	28,656828	28,415562	
14:08:02	3,067	24,392508	28,654222	28,491262	
14:08:32	3,066	24,424095	28,672491	28,509516	
14:09:02	3,066	24,532032	28,690737	28,519968	
14:09:32	3,067	24,597811	28,693346	28,546068	
14:10:02	3,067	24,458332	28,695976	28,587831	
14:10:32	3,067	24,216124	28,724689	28,667433	
14:11:02	3,066	24,505939	28,894424	28,831968	
14:11:32	3,067	24,34008	28,96484	28,912815	
14:12:02	3,067	24,62698	29,022198	28,991039	
14:12:32	3,066	24,550665	29,076942	29,066648	
14:13:02	3,066	24,453234	29,121216	29,159163	
14:13:32	3,067	24,547932	29,228024	29,263353	
14:14:02	3,066	24,566336	29,319212	29,393629	
14:14:32	3,066	24,466343	29,43646	29,529097	
14:15:02	3,066	24,492664	29,506794	29,607225	
14:15:32	3,066	24,263615	29,556282	29,698343	
14:16:02	3,066	24,395277	29,616199	29,769953	
14:16:32	3,067	24,524389	29,665798	29,823454	
14:17:02	3,065	24,642916	29,728373	29,884706	
14:17:32	3,067	24,895426	29,757006	29,848255	
14:18:02	3,067	24,792849	29,796062	29,923729	
14:18:32	3,067	24,737581	29,820776	29,974455	
14:19:02	3,066	24,595451	29,833704	29,992628	
14:19:32	3,066	24,424347	29,892252	30,005621	
14:20:02	3,067	24,816414	29,944298	30,052433	
14:20:32	3,067	25,310831	30,065483	30,173578	
14:21:02	3,066	24,740391	30,152679	30,269867	
14:21:32	3,067	24,919243	30,191685	30,34008	
14:22:02	3,066	25,000755	30,287914	30,412886	
14:22:32	3,067	25,055941	30,401012	30,45574	
14:23:02	3,067	25,171486	30,422995	30,538855	
14:23:32	3,067	24,953575	30,558426	30,652163	
14:24:02	3,066	25,111317	30,524647	30,63397	
14:24:32	3,066	25,069246	30,561024	30,584591	

14:25:02	3,066	25,1297	30,329666	30,236219
14:25:32	3,066	25,066587	29,910845	29,758759
14:26:02	3,067	24,911652	29,64551	29,406086
14:26:32	3,066	24,727514	29,390285	29,09337
14:27:02	3,066	24,606499	29,137514	28,82478
14:27:32	3,066	25,329859	29,089556	28,729834
14:28:02	3,065	25,723684	28,939545	28,595387
14:28:32	3,067	24,993309	28,905628	28,543192
14:29:02	3,066	25,750237	28,894188	28,594339
14:29:32	3,067	25,626875	28,873348	28,594378
14:30:02	3,065	24,74889	28,801493	28,504232
14:30:32	3,065	24,680664	28,801662	28,49263
14:31:02	3,066	25,122665	28,820084	28,517591
14:31:32	3,065	24,841148	28,697325	28,428743
14:32:02	3,067	25,550974	28,726255	28,452429
14:32:32	3,067	25,19644	28,74724	28,410793
14:33:02	3,066	24,838694	28,559244	28,329721
14:33:32	3,067	24,878475	28,628702	28,289557
14:34:02	3,067	24,862724	29,033016	28,720259
14:34:32	3,066	24,573158	29,365156	29,177759
14:35:02	3,066	25,259932	29,310829	29,01911
14:35:32	3,068	25,08379	29,116661	28,777855
14:36:02	3,067	24,707983	29,118191	28,761145
14:36:32	3,067	24,557995	29,245901	28,800285
14:37:02	3,067	24,489582	29,381432	28,904627
14:37:32	3,066	24,368721	29,642092	29,134275
14:38:02	3,066	24,466127	29,683764	29,301083
14:38:32	3,067	24,650562	29,637112	29,306522
14:39:02	3,067	24,613735	29,600666	29,194475
14:39:32	3,067	24,650562	29,282873	29,103262
14:40:02	3,067	24,800776	29,165854	28,975756
14:40:32	3,066	25,071613	28,972929	28,774935
14:41:02	3,066	25,121559	28,912958	28,686247
14:41:32	3,067	25,169115	28,978409	28,634315
14:42:02	3,067	25,686611	28,994061	28,509071
14:42:32	3,067	25,720732	28,881918	28,490797
14:43:02	3,067	25,658001	28,921291	28,522398
14:43:32	3,067	26,049053	28,884794	28,485844
14:44:02	3,065	25,610781	28,887457	28,46244
14:44:32	3,065	25,188042	28,890299	28,475679
14:45:02	3,066	24,977739	28,845955	28,47307
14:45:32	3,066	25,487621	28,896893	28,495342
14:46:02	3,066	25,595503	28,869688	28,507296
14:46:32	3,066	25,627035	28,934898	28,439447
14:47:02	3,066	25,71887	28,898399	28,498196
14:47:32	3,066	25,501245	28,971704	28,565018
14:48:02	3,066	25,306858	29,018641	28,64591
14:48:32	3,065	25,427994	29,094532	28,737528

14:49:02	3,065	25,472656	29,063255	28,794935	
14:49:32	3,064	25,942587	29,146666	28,907076	
14:50:02	3,064	25,559629	28,998373	28,876087	
14:50:32	3,065	25,454573	28,852335	28,842192	
14:51:02	3,065	26,042959	28,831846	28,852947	
14:51:32	3,064	25,759474	28,769205	28,759035	
14:52:02	3,065	25,738468	28,779633	28,714706	
14:52:32	3,065	25,168812	28,845689	28,776346	
14:53:02	3,068	25,54973	28,852995	28,764591	
14:53:32	3,067	25,736485	28,908054	28,75053	
14:54:02	3,066	25,862478	28,822027	28,717978	
14:54:32	3,066	25,60783	28,759436	28,600554	
14:55:02	3,066	25,49523	28,751944	28,629616	
14:55:32	3,066	25,434824	28,676285	28,546116	
14:56:02	3,066	25,125353	28,779873	28,545321	
14:56:32	3,066	25,330091	28,723577	28,499475	
14:57:02	3,067	25,20203	28,805082	28,618795	
14:57:32	3,067	25,122816	28,742224	28,609455	
14:58:02	3,067	25,341671	28,823708	28,700068	
14:58:32	3,066	25,301891	28,776472	28,646357	
14:59:02	3,067	25,57826	28,861763	28,752472	
14:59:32	3,067	25,54656	28,795128	28,717199	
15:00:02	3,066	25,848845	28,816307	28,713581	
15:00:32	3,066	25,99054	28,805944	28,696699	
15:01:02	3,066	25,610039	28,829504	28,692875	
15:01:32	3,067	25,305672	28,876804	28,698439	
15:02:02	3,066	25,421431	28,899088	28,705076	
15:02:32	3,067	25,277201	28,89938	28,739307	
15:03:02	3,067	25,214239	28,855158	28,73419	
15:03:32	3,066	25,705725	28,918034	28,812757	
15:04:02	3,066	26,193998	28,937876	27,907527	
15:04:32	3,067	25,401409	29,013561	27,652588	
15:05:02	3,065	25,997986	29,020634	27,30331	30,236219
15:05:32	3,066	25,464926	29,021868		30,191685
15:06:02	3,066	25,649548	29,119009		30,173578
15:06:32	3,067	25,525702	29,014402		30,161121
15:07:02	3,067	26,405582	29,182007		30,042084
15:07:32	3,068	25,392164	29,053957		29,818117
15:08:03	3,066	25,721323	29,109486		29,735437
15:08:33	3,067	25,755011	29,090893		29,584251
15:09:03	3,066	25,5117	29,240273		29,600533
15:09:33	3,066	25,676685	29,159121		29,506594
15:10:03	3,066	26,422663	29,321508		29,554121
15:10:33	3,068	27,419912	29,198679		29,479813
15:11:03	3,067	26,734678	29,24231		29,471149
15:11:33	3,067	26,386919	29,366762		29,508247
15:12:03	3,067	27,405159	29,303888		29,466385
15:12:33	3,066	26,209114	29,34642		29,472281

15:13:03	3,067	25,760303	29,319025	29,443705
15:13:33	3,066	27,173412	29,324564	29,425781
15:14:03	3,067	28,060658	29,376083	29,44206
15:14:33	3,067	28,047092	29,263676	29,358513
15:15:03	3,067	27,457312	29,314066	29,356615
15:15:33	3,067	26,761547	29,291147	29,367579
15:16:03	3,066	26,638018	29,198339	29,303572
15:16:33	3,067	26,01231	29,294298	29,362906
15:17:03	3,065	26,209419	29,293434	29,358192
15:17:33	3,066	28,242439	29,22406	29,266853
15:18:03	3,067	26,17864	29,245874	29,283274
15:18:33	3,066	26,239378	29,200714	29,281157
15:19:03	3,066	25,577944	29,17065	29,214674
15:19:33	3,066	26,646372	29,210522	29,237513
15:20:03	3,066	26,004141	29,140358	29,206518
15:20:33	3,066	25,909674	29,110416	29,13236
15:21:03	3,067	26,075975	29,086557	29,144855
15:21:33	3,065	26,018415	29,071156	29,111286
15:22:03	3,068	25,530258	29,038671	29,043673
15:22:33	3,066	25,736006	29,072119	29,033989
15:23:03	3,067	26,664722	29,032055	29,001827
15:23:33	3,067	26,263391	28,905401	28,956175
15:24:03	3,067	26,09149	28,971657	28,933544
15:24:33	3,067	26,781509	29,00618	28,931587
15:25:03	3,066	26,579165	28,841415	28,840063
15:25:33	3,068	26,129473	28,923363	28,825294
15:26:03	3,067	25,907097	28,92662	28,833776
15:26:33	3,067	26,527992	28,834848	28,757883
15:27:03	3,065	28,37339	28,91423	28,76141
15:27:33	3,067	26,945787	28,875185	28,708134
15:28:03	3,067	26,419182	28,909164	28,675741
15:28:33	3,067	27,975069	28,952045	28,702763
15:29:03	3,067	26,729074	28,904608	28,621603
15:29:33	3,066	26,074436	28,887115	28,62365
15:30:03	3,067	26,149141	28,92732	28,672838
15:30:33	3,066	25,928091	28,866831	28,576023
15:31:03	3,066	26,06291	28,932966	28,578156
15:31:33	3,067	26,435801	28,894386	28,593
15:32:03	3,066	27,752335	28,876022	28,590473
15:32:33	3,067	26,103546	28,895164	28,61343
15:33:03	3,067	26,522812	28,895004	28,612072
15:33:33	3,066	26,740992	28,937431	28,604967
15:34:03	3,067	26,159086	28,838327	28,597147
15:34:33	3,066	25,608673	28,85207	28,644835
15:35:03	3,067	25,619097	28,87294	28,617493
15:35:33	3,066	25,391388	28,860628	28,632536
15:36:03	3,067	25,362682	28,858292	28,631556
15:36:33	3,066	25,859514	28,887445	28,659386

15:37:03	3,067	25,80512	28,903839	28,688843
15:37:33	3,066	25,720846	28,84366	28,682178
15:38:03	3,065	25,874125	28,899364	28,713083
15:38:33	3,067	26,56572	28,807507	28,690565
15:39:03	3,066	26,270895	28,890957	28,743811
15:39:33	3,066	25,834743	28,818691	28,660042
15:40:03	3,066	25,806425	28,81279	28,712906
15:40:33	3,065	25,822367	28,845541	28,679077
15:41:03	3,067	26,76108	28,822065	28,666019
15:41:33	3,067	26,749411	28,842937	28,703629
15:42:03	3,067	26,591537	28,778496	28,666813
15:42:33	3,066	26,519714	28,855509	28,724056
15:43:03	3,066	26,262796	28,834641	28,684908
15:43:33	3,066	26,361389	28,914268	28,727758
15:44:03	3,067	27,125534	28,848467	28,657038
15:44:33	3,066	26,611998	28,847105	28,670183
15:45:03	3,067	26,778059	28,790009	28,665653
15:45:33	3,067	26,418257	28,598225	28,841431
15:46:03	3,065	26,089449	28,75355	28,743811
15:46:33	3,066	25,700754	28,667162	28,712906
15:47:03	3,067	25,40612	28,72686	28,712906
15:47:15	End of HF			
15:47:33	3,066	28,919886	30,147379	30,734627
15:48:03	3,067	28,919886	31,038727	30,674881
15:48:33	3,066	28,919886	31,245438	30,616045
15:49:03	3,066	28,919886	31,367064	30,553572
15:49:33	3,067	28,919886	31,166583	30,457397
15:50:03	3,067	28,919886	29,905279	30,43442
15:50:33	3,065	28,919886	29,659752	30,385447
15:51:03	3,066	28,919886	29,912256	30,30225
15:51:33	3,065	28,919886	30,285093	30,205709
15:52:03	3,066	28,919886	30,62789	30,207893
15:52:33	3,066	28,919886	30,745132	30,160053
15:53:03	3,067	28,919886	30,784931	30,10125
15:53:33	3,065	28,919886	30,979708	30,016644
15:54:03	3,065	28,919886	31,260067	29,948984
15:54:33	3,067	28,919886	31,143474	29,95088
15:55:03	3,065	28,919886	30,9044	29,947563
15:55:33	3,066	28,919886	29,856354	29,840639
15:56:03	3,067	28,919886	28,593525	29,783283
15:56:33	3,067	28,919886	27,676716	29,741623
15:57:03	3,066	28,919886	27,692389	29,707788
15:57:33	3,066	28,919886	27,862307	29,650488
15:58:03	3,066	28,919886	27,977276	29,642681
15:58:33	3,066	28,919886	28,08033	29,569681
15:59:03	3,067	28,919886	28,194946	29,488722
15:59:33	3,066	28,919886	28,237984	29,444435
16:00:03	3,066	28,919886	28,380953	29,430696

16:00:33	3,067	28,919886	28,456041	29,445608
16:01:03	3,067	28,919886	28,458651	29,443007
16:01:33	3,064	28,919886	28,539581	29,393507
16:02:03	3,066	28,919886	28,599487	29,334843
16:02:33	3,066	28,919886	28,652607	29,265522
16:03:03	3,066	28,919886	28,679943	29,244669
16:03:33	3,067	28,919886	28,690392	29,301994
16:04:03	3,066	28,919886	28,734749	29,549482
16:04:33	3,066	29,073965	28,797348	29,843672
16:05:03	3,067	29,089615	28,836483	30,101276
16:05:33	3,066	29,106186	28,885695	30,254526
16:06:03	3,066	29,151552	28,838551	30,338877
16:06:33	3,066	29,182825	28,875078	30,419472
16:07:03	3,067	29,250591	28,903765	30,466269
16:07:33	3,065	29,159363	28,916792	30,435055
16:08:03	3,067	29,270699	28,951218	30,478451
16:08:33	3,066	29,436722	29,074278	30,456814
16:09:03	3,067	29,425982	29,040199	30,40733
16:09:33	3,066	29,480682	29,063637	30,342321
16:10:03	3,066	29,441624	29,107965	30,279924
16:10:33	3,066	29,449429	29,147076	30,201906
16:11:03	3,067	29,506727	29,139238	30,152487
16:11:33	3,067	29,524345	29,134867	29,996075
16:12:03	3,066	29,495697	29,233891	29,629068
16:12:34	3,067	29,601734	29,259136	29,032814
16:13:04	3,065	29,731493	29,343372	28,091488
16:13:34	3,065	29,682049	29,377234	27,260044
16:14:04	3,066	29,752445	29,391724	26,65415
16:14:34	3,066	29,872906	29,438009	26,260265
16:15:04	3,067	29,867702	29,422371	25,924494
16:15:34	3,066	29,906956	29,429052	25,660877
16:16:04	3,066	29,993477	29,436285	25,500099
16:16:34	3,066	29,946634	29,436285	25,255762
16:17:04	3,066	29,959631	29,423248	25,048119
16:17:34	3,067	29,947882	29,424486	24,865316
16:18:04	3,066	30,016068	29,384716	24,776562
16:18:34	3,066	30,030771	29,382439	24,68346
16:19:04	3,066	29,952713	29,379833	24,617668
16:19:34	3,067	29,913786	29,330448	24,583595
16:20:04	3,067	29,957317	29,329746	24,543402
16:20:34	3,066	29,94837	29,294733	24,53964
16:21:04	3,067	29,898924	29,271278	24,515951
16:21:34	3,066	29,873013	29,241493	24,518806
16:22:04	3,067	29,938829	29,2878	24,572142
16:22:34	3,066	29,910204	29,233078	24,622143
16:23:04	3,066	29,81777	29,231712	24,639174
16:23:34	3,066	29,827255	29,22175	24,725197
16:24:04	3,066	29,931906	29,210531	24,833509

16:24:34	3,066	29,887684	29,213133		24,904526
16:25:04	3,066	29,854645	29,198414		24,942364
16:25:34	3,066	29,943203	29,206215		25,094765
16:26:04	3,066	29,891155	29,240112		25,14996
16:26:34	3,066	29,896381	29,169739		25,228806
16:27:04	3,066	29,821003	29,1712		25,330265
16:27:34	3,068	29,889475	29,186285		25,447819
16:28:04	3,066	29,868649	29,162827		25,502975
16:28:34	3,066	29,808332	29,089497		25,554001
16:29:04	3,066	29,919022	29,135094		25,703482
16:29:34	3,067	29,848747	29,129862		25,774366
16:30:04	3,067	29,780495	29,074652		25,793774
16:30:34	3,066	29,869017	29,113688		25,936541
16:31:04	3,066	29,83144	29,117758		26,016756
16:31:34	3,066	29,80619	29,057333		26,062363
16:32:04	3,068	29,79273	29,116861		26,148405
16:32:34	3,065	29,793329	29,110895		26,245914
16:33:04	3,066	29,751442	29,044243		26,295614
16:33:34	3,066	29,833298	29,025808		26,372755
16:34:04	3,065	29,794241	29,054483		26,433039
16:34:34	3,065	29,744442	28,97728		26,428919
16:35:04	3,066	29,713081	28,926365		26,502317
16:35:34	3,065	29,750944	28,992861		26,604368
16:36:04	3,065	29,70496	28,909067		26,611994
16:36:34	3,066	29,609652	28,821516		26,638069
16:37:04	3,065	29,70504	28,892139		26,783522
16:37:34	3,066	29,685087	28,844828		26,7728
16:38:04	3,066	29,621244	28,792664		26,823935
16:38:34	3,067	29,656536	28,903542		26,904987
16:39:04	3,066	29,564793	28,82481		26,895504
16:39:34	3,066	29,562292	28,733631		26,955851
16:40:04	3,066	29,553335	28,800184		27,055227
16:40:34	3,065	29,466663	28,709637		27,005112
16:41:04	3,066	29,541277	28,762047		27,137392
16:41:34	3,066	29,49156	28,703188		27,121569
16:42:04	3,066	29,425959	28,640177		27,139627
16:42:34	3,066	29,462646	28,675472		27,225883
16:43:04	3,066	29,352869	28,65436		27,207451
16:43:34	3,066	29,307091	28,562897		27,208696
16:44:04	3,066	29,413885	28,591488		27,320997
16:44:34	3,066	29,313272	28,584768		27,303915
16:45:04	3,067	29,266363	28,561279		27,303915
16:45:34	3,067	29,331532	28,569021		27,390045
16:46:04	3,067	29,288223	28,502256		27,383446
16:46:34	3,066	29,207438	28,473545		27,388674
16:47:04	3,065	29,260677		27,441895	27,441895
16:47:34	3,066	29,156433		27,446026	27,446026
16:48:04	3,067	29,130239		27,635561	27,635561

16:48:34	3,066	29,141951	28,389061	28,389061
16:49:04	3,066	29,066076	28,759621	28,759621
16:49:34	3,066	29,037403	28,965656	28,965656
16:50:04	3,066	29,044249	29,207136	29,207136
16:50:34	3,066	29,046251	29,584311	29,584311
16:51:04	3,067	29,004524	29,904505	29,904505
16:51:34	3,067	28,918242	30,13718	30,13718
16:52:04	3,066	28,958628	30,311363	30,311363
16:52:34	3,067	28,898659	30,332169	30,332169
16:53:04	3,067	28,807116	30,281279	30,281279
16:53:34	3,067	28,85536	30,257832	30,257832
16:54:04	3,067	28,852753	30,169392	30,169392
16:54:34	3,065	28,723562	30,019754	30,019754
16:55:04	3,066	28,732052	29,902105	29,902105
16:55:34	3,067	28,754667	29,793179	29,793179
16:56:04	3,067	28,685471	29,65123	29,65123
16:56:34	3,066	28,635647	29,492373	29,492373
16:57:04	3,066	28,656584	29,427099	29,427099
16:57:34	3,065	28,625277	29,320286	29,320286
16:58:04	3,066	28,546211	29,162151	29,162151
16:58:34	3,066	28,554123	29,120283	29,120283
16:59:04	3,067	28,553278	29,034672	29,034672
16:59:34	3,065	28,461517	28,914454	28,914454
17:00:04	3,067	28,424572	28,798191	28,798191
17:00:34	3,068	28,487331	28,751087	28,751087
17:01:04	3,066	28,486496	28,704559	28,704559
17:01:34	3,068	28,412596	28,580128	28,580128
17:02:04	3,066	28,373426	28,499228	28,499228
17:02:34	3,067	28,378092	28,482887	28,482887
17:03:04	3,066	28,352909	28,486315	28,486315
17:03:34	3,065	28,330126	28,395906	28,395906
17:04:04	3,066	28,29356	28,309755	28,309755
17:04:34	3,066	28,290947	28,236639	28,236639
17:05:04	3,067	28,323767	28,292742	28,292742
17:05:34	3,066	28,307718	28,193359	28,193359
17:06:04	3,067	28,213699	28,159414	28,159414
17:06:34	3,066	28,208481	28,070585	28,070585
17:07:04	3,067	28,205992	28,049829	28,049829
17:07:34	3,066	28,19651	28,048206	28,048206
17:08:04	3,067	28,154713	27,977655	27,977655
17:08:34	3,067	28,139053	27,930616	27,930616
17:09:04	3,067	28,112932	27,860077	27,860077
17:09:34	3,066	28,030575	27,788126	27,788126
17:10:04	3,065	27,963455	27,720015	27,720015
17:10:34	3,066	27,986828	27,723625	27,723625
17:11:04	3,066	27,923307	27,6756	27,6756
17:11:34	3,067	27,87365	27,615473	27,615473
17:12:04	3,066	27,894562	27,584099	27,584099

17:12:34	3,066	27,774998	27,483036	27,483036
17:13:04	3,066	27,726442	27,476423	27,476423
17:13:34	3,065	27,828388	27,554882	27,554882
17:14:04	3,066	28,047876	27,855543	27,855543
17:14:34	3,065	28,473537	28,302244	28,302244
17:15:04	3,066	28,950129	28,901503	28,901503
17:15:34	3,066	29,517435	29,35285	29,35285
17:16:04	3,066	30,063658	29,739031	29,739031
17:16:34	3,066	30,626383	29,99791	29,99791
17:17:04	3,066	31,209194	30,151255	30,151255
17:17:34	3,067	31,516319	30,226524	30,226524
17:18:04	3,066	30,72716	29,539469	29,539469
17:18:34	3,066	30,035593	28,812294	28,812294
17:19:04	3,066	29,980959	28,616619	28,616619
17:19:34	3,067	30,038193	28,538332	28,538332
17:20:04	3,066	30,116238	28,512234	28,512234
17:20:34	3,068	30,11104	28,4757	28,4757
17:21:04	3,067	29,965334	28,439144	28,439144
17:21:35	3,068	29,777956	28,386932	28,386932
17:22:05	3,066	29,593103	28,358217	28,358217
17:22:35	3,067	29,408178	28,358217	28,358217
17:23:05	3,066	29,13619	28,288254	28,288254
17:23:35	3,066	28,967573	28,24082	28,24082
17:24:05	3,066	28,798864	28,243008	28,243008
17:24:35	3,067	28,613636	28,195995	28,195995
17:25:05	3,065	28,551014	28,227356	28,227356
17:25:35	3,067	28,480539	28,227356	28,227356
17:26:05	3,065	28,436161	28,232573	28,232573
17:26:35	3,066	28,373516	28,276951	28,276951
17:27:05	3,067	28,276903	28,287409	28,287409
17:27:35	3,067	28,289272	28,328238	28,328238
17:28:05	3,066	28,174232	28,351585	28,351585
17:28:35	3,067	28,080206	28,353062	28,353062
17:29:05	3,066	27,996351	28,359385	28,359385
17:29:35	3,066	28,030308	28,3881	28,3881
17:30:05	3,066	27,938873	28,4116	28,4116
17:30:35	3,068	27,944096	28,440311	28,440311
17:31:05	3,066	27,912741	28,424662	28,424662
17:31:35	3,068	27,924847	28,393856	28,393856
17:32:05	3,066	27,947559	28,406218	28,406218
17:32:35	3,066	28,019897	28,450867	28,450867
17:33:05	3,066	28,029217	28,496626	28,496626
17:33:35	3,067	28,065807	28,517511	28,517511
17:34:05	3,066	28,041355	28,518034	28,518034
17:34:35	3,068	28,066542	28,51598	28,51598
17:35:05	3,066	28,048271	28,544685	28,544685
17:35:35	3,066	28,146421	28,581362	28,581362
17:36:05	3,065	28,218836	28,641657	28,641657

17:36:35	3,067	28,230394	28,644123	28,644123
17:37:05	3,066	28,183029	28,608829	28,608829
17:37:35	3,067	28,216999	28,627102	28,627102
17:38:05	3,066	28,287626	28,680666	28,680666
17:38:35	3,067	28,34408	28,727753	28,727753
17:39:05	3,067	28,255102	28,683401	28,683401
17:39:35	3,066	28,294283	28,693851	28,693851
17:40:05	3,066	28,372608	28,730366	28,730366
17:40:35	3,065	28,427427	28,775961	28,775961
17:41:05	3,067	28,368954	28,708427	28,708427
17:41:35	3,066	28,418558	28,752785	28,752785
17:42:05	3,066	28,452513	28,781475	28,781475
17:42:35	3,066	28,451859	28,773113	28,773113
17:43:05	3,066	28,481411	28,773813	28,773813
17:43:35	3,066	28,503674	28,772573	28,772573
17:44:05	3,065	28,561083	28,814295	28,814295
17:44:35	3,067	28,476051	28,766043	28,766043
17:45:05	3,066	28,532475	28,771391	28,771391
17:45:35	3,067	28,614874	28,82106	28,82106
17:46:05	3,065	28,653999	28,831507	28,831507
17:46:35	3,066	28,596571	28,774307	28,774307
17:47:05	3,066	28,637093	28,819887	28,819887
17:47:35	3,066	28,702576	28,830448	28,830448
17:48:05	3,066	28,701071	28,841986	28,841986
17:48:35	3,066	28,635578	28,808161	28,808161
17:49:05	3,065	28,740707	28,837231	28,837231
17:49:35	3,066	28,727648	28,884182	28,884182
17:50:05	3,066	28,704418	28,83893	28,83893
17:50:35	3,067	28,723434	28,835802	28,835802
17:51:05	3,067	28,799688	28,883133	28,883133
17:51:35	3,066	28,815348	28,904001	28,904001
17:52:05	3,066	28,743181	28,819134	28,819134
17:52:35	3,066	28,821821	28,862347	28,862347
17:53:05	3,067	28,840431	28,882093	28,882093
17:53:35	3,067	28,804802	28,876505	28,876505
17:54:05	3,067	28,763098	28,831156	28,831156
17:54:35	3,067	28,894232	28,868032	28,868032
17:55:05	3,066	28,925522	28,907162	28,907162
17:55:35	3,067	28,840624	28,851139	28,851139
17:56:05	3,066	28,860098	28,847158	28,847158
17:56:35	3,067	28,872406	28,885269	28,885269
17:57:05	3,066	28,863714	28,846781	28,846781
17:57:35	3,067	28,834192	28,836962	28,836962
17:58:05	3,066	28,918379	28,842543	28,842543
17:58:35	3,066	28,928801	28,881676	28,881676
17:59:05	3,066	28,820198	28,791637	28,791637
17:59:35	3,066	28,867861	28,825897	28,825897
18:00:05	3,066	28,930464	28,825897	28,825897

18:00:35	3,065	28,847073	28,773998	28,773998
18:01:05	3,066	28,860226	28,80653	28,80653
18:01:35	3,066	28,916479	28,804052	28,804052
18:02:05	3,067	28,919083	28,848375	28,848375
18:02:35	3,066	28,826153	28,755745	28,755745
18:03:05	3,066	28,865625	28,806799	28,806799
18:03:35	3,067	28,89727	28,818718	28,818718
18:04:05	3,067	28,8333	28,752291	28,752291
18:04:35	3,066	28,812178	28,762602	28,762602
18:05:05	3,067	28,919823	28,807314	28,807314
18:05:35	3,066	28,862543	28,744991	28,744991
18:06:05	3,067	28,842577	28,730335	28,730335
18:06:35	3,067	28,912313	28,776291	28,776291
18:07:05	3,066	28,872284	28,729855	28,729855
18:07:35	3,068	28,852102	28,726768	28,726768
18:08:05	3,066	28,903574	28,751869	28,751869
18:08:35	3,066	28,912756	28,758436	28,758436
18:09:05	3,067	28,830328	28,681471	28,681471
18:09:35	3,067	28,839956	28,74172	28,74172
18:10:05	3,067	28,870129	28,744448	28,744448
18:10:35	3,066	28,832054	28,66489	28,66489
18:11:05	3,066	28,800762	28,698801	28,698801
18:11:35	3,066	28,890089	28,722622	28,722622
18:12:05	3,066	28,789434	28,653517	28,653517
18:12:35	3,066	28,786825	28,695269	28,695269
18:13:05	3,066	28,843412	28,717609	28,717609
18:13:35	3,066	28,783342	28,631737	28,631737
18:14:05	3,066	28,81464	28,647379	28,647379
18:14:35	3,067	28,825733	28,707741	28,707741
18:15:05	3,067	28,722466	28,630814	28,630814
18:15:35	3,066	28,740734	28,630814	28,630814
18:16:05	3,066	28,828722	28,671545	28,671545
18:16:35	3,065	28,794876	28,606533	28,606533
18:17:05	3,066	28,792046	28,611643	28,611643
18:17:35	3,067	28,842239	28,63286	28,63286
18:18:05	3,065	28,799763	28,61528	28,61528
18:18:35	3,066	28,715555	28,57683	28,57683
18:19:05	3,066	28,792969	28,637072	28,637072
18:19:35	3,067	28,80319	28,605532	28,605532
18:20:05	3,067	28,743385	28,549826	28,549826
18:20:35	3,067	28,798588	28,59441	28,59441
18:21:05	3,066	28,74498	28,5681	28,5681
18:21:35	3,067	28,716486	28,504593	28,504593
18:22:05	3,066	28,767609	28,530806	28,530806
18:22:35	3,066	28,767805	28,560865	28,560865
18:23:05	3,066	28,692156	28,485455	28,485455
18:23:35	3,066	28,676519	28,529808	28,529808
18:24:05	3,065	28,744955	28,558849	28,558849

18:24:35	3,066	28,660036	28,479357	28,479357
18:25:05	3,066	28,675699	28,505457	28,505457
18:25:35	3,065	28,682678	28,512152	28,512152
18:26:05	3,065	28,648787	28,470675	28,470675
18:26:35	3,066	28,629072	28,427448	28,427448
18:27:05	3,068	28,637562	28,428059	28,428059
18:27:35	3,067	28,5958	28,451553	28,451553
18:28:05	3,065	28,629717	28,454163	28,454163
18:28:35	3,067	28,686378	28,484444	28,484444
18:29:05	3,066	28,660936	28,452599	28,452599
18:29:35	3,066	28,61067	28,427217	28,427217
18:30:05	3,066	28,651659	28,452295	28,452295
18:30:35	3,066	28,699986	28,490181	28,490181
18:31:06	3,065	28,710413	28,487574	28,487574
18:31:36	3,067	28,714478	28,492901	28,492901
18:32:06	3,066	28,765781	28,537479	28,537479
18:32:36	3,066	28,731184	28,499056	28,499056
18:33:06	3,067	28,698013	28,465963	28,465963
18:33:36	3,067	28,699778	28,539242	28,539242
18:34:06	3,067	28,646412	28,453444	28,453444
18:34:36	3,067	28,62796	28,465031	28,465031
18:35:06	3,067	28,735516	28,491444	28,491444
18:35:36	3,067	28,653265	28,445923	28,445923
18:36:06	3,068	28,634993	28,44071	28,44071
18:36:36	3,067	28,706018	28,461901	28,461901
18:37:06	3,066	28,650089	28,417862	28,417862
18:37:36	3,066	28,626415	28,419025	28,419025
18:38:06	3,066	28,681784	28,44804	28,44804
18:38:36	3,066	28,578674	28,392105	28,392105
18:39:06	3,067	28,612593	28,405172	28,405172
18:39:36	3,067	28,669226	28,428968	28,428968
18:40:06	3,067	28,580723	28,361446	28,361446
18:40:36	3,066	28,551838	28,35737	28,35737
18:41:06	3,067	28,642086	28,394047	28,394047
18:41:36	3,068	28,585199	28,33193	28,33193
18:42:06	3,067	28,569361	28,33049	28,33049
18:42:36	3,066	28,555145	28,327963	28,327963
18:43:06	3,067	28,61805	28,36986	28,36986
18:43:36	3,067	28,505991	28,290552	28,290552
18:44:06	3,065	28,504808	28,311529	28,311529
18:44:36	3,066	28,605703	28,369169	28,369169
18:45:06	3,067	28,460873	28,287161	28,287161
18:45:36	3,067	28,474031	28,275454	28,275454
18:46:06	3,066	28,586695	28,329233	28,329233
18:46:36	3,067	28,431458	28,223726	28,223726
18:47:06	3,067	28,504547	28,25506	28,25506
18:47:36	3,065	28,507687	28,294525	28,294525
18:48:06	3,066	28,453236	28,210201	28,210201

18:48:36	3,065	28,462057	28,225599	28,225599
18:49:06	3,066	28,484749	28,278109	28,278109
18:49:36	3,065	28,493931	28,27289	28,27289
18:50:06	3,067	28,458921	28,187113	28,187113
18:50:36	3,066	28,456676	28,232948	28,232948
18:51:06	3,066	28,521917	28,259064	28,259064
18:51:36	3,066	28,427347	28,199812	28,199812
18:52:06	3,066	28,433727	28,200888	28,200888
18:52:36	3,067	28,442917	28,203497	28,203497
18:53:06	3,067	28,430855	28,18107	28,18107
18:53:36	3,066	28,435652	28,160982	28,160982
18:54:06	3,066	28,452656	28,17403	28,17403
18:54:36	3,068	28,450048	28,210585	28,210585
18:55:06	3,066	28,404985	28,14196	28,14196
18:55:36	3,067	28,384098	28,126301	28,126301
18:56:06	3,066	28,479843	28,165743	28,165743
18:56:36	3,066	28,428993	28,161867	28,161867
18:57:06	3,067	28,352118	28,11253	28,11253
18:57:36	3,066	28,33905	28,136017	28,136017
18:58:06	3,066	28,396484	28,11775	28,11775
18:58:36	3,066	28,280588	28,039845	28,039845
18:59:06	3,066	28,306801	28,081629	28,081629
18:59:36	3,066	28,317503	28,083078	28,083078
19:00:06	3,065	28,360458	28,098669	28,098669
19:00:36	3,066	28,243229	28,011589	28,011589
19:01:06	3,066	28,240618	28,037712	28,037712
19:01:36	3,067	28,285019	28,037712	28,037712
19:02:06	3,065	28,189861	27,945303	27,945303
19:02:36	3,066	28,250423	27,989981	27,989981
19:03:06	3,067	28,260855	27,992592	27,992592
19:03:36	3,067	28,318806	28,01898	28,01898
19:04:06	3,067	28,215975	27,961998	27,961998
19:04:36	3,067	28,176643	27,973631	27,973631
19:05:06	3,067	28,237198	27,971275	27,971275
19:05:36	3,067	28,223738	27,942194	27,942194
19:06:06	3,066	28,12118	27,918077	27,918077
19:06:36	3,066	28,224771	27,92094	27,92094
19:07:06	3,067	28,186937	27,949705	27,949705
19:07:36	3,066	28,141594	27,874439	27,874439
19:08:06	3,067	28,157366	27,86919	27,86919
19:08:36	3,068	28,162817	27,912457	27,912457
19:09:06	3,067	28,135263	27,894068	27,894068
19:09:36	3,067	28,07559	27,821407	27,821407
19:10:06	3,066	28,09428	27,856905	27,856905
19:10:36	3,066	28,117792	27,877819	27,877819
19:11:06	3,065	28,143913	27,85952	27,85952
19:11:36	3,066	28,100683	27,856733	27,856733
19:12:06	3,066	28,101498	27,817057	27,817057

19:12:36	3,067	28,054495	27,830112	27,830112
19:13:06	3,066	28,030977	27,819668	27,819668
19:13:36	3,066	28,034235	27,785042	27,785042
19:14:06	3,067	28,048653	27,792877	27,792877
19:14:36	3,066	28,046041	27,790268	27,790268
19:15:06	3,066	28,069555	27,787655	27,787655
19:15:36	3,067	28,032528	27,749245	27,749245
19:16:06	3,066	27,98275	27,737368	27,737368
19:16:36	3,067	28,01671	27,745201	27,745201
19:17:06	3,066	28,066561	27,76627	27,76627
19:17:36	3,066	27,944662	27,733149	27,733149
19:18:06	3,067	27,924671	27,687056	27,687056
19:18:36	3,065	27,932505	27,69228	27,69228
19:19:06	3,066	27,962749	27,740774	27,740774
19:19:36	3,067	27,93729	27,643404	27,643404
19:20:06	3,067	27,921467	27,67598	27,67598
19:20:36	3,066	27,913633	27,644611	27,644611
19:21:06	3,065	27,91251	27,648651	27,648651
19:21:36	3,067	27,92141	27,649693	27,649693
19:22:06	3,067	27,860792	27,615229	27,615229
19:22:36	3,067	27,842514	27,60478	27,60478
19:23:06	3,066	27,92782	27,652079	27,652079
19:23:36	3,066	27,905649	27,635107	27,635107
19:24:06	3,067	27,78705	27,564955	27,564955
19:24:36	3,066	27,805353	27,551867	27,551867
19:25:06	3,066	27,880148	27,595207	27,595207
19:25:36	3,067	27,850214	27,600508	27,600508
19:26:06	3,068	27,731602	27,519882	27,519882
19:26:36	3,067	27,791739	27,517271	27,517271
19:27:06	3,067	27,814253	27,544933	27,544933
19:27:36	3,066	27,833952	27,578999	27,578999
19:28:06	3,067	27,754721	27,481495	27,481495
19:28:36	3,066	27,725822	27,48007	27,48007
19:29:06	3,067	27,771959	27,495993	27,495993
19:29:36	3,068	27,796806	27,515646	27,515646
19:30:06	3,067	27,811079	27,511612	27,511612
19:30:36	3,068	27,649466	27,43503	27,43503
19:31:06	3,066	27,700809	27,445724	27,445724
19:31:36	3,067	27,759666	27,48106	27,48106
19:32:06	3,067	27,751833	27,488899	27,488899
19:32:36	3,065	27,633379	27,386168	27,386168
19:33:06	3,065	27,663401	27,390051	27,390051
19:33:36	3,067	27,685942	27,430777	27,430777
19:34:06	3,066	27,709473	27,45171	27,45171
19:34:36	3,066	27,618704	27,396288	27,396288
19:35:06	3,067	27,580423	27,344944	27,344944
19:35:36	3,065	27,616024	27,369991	27,369991
19:36:06	3,066	27,646196	27,377909	27,377909

19:36:36	3,068	27,672344	27,396204	27,396204
19:37:06	3,066	27,582659	27,332733	27,332733
19:37:36	3,066	27,623425	27,347227	27,347227
19:38:06	3,066	27,595982	27,366884	27,366884
19:38:36	3,067	27,622131	27,338108	27,338108
19:39:06	3,067	27,606455	27,343336	27,343336
19:39:36	3,066	27,520796	27,298243	27,298243
19:40:06	3,067	27,524872	27,290451	27,290451
19:40:36	3,067	27,579788	27,311386	27,311386
19:41:07	3,065	27,551022	27,329712	27,329712
19:41:37	3,066	27,517788	27,276911	27,276911
19:42:07	3,065	27,50211	27,254553	27,254553
19:42:37	3,067	27,479912	27,258505	27,258505
19:43:07	3,066	27,490364	27,266371	27,266371
19:43:37	3,066	27,516516	27,287308	27,287308
19:44:07	3,067	27,466633	27,259604	27,259604
19:44:37	3,066	27,458477	27,216103	27,216103
19:45:07	3,065	27,484631	27,247503	27,247503
19:45:37	3,066	27,427092	27,239658	27,239658
19:46:07	3,066	27,430935	27,222565	27,222565
19:46:37	3,067	27,429232	27,202501	27,202501
19:47:07	3,066	27,437073	27,210344	27,210344
19:47:37	3,066	27,439686	27,212984	27,212984
19:48:07	3,067	27,424006	27,239155	27,239155
19:48:37	3,066	27,381783	27,187748	27,187748
19:49:07	3,066	27,399971	27,17844	27,17844
19:49:37	3,067	27,394741	27,17844	27,17844
19:50:07	3,066	27,423519	27,162729	27,162729
19:50:37	3,067	27,384262	27,1444	27,1444
19:51:07	3,068	27,402765	27,168039	27,168039
19:51:37	3,067	27,289606	27,107244	27,107244
19:52:07	3,066	27,321001	27,122959	27,122959
19:52:37	3,066	27,318386	27,125572	27,125572
19:53:07	3,066	27,313158	27,112499	27,112499
19:53:37	3,066	27,352453	27,120279	27,120279
19:54:07	3,067	27,328396	27,09889	27,09889
19:54:37	3,067	27,260378	27,085814	27,085814
19:55:07	3,067	27,291775	27,114605	27,114605
19:55:37	3,066	27,316706	27,108105	27,108105
19:56:07	3,066	27,287987	27,084543	27,084543
19:56:37	3,067	27,259912	27,048672	27,048672
19:57:07	3,067	27,259912	27,059134	27,059134
19:57:37	3,066	27,238976	27,069622	27,069622
19:58:07	3,065	27,273218	27,077585	27,077585
19:58:37	3,067	27,298004	27,057865	27,057865
19:59:07	3,066	27,220217	27,011538	27,011538
19:59:37	3,067	27,220217	26,995817	26,995817
20:00:07	3,067	27,214989	26,998434	26,998434

20:00:37	3,067	27,2558	27,054893	27,054893
20:01:07	3,067	27,253054	27,036444	27,036444
20:01:37	3,067	27,14912	26,942993	26,942993
20:02:07	3,067	27,17004	26,966558	26,966558
20:02:37	3,067	27,156965	26,963942	26,963942
20:03:07	3,066	27,176836	26,962778	26,962778
20:03:37	3,066	27,189932	26,975813	26,975813
20:04:07	3,065	27,114658	26,932049	26,932049
20:04:37	3,065	27,122505	26,926817	26,926817
20:05:07	3,066	27,085871	26,917524	26,887524
20:05:18	End of MF			

Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature	Split train dry gas meter temperature
Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]	Gasm-D - [°C]
25,273813	19,783657	21,630508	28,403349	28,095337
25,11463	19,185099	20,989252	28,601719	28,225929
24,999422	18,894859	20,543558	28,687817	28,25729
24,937122	18,679062	20,264774	28,651299	28,246826
24,853884	18,609943	19,997934	28,66968	28,250883
24,84334	18,433996	19,810579	28,686666	28,265245
24,827503	18,300669	19,613836	28,641035	28,252241
24,831291	18,185982	19,483501	28,627977	28,283573
24,966299	18,084595	19,329178	28,596672	28,249634
24,944307	18,025896	19,190788	28,557541	28,223518
24,934685	17,943167	19,100285	28,531443	28,197401
24,865519	17,89245	19,041689	28,497494	28,197401
24,910316	17,823061	18,949846	28,497536	28,220911
24,985806	17,815191	18,854074	28,521126	28,217119
25,004379	17,780491	18,731539	28,474144	28,172714
25,017782	17,740427	18,632933	28,437609	28,162277
24,98481	17,713724	18,571642	28,398462	28,133547
25,059002	17,657648	18,497028	28,385427	28,115288
24,966179	17,593557	18,397062	28,367174	28,106176
24,980873	17,526764	18,386383	28,325392	28,095713
25,084318	17,50005	18,341042	28,346283	28,098324
25,071043	17,489372	18,25304	28,314955	28,043468
25,015347	17,414557	18,258368	28,275778	28,06698
25,065742	17,419928	18,161032	28,281034	28,05657
25,028622	17,473459	18,159765	28,281096	28,029196
24,988821	17,45215	18,16651	28,260271	28,031853
25,056217	17,47086	18,081137	28,249813	28,018801
25,106035	17,444141	18,094467	28,215872	27,997892
25,070122	17,401381	18,098484	28,188471	27,995285
25,24782	17,337255	18,067812	28,17543	27,995323
25,237221	17,358639	18,039816	28,200251	28,001865
25,335321	17,342594	17,994444	28,171524	27,991425
25,17621	17,374792	17,991886	28,199047	27,975849
25,154987	17,380201	17,98794	28,179504	27,961515
25,205379	17,324081	17,958586	28,140337	27,948465
25,099293	17,332094	17,931894	28,129875	27,930166
25,113775	17,329424	17,895863	28,154701	27,927555
25,215424	17,334763	17,909231	28,153448	27,955053
25,296003	17,380411	17,94009	28,150997	27,980019
25,361006	17,348324	17,96678	28,132708	27,935614
25,407505	17,380411	17,918758	28,132708	27,938227

25,479235	17,40444	17,870705	28,096148	27,885963
25,740381	17,380449	17,921503	28,106668	27,920008
25,878229	17,41267	17,910959	28,135544	27,969814
25,843756	17,401993	17,878931	28,088524	27,933216
25,82766	17,356558	17,876265	28,078058	27,909697
26,024427	17,394169	17,889769	28,150068	27,966003
25,889273	17,378166	17,879145	28,172337	27,998772
25,740862	17,327389	17,855118	28,135756	27,954369
25,735538	17,35965	17,882004	28,163361	27,974081
25,914476	17,332941	17,903383	28,145103	28,028994
25,911835	17,367701	17,850029	28,162123	28,017315
25,929909	17,351778	17,856796	28,141314	28,003004
26,010645	17,343868	17,868916	28,157078	28,014843
26,11664	17,255678	17,876951	28,149303	28,061974
26,227919	17,274529	17,889105	28,185989	28,072506
26,087471	17,317398	17,837149	28,170382	28,046455
26,142443	17,245224	17,826488	28,14954	28,059605
26,0336	17,282871	17,832014	28,221569	28,110693
26,322739	17,258839	17,792021	28,20853	28,061106
26,261812	17,167959	17,797367	28,204655	28,119955
26,259167	17,251097	17,81097	28,236204	28,0914
26,361597	17,229708	17,78694	28,24275	28,095341
26,427811	17,262056	17,824591	28,306974	28,177853
26,291409	17,221949	17,78989	28,273037	28,170027
26,335436	17,227385	17,75395	28,299265	28,180613
26,247133	17,264992	17,755459	28,309872	28,222557
26,263012	17,20352	17,795496	28,255018	28,180761
26,392826	17,275967	17,785128	28,302324	28,220226
26,567593	17,273296	17,742397	28,338867	28,230688
26,598904	17,227848	17,739731	28,320585	28,238514
26,710133	17,2148	17,828138	28,33396	28,283203
26,643936	17,193409	17,820114	28,313068	28,272766
26,777237	17,150623	17,817446	28,289566	28,280594
26,643387	17,185684	17,836462	28,394289	28,351398
26,796991	17,22043	17,783064	28,391682	28,309633
26,653996	17,156279	17,809763	28,342077	28,304417
26,812021	17,188675	17,847456	28,41029	28,377834
26,67065	17,132532	17,828762	28,394615	28,398722
26,671997	17,140612	17,796793	28,418186	28,375298
26,687551	17,172955	17,837099	28,473261	28,451244
26,773129	17,140852	17,850433	28,428877	28,422531
26,684706	17,14366	17,834555	28,464264	28,437044
26,737673	17,15724	17,842777	28,465754	28,462021
26,781839	17,186647	17,781357	28,549269	28,477694
26,714334	17,119909	17,820227	28,512915	28,497456
26,824533	17,149548	17,824408	28,554831	28,538067
26,777958	17,144205	17,81374	28,549616	28,545887
26,757467	17,219395	17,832769	28,5865	28,546249

26,758856	17,192663	17,816767	28,630844	28,598444
26,596262	17,152575	17,782042	28,54734	28,546249
26,730482	17,203709	17,814444	28,678177	28,627487
26,968792	17,171633	17,817114	28,612934	28,632727
26,795662	17,230675	17,815987	28,636604	28,62895
27,025431	17,260214	17,84152	28,691582	28,68787
27,047714	17,276236	17,77743	28,670704	28,635685
27,102066	17,300673	17,881935	28,707603	28,697344
27,20776	17,255228	17,85524	28,699783	28,716951
26,988947	17,271442	17,843378	28,697321	28,671427
27,094847	17,260954	17,90633	28,723631	28,714737
27,249786	17,311741	17,839607	28,752323	28,72777
27,210814	17,328157	17,941422	28,763145	28,77511
27,184343	17,314783	17,890705	28,710976	28,751652
27,229654	17,406036	17,899052	28,816944	28,811939
27,091183	17,339243	17,893782	28,810511	28,819872
27,157375	17,355673	17,910145	28,844711	28,857973
26,972176	17,320938	17,923561	28,834375	28,862003
26,998018	17,393496	17,921228	28,850342	28,842739
27,090691	17,377478	17,870577	28,853062	28,831112
27,094879	17,369749	17,91888	28,849377	28,865227
27,016043	17,340479	17,924398	28,85347	28,883709
27,053122	17,356716	17,928585	28,848419	28,874718
27,075712	17,335552	17,898125	28,885199	28,962357
27,232626	17,335609	17,860825	28,89048	28,9272
27,161175	17,314613	17,858524	28,935169	28,956263
27,059147	17,309368	17,843925	28,939173	28,964209
27,099789	17,307032	17,870974	28,918644	28,95672
27,319481	17,251003	17,879086	28,910946	28,949013
27,019859	17,232651	17,903448	28,934761	28,991055
27,093992	17,227516	18,018465	28,957104	28,95734
27,255465	17,286554	17,779816	29,019968	29,016336
27,321146	17,254826	17,814819	28,977215	28,998318
27,437611	17,287033	17,772274	29,025656	29,041548
27,264914	17,303541	17,791389	29,052082	29,060143
27,389496	17,236732	17,831499	29,013096	29,069429
27,566311	17,293333	17,842602	29,068205	29,089312
27,154551	17,245239	17,853363	29,013592	29,07774
27,337135	17,296507	17,869799	29,050447	29,063751
27,667439	17,256428	17,840513	29,081861	29,106922
27,457327	17,331758	17,806238	29,100492	29,108562
27,568489	17,288986	17,827671	29,066723	29,107412
27,47864	17,345629	17,830795	29,103615	29,103849
27,598633	17,305595	17,838913	29,088156	29,10144
27,33511	17,279331	17,896751	29,131594	29,170948
27,525963	17,306595	17,869211	29,161985	29,183088
27,337755	17,266491	17,829231	29,154293	29,145468
27,600868	17,259001	17,880423	29,149487	29,160173

27,516775	17,253853	17,863308	29,166729	29,174816
27,659678	17,248875	17,831635	29,193142	29,19342
27,798195	17,246742	17,849504	29,22876	29,218626
27,788839	17,169214	17,84425	29,192408	29,235716
27,829613	17,228594	17,858074	29,218884	29,253042
27,965637	17,261246	17,941412	29,227272	29,258831
27,452341	17,223808	17,932089	29,176571	29,235527
27,539213	17,291208	17,885921	29,220018	29,23596
27,691565	17,307764	17,865082	29,284424	29,304214
27,615507	17,235676	17,854563	29,265051	29,29015
27,732218	17,236256	17,868448	29,27593	29,312702
27,932512	17,199364	17,89567	29,288208	29,308029
27,869307	17,148659	17,854387	29,271389	29,321205
27,993032	17,162634	17,875002	29,303185	29,32172
27,93499	17,163002	17,874083	29,290623	29,314363
28,003038	17,136503	17,834288	29,289577	29,343336
27,939564	17,129129	17,873589	29,278362	29,335999
28,028837	17,116154	17,875347	29,291864	29,341669
28,03698	17,089659	17,800859	29,301264	29,330246
28,243904	17,109011	17,794781	29,339546	29,347708
28,251856	17,07741	17,837997	29,364824	29,383394
28,087442	17,021414	17,84358	29,319525	29,35247
28,196037	17,027428	17,846827	29,35388	29,398514
28,10693	17,086935	17,842184	29,372776	29,391356
29,988493	17,038795	17,86895	29,344296	29,387659
28,351023	17,050175	17,87755	29,365646	29,4259
28,170134	17,090969	17,952986	29,374142	29,418762
28,156479	17,080284	17,913042	29,371698	29,417669
28,061255	17,097019	17,924324	29,3592	29,43508
28,0977	17,097374	17,902033	29,372658	29,412075
28,068768	17,105743	17,847723	29,41217	29,442505
27,997093	17,101099	17,92041	29,402264	29,470356
28,049835	17,07436	17,859119	29,407654	29,451033
27,986464	17,096464	17,91855	29,429197	29,476454
27,948879	17,158689	17,932545	29,41152	29,469193
27,881582	17,158689	17,841883	29,416893	29,439459
27,951117	17,180832	17,886612	29,47484	29,506466
27,852007	17,154543	17,892422	29,431017	29,465248
27,871357	17,162842	17,832703	29,449635	29,47739
27,891359	17,136759	17,930756	29,465832	29,502668
27,907978	17,160934	17,844143	29,447763	29,465113
27,820936	17,180403	17,884951	29,513632	29,559654
27,862579	17,102865	17,884951	29,45113	29,510166
27,730572	17,173172	17,917761	29,475323	29,521355
27,827801	17,173351	17,852585	29,501659	29,500805
27,751318	17,160582	17,897173	29,50215	29,566395
27,806238	17,217194	17,861683	29,547014	29,574812
27,724468	17,260269	17,844589	29,518551	29,520308

27,788673	17,338562	17,856068	29,581842	29,565365
27,694952	17,333223	17,836086	29,540279	29,539421
27,787029	17,387484	17,830194	29,611288	29,605225
27,699848	17,384813	17,843634	29,572432	29,561272
27,649044	17,396317	17,876389	29,603031	29,58136
27,707394	17,369595	17,873802	29,599264	29,62718
27,705866	17,364943	17,929296	29,59873	29,622667
27,65674	17,383774	17,86664	29,626127	29,635815
27,544304	17,362391	17,807888	29,581854	29,583735
27,614016	17,363228	17,851349	29,591648	29,611637
27,495184	17,320459	17,851458	29,585285	29,628822
27,555407	17,350702	17,889565	29,622347	29,655367
27,568764	17,353373	17,865538	29,585899	29,631929
27,586779	17,375587	17,879618	29,625597	29,662464
27,560457	17,356874	17,837036	29,649225	29,658817
27,540154	17,383905	17,788013	29,677053	29,654129
27,468805	17,488667	17,797848	29,652683	29,664881
27,486076	17,654274	18,184916	29,574768	29,633963
27,541067	18,303659	18,734898	29,53895	29,611042
27,461887	18,658247	19,114473	29,473946	29,555229
27,527525	18,927322	19,392653	29,442781	29,546276
27,408566	19,044487	19,605461	29,39591	29,54888
27,387388	18,183643	18,988052	29,643326	29,684278
27,331448	17,890865	18,803646	29,724693	29,770731
27,230865	17,744143	18,605291	29,727505	29,726799
27,428991	17,680038	18,458668	29,771769	29,773659
27,362843	17,656652	18,407393	29,747742	29,780865
28,768492	17,598139	18,336899	29,76482	29,821404
29,332407	17,560728	18,248894	29,749193	29,816179
28,706242	17,528677	18,186373	29,757225	29,828171
28,64496	17,545372	18,152245	29,795464	29,844221
28,59473	17,604347	18,095066	29,846397	29,856102
28,510033	17,577637	18,0765	29,836201	29,849869
28,567919	17,516205	18,032524	29,86743	29,860296
28,47691	17,465441	17,997841	29,864832	29,870695
28,480469	17,447184	17,999567	29,875566	29,877491
28,423546	17,452976	18,029259	29,873297	29,870028
28,378725	17,40757	18,016022	29,903402	29,928732
28,292234	17,394197	17,990734	29,878729	29,923645
28,375734	17,378153	17,982733	29,868328	29,918446
28,248806	17,402206	17,907997	29,876127	29,887197
28,221823	17,394197	17,907997	29,920378	29,918446
28,169106	17,404875	17,859945	29,891729	29,889822
28,08976	17,415579	17,902639	29,900919	29,913345
28,108015	17,364805	17,945475	29,884172	29,943447
28,118509	17,386187	17,910761	29,88677	29,955206
28,041807	17,381279	17,968571	29,874083	29,943785

27,998314	17,397781	17,972967	29,931684	29,981804
28,038822	17,427172	17,91156	29,918659	29,94536
27,975328	17,40045	17,890226	29,944681	29,968781
27,897308	17,355015	17,903563	29,920027	29,938921
27,861795	17,306904	17,922352	29,916279	29,996376
27,974991	17,312244	17,89835	29,926701	30,005564
27,887682	17,341663	17,855631	29,9319	29,958721
27,820427	17,376398	17,815573	29,939701	29,96652
27,828243	17,381737	17,823601	29,929304	29,932701
27,826511	17,33897	17,852964	29,887655	29,932701
27,730053	17,285519	17,863749	29,920362	29,983601
27,720888	17,357685	17,862482	29,939938	29,970703
27,705006	17,352345	17,854456	29,911291	29,981125
27,684904	17,341663	17,777054	29,906092	29,934278
27,742846	17,31761	17,846453	29,880066	29,949903
27,585621	17,424833	17,818705	29,933722	29,973536
27,588263	17,417261	17,908552	29,930195	29,993467
27,543272	17,505552	17,86875	29,933033	29,961227
27,598381	17,58836	17,820692	29,948631	29,982023
27,519123	17,556313	17,855389	29,912209	29,966427
27,619658	17,548306	17,826027	29,927834	29,992445
27,566734	17,567011	17,815357	29,933033	29,963825
27,560139	17,534937	17,828814	29,94628	29,982386
27,56918	17,46549	17,839483	29,909832	29,984985
27,579624	17,484535	17,801067	29,929634	29,99041
27,603445	17,541206	17,781574	29,972977	30,014179
27,460556	17,479769	17,786909	29,939157	30,001179
27,473907	17,480236	17,828819	29,957951	30,042149
27,62958	17,534113	17,811867	29,994711	30,061954
27,536953	17,518099	17,766497	29,979115	30,033339
27,518446	17,523558	17,733166	29,992243	30,028234
27,457561	17,553768	17,783459	30,013874	30,094093
27,496124	17,516356	17,767427	30,029469	30,081097
27,488997	17,473623	17,778124	29,959234	30,026464
27,40167	17,495003	17,751423	29,968399	30,030418
27,359316	17,511715	17,733442	30,008114	30,097523
27,440105	17,525316	17,730999	30,025223	30,095051
27,379219	17,445166	17,741695	29,960159	30,037819
27,403994	17,42124	17,720453	29,965494	30,040545
27,340462	17,432652	17,718513	30,035225	30,089428
27,35635	17,430092	17,707941	30,000137	30,054384
27,16992	17,395363	17,691933	30,028753	30,077799
27,204008	17,382338	17,686939	30,042259	30,083483
27,23163	17,374952	17,695562	30,03492	30,104767
27,258099	17,377621	17,628809	30,027121	30,068356
27,182705	17,340193	17,634146	29,986851	30,05409
27,249014	17,338139	17,677485	30,027847	30,126295
27,338562	17,394621	17,632444	30,046291	30,09795

27,30541	17,333164	17,635115	30,009878	30,056314
27,204823	17,271675	17,607141	29,993153	30,047512
27,114986	17,3368	17,614742	30,06287	30,096315
27,028963	17,286018	17,638783	30,021261	30,091118
27,242956	17,328791	17,620081	29,997839	30,044287
27,22567	17,305233	17,638025	29,998447	30,074896
27,163549	17,337801	17,650465	30,011829	30,068699
27,126591	17,254946	17,634432	30,001406	30,112907
27,199202	17,263084	17,610653	30,019997	30,104248
27,114187	17,325432	17,630114	30,025827	30,103521
27,08246	17,312057	17,616745	30,015404	30,077509
27,007137	17,237236	17,614206	30,000051	30,097328
27,052151	17,2862	17,631008	29,986437	30,087549
27,143099	17,256943	17,633808	29,990393	30,107111
27,182695	17,264954	17,604536	29,980238	30,093122
27,043884	17,281616	17,629097	29,996347	30,107859
27,149775	17,298048	17,648184	29,980986	30,079523
26,985645	17,292709	17,621475	29,970709	30,045815
27,110912	17,363211	17,643867	30,062662	30,135157
27,099127	17,32044	17,646534	30,013229	30,093548
27,059456	17,277693	17,615898	30,026367	30,131458
27,030333	17,296516	17,590704	30,021412	30,079676
27,048643	17,302769	17,626215	30,011637	30,073772
27,023354	17,281382	17,57687	30,031361	30,097427
27,075022	17,273369	17,583605	30,024912	30,089752
27,024721	17,311827	17,600542	30,043896	30,103409
27,056187	17,314497	17,569902	30,019381	30,098454
27,03495	17,322639	17,555408	29,968826	30,045334
26,960892	17,339609	17,596273	29,998106	30,065432
26,950285	17,310213	17,601748	29,987961	30,087866
26,89986	17,358435	17,521734	29,980276	30,038572
27,06645	17,399437	17,61603	29,967918	30,05607
26,923513	17,362034	17,594795	29,983797	30,095505
27,026775	17,419218	17,614447	30,013224	30,114372
27,03323	17,387133	17,590405	30,002949	30,091095
27,022478	17,403175	17,55847	29,992664	30,052343
26,90468	17,446871	17,591358	30,002516	30,038635
26,962923	17,385548	17,624931	29,981964	30,085871
26,986753	17,353485	17,583607	29,983316	30,08984
26,997047	17,397051	17,621685	29,99563	30,04355
26,973217	17,394648	17,638102	29,963579	30,046692
27,007626	17,365255	17,646132	29,914133	30,036272
26,872597	17,403463	17,633451	29,970697	30,062843
26,925301	17,438482	17,620512	29,949047	30,039978
27,01528	17,368998	17,617844	29,954248	30,063395
26,980865	17,393744	17,59436	29,978218	30,07159
26,897509	17,383455	17,832584	29,950148	30,055305
26,778429	17,42355	17,562849	29,960548	30,007246

26,98852	17,477804	17,5609	29,950821	30,031212
27,097061	17,512825	17,55864	29,933033	30,031782
26,88529	17,464731	17,574654	29,912209	30,021362
26,95957	17,465136	17,52968	29,953012	30,043964
27,030584	17,465855	17,549078	29,97057	30,012089
26,996151	17,417755	17,554417	29,978367	30,045902
27,010883	17,353605	17,521109	29,931669	30,014807
26,948685	17,370783	17,547529	29,974268	30,036606
26,969765	17,344059	17,520813	29,956072	30,028811
26,932339	17,263878	17,554304	29,898947	29,989923
26,884813	17,286383	17,578064	29,95978	30,061174
26,834534	17,267666	17,53801	29,933758	30,024736
26,842495	17,190142	17,556692	29,898705	29,989689
26,920263	17,220417	17,565586	29,920374	30,045179
26,871317	17,263475	17,525801	29,940096	30,015461
26,823673	17,239416	17,47237	29,907652	30,003836
26,903107	17,229006	17,491489	29,931494	30,013432
26,872597	17,237875	17,510931	29,928223	30,03484
27,00078	17,219156	17,494892	29,907398	29,9828
26,918707	17,184412	17,500391	29,920694	30,014442
26,892227	17,166574	17,541193	29,90703	30,013657
26,871038	17,185581	17,477362	29,900757	30,009962
26,848301	17,097332	17,516171	29,880058	30,006281
26,85223	17,097332	17,464151	29,875004	30,005188
26,884001	17,197126	17,478247	29,910793	29,999208
26,809855	17,208118	17,483887	29,886272	29,974684
26,847107	17,205448	17,497396	29,899576	29,993343
26,800367	17,194765	17,476019	29,886572	29,982943
26,896959	17,208548	17,461702	29,885637	29,961035
26,667925	17,193254	17,506435	29,847166	29,951227
26,66411	17,206635	17,477215	29,825266	29,952885
26,767307	17,201267	17,458506	29,827868	29,945084
26,790775	17,241379	17,367666	29,840895	29,921665
26,806652	17,245075	17,444769	29,8652	29,951021
26,759167	17,258591	17,398228	29,868082	29,9853
26,674431	17,175724	17,422281	29,784798	29,928057
26,724749	17,186407	17,42495	29,826454	29,941053
26,681913	17,20528	17,38769	29,818787	29,925589
26,719168	17,233063	17,468906	29,814619	29,955257
26,642365	17,241072	17,412798	29,843245	29,926632
26,674137	17,254423	17,383408	29,81982	29,913631
26,557613	17,275814	17,354015	29,830217	29,939657
26,570818	17,235733	17,376806	29,805576	29,931831
26,618263	17,233191	17,348963	29,822866	29,911482
26,575876	17,260679	17,383055	29,81949	29,923706
26,631495	17,188816	17,4247	29,807991	29,951265
26,581165	17,162058	17,42737	29,761131	29,901817
26,459442	17,207512	17,40332	29,818396	29,946041

26,533587	17,170095	17,454247	29,819933	29,946365
26,594143	17,167425	17,450314	29,769253	29,908688
26,575621	17,14603	17,485041	29,774454	29,903488
26,506744	17,156715	17,458323	29,735395	29,867062
26,471003	17,210184	17,418255	29,769253	29,856638
26,391663	17,223848	17,451864	29,757765	29,837349
26,418152	17,226839	17,456114	29,806137	29,879135
26,293636	17,203388	17,52887	29,763725	29,871788
26,265779	17,256851	17,480778	29,778109	29,866726
26,216547	17,243475	17,451389	29,788515	29,856327
26,378019	17,184668	17,448854	29,791265	29,907309
26,478811	17,168617	17,443514	29,793867	29,91511
26,232452	17,176655	17,432837	29,762636	29,87866
26,256273	17,171288	17,390074	29,770437	29,870863
26,174145	17,155262	17,382065	29,767838	29,886486
26,216547	17,176655	17,376726	29,793867	29,857861
26,121149	17,187338	17,382065	29,786064	29,842236
26,085405	17,147224	17,422134	29,767838	29,844835
25,997883	17,144554	17,430168	29,773035	29,850035
26,026871	17,14992	17,419466	29,775665	29,87866
26,054638	17,14992	17,384735	29,796469	29,839634
25,991049	17,098507	17,398886	29,751783	29,830135
25,874453	17,095514	17,353148	29,745041	29,784363
25,839979	17,039074	17,33823	29,743507	29,779009
25,76841	16,985588	17,389006	29,743507	29,807638
25,832033	16,96953	17,303493	29,746107	29,786808
25,74337	16,940111	17,303493	29,769541	29,836267
25,760641	16,993603	17,300825	29,792967	29,820665
25,64929	17,009661	17,295483	29,790369	29,794636
25,683771	16,977571	17,33556	29,764338	29,802437
25,630751	17,017675	17,24987	29,791464	29,82159
25,6334	16,998806	17,263092	29,770472	29,79541
25,567114	16,968473	17,243626	29,737261	29,74794
25,553869	16,930885	17,256851	29,708464	29,749157
25,62278	16,949614	17,23012	29,739725	29,749157
25,551222	16,952288	17,280909	29,752729	29,749157
25,598944	16,971018	17,259521	29,744928	29,738758
25,588326	16,928211	17,275543	29,77096	29,785618
25,535307	16,91692	17,196148	29,760094	29,751308
25,506144	16,910978	17,148855	29,75705	29,728811
25,471687	16,913649	17,139399	29,74251	29,70249
25,453117	16,889572	17,162058	29,699465	29,706312
25,429253	16,916323	17,207512	29,717695	29,708912
25,490225	16,910379	17,19763	29,696434	29,711067
25,437202	16,965954	17,123581	29,685583	29,670359
25,423956	16,917828	17,195774	29,688185	29,693792
25,370926	16,912458	17,193104	29,715437	29,710627
25,500847	16,960609	17,190279	29,700901	29,666071

25,453117	16,928352	17,216848	29,722965	29,691977
25,455767	16,951406	17,141102	29,666172	29,643127
25,487577	16,930029	17,149139	29,702637	29,679569
25,490225	16,98085	17,098337	29,736473	29,674368
25,324835	16,96196	17,118164	29,685349	29,640095
25,310362	16,835213	17,102489	29,62335	29,60029
25,347502	16,805784	17,131895	29,654591	29,631535
25,350149	16,840584	17,11587	29,683252	29,644569
25,273249	16,867174	17,121063	29,690908	29,618378
25,278547	16,76984	17,133408	29,643044	29,596516
25,24938	16,807314	17,130737	29,62221	29,565269
25,275894	16,801968	17,170828	29,656052	29,606945
25,270597	16,780125	17,18786	29,62973	29,575403
25,20714	16,744621	17,120293	29,610647	29,522446
25,212652	16,717863	17,172346	29,602818	29,56933
25,274868	16,744621	17,193741	29,626251	29,566704
25,193951	16,722202	17,176823	29,552633	29,517891
25,276184	16,740797	17,193991	29,563993	29,531841
25,254963	16,796986	17,189901	29,562616	29,503046
25,315947	16,887964	17,149811	29,625128	29,55253
25,302698	16,879072	17,074215	29,599739	29,518103
25,223324	16,894865	17,077868	29,577255	29,489038
25,153292	16,918941	17,084492	29,603149	29,512325
25,178417	16,900053	17,093761	29,588762	29,516184
25,159773	16,840227	17,031424	29,558031	29,509027
25,183619	16,874996	17,02986	29,565569	29,503372
25,191591	16,840227	17,06996	29,549959	29,466915
25,163786	16,828814	17,050684	29,537739	29,456089
25,132339	16,823065	17,028866	29,58297	29,496099
25,095217	16,86318	17,05813	29,548832	29,442356
25,058071	16,90332	17,103594	29,564468	29,460575
25,195841	16,840683	17,069267	29,56624	29,467699
25,197155	16,864761	17,041115	29,586937	29,44796
25,109858	16,888842	17,043638	29,558146	29,430817
25,021217	16,861795	17,090244	29,541016	29,459328
25,063663	16,844944	17,065468	29,531282	29,443155
25,068962	16,893076	17,066607	29,570072	29,450544
25,075443	16,925196	17,074621	29,590912	29,437508
25,074186	16,905504	17,079134	29,569382	29,417366
24,984367	16,897348	17,097717	29,56789	29,423676
24,939289	16,870596	17,153719	29,55076	29,436415
24,94194	16,837952	17,142622	29,563364	29,421749
25,00152	16,815998	17,130125	29,542114	29,412277
25,096939	16,81065	17,160648	29,583515	29,450953
24,970026	16,837406	17,163317	29,578312	29,427505
24,923668	16,7962	17,158428	29,543657	29,41901
24,920992	16,812265	17,148861	29,517334	29,410795
24,963411	16,871117	17,124798	29,585056	29,439444

25,003138	16,808767	17,105413	29,580538	29,42326
24,884142	16,795155	17,114431	29,502018	29,386408
24,884142	16,808519	17,102333	29,570972	29,422743
24,868242	16,803171	17,062212	29,531897	29,409708
24,925177	16,767328	16,966417	29,538906	29,390808
24,892014	16,759308	16,959663	29,52836	29,389297
24,834044	16,703115	16,988937	29,525648	29,379971
24,87915	16,595131	16,937319	29,501534	29,341608
24,863224	16,565554	16,976055	29,496187	29,361076
24,929388	16,597673	16,923681	29,548031	29,386732
24,871483	16,583384	16,866714	29,518719	29,382233
24,868835	16,601995	16,819828	29,534216	29,36524
24,876787	16,5779	16,849133	29,524908	29,37923
24,8647	16,515669	16,857889	29,52701	29,356621
24,809372	16,515293	16,837502	29,507149	29,379826
24,763006	16,53404	16,896238	29,526491	29,386011
24,805466	16,563484	16,926922	29,551161	29,368999
24,817377	16,506235	16,868574	29,495705	29,339705
24,802813	16,530334	16,836338	29,468157	29,300364
24,755344	16,535681	16,850992	29,477217	29,310658
24,784525	16,548054	16,757835	29,499874	29,336063
24,813704	16,518608	16,822065	29,458214	29,317814
24,803101	16,577497	16,799112	29,499634	29,325262
24,67342	16,480118	16,783581	29,43635	29,272499
24,705254	16,472095	16,813009	29,441555	29,28554
24,775534	16,514801	16,855549	29,437346	29,26815
24,733246	16,48716	16,857471	29,432758	29,276701
24,700247	16,532656	16,849453	29,474421	29,27931
24,729433	16,516609	16,885355	29,419489	29,258076
24,717466	16,483484	16,880533	29,384855	29,236607
24,736128	16,464733	16,928686	29,395292	29,280893
24,620949	16,47546	16,917864	29,380791	29,232372
24,708525	16,450495	16,856861	29,420483	29,239574
24,717787	16,474466	16,868832	29,409937	29,248644
24,712755	16,511967	16,878008	29,42272	29,232622
24,663712	16,527521	16,866947	29,419746	29,217978
24,684944	16,476185	16,905296	29,359446	29,216373
24,618622	16,559175	16,875732	29,378803	29,19788
24,693228	16,569639	16,904926	29,407223	29,23152
24,719761	16,58497	16,861515	29,38975	29,207565
24,669344	16,611738	16,877447	29,389624	29,186481
24,702427	16,579386	16,919994	29,359371	29,201866
24,690886	16,541185	16,801676	29,378365	29,190962
24,661703	16,501038	16,786905	29,392651	29,196043
24,621916	16,490183	16,774677	29,376772	29,178799
24,644522	16,427782	16,749882	29,359179	29,174358
24,563852	16,446533	16,781984	29,340933	29,163919
24,585083	16,425106	16,796518	29,351122	29,160954

24,632671	16,386675	16,778343	29,337376	29,147327
24,545609	16,392025	16,842573	29,342585	29,149929
24,561516	16,418699	16,834293	29,330582	29,163862
24,630516	16,447342	16,734585	29,299963	29,102068
24,626432	16,479334	16,737125	29,355921	29,164492
24,567162	16,505331	16,693504	29,29121	29,085468
24,556528	16,489258	16,787149	29,286003	29,095909
24,579077	16,524055	16,781803	29,330307	29,134995
24,64146	16,566898	16,835215	29,331425	29,149055
24,607292	16,550364	16,833464	29,334953	29,138266
24,625851	16,533855	16,839741	29,303322	29,134075
24,645708	16,541878	16,898458	29,283619	29,124651
24,571602	16,611486	16,854277	29,295294	29,107658
24,528009	16,656996	16,883701	29,342175	29,105053
24,620895	16,662344	16,931856	29,356453	29,161037
24,651207	16,705175	16,918377	29,315895	29,129511
24,614517	16,669905	16,916626	29,339014	29,137003
24,60264	16,682844	16,920235	29,300817	29,144482
24,550882	16,63199	16,936176	29,262863	29,107752
24,585331	16,569639	16,922102	29,251875	29,08507
24,536642	16,550802	16,913963	29,267403	29,121449
24,58441	16,590944	16,855	29,30105	29,125082
24,609438	16,579348	16,787323	29,250877	29,071024
24,548874	16,563301	16,816753	29,263918	29,089256
24,550253	16,590071	16,803274	29,300173	29,11375
24,591381	16,589293	16,781189	29,278759	29,078058
24,583237	16,599874	16,789091	29,268229	29,067509
24,501436	16,607922	16,871935	29,252367	29,055496
24,505493	16,545479	16,831009	29,215244	29,027517
24,545118	16,553503	16,841724	29,24651	29,07445
24,521633	16,585621	16,892443	29,250265	29,080692
24,5536	16,536694	16,846294	29,235331	29,047604
24,550911	16,525881	16,907726	29,227406	29,063139
24,629045	16,558002	16,839434	29,253351	29,06687
24,551289	16,506378	16,759798	29,221441	29,046728
24,575174	16,479496	16,716883	29,223927	29,046627
24,594896	16,431293	16,783766	29,219959	29,068739
24,543337	16,42852	16,756798	29,22237	29,016245
24,52247	16,34207	16,756159	29,199606	29,043144
24,494593	16,363501	16,804327	29,19043	29,05221
24,497047	16,42511	16,790852	29,17594	29,010279
24,423237	16,368027	16,771358	29,151855	28,969267
24,477695	16,359999	16,795443	29,167505	29,024042
24,553141	16,421585	16,763229	29,169876	29,019855
24,546566	16,300241	16,781219	29,148403	29,010159
24,430294	16,3297	16,74107	29,158842	28,999716
24,41037	16,284161	16,778435	29,161245	28,990343
24,5243	16,251402	16,753832	29,151661	29,015989

24,512802	16,294058	16,737568	29,155399	29,011913
24,470463	16,280676	16,718721	29,135702	28,989494
24,533968	16,245836	16,662523	29,157804	29,028589
24,524675	16,204943	16,611044	29,131216	29,008581
24,425722	16,148577	16,62957	29,089214	28,949551
24,420351	16,223598	16,602804	29,125702	28,949551
24,495838	16,164255	16,633209	29,13061	29,003996
24,438976	16,163849	16,639462	29,074102	28,953932
24,418123	16,198669	16,674246	29,109255	28,995661
24,48428	16,21456	16,68079	29,094774	28,988979
24,517427	16,192532	16,627939	29,09417	28,960945
24,429117	16,208591	16,595823	29,105835	28,98702
24,350807	16,203238	16,563705	29,11104	28,950523
24,493925	16,172972	16,487925	29,097216	28,923634
24,474075	16,146181	16,530771	29,084192	28,962759
24,387005	16,191734	16,477108	29,124458	28,937737
24,413364	16,148855	16,554752	29,097031	28,941589
24,404068	16,099852	16,492491	29,036467	28,915005
24,377811	16,123972	16,521938	29,026045	28,922846
24,378075	16,169529	16,532637	29,119904	28,967157
24,457512	16,120613	16,54277	29,072483	28,944565
24,412413	16,171423	16,538597	29,03842	28,893465
24,414164	16,192862	16,609497	29,046122	28,940306
24,366411	16,240976	16,574593	29,094307	28,914125
24,434017	16,189409	16,630226	29,042948	28,909763
24,449923	16,229607	16,638248	29,06641	28,938448
24,390812	16,283184	16,622179	29,10813	28,969755
24,409187	16,220814	16,614868	29,060627	28,935368
24,402542	16,226166	16,602678	29,078684	28,927238
24,438446	16,25563	16,62677	29,083893	28,955946
24,371262	16,317255	16,656109	29,088915	28,946569
24,387005	16,257645	16,596657	29,067602	28,931805
24,384356	16,185238	16,647411	29,017963	28,905617
24,404472	16,161119	16,612526	29,033409	28,904085
24,354279	16,179602	16,517242	29,059305	28,90649
24,371473	16,125546	16,539598	28,99897	28,884005
24,41127	16,189863	16,510054	29,054869	28,900711
24,285664	16,184486	16,59304	29,019627	28,895504
24,369202	16,181166	16,552315	29,042624	28,904217
24,379808	16,202532	16,561544	29,039846	28,894835
24,355919	16,229322	16,60568	29,008459	28,871269
24,328522	16,229218	16,656429	29,012325	28,910297
24,398775	16,183039	16,59433	29,007919	28,898144
24,358978	16,164301	16,65044	28,979042	28,870541
24,366932	16,233942	16,645092	28,997303	28,873148
24,359203	16,177683	16,642418	29,028584	28,90444
24,324865	16,139915	16,656797	28,985266	28,870171
24,351408	16,13946	16,609566	28,975729	28,84111

24,35936	16,160898	16,636332	28,967892	28,854162
24,384548	16,155546	16,687185	28,983543	28,885454
24,357122	16,149479	16,608833	28,968546	28,835167
24,277498	16,219147	16,611507	28,969793	28,835167
24,290758	16,243235	16,638273	29,001078	28,843006
24,362268	16,253963	16,659691	29,021942	28,892561
24,299129	16,194414	16,637669	28,98484	28,835815
24,269936	16,19165	16,664339	28,943003	28,837067
24,309736	16,223793	16,675034	28,96908	28,850096
24,313534	16,261312	16,668299	28,997686	28,825193
24,270084	16,215309	16,697309	28,938625	28,802616
24,262373	16,22312	16,650257	28,931875	28,807659
24,259722	16,241854	16,709129	28,95274	28,805056
24,295319	16,201683	16,723806	28,94619	28,804956
24,356401	16,166256	16,663008	28,944326	28,810932
24,230923	16,168844	16,689709	28,920753	28,788706
24,260118	16,166168	16,727163	28,928595	28,799129
24,330235	16,15546	16,741842	28,919413	28,845991
24,347452	16,181913	16,690641	28,933371	28,792147
24,24184	16,197659	16,672968	28,883564	28,751493
24,260544	16,197659	16,710424	28,917482	28,811481
24,269688	16,232475	16,683561	28,918646	28,763012
24,30805	16,221746	16,699629	28,930355	28,808617
24,244492	16,180899	16,67495	28,854219	28,740374
24,199903	16,178223	16,699038	28,880297	28,782122
24,219725	16,250565	16,677549	28,89192	28,736261
24,260695	16,218422	16,71768	28,864489	28,77663
24,250061	16,196318	16,679642	28,817039	28,739691
24,229254	16,225809	16,682314	28,877022	28,771009
24,217472	16,244545	16,690239	28,872976	28,759054
24,221273	16,290089	16,703632	28,858606	28,752487
24,271706	16,230591	16,665661	28,852976	28,737782
24,220037	16,259972	16,692364	28,837242	28,725979
24,192762	16,241238	16,708332	28,859291	28,760988
24,221704	16,305515	16,71368	28,863173	28,74921
24,240294	16,329525	16,718941	28,864428	28,732229
24,197813	16,275406	16,681004	28,80529	28,688793
24,167637	16,253971	16,729084	28,824732	28,726435
24,177166	16,353081	16,723736	28,836439	28,727692
24,17168	16,355759	16,72641	28,857307	28,704208
24,232748	16,269493	16,728607	28,804733	28,715597
24,269897	16,304251	16,646849	28,829409	28,698492
24,135166	16,314957	16,656185	28,77841	28,693125
24,201313	16,333712	16,64279	28,804497	28,700945
24,17742	16,287785	16,665186	28,774225	28,677231
24,188028	16,290239	16,679726	28,780542	28,70056
24,197557	16,292915	16,71174	28,75827	28,683397
24,171347	16,3197	16,735826	28,759525	28,692474

24,183163	16,373266	16,719759	28,785612	28,687262
24,172529	16,316479	16,681841	28,746098	28,662115
24,148636	16,372644	16,612089	28,757627	28,643633
24,093336	16,35659	16,660273	28,745865	28,637068
24,1119	16,388721	16,687038	28,769342	28,663162
24,143776	16,410149	16,729839	28,79282	28,655317
24,095987	16,372107	16,744064	28,728483	28,618395
24,1119	16,337217	16,769361	28,70612	28,620766
24,12409	16,380077	16,755997	28,74263	28,63904
24,067209	16,401506	16,806839	28,729599	28,631218
24,107042	16,382385	16,77305	28,738459	28,615332
24,133589	16,366095	16,792826	28,714672	28,613668
24,095064	16,406254	16,840988	28,715954	28,609713
24,034391	16,430355	16,85705	28,7029	28,61495
24,035784	16,459831	16,838316	28,744646	28,59668
24,04109	16,430079	16,858046	28,679108	28,587208
24,10747	16,40033	16,848419	28,697075	28,593451
24,14979	16,45656	16,829685	28,704918	28,575203
24,025604	16,459234	16,893906	28,686649	28,601295
24,070742	16,461821	16,901844	28,685301	28,623446
24,089334	16,47472	16,839796	28,667805	28,532825
24,06809	16,490795	16,823759	28,678232	28,532825
24,118242	16,490795	16,842468	28,675621	28,556314
23,996859	16,490795	16,845142	28,68605	28,566771
24,007467	16,495853	16,768654	28,651924	28,530005
24,041973	16,498238	16,721479	28,654175	28,516581
24,087112	16,525011	16,732197	28,675034	28,521795
24,112135	16,546432	16,756258	28,682878	28,560953
24,046211	16,543756	16,809772	28,675034	28,57399
24,050388	16,543671	16,814987	28,646196	28,567293
24,029144	16,508389	16,801191	28,593588	28,510773
24,007799	16,548557	16,769064	28,609228	28,48991
24,068687	16,556583	16,806538	28,622288	28,518618
24,020102	16,505714	16,841311	28,653595	28,555145
24,056152	16,44928	16,81694	28,627213	28,537872
24,021626	16,39537	16,765833	28,619106	28,502363
24,03874	16,363237	16,805958	28,61389	28,507599
24,085062	16,398046	16,7792	28,600832	28,507599
23,963684	16,408773	16,791224	28,609941	28,508875
24,003496	16,360434	16,811102	28,596674	28,512529
24,011452	16,34663	16,751898	28,597683	28,462643
24,00993	16,378761	16,751898	28,595078	28,446999
23,974003	16,34663	16,786676	28,584623	28,460035
23,925415	16,319847	16,783926	28,563692	28,474295
23,964128	16,290232	16,743654	28,583082	28,478033
23,974739	16,263052	16,700485	28,576241	28,435997
24,015697	16,246994	16,697811	28,56842	28,472534
24,030216	16,241615	16,703159	28,584087	28,480383

24,015831	16,238939	16,687046	28,5931	28,472406
23,922108	16,244165	16,684225	28,543394	28,440933
23,93272	16,20896	16,598246	28,533953	28,440653
23,982893	16,166084	16,560753	28,536558	28,440653
23,9643	16,14197	16,550056	28,547014	28,464148
23,989595	16,128584	16,560711	28,54038	28,456202
23,949106	16,112417	16,557961	28,553373	28,446957
23,930538	16,069103	16,504019	28,520372	28,408802
23,979391	16,082491	16,533464	28,499487	28,400959
24,012543	16,074459	16,541489	28,536041	28,445341

Room blank dry gas meter temperature	Main train flow rate Flow-H - [ln/min]	Split train flow rate Flow-D - [ln/min]	EPA Flue gas temperature	Surface temperature Top
Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C	Ovf-Top - [°C]
23,846056	6,708865	6,432595	34,912979	25,578353
23,832867	7,02553	7,065791	61,015102	25,585015
23,835499	7,014064	7,065791	70,441612	25,582501
23,809141	6,843429	6,740075	81,954437	25,603785
23,860657	6,7503	6,715267	115,007034	25,659558
23,847494	6,700819	6,671016	135,980148	25,704701
23,869955	6,632833	6,650767	161,171509	25,792239
23,851498	6,611311	6,620462	162,696915	25,902171
23,859421	6,579932	6,620462	159,835831	26,043893
23,840967	6,554387	6,593844	160,348953	26,171386
23,848864	6,775778	6,880874	174,961334	26,363337
23,817242	6,745741	6,877053	190,244797	26,560656
23,831745	6,787109	6,858279	198,469513	26,77781
23,881927	6,749697	6,846748	212,875534	26,997582
23,866106	6,780002	6,835216	221,512894	27,27031
23,876661	6,723213	6,820264	227,391846	27,554864
23,879293	6,715637	6,804239	230,103149	27,87238
23,867472	6,817079	6,797535	234,858856	28,179272
23,904421	6,769811	6,774739	243,179047	28,501975
23,901785	6,73441	6,773599	249,184296	28,886645
23,888596	6,720196	6,737058	251,663589	29,259322
23,930771	6,71215	6,755831	246,789322	29,629252
23,899153	6,708396	6,718284	243,647675	29,996392
23,929474	6,685801	6,747383	241,574661	30,373954
23,957197	6,715972	6,718217	244,814072	30,764584
23,969097	6,715704	6,706954	246,765594	31,178813
23,992809	6,666826	6,689186	252,180267	31,580909
23,971727	6,623312	6,657942	259,636932	32,072339
23,983582	6,602796	6,651974	264,013336	32,546586
24,00474	6,708194	6,775074	271,40686	33,031197
24,052176	6,686739	6,758513	273,763885	33,55246
24,052176	6,655629	6,739673	276,358185	34,152371
24,090488	6,6095	6,729414	283,369965	34,804532
24,103678	6,576312	6,698036	289,014008	35,464196
24,111572	6,553985	6,684426	291,130219	36,168069
24,114204	6,808899	6,785936	290,723694	36,889863
24,128723	6,757206	6,748993	296,866364	37,677998
24,168293	6,704641	6,733303	298,430511	38,492905
24,196085	6,686069	6,707959	295,842224	39,324303
24,185534	6,824924	7,144036	294,213104	40,224538
24,214527	6,770012	6,85305	296,518219	41,074368

24,232944	6,783489	6,842724	299,516388	42,011102
24,25806	6,794819	6,835081	299,489319	42,926205
24,333248	6,768537	6,823884	301,459045	43,922814
24,338509	6,809906	6,797535	300,971252	44,889935
24,383272	6,791199	6,793646	298,813782	45,920018
24,429468	6,783422	6,789824	304,498566	46,975087
24,459839	6,813593	6,771051	305,849457	48,062138
24,504591	6,770347	6,77085	306,919006	49,104138
24,521833	6,771621	6,761396	306,197418	50,197312
24,527128	6,824991	6,790696	309,121552	51,354508
24,586428	6,806084	6,801356	305,224304	52,553483
24,579927	6,772493	6,789824	304,926086	53,72025
24,610258	6,765386	6,789891	306,480377	54,877431
24,62615	6,735416	6,77856	306,395355	56,026173
24,644648	6,735282	6,763877	305,872131	57,187127
24,697348	6,737964	6,752211	303,786255	58,386163
24,697441	6,7737	6,729549	300,688232	59,675889
24,733107	6,820834	6,858146	294,309631	60,967671
24,74367	6,808363	6,85419	275,320892	62,20073
24,760849	6,804005	6,867063	272,21701	63,376633
24,834665	6,787109	6,882081	279,996765	64,577855
24,85705	6,801859	6,850502	293,188965	65,819493
24,911228	6,776181	6,827907	310,546326	67,055966
24,895441	6,735081	6,842926	325,688995	68,18649
24,940302	6,779399	6,824086	339,99292	69,435056
24,966724	6,79073	6,792573	346,706451	70,755193
24,927296	6,802597	6,797669	346,097992	72,031766
25,016991	6,817214	6,790093	342,978058	73,305585
25,030125	6,798977	6,789422	345,412689	74,51492
25,030125	6,781008	6,780304	335,398926	75,798444
25,080391	6,799044	6,793914	321,500336	77,056691
25,093523	6,768336	6,791031	317,816589	78,379338
25,088272	6,772024	6,777689	315,879456	79,683965
25,185858	6,929786	6,880271	311,921844	81,042569
25,201611	6,888149	6,888317	311,914124	82,352856
25,172703	6,908532	6,86599	310,534454	83,640279
25,259754	6,889491	6,868202	309,863159	85,048718
25,249252	6,864079	6,846814	309,931488	86,319981
25,309757	6,877958	6,858079	310,088562	87,689687
25,320526	6,878093	6,831662	310,761597	89,048192
25,362545	6,837462	6,824287	310,230835	90,4716
25,385035	6,82479	6,823951	310,602966	91,743542
25,418064	6,810039	6,820331	311,454956	93,018742
25,41544	6,760961	6,787746	313,851135	94,294202
25,448475	6,734544	6,759854	314,890259	95,699879
25,476206	6,657238	6,724453	320,368347	96,992421
25,484077	6,611176	6,658277	328,65332	98,289632
25,568481	6,498336	6,605242	338,14502	99,67542

25,547466	6,354519	6,510638	338,628815	100,965245
25,578974	5,922598	6,279392	340,434479	102,152028
25,618752	6,829416	6,681811	336,485474	103,419682
25,61348	6,900553	6,865856	332,707397	104,688489
25,642521	6,851341	6,756099	330,325317	105,899632
25,676867	6,780136	6,812956	328,707184	107,180188
25,676867	6,748893	6,760792	326,341095	108,66084
25,72843	6,712016	6,768771	323,227173	109,85899
25,716625	6,693511	6,733571	321,762329	111,07594
25,757439	6,682046	6,725861	320,799042	112,365468
25,769529	6,666893	6,714664	319,162781	113,609189
25,785286	6,859051	7,038972	318,674561	114,834012
25,806673	6,832634	6,831729	315,504944	116,137997
25,809296	6,817683	6,818051	316,762085	117,31123
25,858126	6,813794	6,816509	315,542328	118,438054
25,862204	6,817414	6,797535	314,403778	119,439763
25,876867	6,809972	6,801557	313,85849	120,790746
25,865221	6,794619	6,812821	314,218597	121,943463
25,908781	6,818219	6,795255	315,496277	123,180638
25,931276	6,803335	6,809	315,809937	124,461057
25,896025	6,772627	6,793914	314,979431	125,583447
25,913313	6,811984	6,803301	314,26651	126,840298
25,904263	6,785836	6,78969	315,212891	127,955106
25,93738	6,794753	6,811682	315,612823	129,150861
25,920353	6,779466	6,790026	315,74472	130,278546
25,973225	6,783287	6,797535	318,679901	131,369168
25,940495	6,766727	6,786204	318,018097	132,081906
25,951347	6,754256	6,76676	321,173645	133,37254
25,930449	6,749898	6,770984	323,207092	134,586469
25,970167	6,743931	6,758111	323,518524	135,670041
25,95857	6,734477	9,926036	325,023651	136,876187
25,986443	6,730856	6,963544	327,630005	137,904599
25,9932	6,799647	6,898843	329,1604	139,057462
25,990833	6,776114	6,850636	333,814514	140,063199
26,019983	6,744534	6,812688	338,939178	141,09567
25,99527	6,694584	6,781912	344,024292	142,022794
26,009998	6,949632	6,752144	345,778168	143,203488
25,987911	6,779801	6,820197	347,971405	144,425977
26,005241	6,787243	6,793713	353,085144	145,411603
26,017256	6,738232	6,770984	354,599182	146,351147
26,03462	6,678291	6,733504	358,886627	147,307187
26,015156	6,679029	6,710843	365,781219	148,45773
26,066599	6,659451	6,695221	365,173187	149,237897
26,032766	6,67809	6,684694	365,142242	150,341153
26,041014	6,827136	6,850569	360,560089	151,262936
26,083401	6,817414	6,847686	358,494507	152,018628
26,079702	6,817683	6,820331	355,016205	153,203244
26,091816	6,802396	6,831527	352,547699	153,926022

26,084276	6,809972	6,810274	353,896942	154,976682
26,102978	6,811581	6,816509	355,589905	155,984113
26,113905	6,809369	6,801424	355,071228	156,858197
26,065619	6,821974	6,795523	356,549408	157,716901
26,077744	6,823784	6,786673	352,817169	158,710233
26,117661	6,795088	6,789221	350,940735	159,637479
26,098179	6,804139	6,767363	348,198669	160,544812
26,102505	6,824924	6,779499	346,644196	161,417691
26,14897	6,814599	6,774739	345,615173	162,340253
26,138767	6,809906	6,752277	344,063751	163,158734
26,12468	6,824454	6,729616	343,62265	164,190045
26,131802	6,818421	6,763474	341,999084	164,970135
26,120192	6,814129	6,748456	339,781982	165,8121
26,123278	6,815336	6,748121	338,409607	166,692731
26,164444	6,820767	6,744634	336,550964	167,664777
26,128029	6,806151	6,733371	334,728333	168,397351
26,140274	6,820968	6,737125	332,701965	169,154462
26,144718	6,824723	6,734846	330,047577	169,972897
26,156815	6,839942	6,740947	328,669617	170,788998
26,170404	6,823583	6,722509	326,551971	171,465833
26,163111	6,813995	6,722241	324,468628	172,108258
26,162163	6,830623	6,707222	322,979553	172,696759
26,156002	6,817347	6,707289	321,328735	173,162549
26,219616	6,828411	6,720967	320,144348	173,874448
26,171389	6,828411	6,710909	315,959503	174,466107
26,14949	6,824589	6,699779	313,86441	175,143307
26,184278	6,829617	6,688449	310,904022	175,743161
26,180622	6,837931	6,692136	310,157166	175,905011
26,158731	6,855095	6,699847	307,316162	176,503415
26,188091	6,839809	6,694282	306,750153	176,848676
26,221378	6,830958	6,692136	304,70993	177,274442
26,183752	6,832366	6,673832	302,528992	177,747083
26,177513	6,835852	6,671486	301,949585	178,192929
26,200474	6,843764	6,790226	300,292542	178,549161
26,22979	6,851206	6,786405	298,678131	179,036435
26,236658	6,851609	6,792506	297,15387	179,045697
26,241186	6,843563	6,786405	295,416412	179,376309
26,240309	6,866359	6,771185	294,842285	179,456464
26,280113	6,858582	6,77494	292,454071	179,512524
26,271454	6,879902	6,767699	292,007629	179,969266
26,254658	6,858716	6,759854	292,034363	179,938168
26,281631	6,836054	6,751876	292,395508	179,793378
26,250172	6,854827	6,899715	289,628265	180,034238
26,271912	6,877824	6,774806	288,766846	180,229733
26,316786	6,859856	6,767431	286,156982	180,226758
26,280563	6,884596	6,764882	284,549713	180,173077
26,333595	6,892507	6,757441	280,891327	180,164731
26,331184	6,748155	6,767296	279,704773	180,218228

26,366072	6,817214	6,792908	278,449524	180,059857
26,350433	6,820767	6,801557	275,942078	179,936505
26,40358	6,818219	6,793847	275,149963	179,98306
26,385523	6,828477	6,793713	273,816101	179,354672
26,405748	6,820432	6,788483	272,879913	179,813901
26,39683	6,824589	6,798674	271,012634	179,646359
26,453962	6,822309	6,793981	269,956879	179,58717
26,434357	6,828343	6,774806	268,501129	179,428937
26,408142	6,835987	6,786338	267,019775	178,871503
26,423141	6,820968	6,778761	265,155457	179,085614
26,411606	6,783489	6,794719	263,164429	179,232892
26,425238	6,808631	6,790427	261,634796	178,562802
26,406881	6,797502	6,775007	260,061493	178,360455
26,413918	6,787243	6,791702	258,05896	177,922116
26,433929	6,802128	6,786405	256,586914	177,903333
26,468542	6,799177	6,788886	253,793198	177,61105
26,468864	6,748155	6,789019	252,357803	177,290799
26,419403	6,779801	6,820197	249,920105	176,68942
26,467119	6,787243	6,793713	248,793961	176,162793
26,473845	6,738232	6,770984	246,956253	175,874783
26,491035	6,678291	6,733504	245,857742	175,506268
26,420258	7,307343	6,924254	244,867325	175,167355
26,441235	6,911147	6,832265	218,44104	174,738873
26,436525	6,905179	6,851106	226,756989	174,52963
26,470949	6,877758	6,843529	229,458237	173,878934
26,468307	6,854089	6,843395	235,106293	173,152982
26,521503	6,862806	6,872896	246,288162	172,464932
26,495409	6,845776	6,869946	260,564972	172,010968
26,50065	6,841016	6,860827	280,287598	171,345654
26,504963	6,843563	6,862303	295,015564	170,700589
26,535498	6,809503	6,839439	300,797241	170,280118
26,569675	6,779734	6,814028	301,264435	169,91351
26,583124	6,727169	6,759988	308,240112	169,442365
26,576633	6,625189	6,696293	314,140778	168,816205
26,57925	6,564914	6,650097	320,585541	168,438901
26,592592	6,523679	6,620462	322,658661	168,032101
26,59417	6,474869	6,601554	324,238495	167,525174
26,607496	6,447246	6,582446	306,129364	167,307126
26,595871	6,434976	6,577552	298,407623	166,929791
26,595871	6,421767	6,562197	295,418884	166,520566
26,62993	6,424919	6,574937	286,119537	166,025937
26,627312	6,416269	6,578691	281,452759	166,047086
26,632549	6,745741	6,71862	279,158875	165,691434
26,636539	6,802128	6,695958	278,545074	165,322522
26,628901	6,769878	6,681141	276,226135	165,113751
26,638153	6,779935	6,680537	276,343231	164,942593
26,660706	6,765185	6,692337	276,749329	164,661923

26,685871	6,783891	6,681274	276,319824	164,313123
26,691105	6,734813	6,694885	279,891449	163,902631
26,70422	6,719861	6,684761	287,106567	163,865231
26,65967	6,712486	6,665987	292,595612	163,704922
26,67437	6,726967	6,648421	294,012329	163,426938
26,696686	6,685666	6,635547	295,164154	163,271725
26,712416	6,719526	6,78674	298,002045	163,052655
26,701948	6,736891	6,763743	299,82431	163,019193
26,701948	6,719458	6,725995	303,061829	162,96568
26,688835	6,655696	6,688449	304,098419	162,945432
26,6917	6,617009	6,657741	311,292786	162,817197
26,717997	6,740444	6,780706	308,926727	162,747678
26,691797	6,643896	6,722374	313,03241	162,881253
26,707525	6,583888	6,64708	314,068909	162,857098
26,686563	6,543927	6,611813	315,569305	162,862332
26,731323	6,482512	6,541078	319,998627	163,011853
26,742165	6,796831	6,763743	323,044067	163,188168
26,781794	6,706719	6,696025	322,66156	163,214886
26,78705	6,580133	6,594045	326,741364	163,759671
26,763474	6,447715	6,49153	330,172363	164,032208
26,763474	6,687879	6,671754	329,944214	164,053586
26,758213	6,558142	6,587139	332,794159	164,438412
26,799234	6,854961	6,465248	333,870178	164,604108
26,757311	6,781611	6,835684	333,335815	164,704099
26,745697	6,598437	6,734376	335,247925	165,165097
26,790588	6,444631	6,609734	335,514252	165,354901
26,772268	6,742187	6,659954	337,841766	165,908276
26,795177	6,915371	7,001493	337,818817	166,178265
26,817734	6,828812	6,918623	338,268982	166,565717
26,820349	6,801391	6,872628	338,460937	166,910687
26,811224	6,722341	6,805446	339,19812	167,212872
26,884155	6,666893	6,780504	340,787323	167,983151
26,850119	6,640141	6,76381	339,468201	168,049939
26,831774	6,774839	6,711111	340,454407	168,69975
26,833138	6,762168	6,699847	342,058624	169,234814
26,895462	6,843563	6,899849	345,475647	169,636151
26,887743	6,813593	6,866124	345,356812	170,119138
26,864168	6,798574	6,865923	345,375885	170,769315
26,861652	6,768537	6,839238	345,889557	171,236172
26,918734	6,752714	6,802362	346,390656	171,819684
26,891314	6,734745	6,794384	347,863068	172,563885
26,899185	6,693578	6,792708	349,134644	173,064465
26,91412	6,688483	6,789355	347,979218	173,788586
26,931566	6,674537	6,767497	350,132172	174,494077
26,923714	6,657506	6,762067	349,432007	175,193051
26,896276	6,659317	6,763676	351,748108	175,700558
26,928432	6,715637	6,73746	351,467163	176,312512
26,956125	6,71215	6,741215	354,517761	176,901639

26,919451	6,689689	6,72975	354,104004	177,587369
26,92108	6,678224	6,711177	355,013062	178,195493
26,970209	6,647985	6,699914	355,070587	178,829053
26,928301	6,745942	6,824287	355,42804	179,535016
26,917835	6,738366	6,758848	354,849365	180,266309
26,940779	6,715972	6,738667	355,57196	180,898679
26,952881	6,708463	6,744902	354,19693	181,553815
26,916204	6,675207	6,733706	355,660095	182,117856
26,956005	6,67628	6,737527	356,399048	183,288892
26,982674	6,644834	6,726129	357,111023	183,80061
26,951258	6,633369	6,725056	355,830811	184,713147
26,946402	6,797032	6,804106	355,011261	185,196835
26,979704	6,772359	6,775141	356,614594	185,743542
26,962748	6,757273	6,743428	357,322662	186,65994
26,968386	6,730588	6,726196	357,457916	187,60867
26,972754	6,708463	6,714999	358,906311	187,999875
26,955935	6,678291	6,701523	359,204895	188,752957
26,970524	6,655696	6,681141	358,865509	189,21124
27,032881	6,632095	6,677453	358,858795	189,875638
26,996237	6,606617	6,664446	359,15741	190,71301
26,995111	6,587777	6,640643	356,953522	191,397687
27,007227	6,591531	6,639503	353,807922	192,174756
27,005112	6,561494	6,643258	351,888306	193,101788
27,010614	6,563841	6,620998	350,176422	193,784879
27,004259	6,538564	6,620529	348,741577	194,234937
27,021889	6,520126	6,614696	346,673706	194,802899
27,0326	6,783556	6,91118	345,453949	195,39079
27,004089	6,764581	6,930021	343,237823	196,249188
27,01247	6,749496	6,907426	341,161835	196,551846
27,01025	6,726901	6,877455	338,582184	196,948254
27,026085	6,731527	6,885367	337,231689	197,659283
27,010904	6,723079	6,858548	336,189362	198,81059
27,015293	6,708329	6,858615	333,790771	199,253735
27,032938	6,708329	6,858615	330,91571	199,743695
27,026588	6,704306	6,832064	330,150482	200,080991
27,032101	6,671721	6,832399	328,338989	200,879926
27,032621	6,696394	6,847217	326,766815	201,347043
27,006845	6,691366	6,836221	325,322479	201,885022
27,01222	6,915974	6,833003	324,719452	202,342694
27,048052	6,874137	6,825896	322,18576	202,7599
27,039507	6,817146	6,816844	320,950623	202,634122
27,013325	6,817146	6,810475	319,810211	203,062299
27,017735	6,818152	6,791769	318,839111	203,766019
27,024899	6,817414	6,809268	317,917755	204,033353
27,011799	6,801659	6,813224	316,345947	204,608517
26,999128	6,794619	6,794182	315,281525	205,266583
26,998451	6,783556	10,039951	316,198151	205,273251
27,025991	6,783556	6,853653	315,635101	205,289227

27,023941	6,753384	6,817046	315,067841	205,833371
27,042839	6,792942	6,828712	314,154816	206,044644
27,008789	6,775979	6,809469	313,042267	206,060696
27,017082	6,772225	6,820666	311,775024	206,328061
27,054438	6,755798	6,75268	310,176178	206,429501
27,023001	6,779734	6,816978	308,741821	206,678159
26,99958	6,775778	6,78493	306,720764	206,869321
27,039864	6,779667	6,805648	305,358643	206,862637
27,024147	6,764648	6,784192	305,10202	207,069806
26,992857	6,763978	6,763877	303,408875	206,894498
27,038376	6,764782	6,748926	301,74353	206,933224
27,035759	6,753451	6,771587	299,878571	206,87576
26,970291	6,760827	6,760256	298,770691	206,993375
27,003973	6,721671	6,767564	296,448853	206,925061
27,039539	6,757944	6,737594	295,033386	206,709683
27,010742	6,749496	6,741416	294,573029	206,8728
27,029634	6,747752	6,715066	292,423035	206,327283
27,001421	6,741853	6,726398	291,344818	206,545224
27,006653	6,723347	6,681945	289,615906	206,5677
26,988756	6,720799	6,696226	288,81012	206,265515
26,985338	6,726901	6,649627	287,915985	205,808194
26,997345	6,738299	6,677587	285,511993	205,899091
26,980547	6,704372	6,664915	286,085083	205,516415
26,982086	6,719324	6,670011	283,739258	205,171338
27,0284	6,704976	6,647348	282,55777	205,018872
27,008991	6,697601	6,632128	282,596741	204,49455
26,998968	6,693846	6,635749	281,06012	204,221585
26,970169	6,6974	6,620864	280,068268	204,138501
26,996634	6,852882	7,047219	280,850616	203,761182
26,982752	6,915974	6,874371	279,39743	203,375897
26,989681	6,817549	6,922645	279,401398	203,145718
26,950392	6,802664	6,877522	277,813385	202,630536
26,976578	6,825125	6,916611	275,764648	202,136609
26,966845	6,813928	6,907626	275,660461	201,84216
27,003965	6,825192	6,900184	274,453217	201,255948
26,962061	6,802731	6,896363	272,965118	201,108701
26,938496	6,820231	6,892608	274,096283	200,506375
26,993631	6,811447	6,892608	272,118713	200,144803
26,99992	6,798977	6,877723	269,119263	199,711011
27,002537	6,799848	6,869946	268,079834	199,346844
26,981609	6,817616	6,885099	265,874207	198,961285
26,971125	6,818286	6,885099	261,75528	198,487317
26,951561	6,817817	6,866929	259,87915	197,970441
26,974344	6,813995	6,870147	258,04599	197,571179
26,977419	6,810241	6,900184	256,726074	197,043561
26,948774	6,813191	6,850904	255,720581	196,540005
26,946157	6,815873	6,862705	253,626755	195,81947
26,946157	6,806419	6,868672	252,664612	195,559613

26,921656	6,825192	6,892742	250,492981	195,081372
26,938766	6,814062	6,866325	249,104004	194,474423
26,915201	6,809838	6,885769	247,349457	194,06181
26,886398	6,821303	6,862571	245,654282	193,373212
26,886398	6,810241	6,877656	245,451187	192,716763
26,8853	6,806553	6,858816	243,579056	192,229047
26,86451	6,806352	6,862906	242,216583	191,896786
26,849237	6,798977	6,870214	241,059464	191,465344
26,861115	6,791468	6,863576	240,195206	190,94682
26,862509	6,795222	6,862772	238,150803	190,249982
26,837839	6,806553	6,87598	237,630768	189,75546
26,832607	6,798843	6,858816	236,938736	188,854962
26,814266	6,796764	6,876584	236,512527	188,067029
26,777607	6,783891	6,885099	234,597717	187,590009
26,777607	6,803402	6,866392	233,042023	186,925336
26,80118	6,802463	6,867934	232,707947	186,18028
26,78022	6,798574	6,875779	230,097626	185,646954
26,774986	6,806285	6,859017	229,513657	184,939328
26,730448	6,813861	6,870281	228,430267	184,620328
26,743559	6,791333	6,8853	227,200256	183,784116
26,761879	6,795155	6,871287	226,004318	183,154294
26,711802	6,80253	6,876449	224,331909	182,527219
26,681433	6,791468	6,881545	224,276031	181,977856
26,694389	6,806352	6,87189	222,607895	181,208768
26,670805	6,806285	6,862369	221,473969	180,404889
26,683918	6,803804	6,859017	220,653885	179,643918
26,676043	6,806285	6,878998	219,151627	178,578854
26,686537	6,812788	6,877857	218,268295	178,025616
26,673428	6,806352	6,868337	218,190994	177,864865
26,65246	6,799111	6,888384	216,391541	177,114789
26,632427	6,803267	6,85895	216,746201	176,351376
26,603476	6,806285	6,874036	214,257629	175,609448
26,589746	6,795691	6,865722	214,332336	174,816708
26,57526	6,795155	6,867331	213,320984	174,254361
26,617199	6,938502	6,866594	211,745956	173,400204
26,580496	6,938502	6,862772	210,776596	172,663922
26,588352	6,938569	6,872963	210,76059	171,95184
26,577883	6,940581	6,864582	209,32077	171,213071
26,563084	6,934748	6,869409	207,738815	170,450299
26,570488	6,934882	6,866594	207,225647	169,813428
26,523024	6,938569	6,85714	206,961014	168,938519
26,516392	6,919192	6,862772	205,987869	168,189481
26,521631	6,920399	6,859687	204,832642	167,502072
26,504217	6,921874	6,836087	204,166687	166,750577
26,526127	6,919662	6,851307	202,821075	166,27731
26,526127	6,934748	6,877187	202,700714	165,349606
26,516882	6,910141	6,870214	201,03627	164,555722
26,512564	6,934882	6,881411	201,175446	163,959775

26,505932	6,915974	6,870214	199,925507	163,270398
26,475143	6,912219	6,892541	198,664597	162,527737
26,469885	6,908398	6,871354	198,584274	162,044278
26,489466	6,933206	6,862705	197,299042	161,400662
26,460188	6,930657	6,866526	196,320465	160,558438
26,418905	6,937899	6,877723	195,871933	159,948483
26,42676	6,938435	6,873969	196,190643	159,31329
26,445116	6,938569	6,866526	195,049667	158,534131
26,430475	6,936692	6,873834	194,923767	157,824536
26,381021	6,937765	6,88188	193,699554	157,245801
26,381021	6,927305	6,874304	192,595764	156,627118
26,391493	6,919662	6,872024	192,627945	155,771405
26,358522	6,957343	6,870214	191,808075	155,416913
26,348379	6,938569	6,865856	191,236115	154,700162
26,335283	6,940447	6,87008	190,672211	154,016919
26,340525	6,94219	6,862504	189,959381	153,363095
26,318954	6,927305	6,852983	189,150101	152,676114
26,300154	6,941452	6,862973	188,890167	151,837567
26,341969	6,938502	6,862637	187,912003	151,342572
26,349848	6,930993	6,866526	188,587357	150,680081
26,348026	6,949833	6,87008	187,105347	150,015088
26,33448	6,934681	6,874036	186,728943	149,51524
26,309368	6,953655	6,870214	185,764282	148,983563
26,328934	6,942458	6,866459	185,918381	148,220776
26,289034	6,9322	6,870281	185,527069	147,814221
26,279369	6,938569	6,856402	184,983002	147,367871
26,287226	6,959354	6,85895	184,862411	146,666653
26,307775	6,9499	6,877187	183,372314	146,209958
26,310127	6,942324	6,874102	183,001404	145,567654
26,278217	6,942324	6,874036	182,591385	144,885556
26,307055	6,953923	6,855799	181,398804	144,450421
26,291998	6,949833	6,872427	181,681488	143,872189
26,307447	6,949833	6,866258	181,378662	143,22247
26,295435	6,956873	6,875109	180,812027	142,62869
26,292696	6,934814	6,877723	180,648712	142,048367
26,262047	6,957677	6,874036	180,024323	141,48399
26,291706	6,946079	6,883154	179,933228	140,895901
26,320547	6,943531	6,877924	179,170837	140,178342
26,280663	6,934748	6,878528	177,981171	139,715115
26,277746	6,953521	6,858883	178,376694	139,114484
26,256498	6,957343	6,873834	178,907227	138,495404
26,262707	6,938569	6,867532	178,189133	137,942624
26,265059	6,966126	6,872628	177,104004	137,678204
26,237041	6,957409	6,866459	177,61705	136,964444
26,313086	6,840144	6,828577	177,011826	136,347546
26,284927	6,844032	6,87303	175,657715	135,828397
26,24379	6,836188	6,854257	175,553223	135,263196
26,267395	6,835517	6,868202	175,326859	134,82092

26,249876	6,832836	6,862637	175,375076	134,244229
26,229733	6,825125	6,884294	174,589233	133,880185
26,234829	6,821303	6,881411	174,846344	133,45802
26,229589	6,824991	6,885031	173,319778	132,919888
26,248642	6,820432	6,888451	173,424164	132,426801
26,201176	6,817683	6,885031	173,489792	131,928586
26,210157	6,82888	6,817783	172,9505	131,454343
26,201756	6,83659	6,881411	172,514053	130,887845
26,218737	6,832433	6,888987	172,473877	130,548032
26,224819	6,828075	6,889792	172,338623	130,108258
26,166584	6,825125	6,878126	171,641449	129,516064
26,207172	6,847653	6,87598	171,202408	129,150204
26,183167	6,828947	6,820129	170,838333	128,78967
26,163027	6,831696	6,873834	171,115341	128,472653
26,187733	6,832769	6,870214	171,169159	127,952016
26,187338	6,841216	6,873164	170,378189	127,472089
26,183348	6,820164	6,873969	170,105179	127,064603
26,178835	6,817951	6,868337	169,691635	126,563916
26,148331	6,84772	6,881344	169,73587	126,217191
26,142956	6,836523	6,885166	169,12323	125,758855
26,135801	6,83659	6,892675	167,862915	125,380635
26,133183	6,849866	6,877522	168,491699	124,823979
26,13666	6,83659	6,851106	168,791458	124,345059
26,13216	6,832769	6,858816	168,529434	124,065663
26,145264	6,837596	6,858749	169,040543	123,504193
26,108027	6,817214	6,858749	168,685959	123,295659
26,078657	6,84772	6,88121	168,236603	122,783124
26,091787	6,817616	6,87008	167,777878	122,232602
26,069038	6,820297	6,874572	167,999954	121,577367
26,035667	6,825259	6,873634	167,434067	121,497464
26,056658	6,821572	6,839708	166,643738	120,9959
26,053629	6,82888	6,877522	166,579727	120,752408
26,028164	6,823918	6,86713	166,574402	120,299359
26,042532	6,832433	6,879601	165,939148	120,049321
26,019789	6,821371	6,876852	165,094391	119,607159
26,041761	6,817616	6,865722	165,863266	119,367711
26,010036	6,832701	6,866325	165,566391	119,043233
26,047766	6,830891	6,832466	165,626602	118,775105
26,031776	6,825125	6,875243	164,989136	118,504575
26,043154	6,821236	6,821806	164,577377	118,083501
26,048136	6,832836	6,847351	165,047958	117,772343
26,01766	6,840144	6,868269	164,632172	117,44698
26,021162	6,837462	6,866459	165,029541	117,082501
26,031414	6,832769	6,862034	164,941315	116,787183
26,007561	6,836456	6,870147	164,858398	116,418782
25,999201	6,852614	6,858883	164,396011	116,014066
26,01231	6,838468	6,866392	163,594254	115,716428
26,021084	6,8325	6,860693	163,813416	115,329976

25,998219	6,828008	6,881344	162,922012	115,0742
26,003462	6,829081	6,875309	161,745346	114,66721
25,955765	6,829148	6,856536	161,718628	114,445409
25,98414	6,840277	6,847284	161,838867	114,004453
25,989283	6,844099	6,852111	161,454117	113,774892
25,956961	6,835451	6,853117	161,147263	113,464749
25,943829	6,84772	6,858749	161,117905	113,201352
25,97007	6,81956	6,843529	160,582367	113,004498
25,967087	6,825125	6,862637	159,966904	112,712628
25,950993	6,828611	6,851106	158,789764	112,471646
25,935005	6,819292	6,816576	159,107422	112,140645
25,895302	6,842356	6,873834	158,321335	111,872258
25,935909	6,813928	6,858682	158,206772	111,533711
25,949039	6,817482	6,866258	157,645187	111,283696
25,94504	6,836657	6,854793	157,215591	111,015431
25,964415	6,822577	6,85486	156,787384	110,799336
25,928713	6,835115	6,847217	156,969101	110,592526
25,91523	6,855364	6,858548	155,543564	110,307454
25,905773	6,831361	6,854391	155,270248	110,019795
25,893417	6,81775	6,835684	155,259613	109,798672
25,87632	6,832299	6,839439	155,117294	109,552899
25,883839	6,840211	6,854793	155,130615	109,331708
25,878012	6,840345	6,849295	154,148254	109,042973
25,857035	6,821371	6,859687	154,27652	108,766133
25,867182	6,825125	6,850703	154,267273	108,463124
25,8601	6,829014	6,832064	153,040115	108,238179
25,848249	6,817414	6,854726	153,32518	107,974324
25,84264	6,817482	6,847284	153,352142	107,778226
25,794842	6,828947	6,843194	152,402512	107,36881
25,823713	6,832701	6,835551	152,598206	107,21555
25,816881	6,821303	6,8501	152,270889	107,089642
25,779566	6,847854	6,831997	152,061935	106,823331
25,770334	6,813861	6,843127	151,488068	106,614194
25,792469	6,821303	6,835014	151,00882	106,389523
25,762934	6,813861	6,839439	151,093094	106,041669
25,758947	6,821303	6,841585	150,496841	105,859845
25,739191	6,817683	6,850837	149,864746	105,579457
25,74148	6,82251	6,858481	150,480957	105,425038
25,718697	6,825125	6,835752	150,670166	105,148679
25,717321	6,813861	6,835953	149,60968	104,916333
25,736727	6,824186	6,839506	148,883453	104,660703
25,683695	6,810106	6,828242	148,899734	104,44682
25,687567	6,813861	6,835551	149,417175	104,219754
25,70962	6,825259	6,840579	148,583252	104,007047
25,66181	6,822242	6,822811	148,062088	103,921468
25,685444	6,817616	6,843596	148,547745	103,599965
25,682495	6,825058	6,84306	148,283112	103,295209
25,636173	6,826198	6,839506	148,035782	103,073499

25,637339	6,832701	6,843127	148,004181	102,833791
25,635765	6,825125	6,839439	147,495209	102,689931
25,639641	6,821303	6,797803	147,387482	102,503331
25,624725	6,821303	6,841987	147,105728	102,378896
25,599415	6,821371	6,828041	146,668991	102,208035
25,646681	6,836389	6,831729	146,816437	101,981213
25,613588	6,829014	6,835618	146,364655	101,720784
25,573683	6,832634	6,839238	145,967651	101,608174
25,582829	6,825058	6,846882	145,455292	101,410054
25,604986	6,82365	6,819124	145,342361	101,189885
25,570219	6,828947	6,839373	145,113968	101,101804
25,587238	6,828947	6,843194	145,006851	100,835179
25,613497	6,810106	6,842054	144,955048	100,634419
25,562798	6,840277	6,828041	145,377243	100,397504
25,573294	6,826064	6,84011	144,036514	100,205869
25,572989	6,832366	6,839238	144,152374	100,040349
25,545368	6,821438	6,863442	143,710419	99,797017
25,535717	6,821438	6,862034	144,506668	99,551022
25,559353	6,825125	6,85781	143,871155	99,346661
25,582991	6,825192	6,847753	143,694885	99,151311
25,539213	6,819828	6,848557	143,325989	98,943013
25,573156	6,824321	6,858347	143,113754	98,800656
25,527035	6,836322	6,827974	142,665726	98,659787
25,578186	6,825192	6,846814	142,757324	98,458066
25,52655	6,828947	6,858347	142,549103	98,231664
25,523928	6,840412	6,83716	141,907349	98,102284
25,55806	6,826936	6,83783	141,951508	97,838666
25,553669	6,825192	6,831729	141,083252	97,675763
25,520504	6,821371	6,839238	141,054108	97,52831
25,541521	6,819627	6,83374	141,52066	97,316251
25,520208	6,836389	6,843127	140,794785	96,976399
25,510578	6,835987	6,840043	140,9776	96,936375
25,524984	6,817616	6,856469	140,643692	96,69846
25,49843	6,832769	6,857475	139,874191	96,495595
25,511372	6,817683	6,835349	139,686401	96,387204
25,495317	6,825527	6,824152	139,383118	96,277356
25,496393	6,840211	6,849228	139,748611	96,158452
25,492403	6,832701	6,846882	139,513214	95,963445
25,45389	6,832634	6,859554	139,224609	95,822736
25,464211	6,825259	6,858279	138,501831	95,577176
25,460117	6,825125	6,843194	138,602417	95,385945
25,456127	6,813794	6,859754	138,277161	95,240102
25,424133	6,816275	6,857743	138,486313	95,133015
25,409447	6,825527	6,848088	137,470123	94,856519
25,422592	6,823717	6,84078	138,168686	94,605923
25,435715	6,831428	6,858279	136,959763	94,447186
25,393318	6,821438	6,851106	137,610703	94,334996
25,413963	6,807291	6,860291	137,713913	94,084454

25,413963	6,819024	6,836154	136,602875	93,916547
25,39819	6,82888	6,843931	137,03006	93,853337
25,375187	6,810106	6,839305	136,894196	93,666379
25,400093	6,809972	6,850502	136,611191	93,506238
25,415865	6,825058	6,829583	136,61911	93,39005
25,402718	6,82888	6,838567	137,104446	93,143559
25,366579	6,817683	6,844199	136,111816	92,969518
25,352089	6,80253	6,839171	135,680908	92,881726
25,386234	6,832299	6,835349	136,040421	92,739728
25,387398	6,819627	6,835283	135,518311	92,588757
25,350191	6,818152	6,809469	135,083847	92,397946
25,351358	6,809972	6,829919	135,316589	92,244443
25,346109	6,825125	6,838769	135,213531	92,053418
25,365675	6,825058	6,805245	135,119629	91,991582
25,309978	6,817616	6,827907	134,704849	91,779988
25,327013	6,820164	6,824287	134,281311	91,664075
25,329638	6,817414	6,845474	134,698685	91,452443
25,299278	6,811514	6,831796	134,549347	91,295148
25,30945	6,817616	6,831595	134,828018	91,233205
25,307901	6,829014	6,84306	134,444092	90,948346
25,294775	6,810106	6,824152	134,099457	90,818066
25,302385	6,813928	6,835416	133,906616	90,549817
25,282631	6,821438	6,835349	133,565964	90,462125
25,254667	6,820566	6,829919	133,789185	90,272626
25,249388	6,795088	6,831662	133,249649	90,207021
25,253117	6,817683	6,823214	133,118973	90,076779
25,234652	6,817616	6,826097	132,373352	89,830533
25,209286	6,813861	6,824756	132,418228	89,802182
25,227692	6,81775	6,843663	132,563629	89,681149
25,228794	6,817616	6,827974	132,311798	89,491696
25,223457	6,825259	6,835416	131,94635	89,39507
25,202082	6,81547	6,824219	131,99649	89,397641
25,205996	6,802195	6,829114	131,749924	89,19653
25,174185	6,816946	6,831595	132,123611	89,018849
25,212269	6,815135	6,804306	132,049637	88,89259
25,231936	6,817616	6,824152	131,91774	88,732732
25,20269	6,817549	6,820331	131,297943	88,536778
25,165651	6,806486	6,809134	131,187439	88,449277
25,187958	6,813861	6,808061	131,142807	88,31799
25,203712	6,820432	6,831527	131,424927	88,176259
25,137686	6,813727	6,833807	131,190231	88,119519
25,159895	6,80253	6,805513	131,427551	87,959706
25,145227	6,825192	6,812821	131,02327	87,904584
25,171511	6,806285	6,812821	130,394501	87,691991
25,129227	6,810106	6,808396	130,492004	87,545079
25,109373	6,815403	6,809134	130,858414	87,39301
25,102612	6,814196	6,827907	130,80455	87,309369
25,113056	6,813861	6,827907	130,041794	87,037694

25,152472	6,811179	6,839171	130,32901	87,035168
25,107473	6,806285	6,825561	130,105011	86,795499
25,116377	6,808967	6,831662	130,020676	86,604771
25,088741	6,808363	6,816241	129,175308	86,525082
25,128181	6,810106	6,827907	128,93576	86,35262
25,128181	6,821438	6,834947	129,388763	86,324277
25,104107	6,822376	6,827773	128,730362	86,33717
25,074968	6,814263	6,846882	128,43808	86,185147
25,106508	6,819627	6,790629	128,742477	86,008961
25,119663	6,825125	6,834411	128,07785	85,868626
25,122051	6,822979	6,827974	128,322647	85,729497
25,080957	6,818353	6,831662	128,528	85,616154
25,055946	6,814464	6,827974	127,883087	85,470616
25,063824	6,806419	6,835484	127,564972	85,331853
25,1164	6,798843	6,830187	127,346649	85,158002
25,066133	6,79958	6,809804	127,507172	85,111623
25,044813	6,81956	6,839708	127,572937	85,083295
25,076355	6,828947	6,831662	127,088745	84,837384
25,052691	6,820029	6,824152	126,820923	84,661252
25,053957	6,802664	6,803569	126,560539	84,545361
25,049444	6,814129	6,839104	126,455345	84,596875
25,049444	6,808967	6,820398	126,526344	84,403706
25,065228	6,817616	6,793847	126,277748	84,334271
25,03894	6,802597	6,824152	126,050804	84,164578
25,05582	6,816543	6,82784	126,053444	84,095044
25,025196	6,81775	6,835416	125,81945	84,010052
25,046234	6,798843	6,831662	125,504021	83,768002
25,038328	6,817549	6,831863	125,423851	83,698613
25,033075	6,810106	6,824086	125,508255	83,555859
25,003929	6,806285	6,842993	125,546494	83,423314
24,97991	6,806687	6,82784	124,960472	83,299733
25,027214	6,810174	6,842859	124,433693	83,24313
25,032494	6,810509	6,82784	124,494049	83,232884
25,011454	6,810174	6,839373	125,119751	83,087605
24,995312	6,809436	6,842859	124,322533	82,965382
24,997728	6,795155	6,828242	123,999466	82,913892
24,987198	6,808095	6,817783	123,189491	82,78777
24,997728	6,813995	6,829114	123,703979	82,700284
25,020037	6,811313	6,835618	123,277885	82,507481
24,963261	6,817683	6,828041	122,763451	82,345303
24,976105	6,813861	6,827974	123,104637	82,389073
24,984007	6,806419	6,831729	123,133469	82,2617
24,999769	6,813861	6,834277	123,103249	82,123982
24,981216	6,821303	6,842792	123,32148	82,027661
24,991598	6,817616	6,829718	122,451653	81,987828
24,957136	6,840211	6,831595	122,438522	81,897748
24,993937	6,816744	6,842792	122,582771	81,801274
24,970295	6,826734	6,84306	121,901993	81,671292

24,978014	6,807291	6,846681	121,523148	81,646924
24,943714	6,825125	6,846748	121,465843	81,604687
24,930267	6,825125	6,835484	121,324234	81,506863
24,972349	6,819225	6,821873	121,063286	81,40656
24,953938	6,825192	6,832668	121,252045	81,391125
24,945923	6,825929	6,839171	121,283577	81,321667
24,960279	6,830489	6,833874	120,336472	81,139172
24,948145	6,81775	6,845675	120,805595	81,067097
24,937611	6,821303	6,831595	120,691498	80,992558
24,932358	6,823449	6,820264	120,833023	80,871571

Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
23,091389	23,682673	25,903311	24,835894	25,546225
23,07948	23,730519	25,874197	24,837327	26,030306
23,086222	23,702736	25,888885	24,845278	26,379794
23,07968	23,714783	25,866444	24,848026	26,396556
23,089026	23,716147	25,890322	24,81118	26,569537
23,123585	23,724179	25,908962	24,816493	27,042894
23,142226	23,772017	25,916971	24,824447	27,811944
23,232405	23,883416	25,946089	24,882207	28,709706
23,33714	24,025282	26,030901	24,848026	29,517625
23,418316	24,154204	26,073557	24,84816	30,10295
23,588011	24,370228	26,182146	24,880919	30,690956
23,817376	24,651308	26,296106	24,92424	31,474069
24,037466	24,940245	26,456499	24,929492	32,235056
24,333098	25,243737	26,659288	24,922892	33,112037
24,632681	25,643866	26,905783	24,912389	33,97695
24,971833	26,112656	27,193209	24,97269	34,874713
25,362526	26,608981	27,508314	25,015884	35,582731
25,771752	27,140894	27,885736	25,059277	36,249856
26,235014	27,680489	28,298702	25,088177	37,047719
26,758868	28,271305	28,793495	25,128803	37,915981
27,31954	28,873736	29,330399	25,199749	38,776869
27,927508	29,502198	29,909353	25,199749	39,363537
28,553599	30,132922	30,543428	25,28119	39,785262
29,255833	30,750071	31,248396	25,283813	40,211681
29,973462	31,451201	31,910683	25,359998	40,552969
30,706396	32,146609	32,67009	25,449324	40,878819
31,496695	32,795386	33,497379	25,46373	41,293844
32,311251	33,600233	34,297626	25,576607	41,857037
33,120112	34,416327	35,199898	25,676346	42,482594
33,958613	35,251585	36,07259	25,760376	43,041769
34,82799	36,091444	37,060074	25,865406	43,735037
35,715006	36,99359	38,054523	25,988812	44,204369
36,635409	37,955229	39,045456	26,091198	44,764888
37,560252	38,994551	40,077404	26,25656	45,326744
38,500063	40,07215	41,142403	26,416652	45,904019
39,462611	41,187918	42,282196	26,602958	46,469231
40,486998	42,26739	43,449528	26,807602	46,998231
41,529974	43,447432	44,709534	27,039662	47,623794
42,602061	44,647253	45,995659	27,284832	48,162181
43,660323	45,90845	47,311771	27,591501	48,595981
44,76055	47,082621	48,751274	27,887561	48,913113

45,915785	48,34281	50,225643	28,214964	49,206781
47,064928	49,652533	51,611683	28,641844	49,437425
48,267641	50,869105	53,128632	29,018895	49,636556
49,446009	52,157256	54,641563	29,482161	49,84105
50,69723	53,43656	56,154346	29,94125	49,922175
51,979685	54,71348	57,654156	30,462836	50,091806
53,287299	55,985869	59,266678	31,003852	50,278869
54,580988	57,298754	60,787624	31,599423	50,546388
55,907412	58,587603	62,258606	32,239031	50,786419
57,284613	59,853735	63,804779	32,979888	50,986888
58,645338	60,999178	65,405457	33,664101	51,020412
60,069567	62,161993	66,907318	34,477959	51,086787
61,395289	63,225428	68,330315	35,318812	51,00365
62,746245	64,145499	69,671844	36,200587	50,970125
64,119826	64,913336	71,087715	37,092038	50,9594
65,49803	65,675864	72,436371	38,016496	50,982862
66,921889	66,607962	73,423065	39,064515	50,895031
68,260611	67,493742	74,421432	40,097398	50,694563
69,719878	67,514151	74,829056	41,219607	53,4254
71,227972	67,962134	74,839355	42,350144	57,907531
72,566084	69,321394	75,742523	43,425317	55,863925
73,983549	70,566809	76,628685	44,482577	54,337931
75,303557	71,694014	77,61673	45,447546	53,541394
76,650595	72,933028	78,330772	46,398821	53,414675
77,943571	74,236151	79,084549	47,329862	53,640625
79,286719	75,684492	80,256485	48,221762	54,245406
80,51972	76,960791	81,440399	49,083661	54,835419
81,776144	78,296355	82,294998	49,865347	55,298719
83,055983	79,534239	83,347878	50,677377	55,666137
84,286826	80,874876	84,482964	51,516825	55,849175
85,637	82,19306	85,513206	52,343398	55,191444
86,915457	83,524466	86,790939	53,061808	54,429781
88,297392	84,814841	88,382149	53,784979	53,918881
89,638426	86,110526	89,837067	54,535641	53,478369
90,853957	87,373518	91,087921	55,142955	53,023787
92,137137	88,603423	92,132858	55,82432	52,752244
93,424498	89,820586	93,334061	56,486074	52,50015
94,613173	90,988074	94,37188	57,133371	52,1039
95,718527	92,096762	95,321144	57,733412	51,875269
96,848845	93,158041	96,540749	58,353665	51,818944
97,926588	94,270064	97,716957	58,893164	51,738487
99,046385	95,390379	98,904121	59,497552	51,7519
100,012724	96,463545	99,903114	60,062456	51,806206
101,008986	97,495482	101,014931	60,653875	51,763294
101,958105	98,576079	102,332314	61,223522	51,816938
102,856902	99,563826	104,030342	61,819688	51,991931
103,743208	100,572836	105,594955	62,404397	52,2219
104,65705	101,626303	107,081451	62,941747	52,413656

105,467619	102,579344	108,499107	63,528789	52,731462
106,391486	103,58721	109,775887	64,035137	52,976856
107,195975	104,464331	111,169357	64,569568	53,120337
108,103941	105,474623	112,41436	65,095143	53,204144
108,939368	106,450232	113,654823	65,615242	53,338238
109,82318	107,383353	115,034386	66,154556	53,114975
110,655524	108,344397	116,104515	66,594434	53,074075
111,490904	109,274794	117,196205	67,087765	53,007694
112,412527	110,167624	118,37854	67,603755	52,978869
113,210753	111,130125	119,569702	68,052401	52,91115
114,095717	112,008559	120,875702	68,513797	52,720731
114,926024	112,896292	122,047508	69,027016	52,434444
115,759337	113,841925	123,262115	69,497158	52,320463
116,538374	114,732176	124,203644	69,894731	52,150831
117,305861	115,554778	125,369904	70,362041	52,049588
118,110129	116,450804	126,594688	70,804018	51,990587
118,877158	117,339781	127,453934	71,226992	52,010031
119,501616	118,205496	128,534279	71,689189	52,043556
120,288588	119,113394	129,428391	72,113182	51,978519
121,032973	119,97756	130,502274	72,543732	51,975169
121,67005	120,877394	131,572708	72,988065	52,026125
122,377974	121,814215	132,575089	73,45277	52,040875
122,93167	122,645628	133,450409	73,811965	51,950356
123,602377	123,470869	134,392059	74,251314	51,818275
124,233496	124,41162	135,349686	74,700565	51,739162
124,856123	125,244299	136,3452	75,115797	51,686194
125,472197	126,102148	137,322586	75,516745	51,631213
126,172537	127,086569	138,316269	75,905028	51,604394
126,719557	128,007376	139,080551	76,284586	51,698931
127,390082	128,93093	140,067078	76,741526	51,829006
127,968954	129,789359	140,744553	77,109483	51,965781
128,458594	130,574515	141,809097	77,435565	52,096525
129,087515	131,523016	142,436493	77,847813	52,253412
129,698691	132,335303	143,273941	78,207009	52,253412
130,366476	133,179373	144,127365	78,578855	52,417681
131,013464	134,052893	144,962631	78,935211	52,707325
131,596091	134,926901	145,791656	79,354234	53,003
132,306906	135,850241	146,586456	79,803795	53,252419
133,033713	136,740881	147,267258	80,236685	53,578938
133,669806	137,565878	148,271133	80,643012	53,784119
134,541205	138,453345	149,114624	81,0823	54,197131
135,217673	139,271262	149,869553	81,551219	54,504206
135,981512	140,121252	150,628616	81,856931	54,846819
136,775778	140,985892	151,416977	82,380399	55,017788
137,578604	141,890906	152,24176	82,830254	55,165294
138,376334	142,667624	153,1026	83,249292	55,194125
139,236731	143,550803	153,857346	83,677508	55,253794
140,095908	144,424841	154,706619	84,216422	55,220275

140,885214	145,307211	155,585526	84,710931	55,135794
141,741431	146,125143	156,286423	85,180144	55,096906
142,525992	146,997443	157,255005	85,748508	55,070756
143,274054	147,865149	158,210953	86,291832	54,973537
144,057898	148,778021	159,218887	86,848858	54,829388
144,794501	149,691565	159,995316	87,401217	54,647687
145,54444	150,593237	160,961227	88,02227	54,555163
146,212363	151,498038	161,83139	88,623263	54,547119
146,895102	152,340567	162,701767	89,253516	54,465988
147,617819	153,167303	163,64447	89,935146	54,370781
148,20658	154,01702	164,540665	90,638461	54,188412
148,710257	154,88288	165,324783	91,347213	54,126731
149,365805	155,722495	166,221375	92,043209	54,011406
149,949484	156,56481	167,023132	92,767566	53,855188
150,453726	157,399603	167,849304	93,487029	53,605088
150,960486	158,247809	168,71431	94,252778	53,418025
151,455679	159,048453	169,55426	95,058558	53,277225
151,912085	159,79032	170,426224	95,882359	53,000319
152,355383	160,540442	171,223511	96,701236	52,807225
152,786642	161,329398	172,099792	97,583272	52,512888
153,087668	161,997214	172,897476	98,484984	52,419694
153,473608	162,897192	173,743011	99,463601	52,305038
153,870551	163,674765	174,519379	100,372338	52,0221
154,226065	164,360052	175,433578	101,300704	51,741169
154,429755	165,108389	176,295715	102,288423	51,547406
154,733405	165,793997	176,987854	103,20617	51,3295
154,930533	166,527884	177,680099	104,193602	51,0298
155,125021	167,158957	178,541229	105,10462	50,887656
155,372687	167,779303	179,17453	106,05952	50,66305
155,493796	168,367682	180,240662	107,044732	50,443131
155,713629	169,028372	180,993378	107,989118	50,288256
155,868124	169,670477	181,572006	109,007556	50,04085
155,929221	170,218863	182,225601	109,961996	49,748525
156,055777	170,812933	183,037415	111,022746	49,540675
156,219504	171,45246	183,688354	111,978349	49,343556
156,152686	171,983694	184,437225	113,053185	49,076037
156,237784	172,474768	185,030624	114,177918	48,925181
156,193549	173,028754	185,625336	115,235948	48,730744
156,264059	173,542761	186,257675	116,27419	48,628831
156,167899	174,074164	186,997177	117,371112	48,582569
156,148947	174,578757	187,407043	118,375667	48,453169
156,070166	174,983054	187,912064	119,550408	48,296275
155,908545	175,432776	188,462601	120,663878	48,16285
155,907095	175,925513	188,887207	121,718231	48,0006
155,87081	176,284186	189,461838	122,731857	47,767275
155,765341	176,712668	189,956116	123,86026	47,468912
155,737097	177,100851	190,319046	124,895956	47,148425
155,588965	177,572241	190,663239	125,968549	46,868162

155,496695	178,018057	191,282089	126,987228	46,723337
155,425925	178,391699	191,860748	127,983059	46,589913
155,450949	178,79064	192,318695	128,963784	46,375362
155,382895	179,179068	192,581192	129,947727	46,046831
155,274588	179,626257	192,929276	130,906094	46,001237
155,2172	179,915549	193,012222	131,93028	45,783331
155,146262	180,297141	193,297348	132,91182	45,525875
154,947516	180,445746	193,625458	133,847075	45,32205
154,858069	180,642538	194,110245	134,735546	45,106825
154,837866	180,823218	194,418182	135,624607	44,943231
154,584464	181,069601	194,71405	136,515253	44,811819
154,573569	181,181952	195,050079	137,275548	44,719294
154,330893	181,244818	195,305832	138,12778	44,584525
154,202704	181,454901	195,357819	138,956808	44,243925
153,960089	181,529868	195,618912	139,725865	44,048819
153,737311	181,654211	195,460602	140,482096	43,80745
153,445395	181,651373	195,757858	141,243842	43,533225
153,210898	181,620566	195,875671	141,818406	43,366275
153,005469	181,606863	195,943741	142,505859	43,274419
152,640433	181,601447	195,93158	143,190925	43,101438
152,315237	181,544958	195,84964	143,860523	42,9479
151,99816	181,485846	195,840118	144,467142	43,056519
151,667944	181,507285	196,014252	144,958547	50,393519
151,358725	181,439948	196,080856	145,557493	53,470994
151,068518	181,204123	195,987122	146,033338	51,212169
150,770041	181,136755	195,852798	146,472113	49,432731
150,38941	180,852698	195,777802	146,729855	48,270125
150,056525	180,652838	195,537796	147,054442	47,664019
149,649298	180,281577	195,43187	147,276684	47,607031
149,174323	179,976019	195,253632	147,396205	47,966406
148,731161	179,603293	194,962677	147,460482	48,490044
148,263098	179,158484	194,729599	147,418396	48,954681
147,809515	178,812598	194,482864	147,428653	49,409263
147,411978	178,217688	194,096954	147,315462	49,920838
147,12612	177,766089	193,822205	147,131091	50,543037
146,864172	177,195273	193,256668	146,981041	51,081425
146,569098	176,678168	192,680481	146,724507	51,635906
146,283392	175,994971	192,17662	146,425858	51,718375
146,077261	175,412192	191,513153	146,35214	51,0479
145,935019	174,751807	191,080215	146,241472	50,484031
145,794241	174,092963	190,477264	146,002174	49,710306
145,590796	173,527701	189,965195	145,786473	49,0633
145,501715	172,911703	189,380844	145,586452	48,363994
145,403448	172,368155	188,809982	145,412972	47,68145
145,387289	171,915472	188,271057	145,257635	47,28185
145,395163	171,345129	187,566116	145,105138	46,914425
145,350012	170,908804	186,847855	144,942202	46,616062

145,400381	170,385397	186,148239	144,763345	46,3405
145,352347	170,033224	185,6978	144,516177	46,076331
145,362967	169,602347	185,191269	144,172013	46,233225
145,327078	169,204932	184,56546	143,905358	46,707919
145,301764	168,783392	184,148575	143,653009	46,997563
145,274985	168,389868	183,620483	143,357441	47,283187
145,176718	168,036703	183,140793	142,974076	47,516513
145,302771	167,628638	182,8311	142,64967	47,811525
145,274832	167,344992	182,248215	142,307077	48,031438
145,346365	167,166968	181,779129	141,986795	48,258731
145,323737	166,852637	181,45752	141,639005	48,482
145,375479	166,6453	181,312759	141,226983	48,613413
145,335638	166,404593	180,889389	140,849238	48,730075
145,496237	166,242697	180,624008	140,426974	48,871544
145,663443	165,98049	180,531479	140,017838	49,206113
145,816077	165,770468	180,497879	139,511704	49,462231
145,869208	165,642111	180,430878	139,10287	49,611075
146,148169	165,59133	180,361191	138,607583	49,787412
146,489325	165,546957	180,261826	138,227556	50,069681
146,748358	165,580313	180,17067	137,845052	50,165556
147,027411	165,470694	180,280518	137,376337	50,386812
147,200171	165,361044	180,210831	136,949602	50,619469
147,613501	165,34368	180,265747	136,479784	50,72205
147,940268	165,368811	180,316422	136,102718	50,901737
148,231375	165,323325	180,282898	135,638323	51,057288
148,595709	165,288535	180,191788	135,10737	51,246362
148,978705	165,315283	180,05513	134,683793	51,338887
149,40029	165,400763	180,320312	134,271937	51,530644
149,779166	165,376471	180,322769	133,734685	51,579588
150,210272	165,475424	180,491577	133,256544	51,702281
150,65209	165,585043	180,606781	132,760244	51,833025
151,059363	165,63584	180,700562	132,287587	52,006681
151,494574	165,754691	181,042084	131,886638	52,098531
152,022955	165,951041	180,93605	131,402363	52,074394
152,539664	166,060721	181,067337	130,992668	52,142112
153,099112	166,119543	181,035187	130,512668	52,091156
153,599997	166,217108	181,169144	130,082262	52,083112
154,114203	166,364096	181,21051	129,688368	52,078419
154,687155	166,547156	181,332321	129,297254	52,121331
155,196356	166,683554	181,511871	128,848962	52,124681
155,729651	166,924277	181,680679	128,445067	52,146138
156,274939	167,147467	181,917679	128,06844	52,117975
156,908362	167,396155	182,119919	127,705052	52,16625
157,481894	167,525809	182,280609	127,290976	52,366725
157,991599	167,734473	182,55127	126,843229	52,564512
158,616095	167,989905	183,050995	126,459236	52,665756
159,145941	168,177115	183,278717	126,118244	52,680506
159,746481	168,278616	183,645691	125,691547	52,687213

160,316565	168,544836	183,917709	125,354663	52,836725
160,957587	168,844519	184,236633	124,949017	52,862206
161,637335	169,095938	184,721573	124,584859	53,060662
162,123618	169,380911	185,036469	124,263807	53,077425
162,823523	169,560034	185,218536	123,860947	53,1076
163,39411	169,794196	185,361938	123,527047	53,0667
164,038275	169,996207	185,557526	123,186682	53,002331
164,638419	170,178122	185,816071	122,889188	53,084131
165,277396	170,310568	186,018356	122,533384	53,215544
165,893668	170,505835	186,37468	122,223103	53,286613
166,464682	170,768118	186,558258	121,920661	53,357681
167,037024	171,066504	187,064682	121,66616	53,245044
167,545325	171,304739	187,362183	121,30809	53,234319
168,192618	171,529471	187,619308	121,043391	53,226944
168,820074	171,766394	188,014603	120,712656	53,265831
169,396689	171,968375	188,270401	120,493299	53,331538
169,94538	172,185233	188,444626	120,197709	53,339581
170,459311	172,399405	188,597382	119,889187	53,21085
171,097571	172,606772	189,078308	119,615614	53,237669
171,707922	172,857062	189,406494	119,413319	53,308738
172,223318	173,004279	189,714661	119,152835	53,318125
172,732062	173,191718	190,100571	118,90927	53,326844
173,307715	173,486197	190,475693	118,683833	53,258456
173,802969	173,623938	190,881546	118,48681	53,177994
174,260931	173,839484	191,349121	118,271758	52,957413
174,785895	174,139395	191,834137	118,010217	52,895725
175,392477	174,433936	192,502609	117,809471	52,775712
175,744604	174,621283	192,712845	117,598347	52,663744
176,226767	174,846182	192,919128	117,417042	52,432431
176,526801	175,116705	193,149536	117,241017	52,242688
176,857596	175,349692	193,505936	116,965367	52,124013
177,186926	175,673605	193,70134	116,879767	51,816262
177,480292	175,86376	194,084427	116,720608	51,603725
177,764304	175,973578	194,456879	116,567938	51,459575
178,064307	176,371298	194,85199	116,412653	51,251725
178,326651	176,633627	195,312576	116,292174	50,996275
178,457953	176,964484	195,632706	116,18995	50,784406
178,688406	177,240393	195,889908	116,109767	50,547725
178,800925	177,430609	196,441727	115,980442	50,339213
178,996252	177,666113	196,875412	115,835362	50,205787
179,108832	178,003668	197,207535	115,72159	50,185
179,13024	178,148352	197,662888	115,56901	50,040181
179,140967	178,325201	197,804825	115,442307	49,896025
179,297476	178,582159	198,178192	115,412328	49,767969
179,304144	178,80184	198,350952	115,359306	49,495081
179,352377	178,981375	198,696396	115,325702	49,326125
179,213004	179,199728	199,065918	115,270066	49,091456
179,235709	179,534598	199,412598	115,149715	48,968762

179,231528	179,873373	199,753891	115,090189	48,864838
179,143103	180,098471	199,946716	115,02039	48,730075
179,13642	180,291418	200,191666	115,021674	48,620788
179,000998	180,572684	200,427185	114,995677	48,506138
179,014243	180,883368	200,771088	115,004635	48,365338
178,861487	181,100439	200,993301	115,022739	48,235262
178,75022	181,329474	201,287689	115,032936	48,183637
178,657751	181,507651	201,591507	114,966982	47,983163
178,626913	181,732733	201,827042	114,978629	47,8075
178,523627	181,944312	201,927322	115,056101	47,668044
178,436469	182,174734	202,094528	115,050837	47,475619
178,370795	182,367651	202,319321	115,054644	47,326769
178,228781	182,614203	202,512054	115,111503	47,161163
178,180426	182,958487	202,767548	115,132146	46,923813
178,019522	183,088293	202,870453	115,165569	46,756194
177,880209	183,300024	202,966766	115,248298	46,5584
177,762335	183,538535	202,99086	115,30518	46,331781
177,573401	183,794485	202,933334	115,389201	46,263394
177,534338	184,063589	203,060211	115,488501	46,192994
177,341422	184,277991	203,078934	115,617795	46,111194
177,199438	184,516516	203,317139	115,708312	45,954306
176,990454	184,733588	203,301086	115,770376	45,808144
176,892432	185,064352	203,385132	115,956356	45,605656
176,641959	185,170203	203,207169	116,00292	45,514475
176,518683	185,443549	203,448013	116,080513	45,358256
176,181143	185,51055	203,490829	116,163288	45,196669
176,079291	185,732916	203,387695	116,33256	45,100794
175,92507	185,93511	203,334061	116,452791	44,953956
175,65853	185,990027	203,257751	116,564048	44,898981
175,370566	186,208472	203,012878	116,701159	44,801763
175,125388	186,220419	203,028854	116,821344	44,738737
174,837424	186,276694	202,735748	116,959785	44,618719
174,667197	186,362326	203,005936	117,068429	44,566425
174,329749	186,365012	202,979172	117,210767	44,450431
174,069861	186,442633	202,843933	117,356851	44,200344
173,772574	186,515005	202,471909	117,478524	44,040775
173,437811	186,643652	202,504013	117,646807	43,804769
173,12435	186,750677	202,127808	117,76197	43,786662
172,818961	186,782767	202,021957	117,926204	43,636475
172,610098	186,755957	201,965744	118,071231	43,435337
172,229895	186,729163	201,612427	118,208479	43,23285
171,849677	186,782767	201,229614	118,369065	43,049144
171,431998	186,758612	200,929749	118,581451	42,8889
171,150656	186,790564	200,691254	118,804025	42,664962
170,751791	186,758398	200,402084	118,956885	42,573106
170,221777	186,79325	200,035278	119,143447	42,376656
169,905936	186,718207	199,647018	119,26265	42,248594
169,468298	186,659186	199,450119	119,370093	42,174844

169,011923	186,568015	199,405914	119,526819	41,98845
168,572943	186,492834	199,258499	119,648606	41,828206
168,008337	186,401724	199,124603	119,840432	41,728306
167,609717	186,358832	198,709534	119,900033	41,584825
167,187018	186,242255	198,472519	120,027061	41,441344
166,76026	186,180502	198,113541	120,236932	41,393069
166,289496	185,941977	197,591263	120,361407	41,338094
165,792029	185,915182	197,090378	120,540347	41,234169
165,285254	185,527899	196,668488	120,67261	41,132256
164,632758	185,389807	196,530457	120,806126	40,9224
164,033865	185,20751	196,270554	120,947475	40,734669
163,481802	185,041251	195,841873	121,097804	40,601244
162,920523	184,636557	195,474854	121,160042	40,442325
162,423483	184,347113	194,896179	121,32093	40,296831
161,910468	184,379279	194,50502	121,450662	40,196931
161,33605	183,966544	194,084335	121,546655	40,144638
160,713705	183,639609	193,856583	121,598559	40,099044
160,175436	183,399649	193,30986	121,828113	39,995794
159,582587	183,075293	192,937378	121,939688	39,863706
159,083289	182,860846	192,418823	122,066829	39,751738
158,465308	182,679922	192,004791	122,190111	39,619656
157,910178	182,291312	191,554611	122,364059	39,561325
157,373846	182,178778	191,099045	122,4549	39,450025
156,797568	181,610632	190,699753	122,571754	39,329338
156,184058	181,342673	190,241486	122,727559	39,19055
155,546698	181,082724	189,877014	122,800265	39,035675
155,008017	180,805289	189,504425	122,932603	38,980025
154,461508	180,565436	189,107742	123,024774	38,9056
153,877814	180,166159	188,638748	123,102684	38,845256
153,240927	179,933051	188,185837	123,261133	38,823131
152,700125	179,702597	187,874939	123,33646	38,739994
152,127463	179,39176	187,371078	123,494931	38,601206
151,568243	179,126501	187,017288	123,572849	38,55025
151,049033	178,906775	186,5215	123,666394	38,49795
150,498038	178,373602	186,384827	123,658585	38,3766
149,901907	177,891333	186,148972	123,733949	38,304187
149,279318	177,411765	185,583466	123,765136	38,1245
148,73667	177,066153	185,403915	123,806693	37,989731
148,188849	176,546454	184,859863	123,827487	37,809375
147,673041	176,273215	184,36676	123,863855	37,73965
147,146719	175,804449	183,900452	123,944424	37,649806
146,591284	175,43746	183,602966	124,014585	37,598175
146,004065	175,019614	183,125961	124,074368	37,551244
145,4569	174,655386	182,892807	124,15752	37,470119
144,978857	174,408972	182,630188	124,134128	37,399044
144,479697	174,125098	182,142487	124,217295	37,334681
143,988638	173,59754	181,786072	124,175723	37,254894
143,441931	173,313681	181,464523	124,186108	37,152981

142,951086	172,925406	181,092072	124,256292	37,124825
142,478918	172,788855	180,808014	124,292667	37,036319
142,025427	172,272101	180,376648	124,321256	37,013525
141,587927	172,151617	180,041718	124,331672	36,922337
141,092352	171,888007	179,649323	124,391515	36,860656
140,58222	171,584174	179,226028	124,444794	36,794281
140,115881	170,88819	178,711655	124,390223	36,682981
139,58338	170,577689	178,349991	124,413615	36,568331
139,156989	170,475974	177,803497	124,429197	36,52475
138,743948	170,141409	177,530273	124,462997	36,485863
138,264792	169,52854	177,096359	124,418804	36,434906
137,865179	169,276984	176,774933	124,340826	36,355119
137,423285	168,905051	176,341019	124,398003	36,371212
137,014624	168,493033	175,924622	124,330463	36,332994
136,538657	168,255011	175,66626	124,377277	36,366519
136,131491	167,913962	175,343643	124,326702	36,288744
135,686041	167,607657	175,029007	124,317623	36,271306
135,24729	167,203741	174,447937	124,283853	36,23175
134,869437	166,989752	174,014175	124,211064	36,164706
134,452002	166,444128	173,596512	124,226668	36,12045
134,053152	166,262289	173,149414	124,19027	36,032619
133,605627	165,914679	172,687698	124,177316	35,95015
133,181952	165,600546	172,347809	124,168253	35,873719
132,778143	165,131354	171,912888	124,157897	35,854944
132,392889	164,751776	171,524887	124,086551	35,86165
131,981314	164,481787	171,0271	124,096929	35,827456
131,540808	164,03002	170,708664	124,03198	35,742306
131,141287	163,833563	170,28186	123,973496	35,740294
130,747244	163,398062	169,845886	123,916395	35,692019
130,370276	163,157538	169,570312	123,885215	35,688669
129,98815	162,834219	169,056686	123,828031	35,586087
129,586386	162,374701	168,684937	123,758021	35,523063
129,203131	161,988699	168,298492	123,673593	35,433219
128,817358	161,697562	167,834518	123,652844	35,325269
128,444815	161,391806	167,494965	123,60739	35,331306
128,086768	161,119345	167,123291	123,545054	35,329963
127,73934	160,820258	166,666061	123,451524	35,338013
127,376257	160,263586	166,322632	123,328295	35,299794
127,027686	160,024619	165,885574	123,267251	35,226038
126,663474	159,546851	165,404556	123,176402	35,195869
126,311041	159,44274	165,081177	123,111461	35,108038
125,942915	159,287894	164,747101	123,036141	35,102
125,594633	158,92092	164,31427	122,933623	35,059763
125,319998	158,528693	163,909546	122,866174	34,992713
124,935149	158,139182	163,682571	122,723443	34,964556
124,608054	157,601553	163,344681	122,600085	34,875381
124,27706	157,534842	162,879883	122,52219	34,785537
123,948782	157,129385	162,599503	122,435262	34,7319

123,656088	156,812048	162,343185	122,309457	34,674913
123,308348	156,588126	161,913376	122,177127	34,636694
123,053725	156,446799	161,755844	122,104451	34,636694
122,717772	155,956107	161,414078	121,998028	34,645412
122,472472	155,738837	161,189896	121,869625	34,577019
122,183936	155,534949	160,872299	121,736033	34,60585
121,883688	155,273795	160,490692	121,595976	34,539475
121,629294	154,778021	160,242493	121,466237	34,490531
121,356558	154,556784	159,980957	121,377994	34,491869
121,059027	154,375647	159,6315	121,238035	34,471087
120,738081	153,978766	159,327484	121,126574	34,404712
120,499541	153,816229	159,114044	120,991683	34,378563
120,221777	153,544455	158,820587	120,895698	34,371856
119,983382	153,167563	158,477875	120,776488	34,34705
119,709769	153,002585	158,232666	120,640434	34,297431
119,493681	152,748251	157,964645	120,530211	34,216975
119,255331	152,423315	157,655304	120,434257	34,211612
119,02883	152,224936	157,33136	120,298135	34,149262
118,736998	151,874945	156,968887	120,129768	34,114394
118,501486	151,627417	156,685074	120,009259	34,058744
118,297293	151,422446	156,44516	119,877049	34,052712
118,006781	150,879446	156,117355	119,747423	34,0688
117,821143	150,70661	155,793716	119,533783	34,011812
117,543898	150,403342	155,459381	119,356293	33,978288
117,352873	150,147925	155,262222	119,172307	33,88375
117,134482	149,845953	154,949188	119,046639	33,899844
116,858717	149,513647	154,675049	118,895259	33,915263
116,602499	149,046881	154,367401	118,755384	33,85425
116,320113	148,738425	154,002563	118,527423	33,881737
116,16458	148,582877	153,761597	118,399217	33,901181
115,955595	148,455389	153,467529	118,251765	33,886431
115,73744	148,012808	153,134796	118,118453	33,883081
115,559721	147,877264	152,961761	118,0045	33,866988
115,357207	147,556998	152,694275	117,899632	33,842181
115,090941	147,280844	152,32988	117,760043	33,82475
114,906767	146,997824	152,001236	117,629307	33,758375
114,695181	146,979224	151,804337	117,525746	33,678587
114,501959	146,822531	151,541	117,392502	33,703394
114,251448	146,596884	151,325699	117,238668	33,710769
114,092162	146,363104	151,033112	117,122177	33,637687
113,880682	146,155936	150,865555	117,010897	33,5874
113,624968	145,927649	150,523926	116,916627	33,519013
113,416281	145,683447	150,286041	116,729106	33,486831
113,28578	145,606436	150,089294	116,651467	33,419113
113,100493	145,388693	149,719742	116,558315	33,416431
112,888007	145,111441	149,520554	116,378725	33,423138
112,698927	144,788947	149,262802	116,25848	33,396319
112,482375	144,650916	148,991684	116,105869	33,394975

112,288138	144,390906	148,789841	115,955985	33,401681
112,099226	144,253058	148,518967	115,852636	33,431181
111,927092	143,958517	148,298416	115,764703	33,418444
111,747153	143,751547	147,825577	115,601768	33,419113
111,539923	143,453101	147,711426	115,435093	33,370169
111,327643	143,271613	147,536331	115,26073	33,416431
111,173834	143,221228	147,323868	115,170259	33,496219
111,060477	143,020987	147,181793	115,03456	33,490856
110,861235	142,706854	147,043915	114,902902	33,496219
110,658064	142,420569	146,846176	114,795701	33,441913
110,433951	142,30921	146,612534	114,689746	33,403025
110,277655	142,093161	146,39888	114,573511	33,415094
110,045973	141,830893	146,104431	114,377259	33,330612
109,887129	141,577811	145,824463	114,25585	33,222662
109,696989	141,437308	145,551147	114,178341	33,169025
109,585112	141,226767	145,300537	113,967949	33,12075
109,406874	140,943365	145,101685	113,849199	33,134163
109,223296	140,738043	144,827148	113,754936	33,112037
109,055396	140,636053	144,587097	113,629661	33,086556
108,924025	140,4905	144,375061	113,476197	33,045662
108,749739	140,197897	144,161713	113,305814	33,031581
108,59355	139,930411	143,917755	113,166338	33,05035
108,341185	139,672339	143,672638	113,012905	33,041638
108,155272	139,5745	143,426239	112,925191	33,018838
107,99005	139,332236	143,173126	112,766432	33,011463
107,837851	139,108542	143,004822	112,674783	32,936375
107,620688	138,830649	142,692215	112,525246	32,901506
107,419241	138,653479	142,498932	112,383369	32,900838
107,259283	138,490729	142,320084	112,2711	32,938381
107,115019	138,067435	142,116226	112,113836	32,9585
106,947447	137,980276	141,89119	111,950093	32,910894
106,809653	137,707816	141,72435	111,80172	32,857925
106,640685	137,411566	141,507233	111,728243	32,851894
106,513335	137,259589	141,24382	111,552943	32,796244
106,300337	137,054785	140,98848	111,42016	32,796244
106,149557	136,890845	140,789917	111,296364	32,730537
105,920935	136,662253	140,486908	111,207563	32,699694
105,793639	136,489127	140,322845	111,045103	32,653431
105,627425	136,203741	140,117828	110,899441	32,646056
105,457236	136,080862	139,830704	110,828548	32,584375
105,331313	135,851019	139,64563	110,630188	32,520006
105,135313	135,626547	139,405014	110,503901	32,435531
105,01972	135,408545	139,237015	110,407251	32,410719
104,856177	135,172217	139,011002	110,202479	32,436869
104,722411	135,017706	138,80867	110,118723	32,404688
104,52648	134,632193	138,568176	109,979595	32,407369
104,39276	134,427527	138,429367	109,870067	32,375856
104,264288	134,303549	138,215317	109,720788	32,356413

104,119025	134,080527	137,994705	109,558502	32,407369
103,950285	133,779608	137,772659	109,436111	32,414075
103,769911	133,557959	137,577194	109,279135	32,408713
103,599898	133,411505	137,361847	109,149048	32,320206
103,485869	133,172827	137,173065	109,003575	32,36915
103,356116	132,898428	136,980209	108,860663	32,314175
103,226424	132,831229	136,831009	108,747465	32,241763
103,086348	132,600439	136,643494	108,623889	32,204888
102,920363	132,405325	136,428329	108,504179	32,155944
102,727156	132,186514	136,182785	108,360127	32,135156
102,622099	132,024329	135,993988	108,214669	32,116381
102,453627	131,740988	135,831772	108,095028	32,126438
102,333022	131,647406	135,701065	107,946995	32,117056
102,152831	131,201941	135,566544	107,803025	32,079506
102,024435	131,184821	135,435883	107,701338	32,046656
101,870268	130,976752	135,235413	107,565004	32,043969
101,713454	130,713278	134,939896	107,441624	32,005081
101,600676	130,545981	134,709	107,316809	31,991006
101,390753	130,39852	134,527039	107,197198	31,950106
101,288428	130,103476	134,347672	107,038976	31,94675
101,160178	129,848059	134,152573	106,897658	31,970219
101,053893	129,858633	133,981094	106,753567	31,914569
100,919226	129,638785	133,792603	106,673889	31,888419
100,737883	129,357108	133,609451	106,501686	31,877694
100,616087	129,184698	133,361603	106,391132	31,850875
100,450209	128,897681	133,229736	106,313962	31,848194
100,287115	128,738593	133,059875	106,150716	31,827406
100,177077	128,520209	132,925552	106,012034	31,818025
100,046233	128,266241	132,668533	105,895029	31,807294
99,936125	127,991248	132,551239	105,78319	31,783156
99,788634	127,745413	132,312881	105,555691	31,756337
99,650122	127,545584	132,036301	105,375919	31,730863
99,4895	127,379851	131,843964	105,26538	31,679906
99,318587	127,141852	131,704407	105,139439	31,649731
99,217787	127,042136	131,438522	104,969986	31,577994
99,041693	126,762091	131,256821	104,887793	31,55855
98,974341	126,459723	130,998718	104,800426	31,553187
98,738829	126,348128	130,739471	104,656577	31,535081
98,60433	125,994749	130,611938	104,525727	31,553856
98,524062	125,837042	130,514526	104,404961	31,508931
98,420485	125,805518	130,335526	104,237939	31,466694
98,257529	125,488989	130,123718	104,153223	31,474069
98,107527	125,377501	129,86203	103,999299	31,449262
97,918555	125,064864	129,664642	103,917098	31,459319
97,750273	124,825812	129,477814	103,791218	31,414394
97,677946	124,733992	129,299026	103,629484	31,36545
97,507307	124,563498	129,120346	103,51155	31,372156
97,375311	124,348158	128,944077	103,342051	31,399644

97,261443	124,138091	128,804687	103,239298	31,355394
97,138564	123,819151	128,625885	103,140534	31,374169
96,951239	123,728865	128,489395	102,934047	31,358075
96,84516	123,542502	128,297447	102,833908	31,342656
96,702841	123,280043	128,010841	102,713225	31,356737
96,503767	123,078116	127,861153	102,577367	31,344
96,330641	122,808066	127,622116	102,438858	31,370819
96,206465	122,56671	127,527489	102,35156	31,307119
96,071967	122,469649	127,327751	102,200105	31,260188
95,87934	122,10385	127,23455	102,027026	31,256837
95,685576	121,9336	126,965416	101,865487	31,194481
95,648138	121,837935	126,889252	101,735922	31,133469
95,503325	121,680602	126,655434	101,63326	31,143525
95,406462	121,391043	126,543945	101,476956	31,13615
95,303084	121,320311	126,339088	101,356401	31,129444
95,089964	121,130469	126,1856	101,225634	31,133469
94,916739	120,823828	126,001747	101,138403	31,130788
94,843161	120,715178	125,892944	101,002667	31,067094
94,682867	120,43878	125,682877	100,860298	31,042956
94,508582	120,221503	125,381142	100,742402	31,035581
94,431082	120,1089	125,306343	100,638539	31,036919
94,310965	120,036925	125,127945	100,487349	30,988644
94,158514	119,813048	125,000702	100,368199	31,0215
94,022917	119,708334	124,823631	100,274638	30,987975
93,940367	119,522574	124,661079	100,128531	30,998031
93,820235	119,293501	124,540413	99,973474	30,930313
93,649779	119,090704	124,392265	99,845441	30,947744
93,556754	118,983344	124,258484	99,73262	30,932325
93,436758	118,823805	124,140572	99,585289	30,945738
93,329642	118,628928	124,021339	99,473881	30,899475
93,213461	118,473326	123,915207	99,340765	30,887406
93,10755	118,250906	123,810287	99,222869	30,846506
92,944838	118,252219	123,616272	99,103704	30,808287
92,799109	118,013022	123,418457	98,998708	30,831088
92,692015	117,754172	123,23378	98,836211	30,772756
92,565443	117,610289	123,220642	98,674778	30,776106
92,467291	117,510878	123,100044	98,59532	30,747275
92,382208	117,339728	122,891762	98,48907	30,686263
92,246771	117,12934	122,809349	98,302161	30,66615
92,12934	116,930693	122,675751	98,167814	30,644694
92,046683	116,692793	122,51326	98,078129	30,652738
91,922758	116,66664	122,41893	97,97055	30,583681
91,746115	116,45777	122,233093	97,852842	30,589712
91,65975	116,358572	122,099617	97,678902	30,645362
91,517729	116,063223	121,910957	97,614874	30,647375
91,375739	115,982207	121,761665	97,509841	30,633294
91,290633	115,824187	121,622917	97,399777	30,627931
91,135962	115,537032	121,352036	97,252726	30,590381

91,001768	115,431288	121,243416	97,115833	30,591056
90,875281	115,316359	121,036545	97,046707	30,593737
90,746222	115,09693	120,889893	96,877699	30,574294
90,605727	114,958647	120,764366	96,784328	30,517975
90,506552	114,770842	120,644165	96,583634	30,491156
90,421393	114,582854	120,502838	96,504289	30,447575
90,287199	114,543661	120,340538	96,407013	30,47305
90,186545	114,368758	120,220139	96,312282	30,427456
90,006239	114,158896	120,03727	96,137276	30,439525
89,835966	113,943602	119,81752	96,05667	30,429469
89,712134	113,750479	119,718063	95,892881	30,424775
89,590849	113,706099	119,555862	95,816096	30,389912
89,504446	113,480406	119,405457	95,713774	30,363094
89,290625	113,222433	119,206985	95,563105	30,323538
89,211958	113,090697	119,012161	95,396786	30,255819
89,093298	113,059393	118,993835	95,330258	30,267888
89,021071	112,861121	118,865685	95,174181	30,290681
88,928305	112,634299	118,786049	94,996532	30,273919
88,825423	112,504195	118,586281	94,890554	30,280625
88,719672	112,425925	118,489525	94,775445	30,241737
88,611319	112,261641	118,353577	94,647548	30,231681
88,497839	112,196471	118,14444	94,547787	30,254475
88,343237	112,024519	118,066208	94,408636	30,275931
88,193877	111,844862	117,778893	94,284705	30,266544
88,113936	111,769263	117,624687	94,172148	30,24375
87,964354	111,602438	117,528023	94,090318	30,210894
87,894743	111,388701	117,437874	93,980405	30,178712
87,723418	111,293745	117,21077	93,839993	30,181394
87,570174	111,0828	117,08416	93,751841	30,142506
87,418082	110,857497	116,945747	93,661068	30,100269
87,30979	110,740225	116,765518	93,553685	30,063394
87,253119	110,591795	116,573616	93,402933	30,08485
87,116576	110,537161	116,507164	93,256078	30,076131
87,021391	110,371939	116,340164	93,171801	30,016456
86,902861	110,154509	116,332375	93,058066	29,97355
86,877081	110,019064	116,175713	92,912352	29,950081
86,721182	109,747015	116,013924	92,78725	29,925275
86,583342	109,477591	115,930489	92,637834	29,938681
86,439238	109,352888	115,792328	92,478184	29,899125
86,346434	109,306029	115,586113	92,421967	29,877
86,294882	109,222731	115,494743	92,301835	29,862919
86,166129	109,07057	115,304375	92,183228	29,819338
86,037299	108,915724	115,126953	92,047831	29,811962
85,94213	108,820898	114,996628	91,955933	29,836769
85,854559	108,528197	114,918411	91,829464	29,834763
85,774657	108,408514	114,725334	91,724702	29,824706
85,666533	108,350089	114,598984	91,581858	29,796544
85,529982	108,257758	114,46727	91,524394	29,830069

85,452734	108,097823	114,321259	91,383906	29,826712
85,321509	107,906798	114,167496	91,32651	29,811294
85,267401	107,820952	114,073624	91,24474	29,811294
85,112944	107,704077	113,953865	91,067454	29,82135
85,069136	107,709258	113,826088	91,006161	29,799225
84,954489	107,445311	113,689224	90,88485	29,771738
84,767928	107,301192	113,456047	90,772543	29,733519
84,695738	107,186789	113,359612	90,632071	29,712731
84,491019	107,073805	113,196838	90,532687	29,709381
84,445982	106,906134	113,060036	90,436944	29,647025

Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range
Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [100ppm
1,769247	25,515451	38,818584	3,528526	2,301734
5,064562	25,516695	38,176551	3,511362	12,210145
4,339422	24,958139	38,198697	3,48917	16,516334
5,86259	24,30346	38,646594	3,46691	22,479402
8,454906	24,78494	38,43371	3,439689	22,479402
10,171533	24,843361	38,096509	3,409518	22,47967
11,340819	24,430668	38,701077	3,372909	22,47967
11,726208	24,552487	38,634672	3,336302	22,479804
11,35359	24,52224	38,677249	3,298688	22,479939
12,056253	24,650274	38,290661	3,25913	22,479939
12,828735	25,253581	38,179964	3,212666	22,479939
13,158946	24,806485	39,046787	3,165934	22,479804
13,97009	25,041009	38,079492	3,121817	22,479939
14,882049	25,157865	38,810075	3,071599	22,479939
15,363322	24,513538	38,369004	3,021916	22,479939
15,05218	24,750131	38,833919	2,971631	22,479939
15,24564	24,837146	39,266481	2,924229	22,480073
15,803207	25,04681	39,070631	2,873742	22,480073
16,388359	23,966179	38,295772	2,821445	22,480073
16,644661	24,760491	38,602303	2,770891	22,480341
16,744456	24,49779	38,248084	2,725364	22,480073
16,342377	24,873194	38,58357	2,676621	22,480341
15,8388	24,370173	38,92928	2,630023	22,480206
16,132227	24,50898	38,588682	2,587851	22,480073
16,155387	24,279841	39,121733	2,540984	22,480073
16,069556	24,948193	38,42009	2,494454	22,479939
16,53601	24,232607	37,904073	2,447721	22,480073
17,006551	25,923173	41,175545	2,39462	22,480206
16,699157	24,823473	38,789644	2,341451	22,480073
17,407268	24,685492	38,588682	2,284461	22,480206
17,152839	24,46506	38,137388	2,231494	22,480206
17,371846	23,703062	38,113543	2,176515	22,480475
17,602602	24,240892	38,769197	2,121536	22,479939
17,926172	24,155951	38,135689	2,06193	22,480206
17,949504	24,326666	38,592095	2,002526	22,480206
18,147394	24,436052	38,684059	1,946542	22,480206
18,657446	23,798365	38,517165	1,88345	22,480341
18,244804	23,945047	38,859462	1,822906	22,480073
18,238503	24,010513	38,770911	1,762564	22,480341
18,63701	24,382603	38,406469	1,702757	22,480206
18,326719	23,490914	38,379212	1,642549	22,480206

18,278183	23,967006	38,634672	1,582944	22,480341
18,262005	24,103329	38,777722	1,52535	22,480341
18,650463	24,995844	38,930995	1,464806	22,480475
18,646377	23,768531	38,266816	1,408821	22,480341
18,56582	24,335365	38,103336	1,354713	22,480206
18,493613	23,690219	38,423487	1,298929	22,480475
18,271882	24,404561	38,282152	1,240398	22,480341
19,010819	24,050706	38,302583	1,184412	22,480341
18,77836	23,947944	38,094811	1,129501	22,480206
18,940826	24,31589	38,694267	1,07479	22,480475
18,650634	24,08054	38,309393	1,022493	22,480341
18,475903	23,664943	37,793376	0,973013	22,480206
18,60499	24,174596	38,71981	0,923464	22,480475
18,469942	24,503592	38,00626	0,877872	22,480475
17,96398	24,431494	38,045424	0,832883	22,480341
18,398076	23,267994	37,963683	0,786084	22,480475
17,892624	24,201529	38,064156	0,743778	21,906281
18,227775	25,092812	40,324042	0,706365	18,115552
17,665784	24,266168	39,324377	6,236106	17,244871
18,202912	24,362298	38,649991	7,194884	22,480206
18,292659	23,862174	38,340048	7,150163	22,480073
18,633264	23,675302	38,278739	7,098537	22,480206
18,895697	24,820989	38,503529	7,034641	22,480206
20,036368	23,560941	37,8564	6,966051	22,480341
19,771892	24,015071	38,786231	6,889014	22,480341
20,181975	24,115345	39,097889	6,808624	22,480341
19,951898	23,724611	38,619337	6,728703	22,480073
20,371859	24,050706	38,631259	6,653677	22,480206
19,934017	23,839798	38,505243	6,576706	22,480341
19,353633	24,349038	38,343445	6,505167	22,480341
19,377646	24,460915	38,15612	6,446031	22,480475
19,197979	24,114101	37,738893	6,389912	22,480073
19,011841	23,863831	37,657137	6,332989	22,480341
19,120663	24,143935	38,513752	6,276066	22,480341
18,908979	24,285229	38,190188	6,219545	22,480475
18,887521	25,119742	38,174853	6,16356	22,480475
18,839156	24,301803	38,844143	6,105899	22,480341
18,859933	24,279841	37,87172	6,052597	22,480206
19,027338	24,278184	39,501495	5,997885	22,480341
19,022058	24,418238	38,540994	5,942101	22,480341
18,876112	24,256226	38,127164	5,887122	22,480341
18,916132	24,152637	38,130577	5,827518	22,480341
18,994471	23,728755	38,094811	5,766102	22,480206
19,085922	23,756515	37,640119	5,707569	22,480475
18,8693	24,614225	38,515451	5,646154	22,480475
19,247366	24,366855	38,435409	5,580917	22,480341
19,591033	24,042834	38,474588	5,510719	22,480206
20,19049	24,072251	37,563475	5,438173	22,480206

20,115898	24,089242	38,690869	5,364823	22,480341
20,389059	24,477489	38,249783	5,278063	22,480073
20,177887	23,562185	38,794756	5,201964	22,480206
19,433845	23,867975	37,873418	5,129486	22,480206
19,93044	24,41492	37,876831	5,063846	22,480073
19,622197	23,994352	38,196998	5,004174	22,480206
19,065315	24,016314	38,152723	4,945508	22,480073
19,067529	23,508318	37,674171	4,888719	22,480341
19,592906	24,15015	37,31311	4,834611	22,480341
19,742941	23,824885	38,077777	4,780638	22,480341
18,792665	23,952502	37,52601	4,728543	22,480475
19,075022	23,314401	36,89928	4,675239	22,480341
19,004348	24,063966	37,388072	4,624149	22,480475
19,293348	24,200285	38,188473	4,573796	22,480206
19,502136	24,125704	38,178266	4,523243	22,480341
19,078257	23,461497	37,944951	4,471884	22,480073
19,393995	23,91604	38,469477	4,42066	22,480206
18,568035	24,193244	38,369004	4,370308	22,480073
19,301522	24,592263	39,528736	4,316334	22,480206
19,067359	24,201529	37,783169	4,265848	22,480073
18,812248	24,080123	38,334936	4,211807	22,480341
18,970287	23,891181	37,599241	4,160383	22,480206
18,853121	24,121146	38,745368	4,106543	22,480475
19,006903	24,375144	37,474924	4,052435	22,480206
19,080983	24,376388	38,212318	4,000808	22,480475
19,210071	24,996258	38,127164	3,945226	22,480475
19,117256	23,224486	38,225938	3,891253	22,480206
19,07911	23,362049	38,113543	3,836408	22,480341
19,188954	24,271969	38,35878	3,778681	22,480073
19,354486	23,828199	38,891815	3,719008	22,480206
19,438102	24,07971	38,425201	3,663225	22,480341
19,525467	24,210644	38,113543	3,602681	22,480206
20,281941	24,003054	38,401357	3,540394	22,480073
19,88463	23,829026	37,60094	3,477168	22,480206
20,634122	23,517434	38,341746	3,408646	22,480073
20,070258	23,799192	37,818935	3,339721	22,480341
20,134631	23,490914	38,20211	3,266438	22,480341
20,164093	23,858033	38,225938	3,199726	22,480206
21,162734	24,046148	38,205507	3,133751	22,480206
20,704797	23,331389	38,047122	3,066771	22,480475
21,113518	23,386912	38,122068	2,998852	22,480341
20,932318	24,223491	37,708239	2,936766	22,480341
20,72353	23,544367	38,018182	2,874412	22,480341
20,166306	23,659141	38,600604	2,816886	22,480206
20,583203	24,021702	38,363892	2,762711	22,480341
20,049822	23,853475	38,271928	2,709541	22,480206
20,002138	23,921015	37,694602	2,658318	22,480341
19,881053	23,45984	38,241274	2,609842	22,480206

19,551863	23,354178	37,078097	2,554662	22,480475
19,87918	22,942725	37,217733	2,505382	22,480206
20,149617	23,835657	37,657137	2,455968	22,480341
19,794712	23,373239	36,924823	2,403738	22,480609
19,768996	24,144762	37,572	2,359688	22,480073
19,473354	25,028992	39,532149	2,312152	22,480475
19,707347	24,016728	37,58562	2,264481	22,480341
19,718928	23,628894	38,043725	2,218754	22,480341
19,402	23,479315	37,638405	2,173096	22,480475
19,682314	23,67986	38,386022	2,128039	22,480341
19,654555	23,637183	37,657137	2,083184	22,480073
19,313954	23,852645	37,638405	2,039268	22,480206
19,264566	24,010926	38,196998	1,996894	22,480206
19,608403	22,500611	37,444269	1,953984	22,480206
19,096309	23,330558	37,689506	1,913756	22,480341
19,086432	23,827782	37,611163	1,875404	17,284701
18,995152	23,481385	37,507277	1,836852	14,259249
18,681459	23,886206	37,689506	1,801116	12,74572
18,981868	23,178078	37,04914	1,764508	11,214221
18,896036	23,594502	37,774644	1,731454	12,584537
18,554922	23,522405	37,641818	1,695717	11,867396
18,745662	25,003716	40,046452	1,659981	12,732579
18,638542	25,194327	40,565866	1,626726	15,820516
18,828768	24,167968	38,042026	1,595549	11,211941
18,337789	24,380529	37,846177	1,563634	10,131671
18,345793	23,409701	38,021579	1,534401	9,60602
18,214321	23,18595	38,060759	1,499604	9,581615
18,557307	24,021702	37,505578	1,475668	10,04223
18,057474	23,291196	38,120354	1,447441	10,15621
18,16885	23,367437	37,572	1,420822	8,607683
18,202059	23,604448	37,037218	1,391522	8,912883
18,268647	25,246536	39,372066	1,363027	7,489599
17,929409	24,007612	37,628197	1,339426	6,480132
18,193204	23,783861	37,624784	1,310931	6,320157
18,146541	24,527624	38,43371	1,287196	4,689026
18,072121	23,740354	37,825746	1,259774	5,226076
17,848345	24,038276	37,658852	1,235838	7,494962
17,598855	23,998083	37,667361	1,212975	7,716353
17,693032	24,231776	38,105034	1,187296	7,518295
17,682643	23,909825	38,188473	1,164567	7,129017
17,549128	23,952089	37,515786	1,140564	5,713915
17,302193	23,335533	37,929616	1,115756	5,958772
17,574333	23,731239	38,123767	1,087463	6,356095
17,474706	24,491993	38,638069	1,066476	4,913368
17,446608	24,014657	38,084603	1,049111	3,87802
17,426	23,938829	38,125466	1,033623	2,831944
17,155224	24,265755	38,072681	1,019678	2,862115
17,018643	24,537157	38,706189	1,004927	4,947829

16,818878	24,514364	38,260006	0,991383	4,67736
16,912203	23,545611	37,866608	0,977639	4,076212
16,965338	23,534421	37,795091	0,964766	4,300286
16,742073	23,332632	36,814127	0,951892	4,782222
16,713292	24,162997	38,030104	0,939221	4,94622
16,775452	24,188269	38,384323	0,924336	5,406701
16,826713	23,694363	37,716748	0,914346	5,958101
16,81479	24,345724	38,416677	0,901473	5,776404
16,774089	24,170038	37,801901	0,889471	6,221733
16,551507	24,120729	38,317902	0,879414	7,635091
16,3434	24,638258	38,660215	0,868687	8,145995
16,145	23,961621	37,633293	0,859434	8,699001
16,27562	23,855545	38,196998	0,852126	8,989988
16,151982	23,16855	37,541345	0,841934	9,814939
16,148917	24,334125	37,391469	0,833621	11,772725
16,040606	23,991869	37,829143	0,82933	14,406216
15,915265	23,688562	37,66055	0,819139	16,4458
15,900108	23,879165	37,376118	0,813641	16,930955
15,6685	23,870876	37,980717	0,806198	17,319834
15,824665	24,4518	37,51069	0,800701	18,768862
15,908452	23,970737	38,207206	0,795203	18,741239
15,928718	24,785354	38,942917	0,02952	19,797638
14,171555	24,83922	39,022959	6,793806	17,530229
15,960565	23,825712	38,425201	8,652899	22,479804
15,971123	24,200285	38,20892	8,623396	22,479939
16,306956	24,315063	39,555993	8,592488	22,479804
16,698306	23,731239	38,520562	8,556751	22,479939
17,132232	24,112031	39,409531	8,510824	22,479939
17,70921	23,843943	38,816885	8,463287	22,479804
18,507237	24,406222	38,135689	8,403615	22,479804
18,599029	24,125704	38,520562	8,341328	22,479804
18,352775	24,078466	37,979003	8,282662	22,479939
18,866574	22,941898	39,140465	8,221514	22,480206
19,062249	23,59699	38,421788	8,156344	22,480073
19,290282	24,173352	38,076078	8,086012	22,480206
19,614193	23,887863	38,118655	8,020037	22,480206
19,728636	23,907755	38,389435	7,889026	22,480073
19,036875	24,242966	38,428599	7,887216	22,480206
18,994811	23,54271	38,496718	7,830427	22,480073
18,534826	23,683174	38,135689	7,775582	22,480073
18,061221	24,112031	38,288962	7,72704	22,480206
17,928045	24,377215	37,956873	7,682923	22,480341
17,979988	24,202773	38,747067	7,635319	22,480073
18,08353	24,489505	37,805298	7,590398	22,480073
17,689285	24,327493	38,220842	7,549431	22,479939
17,910675	23,860517	38,512054	7,505314	22,480206
18,009619	22,924494	38,009657	7,461264	22,479939

18,36129	24,836319	37,914296	7,415605	22,480341
17,905566	25,043909	39,692233	7,364113	22,480206
18,126446	23,591602	38,321315	7,312887	22,480206
18,431454	23,634695	38,336635	7,253282	22,479939
18,363675	23,688975	39,130242	7,197499	22,480073
18,206998	24,160509	38,178266	7,139837	22,480206
19,120152	24,399177	37,854686	7,079495	22,480206
18,884627	24,031645	38,758989	7,023578	22,480206
18,750429	24,251668	38,084603	6,966856	22,480341
18,617422	24,434395	38,232765	6,904703	22,480206
18,706492	24,369343	38,636371	6,845969	22,480073
18,727609	24,726099	38,578475	6,782743	22,480206
18,876623	24,363541	38,527373	6,725082	22,480206
18,843073	24,451386	38,353669	6,663801	22,480341
18,923965	23,190925	38,260006	6,606073	22,480073
19,757246	24,071838	38,391134	6,543719	22,480073
19,615385	23,619365	38,586984	6,478817	22,480073
19,577067	23,993112	38,418391	6,418273	22,480206
19,550161	24,311332	38,827109	6,357864	22,480073
19,718758	23,969906	38,317902	6,293699	22,480073
20,116409	24,41202	38,145897	6,231412	22,480206
19,497878	24,296832	37,890452	6,166242	22,480073
19,977273	23,489257	38,672137	6,105095	22,480206
19,805099	24,101672	38,518864	6,043478	22,480206
19,637866	24,217276	38,760688	5,977905	22,480073
19,862151	23,966592	38,292359	5,919104	22,480073
19,96416	24,407462	37,958572	5,853129	22,480073
20,141103	23,355421	38,229351	5,797413	22,480073
20,068896	23,54271	37,68268	5,73345	22,480341
19,883609	23,985654	37,992639	5,672772	22,480206
19,632416	23,785518	38,621035	5,612296	22,480073
20,029897	24,845435	40,031132	5,543639	22,480206
19,631563	24,842947	40,017512	5,489532	22,480206
19,817191	24,860352	40,729362	5,425434	22,480073
19,649105	24,663121	40,21506	5,367638	22,480341
19,822981	25,41352	40,22187	5,307229	22,480073
20,24771	25,382029	41,01716	5,246819	22,480475
20,12305	24,685079	41,485489	5,182789	22,480341
19,570086	25,751631	40,37173	5,119429	22,480073
20,287561	25,424292	40,395575	5,061768	22,480341
19,829964	25,292527	40,666354	4,997537	22,480073
20,347507	24,546686	40,533513	4,938133	22,480073
20,404728	25,148332	40,104364	4,876516	22,480341
20,3722	25,402747	40,135018	4,817246	22,480341
20,092225	25,56766	40,300198	4,757641	22,480341
19,711264	25,321121	40,119683	4,693543	22,480073
20,410859	25,157865	41,177244	4,634743	22,480475
20,608577	25,91033	40,422816	4,572858	22,480206

20,352615	24,448899	39,983444	4,513119	22,480073
20,306805	25,115601	40,673165	4,450094	22,480206
20,023425	24,747231	39,882971	4,393171	22,480206
20,25895	25,278854	40,143527	4,330013	22,480073
20,388378	24,827617	40,594822	4,274095	22,480073
20,058507	25,004547	40,651019	4,220054	22,480475
20,171756	24,644886	40,099252	4,156829	22,480073
20,32094	25,78768	39,89148	4,099369	22,480341
20,430442	25,067119	40,291689	4,043183	22,480341
20,495838	25,949279	39,840394	3,983912	22,480206
20,25895	25,585061	40,622079	3,923234	22,480206
20,207861	25,681191	40,647622	3,864836	22,480206
20,188445	25,577189	40,877524	3,807913	22,480475
20,542501	25,029406	40,742983	3,750185	22,479939
20,214842	24,362715	40,375143	3,69058	22,480073
20,210245	25,186868	40,628889	3,632785	22,480341
20,211266	25,013662	39,872747	3,575058	22,480206
20,521384	24,844191	40,346188	3,518604	22,480206
20,504864	25,78768	40,28318	3,462351	22,479939
20,508781	25,05552	40,719139	3,405696	22,480206
20,438447	24,796126	41,075072	3,353466	22,480341
20,365388	25,501361	40,904765	3,304052	22,480206
20,278365	25,009931	40,160561	3,255376	22,480206
20,301185	24,846261	40,313834	3,208778	22,480206
20,085755	25,287142	40,877524	3,159498	22,480206
19,982383	25,156621	40,525004	3,114039	22,480341
19,826218	25,751218	40,114571	3,065028	22,480206
19,772573	24,763391	40,155449	3,019905	22,479939
19,811571	25,531612	40,511383	2,977196	22,480475
19,798628	25,654675	40,676562	2,932408	22,480206
19,712627	25,15579	40,90648	2,890101	22,480206
19,677545	24,842534	40,141829	2,849001	22,480073
19,649445	25,541554	40,490936	2,806829	22,479939
19,632927	24,723202	40,155449	2,764388	22,480475
19,514226	25,467799	39,896592	2,726102	20,498823
19,172263	25,317803	40,719139	2,688556	18,161145
19,309356	25,231206	40,100951	2,648931	17,182919
19,502987	25,134659	41,061452	2,611653	16,064301
18,64859	25,85812	40,606744	2,572228	14,433571
19,234423	25,131758	40,000478	2,535286	14,345471
19,154383	25,237834	40,203138	2,501762	14,323078
18,940826	24,951924	39,656466	2,468707	13,633429
19,127986	25,572631	40,300198	2,432033	12,43462
19,057991	24,253738	39,373764	2,398241	14,051804
18,953939	25,529538	40,286577	2,36056	13,62203
18,934354	25,159522	39,922135	2,324824	14,323614
19,033298	25,213388	39,905101	2,289959	12,905426
19,037897	25,516278	39,997064	2,255296	13,162755

18,843414	25,75909	40,196327	2,222509	14,592876
18,689803	25,226231	39,779085	2,187309	10,561712
18,737486	25,727599	40,845171	2,156468	7,729627
18,859592	25,566003	40,795783	2,126095	6,334774
18,640076	24,777482	40,232078	2,0976	6,376746
18,226923	25,638927	40,288275	2,066355	6,06511
18,53636	25,342253	40,2968	2,037324	6,094208
18,306113	25,002059	39,864238	2,012516	6,669876
18,039423	25,702323	40,070296	1,984222	6,573999
18,403014	25,208	39,830171	1,957671	6,183113
18,293682	25,046397	40,66464	1,930919	5,841708
18,136494	24,974299	39,581536	1,90343	5,588134
18,385133	25,309105	40,124795	1,877081	5,015413
18,334723	25,77525	39,772275	1,853949	5,280384
17,895178	24,561603	39,736508	1,828471	5,312165
18,06616	25,780221	40,005589	1,805675	5,574055
17,973516	25,206756	39,934057	1,782677	5,518808
17,791976	25,542797	39,89829	1,758943	5,763665
18,063775	25,360897	39,97322	1,734672	5,39289
17,727262	24,546686	38,445633	1,712814	5,470396
17,786696	25,262697	39,366954	1,687336	5,352661
17,614352	24,558702	40,04134	1,66796	5,646064
17,869464	25,384929	39,969823	1,646103	5,416089
17,676682	25,977869	40,184405	1,626659	5,039147
17,74872	24,809799	39,751843	1,603863	5,094931
17,756043	24,864909	39,397609	1,58167	5,539593
17,891773	24,967254	39,89148	1,563701	4,993421
17,827058	25,276783	40,599934	1,541576	3,803598
17,427534	25,592106	39,487874	1,518981	3,21519
17,314455	24,840877	39,465728	1,502151	2,872577
17,306109	24,995014	39,605381	1,488474	3,322331
17,422084	24,611325	39,479349	1,466483	3,143718
17,168166	24,88314	39,363557	1,450928	2,886389
17,197969	24,720301	40,08733	1,432555	3,16839
17,52801	24,581904	39,634337	1,418811	2,934664
17,496334	25,011588	39,414643	1,403322	3,186359
17,230496	25,05759	39,980047	1,387768	3,445028
17,224365	24,533013	39,95109	1,375766	3,370874
17,019153	24,983415	39,893179	1,363899	4,111076
17,015747	24,30346	39,659879	1,349215	5,010451
16,970277	25,174025	39,029769	1,339225	4,994092
16,709204	24,844604	39,642846	1,334599	5,217896
16,899941	24,748474	39,760352	1,324408	5,656791
16,664075	25,130931	39,719474	1,318173	6,211541
16,698135	25,765718	40,138416	1,312608	6,479462
16,390744	24,397933	38,903737	1,305299	6,985536
16,424292	24,271143	39,862524	1,298997	7,409811
16,249904	24,829274	39,804628	1,291488	7,881557

16,189958	25,031063	39,913625	1,287129	8,473588
16,067002	25,452469	38,987192	1,278078	8,990524
16,195408	25,15372	40,117984	1,271574	9,163774
16,384953	24,94985	39,871049	1,269764	10,021445
15,985939	24,843361	39,40272	1,262389	10,544013
15,876095	25,413106	39,324377	1,256019	10,717397
16,176165	25,374983	40,165673	1,25146	11,044591
16,110429	24,819745	39,809739	1,243951	11,470208
16,020169	25,102341	39,469141	1,236777	11,324312
15,811381	25,00579	39,106398	1,235771	11,381438
15,865367	25,384099	38,876496	1,225044	11,651772
15,764378	24,93949	39,142164	1,222026	11,504
15,711926	25,466556	39,734809	1,216596	11,663706
15,555249	25,15165	39,436788	1,209287	11,417509
15,638015	25,55357	39,457219	1,203656	12,024287
15,661176	24,827617	39,12513	1,197487	12,71528
15,428035	24,912144	39,971522	1,194671	13,572147
15,593566	25,259796	39,74162	1,186357	14,649733
15,553036	24,953168	39,334601	1,180926	14,668106
15,297755	24,854963	39,567916	1,176166	15,8059
15,228951	25,391975	39,533848	1,170735	16,34134
15,297926	24,719471	38,876496	1,165371	17,401364
14,966348	24,916288	39,240938	1,159739	18,88472
15,161341	24,750549	39,273291	1,154309	18,333054
15,226908	24,658559	39,077442	1,148811	19,854359
14,805414	24,494063	39,191551	1,14224	20,271666
14,802179	24,929135	39,845506	1,138754	20,392754
14,563587	25,269738	39,52364	1,133993	20,435664
14,749385	25,012005	39,3891	1,129434	21,076771
14,669684	25,507162	38,821997	1,124807	21,075161
14,930585	24,883554	40,244	1,117433	21,743221
14,732867	24,93535	39,453806	1,113007	22,437162
14,690973	25,569731	39,492986	1,106906	22,47967
14,384601	25,494733	39,697344	1,104962	22,479939
14,295195	25,403574	39,310756	1,094703	22,479804
14,634262	24,942391	39,915324	1,094771	22,479939
14,439268	25,321534	39,784197	1,087463	22,479939
14,473158	25,055933	39,68882	1,082903	22,479939
14,275268	25,124299	39,833584	1,076466	22,480073
14,352756	25,480646	39,808041	1,072712	22,479804
14,588452	25,099854	39,521926	1,065471	22,479804
14,155718	24,962283	39,196663	1,058229	22,480073
14,41764	25,460754	40,845171	1,059034	22,479939
14,29315	25,16905	40,070296	1,051056	22,479804
14,083341	25,609507	39,573027	1,047167	22,479804
14,250746	25,012418	39,731396	1,040864	22,479804
13,966685	25,369182	39,879558	1,037914	22,480073
14,133409	25,056346	40,046452	1,031544	22,480073

13,897032	24,990873	39,303946	1,027857	22,479804
13,85088	25,288799	39,690534	1,023432	22,480073
13,860418	25,073338	39,481063	1,01961	22,480073
13,702549	25,222917	39,152372	1,013107	22,479939
13,952209	24,351112	39,547469	1,009419	22,479804
13,856841	25,358409	39,968124	1,005061	22,479804
13,716684	25,391975	39,704155	1,000234	22,479939
13,617054	25,210074	40,252525	0,996747	22,479939
13,742229	25,217532	39,503193	0,990311	22,47967
13,697441	25,740859	39,399307	0,98488	22,479939
13,632555	25,508406	40,232078	0,979382	22,479939
13,14396	25,459928	39,877859	0,975694	22,479939
13,409628	25,26518	39,309058	0,971135	22,480073
13,425808	25,176096	38,942917	0,967448	22,479939
13,638176	25,137977	39,97322	0,962084	22,479939
13,316985	25,807985	39,961298	0,956384	22,480073
13,343212	25,478572	39,491271	0,951021	22,480073
13,511468	25,022364	39,508305	0,946394	22,480206
13,133572	25,51172	39,772275	0,942774	22,479939
13,43262	25,134659	39,060424	0,940025	22,480073
13,284798	25,180653	39,160897	0,934594	22,480073
13,043143	24,559115	39,160897	0,929029	22,480073
13,044675	25,145848	39,683724	0,924336	22,480073
13,194709	25,140877	39,305645	0,921654	22,479804
13,065452	25,15165	39,375479	0,917095	22,479804
13,01368	24,658976	39,745017	0,910591	22,480073
13,059151	25,574702	38,903737	0,906904	22,479939
13,145152	25,737128	39,578123	0,902479	22,479804
12,95697	25,418908	39,201759	0,899528	22,479939
13,088953	25,190182	39,995366	0,893092	22,479939
13,174955	25,494319	40,073709	0,890209	22,480073
12,907583	25,400673	40,037943	0,885784	22,480073
12,907413	25,09737	39,659879	0,880286	22,480073
12,840144	25,285485	39,186439	0,878409	22,479939
12,735751	25,100684	38,97527	0,873112	22,480073
12,93364	24,8964	39,573027	0,867681	22,479939
12,659285	25,627742	39,47084	0,863926	22,479804
12,823966	25,682435	40,092442	0,856685	22,480073
12,733877	25,285899	39,712664	0,853869	22,479939
12,839294	25,015319	39,772275	0,84931	22,480073
12,681766	25,959221	39,997064	0,843812	22,480073
12,634592	25,084937	39,612191	0,840996	22,480206
12,683809	25,679121	39,244335	0,836504	22,479939
12,558298	25,657158	39,721189	0,832749	22,479939
12,68449	25,099027	39,310756	0,827452	22,479939
12,849852	25,341009	39,317567	0,822759	22,479939
12,70203	25,659233	39,794404	0,820078	22,479536
12,573454	25,823729	39,745017	0,814579	22,479939

12,679551	24,806485	39,080855	0,810892	22,479804
12,784287	26,016402	39,894893	0,806198	22,480073
12,338269	25,214215	39,801231	0,802578	22,479939
12,526281	25,067119	39,383988	0,796879	22,479939
12,387656	25,121403	39,229016	0,793191	22,479939
12,631696	25,420148	39,293723	0,789705	22,480073
12,963273	25,244462	39,039977	0,786151	22,479804
12,511465	25,029406	39,358445	0,779379	22,480073
12,430912	25,111457	40,499461	0,774954	22,479804
12,550294	25,569317	40,063485	0,770462	22,480206
12,290415	25,6352	39,724586	0,765836	22,479939
12,322602	25,028992	39,608778	0,762081	22,479804
12,558468	25,369599	39,998779	0,758394	22,480073
12,55404	25,139216	39,506606	0,75598	22,479804
12,340654	25,020707	39,426565	0,750348	22,480073
12,206457	25,023604	38,987192	0,747599	22,479939
12,269299	25,384099	39,465728	0,743778	22,479804
12,280708	24,897644	39,780783	0,738346	22,479804
12,311021	25,379958	39,475952	0,734793	22,480073
12,244434	25,134659	39,034865	0,731172	22,479939
12,24154	25,160348	39,280102	0,724736	22,479939
12,260953	25,209244	39,983444	0,721115	22,479804
12,208842	25,407305	39,777386	0,716288	22,479939
12,270489	25,139216	39,561105	0,711997	22,479939
12,187895	25,059247	39,544071	0,706298	22,479939
12,108364	25,285072	39,215395	0,700934	22,480073
12,233705	25,110626	39,029769	0,699191	22,479804
12,119774	25,480229	39,166008	0,693559	22,480073
12,126246	25,594594	39,736508	0,688866	22,480073
12,210715	25,988229	39,864238	0,685178	22,479804
12,2085	24,772924	39,300533	0,68149	22,479804
12,13987	25,042252	39,62751	0,677803	22,479804
12,244605	25,272639	39,278403	0,6715	22,479939
12,150258	25,267668	40,429627	0,667879	22,479804
12,022703	25,058834	40,192914	0,664125	22,479804
11,943682	25,04598	39,527037	0,660504	22,480073
12,348658	25,265597	39,600269	0,655878	22,479939
12,14532	25,54031	39,773973	0,650246	22,479939
12,04348	25,517521	39,259671	0,647564	22,479804
12,074474	24,895157	39,74162	0,642134	22,479939
12,130332	25,184798	39,636035	0,639384	22,479939
12,248691	25,542384	39,935755	0,633954	22,479939
12,262826	25,641828	39,911911	0,629394	22,479939
12,110407	24,806485	39,555993	0,626579	22,479804
12,078221	24,729	39,59857	0,624701	22,479939
12,006524	25,807985	39,625812	0,617527	22,479939
12,107513	24,639915	39,007623	0,614778	22,479939
11,952878	25,060078	39,143863	0,610219	22,479804

11,848654	24,997915	38,992304	0,606464	22,480073
11,844568	25,488518	39,011037	0,598218	22,480073
12,077028	24,111614	37,96027	0,597279	22,479939
12,016061	23,673645	36,866911	0,593793	22,479939
11,885779	24,083441	37,062761	0,590038	22,479804
11,862789	24,253738	37,277344	0,58454	22,479939
11,954921	23,407217	37,854686	0,581925	22,479939
11,762823	23,992282	37,038917	0,580048	22,480073
12,181594	24,200285	37,030408	0,574483	22,479804
11,508905	23,570056	37,430649	0,570728	22,479804
11,680738	23,858859	37,701413	0,566236	22,479939
11,527128	23,671988	37,52601	0,56342	22,479939
11,703729	24,021285	37,417012	0,562414	22,479939
11,643443	23,773089	37,529423	0,556916	22,479939
11,486766	23,788836	37,829143	0,554301	22,479939
11,513502	23,939659	37,449381	0,550547	22,479939
11,68704	23,565912	37,282455	0,545988	22,479939
11,654342	24,039103	37,406804	0,542166	22,480073
11,481657	24,044074	38,174853	0,539484	22,479804
11,784622	23,630138	37,769548	0,534925	22,479804
11,776277	24,225148	37,386357	0,532243	22,479939
11,56238	23,940486	37,302886	0,529494	22,479804
11,549096	24,21976	37,640119	0,526745	22,480206
11,481827	23,88745	37,306284	0,520576	22,479939
11,332985	23,494228	37,188777	0,517492	22,479939
11,268612	24,023773	37,379547	0,515012	22,479804
11,185165	24,252908	36,657441	0,510318	22,479804
11,176308	23,699748	37,752514	0,506631	22,479939
11,398721	24,090069	37,52601	0,503815	22,480073
11,30744	23,277936	37,20751	0,498384	22,480073
11,141227	23,844773	38,019881	0,496574	22,480073
11,198447	24,104155	37,796789	0,493892	22,480073
11,272698	23,742842	37,481734	0,490137	22,480073
11,252433	24,104572	37,347162	0,486382	22,479939
11,329408	23,59989	37,352274	0,482762	22,480206
10,855633	24,324592	38,137388	0,478269	22,480073
11,121473	24,215619	37,604353	0,475521	22,479939
10,996131	23,260535	37,662249	0,471766	22,480073
11,216499	24,564503	37,490243	0,467274	22,479939
11,008563	23,830269	38,018182	0,466536	22,479804
10,922902	23,867562	37,037218	0,461776	22,479939
11,00158	23,894082	37,364196	0,459027	22,479804
11,016567	24,451386	36,998055	0,455339	22,479939
11,219224	23,516603	36,773249	0,451585	22,480073
10,636968	23,664943	37,418726	0,44602	22,480073
11,119599	23,77682	37,055951	0,444142	22,479939
11,201854	24,353596	37,120657	0,441394	22,479939
11,149401	24,034545	38,007959	0,437907	22,479939

11,194701	24,001397	37,580509	0,434153	22,479804
10,895484	24,648204	37,473225	0,430599	22,480073
11,117555	24,090482	37,609465	0,428654	22,480073
11,077364	24,357327	37,101925	0,424028	22,479804
11,16013	24,231776	37,709937	0,420341	22,479804
10,936526	23,963692	37,468113	0,418732	22,479939
10,918304	24,073081	38,171455	0,412094	22,479939
10,745278	24,211062	37,304585	0,409546	22,480206
10,826682	23,662872	37,796789	0,406797	22,479804
10,885095	24,163823	37,963683	0,402305	22,480073
10,750217	24,1112	37,178569	0,399556	22,479939
10,646334	23,853475	37,825746	0,397679	22,479939
10,674604	23,727925	37,68268	0,393857	22,480073
11,009584	23,865905	37,841065	0,390371	22,480073
10,850183	23,974051	37,692904	0,386616	22,480073
10,854101	23,939246	37,701413	0,384001	22,480073
10,769802	23,882479	37,842763	0,379241	22,480073
10,570721	24,53757	37,742291	0,377498	22,480073
10,787513	24,2728	36,979322	0,372871	22,480073
10,565271	23,151145	37,53963	0,370123	22,479804
10,607675	24,627072	39,123432	0,366569	22,480206
10,647185	23,569643	37,025296	0,364557	22,480073
10,586388	24,43937	37,217733	0,361876	22,479939
10,509753	24,352356	37,447667	0,358255	22,479939
10,572934	23,563425	37,577095	0,354634	22,480073
10,569358	24,162997	37,837668	0,352019	22,480073
10,631006	23,751957	37,548155	0,350142	22,479939
10,403656	23,502104	37,486846	0,346656	22,480206
10,607335	24,139377	37,26712	0,344644	22,479939
10,518097	24,004711	37,519199	0,340018	22,479939
10,517588	24,206087	37,963683	0,335324	22,480073
10,542451	23,578342	37,067873	0,33452	22,480206
10,579746	23,810381	37,520898	0,328888	22,480073
10,788875	24,011757	37,645215	0,328016	22,480206
10,23182	24,31465	37,500467	0,324396	22,480073
10,50805	24,427354	37,357385	0,320708	22,479804
10,544664	23,982753	37,597542	0,317959	22,480073
10,544324	24,530525	37,781454	0,317222	22,480073
10,266561	23,835657	37,606051	0,311523	22,480073
10,353246	24,233433	37,394882	0,307701	22,479804
10,303008	24,907173	37,323318	0,307299	22,480073
10,543132	24,116589	37,839366	0,30227	22,479939
10,220069	24,08261	36,865213	0,299588	22,479804
10,317313	23,776403	38,076078	0,297778	22,479804
10,199462	23,809138	37,243276	0,293018	22,480073
10,397525	24,608424	37,60775	0,291274	22,47967
10,332129	23,935928	37,609465	0,288526	22,334446
10,436523	23,611076	37,522612	0,286112	22,269141

10,22671	24,110787	37,292663	0,282357	22,175141
10,258727	23,389813	37,440856	0,278602	22,476318
10,296877	23,658728	38,120354	0,274848	22,169911
10,210362	24,286886	37,73548	0,272233	22,356303
10,240334	24,528041	37,079795	0,26935	22,480073
10,25464	23,630138	37,873418	0,266668	22,479939
10,4229	23,979022	37,255198	0,264992	22,416511
10,389351	24,037859	38,292359	0,260366	22,155429
10,437716	24,09587	37,107037	0,258622	22,102328
10,155866	24,008025	37,393184	0,254667	22,248356
10,126915	24,325836	38,045424	0,252923	22,176616
10,1075	23,742842	37,171759	0,249236	22,238165
10,117719	24,143522	37,517501	0,246487	22,365421
10,124189	23,863831	37,801901	0,243738	22,439979
10,296877	24,199459	38,139086	0,240117	22,249161
10,136451	24,37307	38,098224	0,237436	22,285232
10,156887	24,277771	39,143863	0,233748	22,479939
10,260089	23,865491	38,026691	0,231066	22,479804
10,196397	24,201116	37,852987	0,230261	22,479804
10,096771	24,32915	37,081494	0,225367	22,479804
10,03393	23,63884	37,583906	0,223557	22,479804
9,971089	24,395032	38,123767	0,219064	22,479804
10,078209	23,725854	37,553251	0,217187	22,479939
10,09081	24,194488	37,294378	0,214371	22,479804
10,010089	23,90278	37,069572	0,212494	22,479939
9,887983	23,715908	37,503864	0,208941	22,480341
10,049088	23,895739	38,018182	0,206191	22,479939
10,114653	23,961621	37,495355	0,203241	22,480073
9,822418	23,343405	37,101925	0,200626	22,479804
9,967514	23,639666	36,975909	0,197877	22,479939
9,855116	24,484948	37,556664	0,195196	22,480073
10,068331	23,700165	37,643516	0,192312	22,479939
9,801982	23,354591	37,485132	0,188558	22,479939
9,944864	23,238573	37,442571	0,1842	22,480206
9,739652	23,506661	36,662553	0,183127	22,480206
10,196057	24,146005	37,376118	0,179306	22,480073
10,060497	23,803336	37,437459	0,178501	22,479804
10,002766	23,666186	37,216034	0,174009	22,479939
9,912166	24,09587	37,417012	0,172198	22,480073
9,885258	24,169211	37,737179	0,169651	22,479939
9,864993	23,411358	37,084907	0,166969	22,480073
9,827016	23,844356	37,188777	0,165024	22,480073
9,895307	24,133989	37,193889	0,161337	22,480073
9,768773	23,549338	36,465004	0,158587	22,480206
9,960702	23,431663	37,677584	0,155973	22,480073
9,829059	24,011343	37,016787	0,155034	22,480206
9,622485	24,240478	37,52601	0,149403	22,479804
9,792614	24,23385	37,791678	0,146721	22,480073

9,78972	23,729582	38,113543	0,143971	22,480073
9,89718	24,019215	37,07127	0,141356	22,480073
9,834678	24,131919	38,288962	0,138406	22,479939
10,083317	24,104155	37,125769	0,135658	22,480073
9,947418	23,840215	37,287551	0,133713	22,480073
9,680558	23,4068	36,987831	0,13197	22,479804
9,775925	23,502104	37,277344	0,126471	22,479804
9,908249	23,628481	37,250086	0,125599	22,480073
9,822588	23,831926	37,497054	0,122716	22,480073
9,800107	23,748643	37,406804	0,12104	22,479939
9,834509	23,220342	36,817524	0,117419	22,479804
9,861756	23,888693	37,338653	0,114671	22,479939
9,698098	23,40473	37,64693	0,112994	22,479939
9,614821	23,950432	37,307998	0,110983	22,479804
9,701505	23,642981	37,173458	0,107362	22,480073
9,926812	23,715495	37,502165	0,105552	22,479939
9,755319	23,386082	37,703127	0,103742	22,480073
9,667273	23,76356	37,652025	0,09992	22,480073
9,64769	23,774333	37,512389	0,098177	22,479939
9,623336	24,037033	37,037218	0,094422	22,379904
9,595577	23,495889	36,802205	0,092612	22,004706
9,458827	24,075565	37,652025	0,089729	22,480073
9,65433	23,716322	36,945254	0,085304	22,43904
9,538016	24,087998	37,262008	0,083561	22,476452
9,583996	24,004711	37,333541	0,081549	22,479804
9,64803	22,832095	37,03552	0,0788	22,339408
9,492717	23,464398	37,311395	0,0788	22,304006
9,588254	23,887036	37,030408	0,074241	22,28054
9,611074	23,882065	36,83967	0,070553	21,867527
9,605796	23,775159	37,263723	0,068877	21,943023
9,540912	23,886206	37,062761	0,065056	21,693339
9,405863	23,285394	36,90779	0,064117	21,813219
9,4389	23,842699	37,331843	0,061435	21,844464
9,726368	23,408044	37,444269	0,059624	21,818851
9,564072	23,161918	36,248723	0,056942	21,618514
9,316796	24,001811	37,270533	0,054194	21,742551
9,289377	23,61025	37,120657	0,051579	22,182248
9,543636	23,26758	37,45108	0,051646	22,394789
9,641899	24,025843	36,482038	0,047891	22,479939
9,486244	23,345475	36,589321	0,046014	22,479939
9,408247	23,601961	36,582511	0,042259	22,479939
9,348302	23,652926	37,19219	0,040516	22,480073
9,274561	23,428762	37,013374	0,037834	22,480073
9,461381	23,631381	37,004865	0,03589	22,438504
9,310154	23,356665	37,449381	0,031264	22,393179
9,384576	23,580829	36,798792	0,030459	22,158915
9,282395	23,787592	37,543043	0,028514	22,050701
9,350175	23,290782	37,11045	0,026638	22,030855

9,285119	23,797535	37,674171	0,023151	22,043326
9,232327	23,549338	36,805602	0,020268	22,40498
9,263663	23,085676	37,301188	0,018458	22,40042
9,365672	24,030818	37,057649	0,01477	22,321975
8,977557	23,122142	36,664267	0,012758	22,364349
9,591661	23,235259	37,054252	0,010144	22,290194
9,375208	23,320616	36,572303	0,008468	22,271019
9,533077	23,925155	36,579114	0,005584	22,293815
9,333825	23,783448	36,92141	0,003774	22,40565
9,365331	23,906924	37,425537	0,001293	22,368237

CO high range	CO2 - [%]
CO-High - [%]	CO2 - [%]
0,052291	0,243781
0,051889	1,392302
0,243781	2,444946
1,392302	7,866136
2,444946	9,581346
7,866136	9,510276
9,581346	10,208776
9,510276	10,037
10,208776	9,624659
10,037	8,996424
9,624659	9,79925
8,996424	10,429496
9,79925	10,083934
10,429496	10,697685
10,083934	11,480265
10,697685	11,528271
11,480265	11,31573
11,528271	10,985589
11,31573	10,902852
10,985589	11,273625
10,902852	11,131082
11,273625	10,283199
11,131082	10,037939
10,283199	9,959225
10,037939	9,760496
9,959225	9,960835
9,760496	9,898346
9,960835	10,336434
9,898346	11,253109
10,336434	11,609532
11,253109	12,131164
11,609532	11,805848
12,131164	12,16643
11,805848	12,223958
12,16643	12,799224
12,223958	12,623022
12,799224	12,849509
12,623022	13,295776
12,849509	13,202715
13,295776	12,959065
13,202715	12,790775

12,959065	12,846692
12,790775	12,955444
12,846692	13,073448
12,955444	12,813169
13,073448	12,640991
12,813169	12,81089
12,640991	13,193194
12,81089	13,011361
13,193194	12,964026
13,011361	12,981592
12,964026	12,848168
12,981592	12,453527
12,848168	12,359795
12,453527	12,41303
12,359795	12,162005
12,41303	12,110379
12,162005	12,010341
12,110379	11,075432
12,010341	8,134194
11,075432	5,197245
8,134194	7,523121
5,197245	8,525215
7,523121	10,632112
8,525215	12,526743
10,632112	14,218081
12,526743	15,059662
14,218081	15,155004
15,059662	14,912829
15,155004	14,609504
14,912829	14,608297
14,609504	13,396751
14,608297	12,541494
13,396751	12,033807
12,541494	12,003771
12,033807	11,98245
12,003771	11,989155
11,98245	11,969845
11,989155	11,87799
11,969845	11,935249
11,87799	12,08195
11,935249	12,032199
12,08195	12,27679
12,032199	12,514674
12,27679	12,650244
12,514674	12,872037
12,650244	13,320584
12,872037	14,247314
13,320584	15,650619

14,247314	16,654586
15,650619	16,028631
16,654586	15,962523
16,028631	15,172303
15,962523	14,343326
15,172303	13,746336
14,343326	13,262789
13,746336	12,811426
13,262789	12,403912
12,811426	12,270621
12,403912	12,129822
12,270621	12,132102
12,129822	12,023483
12,132102	11,976014
12,023483	11,997603
11,976014	12,095494
11,997603	12,13988
12,095494	12,2257
12,13988	12,376556
12,2257	12,497644
12,376556	12,546723
12,497644	12,586549
12,546723	12,672101
12,586549	12,77683
12,672101	12,877669
12,77683	13,003986
12,877669	13,145724
13,003986	13,427325
13,145724	13,70879
13,427325	13,907518
13,70879	14,207086
13,907518	14,450736
14,207086	15,054165
14,450736	15,598858
15,054165	16,337586
15,598858	16,896225
16,337586	17,318761
16,896225	17,151541
17,318761	16,867663
17,151541	16,588209
16,867663	16,44875
16,588209	16,122632
16,44875	15,685215
16,122632	15,189333
15,685215	14,884937
15,189333	14,729388
14,884937	14,752854
14,729388	14,683393

14,752854	14,717721
14,683393	14,910148
14,717721	14,833445
14,910148	14,710211
14,833445	14,459989
14,710211	14,389455
14,459989	14,207488
14,389455	14,155861
14,207488	14,058106
14,155861	14,082377
14,058106	14,11617
14,082377	14,003933
14,11617	13,942115
14,003933	13,867424
13,942115	13,629138
13,867424	13,433091
13,629138	13,00117
13,433091	12,717828
13,00117	12,434754
12,717828	12,249569
12,434754	12,154897
12,249569	12,003905
12,154897	11,871017
12,003905	11,766423
11,871017	11,545166
11,766423	11,358373
11,545166	11,162057
11,358373	11,019918
11,162057	10,87362
11,019918	10,869195
10,87362	10,743547
10,869195	10,683739
10,743547	10,605026
10,683739	10,498689
10,605026	10,451219
10,498689	10,3599
10,451219	10,071462
10,3599	9,995163
10,071462	9,97773
9,995163	9,973439
9,97773	10,13261
9,973439	10,356011
10,13261	10,475356
10,356011	10,155137
10,475356	9,494989
10,155137	8,702756
9,494989	8,063792
8,702756	7,803782

8,063792	7,762749
7,803782	7,664994
7,762749	7,60492
7,664994	7,545918
7,60492	7,531972
7,545918	7,526072
7,531972	7,494158
7,526072	7,409275
7,494158	7,156105
7,409275	6,995861
7,156105	6,900118
6,995861	6,820868
6,900118	6,729549
6,820868	6,606316
6,729549	6,383183
6,606316	6,162865
6,383183	6,018712
6,162865	5,928065
6,018712	5,840769
5,928065	5,793701
5,840769	5,739661
5,793701	5,708685
5,739661	2,35403
5,708685	1,910981
2,35403	2,990849
1,910981	3,905107
2,990849	5,462083
3,905107	7,442129
5,462083	9,779136
7,442129	11,585797
9,779136	12,591511
11,585797	12,808342
12,591511	12,88491
12,808342	13,896925
12,88491	13,954049
13,896925	13,677144
13,954049	14,100078
13,677144	14,044831
14,100078	13,797024
14,044831	12,99299
13,797024	12,258688
12,99299	11,352606
12,258688	10,735636
11,352606	10,72987
10,735636	10,614949
10,72987	10,820652
10,614949	10,795577

10,820652	10,940667
10,795577	10,980494
10,940667	11,70246
10,980494	13,029733
11,70246	13,225376
13,029733	13,218404
13,225376	13,501479
13,218404	13,828939
13,501479	14,448323
13,828939	14,287409
14,448323	14,720805
14,287409	14,593681
14,720805	14,76747
14,593681	14,309266
14,76747	15,301837
14,309266	15,410053
15,301837	14,672263
15,410053	15,259464
14,672263	15,52229
15,259464	15,609585
15,52229	15,626214
15,609585	15,756955
15,626214	15,700904
15,756955	15,66671
15,700904	15,707073
15,66671	15,624336
15,707073	15,783373
15,624336	15,678242
15,783373	15,718202
15,678242	15,582766
15,718202	15,57338
15,582766	15,721286
15,57338	15,727053
15,721286	15,584375
15,727053	15,761246
15,584375	16,021793
15,761246	16,042309
16,021793	16,00597
16,042309	16,002751
16,00597	15,985721
16,002751	16,13403
15,985721	16,112172
16,13403	16,123839
16,112172	16,064032
16,123839	16,22508
16,064032	16,33772
16,22508	16,303929
16,33772	16,3459

16,303929	16,379021
16,3459	16,479995
16,379021	16,496489
16,479995	16,381837
16,496489	16,297894
16,381837	16,217974
16,297894	16,326187
16,217974	16,435878
16,326187	16,263029
16,435878	16,417239
16,263029	16,406645
16,417239	16,378083
16,406645	16,534839
16,378083	16,522636
16,534839	16,616101
16,522636	16,609664
16,616101	16,4281
16,609664	16,490588
16,4281	16,413618
16,490588	16,194641
16,413618	15,934095
16,194641	15,502577
15,934095	15,114776
15,502577	14,969015
15,114776	14,780075
14,969015	14,713161
14,780075	14,539372
14,713161	14,437193
14,539372	14,313155
14,437193	14,094714
14,313155	13,937421
14,094714	13,953244
13,937421	13,935275
13,953244	13,855891
13,935275	13,732256
13,855891	13,547071
13,732256	13,402785
13,547071	13,279282
13,402785	13,14264
13,279282	13,043946
13,14264	12,944314
13,043946	12,905962
12,944314	12,8538
12,905962	12,756045
12,8538	12,721315
12,756045	12,720644
12,721315	12,690606
12,720644	12,750011

12,690606	12,817996
12,750011	12,653596
12,817996	12,339681
12,653596	11,979098
12,339681	11,795924
11,979098	11,697499
11,795924	11,629244
11,697499	11,525186
11,629244	11,458274
11,525186	11,402893
11,458274	11,372185
11,402893	11,169165
11,372185	10,931682
11,169165	10,784313
10,931682	10,55246
10,784313	10,475356
10,55246	10,43781
10,475356	10,43781
10,43781	10,406297
10,43781	10,375858
10,406297	10,321415
10,375858	10,198853
10,321415	10,1015
10,198853	10,062479
10,1015	10,033245
10,062479	10,09104
10,033245	10,070926
10,09104	9,845781
10,070926	9,580274
9,845781	9,521674
9,580274	9,506924
9,521674	9,335012
9,506924	9,091765
9,335012	8,891964
9,091765	8,746069
8,891964	8,601783
8,746069	8,541037
8,601783	8,320854
8,541037	8,148676
8,320854	8,003986
8,148676	7,866539
8,003986	7,053656
7,866539	6,613825
7,053656	6,500248
6,613825	6,427836
6,500248	6,380097
6,427836	6,339467
6,380097	6,29763

6,339467	6,271615
6,29763	6,199204
6,271615	6,187806
6,199204	6,1925
6,187806	6,140605
6,1925	6,129206
6,140605	6,094476
6,129206	6,076776
6,094476	6,072082
6,076776	6,07986
6,072082	6,134972
6,07986	6,129609
6,134972	6,127464
6,129609	6,07986
6,127464	6,063098
6,07986	6,004766
6,063098	6,03172
6,004766	6,013618
6,03172	5,941743
6,013618	5,938256
5,941743	5,895078
5,938256	5,879522
5,895078	5,863565
5,879522	5,836477
5,863565	5,811268
5,836477	5,773855
5,811268	5,762591
5,773855	5,738455
5,762591	5,70949
5,738455	5,68723
5,70949	5,697019
5,68723	5,650489
5,697019	5,610662
5,650489	5,58277
5,610662	5,550722
5,58277	5,55622
5,550722	5,530071
5,55622	5,523769
5,530071	5,482734
5,523769	5,454038
5,482734	5,428961
5,454038	5,417028
5,428961	5,379882
5,417028	5,343811
5,379882	5,340995
5,343811	5,317529
5,340995	5,306935
5,317529	5,290575

5,306935	5,271803
5,290575	5,245385
5,271803	5,244312
5,245385	5,22393
5,244312	5,22259
5,22393	5,21441
5,22259	5,241631
5,21441	5,234926
5,241631	5,190943
5,234926	5,187859
5,190943	5,211594
5,187859	5,181154
5,211594	5,166672
5,181154	5,15058
5,166672	5,156883
5,15058	5,136366
5,156883	5,120275
5,136366	5,104184
5,120275	5,114375
5,104184	5,126175
5,114375	5,069319
5,126175	5,030834
5,069319	5,059263
5,030834	5,026141
5,059263	5,051485
5,026141	5,026811
5,051485	5,057519
5,026811	5,026409
5,057519	4,995969
5,026409	5,017826
4,995969	5,011926
5,017826	4,977866
5,011926	4,997444
4,977866	4,958825
4,997444	4,995969
4,958825	4,977464
4,995969	4,945415
4,977464	4,962983
4,945415	4,944879
4,962983	4,94622
4,944879	4,926374
4,94622	4,914842
4,926374	4,911355
4,914842	4,90559
4,911355	4,899152
4,90559	4,90398
4,899152	4,890436
4,90398	4,884403

4,890436	4,873809
4,884403	4,853159
4,873809	4,886146
4,853159	4,865495
4,886146	4,88105
4,865495	4,881989
4,88105	4,865764
4,881989	4,885877
4,865764	4,873943
4,885877	4,902238
4,873943	4,899019
4,902238	4,873675
4,899019	4,907735
4,873675	4,852622
4,907735	4,877698
4,852622	4,871128
4,877698	4,862411
4,871128	4,85812
4,862411	4,94394
4,85812	4,934687
4,94394	4,945148
4,934687	4,950511
4,945148	4,960703
4,950511	5,047327
4,960703	5,036198
5,047327	5,049205
5,036198	4,983633
5,049205	4,958557
4,983633	4,953192
4,958557	4,97666
4,953192	4,890705
4,97666	4,907735
4,890705	4,934554
4,907735	4,898214
4,934554	4,885475
4,898214	4,893924
4,885475	4,839481
4,893924	4,824596
4,839481	4,821914
4,824596	4,808103
4,821914	4,816685
4,808103	4,769081
4,816685	4,781551
4,769081	4,763718
4,781551	4,759157
4,763718	4,752051
4,759157	4,746016
4,752051	4,737703

4,746016	4,730864
4,737703	4,700022
4,730864	4,695999
4,700022	4,689831
4,695999	4,66851
4,689831	4,665963
4,66851	4,666632
4,665963	4,29157
4,666632	4,278965
4,29157	4,26408
4,278965	4,26931
4,26408	4,260325
4,26931	4,220901
4,260325	4,224925
4,220901	4,231092
4,224925	4,210845
4,231092	4,21366
4,210845	4,21071
4,21366	4,211381
4,21071	4,197166
4,211381	4,199179
4,197166	4,193949
4,199179	4,180539
4,193949	4,16686
4,180539	4,154658
4,16686	4,163641
4,154658	4,17276
4,163641	4,14916
4,17276	4,163374
4,14916	4,182416
4,163374	4,165251
4,182416	4,147953
4,165251	4,195155
4,147953	4,156266
4,195155	4,158546
4,156266	4,189791
4,158546	4,19368
4,189791	4,167799
4,19368	4,175846
4,167799	4,161363
4,175846	4,157608
4,161363	4,155328
4,157608	4,149294
4,155328	4,145136
4,149294	4,131056
4,145136	4,150366
4,131056	4,115368
4,150366	4,11805

4,115368	4,085465
4,11805	4,111613
4,085465	4,11215
4,111613	4,10464
4,11215	4,087879
4,10464	4,092706
4,087879	4,066289
4,092706	4,094985
4,066289	4,085866
4,094985	4,086135
4,085866	4,014931
4,086135	3,997096
4,014931	3,991866
3,997096	3,989185
3,991866	3,95204
3,989185	3,96545
3,95204	3,920394
3,96545	3,926026
3,920394	3,931793
3,926026	3,892905
3,931793	3,880434
3,892905	3,855894
3,880434	3,827735
3,855894	3,833366
3,827735	3,808961
3,833366	3,789651
3,808961	3,813253
3,789651	3,79582
3,813253	3,796893
3,79582	3,778119
3,796893	3,777315
3,778119	3,76699
3,777315	3,812447
3,76699	3,815934
3,812447	3,794076
3,815934	3,761491
3,794076	3,779863
3,761491	3,743121
3,779863	3,771951
3,743121	3,746472
3,771951	3,717375
3,746472	3,697394
3,717375	3,674733
3,697394	3,664273
3,674733	3,670575
3,664273	3,660384
3,670575	3,641343
3,660384	3,6396

3,641343	3,630749
3,6396	3,665346
3,630749	3,620558
3,665346	3,630749
3,620558	3,671111
3,630749	3,642147
3,671111	3,626726
3,642147	3,60554
3,626726	3,599907
3,60554	3,604601
3,599907	3,598164
3,604601	3,596286
3,598164	3,613182
3,596286	3,614658
3,613182	3,593471
3,614658	3,609429
3,593471	3,669235
3,609429	3,650864
3,669235	3,647511
3,650864	3,647779
3,647511	3,633565
3,647779	3,636112
3,633565	3,611841
3,636112	3,621631
3,611841	3,601249
3,621631	3,546537
3,601249	3,573892
3,546537	3,586364
3,573892	3,58328
3,586364	3,580195
3,58328	3,569334
3,580195	3,515696
3,569334	3,561288
3,515696	3,566517
3,561288	3,506309
3,566517	3,54989
3,506309	3,434836
3,54989	3,45723
3,434836	3,440066
3,45723	3,37664
3,440066	3,348077
3,37664	3,36551
3,348077	3,398498
3,36551	3,44838
3,398498	3,352771
3,44838	3,462729
3,352771	3,398229
3,462729	3,417002

3,398229	3,428669
3,417002	3,428936
3,428669	3,418611
3,428936	3,359475
3,418611	3,405739
3,359475	3,404665
3,405739	3,279555
3,404665	3,266682
3,279555	3,288137
3,266682	3,298596
3,288137	3,300607
3,298596	3,316699
3,300607	3,322198
3,316699	3,292026
3,322198	3,209558
3,292026	3,228331
3,209558	3,314285
3,228331	3,252468
3,314285	3,2581
3,252468	3,228599
3,2581	3,188772
3,228599	3,250859
3,188772	3,19655
3,250859	3,182739
3,19655	3,185689
3,182739	3,163965
3,185689	3,15954
3,163965	3,171877
3,15954	3,14707
3,171877	3,142376
3,14707	3,131515
3,142376	3,139293
3,131515	3,129905
3,139293	3,110194
3,129905	3,095442
3,110194	3,096784
3,095442	3,146668
3,096784	3,173218
3,146668	3,198964
3,173218	3,187969
3,198964	3,177509
3,187969	3,178179
3,177509	3,180056
3,178179	3,175229
3,180056	3,158467
3,175229	3,131916
3,158467	3,123871
3,131916	3,132452

3,123871	3,119177
3,132452	3,131515
3,119177	3,139293
3,131515	3,14841
3,139293	3,173889
3,14841	3,147874
3,173889	3,14707
3,147874	3,13661
3,14707	3,139694
3,13661	3,115825

		Ambient temperature	Main train filter temp	Split train 1H filter temp	Split train rem. filter temp
Datotid	Scantime	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]	Filter-3-D2 - [°C]
11:17:51	Start of CS&HF				
11:18:09	3,067	22,847628	28,899321	28,612544	
11:18:39	3,066	22,75783	27,849804	27,775674	
11:19:09	3,066	22,826334	27,525501	27,492521	
11:19:39	3,066	22,92938	27,358109	27,301959	
11:20:09	3,068	23,153801	27,240353	27,276164	
11:20:39	3,066	23,264643	27,222027	27,12592	
11:21:09	3,067	23,333225	27,240341	27,198361	
11:21:39	3,066	23,412271	27,276884	27,2688211	
11:22:09	3,066	23,470301	27,211473	27,301619	
11:22:39	3,066	23,472935	27,235029	27,435045	
11:23:09	3,067	23,436014	27,180048	27,51615	
11:23:39	3,065	23,43338	27,151262	27,531826	
11:24:09	3,066	23,354237	27,156515	27,55014	
11:24:39	3,066	23,367414	27,163046	27,571068	
11:25:09	3,065	23,454399	27,224459	27,68865	
11:25:39	3,067	23,024216	27,41807	27,810805	
11:26:09	3,067	22,955555	27,671753	28,127672	
11:26:39	3,067	22,960833	27,888702	28,32613	
11:27:09	3,065	23,396336	28,089893	28,474941	
11:27:39	3,066	23,430622	28,24921	28,597609	
11:28:09	3,066	23,480743	28,400652	28,65501	
11:28:39	3,065	23,760262	28,533772	28,738489	
11:29:09	3,066	23,831398	28,681171	28,853243	
11:29:39	3,066	23,992069	28,760702	28,975756	
11:30:09	3,066	23,947294	28,88851	29,007038	
11:30:39	3,067	23,99999	28,956295	29,087877	
11:31:09	3,067	23,915678	29,047562	29,098295	
11:31:39	3,067	24,184389	29,050169	29,218201	
11:32:09	3,066	24,32132	29,039751	29,218201	
11:32:39	3,067	24,329052	29,064386	29,205076	
11:33:09	3,066	24,0578	28,862301	28,889633	
11:33:39	3,065	24,30806	28,606668	28,662704	
11:34:09	3,066	24,426542	28,562323	28,558327	
11:34:39	3,067	24,605516	28,677126	28,694008	
11:35:09	3,067	24,644896	28,883142	28,933924	
11:35:39	3,065	24,83423	29,143816	29,096844	
11:36:09	3,066	24,881643	29,258537	29,212862	
11:36:39	3,068	24,994707	29,422695	29,379618	
11:37:09	3,067	24,868473	29,589344	29,578865	
11:37:39	3,067	25,070803	29,766325	29,820923	
11:38:09	3,066	25,204872	29,85091	29,956278	
11:38:39	3,066	25,157621	29,953766	30,048666	

11:39:09	3,066	25,178564	30,143606	30,209877
11:39:39	3,066	25,215303	30,312616	30,330795
11:40:09	3,066	25,475407	30,440014	30,426975
11:40:39	3,066	25,596245	30,50371	30,551743
11:41:09	3,067	25,659191	30,621916	30,718016
11:41:39	3,066	25,527891	30,681671	30,7544
11:42:09	3,066	25,606676	30,72196	30,838825
11:42:39	3,066	25,827154	30,884275	30,915424
11:43:09	3,068	25,527857	30,886871	31,011486
11:43:39	3,065	25,556761	30,977774	31,046541
11:44:09	3,065	25,955721	31,115334	31,15687
11:44:39	3,066	26,065907	31,159468	31,232141
11:45:09	3,066	25,882195	31,254175	31,360561
11:45:39	3,066	25,698456	31,268463	31,343697
11:46:09	3,066	25,924194	31,297007	31,395586
11:46:39	3,066	26,147173	31,380041	31,521423
11:47:09	3,067	26,223228	31,372257	31,559011
11:47:39	3,067	26,202225	31,385239	31,50456
11:48:09	3,067	25,267675	30,967321	31,084192
11:48:39	3,066	25,548765	30,676413	30,743994
11:49:09	3,067	24,686592	30,424337	30,403561
11:49:39	3,066	24,252268	30,209799	30,103186
11:50:09	3,066	24,786562	30,060257	29,974436
11:50:39	3,066	25,075819	29,800022	29,721962
11:51:09	3,066	24,541883	30,224173	30,005703
11:51:39	3,065	24,202259	30,637482	30,525761
11:52:09	3,067	24,365555	30,584265	30,363371
11:52:39	3,067	25,2073	30,287941	30,053873
11:53:09	3,065	24,954935	30,078562	29,800161
11:53:39	3,066	25,585613	29,909473	29,617968
11:54:09	3,066	25,430637	29,75848	29,426514
11:54:39	3,066	25,793079	29,779404	29,420092
11:55:09	3,066	25,651325	29,701303	29,315878
11:55:39	3,067	25,953226	29,771639	29,315937
11:56:09	3,067	25,054968	29,77684	29,297714
11:56:39	3,066	24,747272	29,785952	29,343288
11:57:09	3,066	24,389444	29,761307	29,34989
11:57:39	3,067	24,970911	29,691034	29,289968
11:58:09	3,065	25,383484	29,638916	29,181787
11:58:39	3,066	25,858873	29,670256	29,224907
11:59:09	3,065	25,971731	29,652044	29,146715
11:59:39	3,066	25,811626	29,623405	29,114145
12:00:09	3,066	26,102968	29,631294	29,146801
12:00:39	3,065	25,956064	29,613087	29,073832
12:01:09	3,066	26,270878	29,63265	29,12471
12:01:39	3,066	26,517342	29,610567	29,113033
12:02:09	3,065	26,404613	29,594957	29,09478
12:02:39	3,066	25,995584	29,657545	29,071438

12:03:09	3,067	26,341806	29,644512	29,074039	
12:03:39	3,068	26,617018	29,61717	29,059689	
12:04:09	3,067	26,703575	29,634218	29,144541	
12:04:39	3,066	25,948465	29,647249	29,121077	
12:05:09	3,067	25,165989	29,687727	29,157698	
12:05:39	3,066	26,281696	29,725454	29,147284	
12:06:09	3,066	25,636229	29,678585	29,168139	
12:06:39	3,066	26,255602	29,743834	29,170858	
12:07:09	3,067	25,791224	29,7178	29,209967	
12:07:39	3,067	26,874231	29,81035	29,217934	
12:08:09	3,067	26,662008	29,767387	29,152763	
12:08:39	3,067	26,887455	29,775368	29,147696	
12:09:09	3,067	25,723248	29,660767	29,108606	
12:09:39	3,066	25,171656	29,595716	29,01609	
12:10:09	3,067	25,127073	29,522932	28,991449	
12:10:39	3,067	24,827341	29,478649	28,87409	
12:11:09	3,067	24,651241	29,429325	28,82604	
12:11:39	3,067	24,4828	29,377213	28,751678	
12:12:09	3,066	24,677813	29,369663	28,738873	
12:12:39	3,067	24,611927	29,205416	28,665752	
12:13:09	3,066	24,946318	29,282568	28,681684	
12:13:39	3,067	24,61734	29,221228	28,572002	
12:14:10	3,068	24,554552	29,252825	28,659739	
12:14:40	3,067	24,49646	29,164057	28,574814	
12:15:10	3,066	25,327831	29,406736	28,777334	
12:15:40	3,066	26,267336	29,521202	28,916759	
12:16:10	3,067	26,789263	29,860023	29,254673	
12:16:40	3,066	26,036722	29,984777	29,438244	
12:17:10	3,066	25,559397	30,247889	28,054665	
12:17:40	3,068	25,4988	30,34915		29,938601
12:18:10	3,066	25,24176	30,606873		30,42531
12:18:40	3,066	24,994455	30,536535		30,653919
12:19:10	3,067	24,847628	30,490149		30,636061
12:19:40	3,066	24,955233	30,268978		30,451448
12:20:10	3,067	25,218561	30,217392		30,394588
12:20:40	3,066	25,168404	30,079342		30,243687
12:21:10	3,067	25,047951	30,00692		30,223236
12:21:40	3,066	25,005648	29,808947		30,030664
12:22:10	3,067	24,887774	29,933004		29,994596
12:22:40	3,066	25,192841	29,970848		29,963522
12:23:10	3,067	25,234922	30,021646		29,929768
12:23:40	3,066	24,919807	30,097427		30,080994
12:24:10	3,066	24,964375	29,847519		29,543417
12:24:40	3,066	24,901764	29,476933		28,408255
12:25:10	3,067	24,888344	28,911142		27,820415
12:25:40	3,066	26,060366	28,538595		27,703793
12:26:10	3,067	25,049288	30,268978		27,566971
12:26:40	3,069	24,928478	30,217392		28,572002

12:27:10	3,065	24,820808	30,079342	28,659739
12:27:40	3,066	25,097097	30,00692	28,574814
12:28:10	3,066	24,873518	29,808947	28,82604
12:28:40	3,066	25,055443	29,933004	28,751678
12:29:10	3,067	25,434008	29,933004	28,738873
12:29:40	3,067	25,386642	28,862301	28,665752
12:30:10	3,066	25,132269	28,606668	28,681684
12:30:40	3,066	25,697433	28,033939	29,860023
12:31:10	3,067	25,308464	27,789406	27,703793
12:31:40	3,066	25,563873	27,673601	27,566971
12:32:10	3,066	25,501076	28,50589	28,400795
12:32:40	3,067	24,883295	29,173458	28,98123
12:33:10	3,066	24,989111	29,774433	29,517254
12:33:40	3,066	24,726461	30,258738	29,988832
12:34:10	3,066	24,531517	30,397696	30,122725
12:34:40	3,065	24,684742	30,443718	30,054264
12:35:10	3,066	25,071711	30,394724	29,976595
12:35:40	3,066	26,281849	30,28923	29,858118
12:36:10	3,066	25,193031	30,27029	29,789642
12:36:40	3,066	24,927902	30,242104	29,717146
12:37:10	3,067	24,782854	30,122158	29,644091
12:37:40	3,067	25,064974	30,246387	29,608227
12:38:10	3,067	25,228415	30,245529	29,621681
12:38:40	3,067	26,878132	30,292034	29,566841
12:39:10	3,067	28,152657	30,422752	29,606501
12:39:40	3,067	26,64624	30,33741	29,643402
12:40:10	3,064	26,698317	30,116119	29,582123
12:40:40	3,067	28,192648	30,120659	29,656879
12:41:10	3,067	28,339382	30,221272	29,680765
12:41:40	3,066	26,704325	30,075264	29,618116
12:42:10	3,066	27,785885	30,196938	29,674719
12:42:40	3,066	26,566828	30,224796	29,710375
12:43:10	3,066	28,561939	30,168739	29,690817
12:43:40	3,066	27,737038	30,209488	29,704248
12:44:10	3,065	27,73774	30,249186	29,742599
12:44:40	3,066	28,404257	30,297668	29,75605
12:45:10	3,066	27,988647	30,223288	29,703871
12:45:40	3,066	27,199839	30,238419	29,741014
12:46:10	3,066	27,422792	30,248068	29,757151
12:46:40	3,066	26,893585	30,143661	29,665854
12:47:10	3,066	28,643188	30,253672	29,718559
12:47:40	3,066	29,405197	30,272514	29,713978
12:48:10	3,066	28,768988	30,229578	29,682798
12:48:40	3,065	27,915379	30,218046	29,683077
12:49:10	3,066	28,496206	30,278807	29,720278
12:49:40	3,066	29,852066	30,248138	29,733856
12:50:10	3,066	28,837997	30,17491	29,63471
12:50:40	3,066	28,523067	30,19253	29,637945

12:51:10	3,066	27,635786	30,24666		29,610023
12:51:40	3,067	26,37352	30,15155		29,535791
12:52:10	3,068	27,648849	30,121965		29,514048
12:52:40	3,066	28,40766	30,128159		29,540905
12:53:10	3,066	27,675695	30,068041		29,503031
12:53:40	3,066	28,365877	30,190744		29,619402
12:54:10	3,066	28,862608	30,389261		29,83886
12:54:40	3,066	27,747597	30,432117		29,706398
12:55:10	3,066	26,76659	29,285807		29,650972
12:55:40	3,066	29,020344	28,98881		28,998005
12:56:10	3,067	27,335741	28,605127		28,761316
12:56:40	3,066	27,905922	29,00309		28,527304
12:57:10	3,067	29,406832	29,363401		28,340853
12:57:40	3,066	28,019447	29,651716		28,020447
12:58:10	3,066	26,784763	29,811943		27,97854
12:58:40	3,066	27,308994	29,99477		27,808387
12:59:10	3,065	25,817852	30,491476		27,760973
12:59:40	3,067	25,456156	30,323175		27,737844
12:59:50	Start of LF				
13:00:10	3,066	25,103548	31,40328	31,212666	
13:00:40	3,067	26,975248	31,367937	31,086438	
13:01:10	3,066	26,274996	31,014452	31,000644	
13:01:40	3,067	25,969406	30,852022	30,969458	
13:02:10	3,066	26,472273	30,54232	30,623554	
13:02:40	3,067	26,924202	30,561693	30,596067	
13:03:10	3,066	26,027124	30,47541	30,452696	
13:03:40	3,067	27,437527	30,547779	30,54579	
13:04:10	3,065	27,154591	30,551472	30,502752	
13:04:40	3,067	26,609867	30,481285	30,523552	
13:05:10	3,066	27,082224	30,629036	30,636179	
13:05:40	3,067	28,182783	30,596325	30,620417	
13:06:10	3,065	26,649841	30,518358	30,602219	
13:06:40	3,066	26,506227	30,559214	30,515707	
13:07:10	3,067	27,328669	30,474869	30,420965	
13:07:40	3,067	26,170799	30,396879	30,337774	
13:08:10	3,067	26,652807	30,270563	30,255726	
13:08:40	3,067	27,8027	30,285772	30,289087	
13:09:10	3,067	28,001122	30,25053	30,184971	
13:09:40	3,067	26,815571	30,08757	30,074108	
13:10:10	3,067	28,70414	30,204428	30,114109	
13:10:40	3,065	28,534187	30,131332	30,030676	
13:11:10	3,066	28,126694	29,999821	29,843212	
13:11:40	3,067	26,902847	29,867294	29,670237	
13:12:10	3,066	26,500292	29,75877	29,55513	
13:12:40	3,068	27,384991	29,628304	29,310078	
13:13:10	3,066	27,473946	29,524134	29,161528	
13:13:40	3,066	28,133404	29,527569	29,312168	
13:14:10	3,065	28,143776	29,433693	29,46973	

13:14:40	3,066	27,858988	29,363371	29,527025
13:15:10	3,066	28,795984	29,281046	29,490381
13:15:40	3,066	27,9799	29,338032	29,454838
13:16:10	3,066	27,778393	29,204962	29,360874
13:16:40	3,067	28,201229	29,129004	29,285038
13:17:10	3,066	27,605331	29,039026	29,213314
13:17:40	3,067	28,588326	29,051538	29,158064
13:18:10	3,067	28,089647	29,020233	29,027725
13:18:40	3,067	27,072376	28,934195	28,972971
13:19:10	3,066	27,27914	28,869013	28,936478
13:19:40	3,065	26,25493	28,827274	29,019907
13:20:10	3,067	25,613483	28,904217	29,190573
13:20:40	3,066	25,752625	28,805105	29,234861
13:21:10	3,067	27,528755	28,786562	29,144728
13:21:41	3,067	27,444786	28,700272	29,123697
13:22:11	3,065	26,743147	28,668871	29,033691
13:22:41	3,067	27,277262	28,650623	29,007618
13:23:11	3,066	27,120584	28,636587	28,934887
13:23:41	3,067	26,899151	28,709333	28,943676
13:24:11	3,067	26,264999	28,657154	28,870655
13:24:41	3,066	27,116476	28,641491	28,860229
13:25:11	3,066	27,048407	28,591909	29,050573
13:25:41	3,066	26,469492	28,57103	29,100107
13:26:11	3,065	27,25761	28,480852	29,145584
13:26:41	3,063	27,654816	28,433578	29,104925
13:27:11	3,064	27,02673	28,398195	28,982313
13:27:41	3,065	27,309566	28,387945	28,944645
13:28:11	3,065	25,824326	28,406782	28,882643
13:28:41	3,065	26,618773	28,319178	28,81076
13:29:11	3,067	26,527042	28,317928	28,912575
13:29:41	3,066	25,863613	28,346746	29,03521
13:30:11	3,067	25,740265	28,286701	29,144716
13:30:41	3,068	26,233536	28,273632	29,118649
13:31:11	3,067	26,799625	28,255342	29,079535
13:31:41	3,066	27,375547	28,255342	29,009136
13:32:11	3,067	27,197609	28,23184	28,959597
13:32:41	3,066	27,516504	28,20554	28,839447
13:33:11	3,067	27,398718	28,145374	28,793764
13:33:41	3,068	26,264246	28,134666	28,818285
13:34:11	3,066	26,738632	28,147711	28,985203
13:34:41	3,066	26,48448	28,121593	29,039955
13:35:11	3,067	26,085897	28,069347	29,026928
13:35:41	3,067	26,182953	28,069347	28,987808
13:36:11	3,067	26,442532	28,069347	28,948708
13:36:41	3,067	26,135735	28,045834	28,901764
13:37:11	3,067	26,479216	28,069347	28,813076
13:37:41	3,066	26,217039	28,040613	28,729607
13:38:11	3,067	25,878613	28,004045	28,862635

13:38:41	3,066	26,148863	28,038004	28,956524	
13:39:11	3,067	26,914124	28,032785	29,013884	
13:39:41	3,067	26,749125	28,027538	28,998228	
13:40:11	3,068	26,785791	27,96484	29,021696	
13:40:41	3,065	26,783169	27,972672	28,938263	
13:41:11	3,066	26,148764	27,934742	28,887356	
13:41:41	3,065	25,742033	27,966093	28,762156	
13:42:11	3,066	26,780373	27,981682	28,777716	
13:42:41	3,066	26,208359	27,884428	28,928532	
13:43:11	3,066	25,347382	27,887133	29,006828	
13:43:41	3,067	26,210709	27,89595	28,924368	
13:44:11	3,066	26,150097	27,832958	28,875889	
13:44:41	3,066	26,815853	27,80032	28,847204	
13:45:11	3,067	26,993567	27,8379	28,764805	
13:45:41	3,067	26,385826	28,030012	28,699575	
13:46:11	3,066	27,124296	28,246628	28,685093	
13:46:41	3,067	26,79175	28,57295	28,810316	
13:47:11	3,066	27,098286	28,861364	28,930372	
13:47:41	3,066	27,556263	28,980061	28,989079	
13:48:11	3,066	27,637396	29,047928	28,972198	
13:48:41	3,065	27,205687	29,079136	28,897823	
13:49:11	3,064	27,898628	29,049107	28,84692	
13:49:41	3,067	26,474871	29,076532	28,754358	
13:50:11	3,065	26,228708	29,083191	28,69582	
13:50:41	3,066	27,530287	29,023211	28,834066	
13:51:11	3,066	27,383799	28,916311	28,954037	
13:51:41	3,066	27,96163	28,908491	28,933172	
13:52:11	3,067	27,94594	28,801565	28,938381	
13:52:41	3,066	27,998198	28,728519	28,881016	
13:53:11	3,066	27,977291	28,699825	28,79493	
13:53:41	3,065	27,61919	28,652855	28,682762	
13:54:11	3,066	28,201229	28,532158	28,631279	
13:54:41	3,067	27,095039	28,502026	28,755056	
13:55:11	3,067	27,024189	28,392202	28,898352	
13:55:41	3,066	26,775061	28,351433	28,845886	
13:56:11	3,066	27,225386	28,312256	28,832857	
13:56:41	3,067	26,929586	28,223482	28,785906	
13:57:11	3,067	27,479172	28,228703	28,665888	
13:57:41	3,066	27,934057	28,121624	28,631977	
13:58:12	3,065	26,754099	28,15296	28,558907	
13:58:42	3,066	25,458271	28,090258	28,741549	
13:59:12	3,066	25,145594	28,06938	28,843283	
13:59:42	3,067	25,064108	28,014492		27,867268
14:00:12	3,066	25,734003	28,053694		27,841135
14:00:42	3,066	26,589025	28,011883		27,794085
14:01:12	3,067	26,539255	27,949183		27,728722
14:01:42	3,067	26,313808	28,001444		27,715662
14:02:12	3,066	26,101383	28,126839		27,608467

14:02:42	3,065	25,972832	28,270472	27,736578
14:03:12	3,068	26,678123	28,528915	27,885572
14:03:42	3,066	26,693855	28,818546	28,050177
14:04:12	3,066	27,918394	28,91242	28,154663
14:04:42	3,067	27,922485	28,93096	28,199482
14:05:12	3,066	27,9305	28,945438	28,196955
14:05:42	3,066	27,009949	28,991194	28,249285
14:06:12	3,066	26,952448	28,948204	28,227034
14:06:42	3,066	27,907242	28,909103	28,289721
14:07:12	3,066	27,888941	28,91692	28,407196
14:07:42	3,066	28,040497	28,862156	28,454187
14:08:12	3,067	28,259884	28,739555	28,443756
14:08:42	3,065	28,330395	28,689985	28,443756
14:09:12	3,066	28,231165	28,629982	28,425476
14:09:42	3,067	28,095352	28,596045	28,493353
14:10:12	3,066	27,570011	28,496891	28,548157
14:10:42	3,067	26,784821	28,429014	28,636869
14:11:12	3,066	27,648458	28,397696	28,655144
14:11:42	3,066	27,773951	28,361132	28,647299
14:12:12	3,067	27,632761	28,241035	28,563803
14:12:42	3,067	27,494164	28,241035	28,615992
14:13:12	3,066	26,800549	28,196632	28,702108
14:13:42	3,067	26,265217	28,044508	28,731573
14:14:12	3,065	26,568859	27,961796	28,693338
14:14:42	3,066	27,40942	27,947493	28,694687
14:15:12	3,066	27,880407	27,924234	28,667444
14:15:42	3,066	26,595514	27,971275	28,672657
14:16:12	3,067	25,349083	28,092716	28,728691
14:16:42	3,066	25,110012	28,300369	28,813517
14:17:12	3,067	25,6591	28,600565	28,813517
14:17:42	3,066	26,178682	28,798853	28,784826
14:18:12	3,065	26,480186	28,895361	28,779615
14:18:42	3,066	27,24494	28,973591	28,821358
14:19:12	3,067	27,221386	28,997036	28,878733
14:19:42	3,067	26,223249	28,947517	28,889153
14:20:12	3,065	25,527868	28,845881	28,90617
14:20:42	3,066	25,722448	28,846066	28,846264
14:21:12	3,066	25,559731	28,744411	28,850227
14:21:42	3,066	25,002487	28,692066	28,889153
14:22:12	3,067	25,412218	28,630516	28,937273
14:22:42	3,067	25,947477	28,538834	28,930414
14:23:12	3,067	25,72945	28,46172	28,876829
14:23:42	3,067	25,414169	28,354502	28,823215
14:24:12	3,066	25,2276	28,242228	28,825821
14:24:42	3,066	26,036352	28,182146	28,896244
14:25:12	3,066	26,196354	28,109032	28,924932
14:25:42	3,066	25,432539	28,064619	28,914509
14:26:12	3,066	25,267029	28,004511	28,91972

14:26:42	3,066	25,584877	27,99407	28,862349
14:27:12	3,066	25,584877	27,876492	28,859745
14:27:42	3,066	26,660337	27,821585	28,870171
14:28:12	3,067	27,139561	27,758862	28,956217
14:28:42	3,066	27,173582	27,753639	28,979687
14:29:12	3,066	27,461412	27,690882	28,924932
14:29:42	3,065	26,419212	27,76931	28,872774
14:30:12	3,066	25,554991	27,876879	28,813311
14:30:42	3,067	25,667557	28,097349	28,845682
14:31:12	3,066	24,845064	28,387239	28,89263
14:31:42	3,067	24,621441	28,635174	28,903074
14:32:12	3,067	24,550383	28,710838	28,869156
14:32:42	3,066	26,168787	28,781279	28,803961
14:33:12	3,067	26,234339	28,770832	28,764824
14:33:42	3,067	24,908169	28,679535	28,759611
14:34:12	3,067	24,745106	28,679535	28,981304
14:34:42	3,066	24,629328	28,609079	29,072542
14:35:12	3,066	25,817192	28,515146	29,056913
14:35:42	3,067	25,352388	28,376783	28,994326
14:36:12	3,066	26,181887	28,267126	28,939573
14:36:42	3,067	26,693052	28,17832	28,887419
14:37:12	3,067	27,023029	28,073839	28,814386
14:37:42	3,066	27,088636	27,975998	28,747934
14:38:12	3,066	25,567944	27,986464	28,852272
14:38:42	3,066	24,695116	28,075115	28,867729
14:39:12	3,067	24,652514	28,249681	28,830862
14:39:42	3,066	24,401993	28,464603	28,77313
14:40:12	3,066	24,573236	28,693066	28,690975
14:40:42	3,066	25,509354	28,82494	28,633673
14:41:12	3,067	25,225613	28,775377	28,500586
14:41:42	3,067	26,391012	28,80146	28,529291
14:42:12	3,066	25,677401	28,655361	28,586702
14:42:42	3,068	25,840149	28,613626	28,638885
14:43:12	3,067	25,483088	28,454428	28,60758
14:43:42	3,067	25,259768	28,347374	28,547543
14:44:12	3,066	25,13361	28,227274	28,521444
14:44:42	3,066	25,669533	28,122805	28,44838
14:45:12	3,065	25,911013	28,054876	28,411819
14:45:42	3,067	25,913633	27,94776	28,497952
14:46:12	3,066	25,585514	28,07839	28,555389
14:46:42	3,066	25,580078	28,265018	28,587868
14:47:12	3,066	25,482569	28,453997	28,527586
14:47:42	3,067	26,334967	28,561852	28,459381
14:48:12	3,067	25,563206	28,703779	28,359911
14:48:42	3,066	26,513067	28,670029	28,225557
14:49:12	3,067	25,121811	28,64897	28,213675
14:49:42	3,066	25,914965	28,633327	28,250227
14:50:12	3,067	26,423792	28,583748	28,307693

14:50:42	3,066	26,751337	28,513275	28,344234
14:51:12	3,066	25,229568	28,432364	28,323345
14:51:42	3,067	26,782789	28,369719	28,333801
14:52:12	3,066	27,107475	28,291391	28,370344
14:52:42	3,067	25,998924	28,186935	28,419945
14:53:12	3,067	26,017298	28,100723	28,49304
14:53:42	3,066	27,238337	27,985785	28,479975
14:54:12	3,066	27,22271	27,959723	28,453964
14:54:42	3,067	26,919117	28,143936	28,446142
14:55:12	3,067	27,042343	28,322964	28,553228
14:55:42	3,066	27,254374	28,570951	28,60795
14:56:12	3,065	26,71752	28,800465	28,641798
14:56:42	3,065	26,429173	29,089815	28,579063
14:57:12	3,067	25,531052	29,099489	28,492332
14:57:42	3,067	25,281475	29,065607	28,500153
14:58:12	3,066	25,357676	29,099489	28,578472
14:58:42	3,067	25,157955	28,982183	28,635874
14:59:12	3,066	25,964178	28,916983	28,664574
14:59:42	3,067	24,994976	28,838743	28,591505
15:00:12	3,066	24,834568	28,684835	28,544527
15:00:42	3,066	24,550657	28,642006	28,590345
15:01:12	3,067	24,963978	28,553532	28,672657
15:01:42	3,067	24,829863	28,425636	28,711802
15:02:12	3,066	24,722086	28,272947	28,702694
15:02:42	3,066	25,268972	28,165854	28,658356
15:03:12	3,067	24,879904	28,082272	28,658356
15:03:42	3,065	24,532639	27,933342	28,660967
15:04:12	3,066	24,44842	27,975159	28,770531
15:04:42	3,067	24,471928	28,031216	28,766479
15:05:12	3,066	24,63479	28,165455	28,755806
15:05:42	3,066	24,49205	28,365955	28,683586
15:06:12	3,066	24,349884	28,654306	28,648298
15:06:42	3,065	24,3948	28,950481	28,724062
15:07:12	3,066	24,676645	29,103199	28,797199
15:07:43	3,066	25,089628	29,167118	28,819387
15:08:12	3,067	25,783092	29,156679	28,785486
15:08:43	3,067	25,575706	29,068062	28,699408
15:09:13	3,066	25,625572	29,023737	28,707226
15:09:43	3,066	26,501781	28,948118	28,756796
15:10:13	3,066	25,147449	28,843803	28,814177
15:10:43	3,067	24,952921	28,666414	28,79591
15:11:13	3,066	24,902773	28,615421	28,784054
15:11:43	3,067	24,707186	28,383579	28,646374
15:12:13	3,066	24,723452	28,275581	28,679188
15:12:43	3,066	25,863747	28,17627	28,759998
15:13:13	3,066	25,913704	28,086191	28,810875
15:13:43	3,065	26,632198	27,950336	28,79524
15:14:13	3,067	27,043404	27,882383	28,730015

15:14:43	3,066	26,469698	27,971247	28,685678
15:15:13	3,066	27,132395	28,08358	28,719589
15:15:43	3,066	27,158571	28,274231	28,769156
15:16:13	3,066	27,179514	28,522243	28,816114
15:16:43	3,066	25,806105	28,871859	29,089891
15:17:13	3,067	25,152382	29,422071	29,656683
15:17:43	3,066	24,851875	29,853594	29,851252
15:18:13	3,067	25,17774	30,290483	30,016373
15:18:43	3,066	24,856993	30,170845	29,909664
15:19:13	3,065	24,981201	29,887753	29,423048
15:19:43	3,067	25,140722	29,906498	29,298653
15:20:13	3,066	26,305941	29,962103	29,351768
15:20:43	3,067	27,055565	30,028713	29,371523
15:21:13	3,066	27,346506	30,163128	29,43051
15:21:43	3,066	27,344046	30,208763	29,455397
15:22:13	3,066	25,319656	30,168184	29,421261
15:22:43	3,066	24,880798	30,194334	29,422705
15:23:13	3,066	25,653061	30,145941	29,35471
15:23:43	3,066	25,161673	30,031313	29,212578
15:24:13	3,065	26,541862	29,83198	28,95038
15:24:43	3,066	26,324305	29,647148	28,741726
15:25:13	3,067	24,848488	29,415352	28,499041
15:25:43	3,066	25,762869	29,248587	28,334587
15:26:13	3,066	24,932638	29,053114	28,201414
15:26:43	3,067	25,261234	28,940979	28,193563
15:27:13	3,067	24,95105	28,779287	28,172688
15:27:43	3,066	24,503828	28,627966	28,104767
15:28:13	3,067	25,886234	28,492268	28,026398
15:28:43	3,065	24,993107	28,32518	27,914051
15:29:13	3,066	25,752378	28,22858	27,817345
15:29:43	3,066	26,119747	28,103209	27,741539
15:30:13	3,066	26,232515	27,969971	27,791206
15:30:43	3,067	26,531528	27,958326	27,805618
15:31:13	3,067	26,707245	28,087763	27,786058
15:31:43	3,068	26,578701	28,2391	27,725777
15:32:13	3,066	26,677664	28,363894	27,601109
15:32:43	3,066	26,404963	28,554283	27,5343
15:33:13	3,067	25,455051	28,705629	27,529078
15:33:43	3,067	24,784758	28,836056	27,604918
15:34:13	3,067	24,555851	28,851688	27,612753
15:34:43	3,067	24,782129	28,84387	27,602303
15:35:13	3,066	24,3479	28,794313	27,563065
15:35:43	3,067	24,242573	28,671694	27,492468
15:36:13	3,065	24,177107	28,645916	27,503078
15:36:43	3,067	24,308859	28,537676	27,574957
15:37:13	3,066	24,310875	28,393551	27,560141
15:37:43	3,067	24,513149	28,248217	27,525795
15:38:13	3,066	24,381536	28,130701	27,497032

15:38:43	3,067	24,50526	28,005302	27,455194
15:39:13	3,067	24,257778	28,049725	27,455194
15:39:43	3,066	25,03924	28,175087	27,499641
15:40:13	3,069	24,697424	28,339672	27,582067
15:40:43	3,067	25,313105	28,550161	27,605783
15:41:13	3,066	25,142366	28,723722	27,607132
15:41:43	3,066	24,93655	28,849573	27,462704
15:42:13	3,065	25,225286	28,91044	27,402222
15:42:43	3,066	24,833557	28,928705	27,415314
15:43:13	3,066	25,719093	28,923491	27,480696
15:43:43	3,066	25,897581	28,837439	27,493786
15:44:13	3,066	25,96055	28,764399	27,517326
15:44:43	3,065	26,231024	28,725489	27,508286
15:45:13	3,066	26,228559	28,622553	27,440271
15:45:43	3,066	26,337667	28,414125	27,375437
15:46:13	3,067	26,555222	28,330561	27,448666
15:46:43	3,068	26,259007	28,158224	27,485298
15:47:13	3,068	26,751743	28,038052	27,498362
15:47:43	3,067	26,835556	27,99102	27,487909
15:48:13	3,067	25,15373	28,116419	27,43037
15:48:43	3,066	25,227528	28,258953	27,456598
15:49:13	3,066	24,757275	28,440678	27,537848
15:49:43	3,066	24,351412	28,568041	27,611921
15:50:13	3,066	24,266581	28,703194	27,659872
15:50:43	3,067	24,424551	28,87015	27,696466
15:51:13	3,067	25,258295	28,909254	27,70694
15:51:43	3,068	25,040146	28,862307	27,659872
15:52:13	3,066	24,408745	28,859703	27,644176
15:52:43	3,066	24,432806	28,755669	27,751539
15:53:13	3,066	24,330177	28,72311	27,818157
15:53:43	3,068	24,116024	28,504435	27,754801
15:54:13	3,067	24,879183	28,331995	27,732452
15:54:43	3,067	25,370722	28,224941	27,693247
15:55:13	3,066	25,086899	28,125687	27,701084
15:55:43	3,067	25,956211	28,143978	27,897129
15:56:13	3,066	26,29982	28,13876	28,10615
15:56:43	3,066	25,914787	28,139196	28,304852
15:57:13	3,066	26,03009	28,174349	28,418306
15:57:43	3,064	26,690212	28,121595	28,476616
15:58:13	3,066	26,74482	28,088537	28,515469
15:58:43	3,065	26,619057	28,065027	28,5807
15:59:13	3,066	26,467051	28,070271	28,604187
15:59:43	3,067	27,134981	28,062416	28,617247
16:00:13	3,067	26,02408	28,035158	28,648645
16:00:43	3,066	25,481043	28,099424	28,672268
16:01:13	3,065	26,640303	28,071747	28,675993
16:01:43	3,066	27,006294	28,025433	28,625881
16:02:13	3,066	26,956427	28,017441	28,614025

16:02:43	3,067	27,315023	28,046175	28,634907
16:03:13	3,068	27,134455	28,020052	28,647964
16:03:43	3,066	27,126656	28,048864	28,631037
16:04:13	3,066	27,323345	28,068769	28,659885
16:04:43	3,067	26,979448	27,92804	28,563862
16:05:13	3,067	27,034428	27,956783	28,537764
16:05:43	3,066	26,767319	27,938486	28,556015
16:06:13	3,067	26,762085	27,967249	28,545586
16:06:43	3,066	26,887785	27,943729	28,532549
16:07:13	3,067	26,942915	27,952986	28,515619
16:07:43	3,067	27,129198	27,983334	28,527536
16:08:13	3,067	26,767166	27,955313	28,438276
16:08:43	3,068	26,082611	27,948389	28,401442
16:09:13	3,066	26,923925	27,893513	28,398832
16:09:43	3,065	26,274061	27,911818	28,370117
16:10:13	3,066	26,032766	27,903984	28,372726
16:10:43	3,066	25,376631	27,926367	28,37018
16:11:13	3,066	25,184738	27,919722	28,328259
16:11:43	3,067	25,42057	27,874685	28,267696
16:12:13	3,066	25,693678	27,900818	28,259869
16:12:43	3,066	25,599171	27,913872	28,244192
16:13:13	3,066	25,005339	27,898209	28,244192
16:13:43	3,066	25,64386	27,913944	28,25861
16:14:13	3,067	26,14024	27,912958	28,271807
16:14:43	3,067	26,349974	27,860485	28,216818
16:15:13	3,066	26,595474	27,842783	28,131313
16:15:43	3,066	26,453936	27,853224	28,131313
16:16:13	3,067	25,603895	27,8062	28,102583
16:16:43	3,066	25,335987	27,848005	28,099976
16:17:14	3,066	26,15239	27,803587	28,110437
16:17:43	3,066	26,139217	27,853178	28,095947
16:18:14	3,066	26,136154	27,808273	27,997536
16:18:44	3,067	25,852783	27,771688	28,010588
16:19:14	3,067	25,13051	27,797829	27,979239
16:19:44	3,068	25,43268	27,771688	27,976631
16:20:14	3,066	26,254179	27,755997	28,039324
16:20:44	3,066	26,573988	27,784746	28,167324
16:21:14	3,066	26,48534	27,830845	28,30723
16:21:44	3,065	26,494991	27,732077	28,29875
16:22:14	3,066	26,34284	27,695345	28,352182
16:22:44	3,067	26,38739	27,711042	28,388721
16:23:14	3,066	25,437449	27,789463	28,425283
16:23:44	3,067	25,405931	27,938438	28,472252
16:24:14	3,066	25,970556	28,188089	28,480156
16:24:44	3,067	26,407999	28,361191	28,460072
16:25:14	3,067	26,182388	28,629896	28,445612
16:25:44	3,066	25,137411	28,830776	28,45344
16:26:14	3,066	26,790461	29,015921	28,47954

16:26:44	3,066	26,580866	29,109756	28,456047
16:27:14	3,066	26,855951	29,219246	28,445612
16:27:44	3,067	26,806536	29,3433	28,467978
16:28:14	3,066	27,091955	29,411047	28,454857
16:28:44	3,066	26,774515	29,439127	28,391712
16:29:14	3,066	25,709583	29,471466	28,348494
16:29:44	3,066	24,839817	29,510527	28,335424
16:30:14	3,066	24,595139	29,513153	28,34586
16:30:44	3,066	25,228916	29,533972	28,348494
16:31:14	3,066	25,912039	29,5564	28,34474
16:31:44	3,066	26,237095	29,567883	28,309248
16:32:14	3,067	25,958448	29,51265	28,243505
16:32:44	3,066	26,558952	29,510048	28,209564
16:33:14	3,067	26,461992	29,541298	28,217392
16:33:44	3,067	25,693363	29,486605	28,316622
16:34:14	3,067	26,616619	29,450148	28,39234
16:34:44	3,066	26,936642	29,54686	28,525656
16:35:14	3,066	26,949747	29,489567	28,580458
16:35:44	3,066	27,074942	29,416225	28,586624
16:36:14	3,067	26,710478	29,376707	28,54842
16:36:44	3,066	27,058775	29,392347	28,598003
16:37:14	3,066	26,555883	29,340239	28,62149
16:37:44	3,067	26,26753	29,350653	28,637156
16:38:14	3,066	26,57193	29,33399	28,649048
16:38:44	3,066	26,629709	29,340601	28,626904
16:39:14	3,067	26,443165	29,293268	28,625246
16:39:44	3,067	26,086094	29,180796	28,542681
16:40:14	3,067	25,899811	29,162544	28,513975
16:40:44	3,067	26,264446	29,123457	28,527037
16:41:14	3,066	26,762407	29,115622	28,529642
16:41:44	3,067	26,772997	29,158739	28,520531
16:42:14	3,067	26,540077	29,109451	28,507608
16:42:44	3,065	26,338305	29,102957	28,495911
16:43:14	3,066	25,797684	29,031044	28,476175
16:43:44	3,067	24,958942	28,982206	28,406464
16:44:14	3,067	25,224438	28,961344	28,382963
16:44:44	3,066	24,738028	28,950924	28,351618
16:45:14	3,067	25,747118	28,963951	28,338575
16:45:44	3,067	25,77907	28,951269	28,328333
16:46:14	3,067	26,248701	28,925192	28,328333
16:46:44	3,066	26,686434	28,883453	28,338766
16:47:14	3,066	26,633698	28,872728	28,254961
16:47:44	3,068	26,693407	28,733984	28,202286
16:48:14	3,066	26,737949	28,760073	28,217964
16:48:44	3,067	26,798189	28,731352	28,311954
16:49:14	3,067	26,352983	28,749855	28,44524
16:49:44	3,066	26,046299	28,729116	28,507948
16:50:14	3,066	26,670273	28,731722	28,554926

16:50:44	3,067	25,439903	28,682152	28,625393
16:51:14	3,066	25,253006	28,61923	28,585985
16:51:44	3,067	25,929972	28,556089	28,572514
16:52:14	3,066	25,777746	28,516953	28,57773
16:52:44	3,065	25,882732	28,485613	28,569908
16:53:14	3,067	26,268696	28,513285	28,584427
16:53:44	3,066	26,580744	28,559029	28,598795
16:54:14	3,067	26,659355	28,514677	28,59358
16:54:44	3,066	27,062687	28,454624	28,572701
16:55:14	3,066	27,083609	28,446802	28,562273
16:55:44	3,066	26,661972	28,410267	28,551817
16:56:14	3,067	26,291647	28,365223	28,463818
16:56:44	3,067	25,863947	28,318092	28,438915
16:57:14	3,066	25,806299	28,3456	28,414152
16:57:44	3,066	25,851244	28,336706	28,431274
16:58:14	3,066	25,554588	28,326275	28,381672
16:58:44	3,067	25,031696	28,302771	28,399954
16:59:14	3,068	24,492426	28,287096	28,371239
16:59:44	3,067	25,002777	28,260983	28,337284
17:00:14	3,067	24,255484	28,274052	28,326847
17:00:44	3,066	24,578735	28,144291	28,250696
17:01:14	3,066	25,117662	28,093119	28,202179
17:01:44	3,066	25,097	28,127363	28,195793
17:02:14	3,066	24,72093	28,132582	28,15402
17:02:44	3,066	24,36829	28,127363	28,182747
17:03:14	3,067	24,23135	28,111679	28,313318
17:03:44	3,067	24,176044	28,085556	28,394249
17:04:14	3,066	24,468327	28,051603	28,477776
17:04:44	3,066	24,109892	28,017353	28,498423
17:05:14	3,066	24,148888	27,920198	28,443197
17:05:44	3,067	24,336008	27,929464	28,474586
17:06:14	3,067	24,807329	27,949249	28,490364
17:06:44	3,066	25,330469	27,917898	28,526917
17:07:14	3,067	25,24114	27,92573	28,51125
17:07:44	3,066	25,724415	27,889156	28,516464
17:08:14	3,067	25,784807	27,836884	28,51125
17:08:44	3,067	25,850412	27,881298	28,459045
17:09:14	3,066	25,836887	27,799908	28,415655
17:09:44	3,067	24,830233	27,729029	28,376211
17:10:14	3,067	25,033012	27,798534	28,355421
17:10:44	3,066	25,125093	27,789404	28,335897
17:11:14	3,067	24,512236	27,739737	28,34111
17:11:44	3,066	24,441162	27,737123	28,325436
17:12:14	3,066	24,346403	27,739737	28,299328
17:12:44	3,067	24,343773	27,718843	28,299328
17:13:14	3,068	24,396219	27,693817	28,256096
17:13:44	3,066	24,229942	27,735256	28,15518
17:14:14	3,067	24,467035	27,92617	28,135618

17:14:44	3,066	24,345995	28,133894	28,126518
17:15:14	3,067	23,945637	28,442017	28,087322
17:15:44	3,067	24,59606	28,629923	28,089954
17:16:14	3,067	23,861315	28,770817	28,110834
17:16:44	3,067	23,763783	28,893408	28,202263
17:17:14	3,067	23,766319	28,97286	28,28966
17:17:44	3,066	23,612801	29,004932	28,286596
17:18:14	3,067	23,805311	29,06361	28,340099
17:18:44	3,067	23,74758	29,138063	28,37937
17:19:14	3,067	23,905722	29,158922	28,428968
17:19:44	3,066	24,29822	29,171965	28,439404
17:20:14	3,067	25,029665	29,17457	28,423754
17:20:44	3,065	25,418608	29,247543	28,43158
17:21:14	3,067	24,787735	29,242336	28,43158
17:21:44	3,066	24,700907	29,213654	28,436794
17:22:14	3,067	24,70071	29,23562	28,424927
17:22:44	3,067	24,039616	29,127193	28,339771
17:23:14	3,066	24,126656	29,145485	28,347601
17:23:44	3,066	24,521599	29,153299	28,326731
17:24:14	3,066	24,566345	29,103796	28,287554
17:24:44	3,066	24,887289	29,122026	28,300619
17:25:14	3,067	24,318895	29,114214	28,269266
17:25:44	3,067	24,084497	29,067286	28,240543
17:26:14	3,066	24,224089	29,038612	28,230108
17:26:44	3,067	24,060787	29,033403	28,180485
17:27:14	3,066	23,971556	29,00629	28,204153
17:27:44	3,066	23,897654	29,000992	28,142694
17:28:14	3,066	23,686363	28,883228	28,083576
17:28:44	3,067	23,754726	28,821768	28,018095
17:29:15	3,067	23,47784	28,824375	28,041613
17:29:45	3,067	23,448828	28,78266	28,140882
17:30:15	3,067	23,409269	28,751333	28,258396
17:30:45	3,068	23,467299	28,70961	28,339334
17:31:15	3,065	23,419811	28,649584	28,37851
17:31:45	3,067	23,549057	28,683519	28,386335
17:32:15	3,066	24,173763	28,645758	28,42556
17:32:45	3,066	24,213564	28,665545	28,453104
17:33:15	3,066	23,921148	28,587261	28,471382
17:33:45	3,067	23,715553	28,597717	28,450499
17:34:15	3,066	23,575815	28,58205	28,44528
17:34:45	3,067	23,694075	28,451202	28,392729
17:35:15	3,066	23,530235	28,362122	28,351973
17:35:45	3,065	23,538141	28,385624	28,338928
17:36:15	3,067	24,073208	28,333406	28,318035
17:36:45	3,068	24,339226	28,328165	28,294537
17:37:15	3,066	24,420837	28,283792	28,273642
17:37:45	3,065	24,173359	28,244669	28,274981
17:38:15	3,066	24,01018	28,252596	28,248922

17:38:45	3,066	24,397495	28,226629	28,202032
17:39:15	3,067	23,991919	28,200512	28,21508
17:39:45	3,067	23,752092	28,187441	28,181133
17:40:15	3,066	24,018267	28,190052	28,165455
17:40:45	3,067	23,830891	28,090567	28,101223
17:41:15	3,067	23,717339	28,044668	28,03709
17:41:45	3,067	23,564148	27,983004	27,967625
17:42:15	3,065	23,651184	27,964729	28,022491
17:42:45	3,066	23,701281	27,941214	28,124374
17:43:15	3,066	23,545727	27,912508	28,209284
17:43:45	3,066	23,551157	27,972702	28,285072
17:44:15	3,065	23,698988	27,970234	28,358271
17:44:45	3,065	23,688452	27,936272	28,381773
17:45:15	3,066	23,667355	27,928442	28,389595
17:45:45	3,066	23,796534	27,894451	28,392202
17:46:15	3,067	23,727985	27,821272	28,400051
17:46:45	3,067	23,532236	27,755383	28,313375
17:47:15	3,066	23,951395	27,737076	28,308159
17:47:45	3,066	23,943405	27,69516	28,278049
17:48:15	3,065	23,722015	27,661154	28,262396
17:48:45	3,066	23,627089	27,593185	28,246717
17:49:15	3,066	23,616854	27,647022	28,228605
17:49:45	3,066	23,564148	27,598679	28,224699
17:50:15	3,066	23,693354	27,593451	28,203802
17:50:45	3,067	23,735546	27,682344	28,159416
17:51:15	3,066	23,767176	27,807827	28,159416
17:51:45	3,067	23,64855	28,024738	28,112396
17:52:15	3,067	23,616888	28,359039	28,088884
17:52:45	3,067	23,619186	28,460522	27,991917
17:53:15	3,067	23,43685	28,608978	27,966829
17:53:45	3,066	23,376183	28,736824	27,951143
17:54:15	3,067	23,299711	28,786417	28,051767
17:54:45	3,066	23,24445	28,893486	28,149792
17:55:15	3,066	23,416096	28,97702	28,221697
17:55:45	3,065	23,302652	29,008308	28,25564
17:56:15	3,067	23,339584	29,008308	28,29743
17:56:45	3,066	23,674557	29,050032	28,339188
17:57:15	3,066	23,653458	29,034378	28,331364
17:57:45	3,065	23,48469	29,044823	28,333971
17:58:15	3,066	23,202284	29,022581	28,28561
17:58:45	3,066	23,252337	29,032923	28,268545
17:59:15	3,066	23,24391	28,934687	28,175421
17:59:45	3,066	23,067081	28,916426	28,183273
18:00:15	3,066	23,109348	28,89822	28,192436
18:00:45	3,067	23,283791	28,915356	28,188635
18:01:15	3,066	23,260098	28,901056	28,150778
18:01:45	3,068	23,442144	28,895819	28,11422
18:02:15	3,066	23,463228	28,838449	28,09593

18:02:45	3,067	23,331322	28,854109	28,064587
18:03:15	3,066	23,299665	28,77062	28,056755
18:03:45	3,066	23,465784	28,714485	28,016191
18:04:15	3,065	23,186089	28,685793	27,971767
18:04:45	3,067	22,945616	28,605947	27,965014
18:05:15	3,066	22,987583	28,545687	27,998751
18:05:45	3,066	22,892553	28,528734	28,120234
18:06:15	3,066	23,119753	28,509262	28,164707
18:06:45	3,068	23,067081	28,485865	28,213083
18:07:15	3,066	23,045956	28,464981	28,249657
18:07:45	3,066	23,175304	28,399733	28,304491
18:08:15	3,067	23,22809	28,3971	28,33321
18:08:45	3,066	23,067081	28,352737	28,307102
18:09:15	3,066	23,072357	28,318777	28,312315
18:09:45	3,066	23,061367	28,238779	28,236261
18:10:15	3,066	22,897436	28,195461	28,179895
18:10:45	3,067	23,161457	28,083151	28,172066
18:11:15	3,066	23,290998	28,147337	28,170866
18:11:45	3,067	23,325348	28,097725	28,138254
18:12:15	3,066	23,370256	28,052055	28,139582
18:12:45	3,065	23,306919	28,062498	28,084728
18:13:15	3,065	23,116905	28,010246	28,09256
18:13:45	3,067	23,124817	28,007637	28,061214
18:14:15	3,066	23,130116	27,918781	28,016796
18:14:45	3,067	22,961134	27,937082	27,969763
18:15:15	3,066	22,90024	27,857229	27,93828
18:15:45	3,066	22,818043	27,741932	27,939341
18:16:15	3,067	22,66732	27,722183	28,007128
18:16:45	3,066	22,828506	27,727455	28,107737
18:17:15	3,067	22,93437	27,752474	28,195356
18:17:45	3,067	22,971384	27,725033	28,264578
18:18:15	3,066	22,995148	27,670135	28,259357
18:18:45	3,066	23,198421	27,628313	28,269796
18:19:15	3,067	23,09284	27,612616	28,251534
18:19:45	3,066	23,224812	27,662294	28,264578
18:20:15	3,066	23,375198	27,745953	28,228025
18:20:45	3,066	22,997787	28,012514	28,220173
18:21:15	3,066	23,206097	28,21085	28,176882
18:21:45	3,067	23,015644	28,356712	28,082556
18:22:15	3,066	22,719931	28,551226	28,053843
18:22:45	3,067	22,556293	28,687073	28,067001
18:23:15	3,066	23,02387	28,7484	28,029127
18:23:45	3,067	23,541079	28,878817	27,99778
18:24:15	3,067	23,179621	28,910131	27,971651
18:24:45	3,066	22,796772	28,933603	27,922001
18:25:15	3,066	22,765057	28,970097	27,874956
18:25:45	3,066	22,799414	28,990961	27,903725
18:26:15	3,066	23,023798	29,005243	28,001652

18:26:45	3,067	23,004833	28,880913	28,018208
18:27:15	3,065	23,036621	28,865343	28,083576
18:27:45	3,066	23,51969	28,857643	28,13068
18:28:15	3,067	23,266417	28,857643	28,141117
18:28:45	3,066	22,698708	28,888935	28,148947
18:29:15	3,065	22,696068	28,844614	28,175064
18:29:45	3,066	22,788544	28,789822	28,156799
18:30:15	3,066	22,730431	28,774183	28,151581
18:30:45	3,067	22,481646	28,717749	28,099037
18:31:15	3,067	22,774805	28,673262	28,050549
18:31:45	3,065	22,965052	28,656361	28,041416
18:32:15	3,067	23,194834	28,642086	28,016672
18:32:45	3,066	23,123606	28,617321	27,991879
18:33:15	3,066	22,885975	28,528605	27,960527
18:33:45	3,066	22,727491	28,52339	27,929152
18:34:15	3,067	23,009998	28,454149	27,893812
18:34:45	3,067	23,046541	28,337589	27,790226
18:35:15	3,066	22,885418	28,340132	27,801928
18:35:45	3,066	22,814192	28,304985	27,913071
18:36:16	3,067	22,711359	28,25156	28,012434
18:36:46	3,066	23,173462	28,217619	28,075123
18:37:16	3,067	22,745695	28,241121	28,122147
18:37:46	3,065	22,703417	28,175846	28,11171
18:38:16	3,067	22,430866	28,085411	28,116652
18:38:46	3,067	22,562836	27,992474	28,062931
18:39:16	3,066	23,455261	28,000305	28,070759
18:39:46	3,066	23,943241	27,996574	28,076097
18:40:16	3,066	23,753508	27,929958	28,05131
18:40:46	3,067	24,167208	27,875082	28,017353
18:41:16	3,066	24,338299	27,860653	27,968941
18:41:46	3,066	23,246555	27,681162	27,840488
18:42:16	3,067	23,119888	27,655014	27,793461
18:42:46	3,066	22,834711	27,607944	27,780378
18:43:16	3,067	22,581343	27,647379	27,789656
18:43:46	3,067	22,900997	27,608147	27,779209
18:44:16	3,067	22,916826	27,587248	27,873312
18:44:46	3,066	22,501917	27,538742	27,920225
18:45:16	3,065	22,350964	27,588181	27,963142
18:45:46	3,065	22,311182	27,80374	28,00482
18:46:16	3,067	23,336061	28,046806	28,058405
18:46:46	3,066	22,932388	28,343374	28,078089
18:47:16	3,066	23,734524	28,522215	28,076811
18:47:46	3,067	23,320383	28,617413	28,028408
18:48:16	3,066	22,424635	28,657461	27,954893
18:48:46	3,066	22,939859	28,727882	27,918295
18:49:16	3,066	23,705036	28,795717	27,913071
18:49:46	3,067	22,924093	28,851891	27,8857
18:50:16	3,067	22,948002	28,892412	27,883154

18:50:46	3,067	23,016665	28,897627	27,828276
18:51:16	3,066	23,356785	28,828184	27,732555
18:51:46	3,066	23,596689	28,798077	27,685387
18:52:16	3,065	23,462185	28,803286	27,708918
18:52:46	3,066	23,301256	28,779808	27,810869
18:53:16	3,067	23,238064	28,813852	27,905031
18:53:46	3,065	22,733837	28,808687	27,961243
18:54:16	3,067	22,70717	28,698902	27,966257
18:54:46	3,066	23,081966	28,656961	27,938637
18:55:16	3,066	22,846956	28,604776	27,964766
18:55:46	3,066	23,403917	28,602144	27,956932
18:56:16	3,066	23,018656	28,548697	27,949118
18:56:46	3,066	22,860386	28,591892	27,968809
18:57:16	3,067	22,664791	28,504366	27,908615
18:57:46	3,066	22,714647	28,406157	27,852121
18:58:16	3,066	23,09231	28,340899	27,815542
18:58:46	3,066	23,050062	28,299114	27,768488
18:59:16	3,067	23,390625	28,280952	27,747633
18:59:46	3,066	22,849543	28,243116	27,71888
19:00:16	3,066	22,928396	28,118685	27,663639
19:00:46	3,067	23,250452	28,095177	27,760376
19:01:16	3,067	23,846487	28,032463	27,854483
19:01:46	3,067	23,55648	28,003727	27,864931
19:02:16	3,067	23,946703	27,960707	27,929003
19:02:46	3,066	23,804226	27,876886	27,877831
19:03:16	3,067	22,999487	27,781385	27,85944
19:03:46	3,066	23,814653	27,752634	27,851606
19:04:16	3,067	23,722404	27,702961	27,88035
19:04:46	3,065	23,993856	27,710798	27,846384
19:05:16	3,066	24,067736	27,676888	27,817646
19:05:46	3,067	23,268543	27,551088	27,712818
19:06:16	3,068	22,420691	27,506618	27,694508
19:06:46	3,067	22,69556	27,454309	27,686674
19:07:16	3,067	22,698198	27,415058	27,610847
19:07:46	3,066	22,354641	27,484436	27,629164
19:08:16	3,066	22,75107	27,616489	27,715389
19:08:46	3,066	23,410837	27,731295	27,762236
19:09:16	3,066	22,637238	27,997864	27,811901
19:09:46	3,066	22,838024	28,28779	27,861565
19:10:16	3,066	23,210293	28,447067	27,879866
19:10:46	3,066	23,43998	28,618114	27,920448
19:11:16	3,065	23,15741	28,617895	27,871874
19:11:46	3,065	23,072855	28,676517	27,819517
19:12:16	3,068	22,919708	28,697392	27,803825
19:12:46	3,066	22,684616	28,788685	27,788155
19:13:16	3,067	22,763874	28,765207	27,793377
19:13:46	3,064	23,524029	28,761232	27,710945
19:14:16	3,068	22,803328	28,738932	27,631063

19:14:46	3,065	23,114922	28,699785	27,618004
19:15:16	3,066	23,497534	28,710238	27,612755
19:15:46	3,067	22,335554	28,663269	27,667662
19:16:16	3,065	22,578909	28,729931	27,795841
19:16:46	3,065	22,885056	28,579596	27,740664
19:17:16	3,068	23,610783	28,569164	27,816471
19:17:46	3,066	23,755779	28,498693	27,816471
19:18:16	3,066	22,935234	28,47781	27,811222
19:18:46	3,066	23,697813	28,46216	27,823019
19:19:16	3,067	22,678848	28,352329	27,745668
19:19:46	3,067	22,750189	28,302717	27,732609
19:20:16	3,067	22,472712	28,237425	27,727386
19:20:46	3,067	22,950928	28,203484	27,65679
19:21:16	3,066	23,038019	28,126398	27,590076
19:21:46	3,066	22,644375	28,027025	27,563795
19:22:16	3,067	22,583582	27,981287	27,531057
19:22:46	3,067	22,454071	27,994341	27,62521
19:23:16	3,066	22,446148	27,931639	27,719341
19:23:46	3,066	22,757977	27,939472	27,852648
19:24:16	3,067	22,617928	27,891104	27,897058
19:24:46	3,066	22,514732	27,798185	27,915182
19:25:16	3,067	22,850288	27,806021	27,954365
19:25:46	3,066	22,974417	27,74852	27,951757
19:26:16	3,067	22,942709	27,693623	27,943924
19:26:46	3,066	23,12752	27,670088	27,933458
19:27:16	3,066	22,937531	27,670172	27,954437
19:27:46	3,066	22,940119	27,638741	27,949118
19:28:16	3,068	22,871286	27,53656	27,865332
19:28:46	3,067	23,000685	27,497343	27,854889
19:29:16	3,066	22,860731	27,646404	27,83659
19:29:46	3,066	22,958427	27,769262	27,794781
19:30:16	3,067	22,887138	28,064606	27,816996
19:30:46	3,066	22,966473	28,350639	27,902006
19:31:16	3,065	22,932158	28,586878	28,039192
19:31:46	3,066	23,09321	28,706911	28,09927
19:32:16	3,066	22,992769	28,811119	28,140938
19:32:46	3,066	23,079796	28,81365	28,11212
19:33:16	3,067	22,976789	28,897085	28,14735
19:33:46	3,066	22,947746	28,938795	28,144741
19:34:16	3,066	23,633883	28,989676	28,159138
19:34:46	3,068	23,451963	29,037977	28,164398
19:35:16	3,068	23,151167	29,045788	28,15918
19:35:46	3,066	23,151167	29,03537	28,130447
19:36:16	3,066	23,2145	29,0823	28,112156
19:36:46	3,066	23,293667	29,019716	28,083424
19:37:16	3,066	23,090437	29,043186	28,072985
19:37:46	3,066	23,317419	28,97541	28,05208
19:38:16	3,067	23,045525	28,958437	27,993259

19:38:46	3,066	23,063946	28,917952	27,964457
19:39:16	3,066	23,074459	28,842245	27,892504
19:39:46	3,066	23,061338	28,816236	27,918703
19:40:16	3,066	23,544163	28,771832	28,00749
19:40:46	3,066	23,778826	28,73011	28,096308
19:41:16	3,066	23,259241	28,690966	28,156374
19:41:46	3,066	23,594269	28,638783	28,177273
19:42:16	3,065	23,934326	28,602261	28,174665
19:42:46	3,066	23,509884	28,542221	28,216461
19:43:16	3,067	24,023928	28,495262	28,182491
19:43:46	3,066	23,546797	28,482201	28,195564
19:44:17	3,067	23,377989	28,432606	28,192957
19:44:47	3,066	23,253971	28,364744	28,158985
19:45:17	3,066	23,34897	28,325567	28,130257
19:45:47	3,066	23,507248	28,325567	28,145937
19:46:17	3,067	23,744577	28,287733	28,102848
19:46:47	3,067	23,702484	28,287811	28,095057
19:47:17	3,067	23,836939	28,22644	28,038904
19:47:47	3,067	23,594398	28,218613	28,031075
19:48:17	3,066	24,137325	28,129822	27,955301
19:48:47	3,067	24,018766	28,124578	27,970963
19:49:17	3,066	23,781588	28,067116	27,947445
19:49:47	3,067	24,002947	28,038383	28,046732
19:50:17	3,067	23,744667	27,973078	28,122492
19:50:47	3,066	23,454597	27,944311	28,190413
19:51:17	3,065	24,076721	27,876383	28,213915
19:51:47	3,067	24,018766	27,84239	28,237425
19:52:17	3,065	24,210945	27,787378	28,225552
19:52:47	3,067	24,08975	27,707638	28,195488
19:53:17	3,067	23,899992	27,638275	28,160162
19:53:47	3,066	23,936874	27,61474	28,147114
19:54:17	3,067	23,74444	27,525795	28,119658
19:54:47	3,067	23,588877	27,525795	28,093536
19:55:17	3,067	23,533499	27,512733	28,080486
19:55:47	3,067	24,129198	27,562447	28,055672
19:56:17	3,067	23,892115	27,745493	28,047842
19:56:47	3,067	23,918512	27,979439	28,006067
19:57:17	3,065	23,849979	28,211927	27,959032
19:57:47	3,066	23,631201	28,466511	27,955128
19:58:17	3,067	23,863167	28,581335	27,902863
19:58:47	3,066	24,53739	28,701374	27,866285
19:59:17	3,066	24,166166	28,821377	27,921164
19:59:47	3,066	24,408413	28,839642	27,996943
20:00:17	3,068	24,042351	28,8918	28,10144
20:00:47	3,067	24,247805	28,928301	28,122343
20:01:17	3,067	23,559996	28,990873	28,177189
20:01:47	3,067	23,749832	28,970034	28,179796
20:02:17	3,066	23,496683	28,98045	28,192844

20:02:47	3,067	23,430752	28,964798	28,187626
20:03:17	3,066	23,87109	28,967403	28,190237
20:03:47	3,066	23,707642	28,917879	28,14583
20:04:17	3,066	24,505812	28,928301	28,127563
20:04:47	3,066	23,976496	28,870934	28,104048
20:05:17	3,067	24,260984	28,829191	28,090975
20:05:47	3,066	24,632133	28,787449	28,046583
20:06:17	3,067	24,084513	28,763994	28,025681
20:06:47	3,066	24,595304	28,724854	27,976034
20:07:15	End of LF			

Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature	Split train dry gas meter temperature
Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]	Gasm-D - [°C]
23,524595	18,485838	20,249926	25,437304	25,090384
23,49538	17,810858	19,489725	25,755035	25,26911
23,47946	17,538404	19,081173	25,821941	25,353165
23,490074	17,370066	18,70426	25,862587	25,368925
23,428988	17,217712	18,475033	25,841612	25,368925
23,436949	17,073349	18,253714	25,812742	25,384672
23,460857	17,019838	18,040257	25,810104	25,371525
23,378517	17,025139	17,938805	25,838934	25,408295
23,38117	16,912809	17,840059	25,79693	25,384647
23,375862	16,875368	17,690525	25,823202	25,3794
23,421001	16,789762	17,589031	25,810066	25,387276
23,428741	16,736219	17,466137	25,786438	25,376776
23,466705	16,682697	17,388649	25,760193	25,355753
23,511621	16,634516	17,295122	25,735256	25,367569
23,487713	16,599678	17,313786	25,72867	25,397753
23,490368	16,559525	17,260332	25,694527	25,374111
23,461155	16,516706	17,214882	25,67614	25,355715
23,437246	16,479206	17,180138	25,657778	25,337341
23,449242	16,406927	17,115982	25,639393	25,34259
23,478718	16,366745	17,059832	25,63677	25,355715
23,491983	16,339964	16,982273	25,64464	25,350462
23,506315	16,318533	16,928778	25,63677	25,316315
23,541624	16,323866	16,950146	25,645948	25,328115
23,537537	16,318504	16,990269	25,652494	25,342556
23,54019	16,29707	16,928734	25,615746	25,321556
23,550802	16,270285	16,915371	25,602606	25,324181
23,622519	16,275637	16,819054	25,634109	25,342556
23,606575	16,211353	16,867216	25,573723	25,311031
23,595961	16,208677	16,843134	25,542213	25,297907
23,609228	16,289007	16,864515	25,559273	25,304476
23,76631	16,302401	16,804308	25,631475	25,338608
23,75176	16,23007	16,853815	25,571093	25,339933
23,787708	16,224716	16,821714	25,571093	25,345182
23,74402	16,203279	16,792286	25,531689	25,305786
23,759964	16,211306	16,824385	25,550077	25,320219
23,767923	16,270226	16,790934	25,589453	25,320211
23,799782	16,248791	16,757481	25,620964	25,368839
23,923527	16,232733	16,749458	25,615717	25,345192
23,92618	16,227358	16,734737	25,626226	25,355696
23,94212	16,251461	16,790913	25,631485	25,385893
23,912916	16,254137	16,808321	25,561884	25,360935
23,939709	16,238081	16,768179	25,607834	25,402975

23,931902	16,283607	16,773531	25,639347	25,433186
24,01461	16,305038	16,777536	25,660355	25,420061
24,018454	16,278252	16,748104	25,631475	25,383291
24,021107	16,283596	16,780218	25,645926	25,400368
24,039698	16,256805	16,849802	25,649864	25,454233
24,076855	16,294321	16,806984	25,649864	25,441111
24,160925	16,248783	16,808336	25,635426	25,454243
24,143869	16,323801	16,801641	25,697161	25,483162
24,110725	16,270231	16,80699	25,660389	25,472666
24,113379	16,297018	16,75482	25,655151	25,451633
24,118706	16,372021	16,815044	25,697182	25,488461
24,206627	16,305054	16,82309	25,676197	25,480564
24,194725	16,307747	16,837812	25,690666	25,504244
24,212267	16,350628	16,780313	25,752357	25,541018
24,176451	16,280981	16,756227	25,726107	25,51738
24,230518	16,256914	16,82049	25,741899	25,589655
24,309523	16,224771	16,809772	25,739277	25,593603
24,351973	16,278378	16,839247	25,794453	25,625153
24,348026	16,232832	16,801813	25,757702	25,61204
24,396952	16,240904	16,787132	25,786608	25,638311
24,465462	16,254332	16,72291	25,812881	25,625223
24,523865	16,265055	16,670759	25,887722	25,680384
24,568958	16,262428	16,72967	25,87332	25,711929
24,626715	16,195442	16,678835	25,831335	25,717205
24,679779	16,278564	16,668211	25,952106	25,788151
24,711613	16,174084	16,732445	25,910158	25,785563
24,727369	16,214319	16,732496	25,916788	25,786903
24,848642	16,168795	16,729822	25,935156	25,797421
24,878128	16,155449	16,736588	25,960144	25,835554
24,859575	16,147451	16,729929	26,002146	25,848701
25,016502	16,101891	16,695139	25,991678	25,871035
25,000675	16,115381	16,724665	26,025871	25,924923
25,028723	16,101995	16,687208	26,054724	25,927544
25,194801	16,177111	16,687328	26,146645	26,001123
25,2001	16,163727	16,641823	26,128277	26,011606
25,144806	16,096727	16,651184	26,095512	25,974901
25,268429	16,123646	16,698153	26,162497	26,043217
25,305569	16,110235	16,703497	26,141508	26,064211
25,299122	16,075426	16,666058	26,17305	26,060333
25,392469	16,102333	16,684893	26,204584	26,108931
25,400415	16,083569	16,658129	26,217709	26,106308
25,418985	16,105053	16,619383	26,30172	26,175913
25,521767	16,099768	16,666273	26,30962	26,213993
25,540335	16,075649	16,602043	26,338463	26,227118
25,55625	16,032875	16,640982	26,345118	26,274435
25,640461	16,03826	16,612892	26,346472	26,269218
25,643108	16,006104	16,562031	26,320255	26,245617
25,659023	16,062536	16,554144	26,417398	26,319181

25,821321	16,043768	16,532747	26,464586	26,358522
25,761816	16,022324	16,522024	26,421345	26,354586
25,783001	16,019808	16,607849	26,451641	26,390127
25,83672	15,993008	16,575733	26,480471	26,437319
25,840721	16,062809	16,571856	26,529093	26,425673
25,885784	16,065521	16,519669	26,580242	26,476805
25,946001	16,017279	16,533068	26,525211	26,440121
25,991211	16,076412	16,52788	26,656397	26,529413
26,019754	15,9853	16,584095	26,585663	26,524178
26,069885	16,071218	16,564188	26,660509	26,572821
26,067457	16,052475	16,520025	26,695877	26,587265
26,17923	16,057934	16,54557	26,737904	26,630568
26,117069	15,991014	16,605886	26,696079	26,632004
26,043032	16,020523	16,573801	26,703972	26,628092
26,166628	16,04212	16,611448	26,730341	26,682001
26,157522	16,023376	16,544512	26,74604	26,682001
26,185535	16,06913	16,600943	26,851038	26,764694
26,264074	16,026241	16,563477	26,840569	26,737211
26,188881	16,080063	16,591763	26,877422	26,80158
26,220251	16,00234	16,57173	26,832924	26,789837
26,202555	16,040079	16,585302	26,852751	26,799166
26,23192	16,077587	16,515724	26,911726	26,834587
26,282892	16,064438	16,590887	26,890944	26,859623
26,260275	16,064438	16,537369	26,888371	26,847918
26,162607	16,083427	16,567026	26,956648	26,901787
26,21467	16,070015	16,510849	26,980263	26,905781
26,159033	16,089037	16,545858	27,02235	26,928211
26,153526	16,078304	16,519135	27,027651	26,955803
26,131954	16,132158	16,578253	27,059256	26,978233
25,991743	16,089275	16,532776	27,001719	26,92725
26,07312	16,140459	16,524988	27,085711	26,999439
26,009506	16,097576	16,506281	27,03079	26,958948
26,076761	16,159477	16,525242	27,112144	27,023291
26,056656	16,162153	16,495844	27,099123	27,024681
26,058018	16,181181	16,536243	27,159555	27,06546
26,074644	16,111532	16,53896	27,109877	27,056391
26,05344	16,026052	16,616842	27,136271	27,099783
26,129721	16,001928	16,590101	27,157297	27,119511
26,124426	16,039745	16,563599	27,200714	27,118402
26,149036	16,026529	16,591927	27,210081	27,139566
26,145088	15,932847	16,613462	27,208918	27,175039
26,204252	15,970629	16,636444	27,235312	27,189659
26,21343	16,00552	16,501335	27,251102	27,184538
26,280888	16,07284	16,353024	27,341619	27,260677
26,289707	16,161257	16,596722	27,291996	27,233299
26,361242	16,737297	17,273729	27,205896	27,185125
26,38583	16,962013	17,759956	27,179724	27,158953
26,363359	16,732214	17,327486	27,304323	27,300564

26,427498	16,579706	17,020084	27,316143	27,292768
26,423756	16,601423	16,846535	27,406715	27,332315
26,57658	16,577389	16,807808	27,417282	27,367756
26,526512	16,617889	16,814829	27,39271	27,345802
26,598526	16,69577	16,766937	27,457081	27,368338
26,547186	16,63698	16,759058	27,448092	27,375029
26,653627	16,645382	16,762054	27,473242	27,38838
26,615519	16,632374	16,829334	27,521975	27,456799
26,745792	16,712666	16,734358	27,505054	27,428108
26,686495	16,739822	16,789589	27,509285	27,428404
26,758514	16,761547	16,803301	27,521437	27,439211
26,703157	16,76696	16,802055	27,508471	27,460283
26,752689	16,81554	16,833214	27,544092	27,507675
26,656275	16,861425	16,884439	27,557577	27,513323
26,733646	16,912312	16,792213	27,574709	27,495167
26,716665	16,955467	16,804623	27,563231	27,500666
26,772854	17,001356	16,821106	27,608109	27,542942
26,749212	16,926517	16,7904	27,633081	27,545744
26,896818	16,964369	16,802816	27,673908	27,582605
26,894283	17,018288	16,832685	27,70573	27,61705
26,898945	16,930033	16,856831	27,637867	27,574057
26,928198	16,986664	16,841166	27,697056	27,627966
26,954054	16,997822	16,919233	27,67527	27,638889
26,938349	16,981766	16,820309	27,7146	27,629889
27,080652	16,987589	16,831421	27,748928	27,665516
27,026594	16,990723	16,864004	27,780779	27,68952
27,080143	16,918564	16,880182	27,754822	27,700172
27,044678	16,90296	16,896612	27,722475	27,687401
27,111425	16,967651	16,883728	27,823584	27,721889
27,070667	16,841921	16,902512	27,760971	27,723347
27,193005	16,903955	16,881556	27,835884	27,781229
27,142893	16,907124	16,890102	27,887302	27,801323
27,218975	16,86178	16,902311	27,831337	27,775452
27,291561	16,832745	16,902695	27,8696	27,812376
27,258198	16,849319	16,920578	27,880508	27,789314
27,366245	16,900614	16,899641	27,952877	27,855122
27,387289	16,852539	16,873051	27,954344	27,867105
27,434574	16,802258	16,945744	27,943045	27,892324
27,372591	16,808144	16,948984	27,952702	27,921606
27,412352	16,733242	16,898237	27,965902	27,915249
27,429287	16,784632	16,878702	28,023874	27,93792
27,435686	16,803926	16,90197	28,063547	27,969778
27,377756	16,788092	16,86879	28,059961	27,971407
27,488152	16,769739	16,862507	28,103462	28,000582
27,567057	16,783703	16,884434	28,120903	28,012751
27,5208	16,757523	16,949234	28,075739	28,031626
27,611593	16,736113	16,85568	28,081118	28,022669
27,570772	16,763487	16,860264	28,135244	28,057163

27,679918	16,764109	16,90765	28,194492	28,105988
27,675682	16,758902	16,866388	28,182991	28,082787
27,724428	16,762041	16,87895	28,210939	28,115936
27,766302	16,741268	16,951714	28,211407	28,159468
27,656784	16,722612	16,879652	28,219473	28,125759
27,712942	16,747263	16,888243	28,267031	28,166853
27,617981	16,755938	16,895536	28,288467	28,181732
27,592354	16,750742	16,866274	28,242981	28,179359
27,485205	16,670948	16,862799	28,25264	28,194269
27,55064	16,604694	16,872784	28,305447	28,222227
27,501713	16,513926	16,889095	28,299217	28,215979
27,468151	16,415264	16,925686	28,295752	28,253048
27,446999	16,389179	16,950432	28,348652	28,313786
27,468975	16,378798	16,909262	28,363306	28,327108
27,381573	16,320234	16,951138	28,338888	28,314482
27,369368	16,414661	16,95717	28,420513	28,377836
27,308334	16,486965	16,890308	28,399624	28,333448
27,284224	16,479628	16,939157	28,478621	28,412457
29,572529	16,468998	16,936674	28,450176	28,406244
28,532652	16,485703	16,950577	28,487162	28,447104
27,918407	16,453577	16,923925	28,505611	28,431728
27,802305	16,51586	16,927238	28,521807	28,445227
27,72752	16,537281	16,887197	28,529827	28,476816
27,600773	16,580837	16,885178	28,55125	28,495533
27,614672	16,615652	16,821051	28,569696	28,495813
27,600359	16,578709	16,841625	28,610556	28,545773
27,615807	16,597658	16,82448	28,627844	28,559189
27,667059	16,514648	16,853905	28,619997	28,574854
27,707991	16,568945	16,831871	28,684631	28,640732
27,658449	16,574295	16,790443	28,667721	28,593861
27,607037	16,558249	16,830589	28,667721	28,580824
27,737469	16,665972	16,848679	28,729727	28,638884
27,662195	16,625921	16,831337	28,775436	28,680725
27,75967	16,604502	16,817972	28,712816	28,66769
27,7967	16,577911	16,863749	28,727503	28,715019
27,862453	16,605276	16,864216	28,718796	28,689316
27,756632	16,586531	16,822794	28,73057	28,688059
27,817053	16,551739	16,798813	28,742449	28,703907
27,883198	16,59255	16,807432	28,79384	28,734352
27,918573	16,584614	16,822292	28,791447	28,747662
27,76375	16,584614	16,791557	28,811039	28,735994
27,840473	16,560619	16,768867	28,795488	28,749126
27,937944	16,56666	16,841803	28,848253	28,816185
27,893232	16,577383	16,800377	28,871805	28,828072
27,844963	16,598776	16,765602	28,871805	28,812407
27,834627	16,634361	16,799791	28,916937	28,841898
27,947748	16,618319	16,779778	28,890858	28,813206

27,921532	16,546036	16,777103	28,885624	28,813206
28,001883	16,527498	16,801489	28,905544	28,876196
28,018959	16,616426	16,775223	28,949001	28,892235
27,992577	16,560217	16,792679	28,954327	28,892345
27,961588	16,552193	16,780674	28,889223	28,863853
27,952513	16,50935	16,788719	28,898417	28,878256
28,021177	16,574404	16,835011	28,978687	28,953329
28,026178	16,579752	16,765434	28,983921	28,953329
27,946823	16,526211	16,768108	28,931772	28,90378
27,989044	16,502113	16,773479	28,929165	28,906385
28,023161	16,515512	16,744024	28,95785	28,937698
28,052256	16,567181	16,760813	29,010593	28,969479
27,950619	16,521688	16,779552	28,958443	28,938189
28,041288	16,54846	16,748819	29,000267	28,96574
27,927744	16,470816	16,779636	28,961246	28,94758
27,878817	16,532387	16,731466	29,005577	28,988043
28,025045	16,516314	16,726118	28,995161	28,972414
27,886379	16,532574	16,750431	28,98358	28,956869
27,939285	16,573362	16,769674	29,060934	29,006802
27,936497	16,55999	16,750935	29,042702	28,996382
27,989155	16,576036	16,750935	29,034863	28,996382
27,946848	16,581383	16,758957	29,00358	28,954655
27,938894	16,608152	16,716156	29,032257	28,967705
27,880951	16,576036	16,753609	28,994518	28,991259
27,872389	16,541243	16,748375	28,989393	29,001808
27,89884	16,557314	16,718941	29,01683	29,030581
27,892464	16,568119	16,737766	29,048216	29,018908
27,72447	16,592607	16,755545	29,05113	29,040081
27,790237	16,584583	16,799725	29,010765	29,049255
27,879959	16,624941	16,807974	29,022768	29,041748
27,896057	16,641108	16,786676	29,082829	29,086166
27,806124	16,598297	16,82947	29,038502	29,054888
27,835217	16,587574	16,82947	29,043736	29,080957
27,795593	16,600971	16,818779	29,009827	29,041842
27,871887	16,622389	16,802717	29,054153	29,041842
27,842791	16,582224	16,866941	29,064573	29,080957
27,768711	16,635759	16,838886	29,041216	29,034138
27,816339	16,571527	16,844255	29,051657	29,087631
27,742395	16,622389	16,857729	29,025675	29,05645
27,738487	16,630411	16,836323	29,043932	29,038191
27,752993	16,646454	16,82563	29,075209	29,064262
27,714176	16,716049	16,84971	29,038723	29,035587
27,786856	16,67322	16,863075	29,07	29,051239
27,780411	16,699982	16,873766	29,056955	29,069498
27,735483	16,67322	16,924595	29,049137	29,087729
27,698431	16,694635	16,887156	29,046534	29,053844
27,656113	16,742809	16,900517	29,049137	29,035587
27,656113	16,75083	16,903215	29,056955	29,074703

27,634939	16,80167	16,873766	29,043932	29,019957
27,610004	16,80167	16,868422	29,056955	29,043427
27,633778	16,812387	16,868422	29,067396	29,040821
27,609745	16,790979	16,927292	28,999601	29,025169
27,62674	16,80167	16,913904	28,976131	29,014751
27,60548	16,815062	16,935308	29,014011	29,036936
27,623985	16,828426	16,871092	29,029638	29,044775
27,597525	16,852411	16,889717	29,013901	29,005547
27,579103	16,804028	16,912313	28,987717	29,002945
27,532909	16,809486	16,925787	28,977409	29,01347
27,568661	16,811848	16,835896	29,026613	29,021004
27,499853	16,795591	16,862446	28,978231	28,962175
27,462812	16,790356	16,908026	28,979702	29,021004
27,468103	16,798264	16,906628	28,973104	29,007957
27,50514	16,752687	16,878395	28,948196	28,981678
27,476032	16,733946	16,903868	28,971781	29,000023
27,515738	16,79281	16,869074	28,99262	29,005232
27,489277	16,811546	16,861055	28,991259	28,969992
27,494562	16,774099	16,91049	28,953409	28,947765
27,446964	16,744667	16,937241	28,945593	28,955605
27,383598	16,782118	16,934566	28,922125	28,942554
27,403412	16,822264	16,976068	28,95216	28,969992
27,460388	16,867729	16,939911	28,948196	28,989494
27,415392	16,950649	16,915834	28,962494	28,946413
27,460388	17,020199	16,918509	29,006802	28,972486
27,317484	17,004141	16,980045	28,949444	28,941202
27,410105	17,081696	16,945255	28,98596	28,959459
27,412746	17,00951	17,001419	28,93902	28,967276
27,296303	17,012182	16,980045	28,912949	28,938593
27,306883	17,041597	16,953297	28,918156	28,90991
27,349241	17,087061	16,921179	28,98596	28,95425
27,317484	17,035835	16,892729	28,925667	28,90835
27,383638	17,033045	16,897991	28,947771	28,918661
27,373062	16,995508	16,934036	28,859007	28,888622
27,373062	16,984606	16,866976	28,917538	28,912001
27,404818	16,939129	16,869648	28,914934	28,885923
27,35717	16,888302	16,909761	28,841906	28,88069
27,418036	16,915054	16,866976	28,917538	28,888531
27,399529	16,86692	16,91778	28,847116	28,854609
27,410105	16,925768	16,85626	28,912331	28,888531
27,378349	16,899019	16,864277	28,881014	28,859842
27,380993	16,864248	16,866976	28,901882	28,898949
27,396883	16,826778	16,874994	28,85754	28,88069
27,436567	16,850859	16,813467	28,891462	28,865053
27,513313	16,853533	16,816141	28,883621	28,852001
27,500072	16,829453	16,837524	28,894066	28,901558
27,447144	16,888302	16,808096	28,90449	28,875479
27,335995	16,92844	16,83218	28,914934	28,88332

27,224831	16,94717	16,874994	28,873199	28,872869
27,38628	16,984606	16,85626	28,901882	28,896345
27,412746	17,064837	16,84824	28,907093	28,849398
27,476278	17,019365	16,880341	28,891462	28,906769
27,396883	17,058773	16,804806	28,834822	28,801939
27,320129	17,037374	16,814127	28,836065	28,851393
27,25268	17,128305	16,787373	28,82428	28,808315
27,33098	17,077393	16,812622	28,851526	28,827715
27,345686	17,101461	16,83403	28,830654	28,838137
27,28496	17,117514	16,783194	28,851526	28,793814
27,327318	17,093447	16,815296	28,856737	28,783367
27,213488	17,066706	16,852741	28,830654	28,838137
27,266424	17,133541	16,842051	28,828051	28,819895
27,327318	17,133541	16,831358	28,828051	28,801632
27,327318	17,114819	16,804604	28,822838	28,778152
27,155254	17,031925	16,871475	28,84108	28,845978
27,144676	17,055996	16,844723	28,80718	28,804237
27,247913	17,037292	16,801929	28,794123	28,799026
27,144676	16,99984	16,783194	28,814997	28,778152
27,128782	16,900866	16,804604	28,838476	28,83032
27,099665	16,930311	16,780519	28,804573	28,806841
27,083773	16,930311	16,74037	28,822838	28,819895
27,049364	16,897812	16,754742	28,78862	28,780457
27,078484	16,817146	16,728966	28,784348	28,76053
27,139362	16,830509	16,700809	28,796055	28,772232
27,059944	16,854591	16,664637	28,777674	28,735601
26,993769	16,865309	16,669987	28,78812	28,746029
27,115561	16,838554	16,73559	28,766003	28,751242
27,057297	16,865309	16,702095	28,730711	28,730389
27,149965	16,910767	16,688728	28,801147	28,766901
27,140762	16,878672	16,720837	28,772461	28,785172
27,138121	16,854591	16,742249	28,748981	28,738209
27,074818	16,897404	16,718161	28,738554	28,743422
27,120014	16,937515	16,710142	28,798548	28,764297
27,059174	16,92148	16,726183	28,798548	28,76169
27,032591	16,870651	16,760963	28,743769	28,729042
27,059031	16,956247	16,724787	28,772358	28,73674
26,94784	16,966934	16,770285	28,73324	28,706699
26,988842	17,006845	16,77276	28,753899	28,727375
26,970304	17,033508	16,713791	28,747328	28,710363
27,078869	16,985065	16,736269	28,74963	28,67227
27,115921	16,955542	16,736189	28,740465	28,704844
27,100029	16,915329	16,720016	28,729925	28,703482
27,081516	16,880562	16,752148	28,680357	28,672178
27,081516	16,934061	16,711996	28,696018	28,679998
27,033857	16,976841	16,738754	28,682961	28,682604
26,996775	16,995569	16,728062	28,716869	28,721752
26,986198	17,043713	16,765514	28,667295	28,682604

27,010029	17,134617	16,749451	28,706444	28,666967
26,982397	17,185415	16,757494	28,706444	28,68782
26,921761	17,180073	16,805662	28,722109	28,72436
26,993364	17,190758	16,840435	28,696018	28,713907
26,994743	17,225527	16,800291	28,722109	28,721752
27,000036	17,225527	16,792273	28,711657	28,729572
26,947083	17,228197	16,811008	28,716869	28,713907
27,018578	17,174118	16,791771	28,665567	28,676985
27,138916	17,181948	16,77421	28,658888	28,696396
27,175922	17,224731	16,74478	28,700645	28,670307
27,169233	17,227402	16,758171	28,721497	28,693789
27,021	17,125805	16,803667	28,653679	28,688578
26,991879	17,152544	16,787601	28,692804	28,672911
26,999813	17,160582	16,814358	28,677162	28,675541
26,885971	17,192657	16,792948	28,669317	28,672911
26,986563	17,195328	16,782255	28,692804	28,670307
26,927074	17,219391	16,77421	28,703253	28,657274
26,9562	17,230074	16,763519	28,713678	28,691183
26,842329	17,203341	16,827723	28,664104	28,678152
26,875755	17,224731	16,798294	28,653679	28,657274
26,931581	17,283531	16,814358	28,656282	28,646824
26,939541	17,307589	16,809011	28,669317	28,649452
27,029549	17,267509	16,829035	28,694046	28,697678
26,770061	17,331646	16,831709	28,678408	28,663744
26,823023	17,2486	16,823469	28,636471	28,655724
26,875978	17,242941	16,824568	28,610157	28,647701
26,861391	17,23465	16,780169	28,619072	28,592686
26,911549	17,207916	16,805532	28,620319	28,616093
26,706263	17,253366	16,789469	28,634609	28,601673
26,926067	17,23465	16,826942	28,621574	28,632982
26,957832	17,290777	16,797514	28,621574	28,58864
26,912813	17,261379	16,853697	28,637238	28,63822
26,881044	17,349569	16,800186	28,629396	28,58864
26,911549	17,29612	16,829615	28,605909	28,593855
26,865545	17,221272	16,877775	28,62418	28,646042
26,921148	17,215929	16,880447	28,595482	28,601673
26,812815	17,258709	16,837633	28,61636	28,58864
26,902857	17,274731	16,842979	28,660702	28,632982
26,855192	17,261379	16,899179	28,62418	28,63822
26,918732	17,290777	16,904526	28,637238	28,63822
26,955812	17,306711	16,866982	28,646305	28,615992
26,902857	17,269098	16,900249	28,639633	28,632801
26,90815	17,220694	16,913353	28,567631	28,577787
26,971684	17,316725	16,82626	28,589685	28,549004
26,934517	17,338209	16,847742	28,623709	28,573828
26,880177	17,367502	16,847668	28,636631	28,582922
26,746372	17,367502	16,882437	28,636631	28,593349
26,955561	17,311382	16,930592	28,592291	28,590744

26,947626	17,308712	16,943953	28,560955	28,588135
26,835155	17,287327	16,925247	28,547918	28,580317
26,779781	17,33811	16,91186	28,571407	28,567253
26,766787	17,330099	16,903841	28,613148	28,569864
26,760256	17,33544	16,922573	28,649693	28,601194
26,823801	17,359493	16,909187	28,626205	28,582922
26,900591	17,372868	16,930592	28,654907	28,611622
26,826445	17,359493	16,966633	28,583094	28,580212
26,903234	17,415607	16,972002	28,648342	28,603699
26,855568	17,383547	16,974674	28,586975	28,573635
26,876755	17,391468	17,00132	28,560774	28,582626
26,944241	17,42877	16,982502	28,563282	28,553822
26,920216	17,476765	16,950304	28,604933	28,574598
26,847374	17,446918	16,916439	28,565411	28,516899
26,752062	17,398817	16,96459	28,554983	28,556032
26,903006	17,452259	16,92713	28,583689	28,57431
26,842085	17,404158	16,967262	28,55759	28,561274
26,850025	17,433546	16,956549	28,541922	28,524721
26,691137	17,473637	16,94586	28,604568	28,57431
26,890009	17,412165	16,996679	28,560196	28,571701
26,837173	17,476305	16,917721	28,582342	28,555956
26,634775	17,436216	16,913654	28,600508	28,559706
26,710314	17,430878	16,932384	28,584843	28,533609
26,633511	17,396147	16,959133	28,531286	28,542704
26,779177	17,393478	16,927042	28,573055	28,560955
26,569958	17,44425	16,913654	28,57045	28,519217
26,700975	17,366755	16,902966	28,583483	28,589685
26,737995	17,364086	16,894922	28,583483	28,537489
26,737947	17,243694	16,905537	28,579519	28,575274
26,699478	17,182041	16,906738	28,546772	28,550344
26,5697	17,141546	16,859583	28,549105	28,556633
26,733896	17,141472	16,804581	28,576353	28,521248
26,808046	17,114735	16,825991	28,556744	28,527714
26,778921	17,077284	16,859371	28,565813	28,538067
26,770985	17,09067	16,821926	28,556639	28,528887
26,752441	17,112062	16,824598	28,53315	28,513218
26,737947	17,053215	16,856697	28,556639	28,549744
26,739441	17,069271	16,821926	28,587952	28,526278
26,523922	17,037186	16,819252	28,580132	28,534101
26,676277	16,975657	16,824598	28,585344	28,52104
26,758371	16,916817	16,907526	28,593168	28,578472
26,493526	16,9729	16,851254	28,589203	28,537966
26,621962	16,918829	16,816015	28,540518	28,503658
26,58345	16,90814	16,831982	28,520784	28,503471
26,685324	16,937466	16,826527	28,515491	28,487701
26,670727	16,937466	16,829199	28,521959	28,481127
26,758137	16,905373	16,845236	28,524565	28,507225
26,721048	16,908045	16,869316	28,508896	28,525505

26,657495	16,948179	16,826527	28,550663	28,525505
26,691917	16,948179	16,831871	28,521959	28,50462
26,776682	16,889336	16,853281	28,532391	28,551601
26,738356	16,854544	16,87466	28,540236	28,551601
26,556849	17,039103	17,088652	28,545448	28,554209
26,432755	17,65646	17,657745	28,503607	28,503185
26,370663	17,992172	18,069578	28,414289	28,481745
26,266104	18,306911	18,356285	28,408972	28,456888
26,162771	17,941391	18,47093	28,44029	28,477776
26,24617	17,375193	17,863895	28,513201	28,528423
26,179827	17,120792	17,567114	28,524612	28,546429
26,215528	17,085777	17,351778	28,541365	28,490084
26,154572	16,957575	17,286438	28,555857	28,541103
26,226116	16,941811	17,218517	28,567808	28,549137
26,125425	16,944582	17,135748	28,595253	28,537418
26,075077	16,880199	17,100794	28,541639	28,538605
26,090986	16,904373	17,055426	28,549557	28,504761
26,024729	16,845322	17,040586	28,519398	28,49287
26,196972	16,893387	16,981647	28,501053	28,468021
26,455336	16,917297	16,910631	28,559614	28,469196
26,360373	16,91997	16,894571	28,530909	28,443096
26,383074	16,890547	16,905289	28,494379	28,471806
26,449198	16,970791	16,867823	28,481316	28,45092
26,454451	16,968094	16,894571	28,483925	28,490084
26,600031	17,002882	16,854456	28,523087	28,492689
26,470242	16,960079	16,875837	28,460432	28,47702
26,478184	16,962751	16,846415	28,491774	28,479628
26,539095	17,042984	16,825006	28,494379	28,461351
26,576191	17,029625	16,84374	28,476105	28,469196
26,496731	17,109846	16,81966	28,507418	28,487452
26,523218	17,139256	16,808968	28,499594	28,487452
26,536448	17,144596	16,841068	28,450001	28,469196
26,430496	17,152611	16,837017	28,4356	28,467852
26,529894	17,168554	16,830181	28,460253	28,470276
26,570026	17,229866	16,765772	28,460083	28,459652
26,564852	17,250891	16,75075	28,472853	28,420204
26,379477	17,248152	16,784138	28,46493	28,405809
26,502413	17,242786	16,829628	28,431004	28,424067
26,489183	17,264174	16,824284	28,43622	28,424067
26,60042	17,293573	16,85371	28,412724	28,416241
26,55274	17,333673	16,818937	28,423155	28,387531
26,483891	17,379089	16,851036	28,431004	28,397961
26,547449	17,387123	16,848366	28,420549	28,395353
26,526253	17,413843	16,856289	28,443977	28,39393
26,507704	17,41374	16,856215	28,424244	28,367624
26,587191	17,367968	16,841175	28,437035	28,379164
26,467234	17,324944	16,828917	28,383278	28,360682
26,420959	17,338293	16,8503	28,385889	28,334572

26,459339	17,316931	16,887768	28,375454	28,34503
26,450005	17,324944	16,914518	28,36763	28,373749
26,558453	17,394434	16,879725	28,388521	28,381571
26,476343	17,402443	16,870329	28,406776	28,361967
26,534613	17,346327	16,884998	28,389679	28,359156
26,407463	17,327612	16,929102	28,354391	28,335655
26,473698	17,265686	16,91267	28,326668	28,354929
26,561096	17,292164	16,905769	28,288582	28,320793
26,53335	17,305538	16,935192	28,29904	28,302534
26,443693	17,358992	16,889709	28,314693	28,31036
26,519369	17,353626	16,948578	28,332973	28,34951
26,490236	17,391052	16,967283	28,288582	28,320793
26,466305	17,487226	16,913717	28,322449	28,308914
26,439663	17,505831	16,940372	28,323608	28,306137
26,541664	17,47587	16,899702	28,293108	28,270483
26,516483	17,51593	16,894356	28,327044	28,278311
26,545616	17,491884	16,974602	28,298325	28,30442
26,466154	17,499891	16,979946	28,274818	28,286135
26,427816	17,572025	16,977274	28,285257	28,280918
26,324898	17,625444	16,953199	28,327044	28,30442
26,387352	17,636143	16,983915	28,325686	28,291283
26,342308	17,636143	17,005245	28,33209	28,30551
26,344955	17,65447	16,998224	28,313553	28,284359
26,421627	17,600733	17,019363	28,245392	28,233215
26,485102	17,606071	17,03809	28,253244	28,259327
26,474489	17,662155	17,016691	28,287186	28,246262
26,508942	17,632778	17,094244	28,268896	28,25672
26,553951	17,672827	17,083557	28,313297	28,295876
26,577793	17,635448	17,112877	28,249189	28,264387
26,412584	17,68609	17,048615	28,301325	28,265545
26,415503	17,554716	17,041447	28,265682	28,259977
26,353323	17,479845	17,093536	28,195097	28,232504
26,432795	17,482513	17,066797	28,226429	28,222069
26,290867	17,458466	17,080179	28,22904	28,227287
25,974167	17,498528	17,069469	28,257763	28,232504
26,106661	17,453129	17,085524	28,299551	28,295191
26,066904	17,370272	17,116163	28,236702	28,233601
26,080162	17,362164	17,085363	28,274542	28,275305
26,064255	17,265621	17,075693	28,240324	28,237213
26,011526	17,227945	17,026003	28,220524	28,22661
25,948341	17,214592	17,001932	28,262316	28,242268
25,943048	17,193201	17,023331	28,230984	28,223976
25,844982	17,195871	17,012644	28,244026	28,242268
25,63135	17,235983	17,013941	28,245285	28,200405
25,839411	17,294783	16,946995	28,267366	28,219856
25,844706	17,291952	16,982983	28,271152	28,234095
25,839411	17,280844	16,909027	28,238218	28,177654
25,876507	17,323532	16,910313	28,253803	28,202414

25,78249	17,331543	16,90764	28,238127	28,186733
25,69697	17,302147	16,894279	28,240761	28,181515
25,70492	17,304817	16,903593	28,264242	28,172346
25,67841	17,323532	16,902206	28,255001	28,164326
25,678249	17,282764	16,850811	28,190462	28,141665
25,656919	17,296141	16,848112	28,211361	28,165174
25,593307	17,272081	16,880236	28,180025	28,170393
25,588011	17,325539	16,83742	28,182636	28,149494
25,622465	17,320196	16,880236	28,195684	28,175613
25,397539	17,341581	16,876188	28,181282	28,179514
25,405766	17,384325	16,870752	28,190308	28,161057
25,379248	17,397276	16,792826	28,193937	28,115055
25,442873	17,410418	16,761852	28,200258	28,143623
25,469288	17,351633	16,807322	28,166315	28,117506
25,530104	17,346268	16,799303	28,18458	28,122725
25,540701	17,298157	16,793957	28,213303	28,156672
25,502333	17,351633	16,779188	28,201519	28,127857
25,508192	17,305952	16,724041	28,210392	28,134119
25,459204	17,326931	16,635401	28,178732	28,093321
25,403526	17,361666	16,654144	28,199604	28,119444
25,430038	17,380379	16,66754	28,207457	28,119444
25,502869	17,40443	16,67556	28,202211	28,132517
25,468246	17,412441	16,666162	28,204845	28,105059
25,458952	17,452532	16,712955	28,166853	28,10487
25,486853	17,382896	16,739544	28,169289	28,100845
25,411915	17,369061	16,698992	28,162399	28,090055
25,348265	17,451893	16,717733	28,175472	28,082224
25,372129	17,406462	16,760532	28,162399	28,100517
25,374783	17,478611	16,776598	28,16501	28,118809
25,362722	17,457233	16,814045	28,15457	28,10574
25,36393	17,51852	16,737591	28,172686	28,085943
25,378592	17,459295	16,717087	28,15132	28,050228
25,326103	17,443256	16,735826	28,146101	28,076349
25,285055	17,480677	16,751892	28,164391	28,081598
25,226719	17,483345	16,783997	28,122593	28,055475
25,234694	17,448622	16,810753	28,133053	28,058083
25,22142	17,480677	16,775978	28,159172	28,102474
25,254372	17,483345	16,778566	28,15513	28,080072
25,271528	17,474794	16,741943	28,127285	28,064011
25,230501	17,450666	16,761948	28,080179	28,020874
25,050701	17,485392	16,735188	28,12981	28,06266
25,062721	17,530817	16,721819	28,15332	28,049612
25,139637	17,541491	16,711124	28,171614	28,060051
25,16086	17,528147	16,723124	28,18331	28,06782
25,148914	17,479519	16,706532	28,090099	27,995466
25,192415	17,444714	16,705151	28,084793	28,00458
25,196459	17,426027	16,723866	28,118744	28,025459
25,04043	17,487471	16,705151	28,113527	27,994114

25,105593	17,439375	16,753323	28,097843	28,02807
25,148037	17,36989	16,766689	28,100454	28,051586
25,108269	17,332487	16,734503	28,091196	28,030539
25,10424	17,321716	16,715702	28,077982	28,012093
25,173038	17,332043	16,617649	28,124783	28,02104
25,190191	17,31319	16,621563	28,118128	28,006561
25,174295	17,353266	16,618889	28,131201	28,048372
25,103111	17,371981	16,629585	28,107693	28,006561
25,068901	17,433432	16,656349	28,123373	28,009171
25,037079	17,433432	16,701775	28,108896	28,011642
25,074226	17,43054	16,674784	28,107386	27,981396
25,079527	17,430191	16,658436	28,114937	27,985058
25,085915	17,435532	16,677177	28,094032	27,966764
25,044765	17,448877	16,714636	28,117544	27,992893
25,080652	17,448877	16,752089	28,080959	27,990282
25,088898	17,40881	16,789564	28,104471	28,050362
24,891634	17,478266	16,742641	28,091257	27,994011
24,957962	17,472927	16,790783	28,091257	27,991402
25,024265	17,429895	16,80792	28,041409	27,978104
25,081255	17,410892	16,786285	28,06209	27,997524
25,116814	17,469694	16,778267	28,051651	27,955706
25,116814	17,445644	16,815716	28,075161	28,007965
25,115583	17,52043	16,810368	28,088215	27,976616
25,070923	17,488377	16,823681	28,099863	27,997366
25,040623	17,53647	16,854399	28,108976	28,011702
24,947798	17,552217	16,815363	28,056496	27,969673
24,992872	17,48246	16,812471	28,064131	27,968184
24,998034	17,511869	16,836527	28,056278	28,004751
25,045656	17,511869	16,871325	28,02754	27,978622
25,02973	17,535915	16,863281	28,030155	27,949883
25,039101	17,57597	16,832483	28,075834	27,974676
24,952013	17,551928	16,881962	28,036585	27,961454
25,001286	17,549259	16,90197	28,035234	27,982363
25,030462	17,533087	16,900539	28,023369	27,967884
24,998638	17,556719	16,822575	28,019129	27,936239
25,038269	17,591436	16,862719	28,040035	27,941458
25,096489	17,588766	16,889471	28,074009	27,9702
25,07794	17,615479	16,881453	28,068769	27,967588
25,055464	17,586098	16,912092	28,045118	27,981796
24,979004	17,588766	16,92281	28,047728	28,000071
24,924829	17,60211	16,920135	28,021601	27,945198
25,007057	17,64724	16,878414	28,071041	27,960674
24,992384	17,540144	16,918312	27,992449	27,946119
25,016083	17,612246	16,891562	28,055141	27,959173
25,062456	17,630951	16,910294	28,06036	27,961807
25,054508	17,652321	16,910219	28,03941	27,944704
25,051859	17,630951	16,959675	28,018419	27,936785
25,069305	17,692368	16,914221	28,047178	27,94986

24,919973	17,700396	16,898161	28,039324	27,93417
24,973024	17,670794	16,907337	28,002607	27,947098
24,961054	17,651766	16,802738	27,98144	27,901131
24,9238	17,646431	16,808086	27,99188	27,901131
24,986004	17,643761	16,824123	27,99188	27,937708
24,951527	17,651766	16,799992	28,00354	27,950634
25,004578	17,673136	16,774538	28,038782	27,933622
24,94355	17,678473	16,803968	28,033539	27,907492
24,986004	17,662464	16,870865	28,00741	27,925764
24,930576	17,689171	16,90296	28,004799	27,931013
24,875341	17,686502	16,918997	27,989138	27,941454
24,916294	17,683359	16,830309	28,014915	27,907131
24,957275	17,62187	16,85301	28,001785	27,897955
24,951977	17,597828	16,856991	28,052694	27,913568
24,949324	17,576456	16,886356	28,009489	27,886013
24,975849	17,58713	16,886356	28,027784	27,930445
24,999725	17,59516	16,867622	28,025173	27,906925
25,020948	17,589798	16,891703	28,030394	27,927835
24,921679	17,605833	16,939854	28,012098	27,922613
24,884817	17,635212	16,880985	28,06435	27,930445
24,856937	17,578773	16,904819	27,981821	27,892324
24,88612	17,575918	16,893906	27,962059	27,875168
24,909996	17,578588	16,848366	27,974981	27,898533
24,944475	17,59996	16,85104	27,99589	27,916832
24,941822	17,610659	16,859058	28,011547	27,940353
24,936522	17,594624	16,869749	27,993275	27,929884
24,986921	17,57325	16,893827	28,003717	27,927275
24,970997	17,58395	16,885809	27,988054	27,898533
24,85605	17,591757	16,844164	27,987913	27,893194
24,902496	17,562044	16,80912	28,000717	27,915161
24,860044	17,524656	16,807753	27,957556	27,857599
24,857395	17,513956	16,79965	27,997955	27,905836
24,897198	17,484571	16,804998	27,948307	27,866623
24,9529	17,503281	16,756855	28,005812	27,91367
24,897198	17,503281	16,807695	27,974463	27,900614
24,891872	17,484571	16,810368	27,963995	27,895393
24,931675	17,540668	16,788958	28,013641	27,926744
24,906679	17,497679	16,776676	27,984718	27,91086
24,831345	17,462696	16,721596	27,938751	27,8584
24,895004	17,497421	16,701506	27,990936	27,868715
24,791538	17,51346	16,713503	27,979153	27,873941
24,77561	17,484076	16,759003	27,945192	27,866104
24,807468	17,484076	16,753656	27,955631	27,863495
24,857872	17,516129	16,734917	27,994839	27,876547
24,876425	17,521467	16,726894	27,966103	27,887018
24,848593	17,513315	16,725449	27,990812	27,859467
24,88203	17,475595	16,707766	27,943516	27,869667
24,863634	17,478224	16,725061	27,943399	27,86557

24,858334	17,470217	16,723694	27,915924	27,834211
24,871611	17,496933	16,712999	27,942057	27,870792
24,765469	17,50494	16,696932	27,915924	27,836824
24,821203	17,446167	16,718346	27,929003	27,828993
24,860983	17,390057	16,774538	27,908094	27,842051
24,879505	17,363256	16,770489	27,930281	27,847223
24,909983	17,352192	16,68318	27,93914	27,85218
24,836166	17,330765	16,667048	27,942947	27,848183
24,811064	17,333435	16,683037	27,918039	27,828463
24,781883	17,349455	16,691059	27,899738	27,794493
24,819014	17,35482	16,720518	27,899738	27,831076
24,797787	17,365499	16,728539	27,904963	27,820631
24,759279	17,418941	16,669668	27,967693	27,825853
24,799088	17,424282	16,736559	27,957222	27,85199
24,744495	17,418941	16,744581	27,910185	27,836321
24,763124	17,477604	16,694994	27,958454	27,81922
24,636229	17,39179	16,726795	27,884953	27,826746
24,466591	17,370367	16,698601	27,860043	27,775696
24,641735	17,407768	16,674513	27,930607	27,796614
24,46129	17,354322	16,736082	27,922754	27,830584
24,546204	17,399759	16,69058	27,938444	27,799223
24,645613	17,42915	16,69058	27,96718	27,833193
24,624268	17,367699	16,722689	27,977625	27,864552
24,695852	17,405098	16,706623	27,96718	27,854105
24,772793	17,405098	16,703949	27,977625	27,856718
24,706831	17,405098	16,736004	27,91876	27,81605
24,578352	17,431746	16,735939	27,97356	27,839502
24,496252	17,386028	16,708925	27,889698	27,801395
24,635374	17,385923	16,70079	27,903976	27,801323
24,470781	17,396603	16,668678	27,937943	27,788269
24,632645	17,388592	16,687395	27,945801	27,848373
24,523855	17,351164	16,684721	27,94841	27,850986
24,460176	17,273657	16,706137	27,924889	27,811792
24,600809	17,204172	16,738245	27,914419	27,83007
24,637949	17,214855	16,695442	27,977148	27,848373
24,482811	17,230906	16,695442	27,970596	27,848309
24,608765	17,289701	16,70874	27,97702	27,850801
24,320927	17,252293	16,76226	27,906483	27,835112
24,489836	17,319099	16,756914	27,953526	27,856026
24,393244	17,353861	16,72748	27,984873	27,874325
24,491442	17,31085	16,766088	27,921967	27,84935
24,393244	17,302601	16,745804	27,900873	27,811289
24,504696	17,377434	16,721718	27,921783	27,811289
24,466209	17,388113	16,745804	27,911343	27,834816
24,354612	17,409498	16,748478	27,93486	27,837427
24,142269	17,380106	16,74313	27,919174	27,847874
24,280245	17,334665	16,759171	27,940084	27,849174
24,321342	17,307941	16,733734	27,942631	27,825573

24,500465	17,273203	16,780502	27,92429	27,850309
24,508417	17,273203	16,777832	27,916458	27,855556
24,484533	17,289249	16,764463	27,929512	27,858168
24,463476	17,305271	16,764463	27,960863	27,86339
24,424902	17,206188	16,768337	27,947674	27,860641
24,275518	17,141901	16,760187	27,941074	27,880169
24,380463	17,088264	16,750666	27,908249	27,860458
24,101748	17,053511	16,739971	27,916079	27,834322
24,34329	17,082922	16,764055	27,926548	27,863068
24,14423	17,128384	16,758711	27,908249	27,827768
24,353924	17,203247	16,746616	27,947397	27,88521
24,258364	17,232651	16,710463	27,960405	27,849836
24,335335	17,278099	16,71851	27,970846	27,875973
24,141869	17,288778	16,753288	27,989147	27,865501
24,134098	17,30213	16,758636	27,986532	27,881191
24,18483	17,307495	16,796112	27,944715	27,839365
24,097237	17,261646	16,710123	27,941809	27,829958
24,118479	17,283033	16,752949	27,957495	27,837816
23,985741	17,269623	16,715424	27,954813	27,839083
23,957834	17,224173	16,758224	27,965277	27,859997
23,823643	17,181391	16,779636	27,884274	27,82992
23,881872	17,189428	16,736773	27,953442	27,835032
23,780966	17,157326	16,766205	27,91028	27,81539
23,857975	17,186756	16,77957	27,894615	27,820612
23,96418	17,216162	16,784943	27,936413	27,857218
23,921711	17,210796	16,819715	27,91028	27,818003
23,921711	17,218832	16,82239	27,944269	27,875496
23,940281	17,250904	16,790289	27,996527	27,872887
23,846014	17,18119	16,820854	27,933634	27,855742
23,922878	17,231756	16,744396	27,928236	27,804636
23,853914	17,287886	16,76848	27,964809	27,833384
23,812853	17,279852	16,800585	27,933458	27,847742
23,733482	17,319954	16,807257	27,943867	27,833286
23,731016	17,373404	16,824594	27,951635	27,838442
23,677904	17,370733	16,851349	27,941193	27,859354
23,699152	17,373404	16,886145	27,91506	27,8463
23,69117	17,424175	16,862064	27,933363	27,83061
23,707058	17,437523	16,915565	27,917669	27,820166
23,693661	17,453566	16,923584	27,935972	27,8463
23,716135	17,466866	16,902145	27,973812	27,84757
23,795801	17,458799	16,904758	27,968533	27,855341
23,694887	17,423731	16,869686	27,951298	27,82247
23,678968	17,426399	16,933901	27,927778	27,819857
23,721441	17,447779	16,917843	27,917336	27,800224
23,713484	17,495876	16,931164	27,913332	27,792282
23,766594	17,506577	16,931164	27,922459	27,806612
23,830313	17,53863	16,925819	27,938126	27,835382
23,766594	17,535961	16,957912	27,919827	27,814466

23,707912	17,560003	16,933836	27,961645	27,830137
23,885773	17,533291	16,965927	27,893696	27,814466
23,917627	17,511845	16,952511	27,902822	27,810522
23,749105	17,535891	16,944492	27,921118	27,797441
23,571167	17,546413	16,916218	27,884363	27,765911
23,63912	17,503469	16,904037	27,88031	27,794567
23,641953	17,540861	16,877285	27,876366	27,754002
23,821289	17,535522	16,891973	27,922071	27,800995
23,716616	17,532852	16,890602	27,893267	27,777433
23,684753	17,519484	16,863852	27,895878	27,816628
23,728418	17,436663	16,906637	27,856665	27,759127
23,782776	17,399265	16,885258	27,880188	27,756514
23,713665	17,329773	16,869196	27,903709	27,772207
23,639299	17,233568	16,88793	27,9011	27,785269
23,671488	17,137058	16,859596	27,865633	27,775928
23,645113	17,126202	16,777866	27,890333	27,764078
23,727625	17,075396	16,812643	27,843287	27,740551
23,613552	17,136887	16,753714	27,875866	27,739115
23,669319	17,120857	16,793861	27,870644	27,757397
23,60026	17,144924	16,82329	27,82489	27,709026
23,576378	17,227797	16,769779	27,882383	27,735163
23,590809	17,193052	16,817945	27,819641	27,729916
23,533548	17,283928	16,75104	27,879774	27,750835
23,588102	17,254528	16,793861	27,830111	27,714247
23,737316	17,332039	16,783144	27,877161	27,753445
23,343117	17,307859	16,761644	27,847021	27,733774
23,353735	17,262232	16,782894	27,786749	27,700939
23,595465	17,315599	16,74799	27,829798	27,732269
23,552961	17,33429	16,726578	27,850685	27,699577
23,55031	17,353004	16,713152	27,859764	27,696835
23,483894	17,369047	16,715824	27,84798	27,70075
23,435905	17,320938	16,755976	27,842758	27,70859
23,539368	17,336958	16,782732	27,827065	27,726894
23,592487	17,379726	16,772017	27,821844	27,732119
23,49564	17,4305	16,76667	27,868895	27,721672
23,314272	17,40111	16,804117	27,819233	27,716425
23,441784	17,449209	16,763996	27,86367	27,70859
23,380814	17,398289	16,789297	27,850492	27,729383
23,343609	17,373976	16,731531	27,831978	27,70569
23,250641	17,406036	16,747572	27,846346	27,703045
23,338301	17,438122	16,734138	27,812307	27,667671
23,250582	17,403366	16,771618	27,800531	27,695095
23,384514	17,454138	16,726118	27,837114	27,705542
23,307476	17,435452	16,779636	27,816198	27,689871
23,144556	17,331232	16,787657	27,837114	27,734299
23,176765	17,283117	16,771618	27,844946	27,739544
23,29896	17,299141	16,75555	27,889381	27,72646
23,139553	17,267031	16,752821	27,877598	27,709452

23,152849	17,181131	16,712391	27,813282	27,675201
23,139553	17,154398	16,719049	27,794949	27,688217
23,09971	17,133028	16,70966	27,773977	27,684212
23,1369	17,12232	16,693592	27,810558	27,70252
23,13261	17,151726	16,688244	27,836697	27,689436
23,195347	17,162436	16,682898	27,828861	27,69466
23,214142	17,143713	16,731071	27,831474	27,71558
23,219782	17,175791	16,757832	27,821028	27,736498
23,27557	17,218309	16,673311	27,82999	27,721987
23,387138	17,207493	16,658461	27,840317	27,699585
23,219782	17,242235	16,654419	27,844204	27,679962
23,344624	17,239565	16,655724	27,842863	27,716501
23,256966	17,298363	16,645029	27,88858	27,704723
23,109667	17,293024	16,703901	27,841534	27,70211
23,193716	17,309071	16,68516	27,872892	27,725643
23,209667	17,335732	16,682457	27,834974	27,726915
23,225592	17,271297	16,652769	27,807308	27,71365
23,124626	17,32206	16,61525	27,838627	27,691391
23,191063	17,300673	16,600483	27,826834	27,700474
23,209667	17,273945	16,649975	27,796717	27,675573
23,135271	17,268604	16,690132	27,781025	27,699081
23,234989	17,308683	16,63928	27,828079	27,733084
23,292576	17,233837	16,690132	27,838522	27,743532
23,271267	17,20421	16,648443	27,810913	27,68977
23,16765	17,13456	16,644289	27,801651	27,735439
23,082632	17,18536	16,638939	27,804264	27,696236
23,143734	17,204081	16,641584	27,818575	27,69482
23,159687	17,220104	16,687067	27,809406	27,730078
23,088133	17,292282	16,676371	27,801546	27,737913
22,930643	17,310938	16,668299	27,849873	27,747051
23,0037	17,23311	16,657305	27,824793	27,735065
23,085817	17,238453	16,708158	27,816957	27,763817
23,112389	17,254499	16,726896	27,809126	27,750736
23,037983	17,278561	16,681332	27,832546	27,745382
23,109734	17,222429	16,718813	27,835155	27,745382
23,044727	17,29191	16,70542	27,819492	27,716629
22,939142	17,224991	16,713366	27,836411	27,751852
23,032139	17,230179	16,718576	27,810133	27,75304
23,081211	17,251467	16,670313	27,816582	27,745153
23,041149	17,270185	16,702423	27,816582	27,741215
22,908283	17,299583	16,683655	27,809984	27,720184
22,871086	17,302254	16,721111	27,811283	27,739763
22,904604	17,299526	16,734457	27,836082	27,795963
22,865244	17,301926	16,688694	27,805765	27,723852
22,923729	17,26716	16,718128	27,824072	27,768297
22,878544	17,368725	16,707436	27,837126	27,765688
22,924831	17,34734	16,722136	27,825359	27,769526
22,932739	17,285877	16,747528	27,795219	27,757704

22,967276	17,275196	16,744856	27,792608	27,778622
22,805882	17,237509	16,725914	27,78587	27,762766
22,786055	17,256132	16,66427	27,787121	27,754869
22,764786	17,304251	16,674965	27,792347	27,75226
22,841864	17,26951	16,699055	27,808039	27,796679
22,812374	17,330976	16,674932	27,824968	27,763912
22,858839	17,35503	16,672234	27,854992	27,783493
22,85762	17,282719	16,692165	27,78429	27,766388
22,741411	17,207701	16,645191	27,810297	27,746674
22,704184	17,106102	16,661234	27,776323	27,76759
22,714832	17,074018	16,655888	27,823378	27,796339
22,759998	17,044607	16,677303	27,801142	27,796295
22,686808	17,082035	16,653164	27,836359	27,775303
22,870003	17,031149	16,687885	27,814095	27,792227
22,739277	17,004173	16,594	27,809977	27,756788
22,696741	16,966715	16,607395	27,799505	27,814289
22,569143	16,969387	16,56188	27,830891	27,809069
22,622311	16,99346	16,589956	27,80471	27,81422
22,510664	17,033535	16,572502	27,785048	27,797144
22,662128	16,966421	16,521393	27,775665	27,787804
22,576246	16,97711	16,507996	27,830553	27,800884
22,402193	16,918268	16,569586	27,773056	27,785194
22,556393	16,950361	16,585634	27,809637	27,834858
22,569696	16,961052	16,619089	27,795263	27,823034
22,468672	16,928734	16,612169	27,823767	27,81105
22,47534	16,845745	16,654917	27,791031	27,821463
22,418711	16,837702	16,628151	27,793642	27,84499
22,35223	16,81362	16,609432	27,775335	27,81102
22,498468	16,869801	16,577291	27,843304	27,84499
22,413372	16,89118	16,600002	27,83016	27,852711
22,373507	16,858805	16,582344	27,793322	27,808077
22,433495	16,915003	16,609112	27,806402	27,813299
22,243748	16,955114	16,646574	27,793322	27,792406
22,323517	16,955114	16,670666	27,80118	27,849905
22,366068	16,97117	16,686731	27,805082	27,857698
22,421898	16,928257	16,637079	27,740911	27,781759
22,291616	16,869226	16,632887	27,745975	27,784252
22,392658	16,810373	16,646284	27,764282	27,836527
22,32399	16,842474	16,614168	27,795641	27,828669
22,387882	16,879942	16,640934	27,81395	27,836527
22,4384	16,928097	16,673002	27,815197	27,819439
22,35598	16,863674	16,672836	27,707842	27,794436
22,398531	16,879652	16,651339	27,758755	27,815298
22,328308	16,887671	16,718256	27,745672	27,807463
22,334097	16,949211	16,683474	27,771814	27,807463
22,385767	16,927807	16,74769	27,748308	27,815298
22,260815	16,890179	16,708687	27,707596	27,785006
22,356522	16,860664	16,701912	27,716644	27,79932

22,36186	16,855318	16,677824	27,693113	27,770571
22,230871	16,866009	16,669804	27,700947	27,781019
22,25625	16,871355	16,664431	27,719257	27,807159
22,277325	16,879398	16,61623	27,741426	27,761326
22,232111	16,81493	16,570478	27,690214	27,759827
22,279982	16,785475	16,503565	27,721582	27,751995
22,229454	16,713243	16,546385	27,721582	27,799049
22,249855	16,737331	16,527662	27,734669	27,799049
22,269833	16,77211	16,527662	27,752972	27,80295
22,280527	16,710308	16,516687	27,705631	27,746483
22,211407	16,761156	16,495264	27,718716	27,736032
22,224689	16,753136	16,53541	27,692572	27,741257
22,42943	16,769175	16,554157	27,703018	27,798761
22,42503	16,841375	16,571543	27,730455	27,767359
22,287832	16,84391	16,590117	27,667543	27,720146
22,283756	16,841169	16,588697	27,647844	27,73053
22,29438	16,918749	16,551207	27,66354	27,706999
22,469868	16,942827	16,612791	27,666151	27,751446
22,463478	17,025734	16,564606	27,687073	27,73053
22,289988	16,953461	16,60737	27,672609	27,733051
22,526247	16,915854	16,534906	27,608372	27,680576
22,465111	16,913181	16,508135	27,624069	27,662294
22,613991	16,840946	16,542955	27,655441	27,711946
22,449175	16,889105	16,556328	27,644989	27,72242
22,486385	16,926544	16,593796	27,634518	27,72242
22,419411	16,918528	16,597811	27,608358	27,675308
22,576048	16,942516	16,552204	27,605633	27,628141
22,593273	16,878178	16,564117	27,595051	27,656809
22,65443	16,963768	16,593561	27,56629	27,648947
22,731514	17,001202	16,580164	27,584604	27,654192
22,678358	17,05736	16,636372	27,587215	27,662033
22,792639	17,108168	16,609608	27,600277	27,637178
22,783808	17,081429	16,68989	27,580635	27,658045
22,742693	17,100153	16,647057	27,584534	27,614868
22,785229	17,046673	16,676495	27,592396	27,643631
22,769272	17,065287	16,640274	27,550455	27,587343
22,867615	16,982304	16,676331	27,539936	27,597746
22,809151	16,995657	16,630814	27,526827	27,578104
22,896845	16,891338	16,676298	27,529442	27,609476
22,912586	16,958199	16,688332	27,509832	27,550613
22,921787	17,001001	16,670933	27,511082	27,554483
22,84903	17,065172	16,697695	27,503242	27,541418
22,860214	17,086569	16,700367	27,526783	27,583248
22,929317	17,153427	16,678953	27,555548	27,546646
22,913364	17,107965	16,719084	27,526783	27,578024
22,934628	17,12936	16,689648	27,537235	27,53356
22,824314	17,086569	16,732475	27,508467	27,549261
22,919783	17,086529	16,74316	27,501915	27,576698

23,060545	17,164028	16,704313	27,518871	27,530893
22,996758	17,179974	16,69351	27,492636	27,485048
23,036629	17,204069	16,743042	27,461254	27,504648
23,084463	17,284191	16,729567	27,458532	27,460093
23,129614	17,268145	16,742958	27,482077	27,496698
23,039282	17,340313	16,729567	27,461172	27,46793
23,038267	17,310919	16,761673	27,466398	27,465319
23,118353	17,316259	16,745632	27,461172	27,507174
23,148783	17,375048	16,764345	27,479464	27,460093
22,984047	17,302908	16,775064	27,466398	27,496698
23,132856	17,372379	16,758999	27,48469	27,478409
23,11425	17,396431	16,758999	27,466398	27,462704
23,111597	17,316259	16,769718	27,450695	27,478409
23,156771	17,286861	16,767044	27,455921	27,488861
23,188648	17,297543	16,721544	27,471626	27,457478
23,268351	17,206671	16,75498	27,50168	27,495378
23,162081	17,193293	16,705473	27,488581	27,41947
23,220526	17,123796	16,705473	27,49773	27,439083
23,172634	17,10507	16,649248	27,463711	27,431244
23,236319	17,038233	16,659969	27,479414	27,46524
23,202929	17,062304	16,609112	27,450644	27,426018
23,32379	17,030193	16,593042	27,471577	27,433857
23,286583	17,097057	16,566273	27,466324	27,418152
23,374241	17,089043	16,531479	27,458485	27,412924
23,262671	17,067644	16,507381	27,487253	27,431244
23,31315	17,019506	16,520781	27,49509	27,457399
23,299879	17,014162	16,518082	27,500343	27,454788
23,353008	17,019398	16,492579	27,440094	27,411551
23,298647	17,024727	16,503233	27,446629	27,418062
23,318674	17,013981	16,496492	27,458361	27,419346
23,308056	17,040724	16,493816	27,455721	27,40625
23,296556	16,984533	16,483089	27,447851	27,412794
23,227497	16,976517	16,49114	27,442625	27,418024
23,223772	16,981861	16,450966	27,408623	27,381386
23,335344	16,973846	16,450966	27,463554	27,400993
23,231735	17,035351	16,441589	27,43998	27,385277
23,279278	17,032677	16,448256	27,42297	27,359072
23,360235	16,984533	16,448256	27,451744	27,398327
23,337626	16,99255	16,416126	27,424259	27,381302
23,186213	16,925695	16,44558	27,426874	27,394396
23,356226	16,877541	16,421478	27,445189	27,383917
23,388098	16,882887	16,394701	27,46612	27,391781
23,29248	16,86685	16,397375	27,4321	27,397007
23,257925	16,906961	16,40275	27,41119	27,368233
23,409355	16,94977	16,351866	27,460897	27,399622
23,300442	16,989878	16,31703	27,468735	27,36562
23,380136	16,947098	16,351866	27,4321	27,38653
23,374828	16,896273	16,341137	27,487049	27,38653

23,361532	16,85346	16,31168	27,468735	27,378687
23,377483	16,826708	16,31168	27,468735	27,36562
23,441225	16,77854	16,343813	27,473961	27,412691
23,412008	16,802626	16,292923	27,479187	27,370848
23,435917	16,789259	16,343813	27,45826	27,381302
23,319046	16,799952	16,327759	27,442577	27,38653
23,366865	16,765175	16,338463	27,445189	27,378687
23,29248	16,799952	16,319706	27,45826	27,378687
23,332315	16,765175	16,330435	27,460897	27,410076

Room blank dry gas meter temperature	Main train flow rate Flow-H - [ln/min]	Split train flow rate Flow-D - [ln/min]	EPA Flue gas temperature	Surface temperature Top
Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C	Ovf-Top - [°C]
21,757263	6,827874	6,893614	30,038614	24,285741
21,765198	6,751105	6,885166	42,06707	24,306983
21,785021	6,750367	6,912119	46,967724	24,306983
21,802219	6,724017	6,885568	51,055557	24,309636
21,791616	6,720263	6,902866	65,038948	24,357402
21,765144	6,677352	6,878461	83,801208	24,413173
21,781036	6,796026	6,821202	100,852013	24,463612
21,812777	6,806687	6,79673	122,691483	24,543242
21,828644	6,791736	6,779834	136,292038	24,652062
21,79953	6,908733	6,937932	142,525925	24,816594
21,807489	6,897268	6,915404	141,817871	24,983756
21,79953	6,848122	6,892541	144,779938	25,195855
21,794239	6,795691	6,873969	152,067139	25,433043
21,804832	6,780404	6,865789	158,683289	25,688826
21,844521	6,731393	6,846748	160,76059	25,977807
21,823341	6,712486	6,832265	165,298431	26,266703
21,83392	6,88768	6,896363	177,51088	26,555527
21,825987	6,863208	6,899179	194,666245	26,876077
21,836565	6,818353	6,862504	211,259933	27,238877
21,820698	6,784092	6,851039	225,133713	27,639792
21,823341	6,765185	6,83488	231,643021	28,026149
21,865677	6,723816	6,817046	240,074341	28,461093
21,894785	6,716308	6,794517	241,577621	28,875991
21,921249	6,67105	6,756368	251,897949	29,317319
21,926538	6,669709	6,759586	248,323257	29,70568
21,937138	6,640945	6,760659	244,893448	30,122962
21,921249	6,588447	6,741349	249,037033	30,537446
21,902716	6,80662	6,945576	252,400238	30,964968
21,913317	6,784159	6,891669	247,975494	31,394933
21,966244	6,806084	6,877388	250,290283	31,84318
22,000628	6,772761	6,862369	254,711273	32,325105
22,00857	6,859185	6,848692	261,01944	32,826844
22,000641	6,825259	6,847016	271,227081	33,34287
22,016502	6,781678	6,820666	277,736542	33,93102
22,042955	6,753854	6,809469	285,146881	34,538605
22,08132	6,719995	6,786405	286,947021	35,211556
22,13026	6,697601	6,762201	291,654755	35,902478
22,132904	6,666558	6,737527	295,861755	36,694829
22,115734	6,612383	6,722039	297,334991	37,405797
22,158054	6,794887	6,84715	295,383453	38,181805
22,152748	6,76029	6,828176	297,304016	38,946786
22,196398	6,738835	6,805379	297,337646	39,81849

22,214922	6,705043	6,785064	295,439148	40,713044
22,255919	6,669441	6,771252	295,641449	41,635342
22,253277	6,652276	6,761999	297,706451	42,575497
22,308826	6,588179	6,745037	297,551422	43,481076
22,30884	6,931261	6,938536	294,061279	44,438123
22,311481	6,886004	6,89234	295,227692	45,446526
22,320744	6,882048	6,880807	293,197845	46,490201
22,393484	6,834377	6,877388	292,20929	47,542355
22,367046	6,829081	6,860827	289,147003	48,612004
22,384232	6,791468	6,835684	289,398346	49,687367
22,456972	6,769409	6,841384	286,707764	50,767121
22,43582	6,776449	6,805379	284,043793	51,91306
22,483416	6,933071	6,813157	282,052124	53,006779
22,507229	7,017886	7,005248	283,19754	54,067303
22,533659	7,009036	6,986541	281,053284	55,199712
22,569386	6,991537	6,96522	280,183563	56,430848
22,546926	6,973032	6,940346	279,660553	57,578351
22,60511	6,963712	6,945106	277,152924	58,790074
22,618364	6,965187	6,941284	276,996735	59,980477
22,631586	6,912421	6,922511	274,432831	61,138928
22,692394	6,919863	6,903604	274,092438	62,387288
22,717512	6,908532	6,891133	271,824402	63,563138
22,734726	6,927439	6,911113	267,46756	64,748822
22,753258	6,897201	6,901726	265,850464	65,937489
22,803488	6,83659	6,873634	277,123108	67,208562
22,814106	6,866896	6,871152	221,165848	68,189725
22,863016	6,908599	6,90119	232,24028	69,310948
22,868307	6,967869	6,926132	235,637146	70,322171
22,927809	6,957477	6,916544	237,338287	71,605122
22,925182	6,923148	6,907426	238,163864	72,631955
22,934467	6,882116	6,884763	260,401917	73,694363
22,975477	6,747283	6,786472	269,484558	74,839261
22,980753	6,708731	6,760055	273,027283	75,847852
23,036303	6,684795	6,752881	276,907715	76,894658
23,057428	6,634442	6,714932	288,1539	77,895627
23,053488	6,832902	6,830991	298,857513	78,958279
23,099791	6,802731	6,759452	290,798431	79,992436
23,105087	6,757608	6,744902	286,582092	80,890698
23,148695	6,719927	6,722777	285,534241	81,989789
23,184397	6,731192	6,714865	285,427246	82,86469
23,184397	6,709401	6,703601	285,409088	83,665501
23,212223	6,694181	6,881076	286,278076	84,886258
23,232059	6,798909	6,877321	289,199066	85,699689
23,242609	6,788518	6,869879	291,473083	86,627248
23,270437	6,780941	6,847016	292,518829	87,714803
23,290251	6,753384	6,862168	294,996582	88,606213
23,29291	6,768939	6,847082	295,736084	89,70728
23,385412	6,740444	6,844736	296,901855	90,674588

23,382778	6,757139	6,840244	298,878967	91,537129
23,373547	6,738634	6,83602	299,85907	92,475301
23,425152	6,753854	6,824421	300,958801	93,404782
23,398771	6,818286	6,838702	303,75769	94,405118
23,488579	6,822376	6,805379	306,621918	95,618283
23,493906	6,817884	6,786405	308,937958	96,574773
23,49127	6,821572	6,797736	310,892914	97,533734
23,565292	6,824387	6,805648	311,625244	98,4418
23,533649	6,808631	6,813022	303,77478	99,42381
23,618208	6,802798	6,797669	302,368683	100,464604
23,612967	6,795222	6,820062	302,296478	101,331067
23,610407	6,806419	6,811146	299,32608	102,300069
23,626352	6,806486	6,824287	299,677307	103,41499
23,635592	6,800652	6,820599	297,397766	104,450169
23,684574	6,791468	6,832869	296,100983	105,340123
23,697742	6,813995	6,820532	295,356476	106,262036
23,736177	6,81775	6,810408	297,934631	107,389706
23,750698	6,786506	6,824354	299,009857	108,369489
23,753498	6,799312	6,805446	300,475311	109,44769
23,743008	6,812989	6,812956	302,293243	110,27123
23,780058	6,798977	6,818386	305,171173	111,179829
23,785416	6,776985	6,813425	306,849182	112,13596
23,776323	6,802597	6,787411	309,836609	112,995763
23,812029	6,795356	6,800284	312,462006	114,010266
23,816107	6,779801	6,790159	314,418579	115,054005
23,833355	6,780271	6,79787	313,544647	115,873486
23,847994	6,770549	6,775878	314,300873	116,698994
23,852057	6,750032	6,49924	316,119873	117,902303
23,861433	6,712553	6,251433	320,342896	118,816258
23,886587	6,746277	6,918555	326,990692	119,787061
23,880171	6,735081	6,911046	328,533936	120,760617
23,910593	6,501621	6,873499	329,74408	121,806004
23,938408	6,730454	6,884763	331,480316	122,622105
23,939846	6,803201	6,834612	336,453735	123,517651
23,962423	6,654355	6,831796	339,541077	124,583073
23,963867	8,359036	6,791232	342,667236	125,414868
23,957441	7,663889	6,754759	346,234741	126,310651
23,96681	7,02211	6,948861	350,658295	127,611279
24,024944	6,693913	6,952682	353,580566	128,434521
24,033098	6,644633	6,766156	355,529755	129,542065
24,029287	6,558946	6,548654	361,992615	130,766461
24,046638	5,671372	5,508949	365,8125	131,894055
24,057283	4,859829	5,160838	367,155762	132,718976
24,090456	4,150668	4,327572	366,46994	133,522153
24,102442	0,000564	0,000463	367,007385	134,583875
24,08025	0,000564	0,000664	368,080444	135,539792
24,05654	5,834096	3,259841	367,557434	136,393918
24,089788	6,049051	7,151143	367,330597	137,497403

24,091133	6,934949	7,152551	366,134491	138,408017
24,1481	6,927373	7,131431	367,182281	139,462308
24,131069	6,929451	7,157512	366,242279	140,086621
24,155056	6,946548	7,122379	365,537476	141,569592
24,173817	6,953722	7,128011	364,365234	142,475507
24,179272	6,965187	7,144639	364,575653	143,336987
24,188759	6,957544	7,164753	364,058685	144,665494
24,229942	6,71168	7,095761	361,157471	145,745511
24,22611	6,643011	6,183715	360,015137	146,897534
24,232979	6,988453	7,318293	354,250153	148,055737
24,25309	6,847854	7,303944	352,657196	149,214261
24,237457	7,100891	7,103405	348,966705	149,864285
24,246944	7,062942	7,169916	347,395508	151,208569
24,300037	7,021306	7,171458	345,623901	152,202527
24,306801	6,896866	6,863711	344,549377	153,414899
24,284668	6,824723	6,933708	341,797211	154,217862
24,332489	6,759888	6,929953	340,673431	155,076733
24,331364	6,904174	6,907426	340,919128	156,500043
24,340834	6,793344	6,886104	339,078491	157,155576
24,34919	6,69921	6,862437	335,841187	158,18237
24,353333	6,608762	6,843328	333,275421	159,067746
24,337824	6,535144	6,820599	331,049896	159,812268
24,376442	6,440876	6,820599	328,392151	160,732785
24,383221	6,320794	6,786472	326,956055	161,768781
24,395342	6,178721	6,767564	325,421387	162,574979
24,41427	7,013931	6,836691	324,756897	163,505917
24,414497	6,890697	6,813022	322,33078	164,827023
24,452959	6,789858	6,782449	317,603241	165,243893
24,486338	6,821303	6,733839	315,341736	166,336987
24,493134	6,917248	6,730085	313,295807	167,181851
24,510593	6,829014	6,937529	311,87619	167,850171
24,545259	6,946011	6,999079	310,742462	168,562878
24,560019	6,956002	6,981513	309,824127	168,914349
24,572229	6,93106	6,979032	308,524628	169,950818
24,614746	6,968674	6,97521	308,031128	170,44975
24,642883	6,953655	6,952749	307,453613	171,129056
24,661564	6,938435	6,914934	304,449402	171,901227
24,654009	6,889491	6,909101	303,498688	172,268872
24,684801	6,915907	6,910174	300,784302	172,773434
24,702154	6,908398	6,907291	299,497253	173,35304
24,70521	7,039542	6,907358	298,573669	173,814542
24,743813	7,053556	7,13713	296,841125	174,139813
24,754698	7,051007	7,055198	295,578461	174,645795
24,777538	7,070451	7,055533	295,542999	174,867719
24,798965	7,046449	7,054192	294,590973	175,469861
24,81925	7,028681	7,027641	293,833038	175,635907
24,8445	7,047789	7,050571	292,368073	175,989011
24,872606	7,027005	7,050571	289,347382	176,118741

24,870445	7,010109	7,050437	287,619598	176,923367
24,893154	7,006488	7,011617	286,819397	177,194867
24,925261	6,989592	7,016444	286,161835	177,496167
24,905903	6,969009	7,016377	283,698792	177,584134
24,921989	6,968674	7,005248	281,206818	177,850613
24,934422	6,964717	7,016377	279,853394	177,915875
24,979616	6,994286	7,025161	276,006744	178,140805
24,985104	6,971959	6,910979	273,323029	178,240872
25,001478	6,945609	6,910174	270,375885	178,078732
25,009861	6,932267	6,914934	268,115631	178,268643
24,998331	6,938837	6,907157	265,173859	178,068967
25,018604	6,933876	6,918555	263,301483	177,893124
25,029806	6,934278	6,892273	261,871948	177,95477
25,036581	6,941788	6,899782	259,24707	178,168713
25,040991	6,926099	6,914801	257,837219	177,812192
25,06274	6,932736	6,896161	254,986023	178,130704
25,041706	6,897	6,897502	249,148285	177,904034
25,087101	6,904308	6,892407	221,428513	177,800778
25,083481	6,893782	6,89234	237,560074	177,248639
25,093082	6,895793	6,862236	239,777771	176,959103
25,095976	6,880037	6,872695	253,161072	176,873074
25,101696	6,862202	6,880942	265,568939	176,318478
25,115126	6,861129	6,878863	275,920837	176,26727
25,128729	6,843429	6,865923	297,662506	175,991269
25,163164	6,843362	6,859017	307,227753	175,682965
25,154299	6,832769	6,858481	317,699432	175,535565
25,171801	6,762034	6,820532	323,269897	174,865628
25,132362	6,697132	6,76381	326,378479	174,672635
25,193497	6,614193	6,704875	334,671814	174,554547
25,183067	6,875008	6,862034	339,012604	174,511472
25,164663	6,934144	6,869745	319,925873	174,155179
25,221882	6,907661	6,862236	311,459808	173,804028
25,217999	6,885199	6,850771	305,807526	173,884305
25,199596	6,870114	6,848692	302,908752	173,230603
25,217104	6,824522	6,816375	299,465698	173,321622
25,22403	6,79958	6,817783	297,899994	172,630505
25,234638	6,757072	6,782516	297,915497	172,721509
25,230934	6,745741	6,782583	296,054382	172,879071
25,247078	6,713223	6,759921	295,485596	172,496243
25,265776	6,703971	6,742086	294,369476	172,370068
25,271128	6,936222	6,940949	270,04007	172,506558
25,275126	6,921673	6,918555	257,733246	172,329678
25,298002	6,888887	6,926199	250,875046	172,399106
25,327082	6,904308	6,915337	246,842896	172,166089
25,329733	6,901157	6,903537	243,547714	171,523373
25,358057	6,903839	6,896094	240,600006	171,592862
25,348913	6,904308	6,911716	238,611191	171,4427

25,322641	6,900352	6,913191	236,819901	171,402478
25,3283	6,904375	6,899715	235,201721	171,364835
25,370731	6,900687	6,888451	233,003464	171,269604
25,320925	6,881378	6,887043	231,840668	171,610852
25,336889	6,884998	6,881009	230,430145	171,004315
25,298836	6,889356	6,884227	228,857391	170,986829
25,361366	6,860258	6,882819	227,209167	170,757993
25,366615	6,873667	6,884629	225,995712	170,906186
25,348219	6,869041	6,877522	224,879089	170,841946
25,327192	6,874069	6,884562	224,079727	170,627621
25,31407	6,874002	6,906889	223,870712	170,563245
25,361868	6,857509	6,891401	222,425903	170,482968
25,34347	6,866627	6,888518	222,052017	170,349088
25,326551	6,818219	6,869745	220,300964	170,15881
25,350307	6,956873	6,888518	222,151443	170,379514
25,341156	6,938435	6,873499	220,110611	169,941968
25,349054	6,930859	6,858481	219,429581	169,762402
25,322865	6,915505	6,87712	219,193848	170,10217
25,352186	6,964785	6,869677	218,085342	169,604459
25,352186	6,938368	6,862303	218,957962	169,60838
25,325911	6,932401	6,874572	218,239532	169,571988
25,328537	6,920332	6,867532	217,021393	169,352597
25,33906	6,943464	6,835484	217,973038	169,154599
25,303635	6,922142	6,858414	218,099731	168,929761
25,307743	6,926567	6,843194	217,895386	168,653943
25,320976	6,930524	6,825225	215,914413	168,557629
25,319725	6,91584	6,849362	216,350494	168,411771
25,327904	6,83592	6,83193	216,505157	168,38902
25,300375	6,830489	6,831796	216,174225	168,227032
25,340122	6,828477	6,821672	216,007401	167,891232
25,358601	6,832098	6,820599	214,36293	167,650418
25,321829	6,815068	6,828041	215,235306	167,423077
25,334953	6,818286	6,819861	214,069443	167,29472
25,321829	6,810643	6,820532	216,415512	166,996503
25,324455	6,809771	6,811749	216,269775	166,989499
25,324455	6,783221	6,810877	215,760437	166,837064
25,319292	6,787511	6,812218	216,107132	166,949368
25,33119	6,776114	6,81309	216,552444	166,510846
25,340525	6,783622	6,794048	218,343842	166,28085
25,319525	6,783287	6,784662	219,850555	166,184537
25,330025	6,812051	6,839439	219,474915	166,322232
25,332651	6,824857	6,862236	217,869095	166,013211
25,322149	6,836121	6,839506	215,600006	165,876813
25,340525	6,805883	6,840646	214,938507	165,600049
25,303751	6,810978	6,850971	214,790497	165,31799
25,335276	6,810576	6,821605	215,756149	165,387509
25,319525	6,813392	6,820532	215,985474	165,272565
25,301126	6,776046	6,826097	215,678802	164,943784

25,319525	6,783221	6,817112	215,42804	164,983868
25,322149	6,775778	6,824354	215,090683	164,584195
25,309002	6,769878	6,824421	215,976181	164,463895
25,282724	6,78369	6,805513	216,542679	164,288754
25,287977	6,762168	6,801692	216,661179	163,949277
25,260435	6,772024	6,789891	215,184937	163,922498
25,286713	6,774303	6,811078	214,472672	164,005338
25,286625	6,760692	6,804843	214,507339	163,740796
25,249823	6,753183	6,794182	213,9617	163,597836
25,27096	6,749562	6,789422	212,73938	163,584409
25,247002	6,745472	6,907291	213,658859	163,762097
25,239002	6,832567	6,875377	213,103775	163,36665
25,2391	6,809972	6,873164	213,317276	163,003293
25,258863	6,820834	6,884897	213,21051	162,84834
25,240269	6,831025	6,858749	214,13121	162,904446
25,228598	6,810844	6,850971	214,627487	162,599927
25,254875	6,817347	6,843194	215,014328	162,656033
25,241625	6,8148	6,839439	215,209045	162,399564
25,221865	6,790931	6,839439	215,673157	162,340817
25,188957	6,780672	6,834612	215,25705	162,358151
25,224489	6,784964	6,828041	216,051956	162,21922
25,228474	6,764984	6,798004	215,073044	162,034924
25,213989	6,826064	6,809268	213,457474	162,054913
25,246769	6,813392	6,786874	210,624786	161,790509
25,24152	6,806151	6,781912	209,064682	162,065625
25,228369	6,798172	6,781175	206,501587	161,790509
25,244144	6,793546	6,778627	206,60585	161,502118
25,217865	6,801994	6,768235	204,343613	161,723767
25,231016	6,909068	7,073234	203,969131	161,56088
25,24152	6,971959	7,035553	202,869675	161,544843
25,236269	6,945609	7,030591	202,251587	161,454053
25,234695	6,932267	7,016579	202,746597	161,165646
25,214922	6,938837	7,024557	202,786728	160,850598
25,193783	6,933876	7,009136	204,557587	161,066846
25,198944	6,934278	7,015573	203,402069	160,831876
25,201571	6,941788	6,994117	204,126968	161,000119
25,193691	6,926099	6,990363	203,926361	161,138959
25,193691	6,929116	6,990363	204,367676	160,628979
25,196321	6,919059	6,979099	203,830032	160,738461
25,206821	6,881043	6,976618	203,043533	160,476819
25,204195	6,904107	6,974472	204,084183	160,287289
25,180538	6,877154	6,956437	203,1586	159,977643
25,180538	6,877623	6,967768	202,722519	159,916226
25,222601	6,875746	6,960057	202,759964	159,70004
25,225224	6,882048	6,955901	201,347107	159,614651
25,188419	6,854157	6,967768	202,302429	159,542584
25,204195	6,843697	6,940547	202,042877	159,638669
25,219973	6,854425	6,812151	203,024841	159,673367

25,201571	6,857308	6,796663	202,644913	159,385114
25,238352	6,824589	6,794115	201,756577	159,126294
25,267281	6,821236	6,797401	202,719833	159,155652
25,225224	6,790998	6,782918	203,163971	158,862119
25,223429	6,836188	6,775208	203,281631	158,702039
25,197065	6,815135	6,775141	203,677567	158,632657
25,229847	6,784226	6,79492	203,985229	158,838132
25,229656	6,772426	6,786874	204,54039	158,221921
25,206001	6,776046	6,771453	204,095184	158,108609
25,219128	6,76438	6,778896	204,551315	158,30206
25,219128	6,755798	6,782718	203,342285	157,80856
25,187595	6,742858	6,779029	204,802734	157,941953
25,182344	6,734142	6,773397	204,487122	157,699216
25,206001	6,70444	6,778963	205,979324	157,584515
25,206001	6,709937	6,786874	206,131729	157,533856
25,17972	6,840144	6,924053	206,046173	157,800565
25,213877	6,82251	6,94048	205,292114	157,488507
25,192848	6,799513	6,944502	205,891098	157,28584
25,213877	6,790596	6,956638	205,457916	157,376492
25,211252	6,768738	6,948995	208,085754	157,224484
25,208626	6,885467	6,926199	209,48056	157,304486
25,242783	6,855296	6,924321	211,646622	157,200482
25,170254	6,767263	6,930087	214,494568	157,06181
25,150164	6,720732	6,929417	216,982986	157,208493
25,169836	6,584089	6,920701	216,799026	156,82449
25,168377	6,889424	6,918756	214,611984	157,11781
25,17363	6,843362	6,930021	213,683411	156,912488
25,156588	6,926567	6,9264	212,060486	156,88313
25,15785	6,78959	6,930154	213,058868	156,656522
25,15522	6,858716	6,916074	211,067154	156,744489
25,142094	6,7503	6,906151	212,068542	156,547238
25,13419	6,689287	6,899983	215,615036	156,560559
25,181505	6,878227	6,892474	215,62056	156,302029
25,168377	6,719593	6,90005	214,033325	156,423444
25,17363	6,941922	6,907492	212,068909	156,482144
25,164381	7,051209	6,901726	210,855255	156,298215
25,185305	6,859587	6,911381	209,090851	156,600858
25,149771	6,815202	6,904341	208,12085	156,534207
25,152182	6,960628	6,909236	207,786804	156,835507
25,196869	6,956404	6,911381	206,188232	156,736844
25,151876	6,885334	6,915069	206,765701	156,699506
25,147884	6,786908	6,92412	205,436874	156,74751
25,143888	7,178062	6,915203	204,607849	156,600858
25,154417	7,033173	6,911314	203,981964	156,416898
25,151766	6,904375	6,903671	203,281097	156,550198
25,172796	6,772694	6,907827	202,705902	156,619519
25,180698	7,050471	6,899983	203,096512	156,512875
25,185949	6,900754	6,911381	203,297134	156,531522

25,23061	7,032637	6,903738	203,350647	156,614194
25,20433	6,889088	6,902062	202,402313	156,444958
25,191202	7,058517	6,900787	203,037918	156,518369
25,185949	6,849597	6,903201	204,039841	156,533093
25,19908	7,025731	6,892608	202,696976	156,718411
25,20433	6,767062	6,903872	203,742996	156,782422
25,20433	6,875008	6,897301	204,363556	156,593106
25,184284	7,01326	6,895424	203,341736	156,499799
25,182808	6,840009	6,893077	203,463409	156,641156
25,190685	6,906722	6,879668	202,838684	156,605191
25,180185	6,956739	6,90823	203,120956	156,459897
25,172306	6,987313	6,885568	204,121429	156,865186
25,193336	6,851206	6,888853	203,07814	156,683865
25,185436	6,655226	6,892876	203,094223	156,891858
25,198587	6,877623	6,896363	202,995209	156,769177
25,224869	6,719324	6,890127	202,941711	156,819836
25,21699	6,849664	6,892608	203,016647	156,862546
25,214342	6,953119	6,887043	201,941071	157,15321
25,203838	6,964048	6,903134	201,879501	156,953214
25,214342	6,772157	6,8971	202,246338	156,817349
25,214342	6,802061	6,888786	201,940094	156,574796
25,23012	6,810978	6,892608	201,833069	156,518811
25,218246	6,8207	6,895156	201,940094	156,220227
25,218246	6,79844	6,885099	201,897324	156,609479
25,19038	7,065691	6,873834	199,932816	156,313504
25,173151	6,7796	6,881344	199,59285	156,348187
25,205858	6,820834	6,884831	197,809784	156,002988
25,155809	6,734343	6,881344	196,765381	155,832425
25,197771	6,794619	6,868069	195,205246	156,332272
25,155737	6,610372	6,896966	194,449905	156,068356
25,19252	6,827002	6,896363	193,431946	155,905759
25,163612	6,862604	6,884897	194,364182	156,023022
25,203022	6,813526	6,889524	194,827576	155,985715
25,187269	6,749697	6,896363	192,317459	155,644574
25,187269	6,947084	6,90005	192,625778	155,503445
25,166237	6,790998	6,897033	192,668671	155,396832
25,203022	6,734611	6,90005	192,42099	155,530179
25,208298	6,828611	6,877455	192,573715	155,399579
25,182016	6,78778	6,881344	194,001633	155,578152
25,179392	6,730924	6,881679	193,669434	155,28764
25,204302	6,853218	6,886707	191,72168	155,135754
25,191044	6,820901	6,855732	190,746368	154,989194
25,161938	6,745674	6,886038	189,698608	154,799985
25,182865	6,738232	6,813291	188,050446	154,893246
25,184237	6,783354	6,767832	187,274582	154,991879
25,214399	6,760894	6,78674	187,013245	154,844037
25,21965	6,816141	6,786673	185,583435	154,544293
25,214399	6,896799	6,786673	184,894653	154,554944

25,217026	6,753317	6,832198	184,538223	154,451047
25,230175	6,768671	6,786673	183,246475	154,440442
25,24593	6,764782	6,77152	183,506622	154,656339
25,256456	6,757005	6,769308	182,760406	154,500577
25,240677	6,738366	6,771721	181,811768	154,089001
25,248579	6,738299	6,782918	180,930054	153,905209
25,272205	6,697266	6,782851	179,842102	153,811963
25,240597	6,681979	6,775275	180,112732	153,388501
25,240597	6,685666	6,773264	179,667908	153,348569
25,241854	6,68218	6,775208	178,711334	153,170148
25,221975	6,644164	6,77152	178,036118	153,162152
25,221899	6,666826	6,775208	177,687805	153,011731
25,242821	6,65583	6,768369	177,6194	152,786801
25,21887	6,730588	6,777421	176,936218	152,829404
25,21887	6,670782	6,782315	176,089676	152,477963
25,208342	6,659384	6,798071	176,563858	152,549832
25,224121	6,632967	6,779097	176,127182	152,382123
25,242521	6,674336	6,779968	176,312027	152,318234
25,2609	6,655494	6,779164	175,896805	152,280972
25,234621	6,642488	6,780706	175,984024	151,773999
25,243677	6,632899	6,779097	176,355179	151,581128
25,239601	6,62177	6,760256	175,984268	151,457455
25,229073	6,641951	6,994319	175,77269	151,104886
25,20669	6,606215	6,707557	175,724472	151,373639
25,243494	6,602728	6,707356	175,593216	150,908032
25,227716	6,602929	6,70159	175,424469	150,865445
25,227716	6,572959	6,715201	175,63739	150,523602
25,251371	6,565316	6,722509	175,516846	150,532956
25,244751	6,651807	6,715134	174,43335	150,284253
25,223642	6,606014	6,696561	175,51413	150,213788
25,229971	6,591799	6,690996	174,386475	150,096768
25,204844	6,56545	6,70635	174,871262	149,735104
25,229753	6,573026	6,522506	174,753403	149,692532
25,223032	6,573093	6,527936	176,159714	149,665936
25,23745	6,567662	6,495217	175,439133	149,394742
25,232199	6,554186	6,489317	176,424911	149,006543
25,226948	6,53548	6,522372	175,859726	148,754086
25,240074	6,542922	6,540609	176,249619	148,556119
25,250601	6,508929	6,538329	176,501663	148,651913
25,271603	6,505174	6,541279	176,87677	148,241315
25,224319	6,490223	6,533702	177,431351	148,018079
25,25186	6,486334	6,521299	177,002701	147,946332
25,229183	6,475204	6,443725	179,033615	147,96098
25,227631	6,486468	6,447547	178,028763	147,830823
25,206493	6,463806	6,511108	178,501663	147,640866
25,207762	6,467695	6,530283	179,401978	147,279568
25,220917	6,433501	6,525254	179,11525	147,141415
25,213036	6,41875	6,532429	180,053146	147,053784

25,234041	6,379729	6,522372	181,028549	146,721753
25,226166	6,358072	6,491061	181,32872	146,615536
25,215662	6,304166	6,470074	180,929413	146,312817
25,226166	6,267626	6,529009	179,996918	146,134976
25,22879	0,000296	0,000329	180,361282	146,227856
25,211569	0,000228	0,000529	180,018585	146,137753
25,099325	0,000564	0,000664	179,074127	145,876324
25,075588	0,000363	0,000798	180,030807	145,784756
25,057178	8,597725	6,415029	179,695847	145,57771
25,038483	6,935016	7,051175	179,504242	145,520657
25,044821	6,824656	6,817381	179,012497	145,311017
25,059065	6,806486	6,828644	178,424347	145,214139
25,049997	6,806419	6,833271	176,969528	145,023083
25,08037	6,798776	6,840579	175,099701	144,739148
25,080454	6,807424	6,826834	171,977127	144,763028
25,063229	6,823247	6,859017	168,390457	144,471158
25,088249	6,791937	6,870214	167,622589	144,394223
25,053986	6,817549	6,858816	166,699677	144,274869
25,071032	6,806285	6,877589	165,070969	144,333203
25,082724	6,802262	6,856	163,589996	144,11839
25,082724	6,825058	6,868672	162,788483	144,016415
25,051159	6,819091	6,866258	160,989243	143,739316
25,066942	6,821103	6,858682	160,026443	143,773846
25,059065	6,817482	6,867867	160,16391	143,706235
25,043278	6,81956	6,866459	159,62854	143,280637
25,045904	6,817012	6,877455	157,888184	143,187848
25,045904	6,813124	6,881411	156,924988	143,352231
25,061687	6,806217	6,888719	156,487503	142,874997
25,048531	6,821169	6,884897	155,178131	142,631085
25,051159	6,817347	6,888853	154,101227	142,583401
25,043278	6,815873	6,877522	152,430695	142,116925
25,045904	6,798172	6,877522	152,457321	142,066586
25,034031	6,8148	6,885099	151,245697	141,6797
25,016705	6,799781	6,877522	150,479141	141,417447
25,024403	6,832567	6,877589	150,202652	141,154034
25,016323	6,805748	6,879198	149,10524	141,17529
25,010975	6,756938	6,700115	148,371231	140,680051
25,008348	6,7503	6,720497	147,08046	140,65495
25,029385	6,725359	6,711848	147,011383	140,461652
25,018879	6,742121	6,699981	146,689835	140,117459
25,042519	6,738299	6,709032	144,076569	140,175687
25,037266	6,747954	6,695958	144,620758	140,125378
25,039892	6,730789	6,707624	143,712982	139,990369
25,026556	6,730991	6,688784	142,749893	139,511288
25,017233	6,705579	6,688918	142,134583	139,492764
25,026203	6,742389	6,691197	141,726273	138,804745
24,991838	6,719056	6,692807	141,166016	138,64494
25,002344	6,730991	6,700048	140,673111	138,514035

25,002344	6,707792	6,710038	139,478378	138,012784
25,018127	6,704708	6,689119	139,243988	137,910977
25,020754	6,714899	6,711312	138,312027	137,567258
25,039167	6,730253	6,703736	137,989136	137,305539
25,021843	6,718989	6,710843	136,653183	137,146924
25,020477	6,727236	6,685096	137,007599	136,710812
24,99654	6,715369	6,706283	135,730423	136,644742
24,988464	6,72147	6,700048	135,78064	135,968304
25,014759	6,696997	6,673698	135,307587	135,873257
25,022663	6,717581	6,700115	134,206192	135,166882
24,991095	6,712083	6,673698	133,835266	134,88577
25,012131	6,704574	6,687644	133,462982	134,682462
25,015945	6,715569	6,685029	132,9944	134,0939
25,01837	6,723012	6,688784	132,814896	133,872281
25,003515	6,719123	6,691801	132,479752	133,663815
24,998262	6,719659	6,680805	131,791183	132,993771
24,990379	6,701691	6,679799	131,371857	132,76167
25,003515	6,703769	6,692471	130,617813	132,553342
25,027178	6,709401	6,68161	130,148712	132,02081
25,032433	6,694718	6,692539	129,927643	131,521497
25,042858	6,734611	6,68865	129,504913	131,406934
25,024282	6,735081	6,673966	129,381088	131,072293
25,017502	6,685867	6,685096	128,693726	130,819394
24,989655	6,708329	6,658478	127,519653	130,604764
24,981775	6,701154	6,669944	127,320999	130,095166
25,018574	6,700551	6,670011	126,671234	129,705487
25,000189	6,681241	6,681274	127,184158	129,23956
25,031734	6,704507	6,67457	127,155228	128,868481
25,002615	6,709401	6,681274	125,961227	128,613263
25,00906	6,70216	6,683487	126,589951	128,292416
24,989029	6,68922	6,673832	126,294273	127,896687
24,991587	6,678426	6,69341	125,174492	127,653455
25,009974	6,682582	6,690728	124,911713	127,282697
25,012627	6,697332	6,684895	124,46505	126,837216
25,020506	6,693846	6,692539	124,563538	126,37338
25,025761	6,711212	6,707557	124,306114	125,984502
25,025496	6,708329	6,685029	123,16394	125,68504
25,021502	6,709937	6,710105	123,295174	125,241185
24,998943	6,674402	6,696293	123,347679	124,926099
24,998758	6,687477	6,711379	122,703514	124,659756
25,006662	6,694047	6,697902	122,370583	124,28851
25,019794	6,684929	6,688717	122,911118	123,900121
25,027699	6,689689	6,703869	122,20269	123,70596
25,030226	6,674	6,689991	121,301735	123,288953
25,035318	6,685063	6,684962	122,280022	122,919125
25,011564	6,689153	6,690929	121,965218	122,5966
25,019182	6,678492	6,692471	120,84034	122,271497
25,011215	6,665954	6,685834	120,381653	121,878331

25,027	6,677956	6,682951	120,376472	121,561292
25,037506	6,674201	6,688985	120,380829	121,197346
25,040159	6,661529	6,684895	119,78083	120,901311
25,028095	6,666826	6,677386	119,52935	120,571317
24,986879	6,677822	6,68865	118,89032	120,329167
25,007919	6,681912	6,681141	118,907318	119,89848
24,979	6,679163	6,68865	118,763306	119,526791
25,021051	6,681979	6,681141	118,807831	119,267705
25,005293	6,678559	6,681141	118,72406	118,906606
25,022314	6,685867	6,680939	117,813507	118,626881
25,005032	6,681241	6,68865	117,045883	118,184949
25,025797	6,691432	6,663373	117,835922	117,965268
25,009861	6,667631	6,686102	117,215889	117,750874
25,009861	6,67038	6,673296	116,675797	117,303876
25,012487	6,636588	6,68865	117,028831	117,037343
25,041403	6,663206	6,681141	116,471794	116,773412
25,036077	6,656769	6,677386	116,108467	116,553983
25,027832	6,670849	6,684962	116,65136	116,150571
25,019711	6,668972	6,673564	116,24353	115,8411
25,003927	6,693243	6,688985	116,214775	115,595601
25,040749	6,681777	6,682012	115,854042	115,277066
25,046001	6,667027	6,684895	114,87027	115,048642
25,051254	6,650265	6,696561	114,998222	114,854253
25,033949	6,668972	6,690527	115,215057	114,454953
25,01675	6,641347	6,684024	114,679619	114,264523
25,024321	6,663272	6,684828	114,328766	113,89166
25,024321	6,636922	6,686773	114,292198	113,581258
24,995403	6,647985	6,695556	114,367928	113,393445
25,032202	6,666022	6,688784	114,263481	113,153546
25,040081	6,653215	6,696226	113,528542	112,843289
25,060961	6,651807	6,685029	114,149803	112,606114
25,013155	6,659317	6,695221	113,708649	112,33508
25,026285	6,668033	6,674905	113,269241	112,07076
25,03154	6,659853	6,684024	112,6222	111,795872
25,042072	6,653618	6,690192	112,804817	111,642155
25,026285	6,670514	6,688717	113,731277	111,412885
25,060482	6,655629	6,673564	113,177948	111,194066
25,037907	6,681845	6,696092	112,679527	110,940205
24,991547	6,678157	6,692337	112,605156	110,649876
25,00462	6,657707	6,686571	111,987045	110,386945
25,02038	6,667229	6,688717	111,57412	110,195813
25,03091	6,674402	6,70749	111,336967	109,822316
25,044044	6,672726	6,687242	111,336967	109,720799
25,049227	6,659317	6,692337	111,751511	109,444951
24,998806	6,643091	6,684694	111,086723	109,225095
25,009232	6,669441	6,692539	111,726631	108,893445
25,014509	6,65174	6,684895	111,059326	108,716634
25,03027	6,663407	6,677453	111,077858	108,491803

25,035522	6,675476	6,689119	110,782188	108,266934
25,025015	6,69331	6,699444	111,01413	108,139508
25,024862	6,672593	6,692404	109,867706	107,91068
25,019442	6,68513	6,692337	110,294937	107,670232
25,025812	6,662468	6,685901	109,693138	107,477895
25,013872	6,642018	6,667731	109,691833	107,237492
25,021751	6,681845	6,685163	109,91581	106,995808
25,05332	6,660658	6,684895	109,83017	106,866063
25,040163	6,674737	6,677386	109,485291	106,744046
25,029482	6,655629	6,681207	109,592049	106,55956
25,039782	6,651606	6,682749	109,427971	106,323132
25,023775	6,662803	6,684962	109,852509	106,016614
25,031652	6,651606	6,673631	109,085518	105,868672
25,029026	6,666424	6,673631	109,244347	105,611569
25,005362	6,658781	6,684828	109,153252	105,484402
25,00799	6,667765	6,677319	108,739532	105,17809
25,023542	6,656836	6,676648	107,812004	105,092587
25,026169	6,659652	6,658947	108,933708	104,871915
25,016771	6,670648	6,666055	108,842583	104,516309
25,017902	6,640141	6,669742	108,262154	104,291875
25,020529	6,65583	6,661093	107,620712	104,096028
25,012648	6,678626	6,675173	107,854858	103,940343
25,044193	6,66401	6,688449	107,948586	103,758794
25,025637	6,652209	6,681207	107,34272	103,638303
25,022926	6,650936	6,67752	108,14547	103,403638
25,029316	6,653818	6,666055	108,155891	103,289494
24,988371	6,663139	6,669608	107,466431	103,069051
24,988371	6,6506	6,664043	107,203651	102,849988
24,993649	6,638934	6,654657	107,009911	102,669804
25,030447	6,664144	6,658546	106,98909	102,540166
25,039621	6,659317	6,651103	106,976143	102,376859
25,01317	6,667161	6,67229	106,729416	102,235753
25,001303	6,644365	6,684828	106,733452	102,053075
25,00913	6,651472	6,681274	106,912872	101,88461
24,998297	6,652947	6,669944	107,040298	101,729108
25,021961	6,629279	6,677319	107,019455	101,606061
25,000925	6,663206	6,673698	106,550064	101,431165
25,021961	6,642756	6,674502	106,529251	101,20313
24,998077	6,653014	6,696159	105,687141	101,153951
25,000704	6,647985	6,688717	105,827797	100,987027
25,011234	6,644029	6,676581	105,922798	100,747464
25,007099	6,633101	6,681073	106,245102	100,628293
24,984571	6,636788	6,677453	105,882492	100,551907
25,010862	6,644297	6,665987	105,807076	100,283902
25,018768	6,641482	6,674234	105,612152	100,1881
25,023857	6,633101	6,677319	104,726242	99,986104
25,008017	6,639873	6,683956	105,586159	99,88252
25,0238	6,653014	6,666122	105,091347	99,829495

25,052719	6,663206	6,660624	104,177467	99,595403
25,028893	6,665083	6,673564	104,530647	99,541035
25,023436	6,624988	6,692404	105,231995	99,368909
25,031315	6,651472	6,683219	104,248856	99,191594
25,023436	6,647851	6,685163	104,638351	99,111401
25,020668	6,643694	6,681073	104,95266	99,013036
25,020588	6,628139	6,692337	104,916283	98,837033
25,031096	6,63652	6,699646	105,482674	98,694691
25,041626	6,632564	6,680001	104,705872	98,529057
25,044252	6,632833	6,68342	104,613876	98,367467
25,039	6,642152	6,684962	104,201302	98,275777
25,041338	6,647247	6,692404	103,441872	98,268056
25,030758	6,633034	6,690862	104,490738	98,035229
25,028046	6,664949	6,69227	104,308952	97,921414
25,022669	6,643091	6,677386	104,1194	97,815343
25,004257	6,6447	6,684828	103,971397	97,535954
25,014765	6,670782	6,695421	104,038918	97,543721
25,046307	6,655629	6,688381	103,919472	97,277303
25,038427	6,662669	6,67524	104,094872	97,162289
25,059464	6,640141	6,692471	104,152275	97,046178
25,040846	6,631559	6,670279	103,46302	96,905309
25,022308	6,647516	6,677386	102,829773	96,76566
25,014219	6,642957	6,673631	103,06591	96,690671
25,014219	6,640275	6,669809	103,294296	96,535527
25,02998	6,651204	6,684828	103,501953	96,463132
25,014219	6,64879	6,673631	103,250183	96,359715
25,035231	6,65764	6,665921	103,315063	96,284741
25,045761	6,658579	6,669809	103,283928	96,108929
25,032476	6,636788	6,681207	102,743202	96,043324
25,021746	6,645639	6,692471	103,061165	95,92841
25,016436	6,648387	6,690795	102,983322	95,747472
25,000525	6,645102	6,696561	102,832809	95,700948
25,013659	6,637526	6,680269	103,616592	95,532941
25,016285	6,654958	6,684895	102,983322	95,437329
25,000525	6,65925	6,665987	103,362206	95,370122
25,005779	6,674537	6,687107	103,541313	95,225392
25,02154	6,654422	6,685566	103,375198	95,098775
24,991148	6,655427	6,68047	102,65789	95,008672
24,998823	6,663004	6,684895	102,433693	94,876981
24,985538	6,644096	6,670212	102,900719	94,688374
24,968431	6,640074	6,696226	102,924072	94,67545
24,981565	6,647985	6,682414	103,266632	94,569524
24,992096	6,639068	6,692471	103,575516	94,515271
24,997351	6,660189	6,681274	103,160225	94,442937
25,018387	6,655629	6,684828	102,864372	94,357693
25,007811	6,652008	6,679934	103,055191	94,282933
24,962831	6,652075	6,68865	102,894516	94,121686
24,950825	6,644297	6,673765	102,620911	94,045552

24,954752	6,638397	6,684962	102,784401	93,983571
24,962635	6,647181	6,684962	102,504173	93,970647
24,9863	6,666357	6,670413	102,369247	93,836346
24,975767	6,65811	6,692941	102,395195	93,766599
24,967888	6,637124	6,686706	102,369247	93,637463
24,96916	6,640476	6,662233	103,268333	93,48383
24,957113	6,655696	6,681274	103,134705	93,263135
24,951708	6,647516	6,666055	102,463036	93,148518
24,951588	6,655427	6,685834	102,512383	93,025906
24,954214	6,640476	6,673363	102,681038	92,963918
24,951588	6,647918	6,677252	101,863884	92,842564
24,967377	6,640945	6,691264	102,385262	92,865811
24,97263	6,643024	6,677453	101,467125	92,686391
24,959471	6,643628	6,684962	101,858719	92,70963
24,991041	6,648186	6,676179	102,692627	92,594838
24,983093	6,643493	6,68456	102,526649	92,409009
24,961712	6,659384	6,685029	102,469887	92,333051
24,951065	6,655629	6,684828	101,983643	92,306042
24,951065	6,662871	6,684828	102,68927	92,130513
24,96685	6,674604	6,692404	102,141853	92,223447
24,987888	6,659585	6,687242	101,93177	92,047925
24,972103	6,674269	6,688582	101,990112	91,967969
24,974731	6,647851	6,673631	102,29744	91,917661
24,987888	6,653349	6,691064	102,659355	91,831235
24,990519	6,652008	6,681073	101,964119	91,671208
24,9877	6,663272	6,665854	101,939713	91,555241
24,996864	6,670782	6,673564	101,886703	91,455952
24,94799	6,666625	6,695757	102,23571	91,418622
24,947943	6,670111	6,681073	102,092987	91,22131
24,945316	6,66629	6,688717	101,902313	91,127164
24,953197	6,666826	6,666524	102,05275	91,005894
24,953197	6,660256	6,684895	101,873795	90,94138
24,982119	6,647985	6,669474	102,763596	90,87431
24,968985	6,649863	6,681141	102,571587	90,900113
24,974239	6,674737	6,677453	100,727737	90,758199
24,984678	6,644164	6,685231	101,269646	90,670537
24,968775	6,679632	6,669742	101,889366	90,577611
24,971426	6,663876	6,681006	102,314796	90,495107
24,979305	6,674537	6,684761	101,824852	90,402394
24,995068	6,662066	6,673631	101,19622	90,38445
24,959429	6,670648	6,681207	101,797821	90,278691
24,950058	6,676883	6,679666	101,670746	90,242589
24,960594	6,666222	6,673631	101,828941	90,209035
24,957964	6,648119	6,685632	101,753731	90,117497
24,957964	6,657104	6,673564	101,390625	90,100758
24,981632	6,640342	6,677319	101,133949	90,064656
24,977654	6,663206	6,673564	101,764038	89,980862
24,993349	6,655294	6,666323	101,70826	89,97186

24,968292	6,655025	6,677453	102,094704	89,915112
24,973547	6,645102	6,656065	101,882034	89,817097
24,973547	6,648454	6,681207	101,544899	89,804196
24,98933	6,659585	6,679398	101,78492	89,694676
24,968182	6,655897	6,681141	102,131096	89,706258
24,954947	6,651874	6,654657	101,966812	89,604634
24,9338	6,647449	6,663775	100,774101	89,448628
24,954838	6,66334	6,677386	101,051483	89,399625
24,952211	6,64879	6,669005	101,720474	89,368687
24,953487	6,666961	6,662099	101,525986	89,322263
24,953423	6,655294	6,673564	101,785309	89,340329
24,949406	6,641281	6,681141	101,666	89,311955
24,933617	6,644499	6,677319	101,593399	89,319684
24,944126	6,659585	6,676514	101,250038	89,207639
24,941498	6,637056	6,679398	101,84272	89,149724
24,936241	6,652142	6,669742	102,025764	89,188512
24,905724	6,633167	6,684962	102,580917	89,098248
24,932016	6,651337	6,667865	101,893494	89,111157
24,917542	6,642957	6,658411	101,774178	89,02863
24,938581	6,651337	6,669809	101,841614	88,97321
24,924072	6,659116	6,682817	101,674316	88,84303
24,912107	6,646644	6,677453	101,186775	88,863728
24,922617	6,643828	6,669876	101,085655	88,80441
24,925243	6,620697	6,673564	101,280098	88,724484
24,912107	6,640409	6,672491	100,839355	88,647137
24,956793	6,63652	6,684627	101,352699	88,618787
24,943657	6,636922	6,676849	101,259361	88,649716
24,967325	6,639604	6,681141	101,653503	88,538853
24,939552	6,649393	6,681945	101,531616	88,542737
24,96439	6,637325	6,673631	101,552361	88,597005
24,953884	6,654087	6,673698	101,684738	88,486241
24,968292	6,628877	6,681342	101,801437	88,411481
24,97216	6,655762	6,680805	101,730331	88,380673
24,953711	6,62472	6,673765	101,348	88,376874
24,948433	6,634174	6,669944	101,127602	88,296964
24,953711	6,6565	6,674905	100,909821	88,276334
24,990511	6,655629	6,658546	100,777611	88,186093
24,987885	6,667027	6,673698	100,960342	88,197728
25,019432	6,659183	6,666122	101,441269	88,128194
25,029892	6,666692	6,661429	101,183266	88,235196
25,010134	6,671318	6,680872	101,359573	88,188794
24,982327	6,681376	6,667999	100,62072	88,090833
24,990232	6,688617	6,666055	100,983627	88,142392
24,991512	6,663272	6,666189	100,369316	88,088261
24,966396	6,665686	6,675977	100,89547	88,005772
24,976904	6,681644	6,67752	101,040657	87,98515
24,96377	6,663206	6,660557	101,315498	88,016072
24,950611	6,674402	6,681342	100,781425	87,928441

24,961117	6,674537	6,662099	100,608978	87,852467
24,96377	6,678291	6,673698	101,109268	87,864102
24,950544	6,687544	6,669139	101,251869	87,802251
24,979465	6,663206	6,664848	100,904541	87,706929
24,950436	6,684459	6,657472	100,899338	87,6992
24,935827	6,67038	6,658612	100,644157	87,723759
24,9529	6,659853	6,673564	100,622269	87,671017
24,921282	6,674134	6,670011	100,801178	87,649121
24,915968	6,655762	6,662434	101,118904	87,611852
24,931755	6,675744	6,668937	100,403481	87,578343
24,934381	6,670514	6,666189	100,14167	87,428883
24,955423	6,666625	6,662501	99,785362	87,347737
24,955423	6,669643	6,677654	100,181816	87,377393
24,939638	6,678559	6,685029	99,609177	87,428937
24,93421	6,655964	6,677587	99,851624	87,412328
24,928835	6,682582	6,670144	100,189934	87,390515
24,926207	6,674805	6,671419	99,848	87,381573
24,906349	6,671251	6,670011	100,341743	87,305562
24,889235	6,654355	6,673028	100,258797	87,28494
24,897118	6,685532	6,683085	99,999657	87,282368
24,915531	6,675073	6,677252	99,927109	87,235989
24,899742	6,670581	6,663976	100,165443	87,171605
24,907623	6,664278	6,680135	99,666649	87,037648
24,928667	6,67038	6,67752	100,158989	87,099561
24,923414	6,675006	6,661764	99,972778	87,039204
24,924631	6,674469	6,674905	99,246223	87,012227
24,920563	6,679699	6,662367	99,020905	86,927197
24,888947	6,663206	6,664111	99,023491	86,880803
24,919149	6,668234	6,673162	99,279915	86,855031
24,915085	6,663407	6,665049	99,010544	86,903996
24,907202	6,674469	6,676313	99,279915	86,932347
24,912455	6,667161	6,670144	99,036377	86,887334
24,93087	6,678358	6,675576	99,506493	86,834531
24,949261	6,676749	6,669809	99,861435	86,857724
24,946634	6,667899	6,661361	98,959999	86,811383
24,951887	6,677822	6,673899	98,62117	86,709866
24,978184	6,670715	6,661898	98,970795	86,586179
24,975462	6,660054	6,666189	98,524162	86,654492
24,956884	6,670111	6,662636	98,793457	86,628728
24,996279	6,691097	6,655528	98,635506	86,523053
25,001432	6,678559	6,658679	98,252289	86,466374
24,9909	6,688214	6,662434	98,582397	86,544987
25,009312	6,670111	6,654925	98,310463	86,530904
25,014566	6,655696	6,667865	98,543495	86,574712
25,030352	6,680571	6,658679	98,106293	86,391995
25,04611	6,673062	6,658747	97,86702	86,361188
25,054014	6,6565	6,646811	98,133675	86,214337
25,027662	6,686941	6,658679	98,667061	86,242673

25,01034	6,665888	6,643459	98,182861	86,229779
24,991873	6,673598	6,662434	98,169907	86,224644
25,01153	6,670447	6,666256	98,244995	86,129292
25,022038	6,65174	6,644197	98,07412	86,054578
25,058832	6,671989	6,648354	97,935555	86,023785
25,069363	6,688817	6,666122	97,763603	86,141148
25,066736	6,666156	6,669944	97,563164	86,150258
25,048328	6,693846	6,647348	97,010841	86,093686
25,083683	6,673933	6,639637	97,052254	85,954564
25,053276	6,695857	6,658679	97,116936	85,915906
25,070343	6,690896	6,6623	96,366631	85,923657
25,055809	6,666022	6,654858	96,366631	85,856664
25,082094	6,689086	6,643728	96,953926	85,836041
25,074194	6,663272	6,659685	97,145523	85,818127
25,084724	6,666491	6,660088	97,277863	85,653607
25,08729	6,681979	6,666256	96,33606	85,645856
25,077923	6,670849	6,666189	96,918175	85,62782
25,09761	6,701087	6,669944	97,024261	85,684506
25,094931	6,68037	6,676581	96,579254	85,560849
25,079054	6,686002	6,656199	96,330894	85,470677
25,092211	6,678358	6,647214	97,070839	85,599484
25,121122	6,681845	6,651036	96,323204	85,573796
25,102713	6,665553	6,647482	96,601738	85,45181
25,102562	6,670983	6,657942	97,495743	85,380986
25,118235	6,685801	6,666189	96,365021	85,427365
25,123486	6,673933	6,669742	96,540932	85,308858
25,146999	6,666893	6,643325	96,535759	85,190373
25,125965	6,658914	6,654724	96,929016	85,180058
25,149624	6,674671	6,637961	97,207359	85,178868
25,178501	6,663139	6,654456	96,868782	85,190732
25,152018	6,687812	6,653785	96,410873	85,042638
25,154644	6,666759	6,643392	95,594742	85,002797
25,194057	6,673531	6,643392	95,747322	84,814755
25,207067	6,638196	6,638096	95,861122	84,940968
25,20969	6,659451	6,639637	96,657837	84,992482
25,230719	6,663474	6,639302	96,016365	84,704007
25,21619	6,664479	6,629849	96,385483	84,779057
25,201616	6,670648	6,647281	95,723343	84,639912
25,233093	6,661999	6,632866	95,6315	84,585904
25,223875	6,655427	6,648689	95,440094	84,601399
25,240854	6,65925	6,635749	95,993507	84,604001
25,251356	6,672123	6,644129	95,60817	84,480367
25,243425	6,674671	6,647281	95,446762	84,404507
25,25111	6,643761	6,646946	95,291992	84,418889
25,266888	6,672793	6,647214	95,767792	84,429189
25,301039	6,654757	6,629044	95,685036	84,230893
25,293112	6,659652	6,624083	94,860153	84,386784
25,279902	6,633034	6,616708	94,86142	84,32887

25,290401	6,646778	6,635749	95,117371	84,156316
25,26919	6,658781	6,624686	94,767593	84,01888
25,290159	6,638464	6,618987	95,054619	84,13606
25,300686	6,659451	6,620529	94,620323	83,932622
25,305937	6,648254	6,624351	94,351486	83,84763
25,304518	6,652075	6,628038	94,381134	83,958493
25,318926	6,614126	6,620596	93,866829	83,925031
25,30176	6,640409	6,619926	93,859154	83,914784
25,313465	6,619423	6,616841	94,065102	83,871281
25,334492	6,686002	6,613154	94,106461	83,871281
25,36076	6,674604	6,613019	94,403702	83,812062
25,347565	6,663407	6,609198	93,700745	83,763135
25,352734	6,647315	6,620596	93,769211	83,709111
25,33559	6,657908	6,631927	93,533997	83,825063
25,347277	6,630084	6,628172	93,675423	83,730138
25,334126	6,670715	6,628106	93,293037	83,714696
25,363026	6,663206	6,645136	93,701263	83,534451
25,344549	6,643896	6,631793	93,300774	83,66319
25,352348	6,684862	6,638364	93,109581	83,524129
25,320648	6,666089	6,643258	93,099319	83,430371
25,357424	6,663072	6,612819	92,595985	83,317296
25,349546	6,668569	6,632866	92,392036	83,295461
25,354795	6,666357	6,627971	92,784622	83,375272
25,365276	6,656098	6,624149	92,420448	83,143536
25,328228	6,672861	6,624149	91,955605	83,182141
25,322927	6,663206	6,620596	92,087357	83,160359
25,338703	6,666692	6,619657	91,568802	83,16718
25,354475	6,666759	6,612819	91,749542	83,164609
25,378124	6,647449	6,620596	91,419052	82,999806
25,351706	6,658914	6,626027	91,669502	82,891675
25,325241	6,671117	6,624619	91,687584	82,976659
25,354137	6,677219	6,604236	91,574104	82,858327
25,343641	6,661328	6,628106	90,717438	82,776311
25,364637	6,655762	6,601622	90,727753	82,650143
25,351471	6,644834	6,619456	90,957474	82,657857
25,343433	6,683655	6,627971	90,405151	82,76859
25,317038	6,674336	6,617177	90,807785	82,632123
25,332811	6,693176	6,609198	90,707123	82,503392
25,359085	6,680169	6,612751	89,345085	82,490956
25,37221	6,651337	6,631123	90,111481	82,436948
25,341909	6,677956	6,61664	90,157928	82,429227
25,303638	6,674604	6,605376	89,858597	82,279904
25,314093	6,668436	6,620529	89,714096	82,313367
25,321993	6,660524	6,604639	89,460129	82,227216
25,353516	6,662803	6,609064	89,14711	82,228841
25,343018	6,680638	6,594113	89,041267	82,149098
25,295488	6,65811	6,586469	89,079971	81,971463
25,287529	6,670447	6,601554	89,374046	81,940579

25,31118	6,674134	6,607857	89,528839	81,922551
25,31118	6,671251	6,616506	89,346123	81,967877
25,313805	6,662066	6,606114	88,956734	81,83289
25,329447	6,668503	6,612952	89,353943	81,812352
25,27935	6,662468	6,627971	88,995354	81,724835
25,305628	6,657841	6,612819	88,350548	81,693944
25,316126	6,663139	6,628106	88,347946	81,688809
25,324026	6,658781	6,616774	88,448875	81,567998
25,335814	6,651606	6,628038	88,289085	81,560536
25,265928	6,634039	6,628038	88,299484	81,485936
25,297453	6,662669	6,609064	88,768875	81,382962
25,297453	6,668771	6,616708	88,31237	81,390683
25,302704	6,673397	6,628106	88,41555	81,511678
25,31452	6,65174	6,614427	87,004417	81,210881
25,272308	6,657707	6,602829	87,24926	81,178792
25,236736	6,663206	6,621066	87,291786	81,16982
25,255138	6,670581	6,61664	87,12162	81,118336
25,239363	6,667229	6,639436	86,639549	80,938161
25,252514	6,682448	6,659753	87,1437	80,936955
25,19458	6,665485	6,628106	86,579605	80,87933
25,141857	6,6681	6,635481	86,820534	80,938657
25,162889	6,670782	6,639436	86,477684	80,910352
25,136604	6,657439	6,639436	86,186432	80,910352
25,112944	6,662871	6,640375	86,420975	80,789365
25,112944	6,678626	6,652713	85,614281	80,73531
25,097105	6,674604	6,649896	85,912514	80,749852
25,068102	6,677755	6,647013	85,820992	80,702367
25,03381	6,622038	6,631793	85,473083	80,524785
25,018049	6,67219	6,635547	85,359718	80,398663
25,012774	6,674469	6,635547	85,135529	80,385785
24,99964	6,670849	6,637492	85,326218	80,383214
24,995676	6,668771	6,650767	85,43959	80,136128
24,949587	6,651941	6,620328	85,205513	80,110776
24,95484	6,688684	6,655596	85,262344	80,185559
24,931171	6,649125	6,635279	86,223572	80,031133
24,927158	6,648254	6,63186	85,769974	80,007962
24,879763	6,643426	6,645806	85,058777	79,90759
24,875805	6,644231	6,635547	85,499405	79,876691
24,867899	6,636588	6,628106	84,924774	79,863843
24,844213	6,658848	6,624217	84,816505	79,682484
24,830997	6,652075	6,643325	84,714706	79,65807
24,823114	6,663272	6,654522	84,785774	79,73158
24,812578	6,65764	6,647013	84,899559	79,640454
24,807322	6,643091	6,647013	84,569778	79,527203
24,802067	6,647851	6,658344	84,229706	79,550366
24,817835	6,656031	6,662032	84,317307	79,498891
24,804697	6,649393	6,65003	83,925728	79,433308
24,780981	6,628206	6,636821	84,072495	78,970143

24,7836	6,655427	6,631726	84,197411	78,997197
24,748001	6,632899	6,652041	84,086624	78,837651
24,728245	6,640141	6,654522	84,411224	78,791325
24,704475	6,631492	6,658277	83,756905	78,804181
24,688705	6,622977	6,655931	83,179962	78,760449
24,699219	6,636922	6,643258	83,666763	78,858212
24,701845	6,665083	6,658277	83,387527	78,733571
24,675535	6,663206	6,654522	83,219055	78,684811
24,691334	6,652075	6,643124	83,244888	78,583394
24,678167	6,678291	6,643526	83,229424	78,627141
24,680794	6,647583	6,6507	83,116112	78,457295
24,678167	6,655494	6,664848	83,391685	78,485593
24,66765	6,647985	6,657071	83,033676	78,531926
24,672911	6,647516	6,665854	82,734955	78,37238
24,672911	6,636989	6,662032	82,541801	78,333768
24,641306	6,652544	6,662032	82,634514	78,197392
24,649137	6,651941	6,662099	82,611336	78,207677
24,63467	6,644096	6,658277	82,601021	78,086751
24,63467	6,636654	6,673363	82,092407	78,067471
24,626759	6,632899	6,661562	82,21344	78,027623
24,65307	6,666156	6,680939	81,767853	78,001958
24,650442	6,602996	6,662099	81,73439	77,832112
24,639925	6,646711	6,665854	81,494949	77,767796
24,639925	6,640342	6,65184	81,729248	77,772939
24,637299	6,622172	6,677252	81,489777	77,767796
24,637299	6,647851	6,662434	81,500084	77,613408
24,62413	6,62177	6,660691	81,345619	77,628827
24,606949	6,625256	6,678324	81,209137	77,520764
24,58721	6,618149	6,669474	80,833344	77,451367
24,589808	6,640275	6,674704	80,859131	77,452672
24,600348	6,637257	6,667463	81,240166	77,331731
24,58584	6,654489	6,669273	80,898102	77,267583
24,58321	6,630419	6,668669	81,219917	77,26244
24,599009	6,646644	6,67343	80,474777	77,122311
24,579245	6,636788	6,669676	80,302322	77,112027
24,583168	6,642421	6,662836	80,05777	77,060559
24,559439	6,663272	6,667463	80,192818	77,06194
24,543665	6,663474	6,662166	79,381989	77,081265
24,558113	6,627804	6,67343	80,010048	76,929456
24,547594	6,617612	6,665854	79,876183	76,839398
24,560741	6,650399	6,654589	79,989456	76,757047
24,550222	6,648119	6,669742	79,708878	76,654126
24,542337	6,648254	6,670547	79,721741	76,605229
24,566025	6,648186	6,669676	79,1838	76,528043
24,568653	6,634374	6,665854	79,091148	76,417401
24,560741	6,640543	6,662099	78,741112	76,35822
24,552855	6,648052	6,677184	79,227547	76,221837
24,589687	6,636989	6,662166	78,949577	76,234715

24,571283	6,629346	6,666457	78,398796	76,167798
24,571283	6,646108	6,654456	78,947014	76,064885
24,544966	6,652947	6,658411	78,447701	76,023732
24,581799	6,629212	6,669676	78,89296	75,964536
24,558113	6,648254	6,653852	78,293289	75,949109
24,552855	6,634241	6,658277	78,126022	75,848759
24,558113	6,640677	6,668937	78,144012	75,784421
24,573912	6,648321	6,661965	77,737404	75,707227
24,539707	6,641549	6,662099	78,077126	75,576009

Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
21,829216	22,482937	24,718788	23,615892	24,987894
21,842516	22,480284	24,713484	23,613264	25,229263
21,829216	22,533423	24,705526	23,65274	25,635569
21,869091	22,506853	24,734734	23,650087	25,644956
21,8744	22,557337	24,729427	23,684308	25,634231
21,900975	22,541413	24,737387	23,660625	25,804531
21,916903	22,554684	24,761288	23,629059	26,058637
21,948809	22,645031	24,7719	23,67377	26,508525
21,999274	22,743307	24,779884	23,676421	27,098544
22,086968	22,84956	24,864851	23,671141	27,775738
22,174633	22,982363	24,96575	23,700079	28,385869
22,331229	23,193385	25,089077	23,69212	28,909506
22,511673	23,482624	25,244238	23,734138	29,482094
22,704094	23,798417	25,433895	23,738041	30,130437
22,916502	24,18318	25,651484	23,780144	30,692969
23,176653	24,602278	25,906183	23,819592	31,14755
23,447344	25,063612	26,248327	23,8275	31,630962
23,773678	25,511511	26,624821	23,853805	32,341662
24,117123	26,039973	27,108486	23,889277	33,375531
24,510754	26,598498	27,712299	23,945557	34,340344
24,918915	27,170113	28,342402	23,977115	35,402375
25,386376	27,82979	29,034107	24,020323	36,394006
25,883995	28,563069	29,778223	24,093909	37,277019
26,427887	29,319724	30,564226	24,150408	38,050744
27,044295	30,024439	31,44335	24,205631	38,577737
27,644478	30,704979	32,3745	24,268731	39,055119
28,3394	31,429835	33,383858	24,339734	39,608256
29,062922	32,172652	34,376453	24,460663	40,2499
29,783314	32,972838	35,37075	24,542182	40,792325
30,579634	33,743479	36,461319	24,623672	41,1403
31,463267	34,548712	37,641026	24,752313	41,406481
32,306914	35,42969	38,721294	24,903245	41,704169
33,190657	36,281111	39,8778	25,058147	42,146681
34,092101	37,244654	41,026627	25,230128	42,955944
35,005976	38,190356	42,258003	25,350958	43,889244
35,961058	39,137907	43,524616	25,487569	44,6442
36,917902	40,142149	44,8577	25,668791	45,295231
37,9495	41,249655	46,220276	25,887848	45,970394
38,99621	42,330401	47,592144	26,137264	46,644225
39,971423	43,412787	48,965168	26,365619	47,275144
41,037203	44,522879	50,316078	26,620144	47,865831
42,147581	45,630583	51,730404	26,896742	48,313038

43,298632	46,760783	53,156391	27,229601	48,645594
44,479651	47,907988	54,558983	27,533601	48,935237
45,657298	49,054537	55,870079	27,893965	49,21885
46,843035	50,204146	57,19706	28,305337	49,497094
47,996592	51,316573	58,582561	28,755811	49,694888
49,237444	52,399763	59,887077	29,185171	49,91815
50,493796	53,588053	61,229248	29,713627	49,887981
51,764738	54,784647	62,475258	30,2991	49,8967
53,000029	56,003928	63,579124	30,986448	49,883956
54,29912	57,058428	64,68259	31,615998	49,776681
55,576613	58,210539	65,736717	32,336468	49,865187
56,900656	59,430144	66,768288	33,168459	49,810206
58,142973	60,466204	67,82563	33,965983	49,751875
59,429564	61,512045	68,837486	34,832966	49,741819
60,63188	62,54476	69,85965	35,73069	49,766625
61,983027	63,491965	70,914963	36,706943	49,672756
63,241965	64,308707	71,961052	37,669265	49,472288
64,548354	65,076506	73,126884	38,62957	49,309363
65,862051	65,987059	74,239799	39,664107	48,988206
67,16078	66,915083	75,336861	40,831986	48,595306
68,407957	67,60504	76,170395	41,885183	48,337175
69,666632	68,585944	76,754486	42,994393	48,0777
70,883948	69,425131	77,552147	44,187757	47,767275
72,176573	70,549384	78,35836	45,37302	47,5896
73,500342	70,863287	78,619446	46,549815	50,705287
74,781729	71,426894	78,351822	47,780982	57,8606
75,976927	72,638838	79,760681	48,904249	56,850862
77,259314	74,200385	81,090889	50,154888	54,080469
78,422392	75,48165	82,340416	51,315833	51,923538
79,495665	76,80683	83,70752	52,301634	50,362675
80,510863	78,115034	85,002518	53,400795	49,4448
81,571478	79,4429	86,510506	54,410746	49,000275
82,546027	80,38613	87,913445	55,439358	48,7817
83,459959	81,52619	89,337311	56,390539	48,764938
84,338362	82,561308	90,853668	57,260856	48,950656
85,118834	83,521674	92,023384	58,090726	49,463569
86,102911	84,608305	93,371674	58,933248	49,971119
87,02059	85,466246	94,642151	59,723246	49,847081
87,852011	86,286864	96,161171	60,515291	49,531963
88,639441	87,174361	97,525726	61,317162	49,376413
89,325621	87,978735	98,816452	62,004211	49,237619
90,117758	88,713675	99,944839	62,663015	49,160519
90,932791	89,56687	101,169067	63,367032	49,25975
91,645323	90,232504	102,20797	64,030598	49,227562
92,391631	91,050558	103,141129	64,660878	49,16655
93,181494	91,837302	104,094872	65,364472	49,175937
93,923079	92,601599	105,049644	65,968992	49,163869
94,600264	93,399695	105,978928	66,540255	49,185325

95,394766	94,191069	106,721146	67,159428	49,262431
96,174506	94,975424	107,575813	67,687118	49,367694
96,854903	95,813055	108,464722	68,260716	49,419319
97,632094	96,597472	109,464096	68,758563	49,567494
98,334914	97,343802	110,282326	69,233865	49,806856
99,008231	98,200415	111,130905	69,616157	50,044875
99,787489	99,059508	112,048477	70,199355	50,143431
100,502692	99,84162	112,917328	70,685918	50,170919
101,198492	100,709402	113,813911	71,191628	50,362675
101,831046	101,564597	114,674408	71,70101	50,163544
102,636443	102,357962	115,436211	72,117344	50,032806
103,454924	103,144995	116,480255	72,464945	49,905413
104,097342	104,098608	117,285934	72,860879	49,721031
104,821867	105,015181	118,267212	73,184272	49,629181
105,695815	105,833121	119,246216	73,521639	49,328806
106,363753	106,782965	120,13179	73,852639	49,13705
107,18669	107,501837	121,076706	74,200187	48,972787
107,877005	108,318289	121,753433	74,601234	48,810531
108,597746	109,334448	122,667686	75,011035	48,688506
109,2927	110,104994	123,604782	75,367526	48,583237
109,904509	111,00228	124,342987	75,69098	48,656994
110,598769	111,757994	125,174706	76,058831	48,854781
111,183524	112,58029	125,847763	76,411357	48,920488
111,830054	113,36936	126,689507	76,653343	49,102187
112,55107	114,123396	127,523582	77,036384	49,419319
113,144286	115,013449	128,110802	77,452733	49,571519
113,702872	115,750136	128,815598	77,880715	49,883956
114,287344	116,546851	129,658417	78,328614	50,020063
114,877478	117,352026	130,383453	78,802427	50,259425
115,46916	118,136687	131,065323	79,251874	50,604719
116,136526	118,910941	131,986938	79,731859	51,012369
116,696066	119,586447	132,825073	80,119159	51,331513
117,445021	120,467436	133,845108	80,479238	51,580256
118,13967	121,155249	134,501984	80,773499	51,7519
118,951201	121,995505	135,382233	81,107256	52,165581
119,846472	122,87242	136,220078	81,542594	52,432431
120,624747	123,65708	136,912231	81,998794	52,862206
121,507742	124,475775	137,860443	82,520803	53,204144
122,34976	125,253271	138,833481	82,936277	53,500494
123,202307	126,100447	139,646561	83,481482	53,764675
124,008223	127,045561	140,597824	83,96831	54,207187
124,915656	127,859595	141,566772	84,568676	54,639644
125,802359	128,715933	142,557175	85,196867	55,000356
126,613554	129,594077	143,496689	85,784717	55,385206
127,569373	130,617133	144,526352	86,397712	55,820344
128,577582	131,54505	145,409744	87,032958	56,162287
129,418585	132,529639	146,461563	87,556856	56,107312
130,331595	133,525778	147,222214	88,203756	56,128094

131,268469	134,398093	148,361404	88,762512	56,386225
132,206015	135,14411	149,349808	89,293268	56,56055
133,072607	136,155905	150,389023	89,949293	56,641006
134,190726	137,305899	151,343674	90,613014	56,864275
135,099234	138,108481	152,17482	91,303828	56,94205
136,116675	138,982977	153,256607	91,895002	56,9977
137,174231	139,929282	154,128357	92,575921	57,024519
138,031332	140,966162	155,176315	93,351444	57,020494
139,211722	141,836508	156,208618	94,129919	56,925287
140,109457	142,79743	157,316025	94,834299	56,824044
141,026007	143,472235	158,375763	95,666975	56,616869
141,891409	144,339743	159,35994	96,611165	56,370137
142,759634	145,419897	160,234863	97,532802	56,109994
143,467902	146,265601	161,114212	98,511133	55,783469
144,478766	147,25495	162,228607	99,553989	55,505225
145,232748	148,205023	163,37825	100,494773	55,20485
146,058447	148,974478	164,367783	101,502712	54,974881
146,789023	149,886694	165,308334	102,561226	54,971525
147,551459	150,660651	166,419952	103,707568	54,710712
148,164206	151,474997	167,177841	104,766029	54,390225
148,832648	152,582297	168,178955	105,832663	54,168969
149,445715	153,306677	169,175232	106,918043	54,150869
149,976141	154,172217	170,216888	108,03483	54,014087
150,596121	154,774405	170,73587	109,192365	53,95375
150,984412	155,677771	171,792618	110,389214	53,692262
151,495459	156,460272	172,540558	111,580489	53,535356
151,94512	157,138739	173,347351	112,695093	53,322819
152,442984	157,884192	173,913406	113,8504	53,009038
152,820944	158,50701	174,886429	114,91359	52,740175
153,212393	159,271475	175,784683	115,985012	52,406281
153,742377	160,092154	176,709732	117,049523	52,237319
154,180563	160,583228	177,529144	118,131346	52,050931
154,490836	161,442969	178,008408	119,23999	51,780731
154,727728	162,197256	178,94838	120,382782	51,652
155,018195	162,866461	179,719849	121,428109	51,517231
155,311011	163,536765	180,547287	122,548959	51,228931
155,652289	164,319846	181,385925	123,647557	51,1411
155,945212	164,928946	182,184052	124,790734	50,978844
156,107779	165,64939	182,785507	125,846363	50,806531
156,326422	166,205527	183,645676	126,885904	50,500794
156,607458	166,789526	184,374222	127,930943	50,35195
156,744772	167,475531	185,046844	128,935279	50,182988
156,815314	168,063925	185,833221	129,92688	50,054931
157,024405	168,636191	186,474854	130,898345	49,88195
157,045294	169,478659	187,374908	131,949646	49,632531
157,117346	170,132971	187,681747	132,913149	49,479663
157,212943	170,749472	188,733231	133,712207	49,417981
157,412894	171,307425	189,271698	134,590089	49,224213

157,489966	171,704688	189,928101	135,591539	49,0519
157,576331	172,251868	190,873718	136,539665	48,810531
157,654959	172,767188	191,406937	137,454512	48,571169
157,579825	173,299582	191,827225	138,404782	48,410256
157,601065	173,713187	192,454102	139,146013	48,080381
157,566046	174,075751	192,984375	139,950539	47,861812
157,60726	174,643378	193,542862	140,806442	47,618425
157,586859	175,171927	194,001953	141,649443	47,419294
157,492087	175,416983	194,477524	142,430177	47,151106
157,39707	175,888144	194,818893	143,224265	46,849387
157,224905	176,251028	195,145615	143,992339	46,541638
157,087119	176,68331	195,464096	144,807833	46,201037
156,847037	177,012823	195,756104	145,496449	45,9181
156,694601	177,241522	196,196411	146,187603	45,658625
156,486319	177,715475	196,531006	146,863182	45,432675
156,20864	177,759421	196,791962	147,441689	45,2664
156,120337	178,104742	197,055435	147,90971	48,498762
155,829535	178,262717	197,514725	148,301776	56,007406
155,698599	177,820319	197,668396	148,896311	57,145875
155,592978	177,954031	197,820816	149,531844	54,578631
155,375372	177,983221	197,987961	150,014986	52,730787
155,008627	177,833044	198,096268	150,466465	51,53735
154,732428	177,854224	198,118774	150,841763	50,705287
154,280463	177,867453	197,908356	151,18271	50,439113
153,87641	177,544333	198,103622	151,328802	50,817256
153,640433	177,430365	197,733856	151,646108	51,344919
153,341589	177,119177	197,465637	151,830222	51,874594
152,919196	176,95162	197,165527	151,989638	52,360019
152,688467	176,441031	196,827713	152,048613	53,153863
152,300681	176,270697	196,353394	151,941736	53,83105
152,019537	175,628973	195,994217	151,803091	54,178356
151,858084	175,31391	195,353638	151,798877	53,612462
151,627692	174,782156	195,032089	151,71046	53,010381
151,526114	174,382727	194,718216	151,559851	52,384156
151,448904	173,841742	194,147537	151,493943	51,809562
151,299399	173,466452	193,538971	151,346008	51,382469
151,272787	172,896078	192,95752	151,174734	50,997619
151,33895	172,504782	192,598053	151,01624	50,621481
151,376227	171,926474	191,930801	150,7396	50,315744
151,435782	171,574057	191,361023	150,536391	50,090462
151,442389	171,018546	190,904022	150,154416	49,340875
151,636542	170,490988	190,334305	149,86835	47,91545
151,671011	170,084036	190,086273	149,693133	46,461181
151,748114	169,786826	189,586304	149,441373	45,172531
151,801123	169,529654	189,188126	149,068703	44,058875
151,814307	169,02912	188,666687	148,711743	43,421925
151,94454	168,667624	188,134506	148,370766	42,952594

151,931113	168,456137	187,730972	148,034955	42,634119
151,911002	167,949042	186,984451	147,720414	42,215744
151,876166	167,629065	186,745712	147,299178	41,891231
151,896109	167,30004	186,310165	146,84013	41,5741
151,831931	166,798224	185,806061	146,316564	41,282444
151,797217	166,467856	185,288696	146,003519	41,014925
151,566855	166,109442	184,721863	145,547342	40,756794
151,45603	165,598364	184,291382	145,08834	40,601244
151,288275	165,22402	183,763443	144,612706	40,402769
151,110968	164,75054	183,304886	144,239296	40,129887
150,835349	164,282629	182,841187	143,834706	39,895219
150,699576	163,892371	182,26239	143,351474	39,767831
150,498495	163,559485	181,770493	142,949468	39,569369
150,350531	162,986044	181,208893	142,539818	39,407113
150,077658	162,651907	180,537567	142,132766	39,279725
149,827505	162,060095	180,047226	141,694475	39,167756
149,567847	161,641821	179,450882	141,21165	39,063163
149,385489	161,154181	178,744781	140,838905	39,010194
149,18064	160,564001	178,393845	140,358966	38,902919
148,891974	160,163412	177,86203	139,869948	38,780225
148,62438	159,866736	177,268433	139,503985	38,764131
148,414282	159,279425	176,772888	139,005994	38,662219
148,180273	158,740256	176,146179	138,437472	38,589806
147,927527	158,337149	175,554108	138,006281	38,508012
147,706641	157,982016	175,136169	137,57802	38,453031
147,501959	157,512427	174,646133	137,009891	38,361844
147,303793	157,062842	174,106445	136,487518	38,335025
147,097784	156,581366	173,591034	135,998168	38,240494
146,81861	156,154547	173,13179	135,583473	38,042031
146,582007	155,762488	172,624466	135,104802	38,017894
146,395865	155,207831	172,182617	134,601237	38,035994
146,326804	154,696036	171,813248	134,164683	38,0427
146,135489	154,410834	171,358276	133,683822	38,015881
146,017279	153,957785	170,859161	133,233084	37,979675
145,872168	153,581824	170,367813	132,688188	37,994425
145,683554	153,31272	169,934372	132,147688	37,926706
145,606528	152,684103	169,38591	131,727373	37,885137
145,484351	152,359198	168,925797	131,346349	37,797981
145,35282	151,911795	168,481674	130,911744	37,768475
145,180167	151,548285	167,950729	130,499465	37,777863
144,962332	151,081091	167,63916	130,143427	37,73965
144,821478	150,733618	167,003937	129,690966	37,586106
144,615683	150,357062	166,697784	129,183882	37,473469
144,481497	150,058951	166,189697	128,769322	37,490231
144,327521	149,55477	165,71785	128,374537	37,495594
144,120459	149,251563	165,239441	127,955158	37,471456
144,008994	148,996237	164,980179	127,52022	37,340044
143,836462	148,437811	164,576675	126,991707	37,289088

143,878943	148,171957	164,221268	126,491949	37,262937
143,715613	147,883414	163,70018	126,156063	37,288419
143,601447	147,492651	163,342148	125,724169	37,256237
143,46337	147,133795	162,940094	125,419786	37,178462
143,359839	146,874655	162,576767	124,92956	37,193212
143,318671	146,555792	162,278961	124,49151	37,154994
143,212531	146,340628	162,062653	124,034064	37,112081
142,963156	145,881094	161,493958	123,678072	37,097331
142,813177	145,573019	161,003998	123,366249	37,045706
142,720313	145,335303	160,994598	123,005083	37,03565
142,55451	144,845435	160,771667	122,58047	37,010169
142,559805	144,715369	160,40332	122,196236	36,945806
142,435172	144,481787	159,930954	121,796519	36,829144
142,305212	144,197806	159,613403	121,402058	36,723881
142,175253	143,969565	159,447983	120,929906	36,769469
142,146078	143,627295	159,19986	120,535642	36,744662
142,047964	143,338126	159,031769	120,079283	36,776175
141,870291	143,245291	158,564957	119,724122	36,818419
141,774832	143,088797	158,330231	119,348294	36,90625
141,667441	142,884497	157,908783	118,991939	36,8982
141,670004	142,722647	157,714035	118,612252	36,861994
141,599753	142,429648	157,627396	118,12405	36,841881
141,639502	142,221487	157,483353	117,652752	36,843894
141,554678	141,948416	157,26207	117,220435	36,784894
141,498999	141,717795	157,102112	116,927986	36,760087
141,578528	141,534903	156,571594	116,555369	36,638056
141,379691	141,397055	156,451645	116,219045	36,530781
141,297507	141,161185	156,278412	115,947473	36,457031
141,294867	141,068457	156,241074	115,546622	36,381937
141,212698	140,92005	155,985245	115,210509	36,280025
141,146429	140,657751	155,801361	114,838255	36,273994
141,045706	140,50144	155,716064	114,486786	36,217669
140,963553	140,382254	155,702759	114,184466	36,2874
140,881369	140,323981	155,359024	113,846027	36,326956
140,82572	140,207419	155,191177	113,499898	36,286731
140,61106	139,987585	155,055283	113,097039	36,296119
140,60047	139,826041	154,986053	112,800141	36,276
140,510367	139,653906	154,898102	112,482617	36,214987
140,433524	139,638007	154,658371	112,1342	36,174087
140,396445	139,542685	154,503876	111,868391	36,149956
140,295752	139,40499	154,431976	111,558804	36,192863
140,266608	139,209082	154,26683	111,334356	36,241138
140,128851	139,079352	154,213562	111,017119	36,23175
140,150046	139,031699	153,976547	110,679299	36,282706
140,057303	139,060812	153,867371	110,395672	36,245162
140,041403	138,788184	153,800812	109,988364	36,237113
139,850684	138,663779	153,35614	109,691988	36,204262
139,840079	138,690237	153,246994	109,43945	36,134531

139,789755	138,449408	153,169785	109,228182	36,010494
139,62551	138,248282	152,932861	108,844333	35,933387
139,543417	138,139792	152,829041	108,617672	36,010494
139,373923	138,097418	152,882278	108,388458	36,023231
139,177939	138,015372	152,762497	108,04341	36,033294
139,215033	137,930701	152,613449	107,803977	36,083575
139,085303	137,765387	152,606812	107,487343	36,096987
139,095969	137,536642	152,416565	107,055026	36,068156
138,971564	137,596198	152,288879	106,883896	36,071506
138,912054	137,498373	152,343491	106,437553	36,134531
138,75585	137,347601	152,114609	106,198316	36,049381
138,63407	137,299979	151,71019	106,116017	36,00245
138,512305	137,310583	151,563843	105,861402	35,930706
138,398459	137,255042	151,393585	105,653103	35,856956
138,255545	137,130743	151,409531	105,444841	35,864331
138,24494	137,18627	151,337708	105,221164	35,893163
138,24494	136,987936	151,340378	104,987237	35,853606
138,207877	136,9271	151,348343	104,809882	35,871706
138,194662	136,818686	151,319092	104,504042	35,911262
137,974982	136,826605	151,252579	104,231662	35,913944
138,049094	136,818686	151,311111	103,997841	35,87305
137,948508	136,699713	151,135544	103,699841	35,886456
138,009375	136,58602	151,175415	103,489215	35,953506
138,062308	136,390387	151,194061	103,296589	36,06145
138,057028	136,390387	151,199371	103,08344	36,080894
137,943243	136,422095	150,922745	102,929372	36,160013
138,006735	136,369223	151,034454	102,662332	36,135875
138,086127	136,363943	150,92807	102,480053	36,079556
138,086127	136,316351	150,784454	102,154061	36,0762
138,030554	136,202689	150,763168	101,923065	36,074863
138,029242	136,135306	150,780472	101,585622	36,093631
138,108649	136,180258	150,724594	101,375231	36,143919
138,11666	136,056097	150,483994	101,046875	36,194875
138,223959	136,095831	150,547897	100,907127	36,174762
138,287543	135,963705	150,505402	100,673737	36,155988
138,300818	135,958487	150,558655	100,422513	36,095644
138,397452	135,868658	150,408447	100,341748	36,053406
138,318045	135,889807	150,115921	100,226359	35,928025
138,348502	135,748434	150,197067	100,086604	35,806
138,404089	135,819754	150,021561	99,943012	35,63905
138,356451	135,862067	149,920532	99,912248	35,5539
138,322043	135,877936	150,00029	99,79945	35,615587
138,335272	135,782767	149,936508	99,548211	35,580719
138,2638	135,87525	150,008286	99,240619	35,595469
138,200293	135,814474	149,782303	99,056089	35,641731
138,14205	135,618933	149,604156	98,784419	35,533787
138,208197	135,753699	149,657333	98,584549	35,39165
138,192343	135,72991	149,742401	98,341135	35,315881

138,123526	135,766898	149,830154	98,159234	35,381588
138,112967	135,805289	149,718536	97,995324	35,416456
137,996603	135,833105	149,767761	97,7917	35,375556
138,077399	135,74201	149,852905	97,597079	35,404387
138,123755	135,796194	149,817017	97,504871	35,453331
138,078741	135,761862	149,78244	97,420374	35,340694
138,028448	135,825262	149,78511	97,369157	35,318569
138,052283	135,780341	149,787766	97,233405	35,33935
137,963675	135,887442	149,646973	97,118311	35,337337
137,943854	135,948248	149,803848	96,827758	35,340694
137,938605	135,931113	149,843781	96,689536	35,413775
137,93331	136,063254	149,801239	96,530785	35,4064
137,901541	136,076483	149,787933	96,512892	35,255544
137,853918	136,063254	149,809204	96,438653	35,134187
137,920096	136,11611	149,880997	96,28506	35,175088
137,959769	136,097617	149,923538	96,031654	35,147594
137,969061	136,08576	149,948822	95,861475	35,209281
137,976996	135,998541	149,932861	95,864035	35,226713
137,884375	136,141257	149,954117	95,840991	35,177769
137,888464	136,023734	149,69899	95,733548	35,13955
137,79856	136,134833	149,617966	95,690088	35,151619
137,68476	136,166541	149,657852	95,541662	35,227381
137,621268	136,232642	149,695053	95,406053	35,285044
137,533972	136,132193	149,711029	95,301118	35,290406
137,483694	136,206198	149,774811	95,099012	35,182462
137,422812	136,230002	149,764191	94,963404	35,175088
137,363272	136,231329	149,773483	94,769025	35,12815
137,277335	136,294867	149,753677	94,637435	35,0725
137,081625	136,179892	149,583588	94,532575	35,024225
137,002295	136,05567	149,671326	94,489099	34,823087
136,954657	136,034521	149,695236	94,389345	34,782856
137,073706	136,087378	149,711182	94,333075	34,745981
137,002295	136,087378	149,618164	94,21286	34,678263
136,911047	136,080801	149,616837	94,114413	34,590431
136,859595	136,09014	149,489304	94,09911	34,586406
136,777594	136,148322	149,486649	93,868952	34,592444
136,663947	136,151038	149,511978	93,715556	34,57635
136,50791	136,029471	149,519958	93,674656	34,629319
136,486746	136,140448	149,320587	93,687428	34,638706
136,455023	136,066458	149,395004	93,587705	34,607862
136,325461	136,087607	149,293991	93,449641	34,595125
136,203802	136,061179	149,376419	93,326919	34,534781
136,113928	136,108755	149,23819	93,278345	34,498575
135,92887	136,087607	149,307297	93,234869	34,397337
135,820517	136,111426	149,28746	93,140365	34,390631
135,751837	136,09696	149,195801	93,139202	34,324256
135,572134	135,99256	149,187881	93,11621	34,259219
135,484915	136,111517	149,304825	93,001184	34,139875

135,429404	136,204031	149,490875	92,950057	34,077519
135,340887	136,300543	149,564011	92,900244	34,0507
135,253775	136,033636	149,59465	92,831246	34,029244
135,079413	136,023184	149,473755	92,920751	33,941412
135,01734	136,05358	149,663849	92,882411	33,817375
134,845602	136,080008	149,621292	92,884972	33,81
134,827124	136,008643	149,533585	92,943757	33,779831
134,750494	136,064139	149,350174	92,943757	33,759044
134,560278	135,990149	149,38472	92,969317	33,766419
134,409689	136,069449	149,411301	92,915645	33,735575
134,322546	136,109091	149,456497	92,900297	33,714125
134,226126	136,08927	149,46315	92,897804	33,702056
134,070395	136,012701	149,330368	92,831481	33,658475
133,789145	135,992926	149,204163	92,832772	33,626287
133,686163	135,93476	149,28125	92,814894	33,555887
133,543585	135,858115	149,326416	92,771433	33,5693
133,374609	135,895132	149,374268	92,80466	33,519688
133,210944	135,918906	149,262634	92,794448	33,482806
133,081595	135,831686	149,225403	92,832772	33,415094
132,965521	135,792136	149,33844	92,794478	33,356763
132,772894	135,755179	149,256073	92,793224	33,423138
132,674002	135,674658	149,221588	92,800928	33,41375
132,482703	135,744711	149,286728	92,734469	33,260213
132,411444	135,802847	149,241531	92,634783	33,262225
132,18978	135,723563	149,257492	92,601557	33,270269
132,08692	135,76055	149,398361	92,57855	33,270938
131,957678	135,775122	149,363831	92,562001	33,252163
131,819235	135,656241	149,435654	92,501999	33,2696
131,659659	135,650992	149,499512	92,498223	33,294406
131,625418	135,718375	149,494232	92,383249	33,303794
131,482977	135,691946	149,534119	92,334691	33,392294
131,4065	135,631186	149,555374	92,260572	33,35475
131,250906	135,612692	149,560684	92,160901	33,349381
131,200797	135,456778	149,441071	92,120031	33,342681
131,026785	135,348441	149,369293	92,214558	33,305131
130,879111	135,454138	149,321442	92,166007	33,252837
130,772375	135,497763	149,34407	92,134095	33,198525
130,673575	135,348547	149,267029	92,140515	33,206575
130,508917	135,104269	149,043854	92,22363	33,252837
130,33895	134,939185	149,228592	92,215956	33,183106
130,28887	134,925986	149,236572	92,29262	33,226687
130,11756	134,883719	149,217972	92,287514	33,215287
130,13996	135,011847	149,192749	92,394911	33,155619
130,054404	134,902274	149,291168	92,347705	33,152263
129,889716	134,827032	149,121109	92,438523	33,241437
129,796194	134,680441	149,071945	92,480684	33,2173
129,66973	134,693671	148,827469	92,600832	33,287031
129,516913	134,685721	148,787613	92,728615	33,301113

129,387823	134,598563	148,88327	92,657049	33,33195
129,308798	134,453314	148,784927	92,64939	33,35475
129,063849	134,622336	148,827469	92,68517	33,381569
128,951941	134,525961	148,754395	92,740164	33,443919
128,821555	134,527258	148,641449	92,710722	33,434538
128,769019	134,440268	148,549896	92,765761	33,360781
128,70983	134,412589	148,547272	92,875719	33,364138
128,57424	134,514273	148,487503	92,908945	33,342681
128,513678	134,445624	148,437012	93,021418	33,279656
128,403113	134,386237	148,402527	93,094344	33,219981
128,292593	134,359885	148,522186	93,163485	33,211269
128,174185	134,371802	148,466431	93,212119	33,188469
128,076773	134,403479	148,434555	93,337395	33,167687
127,98992	134,289938	148,604599	93,375727	33,095275
127,810919	134,21337	148,62587	93,375727	33,062419
127,858298	134,239783	148,578033	93,465224	32,962519
127,80303	134,252951	148,673691	93,460095	32,861281
127,618811	134,245047	148,833145	93,534244	32,80295
127,631964	134,171103	148,968674	93,552152	32,767412
127,651709	134,072119	149,233124	93,466523	32,668181
127,57952	134,241263	149,346207	93,483207	32,684944
127,474295	134,049887	149,420685	93,507506	32,664831
127,395392	134,137061	149,379532	93,407888	32,626613
127,408591	134,0922	149,501846	93,427118	32,589737
127,363882	133,994559	149,519211	93,411861	32,660806
127,345496	133,941748	149,455414	93,4502	32,643375
127,274435	133,822943	149,641495	93,514122	32,508612
127,17446	133,833517	149,351746	93,583173	32,36915
127,084998	133,767508	149,370346	93,595945	32,300094
126,977148	133,445471	149,412872	93,583173	32,250475
126,900854	133,45603	149,386292	93,631754	32,189463
126,787733	133,477133	149,192276	93,731478	32,194156
126,724608	133,426993	149,277328	93,810755	32,1432
126,544463	133,341238	149,283981	93,792885	32,137169
126,456526	133,082739	149,197723	93,808263	32,105656
126,155417	133,106528	148,930649	93,911846	32,101631
126,051642	133,085455	148,84964	93,913198	32,058725
125,796713	133,012991	148,780701	93,941477	31,921275
125,612708	132,793982	148,815247	93,997762	31,8616
125,402419	132,783423	148,645157	94,06679	31,809306
125,194792	132,714819	148,639862	94,125636	31,748294
124,979285	132,735938	148,669083	94,202368	31,698006
124,703406	132,604025	148,650497	94,281638	31,592075
124,566779	132,532767	148,589355	94,343015	31,523012
124,309348	132,400885	148,56015	94,409527	31,463344
124,149123	132,268988	148,578735	94,48882	31,431831
123,90901	132,180823	148,431442	94,526004	31,388919
123,734427	132,005438	148,19101	94,577168	31,400319

123,488959	131,798453	148,059509	94,636045	31,35875
123,166083	131,848608	148,047638	94,700072	31,397638
122,965353	131,675955	147,880386	94,711689	31,349362
122,7423	131,520377	147,84053	94,716803	31,299744
122,485129	131,370093	147,641327	94,829374	31,234037
122,256857	131,290991	147,58287	94,916348	31,199175
121,976141	131,243506	147,362442	95,036593	31,148888
121,703368	131,151266	147,290741	95,080092	31,04765
121,47653	131,044531	147,140747	95,186288	31,027531
121,215781	130,846976	147,006744	95,243918	30,990656
120,909079	130,800925	146,836853	95,319412	30,96585
120,736075	130,637503	146,666946	95,316866	30,940369
120,515959	130,479453	146,471878	95,270906	30,959812
120,243483	130,358313	146,324677	95,326051	30,976575
119,977492	130,230521	146,153427	95,419415	30,9216
119,758765	130,105383	146,069855	95,520528	30,888744
119,517767	130,010504	145,844269	95,640788	30,893437
119,240118	129,876181	145,809753	95,738027	30,786831
118,9364	129,737952	145,592209	95,804615	30,714425
118,674696	129,556296	145,552475	95,83025	30,623906
118,399878	129,352271	145,403931	95,900645	30,659444
118,180014	129,191611	145,324341	96,013277	30,570269
117,996771	129,117896	145,388016	96,079812	30,548144
117,719489	129,0548	145,214355	96,140124	30,548813
117,481436	128,802054	145,059204	96,245157	30,52535
117,245985	128,741507	144,886795	96,252824	30,520656
116,979201	128,486151	144,727646	96,342411	30,515963
116,822272	128,475638	144,526047	96,344994	30,514619
116,57643	128,288779	144,372223	96,401295	30,542781
116,394827	128,150702	144,271545	96,466644	30,448913
116,128279	128,024496	143,999802	96,556285	30,338287
115,828986	128,025824	143,979919	96,633092	30,296719
115,632971	127,857413	143,706848	96,668916	30,351025
115,379561	127,6957	143,529343	96,662723	30,310125
115,214987	127,518118	143,139725	96,680677	30,277944
114,972021	127,405005	142,962158	96,806126	30,277944
114,789168	127,399756	142,755447	96,847109	30,241737
114,601111	127,247191	142,514328	96,939257	30,19145
114,272025	127,207747	142,41626	97,023784	30,196819
114,089316	127,042136	142,062653	97,067358	30,186756
113,750052	126,981764	141,928986	97,104542	30,156588
113,5595	126,752989	141,666763	97,189046	30,105631
113,23062	126,626768	141,452225	97,232582	30,074787
113,004996	126,501997	141,316025	97,222559	30,070094
112,774092	126,440207	141,288254	97,208472	29,989638
112,575835	126,258803	141,065826	97,308347	30,028525
112,356688	126,258803	140,906967	97,333959	29,988969
112,161047	126,158919	140,758698	97,400555	29,990981

111,990248	126,112944	140,566803	97,437724	29,999694
111,775305	125,914702	140,311523	97,471109	29,9883
111,480673	125,791159	140,224182	97,519743	29,9769
111,316405	125,675551	139,896011	97,547939	29,962819
111,087119	125,623068	139,807495	97,592895	29,920581
110,925566	125,549536	139,703033	97,628832	29,899794
110,706625	125,402373	139,66069	97,700564	29,889069
110,560698	125,281508	139,425217	97,713374	29,8589
110,3757	125,16329	139,25856	97,777387	29,842137
110,156973	125,04782	139,05368	97,794102	29,785144
110,008574	124,89556	138,811737	97,837698	29,723463
109,828841	124,70117	138,803802	97,806957	29,6772
109,625677	124,546248	138,772079	97,822335	29,641662
109,462958	124,487204	138,579071	97,848099	29,637644
109,242995	124,380911	138,44693	97,882783	29,610825
109,131033	124,233847	138,264496	97,872526	29,579981
108,97354	124,135435	138,120422	97,930201	29,590038
108,809714	124,017447	137,996307	97,973813	29,545112
108,678267	123,911147	137,942108	97,97126	29,569925
108,56114	123,884886	137,698944	98,00969	29,584
108,417982	123,74314	137,619629	97,989198	29,573275
108,316519	123,684096	137,511337	98,031534	29,577969
108,164328	123,471579	137,370071	97,979175	29,560537
107,999121	123,38893	137,101852	97,995845	29,529025
107,896353	123,421759	137,079437	98,050945	29,497512
107,770377	123,200232	136,946167	98,033105	29,431806
107,614279	123,095236	136,89595	98,040779	29,420406
107,406172	123,048018	136,724228	98,094579	29,429125
107,304716	122,8617	136,729477	98,06127	29,396269
107,155234	122,863104	136,602798	98,069095	29,374813
107,008353	122,615248	136,410049	98,014139	29,372131
106,864066	122,480177	136,424606	98,020559	29,315144
106,708212	122,375441	136,300598	98,015536	29,280281
106,532721	122,237769	136,051056	98,002719	29,282287
106,418333	122,224654	135,945419	98,036013	29,241394
106,345534	122,027953	135,697189	98,056504	29,229994
106,179144	121,912566	135,628571	98,059065	29,1844
106,080466	121,764517	135,42276	98,034955	29,189763
105,940161	121,619032	135,298721	98,040099	29,172331
105,754347	121,484053	135,17865	98,059359	29,173675
105,601195	121,313834	135,147141	98,00821	29,123388
105,446585	121,18936	134,90564	97,992831	29,114669
105,342657	121,094977	134,926758	97,898048	29,172331
105,314085	120,961325	134,771027	97,900631	29,193787
105,110144	121,017691	134,592941	97,928842	29,215912
105,072607	120,877608	134,517883	97,91752	29,223288
104,946631	120,724333	134,405792	97,906031	29,2253
104,779227	120,548911	134,20932	97,871521	29,237369

104,636427	120,563391	134,175095	97,893304	29,1958
104,555899	120,353789	133,990417	97,926606	29,216581
104,433836	120,353789	133,829498	97,931712	29,197138
104,261176	120,169104	133,809753	97,903584	29,167637
104,17166	119,946562	133,660843	97,851241	29,130762
104,104178	119,835257	133,45253	97,84359	29,08115
103,966559	119,793356	133,391891	97,876907	29,093888
103,813513	119,709708	133,200821	97,829586	29,092544
103,650046	119,542197	133,001816	97,839874	29,048294
103,481322	119,463629	132,87793	97,824496	28,998681
103,483916	119,324866	132,78302	97,796322	29,049637
103,36711	119,327483	132,730301	97,765596	29,022144
103,241331	119,124709	132,56044	97,722287	28,979237
103,151831	118,940169	132,49852	97,685179	28,990631
103,080466	118,925787	132,254761	97,686485	28,98125
102,966376	118,878767	132,100677	97,691637	28,941019
102,897726	118,652487	131,976898	97,640472	28,920906
102,788733	118,639395	131,876785	97,637881	28,918894
102,661581	118,534705	131,716049	97,648153	28,9323
102,626593	118,371153	131,583023	97,632843	28,900787
102,560545	118,291472	131,458084	97,575424	28,953087
102,443823	118,118773	131,334274	97,590765	28,995325
102,395834	118,065184	131,246048	97,545998	28,941688
102,293524	117,835104	131,179031	97,544766	28,978562
102,192397	117,757986	131,057922	97,525566	28,950406
102,067885	117,708281	130,986801	97,517893	28,91755
101,982275	117,650748	130,965729	97,520461	28,930962
101,857886	117,574988	130,830246	97,49373	28,880006
101,772345	117,533179	130,618347	97,460519	28,895425
101,733435	117,441649	130,534103	97,406741	28,869275
101,654349	117,406378	130,411682	97,35427	28,841788
101,528769	117,226042	130,439453	97,332577	28,827706
101,518423	117,15943	130,307877	97,277538	28,804244
101,435454	117,054839	130,255219	97,239115	28,784125
101,375815	116,884901	130,155182	97,195594	28,800887
101,269583	116,830077	130,072403	97,143281	28,775413
101,217802	116,704649	129,897446	97,135675	28,774744
101,171126	116,597456	129,810577	97,112631	28,794856
101,022063	116,590933	129,711929	97,098582	28,823013
100,93022	116,423804	129,652817	97,089692	28,821006
100,862852	116,49053	129,53447	97,024411	28,805581
100,795462	116,291861	129,466049	97,021843	28,829719
100,748824	116,327185	129,395065	97,023202	28,833075
100,721701	116,146933	129,25705	96,955511	28,825025
100,621939	116,007155	129,158417	96,923531	28,802231
100,614157	115,96012	128,958488	96,890253	28,778094
100,546767	115,889563	128,769096	96,910744	28,768706
100,440543	115,71588	128,763878	96,89029	28,765356

100,321532	115,782683	128,608864	96,848121	28,746581
100,19454	115,769606	128,535233	96,868613	28,74055
100,055891	115,622015	128,476074	96,809774	28,733169
99,962668	115,496664	128,409111	96,789381	28,761331
99,883711	115,375266	128,317154	96,747265	28,6916
99,862997	115,255095	128,204071	96,72166	28,696969
99,774886	115,111449	128,127823	96,662761	28,677525
99,725653	115,077498	128,038437	96,639716	28,597738
99,668646	115,10623	127,859665	96,642277	28,556838
99,570311	114,978346	127,776909	96,59115	28,5441
99,48754	114,816588	127,681129	96,564321	28,555494
99,406035	114,781393	127,618141	96,497899	28,555494
99,264937	114,654837	127,523605	96,448109	28,574938
99,264937	114,456389	127,394814	96,407164	28,585
99,176848	114,411986	127,234512	96,378983	28,572931
99,119856	114,425055	127,205589	96,391793	28,519962
99,057707	114,302351	127,142525	96,332924	28,575613
99,057707	114,213583	127,087341	96,29963	28,545438
98,936018	114,144461	126,898216	96,327856	28,546112
98,85079	113,967238	126,874847	96,246185	28,50655
98,705878	113,950354	126,69101	96,210436	28,483756
98,63597	113,825064	126,599083	96,23092	28,432131
98,576399	113,772864	126,559654	96,195088	28,439506
98,446921	113,71546	126,520256	96,179725	28,412013
98,358893	113,511908	126,402054	96,182278	28,410675
98,263091	113,551024	126,260216	96,149014	28,371787
98,169867	113,496237	126,383659	96,1439	28,351675
98,136221	113,397078	126,339027	96,06198	28,337594
98,040678	113,291685	126,200066	96,003375	28,320831
97,950224	113,167891	126,20549	96,008632	28,291331
97,955389	113,141798	126,15033	95,939529	28,248419
97,825964	113,003516	126,079414	95,965119	28,197463
97,797484	112,980063	126,058403	95,921598	28,1921
97,771605	112,867865	126,074165	95,847381	28,175338
97,688765	112,849623	126,053154	95,760377	28,1512
97,624052	112,810484	125,982239	95,709189	28,127063
97,556769	112,601828	125,793182	95,71175	28,099575
97,40695	112,60607	125,769875	95,63918	28,099575
97,298354	112,547461	125,646568	95,579064	28,131756
97,326819	112,390997	125,599297	95,553475	28,102925
97,225882	112,244955	125,562538	95,563717	28,1626
97,179327	112,237143	125,520554	95,522786	28,155894
97,12496	112,164114	125,405029	95,486947	28,15455
97,060271	112,046797	125,370895	95,458796	28,17735
97,024039	112,083289	125,34465	95,446017	28,184056
96,897398	111,912718	125,229317	95,381	28,167962
96,81349	111,794279	125,204559	95,368348	28,11835
96,677733	111,76824	125,161324	95,292878	28,097563

96,664801	111,690031	125,08519	95,277545	28,087506
96,538031	111,591002	124,995979	95,264742	28,011069
96,538031	111,554495	124,812263	95,205896	28,00705
96,393141	111,523222	124,717773	95,203343	28,011744
96,338812	111,395499	124,586578	95,203343	27,974869
96,254774	111,333014	124,551193	95,158621	27,9809
96,187628	111,292693	124,506706	95,12933	27,946038
96,151663	111,222594	124,344292	95,065582	27,954081
96,080565	111,150954	124,295761	95,037417	27,9628
96,008154	111,09101	124,13575	94,993933	27,952069
95,979681	111,018057	124,064941	94,981138	27,929944
95,889166	110,989394	123,970497	94,986252	27,909831
95,833586	110,891707	123,924614	94,950488	27,93665
95,737883	110,782278	123,956116	94,912126	28,005037
95,675917	110,713362	123,755585	94,830462	27,97755
95,56217	110,590948	123,627129	94,792152	27,956762
95,544241	110,739622	123,722977	94,78327	27,952069
95,468031	110,588553	123,682426	94,72573	28,009063
95,457686	110,41664	123,472626	94,700163	27,972856
95,356856	110,367148	123,627342	94,705269	27,9628
95,310294	110,286398	123,420181	94,664331	27,993638
95,281912	110,230467	123,359932	94,645275	27,968831
95,225073	110,097685	123,298378	94,688856	27,950056
95,071257	110,089934	123,128036	94,618597	27,953412
95,035063	110,095122	123,093956	94,582795	27,9286
94,89559	109,996275	122,921043	94,547039	27,927931
94,838774	109,969031	122,879143	94,535536	27,861556
94,752249	109,945639	122,786163	94,493367	27,861556
94,664458	109,835081	122,71946	94,425827	27,822669
94,619261	109,827315	122,769333	94,337629	27,804562
94,541708	109,728392	122,756218	94,347879	27,772381
94,508116	109,533102	122,690674	94,306949	27,789144
94,461584	109,530508	122,653992	94,258352	27,762994
94,337508	109,566931	122,612053	94,245572	27,76635
94,306502	109,496664	122,583221	94,266033	27,764337
94,205733	109,396452	122,422073	94,194423	27,732825
94,179854	109,395132	122,433853	94,19187	27,734169
94,099776	109,406844	122,353951	94,189309	27,736175
94,018477	109,246893	122,437904	94,14717	27,746231
93,907492	109,157156	122,401329	94,079434	27,7811
93,902327	109,266486	122,482574	94,048746	27,705337
93,925558	109,185782	122,312233	93,987354	27,75495
93,871291	109,261275	122,30175	93,987354	27,773725
93,854536	109,06478	122,308327	93,941394	27,793169
93,740889	108,986746	122,169495	93,885229	27,783781
93,689207	108,963324	122,067314	93,864775	27,744894
93,649168	108,93215	122,009727	93,825212	27,723437
93,616904	108,876227	121,976997	93,765142	27,689912

93,593649	108,841116	121,891899	93,775437	27,65505
93,531645	108,786436	121,857834	93,757529	27,65505
93,508391	108,786436	121,787102	93,721734	27,614819
93,419325	108,625136	121,760941	93,664202	27,573925
93,418005	108,74613	121,793663	93,680819	27,594038
93,382025	108,534239	121,879005	93,634896	27,5994
93,280028	108,491301	121,872498	93,622101	27,569231
93,27484	108,543349	121,783401	93,591421	27,594038
93,277426	108,60842	121,830566	93,57352	27,598063
93,272253	108,366415	121,882965	93,478925	27,607444
93,267096	108,397658	121,90654	93,427798	27,630913
93,285185	108,345618	121,872498	93,361308	27,60275
93,241263	108,408049	121,890808	93,366421	27,568556
93,2517	108,285895	121,918411	93,315332	27,560513
93,179427	108,171461	121,926346	93,288511	27,551125
93,184683	108,296439	121,904137	93,247664	27,506875
93,213087	108,267828	121,904137	93,209324	27,514919
93,151099	108,15856	121,940834	93,216983	27,511569
93,197607	108,096114	121,938194	93,163303	27,467319
93,051657	108,042822	121,915962	93,153137	27,445863
92,969054	108,003851	121,867569	93,119994	27,395563
92,934256	107,976607	121,804794	93,106059	27,371425
92,942023	107,932379	121,629303	93,083052	27,347288
92,88259	108,002631	121,720978	93,100953	27,347288
92,8981	107,937575	121,791702	93,044712	27,353325
92,779265	107,916762	121,676468	92,983351	27,371425
92,745695	107,807532	121,697403	92,975684	27,344606
92,743109	107,778914	121,702667	92,929663	27,333212
92,736685	107,767256	121,680405	92,932292	27,3493
92,681258	107,647749	121,625565	92,831549	27,266831
92,630995	107,724562	121,632187	92,844381	27,311081
92,623259	107,625739	121,634811	92,859707	27,272869
92,517462	107,644064	121,617851	92,800966	27,276888
92,544669	107,532256	121,642845	92,81506	27,210513
92,524001	107,488043	121,692612	92,766494	27,214537
92,518835	107,524466	121,703087	92,746032	27,180344
92,472342	107,493239	121,695236	92,682141	27,148831
92,396178	107,4205	121,701797	92,670728	27,133406
92,460799	107,459563	121,716293	92,640153	27,117987
92,373045	107,200896	121,67054	92,608339	27,044238
92,391112	107,232085	121,662659	92,562333	27,038869
92,344641	107,330916	121,636475	92,562333	27,050937
92,264555	107,232085	121,636475	92,587893	27,091838
92,225836	107,252905	121,565765	92,572545	27,113962
92,156088	107,159285	121,591965	92,508654	27,1609
92,122527	107,143698	121,547432	92,460095	27,107263
92,070876	107,20349	121,550034	92,462655	27,107931
92,052809	107,09429	121,547432	92,431974	27,114637

92,038725	106,985175	121,541031	92,373423	27,144137
91,996161	107,024245	121,470337	92,367101	27,147488
91,967749	106,956641	121,493927	92,269976	27,08245
91,899336	106,861784	121,463837	92,26743	27,037531
91,909674	106,890387	121,46122	92,285323	27,009369
91,800017	106,683775	121,387924	92,272581	26,973163
91,811713	106,76702	121,399803	92,248344	26,961769
91,800116	106,713759	121,411606	92,263669	26,962438
91,6659	106,53839	121,377625	92,261154	26,909469
91,632338	106,504591	121,482391	92,245836	26,916844
91,592406	106,511176	121,449722	92,111791	26,975175
91,602797	106,374739	121,413124	92,031396	27,048931
91,54473	106,369597	121,337204	91,986734	27,032169
91,539542	106,398184	121,32412	92,002075	27,0677
91,441557	106,309935	121,270523	91,951016	27,072394
91,370642	106,356764	121,266685	91,880764	27,072394
91,368109	106,323027	121,300766	91,843747	27,036863
91,369429	106,154158	121,283783	91,791388	27,05295
91,341032	106,185339	121,315224	91,765829	27,063006
91,328139	106,089209	121,239273	91,709626	27,016744
91,276503	106,278914	121,270691	91,699414	26,995294
91,244307	106,129561	121,28257	91,629284	27,010713
91,227621	105,99581	121,198845	91,603868	26,97585
91,154059	106,090697	121,09021	91,593656	26,914831
91,150397	105,937552	121,103485	91,61803	26,907456
91,070425	106,159819	121,090454	91,577183	26,915506
90,946516	105,985693	121,082588	91,587417	26,860525
90,995558	105,959715	121,111382	91,50564	26,876619
90,982642	106,029883	121,103554	91,50564	26,916175
90,92327	105,814177	121,017136	91,490322	26,998644
90,850996	105,920729	121,004036	91,441778	26,995963
90,807227	105,86627	120,896805	91,433032	27,008031
90,763411	105,788367	120,882477	91,420365	26,97585
90,714369	105,809172	120,848427	91,389684	26,918856
90,67697	105,667601	120,857643	91,359026	26,865219
90,610083	105,47682	120,848679	91,295271	26,768669
90,589423	105,344344	120,825111	91,267173	26,717712
90,557196	105,419722	120,729576	91,21227	26,719056
90,446227	105,492484	120,674599	91,196959	26,658044
90,404929	105,53665	120,687683	91,191823	26,6158
90,355879	105,531462	120,614388	91,225057	26,651337
90,326231	105,583418	120,463898	91,20591	26,647987
90,241202	105,462752	120,433937	91,14482	26,663406
90,194746	105,330275	120,368484	91,185683	26,680169
90,125288	105,427885	120,312431	91,169232	26,561494
90,038916	105,285117	120,253616	91,115635	26,505844
90,007964	105,303297	120,279785	91,0441	26,489756
90,005377	105,334456	120,206497	91,036449	26,504506

90,013106	105,277312	120,172478	91,039001	26,537356
89,982153	105,35005	120,15155	91,067099	26,467625
89,915053	105,248732	120,146317	91,046653	26,36035
89,86862	105,20719	120,201271	91,033888	26,306044
89,867445	105,17227	120,190987	90,943432	26,266488
89,770827	104,937361	120,167519	90,89757	26,283919
89,803175	105,028304	120,113968	90,909096	26,25375
89,642004	104,92713	120,175568	90,883612	26,303362
89,747786	104,820654	120,133675	90,704807	26,3456
89,711668	104,581763	120,138916	90,651165	26,338225
89,580084	104,542792	120,002831	90,628173	26,44215
89,564597	104,54019	120,018532	90,54132	26,419356
89,456236	104,332487	119,882454	90,462156	26,37175
89,415068	104,372816	119,923096	90,469883	26,409294
89,387053	104,195341	119,953568	90,304243	26,347613
89,330267	104,099295	119,911713	90,327227	26,363031
89,263205	104,117461	119,720688	90,255737	26,449525
89,255453	104,083723	119,715454	90,117818	26,354987
89,229651	103,876059	119,681458	90,036101	26,3047
89,20645	103,990263	119,705002	89,985027	26,283919
89,098074	103,800787	119,650047	89,997784	26,271181
89,092978	103,65415	119,69062	89,926301	26,237656
89,032736	103,632468	119,577194	89,8692	26,261794
88,992796	103,497572	119,449059	89,70202	26,294644
88,91281	103,479414	119,386276	89,615212	26,351637
88,887015	103,440489	119,226723	89,576902	26,340237
88,740004	103,0772	119,106384	89,492655	26,259781
88,626494	102,996771	118,918083	89,515632	26,186031
88,529875	102,924178	118,779541	89,501606	25,992931
88,328917	102,873778	118,760124	89,405953	25,990919
88,296698	102,833609	118,795471	89,388143	25,909125
88,17562	102,797453	118,727646	89,360332	25,824644
88,077612	102,584738	118,701492	89,304168	25,914487
88,002821	102,58734	118,738098	89,276085	25,937281
87,977034	102,41355	118,709335	89,189262	25,891019
87,879111	102,350012	118,647911	89,20714	25,90175
87,736243	102,350264	118,655983	89,181709	25,857494
87,780081	102,181685	118,588013	89,115348	25,84945
87,70278	102,149344	118,420731	88,871685	25,915825
87,598448	101,936812	118,247025	88,809356	26,006344
87,54946	102,009428	118,267914	88,697019	25,939962
87,490141	101,910887	118,113686	88,712344	25,806544
87,343283	101,746321	118,107262	88,713643	25,726756
87,282912	101,62982	118,170174	88,669065	25,64965
87,210722	101,601317	117,91922	88,676716	25,6939
87,097296	101,588332	118,042084	88,630763	25,7348
86,98139	101,44718	117,944214	88,583813	25,700606
86,853812	101,605406	117,920738	88,585158	25,7053

86,833182	101,742812	117,855415	88,620884	25,66775
86,699416	101,411177	117,607376	88,54953	25,653675
86,618254	101,308829	117,634827	88,442336	25,609419
86,479063	101,205107	117,545967	88,324916	25,528963
86,45587	101,176604	117,444054	88,284091	25,565169
86,328429	101,114584	117,420723	88,174632	25,504825
86,302649	100,9215	117,33844	88,141504	25,445825
86,204741	100,977271	117,318893	88,13386	25,435769
86,157347	100,86347	117,316513	88,052294	25,401575
86,069708	100,948996	117,259033	88,090558	25,491419
86,031058	100,694998	117,217224	88,00125	25,545056
85,984663	100,889395	117,097046	88,039514	25,524944
85,935728	100,665274	117,065758	87,90059	25,550419
85,854666	100,603201	117,011078	87,85867	25,526281
85,786696	100,516646	117,013947	87,756711	25,588637
85,73773	100,381911	116,849358	87,76437	25,616125
85,64752	100,405234	116,773598	87,705667	25,526281
85,595976	100,379324	116,75795	87,713334	25,396213
85,552153	100,384512	116,622101	87,646972	25,355981
85,455733	100,361449	116,638023	87,600082	25,325144
85,324553	100,124564	116,485458	87,512172	25,361344
85,230528	99,944556	116,303986	87,366752	25,307706
85,127455	99,939352	116,285721	87,361631	25,2125
85,029539	99,745085	115,977608	87,175364	25,20915
84,921332	99,615569	116,048111	87,157501	25,159531
84,85314	99,650633	115,997276	87,134675	25,113944
84,705382	99,48654	115,897163	86,989573	25,136737
84,692488	99,424376	115,816238	86,953862	25,1126
84,525038	99,173155	115,568253	86,849274	25,160206
84,429701	99,015204	115,568253	86,714043	25,105894
84,370451	99,095473	115,456009	86,606887	25,003312
84,335753	99,104636	115,433929	86,541923	25,007337
84,16741	99,147742	115,328636	86,48492	25,020744
84,21636	99,132216	115,286858	86,474693	24,995937
84,164832	98,821494	115,318176	86,459383	25,028794
84,028304	98,96131	115,174667	86,39562	25,132044
84,030882	98,886221	115,059822	86,339508	25,162888
84,06436	98,81629	114,90847	86,334409	25,072375
83,856139	98,578535	114,893265	86,199609	25,015381
83,861365	98,658858	114,731567	86,166496	24,980519
83,771193	98,500906	114,658516	86,143535	25,006663
83,614066	98,570822	114,629814	86,110392	25,016725
83,539366	98,412909	114,588066	86,021114	25,05695
83,503355	98,528189	114,504654	85,925545	25,113269
83,391653	98,334364	114,408463	85,831411	25,092487
83,264265	98,289145	114,306862	85,809877	25,087125
83,125166	98,239966	114,15818	85,723152	25,074381
83,07366	98,151945	114,160782	85,631321	24,995937

82,950034	98,206305	114,035606	85,575217	25,022087
82,736479	98,042159	113,95755	85,524339	25,052931
82,672209	98,141989	113,893814	85,5181	25,013369
82,59252	97,865134	113,668419	85,39463	25,007337
82,522978	97,852202	113,590202	85,38441	24,947662
82,458586	97,735732	113,313873	85,208438	24,907438
82,360747	97,590834	113,105331	85,180386	24,888662
82,254027	97,460287	113,115898	85,064454	24,835025
82,131995	97,342841	112,944145	84,910484	24,833013
82,126906	97,433463	112,996368	84,882514	24,787419
82,080557	97,456755	112,918182	84,826387	24,75725
82,023901	97,210936	112,866058	84,816198	24,758588
81,956953	97,042784	112,767029	84,668293	24,704281
81,952109	96,929266	112,493645	84,475924	24,320769
81,916197	96,935896	112,384407	84,406088	24,385138
81,833861	96,797522	112,293297	84,431632	24,562812
81,820975	96,851836	112,329765	84,347498	24,769988
81,725722	96,78974	112,277657	84,357687	24,91615
81,761816	96,669554	112,131828	84,199616	25,091144
81,751776	96,601225	111,996567	84,211225	25,220544
81,692755	96,671263	111,965561	84,103163	25,315756
81,723647	96,503119	111,817085	84,054725	25,396213
81,731367	96,42552	111,715515	84,085307	25,447838
81,700461	96,41519	111,603523	84,103163	25,487394
81,610335	96,337592	111,491531	84,064906	25,502144
81,573294	96,230551	111,386292	84,022994	25,5531
81,485945	96,093672	111,284981	83,931519	25,629538
81,567084	96,079474	111,208229	83,899675	25,687194
81,487265	96,092421	111,046776	83,91753	25,725412
81,518156	96,004469	110,901009	83,874183	25,785756
81,466666	95,932082	110,786446	83,912409	25,830006
81,451231	95,805373	110,716179	83,848684	25,877613
81,339568	95,79151	110,592873	83,814604	25,946
81,348746	95,834326	110,526688	83,673248	25,999637
81,320425	95,79814	110,344482	83,701293	26,047244
81,284369	95,741225	110,227379	83,673248	26,028469
81,25862	95,580931	110,118103	83,701293	26,072719
81,178809	95,505949	110,034813	83,642665	26,076069
81,137625	95,418051	109,954147	83,650302	26,076744
81,061758	95,353545	109,85022	83,570224	26,064675
81,018065	95,318747	109,669495	83,505365	26,0573
80,899763	95,258078	109,618866	83,527058	26,073387
80,862654	95,064383	109,442169	83,502941	26,067356
80,834334	94,935141	109,442169	83,37802	26,113619
80,947623	94,839514	109,325111	83,360172	26,140437
80,945029	94,842101	109,299103	83,227607	26,161219
80,815062	94,70645	109,178207	83,13592	26,195419
80,744345	94,574751	109,097694	83,027805	26,229613

80,743102	94,523116	108,975548	82,924645	26,252406
80,658148	94,246596	108,871544	82,802292	26,31275
80,601523	94,370642	108,775314	82,797194	26,348956
80,611807	94,419737	108,715523	82,756407	26,350969
80,521719	94,26985	108,634911	82,746218	26,303362
80,449629	94,16133	108,5205	82,69525	26,315431
80,403433	94,255743	108,449112	82,696541	26,253075
80,35977	94,188696	108,411507	82,653285	26,278556
80,218459	94,048155	108,289627	82,558101	26,246369
80,19528	94,024901	108,120697	82,570835	26,2457
80,164397	93,991316	108,016724	82,489269	26,255087
80,08718	93,918967	107,878967	82,471421	26,244363
79,968748	93,859549	107,800972	82,468876	26,2457
79,989355	93,854384	107,684052	82,422983	26,214188
79,906981	93,701949	107,554123	82,318494	26,248381
79,834906	93,583098	107,426796	82,333796	26,244363
79,816878	93,619261	107,369629	82,254783	26,249056
79,69332	93,51335	107,237129	82,216542	26,251737
79,645743	93,39453	107,100746	82,179615	26,264475
79,517111	93,22151	106,970932	82,152945	26,255756
79,419356	93,034346	106,872337	82,027004	26,24235
79,364035	93,115744	106,747673	81,97093	26,226256
79,276534	93,022757	106,656754	81,940355	26,21285
79,104086	92,896201	106,532074	81,866441	26,1981
79,07321	92,927176	106,435989	81,802715	26,184687
78,985709	92,883276	106,306129	81,741558	26,210838
78,947089	92,751563	106,236046	81,72371	26,209494
78,8673	92,681853	106,126968	81,677832	26,206812
78,817137	92,623755	106,042633	81,657469	26,21955
78,701399	92,674162	105,981651	81,6078	26,218881
78,660201	92,433989	105,872597	81,54918	26,218212
78,514952	92,277945	105,778015	81,495727	26,221562
78,440314	92,290831	105,59111	81,4371	26,265144
78,350317	92,263831	105,438011	81,355609	26,2752
78,288557	92,142462	105,365334	81,294459	26,267156
78,15988	92,108908	105,292656	81,187432	26,217544
78,037787	91,899893	105,172142	81,08829	26,234306
77,955412	91,862509	105,150116	81,05137	26,21285
77,90528	91,809607	104,886742	80,954585	26,202119
77,722548	91,804457	104,764778	80,946956	26,180663
77,671088	91,6005	104,622055	80,903632	26,153844
77,609328	91,492056	104,520874	80,824634	26,182006
77,496115	91,406889	104,427498	80,776218	26,179994
77,39057	91,267508	104,284798	80,669191	26,165913
77,326247	91,135855	104,196625	80,597844	26,161219
77,295386	90,965521	104,118797	80,465348	26,182006
77,169287	90,975836	103,93203	80,411842	26,241006
77,071494	90,952605	103,846451	80,261497	26,265812

76,95825	90,919066	103,646744	80,215635	26,262463
76,891356	90,722914	103,403015	80,162121	26,257769
76,798712	90,593893	103,361511	80,136645	26,258437
76,677763	90,513899	103,314827	80,01942	26,255756
76,610869	90,441641	103,146324	79,963376	26,210169
76,502798	90,423582	103,008896	79,881848	26,196756
76,428168	90,302306	102,915588	79,818138	26,156531
76,268607	90,188765	102,817085	79,678013	26,152506
76,212012	89,946242	102,708206	79,642332	26,154519

Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range
Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [100ppm
1,670302	25,454126	40,404084	3,528459	0,010721
2,765844	25,915301	40,031132	3,517597	22,479
2,463902	26,113775	40,468806	3,514983	16,087097
2,950961	25,602879	40,884334	3,510357	22,479402
4,906353	26,214876	40,581201	3,498288	22,47967
6,054007	25,445011	40,748095	3,481794	22,479804
7,939407	25,610337	40,78556	3,457859	22,479939
8,866692	26,252586	40,240603	3,42876	22,480206
10,066458	25,701496	40,656131	3,395974	22,479939
10,707302	25,420565	40,574391	3,361847	22,480073
10,619256	25,03562	39,005925	3,326043	22,479939
11,224674	23,565499	37,543043	3,29138	22,479939
11,520997	23,702648	38,534183	3,250951	22,479804
11,926653	22,928225	37,827444	3,205157	22,479939
12,027983	23,587457	37,8564	3,165934	22,480073
12,592188	23,545611	37,577095	3,122823	22,480206
13,270154	24,632456	37,781454	3,078907	22,480341
14,227585	24,815601	38,331539	3,022855	22,480073
14,747683	24,329563	39,055312	2,970692	22,480073
15,484575	24,310505	38,363892	2,915713	22,479939
15,586754	23,95789	37,699714	2,864489	22,480206
15,940299	23,284981	37,824031	2,809711	22,480206
16,46261	24,014244	37,65374	2,759024	22,480073
16,71176	36,844283	59,138838	2,699619	22,480206
16,579096	27,858617	44,879579	2,651747	22,480206
16,383421	25,296258	40,802594	2,601528	22,480073
16,606514	25,014489	40,899654	2,552919	22,480475
16,770342	25,321534	40,402385	2,507326	22,480206
16,362813	25,780221	40,083917	2,460527	22,479939
16,985263	25,352195	40,117984	2,416276	22,480206
17,072797	25,986568	41,625141	2,370014	22,480341
17,077566	25,191013	41,350964	2,316577	22,480475
17,671915	24,788254	40,368317	2,263609	22,480206
17,920724	25,832844	40,37173	2,211313	22,480341
17,847153	23,649612	40,293387	2,161027	22,480206
18,44116	25,428437	40,83836	2,106182	22,480341
18,215683	25,961295	40,911576	2,051873	22,480341
18,625088	25,619039	40,954152	1,998906	22,480073
18,600391	24,136477	41,003539	1,941111	22,480341
18,640076	25,49639	40,98822	1,887004	22,480341
18,815655	25,082036	40,671466	1,827533	22,480475
18,848011	24,462159	40,869015	1,773493	22,480206

18,46841	25,42678	40,412608	1,720324	22,480206
18,71058	25,326918	41,114236	1,665345	22,480341
18,731697	25,885054	41,255587	1,609494	22,480341
18,866574	25,612825	41,059737	1,552638	22,480206
18,240718	25,207587	40,700406	1,495044	22,480341
18,7053	25,07002	40,754905	1,444558	22,480206
18,102434	25,412276	40,301912	1,393266	22,480206
17,933665	25,006204	40,870713	1,344522	22,480475
18,161357	24,794469	39,882971	1,297991	22,480073
18,405908	24,416995	39,76375	1,250387	21,452103
18,077059	24,558702	39,721189	1,2056	21,481335
17,7947	24,185785	41,245363	1,163494	19,558277
17,803557	24,024599	40,676562	1,122193	21,197188
17,940988	24,478316	40,007288	1,082836	16,08817
17,57808	24,593507	39,705853	1,043613	22,480073
17,5275	24,162997	40,100951	1,00486	22,480073
17,849537	24,929548	39,961298	0,965704	22,480073
18,217556	25,688649	40,964376	0,925409	20,870265
17,500933	24,833418	40,960963	0,89222	22,480475
17,736969	24,361054	39,796119	0,857489	22,480341
17,562922	24,456357	39,69563	0,827452	20,615351
17,09119	25,082036	40,192914	0,798823	16,412411
17,111286	24,612155	40,104364	0,768585	17,819069
16,974534	24,453043	40,465393	0,738414	15,821187
18,545045	24,97927	42,003204	1,058162	10,990551
15,957329	24,371413	40,082218	7,290225	15,394095
16,240027	24,872781	40,94223	7,183821	22,480073
16,510635	24,334125	40,039641	7,150968	22,480206
16,431446	24,731074	39,89148	7,117042	22,480073
16,523578	24,942391	40,569279	7,084926	22,480073
17,58472	25,01822	40,519892	7,047313	18,854951
17,752466	24,517265	40,552245	7,013454	15,826685
18,02631	24,087998	40,218457	6,972085	11,486434
18,121678	25,162422	40,77024	6,926426	17,910119
18,476414	24,444754	40,020909	6,867826	22,480073
18,873727	25,173195	39,172819	6,80031	22,480073
18,805096	24,257466	40,516479	6,732458	22,480073
18,593579	24,937007	39,935755	6,675735	22,480206
18,466876	25,436722	40,368317	6,618008	22,479939
18,352946	25,235346	41,073374	6,563096	22,480073
18,296236	25,500947	40,50797	6,50168	22,480341
18,383599	24,585635	40,533513	6,441606	22,480206
18,743106	24,844191	40,22187	6,382537	22,480341
18,674647	24,061065	40,298499	6,324809	22,480206
18,382918	24,41492	39,682009	6,264399	22,480073
18,555432	24,60304	40,647622	6,204996	22,479939
18,82979	24,381359	40,843456	6,146195	22,480073
18,733229	24,694608	40,911576	6,088534	22,480206

19,036875	24,943222	40,000478	6,032617	22,480073
18,934524	24,826373	40,460281	5,973279	22,480206
18,92073	25,704397	40,484125	5,912734	22,480206
18,824851	23,854302	39,709267	5,862449	22,480341
19,078429	24,958552	40,451772	5,801034	22,480341
19,133606	24,124047	39,564502	5,738143	22,480206
19,021547	25,341422	40,93542	5,677398	22,479939
19,275806	24,668505	40,836646	5,620609	22,480341
19,010308	26,454375	43,425223	5,557384	22,480206
19,247536	26,786271	44,080876	5,497711	22,480341
18,643481	27,190266	44,031489	5,449102	22,480475
18,894333	27,164576	43,747089	5,394324	20,338579
18,444397	27,746327	44,307365	5,342831	18,457896
18,786023	26,775912	44,498103	5,291674	17,186271
18,933503	27,216782	43,246407	5,245009	16,269868
18,268477	27,937343	44,108118	5,198276	15,5475
18,348689	27,846184	44,142186	5,148729	15,006695
18,834899	27,338601	44,193272	5,102868	17,385406
18,923284	27,564426	44,62242	5,05627	19,67722
18,951384	26,936268	43,612548	5,004979	18,959009
18,744979	28,395617	43,946336	4,959253	15,810191
18,76201	26,46556	43,486517	4,904944	19,29867
18,927031	27,37465	43,185098	4,857676	20,1369
19,129518	26,652849	44,06043	4,806317	22,480073
19,337796	26,760165	43,27195	4,744902	22,480073
19,492598	27,559038	43,944637	4,689118	22,480341
19,159491	26,538075	43,61766	4,627569	22,480206
19,728805	26,423297	43,188495	4,567561	22,480206
19,24975	26,76514	43,675556	4,502123	22,479804
20,040795	27,603376	44,080876	4,433198	22,480206
19,832007	26,957813	43,954845	4,363804	22,480073
20,124242	26,701744	44,244357	4,284822	22,480341
20,297269	27,559451	44,436794	4,215562	22,480341
20,190149	26,422053	45,16398	4,143956	22,480206
20,483065	27,105322	43,200417	4,073355	22,480206
20,040284	27,483626	44,521948	4,003826	22,480206
20,192022	26,118333	43,576782	3,929537	22,480206
20,534155	26,590698	43,99231	3,853639	22,480341
20,290796	26,216537	43,433732	3,779485	22,480206
20,778707	26,969829	43,929302	3,705196	22,480206
20,686916	26,123304	43,520584	3,62541	22,480341
20,685893	26,660308	43,61766	3,539924	22,480341
20,869477	27,223414	43,173176	3,466977	22,480475
20,805954	26,367773	43,823717	3,382833	22,480206
20,776152	27,05643	43,600626	3,31136	22,480475
20,661541	26,880744	43,067591	3,238882	22,480206
20,903878	25,975382	42,755933	3,166739	22,480206
20,9783	26,21405	43,20383	3,093389	22,480206

20,585416	26,080627	42,890474	3,02547	22,480206
20,998736	25,770276	43,065877	2,948634	22,480206
21,102788	26,5331	43,159539	2,880983	22,480341
20,66648	27,29261	43,866294	2,814137	22,480341
20,627651	26,911405	43,660237	2,748161	22,480341
20,515593	27,236674	43,76752	2,678431	22,480341
20,66682	25,95425	43,064178	2,617083	22,480206
21,02411	25,903698	41,378205	2,552784	22,480341
20,216886	26,315151	42,619694	2,488017	22,480206
20,397745	25,571388	41,539988	2,427473	22,480206
20,141613	26,247198	42,733803	2,362437	22,480475
20,229489	26,395537	42,892172	2,303569	22,480475
20,594442	25,672075	43,779442	2,246981	22,480206
20,034836	26,844278	43,455862	2,193813	22,480475
20,084563	25,994857	42,432369	2,133471	22,480341
19,670563	25,751631	42,18883	2,086671	22,480609
19,980169	25,984084	41,764793	2,035379	22,480206
20,085585	26,14568	42,330182	1,984155	22,480341
19,99277	27,160432	42,546463	1,939166	22,480341
19,486809	26,07607	42,732089	1,888747	22,480475
19,62935	24,06521	39,455521	1,847714	22,480475
19,430609	24,85662	39,743318	1,805541	22,480206
19,227952	24,387574	39,194948	1,762496	22,480206
19,4708	23,780134	39,448694	1,721196	22,480475
19,247196	24,695852	38,77942	1,679961	22,480475
19,290111	24,444754	39,601968	1,638928	22,480206
19,024443	25,26311	39,905101	1,603996	22,480475
19,059525	23,905681	39,11832	1,561757	22,480341
18,986637	24,171282	38,401357	1,528836	22,480073
18,651315	24,279841	39,399307	1,489547	22,480073
18,567354	24,831761	39,785895	1,455554	17,639381
18,648761	23,327661	38,857763	1,421492	14,370011
18,762861	23,87709	38,873083	1,387701	14,837736
18,766098	23,758585	39,068933	1,354646	17,050165
18,556114	26,079384	41,117649	1,318173	19,024179
18,526311	23,804166	39,235826	1,289744	22,480206
18,596645	24,135233	39,842093	1,258567	21,706883
18,177196	23,250589	38,173154	1,231077	18,78844
18,342046	23,408044	39,34992	1,203789	17,7071
18,211255	23,6695	39,280102	1,175294	19,378322
17,859415	24,590606	39,799516	1,146866	19,724152
17,756554	23,589531	39,184741	1,118371	19,108524
17,827398	24,837563	39,932358	1,093027	16,04298
17,810539	24,231363	38,707888	1,064532	16,200005
17,921915	24,131919	38,77942	1,039926	15,414209
18,153013	23,401829	39,842093	1,012302	15,216956
17,886493	23,941729	38,474588	0,987696	14,733142
17,690987	24,04076	38,457555	0,964631	15,415684

17,765239	23,786349	39,266481	0,939086	13,353304
17,795553	25,160765	39,443598	0,912334	8,649253
17,804919	23,993526	38,971857	0,893025	5,711635
17,620144	24,738946	39,772275	0,876665	4,030754
17,214658	23,754445	39,002512	0,856886	2,516151
17,505191	23,932201	38,776023	0,844885	1,643194
17,439965	24,107056	38,879893	0,831811	1,583924
17,042484	26,449817	41,60471	0,819004	2,801102
16,948988	24,984658	40,971186	0,810758	3,870913
17,070924	25,657989	40,940532	0,801639	5,134757
16,946943	25,399433	40,267844	0,792387	5,61549
16,787884	25,42678	40,855378	0,786084	6,795926
16,629675	24,847922	40,819628	0,777703	7,310448
16,608047	24,871124	40,455169	0,769456	8,668964
16,459203	24,844191	40,545435	0,764897	9,627206
16,237814	25,708537	41,289655	0,753298	10,930476
16,811555	25,350124	42,318259	1,823644	14,418554
15,44847	25,439622	41,694959	8,643779	13,021686
16,251779	25,246949	40,85368	8,635331	22,479804
16,787373	25,299985	41,211311	8,604422	22,479939
16,91101	25,48189	40,804292	8,572977	22,479804
17,573992	25,960465	42,030462	8,546627	22,480073
18,266943	25,739202	42,336992	8,503449	22,479804
19,05067	25,110213	41,899318	8,461276	22,480073
18,992937	24,476245	41,792035	8,39443	22,479939
19,363511	24,839633	41,955516	8,321415	22,480206
19,631223	24,916702	41,124459	8,251686	22,479939
19,782109	25,085354	41,488902	8,171631	22,479939
20,272915	24,675137	41,403748	8,096806	22,480073
20,084393	25,120572	41,584263	8,020909	22,480073
19,574683	25,892925	42,369345	7,941122	22,480206
19,371685	25,231206	41,006953	7,875081	22,479939
19,104485	25,730913	41,524668	7,808234	22,480206
19,644847	25,179823	41,546798	7,741523	22,480341
18,996344	23,90278	41,696674	7,683661	22,480073
18,735613	25,26104	41,60471	7,624391	22,480073
18,961773	26,011431	42,113901	7,564718	22,480206
18,812589	24,774581	41,742648	7,509941	22,480341
18,726417	25,581334	41,585977	7,450201	22,480073
19,105847	26,289461	41,56553	7,393546	22,480206
18,134109	24,721958	40,957565	7,344937	22,480073
17,766602	25,61075	40,952454	7,304774	22,480073
17,628318	24,644473	41,364585	7,261663	22,480341
17,548957	25,604536	42,154779	7,224787	22,480206
17,358392	25,433825	40,645908	7,187441	22,480073
16,965849	25,390318	42,141158	7,154521	22,480206
16,7918	25,999828	42,086659	7,126026	22,480073

17,143643	25,500534	42,030462	7,09029	22,479939
16,370818	25,627742	41,846534	7,056498	22,480073
16,74633	25,95425	41,642175	7,023511	22,480341
16,656923	25,574288	42,105391	6,990389	22,480341
16,538223	25,895826	42,328483	6,959413	22,480206
16,265231	26,607272	42,403413	6,935679	22,480341
16,607876	26,122064	41,546798	6,902624	22,480206
16,078752	26,432829	42,374457	6,869637	22,480073
16,549973	26,107974	41,638762	6,837789	22,480206
16,154195	26,174687	41,827801	6,807551	22,479939
16,096634	25,981183	41,539988	6,784419	22,480206
16,064447	25,893339	41,749458	6,749689	22,480206
16,089652	25,529124	41,313483	6,724144	22,480206
16,317684	25,435895	40,932023	6,691157	22,480206
16,115197	27,060988	43,334958	6,656291	22,480206
15,947961	25,75909	41,075072	6,628735	22,480073
15,978786	26,484208	41,872077	6,595882	22,480073
15,883758	26,321783	41,870378	6,565711	22,480206
15,794522	25,920689	42,056004	6,536344	22,480206
15,603955	25,716826	41,960627	6,506038	22,480206
15,836246	26,134081	41,732424	6,484181	22,480206
15,863664	26,852981	41,742648	6,454948	22,480206
15,999733	25,965436	41,878887	6,421894	22,480073
15,307974	26,458519	42,033859	6,394203	22,480073
15,762335	25,664617	41,659193	6,365976	22,480073
15,769998	26,388079	42,187132	6,336676	22,480073
15,596632	25,823315	41,90443	6,305499	22,480206
16,197453	26,880744	42,035557	6,273384	22,480073
15,477082	27,252831	42,057703	6,24509	22,480073
15,216859	26,503683	41,465058	6,217533	22,480206
15,362811	26,522327	42,078134	6,190178	22,479804
15,674631	25,723041	41,991282	6,155179	22,479939
15,522381	26,129936	42,222898	6,128829	22,479939
15,726231	25,990299	41,233457	6,099396	22,479804
15,389208	26,05245	41,495712	6,072845	22,480341
15,339309	25,981597	42,888775	6,039791	22,480073
15,593057	25,858534	40,99503	6,013372	22,480073
15,568703	26,466804	41,546798	5,983201	22,480073
16,127119	25,817101	41,868664	5,952024	22,480206
15,65777	26,430755	42,37787	5,926345	22,479939
15,825686	26,779639	42,076436	5,897984	22,480073
15,658281	26,054108	41,587676	5,870696	22,480073
15,194721	26,060326	41,448024	5,842201	22,480206
15,338117	26,397607	42,144555	5,809884	22,480341
15,331134	26,189604	42,597548	5,781791	22,479939
15,550482	26,540976	42,367647	5,754302	22,479939
15,530555	25,66503	42,248441	5,726075	22,479804
15,620644	26,007286	42,330182	5,697379	22,480206

15,492238	25,855633	41,012064	5,669151	22,480073
15,849187	26,06364	42,056004	5,643472	22,480206
15,733043	25,84486	42,265475	5,615044	22,480073
15,255007	26,495808	42,285906	5,587555	22,480073
15,414752	26,071099	42,248441	5,561138	22,480073
15,375412	26,449403	42,251838	5,530832	22,479804
15,375412	26,102172	42,379569	5,500661	22,480073
15,675993	26,083528	41,793734	5,475049	22,480206
15,370473	25,917371	41,936783	5,443805	22,479939
15,138351	26,349956	42,197355	5,417254	22,479939
15,34544	26,335456	41,621728	5,391576	22,480206
15,522892	26,32344	41,403748	5,363012	22,480073
15,478614	25,611994	41,158511	5,334584	22,480073
15,158277	26,183385	41,83631	5,3081	22,480206
15,576537	26,106317	42,010014	5,278801	22,480206
15,004325	26,597326	42,101978	5,256004	22,480073
15,573472	26,025934	42,214373	5,223754	22,480073
15,226227	26,760995	42,122425	5,20183	22,480206
15,166621	25,921516	41,975963	5,170653	22,480073
15,416625	25,784779	41,442912	5,149667	22,480073
15,386482	26,722046	41,827801	5,120166	22,479939
15,615025	26,939995	42,961991	5,092073	22,479804
15,391251	25,990712	41,093805	5,068137	22,479939
14,822954	26,223579	41,512746	5,041788	22,480073
15,286682	25,91447	41,635364	5,01403	22,479939
15,116893	26,45106	42,389792	4,98929	22,479804
14,890564	26,211979	41,832913	4,961934	22,479804
15,102076	25,916131	41,694959	4,938133	22,480073
14,883752	26,297333	42,144555	4,918018	22,480073
14,695059	25,891268	41,725614	4,895826	22,480206
14,90555	26,1751	42,319958	4,869141	22,480073
14,88239	25,834088	41,485489	4,849161	22,480206
14,53651	26,64456	42,536255	4,825426	22,480341
15,106506	26,096788	41,722217	4,800887	22,480073
14,914577	25,990712	41,405447	4,782381	22,479939
14,505856	26,175931	41,403748	4,755831	22,480073
15,391421	26,695943	42,323371	4,730286	22,480073
14,741041	26,271643	41,878887	4,708226	22,480073
14,732184	26,583652	41,318595	4,682614	22,480073
15,003132	26,282416	40,869015	4,659617	22,480073
14,631367	25,922346	41,095503	4,632061	22,480073
14,430923	26,08933	41,865266	4,60846	22,480206
14,93927	26,320539	42,270571	4,583518	22,480073
14,796048	26,066541	41,994695	4,558845	22,480073
14,645502	25,880909	41,187467	4,535915	22,480206
14,579937	25,706467	41,659193	4,507687	22,480206
14,884263	26,565421	42,052591	4,481942	22,480206
14,595434	25,984498	41,528065	4,458878	22,480073

14,884945	26,552161	41,786923	4,437959	22,480475
14,851905	25,374983	40,984807	4,411207	22,479939
14,862805	25,643485	41,602995	4,385729	22,479804
14,392096	26,324683	42,149667	4,363737	22,480073
14,643287	26,452717	41,660907	4,341812	22,480206
14,735931	25,390318	40,971186	4,318011	22,480073
14,969072	26,271643	42,076436	4,29032	22,480073
14,813759	26,553405	42,474946	4,269536	22,479939
14,617573	26,545116	42,394904	4,243856	22,480073
14,94506	26,489593	41,98617	4,217439	22,480206
14,683989	26,437801	41,906129	4,192498	22,480073
14,565971	26,555475	41,316896	4,169635	22,480206
14,91117	25,804254	42,434067	4,144961	22,480073
14,648056	26,75478	41,585977	4,12297	22,479939
15,212773	25,522496	42,212675	4,099369	22,480073
14,766927	25,607023	42,030462	4,071679	22,479804
14,944379	26,122478	42,044082	4,050624	22,480073
14,931436	26,369848	42,345517	4,024946	22,480206
14,822103	25,822072	41,187467	4,000205	22,480073
14,930414	26,269986	41,614918	3,973587	22,480073
15,151805	25,909086	41,834612	3,946969	22,480073
15,170367	26,028835	42,403413	3,924106	22,479939
15,262671	26,38062	41,706881	3,898561	22,479939
15,487299	25,444597	42,059402	3,873821	22,479939
15,3061	26,142779	41,55191	3,850019	22,480073
15,386482	26,381033	41,553608	3,82615	22,480341
15,266418	26,221922	41,563832	3,798862	22,480206
15,100714	25,747904	41,737536	3,775931	22,480206
15,229802	26,761408	42,297828	3,750185	22,479939
15,167132	26,448573	42,820655	3,727255	22,480073
15,141416	27,464565	42,435766	3,699631	22,480073
15,082152	26,823564	41,625141	3,674221	22,480073
14,963794	26,228967	42,142856	3,651156	22,480073
15,00177	25,935606	41,756268	3,630975	22,479939
15,090326	26,427855	41,991282	3,604424	22,480073
15,002793	26,218608	41,698372	3,580689	22,480073
15,058992	25,946792	42,178623	3,557759	22,479939
14,739679	26,24264	41,301577	3,536706	22,480206
15,086409	25,970824	41,96404	3,511161	22,480073
14,982866	26,144023	41,480393	3,486019	22,480073
14,629835	27,232529	42,020238	3,46691	22,479939
14,697613	25,807568	41,967438	3,440493	22,480073
14,61042	25,933532	42,624806	3,416691	22,479939
14,788213	26,047479	41,594486	3,395974	22,479804
14,519138	26,653262	41,790336	3,373513	22,480206
14,718732	26,047479	41,991282	3,35065	22,479939
14,59935	26,693042	42,052591	3,330602	22,480206
14,026459	26,611829	42,059402	3,309483	22,480206

14,2986	25,872207	41,999807	3,28843	22,480073
14,861783	26,714174	41,880586	3,265499	22,479939
14,563417	26,354931	42,561798	3,249878	22,480206
14,591346	25,889611	41,984472	3,229763	22,480341
14,650782	26,790416	41,369696	3,211459	22,480206
14,525441	26,410037	41,800544	3,190541	21,450761
14,721286	26,693869	42,291018	3,169354	22,21604
14,857697	25,878839	42,398301	3,152994	22,480206
14,420706	26,154795	42,113901	3,133684	20,706401
14,616721	26,384765	42,231407	3,113369	20,126039
14,46805	26,779639	41,74776	3,095333	20,974054
14,869787	26,090573	41,223234	3,075152	20,644986
14,630516	26,475093	42,464722	3,054971	20,562249
14,478097	26,225236	41,96404	3,034789	20,29406
14,436714	26,231867	42,062815	3,014608	20,030429
14,382218	26,59028	43,15103	2,993354	21,358906
14,234057	26,799945	41,114236	2,973307	20,766878
14,529016	25,76116	42,204166	2,950444	20,706937
14,648397	26,265842	41,916352	2,934017	20,567881
14,720605	26,676051	42,403413	2,911288	20,626882
14,588792	26,296093	42,44599	2,890973	19,604273
14,57057	27,32037	42,18883	2,874412	19,212179
14,630175	26,52067	42,251838	2,854298	18,537683
14,242742	25,960052	41,76138	2,834251	18,837116
14,397544	26,282003	42,440878	2,815947	19,204536
14,267775	27,190679	42,754235	2,795564	22,478598
14,393116	26,59028	42,761045	2,773506	22,479804
14,230991	26,180071	42,379569	2,751649	22,480073
14,421217	26,731575	42,059402	2,7316	22,479939
14,186371	26,304378	42,498774	2,71048	22,479939
13,922237	26,026761	41,153415	2,695931	22,479804
14,17956	26,29982	41,855043	2,673872	22,479804
14,408104	26,093057	42,231407	2,657244	22,480073
13,963109	26,641246	41,83631	2,641689	22,479939
14,094581	26,307279	41,870378	2,622581	22,479939
14,040595	26,677712	42,374457	2,603338	22,480206
13,966004	26,286147	42,26376	2,588655	22,480073
13,999553	26,606028	41,916352	2,573167	22,480073
13,902992	25,493076	41,785225	2,552852	22,480073
13,971283	26,398851	42,270571	2,538168	22,479939
13,805751	26,709199	42,532842	2,521675	22,480073
13,687392	27,259876	43,464387	2,508064	22,480073
13,608369	26,289048	41,378205	2,491571	22,47967
13,669851	26,044165	41,366283	2,479569	22,480073
13,397708	25,310345	41,304974	2,465891	22,479939
13,607688	26,278689	41,482091	2,455901	22,479939
13,492224	26,415838	41,780113	2,439408	22,479939
13,740525	26,138638	41,982773	2,42754	22,479939

13,643115	25,863091	41,26581	2,41346	22,480073
13,181597	25,868066	41,819276	2,40166	22,479939
13,397878	26,591937	41,158511	2,387111	22,480073
13,282414	26,244297	41,500824	2,372494	22,480073
13,505848	25,912813	41,620029	2,364181	22,479939
13,818694	25,708124	41,383317	2,350503	22,479939
13,544166	26,042922	41,606409	2,341318	22,479939
13,188409	25,967097	40,821326	2,325628	22,479939
13,145152	26,483791	41,296465	2,314632	22,479939
13,195562	26,119164	42,033859	2,305313	22,479804
13,327715	26,187117	42,744011	2,292775	22,480073
13,392769	26,490423	42,108789	2,28017	22,480206
13,116543	26,448573	42,508997	2,268973	22,480073
13,131017	26,105073	41,432704	2,255228	22,480206
13,039227	26,744008	41,948705	2,247116	22,480073
13,224172	25,384099	41,805656	2,229549	22,480073
12,824989	27,294267	42,084945	2,216676	22,479939
12,697092	26,46142	41,623442	2,207558	22,480206
13,232006	25,95425	42,10028	2,196495	22,47967
13,023728	26,181728	41,199389	2,185633	22,480073
13,202033	25,902871	40,921799	2,170816	22,479939
13,0818	26,211562	41,838009	2,159954	22,479939
12,905199	26,302308	41,776716	2,152646	22,479939
13,005676	25,891268	40,303611	2,139907	22,479939
12,826351	26,43697	42,003204	2,12871	22,479804
12,969743	25,756602	41,568944	2,115032	22,479939
13,052679	26,112118	40,909877	2,105981	22,479939
13,257039	26,750223	41,228345	2,093912	22,479939
12,975533	26,252999	41,32712	2,083788	22,479939
12,527132	26,626329	41,134683	2,071786	22,480073
12,763168	26,146923	41,304974	2,060791	22,480206
12,719402	25,954664	41,856741	2,047314	22,479804
12,723659	26,081871	41,807354	2,039134	22,480206
12,92206	26,032976	41,475281	2,024451	22,480073
12,836568	25,778151	40,848568	2,015198	22,479939
12,831629	25,983254	40,66464	2,003197	22,479804
12,909286	26,926322	41,95723	1,990659	22,480073
12,851895	26,378133	42,369345	1,97859	22,480073
13,100193	26,251342	41,929973	1,967461	22,480206
13,085037	26,943309	43,106755	1,9568	22,479939
12,852748	26,532687	40,812801	1,944731	22,480073
12,845764	26,593598	42,037272	1,930853	22,479939
12,59389	26,784614	41,197691	1,913554	22,480073
12,696071	26,256313	41,129571	1,901754	22,480073
13,140384	26,108804	41,756268	1,886132	22,479939
13,01283	25,803841	41,609806	1,871516	22,479804
13,3989	26,536414	42,052591	1,855022	22,480073
13,396004	25,728012	41,868664	1,838394	22,480073

13,24563	25,336451	41,838009	1,821834	22,480073
13,365863	26,524815	42,239932	1,805675	22,479939
13,257211	26,071925	41,628554	1,791729	22,480206
13,455269	25,955494	41,366283	1,773493	22,479939
13,475705	25,988642	41,276018	1,762496	22,480073
13,19454	26,230624	41,412257	1,750562	22,480073
13,326862	25,873037	40,552245	1,736884	22,479939
13,428532	26,059496	41,195976	1,724816	22,480073
13,099853	26,268329	41,420782	1,714692	22,479939
12,95697	27,039856	43,156142	1,703763	21,88268
13,198627	26,365703	41,848232	1,69565	21,918618
12,875397	25,759503	40,765129	1,685392	22,480073
12,635273	26,458932	41,29475	1,672653	22,480206
12,649749	26,084772	41,528065	1,662663	22,480073
12,713611	25,636027	41,289655	1,650461	22,479939
12,477575	25,737128	42,653762	1,637922	22,479939
12,451859	25,211731	41,897619	1,626659	22,480073
12,101722	25,56476	41,07847	1,619551	22,480206
12,180911	25,769862	41,608107	1,613987	22,480073
12,113984	25,954664	41,039306	1,60755	22,480073
12,179379	25,692381	40,940532	1,601114	22,480206
12,106831	25,768205	41,562133	1,593738	22,480073
11,922054	25,747904	41,069961	1,593537	22,479804
11,871985	26,385178	40,891145	1,586296	22,480073
11,493919	26,140295	41,393525	1,582608	22,479939
11,682101	25,929805	41,841422	1,575703	22,480073
11,676821	25,980353	41,482091	1,568126	22,480206
11,722632	26,872869	41,865266	1,5635	22,480073
11,442317	26,047066	41,21301	1,557131	22,479939
11,570043	26,20286	42,480041	1,55351	22,480073
11,523721	25,851075	40,98822	1,549956	22,479939
11,490173	25,988642	40,834947	1,548213	22,480341
11,276446	26,128279	41,304974	1,544324	22,480073
11,243066	26,384347	40,908178	1,537821	22,480073
11,386118	25,188942	41,638762	1,5342	22,480206
11,405022	25,720554	40,737871	1,525216	22,479939
11,282236	26,308523	40,826438	1,521729	22,480073
11,152467	26,14651	41,192579	1,515963	22,480073
11,02985	26,437801	41,316896	1,508588	22,480073
11,164218	26,136981	40,909877	1,508655	22,479939
10,846437	25,427193	41,129571	1,500476	22,480206
10,889012	26,308105	41,06315	1,497525	22,480073
10,812547	26,00646	41,454834	1,495916	22,480206
10,801307	25,789337	41,439515	1,489614	22,479804
10,787513	25,889611	41,255587	1,484786	22,480206
10,648548	26,368604	41,877188	1,481233	22,479939
10,509412	26,895661	41,764793	1,476473	22,480073
10,683629	26,378133	40,056675	1,473857	22,480073

10,645653	25,771519	41,223234	1,467421	22,480073
10,474501	25,304543	42,146254	1,462862	22,480206
10,500727	26,562521	41,671115	1,459308	22,480073
10,583323	25,498464	41,26581	1,456493	22,480073
10,392246	26,487936	41,485489	1,451933	22,480341
10,421368	25,947622	41,434403	1,44724	22,479804
10,287848	26,978945	41,410559	1,443083	22,480073
10,241698	25,861021	41,407161	1,440066	22,480073
10,161826	26,391806	41,53659	1,431884	22,479939
10,103072	26,326754	41,349249	1,431817	22,480073
10,004468	26,015988	41,742648	1,427191	22,480206
10,158079	26,470948	42,205864	1,423437	22,480073
9,992547	25,787267	40,003875	1,419816	22,480206
10,223644	25,375814	40,683373	1,411569	22,480073
10,158251	26,535587	41,74776	1,409625	22,480073
9,839108	25,723041	41,40886	1,40701	22,479939
10,125212	26,495808	42,093469	1,402317	22,479939
10,038529	25,589619	41,863568	1,400506	22,480073
9,923066	25,98201	41,431006	1,396014	22,480073
9,649903	26,586966	40,933721	1,388505	22,480073
9,904162	25,227061	41,245363	1,384951	22,480073
9,871294	26,383934	41,364585	1,383074	22,480073
9,587403	26,279932	41,580866	1,378448	22,480341
9,490672	26,755607	41,594486	1,371207	22,480073
9,599154	26,237252	41,2062	1,369329	22,480206
9,54585	26,888203	43,074401	1,366446	22,480341
9,253785	26,949524	41,531479	1,360881	22,480073
9,476367	26,98806	42,108789	1,357328	22,480073
9,652457	26,272474	42,124124	1,352836	22,479939
9,628786	26,971486	42,25014	1,349081	22,479939
9,482668	26,786271	41,396938	1,346466	22,480206
9,427491	26,90519	42,52773	1,342041	22,480206
9,44946	26,167229	42,018539	1,339225	22,480073
9,488799	26,695526	42,069625	1,334733	22,480341
9,342341	27,004634	42,854707	1,329034	22,480206
9,566116	26,946627	42,091771	1,326352	22,480206
9,316625	26,669836	42,17521	1,324475	22,479804
9,206952	26,666109	41,75457	1,319849	22,479804
9,463254	26,496638	42,411922	1,314552	22,480073
9,276094	27,024522	42,633315	1,310864	22,480206
9,174085	26,485865	41,783526	1,306908	22,480073
9,310495	25,922346	41,160226	1,303422	22,479939
9,141216	26,266259	41,211311	1,297991	22,479939
9,172551	26,247198	42,2212	1,296114	22,480073
9,156203	25,946379	41,851645	1,292493	22,480206
9,079568	26,464734	42,364249	1,289811	22,480073
8,94554	26,360315	41,538289	1,285319	22,480073
9,175787	25,769862	41,61152	1,281766	22,480073

8,982496	27,059331	41,541686	1,277005	22,480073
9,012639	27,068446	41,919765	1,281564	22,480073
9,085188	25,915714	41,209613	1,279017	22,480073
9,069349	25,673319	42,549876	1,273384	22,479939
9,064069	26,428268	41,895921	1,267015	22,479939
8,891556	26,236839	41,846534	1,266076	22,480073
8,868905	26,354931	41,248776	1,25964	22,480206
8,727216	26,460176	42,30294	1,256019	22,479939
8,924423	25,161179	41,262397	1,255215	22,479536
9,030862	25,813369	41,391826	1,250387	22,480206
8,890364	26,197476	41,34074	1,247706	22,479939
8,800616	26,625916	42,301226	1,244889	22,480206
8,836379	26,531443	41,545099	1,240398	22,479939
8,96768	26,661965	42,101978	1,236643	22,480206
9,067987	26,552575	41,786923	1,232888	22,47967
9,026263	25,804254	41,715406	1,230206	22,479939
8,612945	25,835745	41,783526	1,227591	22,479804
8,709335	26,942065	42,818941	1,222093	22,479939
8,907564	26,615557	41,866965	1,218473	22,480073
8,65024	26,225236	41,325405	1,216528	22,479939
8,578544	26,968172	41,199389	1,213914	22,480073
8,840976	26,471362	42,108789	1,208282	22,479939
8,928511	26,49125	41,076771	1,204728	22,479939
8,723128	26,232694	41,255587	1,203789	22,480341
8,746801	27,44219	42,691227	1,200973	22,480206
8,494585	26,482965	43,551239	1,195543	22,479939
8,84285	26,193745	42,18883	1,192727	22,480073
8,895472	26,997176	42,209277	1,190983	22,479939
8,545165	26,128692	42,193942	1,185351	22,479804
8,471254	26,5186	41,277733	1,181731	22,480073
8,722958	26,223996	41,541686	1,1763	22,480073
8,596936	26,948697	41,975963	1,174289	22,479939
8,703373	26,333799	42,343802	1,170802	22,479939
8,750376	26,357831	42,273984	1,167249	22,480073
8,459503	26,446503	42,386379	1,165371	22,480073
8,451329	26,470535	42,30975	1,159739	22,479804
8,684471	26,181728	42,265475	1,156991	22,479939
8,421527	27,242888	43,048859	1,153236	22,480073
8,481812	26,321783	42,238218	1,149615	22,480206
8,415396	26,569566	42,355724	1,145056	22,480206
8,359878	27,287639	42,893871	1,141368	22,480206
8,460696	26,862096	42,531143	1,138686	22,480073
8,029154	26,407553	41,568944	1,137748	22,480206
8,503782	25,281754	41,533177	1,133926	22,479804
8,453544	26,879501	42,764442	1,1293	22,479939
8,251738	26,222335	41,456548	1,125746	22,479939
8,292609	25,926073	41,841422	1,123869	22,479804
8,111239	26,42371	42,682702	1,117499	22,480073

8,068324	26,675225	41,778414	1,115555	22,480206
8,230449	26,190017	42,059402	1,11113	22,479939
8,305892	26,138638	41,76138	1,107644	22,480073
8,394449	26,368187	41,376507	1,106772	22,480073
8,487434	26,759338	41,608107	1,103889	22,479939
8,442644	26,577024	42,15989	1,099329	22,479939
8,254973	26,93295	41,933386	1,095642	22,480206
8,40092	26,373988	42,253553	1,09296	22,480073
8,205245	26,669836	42,323371	1,091016	22,480073
8,241179	26,802432	42,365948	1,086389	22,480206
8,393938	26,614313	41,134683	1,081964	22,480206
8,330757	25,679947	41,064849	1,077405	22,480206
8,142234	26,213636	41,574055	1,074723	22,480073
8,154495	26,805329	42,205864	1,07184	22,479939
8,17987	26,635031	42,122425	1,066342	22,479939
8,305382	26,224822	41,827801	1,066208	22,480073
8,181915	26,414595	41,734139	1,062722	22,480073
8,156369	26,709199	41,436101	1,061716	22,480073
8,051124	26,294849	42,406826	1,056486	22,480206
7,920333	26,484622	41,424179	1,052799	22,480206
8,048569	26,138638	41,274319	1,049111	22,480073
7,936171	26,211562	41,180657	1,047234	22,480073
8,033923	26,049967	41,718803	1,042541	22,479939
8,10528	26,231867	41,509333	1,040663	22,480206
7,90177	26,877426	41,861853	1,036976	22,480073
8,000203	26,622602	41,742648	1,032551	22,479939
8,106981	26,14651	41,824388	1,027857	22,480341
7,929018	26,506167	42,711658	1,024103	22,480206
7,902621	26,238909	42,132633	1,020616	22,479939
7,983514	25,908256	41,361172	1,019678	22,480073
8,16216	25,422222	42,166701	1,017465	22,480206
7,9016	25,417247	41,8295	1,014917	22,479939
8,02115	26,620945	42,26376	1,010425	22,480073
8,063897	26,232281	41,826103	1,006737	22,480073
7,927826	25,079552	40,943945	1,006737	22,479939
7,902451	26,217364	41,413972	1,004123	22,480341
8,00344	26,035877	41,812466	0,998423	22,480206
7,949454	25,753288	41,858456	0,994669	22,480206
8,011954	26,402996	41,868664	0,991383	22,480341
8,071901	25,360897	41,223234	0,986623	22,479939
7,950476	26,399678	41,41567	0,983941	22,480341
7,95218	26,874943	41,890809	0,979382	22,480073
8,029835	25,896657	41,434403	0,977438	22,480073
7,976702	26,572463	41,085296	0,974756	22,479939
7,84489	26,45106	41,684752	0,973951	22,480073
7,706606	26,933367	42,282493	0,969191	22,480206
7,800272	25,862265	41,892508	0,965503	22,480206
7,809467	26,015988	41,255587	0,963827	22,479939

7,946388	26,568322	41,989583	0,960072	22,480206
7,825475	25,95342	41,466756	0,956452	22,480206
7,654665	26,163497	41,405447	0,952764	22,480206
7,923398	25,87138	41,177244	0,949948	22,480073
7,706095	26,633788	41,168735	0,946461	22,480206
7,870776	26,035877	41,570642	0,942774	22,479804
7,983855	25,549426	41,390127	0,939153	22,480206
7,837737	26,542633	41,901033	0,935466	22,480206
7,865326	26,731992	41,379904	0,934527	22,480206
7,88985	26,295676	41,795448	0,930772	22,480206
7,904666	26,081458	42,326784	0,927085	22,480206
7,821047	26,254243	41,367982	0,923464	22,480206
7,658581	26,788342	41,831199	0,920581	22,480073
7,825816	26,466391	41,974264	0,916961	22,480073
7,707798	26,449817	41,482091	0,913474	22,479939
7,571218	26,170543	42,057703	0,911463	22,480073
7,716823	26,118746	41,803957	0,908714	22,47967
7,927996	26,211562	41,720502	0,906904	22,480206
7,951327	26,219434	41,965739	0,902344	22,480073
8,015191	26,641246	41,575754	0,899394	22,480073
7,559467	26,205348	41,163623	0,897718	22,479804
7,669481	26,376062	41,083581	0,892086	22,480206
7,698432	26,582822	41,778414	0,890276	22,479939
7,724318	26,458932	42,134332	0,886723	22,480073
7,838589	26,018476	40,909877	0,883973	22,479939
7,796184	26,498295	41,994695	0,879481	22,480073
7,821219	25,207587	41,660907	0,876665	22,479939
7,833651	26,369017	41,422481	0,873916	22,480073
7,704222	25,454126	41,706881	0,871369	22,479939
7,985217	26,086429	42,119012	0,867614	22,480073
7,688724	25,982427	41,25219	0,864798	22,479804
7,68089	26,504096	41,419083	0,862116	22,479804
7,764848	26,313494	41,729027	0,858361	22,479939
7,807935	25,726355	41,303275	0,855746	22,480073
7,842506	26,206591	41,505936	0,851053	22,479939
7,681062	25,277614	41,216423	0,849377	22,480206
7,733513	26,388079	41,054641	0,845756	22,479804
7,826667	25,073751	41,645572	0,843812	22,479939
7,774386	26,860439	42,435766	0,83818	22,480073
7,633548	26,711687	41,97936	0,835498	22,479939
7,799589	25,894582	40,979695	0,832682	22,480073
7,722273	27,085434	42,013428	0,831006	22,480073
7,875884	25,763648	42,108789	0,826447	22,480073
7,824794	26,543459	41,349249	0,823698	22,480073
7,820536	26,100933	40,855378	0,820413	22,480206
7,590631	25,820828	41,666019	0,820078	22,480073
7,543459	26,277032	42,239932	0,814445	22,479939
7,502585	26,352443	41,320309	0,812702	22,479939

7,75991	25,599151	41,350964	0,808076	22,480073
7,542606	25,70398	41,725614	0,803383	22,480206
7,799589	26,366947	41,524668	0,800767	22,480206
7,717676	26,387661	40,763414	0,797817	22,480073
7,864815	26,47882	42,314862	0,79413	22,480073
7,84472	25,899971	41,635364	0,790576	22,480341
7,553676	26,405066	41,820991	0,786889	22,479939
7,591993	26,286147	41,293052	0,786151	22,479939
7,897854	26,695113	40,720853	0,781324	22,479939
7,776429	25,723454	41,582564	0,776764	22,47967
7,577007	26,226479	41,730726	0,775826	22,480073
7,83927	25,894169	41,539988	0,771267	22,480073
7,661988	26,245541	40,773638	0,768517	22,480341
7,670843	27,277693	42,522618	0,765635	22,480073
7,786137	26,217364	41,553608	0,761076	22,480073
7,650237	25,370843	41,398637	0,757522	22,480073
7,432934	25,763234	40,882635	0,755913	22,480206
7,342845	25,763648	41,512746	0,75303	22,480341
7,794992	26,027174	41,207898	0,749409	22,480073
7,59557	26,157696	41,843121	0,746661	22,480073
7,813554	25,60661	41,238553	0,748471	22,479939
7,580924	25,27554	41,34074	0,744649	22,480206
7,562361	25,998584	41,456548	0,742101	22,479804
7,836886	25,86848	41,669416	0,736469	22,479939
7,604085	26,277858	42,30294	0,732916	22,480073
7,608683	26,259214	41,580866	0,730971	22,480206
7,768425	25,567243	41,786923	0,726613	22,480206
7,753779	26,10466	41,282844	0,724602	22,480073
7,857322	26,038364	41,965739	0,719104	22,480341
7,695195	26,103416	41,841422	0,716288	22,480073
7,723295	25,982427	42,291018	0,714477	22,480073
7,61856	26,287391	40,993332	0,708108	22,480073
7,86771	26,143196	42,098581	0,707169	22,479939
7,685659	26,407967	41,417369	0,704488	22,479939
7,575475	25,671662	41,185769	0,700934	22,480073
7,569514	25,930631	40,574391	0,697179	22,479939
7,565427	25,853149	41,597899	0,694363	22,479939
7,609535	27,199795	42,268872	0,69081	22,480073
7,627417	26,210736	40,599934	0,68786	22,480206
7,835182	26,033393	41,144891	0,682429	22,480206
7,479255	25,822902	41,264096	0,680552	22,480073
7,761272	25,726355	40,826438	0,678741	22,480073
7,585012	26,300234	41,880586	0,674182	22,480073
7,629119	25,19474	41,124459	0,671366	22,480073
7,744754	26,584479	41,752871	0,666941	22,480206
7,710353	25,944304	40,135018	0,663052	22,480073
7,79346	26,525642	41,109124	0,662181	22,480341
7,771149	26,524815	41,722217	0,657689	22,480341

7,65228	26,361145	41,241966	0,655677	22,480073
7,654323	26,055351	41,897619	0,649442	22,480206
7,620264	26,370674	41,63365	0,647631	22,480206
7,504289	26,39512	41,574055	0,644816	22,480206
7,60136	26,659894	42,018539	0,642267	22,480206
7,692471	26,400508	41,545099	0,63858	22,480073
7,72568	27,143858	41,478678	0,635831	22,480341
7,57258	26,680609	41,182355	0,633954	22,480073
7,649385	26,273301	41,901033	0,630333	22,480073
7,332967	26,648705	41,742648	0,626579	22,480341
7,650747	26,966928	42,340405	0,623829	22,480206
7,772171	26,756851	42,217786	0,622958	22,480206
7,656027	26,128692	41,580866	0,618264	22,480206
7,647	26,118746	41,485489	0,615583	22,480206
7,632695	25,905772	41,620029	0,613035	22,480206
7,809127	26,415012	41,567245	0,609347	22,480073
7,851021	26,438627	41,609806	0,606464	22,479939
7,88457	25,88464	41,843121	0,603716	22,479939
7,572069	26,632961	41,666019	0,600966	22,479939
7,812873	26,214463	41,001841	0,595469	22,480206
7,742028	25,295845	41,907843	0,592719	22,479804
7,844379	25,569731	42,069625	0,590038	22,480073
7,712056	26,178001	41,110839	0,58635	22,480073
7,618049	26,453131	42,044082	0,583803	22,480206
7,679187	26,617214	41,8823	0,581121	22,480341
7,614644	26,945797	42,289319	0,57636	22,480073
7,589439	25,936433	42,617995	0,573611	22,480073
7,875203	26,591111	42,917715	0,569789	22,479939
7,68072	27,015407	41,635364	0,567912	22,480073
7,70269	26,559207	41,221535	0,56342	22,479939
7,486918	25,880083	41,441213	0,561476	22,480073
7,411645	26,869141	41,940196	0,557922	22,479939
7,770979	25,612407	41,533177	0,554168	22,480206
7,827178	26,281589	41,851645	0,552424	22,480206
7,728064	25,778151	41,958929	0,547798	22,480073
7,657389	26,587797	42,088358	0,54411	22,480206
7,813384	27,019551	41,769889	0,543171	22,479939
7,613793	26,582409	42,105391	0,537539	22,479939
7,790394	26,101346	42,164986	0,534925	22,480073
7,631163	26,146923	41,803957	0,531103	22,480073
7,596762	26,462246	41,68645	0,529292	22,480206
7,504119	26,047893	42,204166	0,527549	22,480073
7,605617	25,580503	40,652718	0,523996	22,479939
7,575985	26,349542	41,442912	0,520376	22,480073
7,633718	26,375645	41,742648	0,51595	22,480073
7,861579	26,458519	41,723915	0,514811	22,480206
7,576666	25,99527	41,996394	0,511056	22,480206
7,543629	26,095958	41,310086	0,507435	22,480206

7,53341	26,406723	41,519556	0,505759	22,479939
7,777791	26,427855	42,15989	0,501066	22,480341
7,641722	26,197476	41,729027	0,498451	22,480073
7,578539	26,262941	41,367982	0,495769	22,480206
7,62418	26,590698	41,410559	0,492081	22,480206
7,481468	25,803841	41,33393	0,488394	22,479939
7,410794	26,678952	41,657494	0,486449	22,480073
7,948773	25,740859	42,010014	0,482695	22,479939
7,76604	26,69677	42,350613	0,476526	22,480073
7,563553	26,265429	41,752871	0,474582	22,480073
7,508888	27,192336	41,999807	0,472772	22,480073
7,523023	26,578264	42,173511	0,468213	22,480206
7,487088	26,468878	41,001841	0,466536	22,480073
7,598466	26,044165	41,037607	0,464659	22,480073
7,722614	26,724116	42,064513	0,460837	22,480206
7,671354	26,171369	41,567245	0,456278	22,480073
7,595059	25,943064	41,28794	0,453462	22,480073
7,716314	26,899802	41,965739	0,451585	22,480073
7,579731	26,692212	42,239932	0,447964	22,480206
7,689747	26,829361	41,209613	0,444209	22,480073
7,501223	26,18753	41,637063	0,441394	22,479939
7,756504	26,155626	42,164986	0,437706	22,479939
7,50463	26,775499	41,693261	0,434287	22,480206
7,482149	25,990299	41,858456	0,432343	22,480073
7,588928	26,228136	41,834612	0,428587	22,480073
7,608683	26,734062	41,405447	0,424028	22,479939
7,548907	26,484208	41,357774	0,422218	22,480073
7,615325	26,413768	42,333595	0,419402	22,480073
7,424249	26,250512	41,52978	0,418597	22,480073
7,722784	25,981183	41,880586	0,414843	22,480073
7,39734	26,944553	42,861518	0,411155	22,479939
7,612771	26,786685	41,262397	0,407669	22,480073
7,508546	25,931048	42,457912	0,404987	22,479939
7,648704	26,625085	41,790336	0,401165	22,480073
7,763316	26,521084	41,781811	0,397612	22,480073
7,65773	25,630642	41,144891	0,395801	22,480206
7,337735	26,132424	41,221535	0,394862	22,480073
7,758717	25,292527	40,947342	0,393857	22,480206
7,655685	26,124548	41,453135	0,387554	22,480073
7,413519	25,982841	41,303275	0,385678	22,480206
7,71461	25,911987	41,369696	0,381252	22,480206
7,587396	26,777982	41,425894	0,378436	22,480206
7,397852	26,01972	41,645572	0,37562	22,480206
7,39751	25,549426	40,536926	0,372938	22,480206
7,455073	26,688485	41,33393	0,369184	22,480073
7,518254	25,646386	41,172148	0,366434	22,479804
7,523704	25,690306	40,535211	0,364423	22,480073
7,549078	26,913475	41,303275	0,361943	22,480206

7,555038	26,320122	41,427592	0,358255	22,480073
7,510589	26,386835	41,870378	0,354634	22,480073
7,683275	26,013918	41,235156	0,352824	22,480073
7,700475	25,58009	41,027384	0,34746	22,480206
7,587226	26,407136	41,48379	0,344778	22,480073
7,481468	26,020546	40,855378	0,344577	22,480206
7,455073	25,92566	40,685087	0,340822	22,479939
7,264676	25,918202	40,451772	0,340756	22,480073
7,608343	26,141539	40,659544	0,337202	22,479939
7,590973	26,037534	41,015462	0,337135	22,480206
7,359704	26,36653	41,274319	0,335258	22,480206
7,421693	25,693207	40,816215	0,334386	22,480206
7,482149	26,17303	40,972885	0,332509	22,480206
7,450474	25,529955	41,347551	0,331637	22,480073
7,462906	26,635862	40,77024	0,328888	22,480206
7,461033	26,331311	41,301577	0,327949	22,479804
7,52217	26,747735	41,218122	0,325201	22,480073
7,129288	26,55755	41,601297	0,322451	22,480206
7,451836	26,417495	41,322008	0,322451	22,480073
7,366005	26,10549	41,403748	0,323458	22,480073
7,65211	26,02096	40,967789	0,320507	22,480073
7,305719	26,707959	41,541686	0,320507	22,480073
7,570876	26,471362	40,921799	0,32158	22,480073
7,451666	25,242392	41,247078	0,318697	22,480206
7,276597	25,900384	41,01035	0,315278	22,479939
7,415222	26,388492	41,645572	0,317088	22,480073
7,238279	26,423297	41,323707	0,311389	22,480073
7,563214	26,338357	42,141158	0,309579	22,480206
7,441108	26,526472	41,18407	0,307701	22,480206
7,570537	25,801767	41,546798	0,304952	22,479804
7,470229	26,604784	42,103677	0,303142	22,479804
7,407048	26,813618	42,209277	0,302203	22,480206
7,5048	26,49001	41,221535	0,299454	22,480206
7,591312	26,275375	40,977997	0,296571	22,480206
7,347102	26,651605	40,834947	0,296772	22,480073
7,465971	26,050793	41,696674	0,297711	22,480073
7,299758	26,608511	41,4906	0,293085	22,479939
7,519616	25,823315	41,320309	0,293956	22,480073
7,379289	26,277445	41,749458	0,290269	22,480073
7,330923	26,68641	41,899318	0,292213	22,480206
7,52115	26,201203	42,069625	0,287721	22,480206
7,450985	25,699839	40,977997	0,285039	22,480073
7,441108	25,81627	41,756268	0,279407	22,480073
7,401938	26,154382	41,570642	0,279541	22,480206
7,528471	26,108391	41,87549	0,27753	22,480073
7,219377	26,810717	41,413972	0,277664	22,480206
7,346591	26,536414	41,431006	0,272166	22,480073
7,365835	26,272061	41,56553	0,275786	22,479939

7,458308	26,314737	41,512746	0,272233	22,480206
7,477211	26,594838	41,688149	0,270356	22,480073
7,298225	26,237252	41,413972	0,267406	22,480073
7,258034	26,54719	42,354026	0,264791	22,480341
7,280004	25,786023	41,207898	0,263986	22,480073
7,630992	26,27123	41,18407	0,264858	22,480073
7,424588	26,358658	41,315198	0,258556	22,480206
7,686681	26,188774	41,359473	0,258556	22,480206
7,269445	26,416252	41,189166	0,256611	22,480206
7,309125	26,23021	40,780448	0,254667	22,480206
7,489473	27,039856	40,751492	0,255605	22,480073
7,386271	26,040434	40,763414	0,252052	22,480073
7,157217	26,178414	41,618331	0,252856	22,480206
7,133546	26,429098	41,492299	0,249169	22,480073
7,146488	26,560446	42,490265	0,247291	22,480206
7,287157	26,822733	41,703484	0,24642	22,480073
7,46512	26,17427	41,473566	0,243738	22,480073
7,394786	26,588623	41,306673	0,243738	22,480073
7,360896	26,799945	41,711993	0,241056	22,480073
7,404664	26,761826	40,954152	0,23824	22,480073
7,309806	26,74152	42,444291	0,239044	22,480073
7,463076	26,771354	41,792035	0,235558	22,479939
7,297715	26,117507	41,429291	0,233681	22,480073
7,222782	26,598569	41,705183	0,231937	22,480206
7,501223	26,346642	41,974264	0,230865	22,480341
7,287497	26,427441	41,526367	0,230999	22,480073
7,29482	25,832844	40,921799	0,230194	22,480073
7,117367	26,207418	42,040669	0,230127	22,480206
7,008886	25,838232	41,543401	0,226306	22,480073
7,241856	25,630642	41,872077	0,223489	22,480475
7,443321	26,220678	41,066547	0,221679	22,479939
7,252586	25,670418	41,187467	0,221545	22,480206
7,338246	26,013088	42,001506	0,220875	22,480341
7,333648	26,311837	41,56553	0,219735	22,480206
7,189914	26,598569	41,514445	0,217053	22,480206
6,996794	26,635031	41,153415	0,216114	22,480206
7,284772	25,908256	41,902731	0,214371	22,480073
7,326495	26,343741	40,840059	0,213499	22,480073
7,145126	26,444429	41,805656	0,212494	22,480206
7,188211	26,484208	41,759682	0,208873	22,480206
7,016548	26,577438	41,952118	0,206124	22,480341
7,103742	27,109879	42,069625	0,203308	22,480206
7,069682	26,856712	41,01035	0,203241	22,479939
6,996965	26,799114	40,816215	0,201498	22,480206
7,124519	26,768454	41,597899	0,197877	22,480475
7,018763	26,847179	42,469834	0,194994	22,480206
7,032217	26,054938	41,967438	0,194056	22,480206
7,073429	27,549096	42,168399	0,19419	22,480206

7,11311	25,776907	41,63365	0,19124	22,479939
7,121284	26,417913	41,512746	0,188625	22,480206
6,975677	26,347055	41,608107	0,187686	22,480341
7,133204	26,530616	41,512746	0,186681	22,480206
6,980276	27,012506	42,112202	0,1842	22,480073
6,928501	26,676468	41,841422	0,182322	22,480341
7,186509	25,865992	41,921464	0,179439	22,480341
6,927479	26,31308	41,793734	0,179373	22,480073
6,966647	25,982427	41,371395	0,179373	22,480206
6,945871	26,05038	41,96404	0,177562	22,480073
6,947064	26,978945	42,5056	0,172131	22,480206
6,781702	26,358658	41,671115	0,171327	22,480206
7,116685	23,681517	36,757929	0,178568	22,480206
6,956769	22,973389	35,899616	0,180311	22,480341
6,800434	21,869552	35,526649	0,177629	22,480206
6,75837	21,83226	35,26098	0,174009	22,480206
6,627239	22,280592	35,405745	0,17307	22,480206
6,767908	22,905849	35,02938	0,172198	22,480341
6,771994	23,065375	35,759963	0,167773	22,480073
6,740319	22,789831	36,172094	0,166902	22,480073
6,43463	21,597323	35,356358	0,166834	22,480341
6,695529	22,37092	35,387012	0,162342	22,480073
6,573083	22,92325	35,857039	0,159393	22,480206
6,507518	22,95184	35,11112	0,159393	22,480206
6,674072	22,657236	35,153697	0,1549	22,480206
6,441953	22,510557	34,557639	0,152151	22,480073
6,665727	21,975628	35,664602	0,154029	22,480073
6,476863	26,377306	41,163623	0,148464	22,480341
6,44655	22,44053	34,864185	0,148531	22,480341
6,41811	22,106146	35,543682	0,148464	22,480073
6,489125	22,043168	35,388711	0,145648	22,480341
6,460174	21,978942	34,634283	0,140217	22,480341
6,541408	22,237911	35,295048	0,140217	22,480073
6,439227	22,369676	35,509631	0,139345	22,480073
6,546858	22,072171	34,979993	0,136596	22,480206
6,452851	22,339012	34,995312	0,135591	22,480341
6,498833	22,776572	35,45002	0,132037	22,479939
6,534766	22,776572	35,077053	0,128148	22,480073
6,613444	22,45296	35,438098	0,125599	22,480206
6,552989	22,476579	35,206482	0,127476	22,480206
6,544302	22,220511	35,654379	0,123789	22,480073
6,375876	21,630058	34,806289	0,121911	22,480206
6,375705	22,287633	34,772221	0,197811	22,480206
6,459663	22,355173	34,821608	0,194056	22,480073
6,329213	22,102832	35,220118	0,26117	22,480206
6,348117	22,249101	35,698654	0,195866	22,480206
6,305201	22,201449	35,099198	0,172266	22,479939
6,540556	21,607265	34,700688	0,116414	22,480206

6,400398	22,590526	35,378487	0,116481	22,480341
6,228736	22,584312	35,296747	0,110111	22,480206
6,175091	22,795629	35,039588	0,107362	22,480341
6,27608	21,81983	34,314116	0,105485	22,480206
6,370938	22,46705	34,910159	0,103607	22,480073
6,238613	21,980186	35,45683	0,099853	22,480475
6,420664	22,181561	34,964658	0,099853	22,480206
6,281869	22,124794	34,940814	0,095361	22,480206
6,300773	21,809471	35,077053	0,093416	22,480206
6,181563	22,070097	35,148586	0,091539	22,480341
6,393247	22,151727	35,327402	0,089662	22,480206
6,258709	22,1654	34,840341	0,085169	22,480206
6,381325	21,895655	34,997011	0,083426	22,480206
6,433949	21,95698	34,96977	0,082555	22,479939
6,230099	22,274373	35,289936	0,082555	22,480073
6,401079	22,546189	35,106009	0,080744	22,480341
6,323935	23,023938	35,685034	0,077794	22,480206
6,241509	22,423543	35,180939	0,075046	22,480206
6,353396	22,150483	35,45683	0,072229	22,480206
6,345563	21,660718	35,632233	0,070486	22,480073
6,241167	21,97024	35,400633	0,06767	22,480341
6,131325	22,131422	36,085242	0,065056	22,480073
6,18003	22,416911	34,635982	0,064251	22,480206
6,157551	21,39139	34,431623	0,059624	22,480073
6,172367	22,338599	34,823307	0,058619	22,480341
6,0552	22,302963	35,415952	0,058619	22,480206
6,305371	22,360148	34,334547	0,055937	22,480341
6,114464	22,281418	34,535509	0,054127	22,480073
6,070357	21,767621	35,010648	0,051445	22,480206
6,195187	22,058498	35,099198	0,049501	22,480341
6,105098	21,948278	35,094087	0,046819	22,480073
6,07206	22,124794	34,605327	0,043131	22,480206
6,114294	22,034879	35,598181	0,042125	22,480073
5,923899	22,103249	34,583181	0,040382	22,480073
6,261264	21,819417	34,572974	0,038572	22,480073
5,861739	22,032391	35,048113	0,036694	22,480206
6,033743	22,023276	35,133266	0,034951	22,480206
5,854757	21,987644	35,759963	0,035018	22,480341
6,053326	22,470364	34,770522	0,030459	22,480073
6,03834	21,934191	35,448321	0,030325	22,480206
5,891541	21,961124	35,487485	0,027509	22,480073
5,906187	22,138467	34,034827	0,025699	22,480073
6,06695	22,112364	34,647904	0,022949	22,480073
5,791575	22,372164	34,755187	0,021206	22,480073
6,102374	22,244543	34,818211	0,020201	22,480341
5,730948	21,829359	34,886331	0,019329	22,480073
5,730097	22,310422	34,33115	0,017384	22,479804
5,756834	22,175346	35,64587	0,01658	22,480206

5,904654	21,87328	34,418002	0,013697	22,480206
5,987761	22,007532	34,273238	0,010144	22,479939
5,96954	22,097447	34,763712	0,009138	22,480206
6,018074	22,535003	35,211593	0,00659	22,480206
6,102885	22,680024	35,138362	0,010076	22,480073
5,797025	21,840132	34,949338	0,007394	22,480073
5,855949	21,574948	35,259282	0,005651	22,480341
5,836876	21,010185	34,68367	0,003707	22,480073
5,818483	21,837231	34,69899	0,001897	22,480206

CO high range	CO2
CO-Høj - [%]	CO2 - [%]
-0,000443	0,067176
0,206733	1,000075
0,183723	1,590629
0,247324	5,386587
0,425294	7,309106
0,622414	8,162489
0,772587	8,839801
0,764662	9,516713
0,75024	9,843367
0,713592	9,862542
0,724253	9,20293
0,676481	8,889684
0,647215	9,292907
0,650675	9,51041
0,665278	9,287008
0,585887	8,929107
0,654637	9,421371
0,604392	10,41555
0,57062	11,358105
0,573758	11,601889
0,516634	11,622271
0,464719	11,423542
0,495634	11,244124
0,477733	11,262361
0,522788	11,042311
0,475721	10,676499
0,411979	10,55997
0,426099	10,490375
0,365917	9,915109
0,288357	9,521674
0,265769	9,821779
0,283469	10,250345
0,315551	10,969632
0,357872	11,551201
0,395002	11,77943
0,39287	11,775139
0,330396	11,490456
0,379253	11,670948
0,371408	12,219264
0,339889	11,982852
0,341921	11,919158
0,352039	11,92385

0,335887	11,6625
0,328465	11,640776
0,32416	11,755427
0,320982	12,084364
0,307284	12,056204
0,318629	12,12875
0,309296	12,046147
0,296563	11,731424
0,257683	11,224278
0,220793	10,970705
0,220894	10,709217
0,20442	10,543476
0,209489	10,282796
0,173565	10,314576
0,237689	10,373712
0,238514	10,159429
0,277053	10,366739
0,244045	9,924629
0,242034	9,855168
0,277455	9,512154
0,218722	9,448592
0,174712	9,09619
0,169341	8,90591
0,18147	8,697526
0,131426	5,622865
0,130963	2,588026
0,461018	3,443285
0,611794	4,687149
0,475882	4,663682
0,370222	4,804884
0,24835	6,642119
0,175174	8,610365
0,137239	9,184693
0,163488	9,487882
0,272708	10,779485
0,414151	12,286445
0,452208	12,876864
0,516634	12,25614
0,433924	12,223286
0,493542	12,232672
0,503439	12,073771
0,54425	12,236964
0,529909	12,619269
0,523794	12,507031
0,524478	12,850314
0,516452	12,863053
0,45428	12,819471
0,448326	12,672236

0,382753	12,81451
0,346225	12,977971
0,313077	12,928356
0,299923	13,025308
0,280995	13,355986
0,279627	13,689346
0,276349	13,844091
0,266634	13,695514
0,370443	11,940076
0,816295	12,034612
0,540006	11,881209
0,257663	11,384924
0,191044	10,965475
0,180786	10,903255
0,173243	10,73215
0,16387	10,693663
0,167189	11,147977
0,179821	11,466587
0,208222	11,688111
0,194786	11,797667
0,171534	12,051109
0,189375	12,440251
0,206794	12,783534
0,250683	13,038716
0,255671	13,161011
0,304227	13,138618
0,653994	13,052126
1,070399	13,412574
1,474675	13,566515
1,826574	14,190056
1,792862	15,139985
1,967896	14,833176
1,972603	14,785841
1,855136	15,298217
1,812433	15,546292
1,861834	15,712167
1,998912	15,740864
2,055795	15,852431
2,088742	15,969228
2,175093	16,208319
2,334056	16,175331
2,614791	16,550663
2,615253	16,480934
2,54958	16,227494
2,443719	16,323238
2,442894	16,010797
2,409263	16,13175
2,350167	16,065374

2,309637	15,835267
2,240847	15,978749
2,159947	16,112172
2,058591	16,052233
2,081924	15,59336
2,015708	15,620849
2,02844	15,184907
1,955848	15,166134
1,863021	14,89781
1,848036	14,387711
1,70625	13,809495
1,598679	13,689346
1,508809	13,726759
1,453655	13,496651
1,36111	13,537149
1,227069	13,590384
1,249798	13,484718
1,312071	13,403992
1,331662	13,290413
1,088944	13,117966
0,800305	13,008411
0,61282	12,832612
0,519228	12,765029
0,546583	12,625303
0,535903	12,611089
0,442613	12,532375
0,357691	12,485576
0,332467	12,269818
0,287512	12,053523
0,272225	11,900786
0,205768	11,85573
0,154738	11,668802
0,15677	11,483215
0,17439	11,566621
0,198788	11,685296
0,20792	11,573326
0,23433	11,340136
0,200337	11,015224
0,194021	10,874559
0,196234	10,907277
0,208101	10,781363
0,198205	10,739659
0,174671	10,779351
0,167128	10,683874
0,168637	10,764333
0,163568	10,912508
0,158218	11,016163
0,166304	10,656384

0,150896	10,370628
0,103487	10,066635
0,073175	9,814538
0,050366	9,370011
0,034374	8,93112
0,020737	8,34821
0,020133	7,555036
0,029708	6,935519
0,042199	6,537258
0,053986	6,399005
0,059618	6,251367
0,069615	6,158171
0,078063	6,049689
0,089146	5,980898
0,100148	5,883948
0,111855	5,738723
0,136615	4,252547
0,150092	2,131165
0,281518	2,239916
0,770475	3,479625
0,721758	5,497217
0,483546	6,774872
0,332306	8,32434
0,248511	10,803622
0,431933	12,985749
0,560623	13,630612
0,747002	14,186838
0,86119	14,497669
0,965905	14,760765
1,050325	15,043035
1,088139	15,106194
1,470853	14,92302
1,352038	13,771546
1,196515	13,17013
1,100751	12,74572
1,015064	12,459964
0,977773	12,214704
0,908379	12,179169
0,857248	12,051109
0,851556	11,903736
0,822209	11,697499
0,759915	12,320774
0,801431	10,316856
0,70263	9,571558
0,621871	9,549164
0,595703	9,506254
0,608415	9,496866

0,614811	9,571825
0,618935	9,601192
0,625994	9,549431
0,623903	9,611651
0,64808	9,579738
0,66037	9,634045
0,684849	9,674408
0,7115	9,706859
0,668938	9,6201
0,637802	9,582553
0,690722	9,750574
0,67978	9,566194
0,642669	9,692645
0,62525	9,780209
0,649951	9,852486
0,695952	9,852351
0,646712	9,908806
0,606202	9,946889
0,632974	9,986581
0,673223	10,069049
0,655019	10,01635
0,602481	10,080313
0,601475	10,134085
0,61998	10,174715
0,585806	10,245115
0,569031	10,286952
0,60928	10,420377
0,607791	10,12443
0,613544	10,264559
0,622615	10,385379
0,578525	10,352659
0,583453	10,530604
0,624184	10,509952
0,631868	10,569759
0,577399	10,519205
0,57237	10,544683
0,587556	10,618837
0,591137	10,858199
0,58816	11,029706
0,5987	11,202019
0,586209	11,217439
0,573858	11,1166
0,553161	10,795577
0,555172	10,727052
0,530975	10,46597
0,543124	10,519071
0,466851	10,21186
0,562454	10,597919

0,493562	10,596578
0,521561	10,552862
0,538377	10,844254
0,524981	10,832721
0,509614	10,764735
0,510599	10,699696
0,507904	10,582632
0,52311	10,305324
0,499094	10,389804
0,493221	10,228085
0,509895	10,247261
0,510438	10,557824
0,532886	10,617496
0,504686	10,675828
0,495674	10,830576
0,501467	10,918541
0,500401	11,031852
0,504183	11,018442
0,506033	10,957564
0,507944	10,993501
0,519087	10,823871
0,549339	10,940935
0,534394	10,757896
0,526751	10,315515
0,503177	9,831299
0,494407	9,394149
0,490324	9,300819
0,428975	9,08439
0,424772	9,0392
0,439777	9,164713
0,472503	9,212853
0,464357	9,337159
0,514682	9,451006
0,554488	9,710211
0,541012	9,845512
0,553684	9,947827
0,532584	9,997174
0,541253	10,041157
0,564284	10,086079
0,59711	10,278371
0,53005	10,081386
0,502413	10,2541
0,514361	10,151249
0,518504	10,223124
0,565229	10,021177
0,544592	10,060333
0,573094	10,184906
0,589407	10,476026

0,528923	10,064355
0,570882	10,486486
0,545075	10,400665
0,561388	10,607305
0,542118	10,508344
0,543124	10,677303
0,539664	10,837682
0,533912	10,813411
0,502956	10,963866
0,524096	10,927794
0,479503	10,767551
0,512289	10,780559
0,503097	10,374115
0,481072	10,669122
0,487649	10,614949
0,470612	10,670866
0,487951	10,715251
0,507019	10,794639
0,525665	10,8114
0,491491	11,054246
0,447179	11,394579
0,415861	11,672155
0,412622	12,02898
0,492134	12,711927
0,555756	12,93077
0,532483	12,24863
0,478859	11,559649
0,468279	11,407451
0,448808	11,149453
0,465061	11,001815
0,486724	10,851762
0,490224	11,120489
0,400775	11,742689
0,398301	11,247074
0,371388	10,824005
0,309256	10,473612
0,288437	10,183164
0,265286	10,032844
0,257924	9,912962
0,262892	9,857984
0,371268	10,205289
0,437263	10,016215
0,447441	9,944206
0,491511	9,875684
0,504766	9,726035
0,517519	9,873002
0,460917	9,604009
0,533006	9,896201

0,479885	9,858789
0,4193	9,753121
0,307606	9,854364
0,272386	9,921276
0,250844	9,93549
0,225983	9,951314
0,228316	9,917254
0,238655	9,836529
0,218017	9,926909
0,211078	9,90143
0,22019	9,881183
0,217293	9,882121
0,214538	9,8844
0,210656	9,865761
0,209831	9,849536
0,218601	9,816816
0,220411	9,950241
0,214095	9,909074
0,21488	10,012326
0,213995	10,003209
0,207297	10,04223
0,203837	10,063551
0,196857	10,06744
0,197742	10,060466
0,198466	9,920606
0,225902	9,531731
0,27301	9,270514
0,31004	9,122339
0,332005	9,127434
0,333212	9,09619
0,341016	8,981405
0,347996	9,048855
0,349846	9,12663
0,342062	9,199577
0,339568	9,301088
0,330818	9,29465
0,337657	9,239001
0,359038	9,788255
0,401741	9,922349
0,339487	9,752049
0,306782	9,398707
0,282705	9,066957
0,274016	8,877348
0,274538	8,7163
0,259956	8,59186
0,274418	8,482841
0,244065	8,434835
0,262027	8,35706

0,275866	8,334264
0,278843	8,311199
0,285802	8,232486
0,290026	8,201778
0,30475	8,175495
0,298313	8,23785
0,293385	8,170936
0,304267	8,225379
0,323094	8,157929
0,316054	8,105764
0,318508	8,147068
0,3135	8,163829
0,313681	8,190783
0,317844	8,218674
0,313158	8,257159
0,332025	8,215054
0,326896	8,175897
0,328505	8,233424
0,304529	8,314284
0,301049	8,272714
0,293808	8,347941
0,273593	8,347808
0,264984	8,280626
0,248792	8,350489
0,243281	8,391656
0,252815	8,349685
0,255168	8,311334
0,256033	8,37114
0,285219	8,342041
0,282966	8,410295
0,274478	8,480159
0,261665	8,46152
0,277576	8,3993
0,289765	8,55847
0,291032	8,555386
0,281297	8,556593
0,308692	8,607415
0,30117	8,684921
0,288055	8,725418
0,29952	8,734805
0,318971	8,857234
0,363624	8,95472
0,436599	9,005274
0,440059	9,04805
0,476003	9,233504
0,544673	9,266759
0,593088	9,435182
0,693136	9,52677

0,774719	9,689695
0,786868	10,027345
0,76074	10,122285
0,721819	9,914035
0,686317	9,728449
0,579048	9,654025
0,509352	9,44296
0,406447	9,488419
0,273372	9,20065
0,232701	8,839666
0,225943	8,429739
0,266815	8,250589
0,308451	7,940023
0,33814	7,460365
0,38054	7,144706
0,50362	6,574134
0,610366	6,247746
0,610265	6,12572
0,663287	6,030513
0,632653	6,090721
0,616139	6,10212
0,660209	5,980898
0,645103	6,080262
0,668737	5,855921
0,632069	6,058807
0,578706	6,017506
0,626719	5,905939
0,615817	5,980361
0,648663	5,764603
0,639733	5,80054
0,620202	5,896686
0,609984	5,911571
0,617205	5,791824
0,643172	5,744086
0,625451	5,757764
0,612337	5,791824
0,619035	5,736309
0,64285	5,672749
0,634443	5,739527
0,617164	5,728531
0,615052	5,7524
0,65329	5,703456
0,613765	5,663227
0,624828	5,705468
0,637862	5,704529
0,626799	5,73698
0,627423	5,772113
0,602039	5,769163

0,604875	5,743282
0,615978	5,732823
0,60942	5,764738
0,606303	5,741405
0,604895	5,761116
0,610446	5,74127
0,604693	5,786729
0,608958	5,757363
0,608093	5,775196
0,608153	5,749048
0,603446	5,75468
0,596185	5,761116
0,562112	5,803222
0,553543	5,798931
0,555876	5,815559
0,559557	5,80644
0,555575	5,791423
0,553463	5,774124
0,555172	5,8287
0,559215	5,82736
0,558592	5,838088
0,555293	5,775465
0,555434	5,821594
0,550486	5,834466
0,54763	5,818778
0,546503	5,866381
0,536305	5,827091
0,534837	5,790751
0,532544	5,830711
0,53007	5,790751
0,530975	5,84573
0,52488	5,817169
0,533127	5,902586
0,519128	5,883545
0,519972	5,895881
0,517116	5,877645
0,520536	5,91385
0,515225	5,805368
0,514361	5,838489
0,50891	5,817169
0,517499	5,843049
0,515145	5,832589
0,516634	5,846266
0,514381	5,843316
0,506697	5,835807
0,507602	5,85619
0,512731	5,898966
0,504887	5,862359

0,505953	5,827896
0,512148	5,870404
0,511826	5,890116
0,515004	5,908353
0,507803	5,905805
0,514381	5,938524
0,513073	5,940401
0,506315	5,90433
0,50901	5,915057
0,51595	5,783107
0,514783	5,745159
0,51603	5,759776
0,511766	5,751999
0,516674	5,806172
0,518042	5,839294
0,514542	5,812206
0,511504	5,800004
0,517177	5,839964
0,524297	5,79102
0,519751	5,78217
0,522547	5,794774
0,518202	5,764201
0,515889	5,762726
0,516191	5,779621
0,514763	5,79987
0,516231	5,813414
0,516794	5,790349
0,5143	5,78351
0,513858	5,796384
0,513838	5,821459
0,515809	5,834199
0,512651	5,785656
0,512731	5,778013
0,515346	5,858738
0,511826	5,821995
0,507441	5,762189
0,508528	5,811134
0,50716	5,8346
0,502855	5,779621
0,500381	5,7992
0,5001	5,815961
0,498068	5,781365
0,501789	5,855385
0,496298	5,842915
0,494407	5,804831
0,494287	5,806842
0,496278	5,828164
0,500643	5,909425

0,497465	5,841841
0,494086	5,815023
0,496157	5,83165
0,49304	5,852168
0,491249	5,806575
0,492637	5,780292
0,490485	5,793434
0,495091	5,82052
0,493603	5,784851
0,492657	5,824677
0,492677	5,792226
0,49668	5,771844
0,491149	5,773587
0,492376	5,772246
0,492778	5,743148
0,493422	5,784181
0,491511	5,723167
0,49137	5,768626
0,488997	5,754814
0,486563	5,758569
0,488956	5,779488
0,494246	5,804965
0,494146	5,801748
0,495212	5,762189
0,491149	5,702785
0,490304	5,793567
0,491953	5,779354
0,487066	5,76943
0,48785	5,788473
0,485376	5,788338
0,484712	5,782571
0,485356	5,790349
0,489399	5,750255
0,489097	5,775331
0,486402	5,739394
0,491008	5,747439
0,488675	5,715926
0,487568	5,741136
0,483787	5,712976
0,488594	5,721559
0,485557	5,736041
0,483767	5,712709
0,484873	5,682538
0,481112	5,64727
0,485617	5,655048
0,48791	5,729739
0,484712	5,719011
0,484069	5,684414

0,491149	5,733225
0,485215	5,691521
0,485879	5,760714
0,490002	5,713781
0,485557	5,701713
0,486965	5,706137
0,481454	5,66658
0,484149	5,694605
0,488313	5,754144
0,48439	5,690851
0,482942	5,69313
0,490686	5,754949
0,486261	5,734968
0,486362	5,732018
0,484169	5,749048
0,485899	5,72357
0,484652	5,693667
0,492456	5,730945
0,485597	5,69608
0,48779	5,684414
0,484753	5,708551
0,488313	5,723167
0,488252	5,726922
0,487991	5,724106
0,482822	5,665775
0,481333	5,665508
0,48777	5,716597
0,480347	5,69313
0,480368	5,689241
0,482922	5,659606
0,48602	5,739661
0,489298	5,703188
0,48614	5,693532
0,483586	5,713245
0,479804	5,669261
0,480287	5,670469
0,481796	5,780695
0,481293	5,714184
0,481112	5,7288
0,481755	5,697287
0,483043	5,669396
0,482359	5,696349
0,481635	5,716195
0,479382	5,713647
0,480388	5,764201
0,475339	5,77104
0,479462	5,77399
0,478054	5,70721

0,48083	5,761921
0,482439	5,752936
0,479905	5,72585
0,479422	5,741405
0,490244	5,79759
0,485074	5,752936
0,479865	5,727995
0,480106	5,758838
0,476184	5,744355
0,479824	5,778817
0,479885	5,773855
0,483888	5,766346
0,486241	5,793165
0,486362	5,807514
0,485215	5,815156
0,477974	5,807514
0,477491	5,791288
0,476345	5,81395
0,475359	5,814084
0,476143	5,855385
0,473408	5,873623
0,470793	5,809659
0,470793	5,819447
0,471397	5,855654
0,470532	5,847071
0,469144	5,798395
0,467675	5,775063
0,46504	5,747975
0,469405	5,850155
0,467454	5,895211
0,473851	5,915996
0,475017	5,85391
0,474575	5,821325
0,469606	5,861688
0,473287	5,878315
0,467736	5,816766
0,472845	5,890786
0,473126	5,919751
0,468822	5,895345
0,465664	5,859542
0,463854	5,803892
0,465523	5,868259
0,467233	5,89387
0,465141	5,862895
0,47029	5,859006
0,468098	5,845327
0,464055	5,877779
0,466107	5,890653

0,460656	5,863968
0,460998	5,88435
0,459288	5,8287
0,458403	5,851094
0,45607	5,85914
0,458242	5,841305
0,455024	5,781633
0,45784	5,763262
0,459489	5,809122
0,453415	5,786729
0,455889	5,847071
0,459288	5,838891
0,455124	5,808586
0,455044	5,834199
0,454923	5,815023
0,475078	5,898295
0,478235	5,87389
0,478034	5,911571
0,476103	5,891725
0,475741	5,915191
0,471457	5,873623
0,47027	5,908353
0,463069	5,847071
0,468742	5,894675
0,463693	5,858738
0,468138	5,935306
0,469084	5,893334
0,469063	5,898028
0,473167	5,952336
0,464135	5,866784
0,468581	5,889579
0,467454	5,91613
0,46671	5,875634
0,465302	5,87912
0,46504	5,859274
0,46488	5,908219
0,466811	5,887434
0,457679	5,835807
0,462627	5,82508
0,459006	5,839428
0,461943	5,815156
0,464075	5,812609
0,467313	5,799467
0,464417	5,794237
0,46667	5,813681
0,463793	5,82508
0,460133	5,779354
0,459489	5,791154

0,456894	5,76286
0,455687	5,792897
0,461581	5,804429
0,466469	5,813547
0,468098	5,828164
0,46486	5,800675
0,467052	5,797859
0,46675	5,838221
0,464598	5,815425
0,465282	5,820923
0,468017	5,849485
0,465081	5,854044
0,461158	5,791556
0,461179	5,816631
0,457498	5,783912
0,45782	5,793165
0,460998	5,740869
0,45967	5,734297
0,453555	5,627692
0,451121	5,573116
0,450598	5,569764
0,449734	5,573652
0,455004	5,570166
0,455164	5,563059
0,45446	5,550856
0,451403	5,521221
0,453415	5,528865
0,454903	5,542274
0,451343	5,538788
0,45255	5,542408
0,453294	5,523635
0,454762	5,54804
0,450015	5,519478
0,449693	5,51398
0,448748	5,522964
0,450337	5,533155
0,449633	5,508347
0,450538	5,507275
0,451986	5,522025
0,450458	5,51398
0,450055	5,52873
0,448084	5,524037
0,448185	5,52283
0,450397	5,516796
0,448949	5,515858
0,449452	5,504058
0,443579	5,480588
0,44561	5,467715

0,444142	5,461412
0,441205	5,439555
0,441547	5,440091
0,444705	5,450416
0,443699	5,442639
0,444987	5,423061
0,44557	5,41649
0,446475	5,447466
0,44728	5,461546
0,447722	5,413942
0,44907	5,471201
0,447964	5,437544
0,448285	5,433119
0,447682	5,429631
0,446636	5,421854
0,444785	5,409384
0,444826	5,422927
0,444363	5,413406
0,445047	5,397315
0,444906	5,391818
0,443197	5,414211
0,446294	5,391013
0,453817	5,393962
0,450257	5,354808
0,446636	5,354808
0,44382	5,355344
0,44384	5,359366
0,441628	5,325306
0,438731	5,299694
0,436519	5,284139
0,437303	5,2891
0,434467	5,270194
0,433622	5,270059
0,43682	5,30023
0,431651	5,270059
0,428553	5,253565
0,430162	5,25142
0,425858	5,250884
0,430525	5,278909
0,42982	5,266841
0,425677	5,256918
0,422378	5,230367
0,423766	5,229563
0,423645	5,202341
0,422277	5,186786
0,421272	5,211863
0,427507	5,09359
0,433421	4,92557

0,428573	4,906796
0,421915	4,890169
0,41399	4,845112
0,41574	4,867239
0,414513	4,840151
0,407896	4,823524
0,410571	4,830094
0,410651	4,841626
0,408801	4,818025
0,410631	4,819769
0,411858	4,832374
0,409505	4,81588
0,4087	4,807164
0,408901	4,80703
0,409907	4,799922
0,408258	4,800459
0,408861	4,795497
0,407131	4,761706
0,40866	4,726171
0,407634	4,699084
0,403571	4,664219
0,404275	4,67079
0,404275	4,688624
0,403048	4,650139
0,400936	4,647322
0,399991	4,638205
0,396129	4,623589
0,394982	4,623722
0,396913	4,61809
0,398321	4,627209
0,396491	4,592479
0,395666	4,586846
0,389511	4,543936
0,38585	4,497136
0,384684	4,495394
0,384221	4,489896
0,385307	4,479303
0,381727	4,436257
0,378891	4,447521
0,380923	4,440146
0,381566	4,460529
0,381989	4,458651
0,381385	4,43961
0,381285	4,44551
0,377805	4,403539
0,375109	4,396968
0,375894	4,417886
0,377805	4,455434

0,376276	4,379401
0,37525	4,401259
0,374245	4,391202
0,373943	4,392678
0,370845	4,355666
0,375009	4,391872
0,374707	4,396968
0,371067	4,37739
0,374245	4,366663
0,372676	4,363713
0,3699	4,335016
0,372334	4,367065
0,370343	4,3322
0,370725	4,326031
0,370181	4,339039
0,372515	4,346013
0,370503	4,326836
0,371026	4,361835
0,369196	4,344403
0,371227	4,346146
0,368593	4,346816
0,372112	4,348158
0,367506	4,322411
0,369055	4,329653
0,366481	4,325227
0,367567	4,321741
0,367466	4,31222
0,370886	4,350705
0,378529	4,365187
0,375974	4,347085
0,37523	4,337161
0,375472	4,357544
0,373842	4,366126
0,372716	4,334882
0,371489	4,319192
0,370202	4,319998
0,372293	4,330189
0,36986	4,311415
0,37167	4,305784
0,370604	4,302162
0,368894	4,293446
0,36821	4,305381
0,370222	4,309404
0,367426	4,274941
0,367024	4,056769
0,371891	3,957672
0,37696	3,928171
0,376135	3,900414

0,373842	3,8862
0,370644	3,851737
0,366621	3,83645
0,368995	3,831355
0,365736	3,801989
0,366641	3,791931
0,361794	3,790456
0,361573	3,778119
0,369598	3,762699
0,366641	3,72609
0,363383	3,699137
0,364228	3,697796
0,364529	3,696993
0,36284	3,694176
0,361291	3,681035
0,360104	3,654752
0,359461	3,661189
0,356846	3,651534
0,358013	3,655959
0,354854	3,644964
0,355398	3,610769
0,354895	3,610769
0,351013	3,583547
0,35057	3,565579
0,350329	3,574295
0,35057	3,551901
0,35411	3,576575
0,353145	3,55351
0,349766	3,536615
0,354271	3,537956
0,349484	3,536749
0,349906	3,509259
0,346708	3,485659
0,349444	3,48405
0,345381	3,489011
0,345863	3,475334
0,347654	3,492497
0,343108	3,43068
0,343751	3,467824
0,340674	3,459644
0,343329	3,451063
0,33999	3,439932
0,335927	3,383881
0,338602	3,40185
0,337395	3,418611
0,339809	3,418745
0,338924	3,401581
0,338341	3,412175

0,336631	3,361755
0,340734	3,380931
0,338019	3,380931
0,331421	3,325951
0,33466	3,358805
0,335002	3,332254
0,337798	3,371946
0,335585	3,362694
0,335102	3,347944

		Ambient temperature	Main train filter temp	Split train 1H filter temp	Split train rem. filter temp
Datotid	Scantime	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]	Filter-3-D2 - [°C]
11:03:21	Start of CS&HF				
11:03:34	3,064	24,152203	27,530048	28,606367	
11:04:04	3,065	24,11268	27,383583	28,220013	
11:04:34	3,065	24,323351	27,425436	28,145569	
11:05:04	3,066	24,231203	27,48299	28,139061	
11:05:34	3,065	24,31283	27,532688	28,170399	
11:06:05	3,065	24,352337	27,611139	28,196514	
11:06:35	3,064	24,239107	27,752316	28,267052	
11:07:05	3,065	24,260189	27,875187	28,368906	
11:07:35	3,065	24,447115	27,935284	28,41066	
11:08:05	3,065	24,476068	28,039795	28,439371	
11:08:35	3,066	24,507656	28,119509	28,520325	
11:09:05	3,065	24,523457	28,254025	28,627323	
11:09:35	3,065	24,491879	28,38979	28,713438	
11:10:05	3,065	24,702393	28,546402	28,830812	
11:10:35	3,065	24,755007	28,637747	28,919497	
11:11:05	3,065	24,726133	28,859528	29,085119	
11:11:35	3,064	24,752419	28,940351	29,138548	
11:12:05	3,065	24,904972	29,036829	29,240192	
11:12:35	3,064	24,891811	29,19323	29,341818	
11:13:05	3,066	24,983858	29,318319	29,453835	
11:13:35	3,066	25,004955	29,525505	29,67268	
11:14:05	3,064	24,92341	29,675205	29,763775	
11:14:35	3,064	24,947081	29,779337	29,896521	
11:15:05	3,064	25,041744	29,964119	30,000607	
11:15:35	3,064	24,986507	30,12022	30,141077	
11:16:05	3,066	25,168016	30,375181	30,389532	
11:16:35	3,065	25,144297	30,457045	30,471375	
11:17:05	3,065	25,039148	30,614269	30,603935	
11:17:35	3,066	25,380793	30,767563	30,749424	
11:18:05	3,065	25,590982	30,946836	30,949507	
11:18:35	3,065	25,577909	30,952082	30,945644	
11:19:05	3,065	25,72488	30,81179	30,759884	
11:19:35	3,065	25,848257	30,759813	30,661179	
11:20:05	3,065	25,777416	30,763773	30,589745	
11:20:35	3,065	25,651493	30,858669	30,602818	
11:21:05	3,065	25,853573	30,785887	30,580688	
11:21:35	3,065	26,026745	30,762505	30,510511	
11:22:05	3,065	25,935068	30,827579	30,584723	
11:22:35	3,065	26,026899	30,909401	30,570431	
11:23:05	3,064	26,391361	30,910641	30,570375	
11:23:35	3,064	26,428211	31,027653	30,72254	
11:24:05	3,065	25,956135	31,082169	30,730352	

11:24:35	3,064	26,236805	31,099041	30,730352
11:25:05	3,065	26,105787	31,235403	30,847351
11:25:35	3,065	25,646511	31,313278	30,912268
11:26:05	3,065	26,360229	31,362661	30,946127
11:26:35	3,064	26,263235	31,388622	30,969521
11:27:05	3,066	26,040308	31,427551	30,969521
11:27:35	3,064	26,158459	31,479538	31,013779
11:28:05	3,065	25,911833	31,453596	31,008593
11:28:35	3,064	26,533581	31,571823	31,093164
11:29:05	3,065	26,538731	31,508204	31,052851
11:29:35	3,065	26,224155	31,560106	31,06068
11:30:05	3,065	26,26627	31,579691	31,110159
11:30:35	3,065	26,428764	31,606882	31,08415
11:31:05	3,065	26,670124	31,699196	31,173956
11:31:35	3,065	26,355505	31,612217	31,115459
11:32:05	3,066	26,392509	31,711035	31,201361
11:32:35	3,065	26,397587	31,573467	31,087048
11:33:05	3,064	26,652117	31,623026	31,134045
11:33:35	3,064	26,39513	31,568457	31,066477
11:34:05	3,065	26,051916	31,660918	31,870895
11:34:35	3,065	25,855015	31,781177	31,878597
11:35:05	3,066	26,054695	31,841271	31,712938
11:35:35	3,066	26,385042	31,99917	31,488562
11:36:05	3,065	26,20965	31,789513	31,420063
11:36:35	3,066	26,401049	31,671547	31,321495
11:37:05	3,065	26,317335	31,735254	31,31649
11:37:35	3,064	26,595224	31,727516	31,363211
11:38:05	3,065	26,417175	31,815821	31,433453
11:38:35	3,063	26,663513	31,849512	31,454212
11:39:05	3,064	26,524858	31,937855	31,521868
11:39:35	3,065	26,511738	31,862694	31,501112
11:40:05	3,064	26,692785	31,878492	31,484505
11:40:35	3,065	26,089798	31,460995	31,241875
11:41:05	3,065	26,572483	31,256264	31,105839
11:41:35	3,066	26,97324	31,147259	30,95656
11:42:05	3,067	27,15917	30,962978	30,596806
11:42:35	3,065	27,03631	30,983936	30,452768
11:43:05	3,065	26,913242	30,968346	30,613763
11:43:35	3,065	26,310829	31,043943	30,469933
11:44:05	3,065	26,785158	31,067265	30,515402
11:44:35	3,065	27,139069	31,152025	30,602835
11:45:05	3,067	26,7173	31,127234	30,585825
11:45:35	3,066	26,914183	31,237942	30,697926
11:46:05	3,067	26,88781	31,194971	30,705614
11:46:35	3,067	26,704504	30,751007	30,699188
11:47:05	3,067	26,80164	30,062281	30,781242
11:47:35	3,066	27,039932	29,593771	30,828001
11:48:05	3,065	27,453718	29,119905	30,87635

11:48:35	3,069	27,359499	28,913891	30,893215	
11:49:05	3,067	27,414927	28,988653	30,988422	
11:49:35	3,067	27,249901	28,997622	30,942835	
11:50:05	3,066	27,342033	29,278336	30,990051	
11:50:35	3,067	27,011984	29,370626	30,948334	
11:51:05	3,066	26,394299	29,647259	31,016354	
11:51:35	3,067	26,425459	29,798002	30,951246	
11:52:05	3,066	26,349972	30,049622	31,034777	
11:52:35	3,066	27,287426	30,141796	31,011292	
11:53:05	3,067	27,104691	30,296967	31,049305	
11:53:35	3,067	27,049555	30,342382	30,949287	
11:54:05	3,067	26,929529	30,503914	31,027502	
11:54:35	3,064	27,565348	30,56625	30,941822	
11:55:05	3,066	27,868761	30,032028	30,3521	
11:55:35	3,065	27,241314	29,713449	29,854179	
11:56:06	3,066	27,53446	29,584656	29,649946	
11:56:36	3,067	27,594847	29,636993	29,624165	
11:57:06	3,066	28,091452	29,771095	29,669741	
11:57:36	3,066	27,65534	29,975737	29,840601	
11:58:06	3,067	27,38335	30,096752	29,930405	
11:58:36	3,065	27,70038	30,304022	30,109119	
11:59:06	3,065	27,613787	30,39348	30,168745	
11:59:36	3,066	28,210335	30,612476	30,335798	
12:00:06	3,067	27,948915	30,668226	30,421505	
12:00:36	3,066	27,844942	30,864849	30,658489	
12:01:06	3,065	28,114082	30,994747	30,771584	
12:01:36	3,066	28,051767	31,137873	30,721241	
12:02:06	3,066	28,198133	31,262608	29,519598	
12:02:36	3,065	27,73855	31,353674	29,639637	
12:03:06	3,067	28,582407	31,47715	29,840601	30,993546
12:03:36	3,067	28,760036	31,564209		31,277908
12:04:06	3,067	27,655312	31,631674		31,435038
12:04:36	3,066	28,214859	31,760353		31,526089
12:05:06	3,066	27,940948	31,833317		31,606859
12:05:36	3,066	29,060642	31,682949		31,534302
12:06:06	3,067	28,315002	30,864704		30,884607
12:06:36	3,066	29,329399	30,240799		30,241295
12:07:06	3,066	28,260595	29,853773		29,623772
12:07:36	3,066	28,868437	29,736454		29,315035
12:08:06	3,066	29,67692	29,484488		29,092731
12:08:36	3,067	29,708094	29,234365		28,894636
12:09:06	3,065	28,616503	29,232229		28,981108
12:09:36	3,066	28,316441	29,109894		28,926571
12:10:06	3,066	28,705673	28,904198		28,710331
12:10:36	3,066	28,228472	29,003771		28,765581
12:11:06	3,066	27,543776	29,123697		28,90383
12:11:36	3,067	28,670099	29,408205		29,172852
12:12:06	3,068	27,808146	29,650309		29,409906

12:12:36	3,067	28,824509	29,989283	29,738588
12:13:06	3,065	29,374533	30,285872	30,047146
12:13:36	3,065	28,378775	30,637245	30,381701
12:14:06	3,066	28,431469	30,593576	30,403004
12:14:36	3,067	29,427734	30,232334	29,845135
12:15:06	3,066	28,906837	29,938763	29,445881
12:15:36	3,067	29,590191	29,634779	29,049034
12:16:06	3,067	29,168076	29,540974	28,909481
12:16:36	3,067	29,668772	29,718559	29,001284
12:17:06	3,067	29,252941	29,923756	29,159719
12:17:36	3,067	28,984043	30,106863	29,278143
12:18:06	3,066	29,096693	30,390881	29,523579
12:18:36	3,067	29,026859	30,698051	29,822086
12:19:06	3,067	30,947113	30,944874	30,086372
12:19:36	3,067	30,555408	31,26215	30,380816
12:20:06	3,066	30,417778	31,163651	30,353636
12:20:36	3,067	29,030582	30,995338	30,17337
12:21:06	3,066	30,114655	30,98435	30,146677
12:21:36	3,066	29,310482	31,098871	30,159973
12:22:06	3,066	31,024706	31,183407	30,255169
12:22:36	3,067	28,852623	31,372322	30,413185
12:23:06	3,066	30,181757	31,622101	30,573702
12:23:36	3,066	29,931553	31,08857	30,222572
12:24:06	3,067	29,096096	30,164085	29,434534
12:24:36	3,066	29,131233	29,631672	28,983271
12:25:06	3,066	29,032173	29,423399	28,743479
12:25:36	3,067	29,704342	29,428684	28,760637
12:26:06	3,067	30,631506	29,610781	28,938869
12:26:36	3,066	30,863251	29,869081	29,145409
12:27:06	3,067	31,086102	30,028736	29,27816
12:27:36	3,067	29,331537	30,297541	29,512102
12:28:06	3,067	30,267014	30,522043	29,775932
12:28:36	3,066	30,341898	30,68022	29,908501
12:29:06	3,066	29,543602	30,880833	30,125044
12:29:36	3,067	30,892063	31,102634	30,315845
12:30:06	3,066	29,633076	31,233496	30,392492
12:30:36	3,066	30,205931	31,172909	30,405922
12:31:06	3,066	29,913336	30,509172	29,682386
12:31:36	3,066	29,314939	29,665596	28,738207
12:32:06	3,067	29,26491	29,187153	28,200325
12:32:36	3,067	29,000254	29,145277	28,035398
12:33:06	3,066	29,014214	29,267324	28,122438
12:33:36	3,066	28,985332	29,346745	28,185209
12:34:06	3,066	29,494158	29,614311	28,35154
12:34:36	3,066	30,845093	29,826139	28,549513
12:35:06	3,068	30,867723	29,953079	28,693981
12:35:36	3,066	31,024445	30,205013	28,895685
12:36:06	3,066	31,140007	30,493504	29,145685

12:36:36	3,066	30,565245	30,404547	29,183121
12:37:06	3,065	29,754742	29,865801	28,687279
12:37:36	3,067	30,065283	29,543732	28,205042
12:38:06	3,066	30,642115	29,404125	27,913708
12:38:36	3,25	30,271332	29,479286	27,846659
12:39:06	3,246	31,074987	29,004416	27,580589
12:39:36	3,249	29,801014	28,613089	27,290316
12:40:06	3,249	30,587555	28,589315	27,279505
12:40:36	3,248	29,296556	28,339815	27,165512
12:41:06	3,27	28,666349	28,123856	27,056374
12:41:36	3,25	28,465099	28,029608	27,060274
12:42:06	3,247	28,510069	28,104725	27,21929
12:42:36	3,243	29,024263	28,102411	27,326881
12:43:06	3,246	28,529667	27,858982	27,170586
12:43:36	3,248	29,872478	27,879148	27,177608
12:44:06	3,251	29,234638	27,959101	27,25779
12:44:36	3,249	29,532654	28,200378	27,449512
12:45:06	3,066	30,706467	28,45677	27,665745
12:45:36	3,066	30,263157	28,801018	27,969902
12:46:06	3,067	30,694317	29,015894	28,183996
12:46:36	3,067	29,839624	29,332119	28,451181
12:47:06	3,067	30,907419	29,500912	28,620506
12:47:36	3,066	30,111094	29,786133	28,840839
12:48:06	3,067	29,667999	29,855974	28,947542
12:48:36	3,067	31,104639	30,148705	29,198893
12:49:06	3,067	29,981014	30,228674	29,293627
12:49:36	3,067	29,288374	30,384687	29,4291
12:50:06	3,066	30,037378	30,488026	29,559013
12:50:36	3,067	29,605951	30,630262	29,700079
12:51:06	3,067	29,280542	30,696781	29,804626
12:51:36	3,065	28,99382	30,78253	29,919159
12:52:06	3,067	29,332119	30,843178	29,997009
12:52:36	3,066	29,289228	30,959993	30,14119
12:53:06	3,066	29,018051	30,426003	30,004553
12:53:36	3,067	28,499912	29,603476	29,618959
12:54:06	3,066	28,820852	29,142336	29,381945
12:54:36	3,066	28,536467	28,952122	29,297544
12:55:06	3,066	28,490355	29,03373	29,367214
12:55:36	3,067	27,863529	29,166695	29,434958
12:56:06	3,066	27,988966	29,383091	29,582399
12:56:36	3,065	27,968966	29,553171	29,737942
12:57:06	3,067	28,183167	29,769274	29,860287
12:57:36	3,066	28,182493	29,956226	29,982359
12:58:06	3,065	28,562618	30,220346	30,176029
12:58:36	3,066	28,538906	30,346287	30,253922
12:59:06	3,066	28,410343	30,414669	30,301752
12:59:36	3,067	28,418829	30,572535	30,399765
13:00:06	3,067	28,623453	30,690374	30,500599

13:00:36	3,066	28,693087	30,727444	30,523643
13:01:06	3,067	28,429508	30,781994	30,541821
13:01:36	3,066	28,821148	30,867926	30,600475
13:02:07	3,067	28,845648	30,945522	30,697563
13:02:37	3,065	28,829649	30,993261	30,690884
13:03:07	3,065	29,004374	31,011444	30,735037
13:03:37	3,066	29,009586	31,042597	30,74025
13:04:07	3,067	28,949162	31,055244	30,75696
13:04:37	3,066	28,819901	31,148504	30,834579
13:04:59	End of HF			

Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature	Split train dry gas meter temperature
Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]	Gasm-D - [°C]
25,205793	20,03466	21,720261	26,290289	26,115927
25,229666	19,186283	20,896135	26,80393	26,50396
25,22172	18,909359	20,330875	26,903481	26,50528
25,200497	18,746914	20,041405	26,99778	26,566927
25,208443	18,611013	19,783592	26,992548	26,574806
25,227016	18,469744	19,552263	26,987314	26,574806
25,229801	18,437765	19,374052	27,00305	26,587936
25,280281	18,363136	19,275625	27,037142	26,663973
25,337782	18,253796	19,145197	26,984777	26,614185
25,351028	18,195118	18,969454	26,984777	26,608948
25,361624	18,109764	18,904243	26,983486	26,636492
25,38814	18,088455	18,857653	27,037205	26,695498
25,40671	18,045778	18,753752	27,005793	26,67977
25,433224	18,008404	18,644503	27,003178	26,671913
25,45179	17,912338	18,583212	26,990072	26,669296
25,491404	17,941759	18,541965	27,047747	26,707346
25,458214	17,880375	18,495321	27,032072	26,708683
25,522755	17,826984	18,471325	26,969223	26,669374
25,562534	17,834988	18,407347	27,013739	26,703428
25,538675	17,789616	18,359344	26,948271	26,671991
25,575781	17,787022	18,394089	26,988949	26,694326
25,602291	17,816385	18,327429	27,039999	26,737587
25,578426	17,736286	18,308777	26,990253	26,700916
25,642895	17,765656	18,234095	26,998127	26,71139
25,709982	17,776352	18,215414	26,969328	26,679955
25,718021	17,813822	18,247511	27,008667	26,715405
25,686516	17,768427	18,288864	27,017851	26,757341
25,723618	17,776428	18,239532	27,024393	26,753429
25,755442	17,741726	18,226183	26,998213	26,761278
25,744825	17,757803	18,24892	27,029682	26,752142
25,805048	17,797905	18,258276	27,006168	26,749578
25,884336	17,776541	18,258305	27,027132	26,761383
25,900223	17,805906	18,202293	27,055925	26,774494
25,887053	17,864662	18,166317	27,06776	26,769283
25,935057	17,904781	18,2024	27,090063	26,804689
25,911203	17,878088	18,255743	27,069132	26,806055
26,042727	17,923473	18,183741	27,082233	26,821756
26,087786	17,963627	18,287874	27,095406	26,862444
26,101044	18,019667	18,234529	27,128147	26,849363
26,095726	18,009003	18,22121	27,111139	26,855936
26,131611	18,027802	18,293329	27,124338	26,883551
26,128742	18,01178	18,250669	27,10078	26,852102

26,219681	18,065189	18,222723	27,164988	26,895403
26,267347	18,067959	18,232143	27,19776	26,922974
26,299162	18,011925	18,250797	27,184685	26,920359
26,293842	18,065414	18,250921	27,192663	26,951912
26,358124	18,070778	18,290941	27,187458	26,925728
26,412487	18,068113	18,226936	27,216244	26,972868
26,431009	18,086935	18,227116	27,271339	27,022787
26,486635	18,041567	18,261782	27,258266	27,017529
26,588976	18,073715	18,315239	27,272776	27,042501
26,56152	18,028381	18,277935	27,25058	27,056993
26,557577	18,071114	18,207262	27,302937	27,053064
26,570808	18,015207	18,279448	27,288673	27,07675
26,694338	18,057913	18,211437	27,308323	27,070261
26,744658	18,12479	18,254278	27,380423	27,142372
26,652334	18,05274	18,254292	27,321585	27,107094
26,75153	18,119631	18,242453	27,397591	27,162163
26,810276	18,044941	18,273161	27,366247	27,146547
26,863237	18,093151	18,295977	27,426573	27,199005
26,805338	18,1145	18,197311	27,44755	27,216082
26,976519	18,168045	18,205517	27,458172	27,228008
26,971228	18,152056	18,186867	27,454275	27,211042
26,98848	18,173597	18,181707	27,521156	27,293642
27,110968	18,114912	18,143045	27,50288	27,308073
27,124193	18,101784	18,168587	27,544903	27,343567
27,087139	18,021776	18,159323	27,50444	27,326639
27,19244	18,040634	18,144817	27,589582	27,406588
27,203045	17,963276	18,147514	27,560863	27,385689
27,189583	17,974154	18,153061	27,581987	27,393772
27,236681	17,950129	18,105032	27,56629	27,375452
27,250113	18,009094	18,078608	27,686811	27,475094
27,316954	17,99576	18,08927	27,624069	27,435869
27,371019	18,05739	18,11622	27,747194	27,526344
27,366009	18,006685	18,126883	27,689686	27,509356
27,45116	18,030853	18,133694	27,693764	27,543484
27,426044	18,081652	18,052443	27,765772	27,559324
27,4025	18,092352	18,031126	27,786713	27,578941
27,469122	18,140623	18,036707	27,813086	27,624966
27,469334	18,047226	18,036707	27,815695	27,643251
27,552029	18,074198	18,039637	27,857786	27,668365
27,603535	18,018164	17,986265	27,883919	27,685387
27,490028	17,986412	18,029221	27,880236	27,688215
27,597683	18,021097	17,983898	27,892052	27,690887
27,608282	18,058723	17,973448	27,975906	27,745975
27,558002	17,968027	18,000204	27,944618	27,759172
27,655355	17,944046	17,928177	27,978632	27,752644
27,640841	17,925627	17,955143	27,997164	27,830044
27,719721	17,845545	17,965809	27,991943	27,811741
27,707737	17,845865	17,998152	28,041904	27,868237

27,701218	17,824503	17,939444	28,057568	27,893082
27,791836	17,899559	17,961075	28,106165	27,932535
27,760096	17,888891	17,963776	28,055286	27,92477
27,733702	18,011984	17,945366	28,156122	27,970722
27,783381	17,979965	17,956116	28,115696	27,945997
27,849506	17,998976	18,007092	28,170795	28,011522
27,886007	17,982952	17,940441	28,210054	28,01687
27,848986	17,940559	17,978048	28,19593	28,005333
27,854071	17,929926	17,983488	28,202555	28,038136
27,890774	17,983559	17,965027	28,20929	28,038317
27,906654	18,002333	17,95714	28,260363	28,090721
27,945807	18,061268	17,993364	28,25009	28,086971
27,924639	18,117434	17,938824	28,315565	28,153776
27,935089	18,117535	17,949594	28,303881	28,108139
27,97967	18,173836	17,941872	28,370745	28,177666
28,024618	18,144573	17,989998	28,346024	28,186882
28,043894	18,126194	17,998308	28,359373	28,19499
28,034678	18,152901	17,97967	28,397299	28,2316
28,05584	18,190609	18,044056	28,43545	28,271114
28,092352	18,219975	18,028088	28,421167	28,247675
28,081783	18,260347	18,036375	28,44883	28,260973
28,141823	18,263012	17,993732	28,460649	28,275438
28,147385	18,306084	18,015436	28,515783	28,343571
28,144741	18,298178	17,999594	28,501587	28,360792
28,18918	18,290491	18,050543	28,521414	28,346598
28,231504	18,346706	18,036106	28,586912	28,421284
28,252001	18,30957	18,093651	28,55834	28,375742
28,291792	18,371172	18,025911	28,647383	28,453104
28,312563	18,318001	18,056723	28,595297	28,423147
28,288656	18,347675	18,027697	28,656982	28,475735
28,330975	18,313118	18,030487	28,687071	28,499289
28,366064	18,251984	18,104107	28,684725	28,516556
28,393932	18,236197	18,143002	28,730585	28,561102
28,49235	18,233921	18,194096	28,767485	28,584961
28,406647	18,188641	18,204817	28,736225	28,565479
28,444572	18,21043	18,258612	28,758841	28,586758
28,482813	18,250452	18,222649	28,816284	28,627291
28,469604	18,282932	18,331112	28,793217	28,642002
28,523218	18,274914	18,327126	28,848053	28,666891
28,490252	18,358072	18,342257	28,877151	28,72336
28,597845	18,368858	18,311739	28,895596	28,724882
28,54529	18,414558	18,324057	28,919357	28,752546
28,610579	18,444178	18,365732	28,911896	28,762068
28,571224	18,444363	18,359222	28,898985	28,753023
28,678816	18,479528	18,381075	29,003771	28,834389
28,63279	18,391552	18,327742	28,975092	28,779615
28,659838	18,394733	18,389589	28,996466	28,834908
28,698336	18,317398	18,37229	28,980885	28,833683

28,786251	18,331249	18,414097	29,028244	28,856276
28,800699	18,371504	18,365072	29,096352	28,928349
28,902069	18,401102	18,393301	29,112196	28,919386
28,867695	18,441628	18,396511	29,144007	28,982498
28,767563	18,388372	18,377924	29,144081	28,964321
28,817499	18,418182	18,381037	29,18103	28,990864
28,880741	18,426737	18,442919	29,218061	29,05398
28,851671	18,402737	18,42161	29,15029	29,012255
28,835701	18,46196	18,382175	29,226435	29,057152
28,848551	18,499851	18,454651	29,256855	29,070593
28,927376	18,473192	18,425402	29,258276	29,099417
28,943245	18,52441	18,47929	29,300533	29,139086
28,977064	18,548697	18,454226	29,29554	29,118446
29,022045	18,567636	18,482552	29,298489	29,139675
29,069164	18,618881	18,493811	29,377247	29,210629
29,074318	18,600296	18,469908	29,364292	29,189865
29,116257	18,635469	18,481083	29,432556	29,252914
29,14769	18,633402	18,521683	29,427938	29,243088
29,210917	18,654947	18,469915	29,465906	29,258881
29,262068	18,639357	18,522314	29,478027	29,285389
29,205194	18,650644	18,542892	29,464296	29,304186
29,285116	18,675177	18,542074	29,535099	29,325502
29,273436	18,573996	18,528904	29,518345	29,336143
29,387762	18,542643	18,604197	29,571079	29,425358
29,323174	18,529963	18,612764	29,561117	29,398464
29,399351	18,527634	18,609129	29,621429	29,431459
29,386032	18,519955	18,557528	29,653084	29,450096
29,443548	18,531286	18,630093	29,631485	29,44018
29,52903	18,603849	18,62534	29,697174	29,524113
29,524981	18,585285	18,598869	29,711678	29,511343
29,619368	18,67392	18,648811	29,729244	29,545792
29,575876	18,68261	18,70409	29,718067	29,552851
29,6427	18,680012	18,69095	29,76779	29,590927
29,627125	18,699293	18,723532	29,776226	29,599339
29,645205	18,742632	18,75613	29,781942	29,606337
29,716232	18,729486	18,704386	29,840818	29,656149
29,697586	18,695396	18,767605	29,853111	29,686686
29,789335	18,757406	18,773571	29,887465	29,714508
29,784307	18,805979	18,806183	29,918079	29,737303
29,802324	18,776787	18,782377	29,930019	29,755798
29,793072	18,785522	18,793707	29,947508	29,779778
29,80197	18,812927	18,797108	29,967726	29,784372
29,847649	18,783895	18,804123	29,974657	29,801735
29,820038	18,834988	18,791254	29,994583	29,820419
29,907948	18,84375	18,835943	30,003038	29,832726
29,877722	18,737185	18,830696	30,000647	29,829058
29,959177	18,740608	18,872744	30,070295	29,914368
29,951109	18,744064	18,89344	30,085236	29,899332

29,85051	18,650812	18,912195	30,064611	29,906071
29,978012	18,731533	18,951563	30,100452	29,937983
29,950457	18,766777	18,942795	30,126976	29,938484
29,988327	18,830902	18,945747	30,157228	29,964909
29,915733	18,900991	18,953175	30,206074	30,034605
30,034143	18,917473	19,008228	30,22085	30,068825
30,023302	18,853842	19,021948	30,208244	30,060183
29,99415	18,886639	19,037369	30,246706	30,097313
30,025404	18,798737	19,00946	30,229853	30,060984
30,057121	18,831547	19,02627	30,287891	30,155447
30,122734	18,807653	18,995819	30,332293	30,15316
30,109549	18,787104	19,065783	30,329189	30,16691
30,156673	18,755421	19,039478	30,39188	30,232233
30,114426	18,702682	19,107841	30,341551	30,175327
30,164219	18,724314	19,045544	30,413313	30,211958
30,168114	18,687557	19,09273	30,402195	30,275013
30,190248	18,669445	19,117258	30,427385	30,288437
30,188623	18,669773	19,104162	30,392437	30,253485
30,129158	18,758585	19,085014	30,456938	30,282846
30,202688	18,793213	19,019827	30,458282	30,282955
30,213341	18,834055	19,055332	30,552711	30,341036
30,220793	18,828733	19,028795	30,529558	30,347797
30,141741	18,885572	19,077518	30,574398	30,406906
30,230986	18,78709	19,128351	30,56172	30,426783
30,152039	18,835846	19,102398	30,598656	30,420788
30,228003	18,75326	19,110495	30,562498	30,41976
30,172787	18,697308	19,09185	30,554708	30,40937
30,285717	18,660009	19,033382	30,612083	30,464298
30,233141	18,649666	18,997721	30,613688	30,467112
30,248486	18,58894	19,055613	30,587002	30,470398
30,238068	18,564951	19,015657	30,610392	30,478186
30,322073	18,508974	18,975821	30,635237	30,495249
30,22715	18,555229	19,000603	30,665873	30,525867
30,253145	18,560553	18,975359	30,620455	30,506435
30,226814	18,622784	19,009525	30,700539	30,55798
30,31884	18,641422	18,998882	30,708349	30,570986
30,244932	18,668541	19,051313	30,682936	30,565121
30,307932	18,674341	19,061069	30,717066	30,605671
30,28945	18,66103	18,997145	30,737831	30,626463
30,326059	18,776073	19,006992	30,77479	30,662188
30,275909	18,747246	19,035374	30,75696	30,648195
30,345583	18,741898	19,024733	30,777748	30,655981
30,362667	18,70739	19,00631	30,788477	30,673262
30,350855	18,756172	19,025675	30,848808	30,716682
30,391371	18,729528	19,040386	30,83717	30,731028
30,314993	18,692232	19,040487	30,849033	30,724817
30,385748	18,67392	19,031481	30,871405	30,744478
30,317272	18,682528	19,081289	30,89007	30,789125

30,363068	18,647894	19,100042	30,917505	30,803713
30,295683	18,623903	19,102703	30,868179	30,751757
30,328863	18,687977	19,085476	30,917629	30,786884
30,395657	18,747446	19,171516	30,922291	30,852547
30,336456	18,814066	19,148951	30,928844	30,846224
30,332302	18,755434	19,132969	30,913275	30,820253
30,276722	18,752769	19,098366	30,897684	30,835848
30,30975	18,720802	19,099758	30,928972	30,830759
30,385826	18,777601	19,096561	31,003756	30,886021

Room blank dry gas meter temperature	Main train flow rate Flow-H - [ln/min]	Split train flow rate Flow-D - [ln/min]	EPA Flue gas temperature	Surface temperature Top
Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C	Ovf-Top - [°C]
23,355019	6,798708	6,617244	37,959354	25,212394
23,344448	6,756201	6,985267	50,104809	25,220343
23,414379	6,886942	6,694818	48,913898	25,24422
23,450054	6,855498	6,896363	47,880493	25,254819
23,43685	6,771353	6,892608	57,188442	25,323794
23,410473	6,682448	6,827639	88,387123	25,363566
23,492283	6,603264	6,805648	105,284081	25,458985
23,484425	6,785567	6,794249	101,207977	25,579535
23,458048	6,742456	6,775476	110,152374	25,713027
23,492331	6,792205	7,118088	115,668259	25,845591
23,468622	6,95399	7,047152	120,706352	25,959599
23,5056	6,738701	6,756301	141,208359	26,108023
23,558346	6,672793	6,747651	165,755356	26,288249
23,521435	6,667229	6,730085	175,410217	26,476382
23,521435	6,637124	6,725928	177,435486	26,677741
23,570307	6,60065	6,695421	181,946472	26,906838
23,605925	6,592671	6,689521	189,583054	27,183369
23,571627	6,631357	6,687309	201,385834	27,476878
23,587458	6,629548	6,673363	208,635742	27,746844
23,584824	6,603935	6,661965	211,064041	28,035291
23,603338	6,565584	6,6507	218,024734	28,318326
23,653479	6,558075	6,638364	228,342789	28,625113
23,642944	6,582011	6,639369	235,530243	28,955603
23,687746	6,635447	6,661965	241,975739	29,314837
23,690382	6,584357	6,609936	247,81369	29,687133
23,720772	6,524149	6,630184	252,763412	30,051614
23,706314	6,523478	6,620529	255,038055	30,460698
23,72477	6,494111	6,603297	256,624054	30,864482
23,716869	6,447647	6,581709	261,794647	31,276038
23,727449	6,410972	6,563271	264,014557	31,708529
23,776255	6,402457	6,544363	265,618774	32,212987
23,782888	6,366922	6,537189	269,933105	32,722688
23,796082	6,670983	6,724386	273,613251	33,223023
23,852758	6,712351	6,696561	275,193481	33,803345
23,860729	6,662468	6,688381	280,762573	34,388551
23,848909	6,666625	6,680939	281,058838	35,074754
23,896353	6,629279	6,666591	280,520142	35,773194
23,889835	6,615065	6,669608	278,848328	36,484734
23,904348	6,598571	6,637492	284,026733	37,18271
23,949202	6,540844	6,60189	290,389557	37,97197
23,94532	6,535212	6,615299	295,50415	38,782914
23,982201	6,521802	6,601286	299,618713	39,640107

24,048182	6,483384	6,605108	302,083466	40,542519
24,079847	6,505107	6,582446	306,212128	41,431359
24,032423	6,563506	6,555962	309,998901	42,343053
24,111595	6,539033	6,559717	312,773499	43,355782
24,074724	6,520595	6,563472	309,733093	44,436227
24,122147	6,478892	6,540206	307,378937	45,461522
24,193417	6,467359	6,525657	307,317078	46,497746
24,151293	6,423309	6,523176	305,4151	47,559174
24,173759	6,606751	6,356295	303,507568	48,731046
24,1936	6,587777	6,654389	303,075623	49,913964
24,243643	6,561427	6,639302	301,401062	51,02076
24,25696	6,620697	6,616372	299,38736	52,213605
24,28595	6,587844	6,576546	298,677795	53,482873
24,300568	6,567528	6,590022	294,855316	54,704999
24,299303	6,553985	6,578624	290,801605	56,011483
24,375769	6,531524	6,571048	289,117859	57,184045
24,375868	6,513824	6,559784	284,941254	58,479585
24,389154	6,507722	6,547045	284,170441	59,675317
24,455032	6,503967	6,54557	286,895905	60,965771
24,484127	6,464745	6,495754	256,09549	62,312028
24,515755	6,666558	6,771118	248,758682	63,593594
24,539598	6,664346	6,685499	239,746796	64,763814
24,533079	6,648924	6,669676	238,02179	65,940793
24,579325	6,628944	6,629714	241,081024	67,061314
24,574129	6,614864	6,642185	242,100784	68,274258
24,611116	6,579597	6,612483	250,671539	69,504391
24,605892	6,455157	6,531289	268,877075	70,626714
24,663996	6,33883	6,473293	278,36496	71,842686
24,669252	6,280968	6,435545	283,5737	73,087903
24,748436	6,25958	6,428103	290,598053	74,216161
24,706335	6,218078	6,424616	288,613098	75,495961
24,786816	6,225922	6,405642	278,725525	76,552144
24,743425	6,202656	6,401686	275,609039	77,763966
24,769869	6,212847	6,386399	273,77832	78,903531
24,851543	6,19803	6,394177	272,352386	80,005032
24,84763	6,583419	6,817783	269,384583	81,021573
24,909685	6,735952	6,79378	268,082153	82,274831
24,875483	6,726834	6,797602	266,697388	83,520955
24,958578	6,740511	6,786204	265,570068	84,488919
24,954666	6,735818	6,776013	265,533417	85,552686
24,985094	6,738232	6,771118	266,157074	86,824101
25,015436	6,749562	6,771319	268,083649	87,894551
25,065559	6,737695	6,774739	269,047363	88,887105
25,057795	6,711949	6,772526	270,127991	90,039601
25,077545	6,738097	6,767766	270,305054	91,079007
25,129074	6,715704	6,765956	271,742584	92,026105
25,084404	6,726767	6,755831	270,813446	93,099568
25,13331	6,715503	6,767229	270,63855	94,215176

25,137276	6,713223	6,778426	271,372986	95,094861
25,180868	6,719727	6,764749	272,432617	96,168301
25,184927	6,700551	6,774872	272,127533	97,083646
25,256081	6,712821	6,76153	270,397888	98,074155
25,258833	6,730856	6,760524	270,41568	98,976994
25,266932	6,728845	6,778493	272,017487	99,916776
25,322239	6,734075	6,770917	272,441986	100,83315
25,343441	6,745607	6,774671	272,611481	101,644177
25,333099	6,745741	6,778091	272,675201	102,555226
25,358213	6,737829	6,75972	273,541595	103,79585
25,417532	6,740444	6,763542	273,174072	104,504254
25,380877	6,723213	6,77856	273,285645	105,578496
25,454674	6,712419	6,770917	274,658936	106,183659
25,423183	6,713692	6,767296	275,181091	107,0995
25,520708	6,737896	6,753954	276,801544	108,199994
25,478725	6,730588	6,767229	276,960297	108,98029
25,5158	6,73441	6,762402	277,442596	109,769627
25,527693	6,730991	6,752144	278,651062	110,583028
25,534565	6,715168	6,763474	280,806427	111,484189
25,543837	6,734343	6,756837	281,595856	112,218518
25,582129	6,711748	6,755898	283,787781	113,073552
25,592772	6,72918	6,75563	285,420898	113,94299
25,653419	6,706183	6,752144	287,312988	114,466054
25,669394	6,681711	6,752009	289,101379	115,356122
25,65909	6,685532	6,763341	291,338745	116,076405
25,713196	6,664144	6,749059	293,704224	116,763501
25,722521	6,650667	7,498784	294,356873	117,568074
25,7701	6,635246	6,903268	296,535248	118,253079
25,730824	6,647516	6,903738	299,726807	119,110959
25,819103	6,644231	6,91822	302,396729	119,827756
25,817888	6,617881	6,684694	304,550446	120,498029
25,845745	6,625189	6,407654	306,595398	121,300397
25,823566	6,595487	6,397932	308,73764	122,127171
25,892214	6,579396	6,409196	312,638489	122,916043
25,888353	6,583821	6,379091	313,676575	123,784131
25,911097	6,572624	6,356563	316,062775	124,466252
25,941374	6,561293	6,333901	318,519714	125,313969
25,950926	6,535077	6,292399	321,430023	126,104626
25,936584	6,548084	6,281269	323,435913	127,161992
26,001268	6,610238	6,744634	325,654419	127,675999
26,015907	6,588849	6,718955	327,676422	128,567303
26,064718	6,575172	6,697232	330,375153	129,66731
26,088701	6,550298	6,695824	333,069244	130,327863
26,049473	6,54433	6,661831	335,652649	131,336713
26,120796	6,522472	6,654254	337,747894	132,187726
26,139164	6,493575	6,642722	336,900482	133,030133
26,134417	6,762503	6,750333	340,951843	134,194638
26,118742	6,735214	6,738064	340,546234	135,052518

26,184759	6,690494	6,729482	339,761383	135,947446
26,217915	6,695053	6,695757	339,829132	136,910657
26,222	6,659384	6,687845	340,769196	137,781339
26,246149	6,637459	6,658881	340,817902	138,627667
26,25012	6,623177	6,654456	341,428192	139,680753
26,301765	6,606282	6,639101	344,189362	140,419263
26,300961	6,598236	6,623948	343,921844	141,684979
26,286587	6,562902	6,593643	350,074982	142,798108
26,381529	6,544934	6,574736	350,323944	143,439435
26,391075	6,503498	6,554554	350,861511	144,521481
26,350622	6,479964	6,559449	349,872253	145,542706
26,39576	6,482714	6,521768	349,524719	146,692334
26,435236	6,440675	6,520628	348,505829	147,601712
26,425188	6,442284	6,473092	350,870819	148,570309
26,478214	6,429679	6,461694	350,037445	149,699765
26,450712	6,715503	6,707758	350,153625	150,437756
26,510244	6,694047	6,719358	351,082001	151,702527
26,559319	6,651874	6,665518	351,037109	152,775189
26,564716	6,620563	6,635279	349,901123	153,816098
26,542936	6,616473	6,627569	348,413513	155,081418
26,586691	6,606483	6,582245	344,90332	156,141949
26,635593	6,596225	6,594448	344,38504	157,178891
26,635916	6,608829	6,566958	342,10733	157,922833
26,639158	6,557471	6,567093	339,074524	159,277814
26,643463	6,561427	6,555828	334,857605	160,516248
26,68453	6,553917	6,532965	329,991211	161,332806
26,734787	6,523546	6,521835	325,966156	162,399747
26,735199	6,527702	6,524718	322,431824	163,453366
26,761974	6,512549	6,521835	319,995758	164,314847
26,772812	6,516974	6,524383	317,296448	165,326367
26,806101	6,508862	6,525657	314,19516	166,32327
26,819725	6,512214	6,510706	311,621033	167,241803
26,827927	6,508527	6,511443	307,70282	168,14407
26,865198	6,493642	6,497363	306,040802	168,935834
26,823732	6,494179	6,514259	303,173126	169,858487
26,875195	6,522942	6,529412	300,021881	170,72276
26,875813	6,508661	6,519287	296,027618	171,346051
26,888002	6,498201	6,503062	293,443481	171,862347
26,937141	6,500951	6,513454	290,368317	172,437772
26,942743	6,497397	6,512516	287,95697	173,389157
26,957659	6,502626	6,529412	286,47641	174,061185
27,010677	6,501554	6,525389	285,027283	174,653973
26,974487	6,48915	6,521835	282,364563	175,380765
27,033827	6,491966	6,52559	280,349518	175,47572
27,06716	6,507991	6,517544	278,903473	176,260159
27,050467	6,519321	6,536854	276,626801	176,594907
27,056379	6,482714	6,525657	274,722839	176,915952
27,128899	6,495922	6,529344	274,189911	177,345807

27,101753	6,490156	6,533166	274,623444	177,609341
27,132515	6,498872	6,524316	274,580017	177,720227
27,169643	6,477149	6,521902	272,884827	178,032239
27,184494	6,51617	6,522707	271,435791	178,435056
27,224449	6,493441	6,518081	268,145538	178,594464
27,185591	6,491161	6,525523	265,769592	178,754803
27,188723	6,483116	6,524986	263,807526	178,907376
27,26136	6,481641	6,531356	261,998474	178,971448
27,220953	6,499811	6,518483	259,751282	178,800946
27,26626	6,49733	6,528741	258,218628	178,716534
27,329363	6,486937	6,531289	257,334076	178,978741
27,337973	6,469841	6,533166	256,092529	178,997479
27,348734	6,489954	6,519153	254,10379	178,930127
27,322886	6,493374	6,534708	251,174515	178,821545
27,3636	6,489552	6,521835	249,592392	178,600217
27,365593	6,470913	6,536854	247,025055	178,637479
27,354218	6,494179	6,534776	244,821548	178,171201
27,351715	6,472254	6,536921	242,387512	178,144086
27,444025	6,738097	6,827639	241,201294	178,012769
27,425821	6,737964	6,818252	239,01738	177,629315
27,489471	6,760827	6,782583	237,711914	177,354688
27,488548	6,640342	6,867801	235,49971	177,146756
27,498203	6,658579	6,650432	233,517883	176,560086
27,48295	6,666759	6,652108	231,902771	176,281201
27,556635	6,612115	6,634609	230,113235	175,681149
27,532181	6,647985	6,623881	228,345963	175,763898
27,506025	6,625256	6,627502	226,384018	175,070142
27,545582	6,617612	6,631324	226,244034	175,163617
27,571974	6,632967	6,627636	223,440002	174,384244
27,546497	6,624251	6,627636	222,0159	174,034512
27,554337	6,629078	6,623881	220,221329	173,850995
27,570253	6,633034	6,626027	219,015594	173,293774
27,63632	6,632766	6,616372	218,502625	173,079556
27,59584	6,623781	6,601219	216,469711	172,604016
27,65815	6,625256	6,608796	214,654633	171,5453
27,645088	6,623647	6,608594	213,819168	171,713574
27,626101	6,628944	6,604974	212,140213	170,988217
27,63294	6,621233	6,612617	211,322845	170,238522
27,646002	6,617747	6,60484	209,795105	169,847867
27,671478	6,63652	6,600281	208,108765	169,59332
27,66787	6,632766	6,622004	206,772354	169,092984
27,678322	6,634978	6,608662	205,338928	168,180447
27,689245	6,641616	6,612483	204,57402	167,645474
27,7237	6,632631	6,607119	202,958267	167,183957
27,708128	6,644968	6,604236	201,510437	166,115506
27,760674	6,62881	6,597331	200,931076	165,643567
27,768726	6,651472	6,606718	199,807816	165,059201
27,788769	6,636788	6,604974	198,7397	164,690335

27,790369	6,643292	6,608662	197,159592	164,024625
27,785147	6,629011	6,603097	195,742844	163,364606
27,751295	6,624652	6,60484	195,205887	162,717984
27,772928	6,620094	6,594514	193,896912	162,082013
27,773039	6,632498	6,60665	192,566864	161,310147
27,775648	6,614327	6,627636	191,57135	160,861493
27,786119	6,647583	6,606248	190,983017	160,467496
27,786346	6,628407	6,62368	190,498001	159,721402
27,87458	6,625122	6,608528	189,266296	159,099377

Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
22,714457	23,413384	25,439144	24,514192	27,948719
22,743662	23,39214	25,478939	24,511541	28,328206
22,756928	23,400097	25,49752	24,48525	28,658081
22,775521	23,439932	25,470985	24,501033	28,551475
22,807377	23,455845	25,473637	24,514192	28,504537
22,833928	23,479742	25,476288	24,506288	28,595056
22,890908	23,484908	25,545139	24,540265	29,08785
22,962445	23,503346	25,625881	24,584713	29,448569
23,08289	23,649041	25,672058	24,589842	29,824031
23,159867	23,741949	25,725122	24,568808	30,212906
23,305851	23,834828	25,812689	24,597722	30,585019
23,438542	23,970162	25,916126	24,624008	31,144194
23,611023	24,163866	26,046104	24,639791	31,966194
23,841807	24,370789	26,202581	24,647668	32,971238
24,077864	24,628037	26,409422	24,673955	33,893137
24,376166	24,940852	26,628111	24,677852	34,580375
24,713972	25,278633	26,91683	24,71311	35,268281
25,108439	25,669176	27,243748	24,768025	36,049381
25,51375	26,026766	27,614601	24,820589	36,823781
25,918888	26,484867	27,972076	24,823216	37,565994
26,37682	26,918932	28,39032	24,881029	38,229094
26,887436	27,366055	28,893072	24,90731	39,026956
27,416317	27,916104	29,387636	24,94409	39,852981
28,038565	28,422093	29,994091	24,966337	40,620013
28,668377	28,996497	30,627995	25,026706	41,589519
29,311139	29,583958	31,2682	25,068665	42,44035
30,043053	30,239508	31,998837	25,198418	43,291856
30,778574	30,848694	32,789804	25,235188	44,013956
31,547816	31,486536	33,598625	25,277234	44,787012
32,305975	32,129229	34,467365	25,379688	45,584875
33,181662	32,897597	35,375896	25,432067	46,227187
34,04632	33,557784	36,356056	25,54891	46,744125
34,93923	34,254439	37,377388	25,653964	47,459525
35,87332	35,060851	38,416061	25,715573	48,063625
36,806517	35,86925	39,544018	25,893856	48,462556
37,794077	36,758452	40,654011	26,040889	49,059944
38,879832	37,594195	41,912895	26,175893	49,295281
39,910029	38,434889	43,096333	26,370132	49,328806
40,975859	39,429324	44,343796	26,545938	49,576881
42,051165	40,40457	45,5457	26,70863	50,053588
43,198473	41,395888	46,942875	26,964229	50,5189
44,400431	42,478835	48,322773	27,224852	51,013038

45,604021	43,491843	49,733898	27,439789	51,314081
46,823588	44,620078	51,200855	27,707197	51,922869
48,044695	45,677081	52,674126	28,026922	52,661731
49,324438	46,873652	54,096832	28,317733	52,962106
50,629774	48,153048	55,70541	28,693075	53,4254
51,929346	49,135901	57,230312	29,089696	53,76065
53,296519	50,332137	58,662292	29,463946	53,782106
54,634188	51,4989	60,039078	29,94533	53,782775
56,033842	52,664488	61,361794	30,472044	53,847813
57,431487	53,910975	62,592323	31,046684	53,753275
58,886423	54,92393	63,86245	31,609567	53,817644
60,241187	56,03588	65,04055	32,267419	53,733831
61,763766	57,255381	66,252708	32,975564	53,859881
63,163527	58,221457	67,448036	33,755059	53,669469
64,684904	59,450198	68,584862	34,607808	53,682875
66,110548	60,233424	69,639214	35,470652	53,473675
67,590765	61,18894	70,588905	36,414551	52,879638
68,934554	62,225672	71,687988	37,381129	52,442488
70,459334	63,05303	72,762268	38,376348	52,3218
71,981123	63,43933	72,21508	39,446034	58,491513
73,45555	64,354208	73,221313	40,557574	59,664844
74,868185	65,522528	74,53495	41,655025	57,192138
76,347212	66,908972	75,729645	42,738139	54,994994
77,605566	68,103674	76,895264	43,704472	53,404619
78,925841	69,267271	77,860191	44,649402	52,096525
80,232909	70,569121	78,883812	45,626604	51,258431
81,502135	71,547057	79,864258	46,539162	51,032481
82,60681	72,712714	80,749527	47,321002	51,271837
83,765494	73,782805	81,71312	48,136861	51,723737
84,855101	74,727003	82,98851	48,98702	52,205813
85,879195	75,736708	84,175262	49,750619	52,35935
87,059637	76,792891	85,650902	50,542146	52,338563
87,99156	77,713942	87,108849	51,309877	51,944994
88,971335	78,798376	88,478279	51,97597	51,402581
89,883353	79,736479	89,791794	52,606012	50,824631
90,743864	80,511046	91,021812	53,303462	50,491406
91,763289	81,603583	92,320595	53,986674	50,495431
92,710982	82,5381	93,587875	54,68236	50,346588
93,608366	83,30905	94,699234	55,294478	50,031463
94,475409	83,98255	95,74939	55,895093	50,024088
95,350378	85,105528	96,728745	56,47857	49,9262
96,176352	85,800902	97,819542	57,077368	49,824288
96,939581	86,486395	98,779236	57,601969	49,516537
97,764845	87,475905	99,987518	58,140082	49,550731
98,549139	88,030035	101,038605	58,6477	49,476313
99,197882	88,835867	102,156448	59,173131	49,365681
99,912482	89,36933	103,299126	59,694223	49,442787
100,559058	90,134238	104,374115	60,224526	49,634544

101,168227	90,788283	105,393837	60,694586	49,704944
101,888701	91,522169	106,468285	61,215365	49,781375
102,33486	92,023024	107,517792	61,631733	49,7331
102,954741	92,836188	108,523415	62,133225	49,550063
103,626746	93,468764	109,51918	62,578643	49,426694
104,164198	94,101759	110,502731	63,002443	49,324112
104,607802	94,871397	111,499321	63,463979	49,265112
105,176703	95,453024	112,429283	63,882535	49,2812
105,635222	96,182104	113,368736	64,29203	49,373725
106,244337	96,838713	114,172729	64,734347	49,409263
106,769537	97,664076	115,080582	65,134865	49,176606
107,281393	98,292548	116,126785	65,573141	49,301319
107,73403	99,017477	116,855408	65,922585	49,450831
108,292113	99,671332	117,673149	66,278352	49,555425
108,894286	100,488326	118,859581	66,717791	49,656669
109,40724	101,092169	119,866714	67,128347	49,643931
109,856093	101,892874	120,692085	67,539719	49,804175
110,331442	102,644934	121,473633	67,88507	49,909437
110,852652	103,464812	122,511154	68,267461	50,110581
111,329176	104,118437	123,46225	68,710548	50,081075
111,845435	105,037619	124,217613	69,082652	50,174944
112,343199	105,767249	125,091095	69,393364	50,184331
112,718741	106,458388	125,896904	69,818739	50,1146
113,217139	107,269537	126,695343	70,157692	50,272163
113,665602	108,041502	127,572571	70,582765	50,614775
114,190398	108,785689	128,32972	70,990459	50,846756
114,620863	109,633894	128,935547	71,3188	51,037175
115,010046	110,329199	129,839264	71,731449	51,330169
115,589934	111,108015	130,590668	72,108401	51,570869
116,146376	111,707159	131,350128	72,51824	51,755919
116,611777	112,447646	132,079941	72,923313	51,965113
117,133078	113,332808	132,843872	73,227363	52,33655
117,628798	113,822089	133,859085	73,656545	52,545738
118,213423	114,530569	134,67807	74,035998	52,763644
118,646445	115,307318	135,352158	74,382096	53,108938
119,357268	115,914618	136,162689	74,718292	53,444844
119,992186	116,563788	136,949585	75,115275	53,639281
120,49269	117,335112	137,959183	75,558514	53,997331
121,114836	118,076277	138,794312	75,982281	54,441181
121,719244	118,839095	139,590485	76,32992	54,741556
122,340651	119,485442	140,418564	76,756466	54,848163
123,08576	120,415137	141,562149	77,218489	55,05735
123,720801	121,122382	142,213516	77,667982	55,198819
124,319418	121,892996	143,214951	78,224328	55,439519
124,965437	122,598242	144,065735	78,750265	55,720444
125,644659	123,418089	144,919586	79,25451	55,945725
126,355566	124,033339	145,744461	79,695053	56,140163
127,145926	124,740973	146,755661	80,147181	56,396956

127,791571	125,587881	147,825531	80,746958	56,424444
128,418021	126,501295	148,765976	81,289754	56,483444
129,081229	127,041251	149,671921	81,811749	56,803263
130,000677	127,962027	150,528076	82,298546	57,017144
130,841345	128,675116	151,461456	82,827165	57,162637
131,600684	129,324072	152,233032	83,317844	57,436856
132,370657	130,236456	153,180222	83,950975	57,507256
133,064764	130,961157	154,202713	84,580761	57,689625
133,725806	131,643637	155,000168	85,205168	57,829756
134,532538	132,450598	155,923264	85,796848	58,049675
135,25611	133,215338	156,895691	86,451973	58,129456
136,146933	134,041586	157,748901	87,115317	58,262213
136,980872	134,880942	158,675293	87,787293	58,251487
137,738806	135,665686	159,351532	88,449557	58,307131
138,484732	136,376257	160,381165	89,069432	58,461344
139,489554	137,209113	160,977676	89,650258	58,577337
140,412344	137,790656	162,065247	90,353384	58,602144
141,119818	138,64791	163,04129	91,045565	58,630975
142,020895	139,494711	163,969269	91,801419	58,613544
142,754111	140,335425	164,538284	92,555286	58,655781
143,641302	141,110098	165,489349	93,337153	58,49755
144,311224	141,781729	166,359283	94,007	58,368819
145,212454	142,644553	166,988647	94,702369	58,280988
146,121863	143,290045	168,076691	95,55923	58,287687
146,883032	144,206656	168,881668	96,321761	58,085206
147,467368	145,037039	169,756027	97,140638	57,784162
148,181204	145,9	170,688461	97,912784	57,298744
148,86843	146,85343	171,270325	98,701796	56,870981
149,45867	147,675635	172,102356	99,593469	56,525687
150,163702	148,439795	172,982925	100,462552	56,221962
150,872733	149,250601	173,846085	101,315327	55,726481
151,278677	149,898306	174,512711	102,154431	55,322188
151,916022	150,652258	175,315674	103,124544	55,061369
152,330038	151,498511	176,203308	104,034836	54,777087
152,928992	152,203665	177,003738	105,000719	54,539069
153,36582	152,834753	177,850082	105,854272	54,219925
153,805167	153,377844	178,586456	106,720787	53,7573
154,232657	153,96105	179,1073	107,627839	53,457581
154,559058	154,555182	179,904175	108,56607	53,154531
154,925208	155,314505	180,711624	109,589787	52,853487
155,12641	155,747656	181,519424	110,619516	52,496794
155,446036	156,623282	182,068405	111,643067	52,222569
155,576453	157,34194	182,916321	112,710086	52,065681
155,648322	157,980734	183,62764	113,635552	51,774694
155,775946	158,63822	184,18071	114,609351	51,379788
155,949255	159,141272	184,688522	115,555331	51,114281
156,090216	159,754858	185,162445	116,563715	50,836031
156,155478	160,222052	185,788193	117,465616	50,574544

156,183173	160,846594	186,218018	118,295128	50,469281
156,265555	161,095999	186,739029	119,23928	50,349938
156,294775	161,618063	187,351273	120,225383	50,264787
156,19303	162,343039	187,589432	121,208079	50,084431
156,219717	162,5073	188,149567	122,090357	49,919494
156,262	162,889014	188,3582	123,048075	49,620462
156,189841	163,447379	188,891388	123,923487	49,478994
156,208289	163,703711	189,177933	124,710754	49,308019
156,163916	164,14173	189,618423	125,575086	49,111575
156,231894	164,542639	190,005676	126,380246	48,9111
156,106161	164,83634	190,552002	127,251889	48,77835
155,90882	165,304221	190,841415	128,025327	48,558431
155,887122	165,790503	191,184082	128,848252	48,309013
155,782996	165,953528	191,425201	129,613185	48,072338
155,572058	166,498785	191,583008	130,36786	47,753863
155,274496	166,887701	191,687256	131,295049	47,611725
155,041113	167,076163	191,939056	132,100209	47,275812
154,892798	167,566672	191,846252	132,892454	47,011644
154,723486	167,749915	191,780579	133,567731	46,768931
154,613837	167,79769	192,112503	134,244217	46,467887
154,401846	167,923376	192,226318	134,970946	46,268087
154,083044	168,078223	192,122879	135,572203	46,102481
153,941687	168,209265	192,367935	136,151541	45,978444
153,62963	168,38288	192,414581	136,819976	45,768581
153,371039	168,556677	192,079437	137,433635	45,538612
152,997824	168,81864	192,17038	137,974286	45,3958
152,622061	168,818518	192,025513	138,596238	45,230194
152,259589	169,06716	192,041412	139,134593	45,096769
151,838675	169,053656	191,942093	139,720155	44,883556
151,485556	169,080145	191,750244	140,287574	44,740075
151,167349	168,863333	191,786316	140,818466	44,572456
150,786353	168,935294	191,70694	141,300898	44,288175
150,36843	168,804129	191,322342	141,707481	44,022669
150,097998	168,581702	191,146484	142,104759	43,834937
149,548514	168,42919	190,783356	142,394753	43,727662
149,162421	168,423499	190,694595	142,861701	43,565406
148,595862	168,209448	190,308685	143,258193	43,368956
148,127509	168,013831	190,010864	143,691182	43,2771
147,696768	167,564398	190,024277	144,03793	43,14435
147,329581	167,491812	189,608536	144,384391	43,1182
146,872427	167,280478	189,469193	144,676031	42,855375
146,474844	166,973914	189,175415	145,07914	42,734687
145,878363	166,830801	188,999832	145,393198	42,639481
145,487753	166,318457	188,537399	145,661106	42,620037
145,054724	166,089667	188,203552	145,984394	42,634119
144,493048	165,859564	187,87381	146,27605	42,462475
144,024298	165,404776	187,42601	146,478443	42,339113
143,47486	165,196173	187,014526	146,74129	42,12925

142,929404	164,806921	186,609634	147,03707	41,956937
142,394919	164,460715	186,168747	147,183056	41,921406
141,700003	164,189261	185,786713	147,441976	41,821506
141,235876	163,78414	185,460907	147,640517	41,781275
140,668555	163,344366	184,963608	147,841611	41,687413
140,18891	163,07038	184,487854	147,981026	41,67065
139,615179	162,514365	184,128525	148,142632	41,588181
139,012671	162,315283	183,5215	148,362352	41,472856
138,584921	161,927756	183,33107	148,422837	41,279094

Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range
Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [100ppm
1,811822	24,455944	38,803264	3,495808	-0,040905
3,371772	23,520748	39,331188	3,484812	-0,042246
2,050072	25,113114	38,50864	3,471804	-0,042916
2,162299	25,917788	39,94428	3,460809	-0,040905
4,030667	24,760491	39,324377	3,444449	-0,043184
7,541755	24,230119	38,449046	3,417898	-0,042514
7,540052	25,048054	38,910548	3,396108	-0,041709
7,2783	24,835489	38,948013	3,375793	-0,042111
8,57037	25,632299	39,338014	3,349242	-0,043989
8,970234	24,663534	38,626147	3,321686	-0,041172
9,543466	24,083854	38,716412	3,291648	-0,043184
11,328557	24,14808	38,930995	3,251219	-0,040503
12,578904	24,099184	39,099587	3,207302	-0,041308
13,262831	24,148906	38,859462	3,163521	-0,04238
13,274921	24,377215	38,549518	3,120074	-0,042246
13,735928	24,518096	40,186104	3,077096	-0,041978
13,897713	23,374896	39,448694	3,034119	-0,041709
14,465835	24,322522	39,487874	2,991008	-0,040636
14,979972	23,973638	39,17793	2,947159	-0,042514
14,976226	24,021285	38,566552	2,902103	-0,041709
15,623029	23,966179	39,932358	2,857248	-0,042111
16,069386	25,221673	38,988891	2,806963	-0,041709
15,890912	24,975956	38,55463	2,756409	-0,04238
16,296227	24,211062	39,460617	2,704513	-0,042782
16,455628	25,435895	40,967789	2,649199	-0,042916
17,1479	24,531356	40,264447	2,592477	-0,043586
17,117246	25,218772	40,167371	2,537431	-0,042246
17,15914	25,442523	40,167371	2,481781	-0,041709
17,518304	24,628729	39,215395	2,422981	-0,042647
17,51575	25,036451	40,058374	2,366393	-0,042111
17,469256	24,824303	40,293387	2,306452	-0,042111
17,654543	24,835906	39,784197	2,250066	-0,042514
17,826036	24,866566	40,518193	2,192271	-0,040636
18,114696	23,999327	39,332902	2,138097	-0,041172
18,118782	23,705962	39,496383	2,075876	-0,042111
18,306794	24,885628	39,888083	2,019959	-0,042246
18,351073	23,758585	39,348222	1,964108	-0,043184
18,057644	24,321691	41,286242	1,911074	-0,041172
18,146712	24,403735	40,240603	1,855357	-0,042246
18,697807	24,57942	39,590045	1,800177	-0,041308
19,278532	24,305531	39,353333	1,73789	-0,042647
18,895697	23,46108	39,525339	1,677346	-0,041172

18,928223	23,754445	39,664991	1,619417	-0,04305
19,322298	24,423209	39,903402	1,555454	-0,043184
19,536026	23,625167	39,911911	1,492296	-0,042246
19,091542	26,42371	43,098246	1,430007	-0,042782
19,447639	27,047728	43,68578	1,368592	-0,041844
19,190827	26,731575	43,443956	1,308987	-0,042246
19,411877	26,615143	43,449051	1,252399	-0,043184
18,907447	27,367609	45,094162	1,197487	-0,042647
18,91528	26,794556	43,983801	1,14519	-0,043453
19,156426	27,261119	43,488231	1,093094	-0,04238
18,865893	26,140295	43,118677	1,039859	-0,04305
18,996173	27,340675	43,35369	0,993194	-0,043453
18,632241	27,051872	45,693618	0,945657	-0,042782
18,764394	27,695774	43,663634	0,90154	-0,042782
18,407101	25,685749	43,423509	0,856752	0,069615
18,181623	25,615308	43,660237	0,816725	0,078063
18,044701	27,354349	44,213703	0,780586	0,089146
18,101412	27,127697	43,668746	0,746727	0,100148
18,516433	26,523984	43,307701	0,261506	0,111855
16,386997	27,098694	45,492656	9,807388	10,990551
17,307812	27,082533	43,661935	7,14024	15,394095
16,473338	27,408628	43,508662	7,116237	22,480073
16,788054	26,492494	43,563161	7,091564	22,480206
16,893129	27,597574	44,212004	7,065147	22,480073
17,035502	27,358493	44,862546	7,034976	22,480073
17,315817	26,757681	43,619358	6,995351	18,854951
18,062924	25,833675	42,759346	6,943255	15,826685
18,253319	27,172448	44,002533	6,890153	11,486434
18,212618	26,496225	42,997757	6,837119	17,910119
18,756049	26,156869	43,520584	6,779324	22,480073
18,52001	25,95425	43,430319	6,720926	22,480073
18,205466	28,548927	44,908535	6,664672	22,480073
18,008429	26,60064	43,595514	6,611906	22,480206
17,995314	26,511142	43,321337	6,561687	22,479939
18,09426	26,072756	42,439179	6,513614	22,480073
17,985948	26,955742	42,675891	6,464402	22,480341
18,102434	26,90726	42,973913	6,419279	22,480206
17,494461	26,190431	43,680668	6,370937	22,480341
17,506042	27,068446	44,009344	6,326284	22,480206
17,749061	26,554649	44,121739	6,279217	22,480073
17,911867	27,653924	46,616638	6,230674	22,479939
18,139899	26,933367	43,512075	6,186759	22,480073
17,721642	26,640002	43,711322	6,138216	22,480206
17,639217	26,637102	43,730055	6,088869	22,480073
17,872527	26,871629	43,610849	6,040126	22,480206
17,799129	27,806821	45,8554	5,988163	22,480206
17,881895	27,067616	43,379233	5,937676	22,480341
18,096303	26,688067	43,433732	5,886519	22,480341

18,281931	26,624672	43,478008	5,836032	22,480206
18,176003	27,089161	43,34688	5,786551	22,479939
17,787718	26,760582	43,68578	5,735394	22,480341
17,975389	26,708373	43,214038	5,684841	22,480206
18,220111	26,64332	43,275347	5,636634	22,480341
18,017114	26,032976	43,304303	5,586884	22,480475
18,180431	28,087339	46,150024	5,536599	20,338579
18,084382	27,314569	43,752185	5,486112	18,457896
18,148925	27,900464	45,972907	5,440319	17,186271
18,125424	26,583652	43,357088	5,388357	16,269868
18,016603	26,875356	43,6994	5,340685	15,5475
18,341196	26,766797	44,130264	5,290064	15,006695
17,989183	27,072174	44,254581	5,243333	17,385406
18,266432	26,327167	43,295794	5,192041	19,67722
18,213299	27,194406	45,002198	5,139878	18,959009
18,292659	26,207835	43,220848	5,090464	15,810191
18,143476	26,064467	43,867993	5,041051	19,29867
18,557135	26,260871	44,04511	4,991502	20,1369
18,326889	27,3183	44,131962	4,937328	22,480073
18,33864	26,682683	42,725279	4,887177	22,480073
18,113843	26,407967	43,472896	4,834276	22,480341
18,693549	26,385178	44,150695	4,779901	22,480206
18,502981	26,095958	43,607436	4,726129	22,480206
18,565481	26,398851	43,334958	4,672959	22,479804
18,832174	27,064302	44,179651	4,617981	22,480206
18,750429	27,119412	43,505249	4,563941	22,480073
18,783638	26,485452	43,321337	4,509901	22,480341
18,779892	26,748979	44,470862	4,451234	22,480341
18,7053	26,397607	44,019567	4,394311	22,480206
18,970287	26,750636	44,2699	4,339533	22,480206
19,236126	27,903782	46,286263	4,278051	22,480206
19,319915	26,862513	43,808398	4,218646	22,480206
19,598015	26,027174	43,506964	4,159846	22,480341
19,485105	27,664283	44,297157	4,096821	22,480206
19,585241	26,180071	43,796476	4,037215	22,480206
19,307993	26,770111	44,114928	3,973051	22,480341
19,452749	26,538488	43,861182	3,912641	22,480341
19,910346	27,506002	43,634678	3,850421	22,480475
19,722675	27,063889	43,595514	3,787128	22,480206
19,669371	27,098276	43,719831	3,727658	22,480475
19,957007	26,454375	44,506628	3,663493	22,480206
19,87884	27,015824	43,583592	3,595708	22,480206
19,809187	27,308354	44,18816	3,531342	22,480206
20,040114	26,910161	43,709624	3,469994	22,480206
20,135653	26,256727	43,27195	3,407037	22,480206
20,098868	26,339183	43,42181	3,339051	22,480341
20,054079	26,393463	44,470862	3,281054	22,480341
20,187934	26,089743	43,702797	3,214477	22,480341

20,186572	27,09538	44,108118	3,152257	22,480341
20,055781	26,887372	43,730055	3,090037	22,480206
20,46331	26,378963	43,360501	3,031303	22,480341
20,424653	26,086016	43,96337	2,965396	22,480206
20,142635	27,216369	44,394217	2,90398	22,480206
20,47966	26,770941	43,852673	2,842632	22,480475
20,38344	25,693207	43,840751	2,781216	22,480475
20,391955	27,091648	44,356752	2,718124	22,480206
20,576049	27,47078	44,770582	2,652015	22,480475
20,662732	26,550918	44,20178	2,591538	22,480341
20,608236	25,786436	42,854707	2,525496	22,480609
20,11181	25,951763	44,286934	2,467836	22,480206
20,723188	26,91845	43,861182	2,404677	22,480341
20,402002	26,820246	43,84926	2,346949	22,480341
20,26508	25,858951	43,575083	2,285601	22,480475
19,992261	26,338357	43,942923	2,22908	22,480475
19,909323	25,721384	44,385708	2,170346	22,480206
20,596485	26,390149	43,314527	2,110607	22,480206
20,046586	26,209905	43,09142	2,052946	22,480475
20,261845	26,623846	42,813829	2,001722	22,480475
19,998901	26,639589	42,74571	1,947614	22,480206
19,978126	25,606193	43,450766	1,893507	22,480475
19,934528	25,722628	42,980739	1,843959	22,480341
19,973696	26,503266	43,072687	1,791997	22,480073
19,715693	25,328575	43,484818	1,747009	22,480073
19,75401	26,40921	43,018204	1,702824	17,639381
19,343756	25,889611	43,241295	1,665479	14,370011
19,418859	25,142534	42,435766	1,626055	14,837736
19,059865	26,274544	43,324734	1,590252	17,050165
19,110785	26,755194	44,275012	1,557331	19,024179
18,962624	25,875108	42,25695	1,524344	22,480206
18,617422	26,147337	42,854707	1,492296	21,706883
18,76184	25,905772	42,149667	1,459443	18,78844
18,777849	26,083115	42,149667	1,429203	17,7071
18,58779	26,352443	42,897284	1,399031	19,378322
18,581829	27,214298	43,752185	1,374023	19,724152
18,302707	26,163497	42,898983	1,350221	19,108524
18,587279	25,186868	42,679305	1,325547	16,04298
17,952399	25,929805	42,279096	1,304494	16,200005
18,056793	25,666274	42,088358	1,282704	15,414209
17,778182	25,940577	42,916017	1,259774	15,216956
17,837956	25,51172	42,469834	1,239526	14,733142
17,77188	25,819171	42,788286	1,216729	15,415684
17,720961	25,824142	42,251838	1,195677	13,353304
17,658461	25,800527	42,92624	1,176434	8,649253
17,413738	26,536001	43,363914	1,15813	5,711635
17,551513	26,615143	43,018204	1,13701	4,030754
17,368609	26,059496	42,348914	1,114013	2,516151

17,637003	26,987233	42,636728	1,096647	1,643194
17,191496	26,69967	43,161254	1,076667	1,583924
17,395176	26,463077	42,139443	1,054542	2,801102
17,186729	25,550669	42,091771	1,039992	3,870913
17,147389	26,186703	42,711658	1,018739	5,134757
17,211762	26,10673	43,297493	1,004189	5,61549
16,857707	26,61473	43,052256	0,988769	6,795926
16,896875	26,114606	42,808733	0,972207	7,310448
16,706991	26,601057	42,984136	0,954574	8,668964
16,495138	27,051455	43,043747	0,941098	9,627206
16,419012	25,643072	42,837674	0,929968	10,930476
16,489858	26,182972	43,042032	0,91448	14,418554
16,322964	26,964028	42,502187	0,900668	13,021686
16,425143	26,180071	42,389792	0,888734	14,103966
16,24156	26,849667	43,234485	0,877671	12,065591
16,020852	26,158113	43,260028	0,869693	10,930476
16,045885	26,550918	43,123789	0,859434	8,649253
16,101403	26,289461	42,335293	0,853064	7,383529
15,802185	25,890438	43,268537	0,845891	8,797561
16,059509	26,50534	42,641839	0,837442	10,759238
15,94643	25,467799	42,762743	0,832883	12,065591
15,542306	25,563103	41,722217	0,827519	14,103966
15,550652	26,077313	41,975963	0,821016	14,751245
15,518976	26,464734	42,614582	0,813708	16,181767
15,243256	25,934362	42,611185	0,809081	17,128343
15,108379	26,181728	42,035557	0,805394	17,879814
15,290433	25,141704	42,108789	0,799829	19,015596
15,110422	26,259627	42,752536	0,791381	19,291161
15,005687	25,873451	41,926575	0,787961	20,656115
14,76335	26,025517	42,226295	0,781525	20,898559
14,986613	26,066541	43,006282	0,777837	21,271745
14,938929	26,504096	43,581893	0,771334	22,479402
14,974522	25,609093	42,423844	0,768585	22,479536
14,631878	26,473019	42,635029	0,762081	22,479536
14,488144	26,487109	43,052256	0,757723	22,479536
14,277483	25,723041	42,190545	0,755913	22,479804
14,413043	27,414843	44,96132	0,745923	22,479402
14,290426	26,374405	42,124124	0,74485	22,479536
14,209533	25,574288	42,417034	0,737743	22,479402
14,146522	26,218608	42,85812	0,733921	22,479804
14,064096	26,424954	43,048859	0,729429	22,47967
14,013858	25,999415	42,674193	0,724736	22,479536
14,19659	26,389322	41,729027	0,720981	22,47967
13,703741	26,437387	42,17521	0,716422	22,47967
14,17377	26,354513	43,065877	0,712801	22,479804
13,873189	26,186703	42,071324	0,707169	22,47967
13,891412	26,398438	43,002869	0,704622	22,47967
13,490521	26,205348	43,159539	0,699258	22,479536

13,509084	26,722046	43,426922	0,697381	22,47967
13,544847	25,823729	42,682702	0,69081	22,479536
13,457653	26,210319	42,004903	0,686318	22,47967
13,329588	25,176509	42,956895	0,685379	22,47967
13,46106	25,989469	41,923162	0,680015	22,47967
13,363478	25,736714	42,204166	0,674316	22,479804
13,288375	26,840551	42,265475	0,672372	22,47967
13,540419	25,141704	41,594486	0,667879	22,479804
13,070049	27,041096	42,905793	0,662315	22,479804

CO high range	CO2 - [%]
CO-Høj - [%]	CO2 - [%]
-0,01388	-0,011136
-0,016555	-0,013549
-0,01754	-0,012879
-0,016736	-0,012745
-0,016716	-0,012343
-0,01561	-0,012476
-0,014564	-0,013148
-0,016575	-0,012611
-0,016716	-0,013684
-0,014785	-0,01194
-0,016233	-0,013281
-0,015147	-0,011404
-0,015851	-0,01127
-0,018848	-0,013148
-0,017259	-0,012343
-0,017681	-0,013951
-0,015066	-0,012745
-0,012351	-0,011806
-0,018425	-0,014086
-0,016575	-0,011537
-0,016716	-0,01422
-0,016796	-0,012209
-0,016836	-0,013951
-0,016475	-0,012476
-0,015489	-0,013684
-0,019411	-0,01489
-0,015268	-0,012611
-0,017219	-0,011806
-0,015589	-0,013148
-0,015469	-0,012343
-0,018405	-0,013281
-0,017661	-0,012074
-0,015167	-0,011537
-0,014423	-0,012074
-0,016756	-0,013684
-0,017983	-0,013684
-0,015448	-0,012476
-0,015931	-0,012209
-0,017701	-0,014086
-0,014201	-0,011001
-0,017359	-0,012074
-0,015992	-0,010867

-0,017963	-0,013281
-0,019411	-0,013012
-0,016072	-0,012343
-0,018808	-0,013951
-0,01577	-0,012476
-0,01754	-0,012745
-0,017601	-0,013684
-0,017882	-0,012343
-0,01744	-0,013415
-0,014021	-0,01127
-0,017138	-0,013281
-0,016575	-0,013281
-0,016897	-0,013415
-0,016716	-0,012745
6,158171	-0,000107
6,049689	0
5,980898	0
5,883948	0
5,738723	-0,000107
0,131426	5,622865
0,130963	2,588026
0,461018	3,443285
0,611794	4,687149
0,475882	4,663682
0,370222	4,804884
0,24835	6,642119
0,175174	8,610365
0,137239	9,184693
0,163488	9,487882
0,272708	10,779485
0,414151	12,286445
0,452208	12,876864
0,516634	12,25614
0,433924	12,223286
0,493542	12,232672
0,503439	12,073771
0,54425	12,236964
0,529909	12,619269
0,523794	12,507031
0,524478	12,850314
0,516452	12,863053
0,45428	12,819471
0,448326	12,672236
0,382753	12,81451
0,346225	12,977971
0,313077	12,928356
0,299923	13,025308
0,280995	13,355986

0,279627	13,689346
0,276349	13,844091
0,266634	13,695514
0,370443	11,940076
0,816295	12,034612
0,540006	11,881209
0,257663	11,384924
0,191044	10,965475
0,180786	10,903255
0,173243	10,73215
0,16387	10,693663
0,167189	11,147977
0,179821	11,466587
0,208222	11,688111
0,194786	11,797667
0,171534	12,051109
0,189375	12,440251
0,206794	12,783534
0,250683	13,038716
0,255671	13,161011
0,304227	13,138618
0,653994	13,052126
1,070399	13,412574
1,474675	13,566515
1,826574	14,190056
1,792862	15,139985
1,967896	14,833176
1,972603	14,785841
1,855136	15,298217
1,812433	15,546292
1,861834	15,712167
1,998912	15,740864
2,055795	15,852431
2,088742	15,969228
2,175093	16,208319
2,334056	16,175331
2,614791	16,550663
2,615253	16,480934
2,54958	16,227494
2,443719	16,323238
2,442894	16,010797
2,409263	16,13175
2,350167	16,065374
2,309637	15,835267
2,240847	15,978749
2,159947	16,112172
2,058591	16,052233
2,081924	15,59336

2,015708	15,620849
2,02844	15,184907
1,955848	15,166134
1,863021	14,89781
1,848036	14,387711
1,70625	13,809495
1,598679	13,689346
1,508809	13,726759
1,453655	13,496651
1,36111	13,537149
1,227069	13,590384
1,249798	13,484718
1,312071	13,403992
1,331662	13,290413
1,088944	13,117966
0,800305	13,008411
0,61282	12,832612
0,519228	12,765029
0,546583	12,625303
0,535903	12,611089
0,442613	12,532375
0,357691	12,485576
0,332467	12,269818
0,287512	12,053523
0,272225	11,900786
0,205768	11,85573
0,154738	11,668802
0,15677	11,483215
0,17439	11,566621
0,198788	11,685296
0,20792	11,573326
0,23433	11,340136
0,200337	11,015224
0,194021	10,874559
0,196234	10,907277
0,208101	10,781363
0,198205	10,739659
0,174671	10,779351
0,167128	10,683874
0,168637	10,764333
0,163568	10,912508
0,158218	11,016163
0,166304	10,656384
0,150896	10,370628
0,103487	10,066635
0,073175	9,814538
0,050366	9,370011
0,034374	8,93112

0,020737	8,34821
0,020133	7,555036
0,029708	6,935519
0,042199	6,537258
0,053986	6,399005
0,059618	6,251367
0,069615	6,158171
0,078063	6,049689
0,089146	5,980898
0,100148	5,883948
0,111855	5,738723
0,136615	4,252547
0,150092	2,131165
0,136374	5,058457
0,117346	5,115045
0,111855	5,738723
0,103487	10,066635
0,064083	5,736175
0,077902	5,465569
0,097272	5,304119
0,117346	5,115045
0,136374	5,058457
0,14798	5,013134
0,159183	4,936162
0,171554	4,894058
0,181068	4,851549
0,192151	4,82111
0,198366	4,802202
0,211943	4,751916
0,216006	4,747224
0,221095	4,700961
0,233002	4,67441
0,236985	4,658721
0,245795	4,608837
0,25718	4,557211
0,265829	4,541254
0,270596	4,501294
0,286024	4,474877
0,306057	4,373904
0,325709	4,370418
0,340372	4,331797
0,350812	4,298274
0,360688	4,28044
0,360487	4,286876
0,362619	4,244369
0,359742	4,244234
0,364047	4,122475
0,366762	4,073932

0,368391	4,078491
0,375673	4,099009
0,370664	4,046577
0,372837	4,0447
0,377061	4,069374
0,373299	4,029279
0,383819	4,020562
0,38223	4,003666
0,38225	4,007154

		Ambient temperature	Main train filter temp	Split train 1H filter temp	Split train rem. filter temp
Datotid	Scantime	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]	Filter-3-D2 - [°C]
10:54:50	Start of CS&HF				
10:54:51	3,064	24,347052	28,804321	28,306211	
10:55:21	3,065	24,247	28,225879	27,74317	
10:55:51	3,065	24,038914	27,911074	27,635977	
10:56:21	3,065	24,162727	27,732087	27,591547	
10:56:51	3,065	24,368122	27,663851	27,564093	
10:57:21	3,065	24,404991	27,712154	27,613813	
10:57:51	3,064	24,489218	27,708731	27,620321	
10:58:21	3,066	24,497107	27,735989	27,654329	
10:58:51	3,066	24,549746	27,829855	27,753654	
10:59:21	3,065	24,562904	27,93841	27,841227	
10:59:51	3,064	24,612917	28,056616	27,924889	
11:00:21	3,065	24,694508	28,151649	28,092142	
11:00:51	3,064	24,660295	28,224845	28,184845	
11:01:21	3,065	24,647137	28,486591	28,250122	
11:01:51	3,066	24,676075	28,739475	28,370237	
11:02:21	3,065	24,694475	29,378199	28,505972	
11:02:51	3,065	24,715528	30,013449	28,644272	
11:03:21	3,066	24,789188	30,595922	28,897308	
11:03:51	3,065	24,889153	31,142649	29,197145	
11:04:21	3,064	24,97333	31,440831	29,500725	
11:04:51	3,065	25,020657	31,725753	29,787161	
11:05:21	3,064	25,041693	31,903723	30,023962	
11:05:51	3,064	24,983818	31,696552	30,173521	
11:06:21	3,065	25,00223	31,120615	30,129318	
11:06:51	3,064	25,067945	30,663517	30,012239	
11:07:21	3,065	24,904932	30,36203	29,947201	
11:07:51	3,066	25,207333	30,310085	30,047462	
11:08:21	3,065	25,375488	30,229473	30,011024	
11:08:51	3,064	25,170523	30,193075	30,005821	
11:09:21	3,065	25,183676	30,276291	30,037039	
11:09:51	3,065	25,491056	30,293158	30,046141	
11:10:21	3,064	25,477915	30,302254	30,053915	
11:10:51	3,066	25,278318	30,376442	30,184072	
11:11:21	3,066	25,858707	30,398544	30,29722	
11:11:51	3,065	25,470123	29,919966	30,359613	
11:12:21	3,065	25,716951	29,581541	30,242613	
11:12:51	3,065	26,168238	29,423918	29,749519	
11:13:21	3,065	25,730125	29,467009	29,571251	
11:13:51	3,065	26,121122	29,605038	29,519161	
11:14:21	3,063	26,430542	29,688354	29,540003	
11:14:51	3,065	25,795763	29,727417	29,623331	
11:15:21	3,064	26,060871	29,843327	29,752306	

11:15:51	3,065	26,092337	29,860228	29,800463
11:16:21	3,065	25,801054	29,852428	29,764002
11:16:51	3,065	26,163313	29,959284	29,883894
11:17:21	3,065	25,570137	29,938425	29,840916
11:17:51	3,066	25,039341	29,94619	29,839592
11:18:21	3,064	25,247147	30,040047	29,920431
11:18:51	3,066	25,764523	29,633984	29,613237
11:19:21	3,064	26,965221	28,953819	28,980005
11:19:51	3,064	26,582949	28,633169	28,646305
11:20:21	3,064	26,090038	28,494841	28,429699
11:20:52	3,065	26,234316	28,489664	28,354034
11:21:22	3,064	25,785755	28,552385	28,296661
11:21:52	3,065	26,299898	28,581066	28,327969
11:22:22	3,065	27,093893	28,732546	28,474329
11:22:52	3,065	27,530853	28,782112	28,508253
11:23:22	3,066	27,067863	28,937447	28,68325
11:23:52	3,064	25,444624	29,400003	29,276692
11:24:22	3,065	25,79932	30,138269	30,113651
11:24:52	3,065	26,792992	29,913149	29,809166
11:25:22	3,065	27,146561	29,818209	29,694666
11:25:52	3,065	27,138807	29,823507	29,676577
11:26:22	3,065	27,246103	29,837851	29,70912
11:26:52	3,065	27,413815	29,942181	29,86554
11:27:22	3,065	27,09441	29,934267	29,918781
11:27:52	3,065	27,390379	30,081526	30,069916
11:28:22	3,065	26,914024	30,180351	30,146673
11:28:52	3,065	27,081467	30,228386	30,210331
11:29:22	3,065	26,712547	30,072607	30,157288
11:29:52	3,065	26,589241	29,30965	29,367119
11:30:22	3,066	26,340403	28,86141	28,891542
11:30:52	3,065	27,139561	28,715492	28,688248
11:31:22	3,065	27,322584	28,527491	28,566788
11:31:52	3,065	27,404041	28,535648	28,654522
11:32:22	3,066	27,50083	28,55653	28,628429
11:32:52	3,064	26,945837	28,566814	28,632215
11:33:22	3,064	26,713106	28,791534	28,761702
11:33:52	3,065	27,514069	28,860638	28,811232
11:34:22	3,065	27,336353	29,022495	28,940504
11:34:52	3,064	26,744747	29,094244	29,017479
11:35:22	3,064	25,90815	29,062782	29,008228
11:35:52	3,065	27,592957	29,216959	29,145452
11:36:22	3,065	26,577271	29,326399	29,228846
11:36:52	3,064	27,375845	29,368128	29,286215
11:37:22	3,064	26,952078	29,428242	29,356743
11:37:52	3,065	26,446346	29,443802	29,352812
11:38:22	3,066	26,860647	29,553486	29,453386
11:38:52	3,065	26,420452	29,616001	29,474207
11:39:22	3,065	26,189631	29,62508	29,50288

11:39:52	3,065	26,648685	29,736006	29,596878	
11:40:22	3,064	26,643412	29,708649	29,605961	
11:40:52	3,065	26,38685	29,801329	29,68046	
11:41:22	3,065	26,502176	29,811729	29,68306	
11:41:52	3,065	27,23313	29,793804	29,730217	
11:42:22	3,064	27,913034	29,176458	29,253534	
11:42:52	3,064	28,140293	28,713577	28,767252	
11:43:22	3,064	28,344276	28,535133	28,586205	
11:43:52	3,066	28,221569	28,480326	28,544462	
11:44:22	3,066	28,454187	28,57716	28,633471	
11:44:52	3,066	28,613386	28,652834	28,698683	
11:45:22	3,067	28,057219	28,804148	28,827833	
11:45:52	3,066	28,621489	28,994808	28,998905	
11:46:22	3,067	28,25865	29,135569	29,160547	
11:46:52	3,066	28,454737	29,331308	29,330231	
11:47:22	3,066	28,188423	29,432919	29,424006	
11:47:52	3,067	27,969275	29,553047	29,604034	
11:48:22	3,066	28,452429	29,654606	29,674345	
11:48:52	3,066	27,533022	29,79027	29,854261	
11:49:22	3,067	27,276651	29,863155	29,958357	
11:49:52	3,067	27,376595	30,104345	30,174772	
11:50:22	3,067	27,441784	29,678659	29,86759	
11:50:52	3,066	29,087553	29,210325	29,381186	
11:51:22	3,066	27,238007	28,798134	29,099537	
11:51:52	3,068	26,636391	28,725679	29,029688	
11:52:22	3,066	26,400198	28,628883	28,940823	
11:52:52	3,066	27,181437	28,778202	29,095238	
11:53:22	3,067	26,358583	28,790983	29,095005	
11:53:52	3,067	26,249149	30,200697	28,316984	
11:54:22	3,066	26,020584	30,411051	27,969275	
11:54:52	3,067	26,771021	30,516928		31,903149
11:55:22	3,067	28,726244	30,402475		31,708881
11:55:52	3,067	28,316984	30,415926		31,407395
11:56:22	3,067	28,810266	30,391312		31,199395
11:56:52	3,067	27,460125	30,33567		30,854874
11:57:22	3,067	26,897892	29,132057		30,42243
11:57:52	3,067	26,92374	28,077597		29,136341
11:58:22	3,065	27,309242	27,843075		28,492647
11:58:52	3,066	27,342875	27,759119		28,177847
11:59:22	3,066	26,7651	27,927111		28,179741
11:59:52	3,066	26,647614	28,079042		28,297674
12:00:22	3,068	26,485083	28,2057		28,463434
12:00:52	3,066	26,357092	28,36414		28,679195
12:01:22	3,065	26,223455	28,510452		28,787642
12:01:52	3,065	26,826582	28,719482		28,922216
12:02:22	3,065	27,813427	28,899889		29,055618
12:02:52	3,066	28,176605	29,032892		29,126009
12:03:22	3,066	28,811289	29,247051		29,259392

12:03:52	3,067	28,835024	29,305992	29,320923
12:04:22	3,067	27,395924	29,34132	29,338009
12:04:52	3,066	27,914062	29,422535	29,385389
12:05:22	3,067	27,689501	29,508745	29,442936
12:05:52	3,066	27,592985	29,54283	29,471832
12:06:22	3,067	27,156563	29,603209	29,51399
12:06:52	3,067	27,151924	29,68186	29,569107
12:07:22	3,066	27,138723	29,379667	29,319103
12:07:52	3,066	27,578856	28,742853	28,332397
12:08:22	3,066	27,298855	28,203741	27,554977
12:08:52	3,065	26,400991	27,995287	27,280821
12:09:22	3,067	27,705488	27,935877	27,217382
12:09:52	3,067	27,18992	27,776258	27,192362
12:10:22	3,066	26,530468	27,847349	27,394388
12:10:52	3,066	26,462688	27,979683	27,632654
12:11:22	3,066	27,046993	28,075218	27,849899
12:11:52	3,067	27,481894	28,336891	28,148293
12:12:22	3,066	26,526274	28,383888	28,27887
12:12:52	3,066	26,718069	28,564552	28,501326
12:13:22	3,067	26,771492	28,728552	28,727785
12:13:52	3,066	27,305099	28,765989	28,801939
12:14:22	3,067	26,823965	28,920448	28,95118
12:14:52	3,065	27,149191	28,970459	29,03108
12:15:22	3,065	26,735462	29,025293	29,089916
12:15:52	3,066	26,581635	29,149881	29,171387
12:16:22	3,067	26,796278	29,13275	29,168709
12:16:52	3,068	27,087498	29,22456	29,221432
12:17:22	3,066	29,683102	29,305849	29,26745
12:17:52	3,066	29,232452	29,298098	29,263725
12:18:22	3,067	28,327951	29,32485	29,289108
12:18:52	3,066	29,800837	29,251806	29,206989
12:19:22	3,066	29,204973	29,327988	29,244095
12:19:52	3,065	28,77998	29,174234	29,105963
12:20:22	3,068	28,013054	29,151367	29,077904
12:20:52	3,067	27,916842	29,167479	29,040529
12:21:22	3,066	28,342772	29,123335	28,982073
12:21:52	3,065	28,037743	29,108229	28,961765
12:22:22	3,067	26,776915	29,019669	28,878418
12:22:52	3,066	26,795879	28,973389	28,808653
12:23:22	3,066	26,311045	28,897766	28,719944
12:23:52	3,067	27,066076	28,92046	28,719177
12:24:22	3,066	26,88295	28,835815	28,663197
12:24:52	3,066	26,71842	28,795931	28,670275
12:25:22	3,066	26,943834	28,833868	28,674299
12:25:52	3,067	26,403948	28,730791	28,643082
12:26:22	3,067	27,585594	28,761509	28,672377
12:26:52	3,066	26,967403	28,664476	28,610765
12:27:22	3,067	26,709433	28,788242	28,704374

12:27:52	3,066	26,255323	28,727758	28,653187
12:28:22	3,066	26,560759	28,833267	28,731136
12:28:52	3,066	26,001566	28,731022	28,65386
12:29:22	3,066	26,528631	28,678846	28,599068
12:29:53	3,066	26,961716	28,657494	28,573772
12:30:23	3,067	26,521439	28,716051	28,589321
12:30:53	3,067	26,721258	28,695786	28,568993
12:31:23	3,067	26,482805	28,701088	28,566544
12:31:53	3,066	26,697701	28,667179	28,511744
12:32:23	3,066	27,093811	28,686131	28,50983
12:32:53	3,066	26,656473	28,654829	28,44459
12:33:23	3,067	26,042965	28,615704	28,4237
12:33:53	3,067	26,654545	28,655548	28,453142
12:34:23	3,067	27,267265	28,605968	28,39572
12:34:53	3,067	27,763924	28,605782	28,385166
12:35:23	3,067	26,998367	28,601454	28,39904
12:35:53	3,065	26,833374	28,604059	28,36511
12:36:23	3,066	26,63105	28,556652	28,311369
12:36:53	3,067	27,168869	28,5562	28,322546
12:37:23	3,067	26,985992	28,544756	28,300571
12:37:53	3,066	26,914583	28,465912	28,261116
12:38:23	3,066	26,652618	28,424164	28,227177
12:38:53	3,067	27,060011	28,448917	28,2047
12:39:23	3,067	27,294945	28,419764	28,200539
12:39:53	3,067	27,553823	28,346561	28,170462
12:40:23	3,066	26,981102	28,35601	28,187674
12:40:53	3,067	27,813833	28,405104	28,226236
12:41:23	3,066	28,320181	28,376015	28,223455
12:41:53	3,067	28,64122	28,396906	28,246958
12:42:23	3,066	27,14641	28,302906	28,15554
12:42:53	3,067	28,024784	28,259693	28,147711
12:43:23	3,066	27,228262	28,345428	28,213753
12:43:53	3,067	27,115726	28,319319	28,216366
12:44:23	3,066	26,515923	28,321928	28,190248
12:44:45	End of HF			

Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature	Split train dry gas meter temperature
Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]	Gasm-D - [°C]
24,169468	19,300856	21,405224	26,849939	26,534294
24,168139	18,448456	20,491648	27,40354	26,927261
24,178692	18,133741	19,936533	27,518644	26,974396
24,181322	17,949615	19,572289	27,547409	27,02153
24,190552	17,869555	19,315588	27,56706	27,042484
24,212975	17,848257	19,10401	27,603695	27,066101
24,241953	17,736126	18,981529	27,547503	27,07135
24,205069	17,722763	18,792416	27,565792	27,073986
24,244583	17,642647	18,720469	27,529188	27,058271
24,244574	17,63199	18,615223	27,565819	27,118486
24,240662	17,637329	18,516623	27,567142	27,094944
24,330229	17,586649	18,524658	27,542345	27,143419
24,247276	17,613361	18,398031	27,543665	27,104143
24,249918	17,575951	18,331369	27,565893	27,136906
24,257811	17,565277	18,310028	27,537127	27,121193
24,265705	17,522526	18,246029	27,531904	27,136906
24,244633	17,519855	18,224686	27,513588	27,087172
24,247263	17,487803	18,174	27,476957	27,118576
24,289404	17,48514	18,148684	27,509674	27,13299
24,307911	17,549316	18,128706	27,480944	27,118633
24,317137	17,530628	18,095367	27,511045	27,122562
24,310547	17,530628	18,056705	27,509754	27,134357
24,336861	17,503914	18,059385	27,48229	27,134382
24,36319	17,490566	18,019346	27,453522	27,160557
24,371103	17,493237	17,949949	27,448296	27,157942
24,365843	17,495907	17,859205	27,461359	27,11344
24,488327	17,498678	17,892647	27,503302	27,193359
24,451488	17,493317	17,833925	27,492849	27,159319
24,488327	17,442574	17,844593	27,44315	27,151474
24,535707	17,399815	17,849953	27,435308	27,167189
24,458059	17,455921	17,804577	27,475872	27,151485
24,473837	17,43988	17,784561	27,466702	27,165909
24,579205	17,517445	17,827358	27,486399	27,1856
24,588438	17,570898	17,826017	27,487719	27,16206
24,617382	17,525478	17,842043	27,464176	27,169903
24,598957	17,541519	17,815348	27,477266	27,190847
24,652889	17,474716	17,84473	27,447201	27,217037
24,720079	17,496218	17,906229	27,443378	27,214544
24,670115	17,549644	17,823479	27,479988	27,211901
24,683254	17,54431	17,807451	27,482624	27,209288
24,688513	17,530937	17,823479	27,438152	27,219769
24,774124	17,58983	17,876982	27,455263	27,204184

24,793856	17,555088	17,887672	27,459198	27,238218
24,806992	17,55242	17,852955	27,446131	27,253929
24,892622	17,592609	17,877104	27,456676	27,274942
24,892603	17,608646	17,841082	27,477636	27,268423
24,888647	17,622013	17,791702	27,469797	27,280228
24,963737	17,710257	17,837198	27,506529	27,267233
24,965036	17,718285	17,798506	27,503923	27,262032
25,012348	17,656845	17,842558	27,472567	27,277773
25,074297	17,702406	17,872057	27,483122	27,304024
25,050634	17,72644	17,842693	27,498827	27,322346
25,094076	17,761225	17,83346	27,504171	27,319841
25,100708	17,782648	17,781441	27,56698	27,35391
25,117788	17,753279	17,788116	27,512098	27,314684
25,203377	17,788153	17,816319	27,525307	27,351456
25,150812	17,84955	17,698845	27,561932	27,35668
25,21274	17,884424	17,732384	27,61569	27,3948
25,290255	17,836393	17,739073	27,569956	27,393492
25,370548	17,908598	17,755234	27,571383	27,405371
25,3456	17,908636	17,71254	27,593666	27,414623
25,370611	17,879307	17,695221	27,587156	27,439497
25,404875	17,884808	17,711386	27,603001	27,444887
25,379934	17,919527	17,656694	27,620029	27,437065
25,431372	17,922367	17,68355	27,630615	27,463356
25,419514	17,892984	17,691586	27,628038	27,477789
25,478792	17,954563	17,707764	27,639954	27,487066
25,467005	17,930555	17,713104	27,637375	27,506741
25,411816	17,90653	17,678438	27,643955	27,504166
25,471142	17,936111	17,683969	27,701633	27,523933
25,430393	17,925446	17,630589	27,76704	27,574993
25,5172	17,858812	17,693434	27,699148	27,568525
25,502878	17,917646	17,636127	27,775043	27,615685
25,475245	17,89362	17,612095	27,754192	27,590912
25,552975	17,923216	17,663044	27,809254	27,673449
25,500452	17,947241	17,593616	27,811867	27,636829
25,522753	17,840469	17,607006	27,801466	27,640841
25,566353	17,891413	17,64193	27,867001	27,715519
25,533485	17,888746	17,609886	27,844805	27,682859
25,590164	17,856924	17,610098	27,926027	27,744497
25,605974	17,827585	17,652857	27,898613	27,765453
25,596737	17,782215	17,652905	27,862082	27,766829
25,658712	17,854542	17,674477	27,901487	27,794447
25,590456	17,873234	17,594353	27,919764	27,778776
25,610237	17,884035	17,582499	27,943462	27,789404
25,648451	17,87348	17,607971	27,956612	27,823475
25,636625	17,84145	17,590645	27,961876	27,83918
25,688112	17,881758	17,613586	28,022202	27,909996
25,653963	17,897785	17,541483	28,030054	27,883865
25,627785	17,911213	17,542919	28,055021	27,908842

25,643719	17,927406	17,549765	28,082573	27,925955
25,627979	17,911407	17,528416	28,081293	27,923346
25,667639	17,919701	17,571434	28,127283	27,978518
25,630865	17,930367	17,523346	28,11421	27,965439
25,71649	17,933338	17,559689	28,132784	27,990549
25,715164	17,893288	17,526329	28,138027	27,973587
25,675795	17,866592	17,507624	28,126286	27,965752
25,715462	17,928293	17,534632	28,208843	28,078407
25,689209	17,933626	17,523956	28,187944	28,039207
25,784006	17,947279	17,60441	28,216991	28,104828
25,781387	17,941944	17,567001	28,183023	28,078709
25,753868	17,934011	17,555094	28,18578	28,084049
25,784319	17,950275	17,583355	28,240807	28,178305
25,771183	17,920918	17,570011	28,21208	28,14694
25,816114	17,971941	17,607731	28,293373	28,196913
25,755749	17,998631	17,55431	28,293373	28,165577
25,840067	18,014996	17,613426	28,306759	28,20509
25,808575	18,00964	17,554642	28,314583	28,225986
25,871895	18,084713	17,587051	28,338442	28,231543
25,89814	18,001993	17,592388	28,325375	28,218496
25,960197	18,015688	17,632774	28,373964	28,293161
25,961456	17,980976	17,598085	28,372736	28,297182
25,954	18,053406	17,562338	28,433037	28,289593
25,94606	17,970682	17,563753	28,365259	28,302771
26,05669	18,013746	17,586739	28,409916	28,342169
26,017246	17,992393	17,545401	28,407393	28,33709
26,091162	17,982088	17,565758	28,43899	28,352993
26,04121	17,942066	17,516418	28,470419	28,337486
26,151863	17,889053	17,528744	28,494194	28,405603
26,112425	17,851692	17,482069	28,512564	28,421421
26,187628	17,902792	17,543852	28,50897	28,415171
26,174559	17,897545	17,548	28,548281	28,468851
26,187994	17,88451	17,570982	28,553734	28,44688
26,223595	17,847359	17,597902	28,586586	28,504562
26,196268	17,914291	17,558039	28,582853	28,455124
26,253088	17,968077	17,615873	28,662832	28,503809
26,186134	17,944078	17,591888	28,673382	28,513058
26,30855	17,861746	17,645689	28,634541	28,54599
26,287477	17,819023	17,633753	28,621607	28,561817
26,345676	17,878195	17,627417	28,694986	28,559471
26,456215	17,881313	17,673283	28,698044	28,62776
26,373608	17,921339	17,642574	28,699385	28,59779
26,477634	17,964518	17,76186	28,737623	28,649101
26,498812	17,943432	17,800865	28,764053	28,709444
26,525251	17,988985	17,770338	28,756334	28,657393
26,588598	18,026814	17,810858	28,806376	28,707418
26,559776	18,016148	17,746763	28,772472	28,683933
26,547136	18,118011	17,757925	28,845966	28,736601

26,590693	18,115702	17,81839	28,884172	28,800886
26,610495	18,113152	17,801132	28,84383	28,778818
26,663387	18,108324	17,833672	28,875622	28,784533
26,63479	18,09256	17,804564	28,899351	28,792604
26,637659	18,071468	17,820826	28,917841	28,821548
26,677452	18,077318	17,826685	28,934013	28,882048
26,659506	18,085623	17,83898	28,931644	28,865309
26,612452	18,131186	17,79516	28,973639	28,882553
26,647026	18,169062	17,833071	28,975416	28,884357
26,657518	18,110373	17,873125	28,924597	28,877874
26,715662	18,126911	17,935061	29,016388	28,967072
26,742466	18,162138	17,946199	29,046835	28,967476
26,724047	18,087431	17,972973	29,027355	28,962387
26,690544	18,16803	17,984205	29,059189	28,970764
26,705185	18,181559	17,977709	29,073708	28,976105
26,785391	18,133905	18,03013	29,08843	29,033897
26,775463	18,219845	18,009359	29,107231	29,018818
26,767612	18,139814	18,017357	29,081165	29,037077
26,720999	18,233757	18,017948	29,123438	29,040243
26,789743	18,223665	18,053144	29,16172	29,086262
26,747772	18,237015	18,015858	29,131838	29,053856
26,740486	18,234928	17,984423	29,171522	29,088341
26,765709	18,171225	17,972683	29,15612	29,079401
26,777744	18,144829	17,971704	29,18775	29,109808
26,811125	18,198803	17,954929	29,22353	29,125963
26,801924	18,169462	17,910927	29,188362	29,162533
26,865383	18,186081	17,932892	29,24111	29,178778
26,848705	18,213074	17,883783	29,225698	29,138575
26,839787	18,192049	17,877485	29,244316	29,174204
26,900644	18,222012	17,920828	29,304884	29,230827
26,848265	18,17135	17,896801	29,252766	29,213926
26,786024	18,206648	17,886768	29,282074	29,209343
26,775557	18,161316	17,873434	29,240372	29,191092
26,799753	18,169975	17,935459	29,295742	29,259518
26,750393	18,18372	17,893166	29,340448	29,269009
26,698242	18,202627	17,869417	29,348518	29,25235
26,756439	18,240564	17,907364	29,372526	29,2868
26,714605	18,179293	17,886103	29,351768	29,297302
26,744087	18,158634	17,99353	29,355047	29,339659
26,707397	18,110609	17,948175	29,297729	29,27453
26,669956	18,167225	17,952803	29,385654	29,346817
26,708075	18,116636	17,975542	29,355711	29,348158
26,717779	18,159908	17,998888	29,347252	29,342302
26,664217	18,210699	17,95756	29,41111	29,356663
26,712801	18,197598	17,989939	29,358107	29,337521
26,706812	18,256737	18,022316	29,364916	29,349537
26,654259	18,256737	18,023788	29,393742	29,344591
26,678698	18,318792	17,996357	29,459396	29,389345

26,649694	18,32412	17,968456	29,451759	29,407829
26,731777	18,348852	18,007755	29,460114	29,405682
26,68969	18,314169	17,982525	29,468094	29,439806
26,673985	18,311502	17,987858	29,43684	29,405947
26,786047	18,312241	18,075268	29,45706	29,424807
26,72184	18,378895	17,975233	29,487062	29,443144
26,803497	18,355268	18,012888	29,437841	29,429026
26,751379	18,419651	17,965328	29,498213	29,451691
26,733034	18,40098	17,933281	29,479969	29,415207
26,80971	18,431059	17,992746	29,535408	29,504513
26,794006	18,439051	18,014099	29,449438	29,457623
26,791391	18,431059	18,003435	29,441629	29,4342
26,839258	18,511776	18,068245	29,507492	29,489634
26,88117	18,525116	18,076244	29,481445	29,494837
26,832661	18,567751	17,976215	29,50239	29,468889
26,921185	18,555182	18,061001	29,51606	29,526854
26,897617	18,539202	17,988941	29,539501	29,545092
26,856888	18,525864	17,965023	29,557915	29,534857
26,888964	18,510448	18,000202	29,525782	29,510555
26,882652	18,478653	17,989719	29,52984	29,519796
26,839302	18,499985	17,973808	29,5795	29,539568
26,841917	18,459982	17,965811	29,582127	29,53697
26,972437	18,455442	18,05722	29,543629	29,551825
26,915991	18,474089	18,025286	29,556841	29,544201
26,908142	18,439436	18,017288	29,543829	29,561192
26,912294	18,474293	18,01878	29,519218	29,552221
26,945662	18,517544	18,040722	29,557526	29,591772
26,906273	18,552191	18,020756	29,557627	29,585403
26,812002	18,602835	17,972713	29,601883	29,598436
26,822472	18,573519	17,978048	29,557627	29,572393
26,791143	18,589705	18,008974	29,590527	29,619646
26,820633	18,696901	17,992191	29,639126	29,651291
26,804909	18,688913	17,973501	29,620916	29,635681
26,78133	18,670254	17,96817	29,639126	29,630478

Room blank dry gas meter temperature	Main train flow rate Flow-H - [ln/min]	Split train flow rate Flow-D - [ln/min]	EPA Flue gas temperature	Surface temperature Top
Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C	Ovf-Top - [°C]
23,336746	6,885736	6,546945	30,552017	25,438439
23,343342	6,54547	6,502056	45,734402	25,417216
23,343342	6,52435	6,497162	43,886051	25,419865
23,32489	6,540844	6,503934	38,792675	25,422515
23,334143	6,541648	6,517343	41,314663	25,433142
23,389595	6,505979	6,500715	55,545891	25,475558
23,351353	6,461326	6,478389	75,701981	25,515351
23,406754	6,437658	6,417442	100,734619	25,568391
23,356625	6,494782	6,443859	122,821907	25,639993
23,350048	6,441479	6,461359	127,602081	25,682402
23,389624	6,378387	6,409866	139,31308	25,775214
23,37385	6,320593	6,37889	152,509033	25,902476
23,433216	6,275202	6,36709	166,064575	26,024398
23,438517	6,611511	6,507219	183,128799	26,148978
23,443785	6,569272	6,64708	192,891342	26,338431
23,430611	6,522741	6,586536	196,573959	26,600367
23,441151	6,484859	6,544698	204,758362	26,837354
23,443785	6,453146	6,525188	222,410324	27,112706
23,449074	6,655964	6,609064	233,624298	27,403947
23,479464	6,612852	6,571249	244,090012	27,716285
23,516401	6,592403	6,541212	251,757233	28,062943
23,513756	6,592939	6,573797	258,877411	28,435908
23,515127	6,564444	6,557907	266,835907	28,824616
23,491388	6,531591	6,515063	266,68689	29,215823
23,504562	6,514561	6,486032	266,786102	29,653065
23,573143	6,493977	6,465784	271,536194	30,113536
23,592983	6,477819	6,413286	276,695496	30,543868
23,64045	6,67105	6,461426	282,475586	31,008292
23,614082	6,640811	6,707222	289,5	31,504176
23,587713	6,584424	6,662032	296,703857	32,020915
23,678728	6,689957	6,638833	300,666138	32,605908
23,668184	6,645169	6,640509	303,669525	33,245839
23,72625	6,620227	6,57487	309,527222	33,937882
23,746042	6,561896	6,537256	313,548309	34,714761
23,75131	6,535212	6,492066	318,578156	35,449242
23,75131	6,520126	6,55375	319,433716	36,273885
23,734224	6,471181	6,502928	320,967133	37,100541
23,783079	6,411442	6,472086	323,916992	38,020951
23,825239	6,507454	6,49743	326,177582	38,974614
23,822605	6,478422	6,461828	324,409393	39,898484
23,809437	6,455894	6,428371	321,750977	40,900052
23,892586	6,365447	6,405709	315,872345	41,924477

23,870197	6,486066	6,47336	309,527344	42,966199
23,867567	6,461727	6,453983	305,774933	44,033097
23,907183	6,425522	6,469672	304,28595	45,162934
23,945423	6,398971	6,431388	303,338989	46,386555
23,94939	6,530317	6,552342	302,484985	47,527249
24,044334	6,506314	6,533501	300,04599	48,761945
24,062807	6,479026	6,487172	306,069397	49,946233
24,023336	6,443357	6,477249	302,521088	51,176255
24,052397	6,550498	6,518282	297,067261	52,44502
24,049765	6,512952	6,478657	294,186981	53,669076
24,147366	6,652209	6,609198	290,612732	55,041177
24,16847	6,614529	6,555292	288,179901	56,347562
24,163235	6,616406	6,553414	285,743652	57,618119
24,197622	6,615199	6,544698	283,268402	58,996049
24,245033	6,606953	6,544766	280,323792	60,334657
24,305756	6,567596	6,537189	281,460785	61,639031
24,247833	6,531725	6,481607	260,145264	63,083367
24,297966	6,588179	6,554219	248,569214	64,325589
24,348099	6,644633	6,632597	243,248856	65,608853
24,305992	6,637124	6,594045	259,991211	66,869824
24,371979	6,622172	6,517075	283,047302	68,171536
24,40756	6,490357	6,398736	297,312256	69,473973
24,428707	6,319856	6,249154	308,836761	70,740361
24,440657	6,410235	6,368029	320,931458	72,055524
24,456549	6,588112	6,540877	327,187225	73,396169
24,481585	6,524014	6,447077	335,245941	74,759488
24,509306	6,480568	6,389417	340,05899	75,963689
24,552855	6,548152	6,450899	335,540466	77,214215
24,591097	6,546945	6,507085	317,524933	78,603391
24,568815	6,543927	6,502727	314,500305	79,931187
24,655722	6,546945	6,507085	316,544464	81,408604
24,670279	6,531725	6,479528	314,144989	82,575856
24,658575	6,534072	6,485629	304,785461	83,977719
24,708567	6,520394	6,628776	298,306488	85,275784
24,688934	6,742389	6,677386	294,241394	86,643658
24,727221	6,730856	6,693343	292,380737	87,870229
24,782494	6,742322	6,683621	291,406219	89,017339
24,812946	6,746479	6,671754	289,900116	90,373807
24,782724	6,72556	6,689119	289,425629	91,673917
24,797316	6,745339	6,68865	288,803741	93,003316
24,875042	6,711949	6,705546	288,945099	94,007771
24,88295	6,712419	6,696025	289,487274	95,397397
24,943613	6,610707	6,687912	288,419647	96,692494
24,917383	6,625659	6,679196	289,618225	97,820042
24,905626	6,618351	6,685968	289,383209	99,033368
24,936087	6,648321	6,689521	290,24054	100,180264
24,983425	6,629413	6,698237	290,56955	101,23969
25,025663	6,616674	6,684761	291,235931	102,598904

25,04681	6,628206	6,686102	291,472656	103,564801
25,034979	6,618417	6,681141	293,812134	104,7403
25,099667	6,62539	6,691868	294,251678	105,892766
25,112822	6,600181	6,684761	295,464203	106,887578
25,16568	6,640744	6,687175	298,007385	108,11971
25,155176	6,62177	6,696092	300,925323	109,02197
25,15913	6,640744	6,690594	303,595428	110,250089
25,189659	6,618283	6,672223	306,972626	111,33862
25,231693	6,607958	6,671754	309,818878	112,35471
25,229401	6,617747	6,671016	313,05365	113,3242
25,232025	6,618216	6,631994	314,975067	114,503339
25,259754	6,595554	6,669273	317,296509	115,701535
25,261269	6,574568	6,639637	320,076141	116,840031
25,242865	6,580602	6,616774	320,880066	117,869923
25,319391	6,557203	6,581641	321,931335	118,927693
25,350941	6,548286	6,60484	324,109222	120,093411
25,369665	6,537826	6,560924	326,549286	121,264111
25,377541	6,502895	6,574132	328,178802	122,456265
25,464584	6,471382	6,52968	330,079895	123,389684
25,396301	6,644432	6,620395	334,812592	124,478627
25,441196	6,584827	6,541816	340,097595	125,4772
25,422918	6,576848	6,501855	340,592804	126,700185
25,515078	6,558007	6,486702	341,690399	127,821416
25,4942	6,527769	6,458341	340,443909	128,964017
25,48657	6,512751	6,532496	340,666504	130,20657
25,518229	6,512885	6,525858	340,063354	131,244138
25,55261	6,516774	6,515332	338,477783	132,474896
25,607901	6,483719	6,516739	337,878784	133,384824
25,571379	6,377114	6,680939	337,518463	134,690778
25,589914	6,531792	6,495754	337,455872	135,546277
25,646633	6,509063	6,385394	337,497589	136,729565
25,638973	6,479361	6,299238	338,183655	137,830487
25,686422	6,486669	6,277313	338,17218	138,783994
25,67882	6,460186	6,22857	337,955261	140,173093
25,732821	6,452609	6,175938	337,931061	141,287885
25,801432	6,479026	6,147442	337,726959	142,416302
25,788479	6,512147	6,454587	339,243622	143,513837
25,765112	6,478221	6,394646	339,825714	144,497739
25,77841	6,490223	6,439635	338,481628	145,622693
25,875793	6,453212	6,476578	336,63205	146,732419
25,826378	6,478959	6,469739	336,023285	147,930157
25,882837	6,452475	6,437356	335,949097	149,181973
25,887203	6,637593	6,420191	335,441528	150,019162
25,890171	6,594213	6,563539	334,529694	151,304059
25,924406	6,585027	6,518349	334,068146	152,07803
25,951109	6,572959	6,529814	333,527618	153,108395
25,94062	6,576714	6,516807	331,804199	154,201352
25,996183	6,565651	6,488512	330,610962	155,204388

25,99527	6,512214	6,480467	329,353455	156,278363
26,015059	6,50323	6,457604	329,746643	157,267316
26,052282	6,539033	6,440909	328,196472	158,119366
26,091877	6,509599	6,510906	327,348633	159,166257
26,052773	6,505376	6,488311	327,059845	159,940106
26,095255	6,498	6,614427	326,247742	161,00491
26,105959	6,50913	6,568165	326,117645	162,043378
26,108912	6,496458	6,568098	325,105591	162,871289
26,156578	6,472455	6,535714	324,839478	163,741956
26,122555	6,550498	6,525992	322,076416	164,805463
26,15193	6,560421	6,483819	321,018433	165,610074
26,229691	6,531725	6,465448	320,046417	166,410718
26,199699	6,519791	6,447279	319,417816	167,155103
26,268433	6,499676	6,594179	316,502472	168,171338
26,2607	6,497799	6,541078	313,016327	168,924298
26,242756	6,494715	6,575004	310,634186	169,919278
26,345602	6,488479	6,547917	307,369324	170,661496
26,261702	6,486937	6,547783	305,62085	171,441602
26,330452	6,489485	6,514594	302,864929	172,114484
26,322941	6,482714	6,518416	301,959351	172,774274
26,336285	6,494111	6,529881	299,563385	173,669492
26,373587	6,479093	6,522372	299,303925	174,242413
26,335762	6,619691	6,589084	297,294891	175,05351
26,366316	6,60769	6,591498	297,398315	175,627881
26,40617	6,606953	6,567763	297,069672	176,05473
26,387894	6,589721	6,571316	296,828094	176,716229
26,419973	6,561762	6,567561	296,606598	177,198056
26,442448	6,569204	6,575138	294,782715	177,546185
26,425852	6,572959	6,533569	294,97876	178,048123
26,47756	6,573161	6,536317	291,786041	178,566434
26,455328	6,574367	6,529948	291,358459	179,034894
26,526733	6,543056	6,559985	288,138458	179,329602
26,458578	6,572893	6,540944	286,295746	179,950894
26,47233	6,56545	6,510974	284,627533	180,221524
26,510704	6,563103	6,529143	282,685211	180,676602
26,541155	6,565517	6,522238	280,079071	180,775739
26,581043	6,573026	6,516807	277,856262	180,938916
26,536573	6,591934	6,534239	275,634674	180,984326
26,508411	6,577519	6,551738	272,3078	181,499814
26,503174	6,594079	6,514728	271,229431	181,744946
26,554922	6,578726	6,532697	269,766357	182,012509
26,501249	6,602863	6,537658	267,997192	182,055356
26,545128	6,591666	6,609399	266,424011	182,250775
26,567459	6,591867	6,613087	263,88681	182,111234
26,573118	6,588447	6,594179	262,707764	182,025372
26,573408	6,580469	6,60893	261,637512	182,365384
26,571058	6,573026	6,608997	260,651245	182,244702
26,595072	6,595688	6,590492	258,71106	182,17616

26,608454	6,589721	6,61892	257,363861	181,883862
26,645561	6,58429	6,613087	255,630035	181,702985
26,648479	6,578122	6,612483	254,620941	181,784375
26,627512	6,587978	6,594582	253,527832	181,533734
26,621628	6,588045	6,620596	252,097473	181,004483
26,672775	6,580602	6,607119	251,557892	181,243924
26,624546	6,602796	6,597934	250,486954	180,80177
26,699722	6,575775	6,627368	249,757385	180,683453
26,68923	6,587978	6,598001	248,677719	180,581647
26,70307	6,577049	6,590492	248,515823	179,906339
26,695219	6,561762	6,616708	247,736801	179,70773
26,66902	6,570479	6,585664	244,388016	179,616574
26,737883	6,572893	6,586536	241,051529	178,988202
26,70645	6,581608	6,586603	238,918945	178,77496
26,75243	6,595554	6,624217	236,957153	178,426556
26,730803	6,580469	6,616573	235,195999	178,095502
26,751743	6,580536	6,620529	234,271271	177,432263
26,78348	6,558276	6,609801	232,275208	177,019727
26,815298	6,578323	6,622473	230,498703	176,54263
26,804909	6,585765	6,619523	229,273819	176,42468
26,822281	6,591062	6,624217	227,518326	175,92648
26,796087	6,568266	6,600147	225,904892	175,164151
26,782122	6,569137	6,597867	224,344086	174,683408
26,840025	6,572087	6,597934	222,864929	174,166592
26,78377	6,572289	6,612952	221,039948	173,694958
26,79434	6,57658	6,619255	219,935974	173,172803
26,805321	6,576781	6,631123	218,805099	172,684171
26,826464	6,588313	6,600012	218,06781	172,36926
26,839548	6,575037	6,600012	216,769638	171,306577
26,802889	6,573026	6,612952	215,406998	171,004025
26,800676	6,574568	6,612952	214,370132	170,447141
26,861313	6,576647	6,620663	212,79953	169,978787
26,863926	6,561427	6,598671	211,333878	169,242871
26,856052	6,561695	6,600482	210,613754	168,739651

Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
23,172898	23,622179	25,838827	24,833645	24,6902
23,151684	23,630162	25,849453	24,891458	24,982531
23,164944	23,66996	25,854753	24,833645	25,63825
23,188836	23,656702	25,868029	24,875704	25,585287
23,178227	23,659356	25,878632	24,867804	25,40895
23,210072	23,66996	25,891882	24,857301	25,371406
23,225983	23,696503	25,881281	24,888833	25,518906
23,260504	23,728348	25,915758	24,85205	25,921194
23,292345	23,76552	25,926384	24,880955	26,488412
23,321535	23,773474	26,005962	24,875704	27,126031
23,398499	23,853093	26,093479	24,891458	27,776406
23,46485	23,977822	26,146523	24,909861	28,532031
23,573637	24,052122	26,279121	24,867804	29,371463
23,693015	24,20068	26,440865	24,859928	30,273919
23,861451	24,363793	26,670156	24,859928	31,205881
24,119706	24,594267	26,954844	24,924146	32,166669
24,367525	24,888459	27,291208	24,933187	33,127456
24,649744	25,141518	27,738695	25,001276	34,204906
25,020766	25,46749	28,254982	24,982898	35,495569
25,383721	25,867543	28,863594	24,982898	36,729912
25,823346	26,296589	29,580273	25,022302	37,903244
26,331606	26,754549	30,436464	25,014428	39,081263
26,881934	27,318154	31,397507	25,093256	40,283425
27,503334	27,892027	32,476355	25,122156	41,365581
28,183804	28,485356	33,629101	25,151056	42,225131
28,950661	29,154675	34,959263	25,165337	43,086688
29,755541	29,817269	36,228909	25,223132	44,12525
30,586169	30,468911	37,539032	25,241531	45,015644
31,474074	31,249295	38,947174	25,333465	45,810156
32,419127	31,992216	40,492264	25,401774	46,833969
33,408038	32,755701	42,063995	25,396526	47,878569
34,43545	33,558051	43,704071	25,475326	48,748175
35,527251	34,448962	45,327347	25,594516	49,660694
36,625754	35,398142	47,000576	25,698072	50,523594
37,749567	36,443697	48,738136	25,808291	51,276531
38,937731	37,445135	50,512505	25,929082	52,020756
40,122057	38,492773	52,193962	26,078732	52,720063
41,359999	39,599612	53,855427	26,233582	53,130394
42,664454	40,783774	55,520409	26,364836	53,663431
44,022036	41,957407	57,210819	26,556341	54,33525
45,366484	43,219927	58,79253	26,808133	54,706688
46,744852	44,48128	60,148575	27,010118	54,925262

48,123026	45,730841	61,520409	27,341618	55,039913
49,602381	46,957144	62,77166	27,641608	54,870956
50,99219	48,156439	63,877926	27,982319	54,810613
52,561926	49,397395	64,990131	28,379146	54,527675
54,03588	50,616675	66,059532	28,78899	54,491469
55,572089	51,907618	67,069466	29,215699	54,354019
57,032183	53,200152	67,983841	29,733811	54,410337
58,529982	54,580908	68,842628	30,377113	54,384194
60,056071	55,898184	69,726624	31,054896	54,129412
61,56872	57,211062	70,594116	31,790122	53,887369
63,048468	58,569662	71,410088	32,541801	53,733831
64,576506	59,777773	72,223396	33,381574	53,385844
66,025366	61,124533	72,934959	34,274055	53,003675
67,519812	62,40338	73,866241	35,232034	52,751575
69,003714	63,655966	74,802696	36,266952	52,316437
70,37422	64,818129	75,650497	37,284287	51,922869
71,933691	64,766577	75,696815	38,400624	58,337975
73,486311	65,295714	76,658867	39,535077	59,972594
74,889891	66,481802	78,047058	40,633596	57,412725
76,294775	67,599326	79,495735	41,778805	55,489131
77,653365	68,623862	80,711571	42,805128	54,368769
78,920561	69,497481	81,972527	43,844865	54,050294
80,252577	70,409888	83,150246	44,797443	54,002694
81,38278	71,261755	84,249733	45,733786	54,250769
82,689528	72,354048	85,409836	46,677059	54,704675
83,870047	73,355864	86,62915	47,593627	55,259831
85,086066	74,567809	87,664963	48,525385	55,909519
86,158156	75,813185	88,690788	49,394827	56,494844
87,432555	76,892271	89,786163	50,295594	56,254144
88,625105	78,192923	90,980064	51,203454	55,788831
89,736983	79,232672	92,215912	52,066139	55,584338
90,901991	80,197676	93,353996	52,875673	55,420075
92,120436	81,205244	94,484779	53,819236	55,080813
93,294325	82,3496	95,533455	54,59963	54,6906
94,427367	83,383414	96,561867	55,420724	54,272894
95,631987	84,381323	97,527351	56,150565	53,8163
96,722144	85,470923	98,506119	56,904157	53,4663
97,821913	86,501601	100,18174	57,635999	53,057981
98,850912	87,67169	101,548927	58,363707	52,752244
99,99079	88,549643	102,809639	59,054109	52,533669
101,000159	89,894644	104,240837	59,722355	52,24805
102,017645	90,926482	105,663918	60,403286	52,15955
102,912756	91,904791	106,993507	61,016518	52,075738
103,78343	92,898779	108,296478	61,727552	51,954381
104,651793	94,121718	109,599091	62,372217	51,791456
105,522055	94,93447	110,828629	62,94155	51,735137
106,306967	95,86122	112,100639	63,520813	51,776706
107,169951	96,798468	113,278221	64,181554	51,81425

107,947646	97,903227	114,46067	64,742844	51,808219
108,554053	98,780775	115,598366	65,327061	51,857831
109,381644	99,73477	116,763855	65,923514	51,831013
110,009154	100,642722	117,849335	66,476892	51,826994
110,723082	101,565497	118,965729	66,991984	51,959744
111,397917	102,419676	120,081253	67,516864	52,116638
112,005232	103,27429	121,213249	68,021509	52,086462
112,573866	104,10224	122,318733	68,556843	52,282244
113,126921	105,009589	123,386742	69,071473	52,469306
113,933089	105,870428	124,463104	69,688002	52,651675
114,452734	106,704718	125,489304	70,167103	52,852144
115,1005	107,655005	126,538315	70,725058	53,08145
115,706282	108,493597	127,613945	71,269954	53,253087
116,341505	109,373328	128,678841	71,774441	53,48105
117,052618	110,196005	129,712585	72,302961	53,709694
117,750822	111,097083	130,762634	72,78031	53,920894
118,420821	111,967688	131,776703	73,353522	54,097231
119,137915	112,792792	132,816116	73,814375	54,199144
119,761107	113,759245	133,771835	74,338885	54,629587
120,521002	114,782629	134,856216	74,858561	54,909175
121,249327	115,604971	135,990997	75,450437	55,347662
121,904906	116,407179	136,989456	75,973821	55,746594
122,638174	117,250349	138,09024	76,443775	55,935669
123,324072	118,310645	139,207092	76,961729	56,059706
124,103934	119,263419	140,149063	77,501791	56,109994
124,89044	120,17195	141,175934	78,034111	56,264869
125,7536	121,201498	142,256332	78,561106	56,357394
126,550314	121,956572	143,273911	79,050252	56,264869
127,39971	122,807478	144,37529	79,673035	57,460994
128,29444	123,8925	145,437531	80,249835	59,996731
129,103918	124,669508	146,31572	80,749156	61,956538
130,066702	125,441679	147,369598	81,371962	63,390681
130,802054	126,432524	148,376297	81,918542	64,462094
131,700995	127,356642	149,477554	82,505894	65,475181
132,687537	128,247107	150,494308	83,116048	66,130906
133,566275	128,94837	151,492844	83,616834	65,543569
134,550024	129,780463	152,462646	84,264263	63,269994
135,399329	130,710349	153,438049	84,877348	61,286731
136,385245	131,556372	154,154175	85,482963	59,948456
137,292258	132,404089	155,111557	86,205757	58,890444
138,247244	133,191428	155,991928	86,928853	58,143538
139,128699	134,12316	156,932739	87,613761	57,617888
140,06861	134,904532	157,79892	88,33191	57,125087
140,911246	135,565085	158,956482	89,026198	56,718781
141,867758	136,51615	159,961899	89,85043	56,49015
142,663367	137,277716	160,786606	90,60383	56,185756
143,448309	138,286597	161,587143	91,354472	55,90885
144,260336	138,986563	162,580383	92,097961	55,775425

144,909247	139,799155	163,44693	92,843996	55,604456
145,82923	140,622702	164,273544	93,667065	55,381856
146,521201	141,243918	165,101822	94,399663	55,1311
147,237082	142,077216	166,066376	95,208963	55,080813
147,917532	142,84873	166,816193	96,007318	54,924594
148,589941	143,676031	167,811874	96,93363	54,761
149,201422	144,509009	168,65947	97,777311	54,8314
149,885016	145,408774	169,619583	98,636552	54,795862
150,544745	146,168066	170,480911	99,51679	54,74625
151,023703	147,007407	171,462784	100,476706	54,706688
151,686652	147,762152	172,158661	101,35656	54,457944
152,113959	148,495703	173,081985	102,293016	54,221938
152,740897	149,476767	173,908981	103,253113	54,067056
153,276221	150,103049	174,590195	104,16345	54,000012
153,801108	151,095618	175,347977	105,041068	53,78345
154,28446	151,91651	176,187164	106,069196	53,620513
154,749289	152,776404	177,041306	106,990032	53,3959
155,137045	153,633978	177,855469	108,019346	53,061331
155,51673	154,454428	178,677567	109,021015	52,68855
155,937933	155,265921	179,445007	110,020608	52,427069
156,236304	156,066824	180,239105	111,033698	52,222569
156,516211	156,790686	181,062836	112,038207	52,135413
156,828055	157,586707	181,937469	113,066736	51,900075
157,238791	158,289664	182,753326	114,024718	51,656019
157,531958	158,893835	183,362671	114,944489	51,324806
157,747916	159,570288	184,328598	115,907336	51,24435
158,019858	160,228186	184,908554	116,925229	51,167919
158,169165	160,766058	185,68959	117,852947	50,904419
158,360983	161,567007	186,489288	118,923727	50,707969
158,539679	162,159949	187,061325	119,990028	50,392175
158,42182	162,803427	187,902451	121,032168	50,149469
158,656699	163,345877	188,406311	122,033799	49,913463
158,744543	164,060583	189,066681	123,169642	49,527269
158,731207	164,742239	189,693802	124,198541	49,219519
158,821524	165,578665	190,427719	125,274442	48,90775
158,938971	166,062674	191,062836	126,348825	48,565806
158,842596	166,63204	191,687042	127,438088	48,224538
158,917197	167,27648	192,177216	128,525266	47,835662
158,887518	168,150977	192,881683	129,651011	47,539312
158,892737	168,758215	193,248596	130,720076	47,272462
158,836279	169,108344	193,832275	131,802647	47,031756
158,708136	169,664969	194,116302	132,844462	46,763569
158,64913	170,210654	194,507217	133,903557	46,605338
158,587607	170,502249	194,716034	134,905975	46,4176
158,518057	170,987891	194,762741	135,908754	46,195006
158,44039	171,553824	195,305038	136,961989	45,978444
158,296118	171,884283	195,635727	137,892516	45,708912
158,181174	172,119757	195,719971	138,839448	45,505756

158,07955	172,614844	196,299728	139,795807	45,424631
157,812643	172,8879	196,484482	140,678054	45,360263
157,654898	173,187521	196,927521	141,468728	45,177894
157,526724	173,388235	197,049271	142,362108	44,878194
157,221182	173,686804	197,066681	143,253405	44,656938
157,054037	173,893942	197,289963	144,115818	44,650906
156,939322	173,821646	197,182831	144,917217	44,544969
156,733527	174,214926	197,533295	145,789494	44,376013
156,469443	174,222952	197,661835	146,617797	44,252644
156,182578	174,418326	197,850494	147,494818	44,152744
155,906256	174,594839	197,956085	148,28809	44,053512
155,700873	174,660376	198,051056	149,011828	43,960988
155,434103	174,735266	197,773743	149,725294	43,786662
155,177893	174,621237	197,805695	150,507463	43,554006
154,981833	174,698752	197,84433	151,159295	43,375663
154,777716	174,620947	197,991531	151,874755	43,238213
154,442938	174,425177	197,918976	152,511059	42,984775
154,176398	174,409094	197,825211	153,043673	42,881525
153,868307	174,447684	197,784805	153,577572	42,663619
153,48577	174,218573	197,741806	154,151063	42,42225
153,139395	174,274817	197,688248	154,596953	42,232506
152,842001	174,179358	197,440125	155,133586	42,095725
152,387793	173,974463	197,377182	155,578297	41,983087
152,044211	173,993231	197,079834	155,918791	41,895925
151,629767	173,868353	196,952255	156,311764	41,728981
151,159811	173,896429	196,68837	156,665551	41,397094
150,656638	173,627219	196,36821	156,986271	41,165112
150,217139	173,497031	196,278152	157,338593	41,090687
149,762106	173,502386	196,117416	157,602679	40,979388
149,272421	173,261237	195,625687	157,933943	40,791656
148,816031	173,034766	195,462082	158,228393	40,592525
148,325323	172,765646	195,133881	158,463521	40,542238
147,809332	172,430838	194,695679	158,760509	40,536875
147,268149	172,405173	194,1409	158,949306	40,526137

Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range
Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [100ppm
2,036788	24,836319	40,211647	3,594501	0,013135
3,951478	25,84486	40,351299	3,583573	19,47058
1,793599	24,503179	40,209948	3,579818	10,76688
1,612911	25,264767	40,238888	3,571705	12,823226
2,344522	25,22209	40,363221	3,561581	22,479267
4,837381	25,686992	39,986857	3,545959	22,479402
6,423219	25,280928	40,605045	3,526716	22,47967
8,567134	24,962283	40,242301	3,50211	22,479536
9,854433	25,545698	40,77875	3,477235	22,47967
10,268775	25,635613	40,523305	3,450819	22,47967
11,50022	25,174025	40,298499	3,417831	22,47967
12,339291	24,71864	40,295102	3,381089	22,479804
13,300467	25,120572	40,945643	3,338984	22,479939
14,483717	25,441279	41,076771	3,289704	22,479939
14,38954	24,504009	41,339042	3,243575	22,479939
14,702723	24,843778	40,352998	3,197916	22,480073
15,48679	25,388243	41,095503	3,147563	22,480073
16,301166	25,373326	41,187467	3,095401	22,480073
16,660839	25,366285	40,937134	3,037606	22,480073
16,838463	25,414763	41,620029	2,980012	22,480073
17,402329	25,164493	41,396938	2,919602	22,480073
17,610606	25,020707	40,526702	2,859058	22,480073
18,495486	25,378715	41,197691	2,796101	22,480206
17,871677	25,211314	40,679975	2,739109	22,480206
18,624237	24,762565	41,500824	2,679437	22,479939
19,150465	24,458845	40,841757	2,621709	22,480073
18,752814	24,031645	41,320309	2,562104	22,479939
19,167324	24,859938	41,74776	2,498074	22,480073
19,404213	24,985898	41,136381	2,433038	22,480206
19,525296	24,86698	41,422481	2,356939	22,479939
19,620835	25,489344	41,054641	2,281913	22,480341
19,85057	24,874025	41,146589	2,20682	22,480206
19,918008	24,838389	41,207898	2,133471	22,480073
20,337459	24,796956	41,105727	2,056902	22,480341
20,387016	25,295014	41,195976	1,981541	22,480206
20,629524	24,750962	41,606409	1,904503	22,480206
20,659327	24,598895	41,473566	1,827466	22,480206
20,234086	24,595994	41,877188	1,751568	22,480341
20,889743	24,798613	41,211311	1,675469	22,480073
20,647746	24,472931	40,979695	1,602857	22,480073
20,211437	24,838803	40,59652	1,533462	22,480341
20,086606	24,696269	42,003204	1,468293	22,480341

19,617769	24,471274	40,986522	1,405267	22,480073
19,503157	24,726099	41,059737	1,346399	22,480475
19,744984	25,479816	40,831534	1,289945	22,480341
19,381222	25,365868	40,897955	1,236643	22,480206
19,511332	24,142691	41,037607	1,181061	22,480341
19,20377	24,501522	40,928609	1,127691	22,480475
19,585072	25,12306	40,938833	1,073583	22,480475
19,267802	24,65939	41,403748	1,021622	22,480475
19,496516	25,371256	41,425894	0,974823	22,480341
18,893652	25,311588	41,141493	0,933857	22,480206
19,04556	25,106068	41,310086	0,891281	22,480341
18,952235	24,45387	41,531479	0,854875	20,550449
18,629687	24,141865	40,679975	0,819071	14,80971
18,52563	24,664361	40,996729	0,786084	9,406888
18,757413	24,641985	40,518193	0,755578	7,212424
18,970458	25,107312	42,471533	0,057077	5,776404
18,476924	25,470287	42,907508	7,604679	4,609509
17,257233	25,178583	41,230044	7,237995	11,27054
17,620825	24,505249	41,049529	7,208561	22,479804
18,245487	25,118502	41,36287	7,164713	22,480073
19,420391	24,49572	41,323707	7,113488	22,479939
19,767293	24,34531	41,241966	7,056565	22,480073
20,288072	24,864079	40,979695	6,993339	22,480206
20,733066	23,699748	40,722552	6,925018	22,480073
20,79676	24,963523	41,451437	6,851735	22,480073
21,184362	24,79737	41,786923	6,773826	22,480073
21,235111	25,045566	41,4906	6,697794	22,480206
20,742262	24,799857	41,175545	6,621293	22,480206
20,557487	24,627899	40,889446	6,556793	22,480073
20,049141	25,103585	40,620365	6,498395	22,480341
20,467739	24,335782	41,150002	6,432219	22,480073
20,409495	24,339922	41,018875	6,36725	22,480206
20,30425	23,836901	40,66464	6,304829	22,480073
19,46535	24,66146	41,075072	6,251862	22,480206
19,723867	24,830518	40,90648	6,198559	22,480206
19,44219	24,944879	40,901368	6,148474	13,277405
19,416816	24,245867	40,945643	6,095976	11,735447
19,101419	24,062722	40,327455	6,042875	16,150121
19,54982	24,486605	41,441213	5,989772	18,340295
19,093585	24,107056	41,378205	5,939487	18,873054
19,597673	24,748474	41,027384	5,884575	19,185226
19,596992	25,055933	40,894558	5,827786	22,071486
19,354656	24,710355	40,967789	5,773678	22,480073
19,33967	24,794056	40,754905	5,718699	22,480206
19,462796	24,721541	40,805991	5,663721	22,480073
19,300669	24,717814	40,763414	5,60787	22,480206
19,243789	24,69917	41,039306	5,552891	22,480206
19,558846	24,734388	41,202802	5,496974	22,480341

19,273763	24,95275	41,226631	5,440319	22,480475
19,579111	24,699996	41,883999	5,383529	22,480206
19,512013	25,324435	40,557357	5,326739	22,480341
19,514737	24,894326	40,373429	5,266262	22,480073
19,89638	24,803998	41,194278	5,208199	22,480206
20,311913	24,817258	41,098917	5,145242	22,480475
20,177547	24,938664	40,651019	5,083022	22,480341
20,359597	24,480803	40,918402	5,020735	22,480206
20,312255	24,196145	41,614918	4,953822	22,480206
19,907791	24,748061	41,621728	4,889724	22,480341
20,529386	24,971399	41,209613	4,820062	22,480073
20,557998	24,31672	40,71063	4,755093	22,480206
20,555272	25,830774	40,606744	4,688179	22,480206
20,399107	24,434395	41,683037	4,621468	22,480206
20,573835	24,753032	41,591073	4,553414	22,480206
20,430614	24,910074	40,525004	4,483886	22,480206
20,811234	24,880653	41,022272	4,417978	22,479804
20,755886	24,968911	41,40205	4,349322	22,480206
20,795737	25,009518	41,304974	4,278855	22,480073
20,913074	24,847505	40,964376	4,21107	22,480341
20,599721	25,150819	41,049529	4,136916	22,480073
21,119819	24,102498	40,409195	4,06551	22,480341
21,149621	24,098771	40,829835	3,993031	22,480073
20,963823	24,78494	40,766827	3,926118	22,480475
20,773257	24,545029	40,712328	3,862154	22,480073
20,688278	24,617953	40,98822	3,797253	22,479939
20,727957	24,602209	41,19088	3,733826	22,480475
21,230172	24,628312	40,751492	3,671673	22,480073
20,926868	24,657319	40,639097	3,610123	22,480073
20,653026	24,824716	40,921799	3,547836	22,480206
20,942706	24,719058	40,892843	3,485549	22,480073
20,489537	24,83922	40,817913	3,427821	22,480073
20,816173	24,466299	40,9201	3,36473	22,480206
20,478809	25,406892	41,599598	3,308812	22,480073
20,577583	25,152894	40,422816	3,245519	22,480206
20,810042	22,133079	41,102314	3,186987	22,480073
20,891276	25,125543	41,330517	3,126309	22,480206
20,758441	25,408962	41,507634	3,066973	22,480206
20,566172	25,979526	41,793734	3,009111	22,480206
20,680613	25,023604	41,727328	2,949639	22,480206
20,384462	24,912974	41,945308	2,893789	22,480341
20,775301	25,130101	41,13127	2,838072	22,480206
20,655069	25,209244	41,187467	2,782892	22,480341
20,644341	25,029823	41,824388	2,727913	22,480341
20,755205	25,195157	42,442576	2,673939	22,480341
20,33848	25,445011	42,314862	2,620637	22,480475
20,432146	24,762148	41,178958	2,566664	22,480073
20,373562	25,471113	41,814181	2,513696	22,480206

20,522405	25,527881	41,555323	2,461533	22,480206
20,420906	25,051789	41,734139	2,410979	22,480341
20,312594	25,505922	41,584263	2,359755	22,480341
20,341887	25,752462	41,429291	2,305514	22,480341
19,927035	24,998745	41,824388	2,258111	22,480073
19,857382	25,239904	41,114236	2,20501	22,479939
19,853805	25,424705	41,090392	2,15459	22,480341
20,013036	25,113944	41,766492	2,106115	22,480206
20,212628	24,748061	41,393525	2,056365	22,480073
19,693893	24,540884	41,429291	2,008091	22,480206
19,886333	25,38576	41,313483	1,963102	22,480073
20,006566	24,965597	41,01716	1,915633	22,480206
19,967567	24,655245	41,468471	1,867224	22,480206
19,739364	24,998332	40,855378	1,82646	22,480073
19,610446	24,608011	40,749793	1,784622	22,480206
19,865216	24,958139	41,058038	1,74607	22,480206
19,758608	24,674307	41,52978	1,712881	22,480073
19,132925	24,663121	40,954152	1,673524	22,480073
19,473354	25,220847	41,533177	1,640538	22,480073
19,117939	24,770023	41,391826	1,605807	22,480206
18,547088	25,569317	40,550546	1,571009	22,480073
19,286876	25,242392	42,444291	1,535206	22,479939
19,043005	24,800684	41,102314	1,505102	22,480341
19,293176	24,636601	41,286242	1,470103	22,480206
18,948489	24,007612	40,267844	1,435304	22,480073
18,946104	24,648204	40,235491	1,399836	22,480206
19,090861	24,637845	41,008651	1,365575	22,480073
18,797092	24,380946	41,07847	1,332856	22,480073
18,836942	25,489344	41,085296	1,298125	22,479939
18,845457	23,90361	40,894558	1,268758	22,479939
19,068891	24,846678	41,061452	1,24033	22,480073
19,0912	24,69917	41,224932	1,216528	20,903118
18,726928	24,574446	40,938833	1,190916	15,25115
18,800328	24,657319	41,156813	1,170064	6,604439
18,467046	24,539227	41,471868	1,150688	3,503359
18,451549	25,208413	41,441213	1,132116	2,791045
18,498552	24,580664	40,937134	1,113946	2,480616
18,14552	24,075152	40,43304	1,093899	1,988622
18,205636	25,776494	40,960963	1,077472	1,690395
18,160165	24,567817	40,659544	1,062856	1,74229
18,085064	24,678864	40,393876	1,048239	1,760259
17,909483	24,112444	40,22187	1,031679	1,784798
17,972324	25,312002	40,662941	1,016861	1,834681
17,764217	25,021947	39,983444	1,003988	1,817384
17,692179	25,022778	41,231743	0,990512	1,74296
17,481348	24,885211	40,654432	0,976633	1,905215
17,52188	24,599722	40,562469	0,962016	2,02228
17,069732	24,776238	39,905101	0,947333	2,145379

16,985093	24,681765	40,441549	0,9356	2,214706
17,519496	24,840877	40,64251	0,920648	2,223288
17,341021	24,757177	41,006953	0,907843	2,323055
17,305087	24,657319	40,998428	0,896779	2,552892
17,133765	24,824716	40,513081	0,883906	2,798822
16,958696	24,719058	40,037943	0,871301	2,94338
16,856515	24,83922	40,530115	0,855814	3,02692
16,749906	24,466299	41,000142	0,844885	3,078681
16,754505	25,406892	40,606744	0,829262	2,981194
17,046742	25,152894	41,330517	0,815585	2,84294
16,421568	24,568648	41,027384	0,804321	2,86775
16,597317	24,776238	41,001841	0,795203	3,17429
16,430593	24,427354	40,177595	0,787894	5,075487
16,459033	24,685492	40,734474	0,782263	8,550961
16,544014	25,002889	40,300198	0,77482	10,920285
16,396022	24,792399	40,543736	0,768517	12,606529
15,931613	25,027749	39,835282	0,758461	13,051187
16,102595	24,785354	41,07847	0,756784	14,192604
15,927186	24,971399	40,240603	0,749342	15,206362
15,873541	24,233433	40,633985	0,743979	16,701385
16,03703	25,236177	40,823025	0,737475	18,634231
15,888697	24,880653	40,172483	0,732781	19,754593
15,702048	25,088668	41,015462	0,726479	20,548437
15,587437	25,035207	40,388764	0,720981	21,134029
15,659133	24,982998	40,451772	0,714008	21,511373
15,537197	24,878996	40,618666	0,708175	22,030989
15,606681	24,769193	41,264096	0,701872	22,479267
15,550993	24,755933	40,192914	0,695436	22,47967
15,076192	25,308274	40,274655	0,689804	22,479939
15,37933	24,779965	40,048166	0,686116	22,479939
15,075	24,929962	40,674863	0,67787	22,479804
15,073978	25,367525	40,780448	0,674115	22,47967
14,895843	25,679534	41,4906	0,668684	22,479804
15,118937	24,993357	40,424531	0,662114	22,47967

CO high range	CO2
CO-Høj - [%]	CO2 - [%]
-0,001047	0,065701
0,154235	0,934101
0,10397	1,18982
0,11984	2,520844
0,209067	4,480241
0,37169	5,889445
0,483928	6,541011
0,498209	6,9968
0,394942	7,637772
0,337536	8,025306
0,308713	7,628789
0,290067	8,135535
0,304851	8,613181
0,333976	9,310741
0,363685	10,069585
0,368009	10,330265
0,351677	10,29929
0,330979	10,465433
0,402404	11,366553
0,504324	11,747248
0,596286	11,975343
0,564968	12,149534
0,613262	12,473239
0,601375	12,720376
0,557184	12,322114
0,527515	11,745504
0,449613	11,767898
0,501548	11,724987
0,555092	11,821268
0,688992	12,357247
0,914976	14,056765
0,865133	14,41386
0,786566	14,398841
0,750723	14,728985
0,796443	15,093186
0,800345	15,242166
0,868432	15,297145
0,937584	15,196976
1,007521	15,230231
1,074341	15,1778
1,098659	14,863347
0,969365	14,544469

0,77838	13,989316
0,723468	13,468491
0,630721	13,183405
0,609984	13,229936
0,539141	13,111263
0,409605	12,882899
0,360607	12,597411
0,418838	13,042605
0,450257	12,972071
0,338099	12,29838
0,265688	11,790293
0,219506	11,256998
0,163146	10,855517
0,109823	10,370762
0,082307	9,943134
0,066417	9,505315
0,050728	8,745399
0,096246	4,565659
0,402686	4,512558
0,719385	4,010774
0,506918	5,936646
0,282463	8,842618
0,279808	10,737246
0,428493	11,769105
0,627202	12,827384
0,858797	13,449853
1,055594	14,211645
1,067723	14,532131
1,133577	14,968612
0,586108	14,089886
0,279667	13,44127
0,300204	13,891561
0,289162	13,884051
0,456371	13,008278
0,320439	11,908698
0,159787	11,17721
0,122254	10,887834
0,16029	10,93517
0,185774	11,142346
0,189395	11,239565
0,19022	11,391091
0,219325	11,422201
0,252252	11,480801
0,297026	11,570779
0,326735	11,642921
0,309758	11,797801
0,290388	11,936455
0,293667	11,94839

0,360386	12,173001
0,359963	12,25453
0,353145	12,359526
0,369216	12,58427
0,402143	12,818131
0,444242	13,135801
0,493583	13,445294
0,604774	13,754919
0,711138	14,02284
0,778038	14,247046
0,819594	14,463206
0,912502	14,601995
0,936317	14,721341
0,945912	14,84082
0,939093	14,89647
0,967373	14,956677
1,01251	15,068245
1,06189	15,19939
1,046503	15,300229
0,995433	15,365935
0,976405	15,52886
1,183642	16,393906
1,240082	16,554149
1,082487	16,41174
0,952067	16,170504
0,795578	15,899766
0,654939	15,739657
0,59341	15,577
0,558129	15,453365
0,520153	15,411125
0,505591	15,323025
0,478899	15,266974
0,4544	15,238277
0,441507	15,308275
0,451202	15,352794
0,474092	15,37559
0,478396	15,408711
0,503459	15,51116
0,527897	15,598321
0,516151	15,587727
0,496419	15,424803
0,432274	15,272739
0,379414	15,151384
0,34005	15,093589
0,303282	15,03338
0,30654	15,043974
0,277415	14,934284
0,272145	14,826874

0,288659	14,741724
0,312192	14,689025
0,363121	14,648257
0,403893	14,540847
0,412421	14,496194
0,433039	14,426331
0,412844	14,401791
0,402968	14,34574
0,443418	14,262199
0,455104	14,233636
0,550204	14,016939
0,658198	13,818076
0,596789	13,850125
0,571907	13,86139
0,497666	13,846639
0,421573	13,408284
0,386011	12,603178
0,382069	11,970515
0,364187	11,767898
0,357872	11,696827
0,351596	11,662231
0,348277	11,608191
0,383578	11,604034
0,378469	11,650968
0,388284	11,796057
0,381124	11,891534
0,363001	12,005246
0,358857	12,013828
0,3206	11,913794
0,276952	11,613421
0,260861	11,283145
0,224675	10,901914
0,171815	10,615351
0,088784	10,271398
0,044532	9,797775
0,034294	9,403937
0,02649	9,06441
0,022547	8,765244
0,019108	8,473454
0,021783	8,321256
0,021159	8,16812
0,019027	8,075995
0,021099	7,999024
0,020375	7,932111
0,019309	7,829126
0,022225	7,791311
0,023452	7,748669
0,022849	7,736199

0,026429	7,674783
0,024478	7,559864
0,026067	7,479272
0,029044	7,445079
0,030372	7,421477
0,032122	7,424428
0,033047	7,402705
0,034153	7,467204
0,029165	7,579844
0,033268	7,750144
0,031015	7,87968
0,032403	7,742099
0,049943	7,071491
0,081864	6,377147
0,107791	6,038156
0,124728	5,913314
0,133095	5,78941
0,142489	5,711635
0,150313	5,640297
0,166927	5,567752
0,18682	5,509689
0,196194	5,471201
0,206492	5,414345
0,214558	5,36996
0,219446	5,345018
0,222402	5,306399
0,229382	5,297146
0,232379	5,280652
0,236724	5,270194
0,238433	5,251151
0,247324	5,220176
0,249557	5,204085
0,253278	5,154604
0,256174	5,131941

Description of the NORFLAM HARBOR LIGHT 760 woodstove

	DISTRIBUTING COMPANY	MANUFACTURING COMPANY
Company	NORFLAM	DOVRE N.V.
Address	Nijverheidsstraat 18	Nijverheidsstraat 18
City	2381 WEELDE	2381 WEELDE
Country	BELGIUM	BELGIUM
Telephone	+32 14 65 91 91	+32 14 65 91 91
Email	info@norflam.be	info@dovre.be
Contact	Anton Blancquaert	

MODEL SPECIFICATIONS

Brand	NORFLAM
Model	HARBOR LIGHT 760
Type	Solid Fuel Room Heater
Type of Combustion	Non-Catalytic
Fuel Type	Seasoned Cordwood (20% moisture)
Main material	Cast Iron
Firebox isolation	Vermiculite
Flue exit	6” (150 mm) Back and top connector
Nominal firebox volume	1,554 ft^3 (0,044 m3)
Maximum burn time[1]	14 hours
Maximum heat output (dry cordwood)[2]	60.900 BTU/h (17,85 kW)
Overall heat output rate (min. to max.)[2 3]	13.784 BTU/h to 57.684 BTU/h
Average overall efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78,3 %
Average particulate emissions rate[7]	1,89 g/h (EPA/ CSA B415.1-10)
Average CO[8]	101 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation

[2] Heat Output Range results are determined during specific emissions tests established by the EPA.[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified

[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[6] Optimum overall efficiency at a specific burn rate (LHV).

[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.

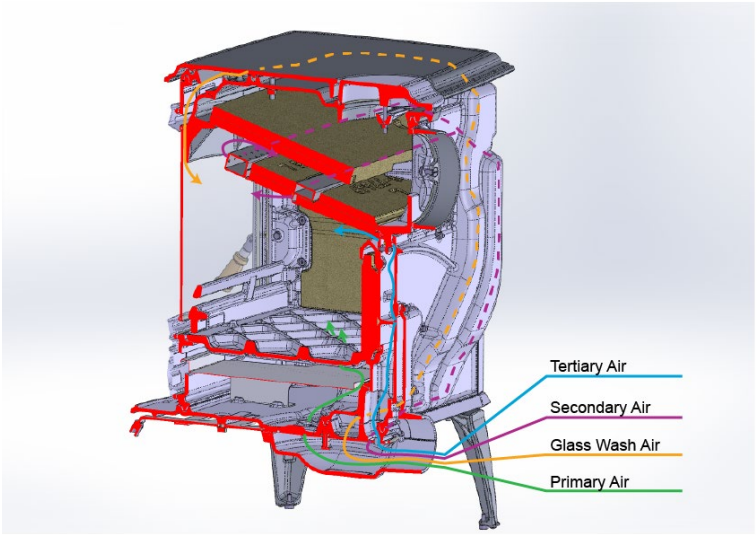
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

DESCRIPTION OF THE STOVE

General: NORFLAM HARBOR LIGHT 760 is a traditional type solid fuel wood burning stove of landscape format. The stove is equipped with a front-loading door with detachable handle, equipped with a glass pane. The stove is equipped with one air regulator with detachable handle. The stove is non-catalytic. The stove has a top and back flue connector. The Stove carries the NORFLAM name on both left and right-side panel.

Materials of Construction: The unit is constructed primarily of cast iron which is or painted or enameled. The firebox is lined with vermiculite firebricks (right and left side and back) and a cast iron floor. The firebox has double vermiculite twin-baffle plates with two stainless steel tertiary air tubes. The feed door has a 545 mm by 325 mm glass panel and lined with an 8 mm diameter fiberglass gasket.

Air Injection System: Combustion Air enters the firebox through a central 100mm collar opening located at the back of the appliance. The primary combustion air is ducted down through the manifold that is located under the appliance and through the bottom of the hearth.
Secondary air enters the appliance through the manifold and is ducted internally, central on the back of the appliance and entering the firebox through two holes low on the back sides and through multiple hole just underneath the baffle plates. Tertiary air enters the appliance through the manifold and is ducted internally to both sides of the firebox, entering two stainless steel rectangular channels which feed air through two rectangular stainless-steel tubes. Glass wash air enters the appliance through the manifold and is ducted internally to both outer sides of the firebox, ducted underneath the top plate and enters the firebox via the air spoiler in front of the appliance.



Combustion Control Mechanisms: The combustion air inlet is controlled by a single detachable handle located below the fuel loading door. Combustion air control mechanism is a stainless-steel dial disc with control openings for all air ducts. The dial disc covers the manifold and is connected via a cover to the air inlet. The dial disc is controlled by a single lever when pushed left or right.

Internal Baffles: A double vermiculite twin-baffle system with tertiary air is mounted in the upper portion of the firebox. The flame path is forced to the front of the lower baffle where it is mixed with heated air, travels in between the two baffle plates with a second air mixture where it travels up through the opening between the upper baffle and the top plate.

Flue Outlet: The 6” diameter flue outlet is located at the top of the appliance, to the back, and is interchangeable with the cover on the back to establish a rear flue exit.

Description of the SBI CAPE TOWN 1800 woodstove

Completely based on the NORFLAM HARBOR LIGHT 760 except for the esthetical design, this variant differs in style which is contemporary. This wood stove is technically identical.

	DISTRIBUTING COMPANY	MANUFACTURING COMPANY
Company	Stove Builder International, Inc	DOVRE N.V.
Address	250, De Copenhague Street	Nijverheidsstraat 18
City	G3A 2H3 Saint-Augustin-de-Desmaures	2381 WEELDE
Country	Quebec Canada	BELGIUM
Telephone		+32 14 65 91 91
Email	macantin@sbi-international.com	info@dovre.be
Contact	Marc-Antoine Cantin	

MODEL SPECIFICATIONS

Brand	SBI
Model	CAPE TOWN 1800
Type	Solid Fuel Room Heater
Type of Combustion	Non-Catalytic
Fuel Type	Seasoned Cordwood (20% moisture)
Main material	Cast Iron
Firebox isolation	Vermiculite
Flue exit	6” (150 mm) Back and top connector
Nominal firebox volume	1,554 ft^3 (0,044 m3)
Maximum burn time[1]	14 hours
Maximum heat output (dry cordwood)[2]	60.900 BTU/h (17,85 kW)
Overall heat output rate (min. to max.)[2 3]	13.784 BTU/h to 57.684 BTU/h
Average overall efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78,3 %
Average particulate emissions rate[7]	1,89 g/h (EPA/ CSA B415.1-10)
Average CO[8]	101 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation

[2] Heat Output Range results are determined during specific emissions tests established by the EPA.[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified

[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[6] Optimum overall efficiency at a specific burn rate (LHV).

[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.

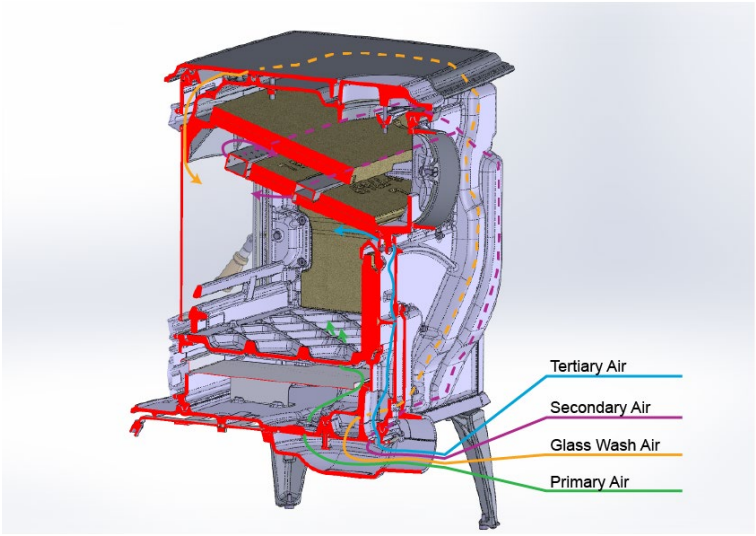
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

DESCRIPTION OF THE STOVE

General: SBI CAPE TOWN 1800 is a contemporary type solid fuel wood burning stove of landscape format. The stove is equipped with a front-loading door with detachable handle, equipped with a glass pane. The stove is equipped with one air regulator with detachable handle. The stove is non-catalytic. The stove has a top and back flue connector.

Materials of Construction: The unit is constructed primarily of cast iron which is or painted or enameled. The firebox is lined with vermiculite firebricks (right and left side and back) and a cast iron floor. The firebox has double vermiculite twin-baffle plates with two stainless steel tertiary air tubes. The feed door has a 545 mm by 325 mm glass panel and lined with an 8 mm diameter fiberglass gasket.

Air Injection System: Combustion Air enters the firebox through a central 100mm collar opening located at the back of the appliance. The primary combustion air is ducted down through the manifold that is located under the appliance and through the bottom of the hearth.
Secondary air enters the appliance through the manifold and is ducted internally, central on the back of the appliance and entering the firebox through two holes low on the back sides and through multiple hole just underneath the baffle plates. Tertiary air enters the appliance through the manifold and is ducted internally to both sides of the firebox, entering two stainless steel rectangular channels which feed air through two rectangular stainless-steel tubes. Glass wash air enters the appliance through the manifold and is ducted internally to both outer sides of the firebox, ducted underneath the top plate and enters the firebox via the air spoiler in front of the appliance.



Combustion Control Mechanisms: The combustion air inlet is controlled by a single detachable handle located below the fuel loading door. Combustion air control mechanism is a stainless-steel dial disc with control openings for all air ducts. The dial disc covers the manifold and is connected via a cover to the air inlet. The dial disc is controlled by a single lever when pushed left or right.

Internal Baffles: A double vermiculite twin-baffle system with tertiary air is mounted in the upper portion of the firebox. The flame path is forced to the front of the lower baffle where it is mixed with heated air, travels in between the two baffle plates with a second air mixture where it travels up through the opening between the upper baffle and the top plate.

Flue Outlet: The 6” diameter flue outlet is located at the top of the appliance, to the back, and is interchangeable with the cover on the back to establish a rear flue exit.

Description of the SIERRA FLAME LYNWOOD W76 woodstove

Completely based on the NORFLAM HARBOR LIGHT 760 except for the logo on the side panels. This wood stove is technically identical

	DISTRIBUTING COMPANY	MANUFACTURING COMPANY
Company	SIERRA FLAME	DOVRE N.V.
Address	502-1027 Davie Street	Nijverheidsstraat 18
City	V6E 4L2 Vancouver	2381 WEELDE
Country	British Columbia Canada	BELGIUM
Telephone		+32 14 65 91 91
Email	brian@sierraflame.com	info@dovre.be
Contact	Brian Richards	

MODEL SPECIFICATIONS

Brand	SIERRA FLAME
Model	LYNWOOD W76
Type	Solid Fuel Room Heater
Type of Combustion	Non-Catalytic
Fuel Type	Seasoned Cordwood (20% moisture)
Main material	Cast Iron
Firebox isolation	Vermiculite
Flue exit	6” (150 mm) Back and top connector
Nominal firebox volume	1,554 ft^3 (0,044 m3)
Maximum burn time[1]	14 hours
Maximum heat output (dry cordwood)[2]	60.900 BTU/h (17,85 kW)
Overall heat output rate (min. to max.)[2 3]	13.784 BTU/h to 57.684 BTU/h
Average overall efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78,3 %
Average particulate emissions rate[7]	1,89 g/h (EPA/ CSA B415.1-10)
Average CO[8]	101 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation

[2] Heat Output Range results are determined during specific emissions tests established by the EPA.[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified

[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.

[6] Optimum overall efficiency at a specific burn rate (LHV).

[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.

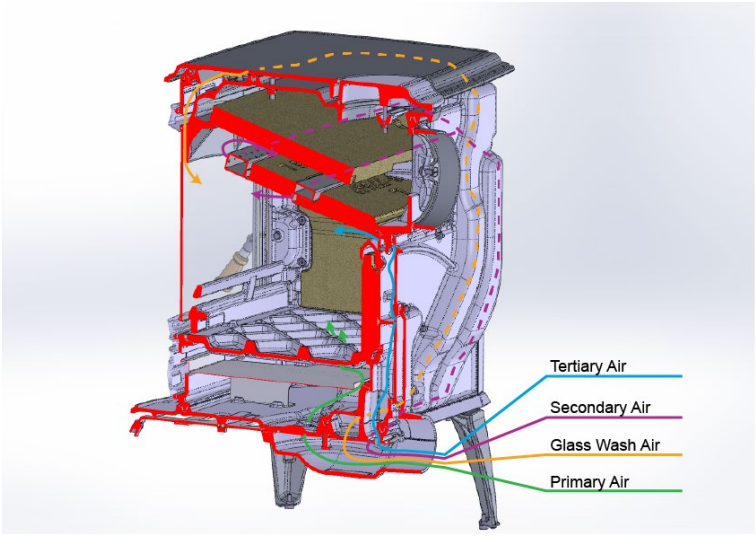
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

DESCRIPTION OF THE STOVE

General: SIERRA FLAME LINWOOD 76 is a traditional type solid fuel wood burning stove of landscape format. The stove is equipped with a front-loading door with detachable handle, equipped with a glass pane. The stove is equipped with one air regulator with detachable handle. The stove is non-catalytic. The stove has a top and back flue connector.

Materials of Construction: The unit is constructed primarily of cast iron which is or painted or enameled. The firebox is lined with vermiculite firebricks (right and left side and back) and a cast iron floor. The firebox has double vermiculite twin-baffle plates with two stainless steel tertiary air tubes. The feed door has a 545 mm by 325 mm glass panel and lined with an 8 mm diameter fiberglass gasket.

Air Injection System: Combustion Air enters the firebox through a central 100mm collar opening located at the back of the appliance. The primary combustion air is ducted down through the manifold that is located under the appliance and through the bottom of the hearth.
Secondary air enters the appliance through the manifold and is ducted internally, central on the back of the appliance and entering the firebox through two holes low on the back sides and through multiple hole just underneath the baffle plates. Tertiary air enters the appliance through the manifold and is ducted internally to both sides of the firebox, entering two stainless steel rectangular channels which feed air through two rectangular stainless-steel tubes. Glass wash air enters the appliance through the manifold and is ducted internally to both outer sides of the firebox, ducted underneath the top plate and enters the firebox via the air spoiler in front of the appliance.



Combustion Control Mechanisms: The combustion air inlet is controlled by a single detachable handle located below the fuel loading door. Combustion air control mechanism is a stainless-steel dial disc with control openings for all air ducts. The dial disc covers the manifold and is connected via a cover to the air inlet. The dial disc is controlled by a single lever when pushed left or right.

Internal Baffles: A double vermiculite twin-baffle system with tertiary air is mounted in the upper portion of the firebox. The flame path is forced to the front of the lower baffle where it is mixed with heated air, travels in between the two baffle plates with a second air mixture where it travels up through the opening between the upper baffle and the top plate.

Flue Outlet: The 6” diameter flue outlet is located at the top of the appliance, to the back, and is interchangeable with the cover on the back to establish a rear flue exit.

Norflam Harbor Light 760

Non-Catalytic Woodstove

Installation and Operation Instructions
for the United States and Canada



This stove is listed to burn solid wood only. Do not burn any other fuels.

Read this entire manual before you install and use this appliance.

Read this entire manual before installation and use of this wood stove. Failure to follow these instructions could result in property damage, injury or even death.

Manufactured by:
Norflam
BE0437960542
Nijverheidsstraat 18
B-2381 Weelde, Belgium

Distributed in the United States and Canada by:
Norflam
BE0437960542
Nijverheidsstraat 18
B-2381 Weelde, Belgium

US Environmental Protection Agency phase II certified wood stove compliant with 2020 cord wood standard

This solid fuel heater has been tested and listed according to ULC S627-00 (2016) and UL 1482-2011 standards by an accredited laboratory.

Certified Safety Tests performed by:

PFS F19-461

READ AND KEEP THIS MANUAL FOR FUTURE REFERENCE

CAUTION !!

IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS INCLUDED. **DO NOT DISCARD.** LEAVE THIS MANUAL WITH THE HOMEOWNER.



Risk of Fire



Caution





HOT



Do not operate with door open

Hot while in operation, keep children, clothing and furniture away. Contact may cause skin burns.

Failure to follow the information in this manual may result in a fire; causing property damage, personal injury, or death. Read this booklet completely before installing or operating this appliance.

For use with solid wood fuel only. This appliance has not been tested for the use of compressed wood logs or bricks.

Do not modify this appliance in any way.

The chimney connector must be in good condition and kept clean.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Do not use chemicals or fluids to start the fire.

Comply with all minimum clearances to combustibles as specified. Failure to comply may cause a house fire.

Glass and other surfaces are hot during operation and for some time after the fire has gone out. Supervise children around this appliance. Warn children and adults about high temperatures. High temperatures may ignite clothing or other flammable materials. Keep clothing, furniture, draperies and other combustible materials away.

DO NOT OPERATE WITH THE DOOR OPEN AND KEEP ALL SEALS IN A GOOD CONDITION.

CALIFORNIA PROP 65 WARNING:

Use of this product may produce smoke which contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Do not store anything including fuel under the appliance.

Table of Contents

1. Introduction 4
2. General Information 5
    - Performances 5
    - Warnings! 6
3. Installation 7
    - Pre Installation Check List 7
    - Floor protection 8
    - Ceiling height clearance 8
    - Clearance to combustibles 9
    - Combustible Wall Clearance for top vent installation 9
    - Combustible Wall Clearance for rear vent installation 9
    - Draft Requirements 10
    - Chimney Installation 10
    - Factory Built Chimney 10
    - Masonry Chimney 11
    - Factory Chimney Top vent installation 12
    - Rear vent installation 13
    - Mounting the flue collar for rear venting: 14
    - Mounting the connector pipe to the stove 14
    - Combustible Wall Chimney Connector Pass-Throughs 15
    - Chimney height requirements 17
4. Prepare the Stove 18
5. Instructions 20
    - Fire resistant inner plates 20
    - Glass 20
    - Smoke & Carbon Monoxide Detectors 20
    - Room Ventilation & Combustion Air Supply 20
    - Draft Requirements 21
    - Operate Efficiently 21
6. Operation 22
    - Fueling the wood-burning stove 22
    - Starting the Stove 22
    - Advice 24
7. Maintenance 24
    - Removing the Fire Resistant Plates for Cleaning 25
    - Replacing Door Glass 26
    - Creosote Formation and the Need for Removal 26
8. Troubleshooting 27
9. Norflam Limited Warranty 28

Dimensioned Drawing 30

Spare Parts 31

1. Introduction

We welcome you as a new owner of a Norflam wood-burning stove. This manual will explain the installation, operation and maintenance of the Norflam wood-burning stove. Please familiarize yourself with the owner's manual before operating your stove and save the manual for future reference. 'This manual describes the installation and operation of the NORFLAM HARBOR LIGHT 760 non-catalytic wood heater. This heater meets the US Environmental Protection Agency phase II cord wood and may be sold after 2020. Under specific test conditions this heater has been shown to deliver 57,700 Btu/hr

'This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

Please read the entire manual carefully before you install and use your new Norflam wood-burning stove. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR LOSS OF LIFE. This manual contains important user information. Keep this manual with the stove after installation is complete.

Safety and environmental testing

NORFLAM HARBOR LIGHT 760 has been tested by PFS of Cottage Grove, Wisconsin, to the Environmental Protection Agency 2020 Cord wood standard and is safety listed by PFS to ULC S627-00 (2016) and UL 1482-2011 . The serial number is fixed to the stove and to the guarantee card. If you need to contact the factory please refer to this serial number.

Combustion Efficiency

This wood heater has an EPA tested High Heating Value (HHV) efficiency rate of 71%. There are, however, aspects of efficiency that you should be aware of in order to get the most from your stove. Operation habits and fuel moisture can have a significant effect on efficiency. Poorly seasoned wood having a higher than optimum moisture content, can reduce the amount of energy transferred to the living area as a result of the energy expended to evaporate the excess fuel moisture in order for the wood to burn. Operational habits - such as not building a robust kindling fire to readily ignite the larger fuel pieces - can result in an inefficient, smoldering fire. Additionally, most modern wood heaters' optimum performance and efficiency are at the medium to medium-low burn rates.
The location of the stove can also have a significant effect on heating efficiency, primarily in regard to distribution of the heat. For example, a wood heater centrally located in an open living area, will likely provide better circulation of heat than will a stove located in a room adjacent to the larger living area.

Items included:

1 instruction and maintenance manual, 1 warranty card, and 1 detachable handle.

2. General Information

Performances

Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

Model	HARBOR LIGHT 760
Type	Solid Fuel Room Heater
Type of Combustion	Non-catalytic
Fuel Type	Dry Cordwood (20% moisture)
Main Material	Cast Iron
Firebox Isolation	Vermiculite
Flue Exit	6” (150 mm) Back and top connector
Recommended Heating Area (sq. ft..)	450 to 2000 ft^2 (42 to 185 m^2)
Nominal Firebox Volume	1.55 ft^3 (0.044 m^3)
Maximum burn Time[1]	14 hours
Maximum Heat Output (dry cordwood)[2]	57,700 BTU/h (16.91 kW)
Overall Heat Output Rate (min. to max.)[2 3]	13,784 BTU/h to 57,684 BTU/h (4.04 kW to 16.91 kW)
Average Overall Efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78 %
Average particulate emissions rate[7]	1.81 g/h (EPA / CSA B415.1-10)
Average CO[8]	120 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation
[2] Heat Output Range results are determined during specific emissions tests established by the EPA.
[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified
[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[6] Optimum overall efficiency at a specific burn rate (LHV).
[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

CONTACT YOUR LOCAL BUILDING OFFICIALS FOR INFORMATION ON RESTRICTIONS AND INSTALLATION AND PERMIT REQUIREMENTS IN YOUR AREA.

WARNINGS!

1. **KEEP ASH DRAWER CLOSED DURING FIRING IN THIS STOVE. USE A METAL CONTAINER WITH A TIGHT FITTING LID TO DISPOSE OF ASHES.**

2. **NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR 'FRESHEN UP' A FIRE IN THIS STOVE. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.**

3. **DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.**

4. **THE STOVE IS HOT WHILE IN OPERATION. DO NOT TOUCH AND KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. USE GLOVES WHEN STOKING THE FIRE.**

5. **DO NOT CONNECT THIS STOVE TO A CHIMNEY FLUE CONNECTED TO ANOTHER STOVE OR APPLIANCE.**

6. **DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.**

7. **DO NOT INSTALL IN A MOBILE HOME.**

8. **BE SURE TO ALLOW AN ADEQUATE SOURCE OF FRESH AIR INTO THE ROOM WHERE THE STOVE IS OPERATING .**

9. **DO NOT OPERATE THE STOVE WITHOUT THE FIREBOX REFRACTORY PLATES PROPERLY INSTALLED.**

10. **BUILD FIRES DIRECTLY ON THE BOTTOM OF THE STOVE.**

11. **DO NOT USE GRATES, IRONS OR ANY OTHER METHOD TO ELEVATE THE FIRE.**

12. **THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH OPERATING INSTRUCTIONS IN THIS MANUAL**

What to do if you have a chimney fire

If you realize a chimney fire is occurring, follow these steps:

Get everyone out of the house, including yourself.

Call the fire department. If you can do so without risk to yourself, these additional steps may help save your home. Remember, however, that homes are replaceable, lives are not.
Put a chimney fire extinguisher into the stove.

Close the air controls on the stove and the damper on the chimney connector.

Use a garden hose to spray down the roof (not the chimney) so the fire won't spread to the rest of the structure.

Once it's over, call a CSIA Certified Chimney Sweep to inspect for damage. Chimney fire damage and repair normally is covered by homeowner insurance policies.

3. Installation

WARNING

IF YOUR NORFLAM WOOD-BURNING STOVE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW ALL INSTALLATION, OPERATION AND MAINTENANCE DIRECTIONS.

Pre Installation Check List

Before you begin an installation, review your plans, check to see:

- Your stove and chimney connector will be far enough from combustible material to meet all clearance requirements.
- The floor protection is large enough and is constructed properly to meet all requirements.
- You have all necessary permits from your local authorities. Your local building official is the final authority for approving your installation as safe and in determining that it meets all local and state building and safety codes.

The metal label permanently attached to the back of every Norflam wood-burning stove shows that it has been tested to current UL and ULC safety standards, and gives the name of the testing laboratory. Clearance and installation information is also printed on the label. Local authorities will generally accept the label as evidence that, when the stove is installed according to the information on the label and in this manual, the installation meets codes and can be approved.

This wood stove must be connected to 1) a chimney complying with the requirements for Type HT chimneys in the standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or 2) a code-approved masonry chimney with a flue liner.

For any unresolved questions about installation in the USA, refer to the national Fire Protection Association's publication ANSI/NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. For installation in Canada, refer to CSA CAN-B365, Installation Code for Solid Fuel Burning Applications and Equipment. These standards are the basis for many national codes.

They are nationally recognized and are accepted by most local authorities. Your local dealer or your local building official may have a copy of these regulations.

WARNING!

CHECK ALL LOCAL BUILDING AND SAFETY CODES BEFORE INSTALLATION. THE INSTALLATION INSTRUCTIONS AND APPROPRIATE CODE REQUIREMENTS MUST BE FOLLOWED EXACTLY AND WITHOUT COMPROMISE. ALTERATIONS TO THE STOVE ARE NOT ALLOWED. DO NOT CONNECT THE STOVE TO A CHIMNEY SYSTEM SERVING ANOTHER STOVE, APPLIANCE OR ANY AIR DISTRIBUTION DUCT. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID THE MANUFACTURERS WARRANTY.

NOTE

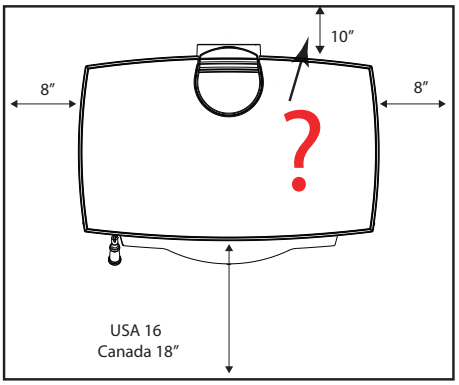
If you plan to vent your stove into an existing masonry chimney, have the chimney inspected by a local fire marshal or qualified installer. Remember that the chimney and its location on the roof heavily influences the stoves performance. An oversized flue may not provide effective draft and a flue liner may be required. (Observe draft requirements). Consult your dealer or qualified installer before final selection is made.

You may wish to leave enough room between the stove and the wall to make cleaning easier.

Floor protection

If the stove is to be installed on a combustible floor, the stove must be placed on a noncombustible hearth pad, which extends 8” (200 mm measured from the legs) beyond the stove sides and back, and 18” (455 mm) measured from side and back panels to the front. The floor protection can be any noncombustible material that has a minimum R- value of 1.0 and listed to UL-1618.

FLOOR PROTECTOR



FRONT
Floor protection for Canada 18″ (45 cm) from unit to front of floor protector - and 8″ (20 cm) to the sides.

Floor Protector must be under connector pipe and 2″ (5 cm) to the side for a through the wall configuration.

Ceiling height clearance

Do not install in an alcove or confined space and do not install in a room with a ceiling high below 7’0” (210 cm).

Clearance to combustibles

You must install the stove with sufficient space between the stove (top, sides, back, front, and under stove pipes) and any material that can catch fire. This includes furniture, especially in front of the stove.

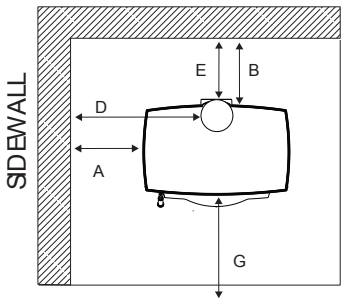
Combustible Wall Clearance for top vent installation

When installing stove the following clearances to combustible materials must be kept.

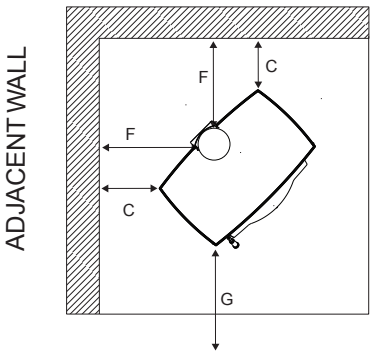
Chimney connector pipe	A	B	C	D	E	F	G
6” single wall							

CLEARANCE TO COMBUSTIBLE SURFACES

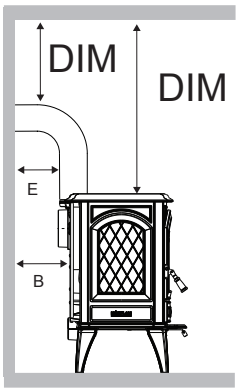
TOP VENT OPTION
BACKWALL



TOP VENT OPTION
ADJACENT WALL



TOP VENT OPTION
CEILING

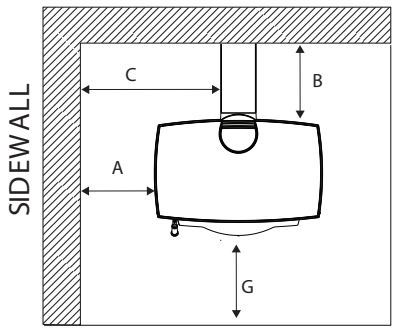


Combustible Wall Clearance for rear vent installation

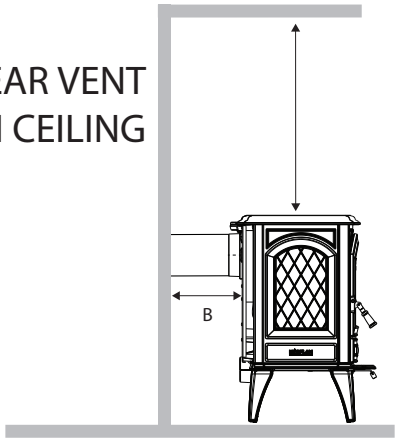
In placing to stove the following clearances to combustible materials must be kept.

Chimney connector pipe	A	B	C	G
6” single wall				

BACKWALL



REAR VENT
OPTION CEILING



Refer to the chimney connector manufacturer’s instructions concerning installation of listed connector pipe, wall thimble and chimney.

Draft Requirements

Norflam Harbor Light is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an oversized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .06" W.C. (Inches Water Column) and less than 08" W.C. (15 Pa - 20 Pa). A stove located in a basement may not generate sufficient draft to burn efficiently.

The chimney draft depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the chimney connector pipe (if a damper has been installed). If the chimney draft is strong, the combustion air supply should also be reduced.

Chimney Installation

DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

Norflam Harbor Light is listed for installation as a vertically top or rear vented wood-burning stove using a listed class A (UL103HT) for Canada (CAN/ULC-S629) factory built chimney exiting through the ceiling/attic/roof.

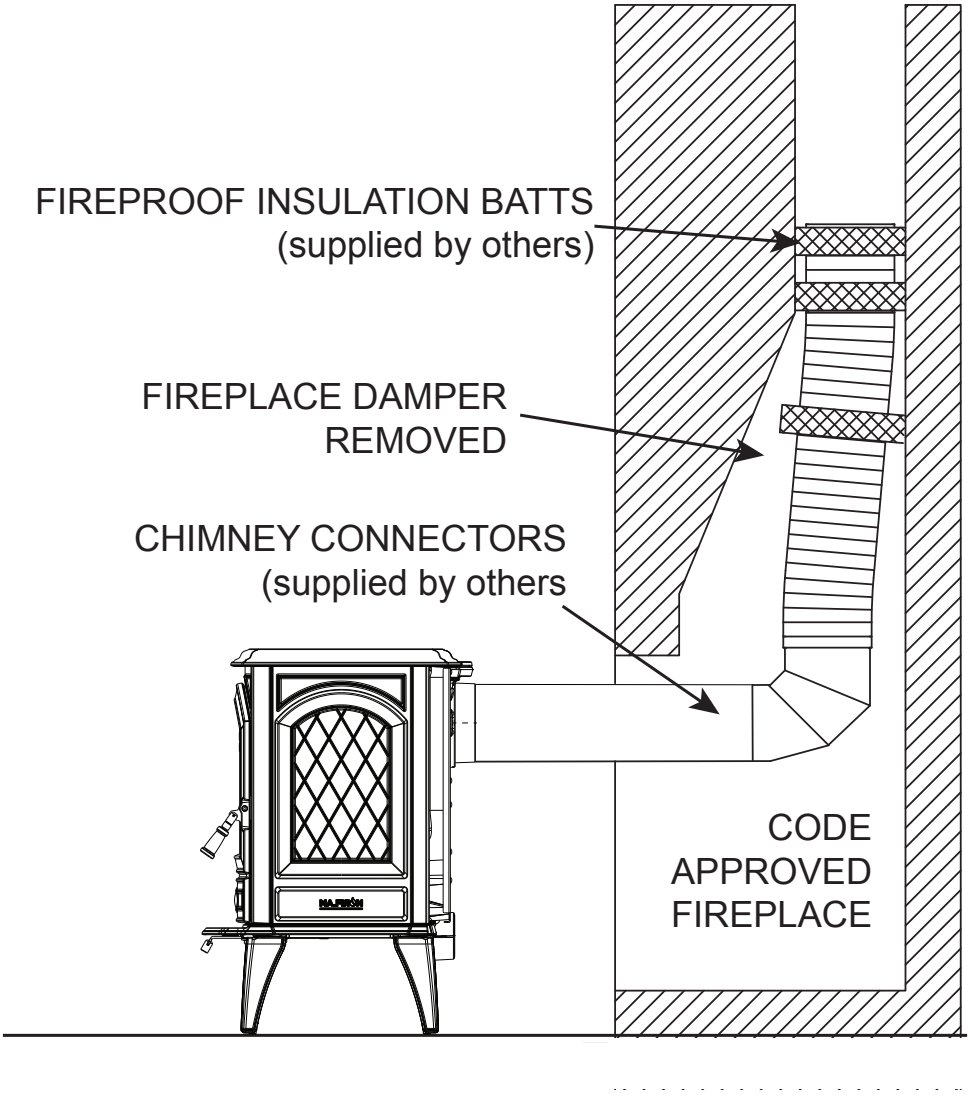
The inside diameter of the chimney and connector pipe must not be smaller than 6" (152 cm) diameter. Single wall 24 gauge MSG (0.58 - 0.71 mm) , this may be used in the room where the stove is installed, follow the chimney manufacturer's instruction for installation of chimney and chimney adapter. In Canada, where passage through wall, or partition of combustible construction is desired, the installation shall conform to CAN/CSA B365.

Factory Built Chimney

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase (from the same manufacturer) and install the ceiling support package or wall pass-through and "T" section package, fire stops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain the proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation.

Masonry Chimney

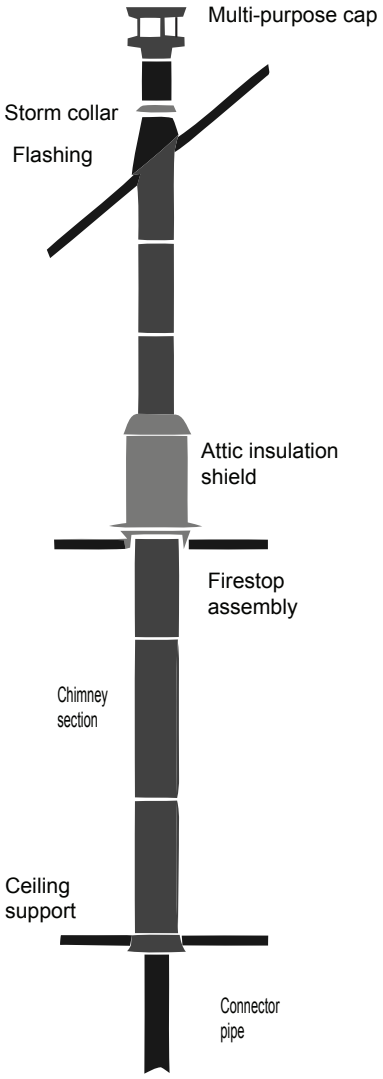
Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed. Refer to Combustible Wall Chimney Connector Pass-Throughs on the following pages. When connecting the Norflam Harbor Light to an existing chimney: Remove the existing damper and/or any portion of the smoke shelf necessary to accommodate a 6 inch chimney connector. Install fireproof insulation batts between the connector pipes and the existing flue. Connector pipes must be installed to allow access for chimney cleaning. Large chimneys may not generate sufficient draft. A 6 inch stainless steel chimney liner extending tot he top of the chimney is recommended.



Factory Chimney Top vent installation

Required installation components:

- Chimney cap
- Insulated chimney
- Storm collar
- Roof flashing
- Ceiling support box or joist shield/fire stop spacer
- Chimney connector pipe
- Chimney connector adapter

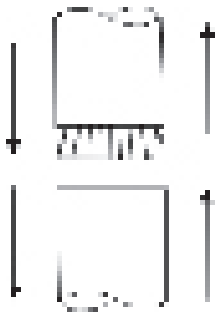


Chimney connector

The chimney connector is a single or walled pipe used to connect the stove to the chimney. For use with the Norflam wood-burning stoves the chimney connector MUST be 6” in diameter, with a minimum thickness of 24 gauge black steel or 26 gauge blued steel

Aluminum and galvanized steel pipe is not acceptable for use with the Norflam wood-burning stove. These materials cannot withstand the extreme temperatures of a wood fire and can give off toxic fumes when heated.

DO NOT USE THE CONNECTOR PIPE AS A CHIMNEY



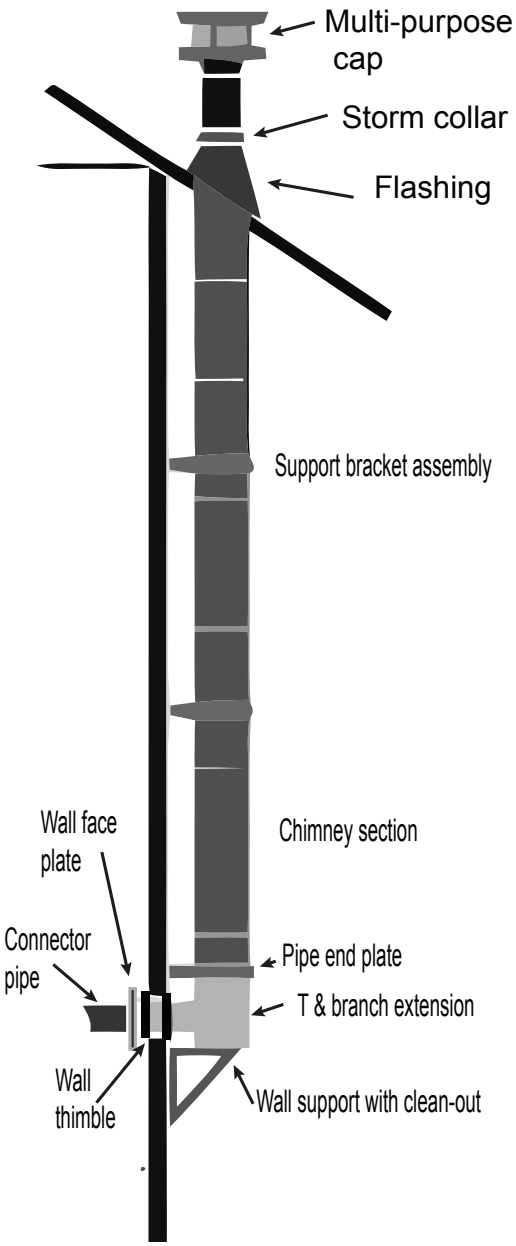
Each chimney connector or stove pipe section must be connected to the stove flue collar and to each other with the male (crimped) end toward the stove. Each adjacent piece of connector must be fastened with 2 screws. This prevents any condensed or liquid creosote from running down the outside of the pipe or the stove top. All joints, including the flue collar connection must be secured with three sheet metal screws to ensure that the sections do not separate. For the best performance the chimney connector should be as short and direct as possible, with no more than one 90 degree elbow. The maximum horizontal run is 36” and a recommended total length of connector pipe should not exceed 10 feet. Always slope horizontal runs upward ¼” per foot toward the chimney. No part of the chimney connector may pass through an attic or roof space, closet or other concealed-space, or through a floor ceiling. All sections of the chimney connectors must be accessible for cleaning. Where passage through a wall or partition of combustible construction is desired, the installation must conform with NFPA 211 or CAN/CSA-B365.

Rear vent installation

For venting into a masonry or a back standing steel chimney through the top vent the top horizontal portion of a single wall connector pipe can be located not closer than 18” below a combustible ceiling.

From the factory the stove is prepared for top mounting of the flue collar, but all Norflam wood-burning stoves have an optional rear flue outlet, therefore the flue collar can be fitted either on the top or at the rear as required.

Rear venting into a masonry or steel chimney through a thimble vent configuration or other than described here must follow local codes or NFPA 211 or CAN/CSA_B365 guidelines and methods.

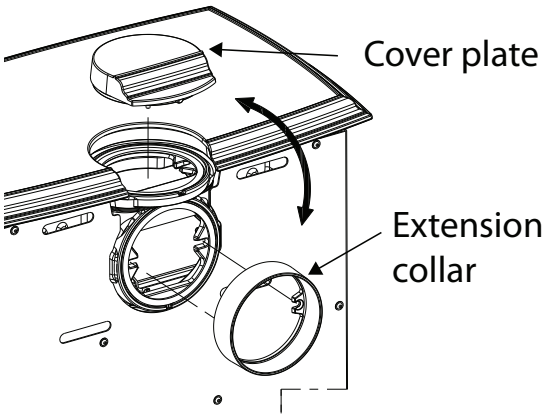


Required installation components:

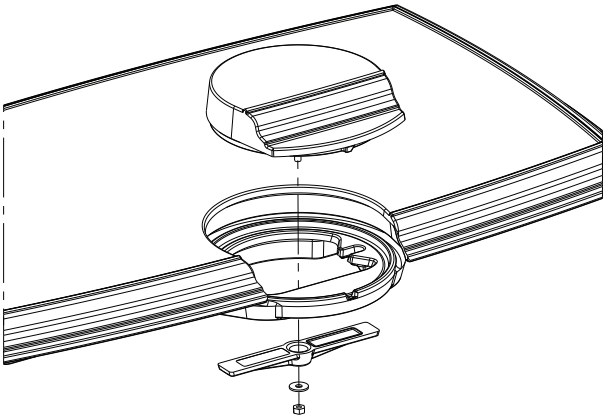
- Chimney cap
- Insulated chimney
- Tee section
- Tee support bracket
- Chimney connector pipe
- Wall thimble
- Wall strap

Mounting the flue collar for rear venting:

Step 1:
Remove the cover plate on the rear of the stove. remove the connection collar from the top of the stove. Mount the connection collar on the rear of the stove and the cover plate on the top of the stove.



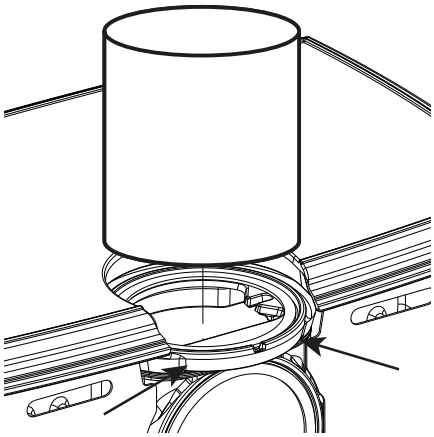
Step 2:
Remount the cover plate in the top outlet using the same bracket and fasteners that you removed in step 1



Mounting the connector pipe to the stove

Place connector pipe in the flue collar.

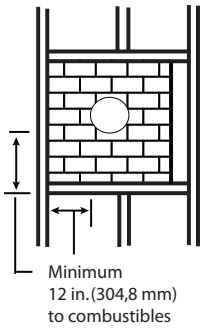
Use two self-tapping screws in the holes provided to secure the connector pipe so that it cannot be lifted of turned from the stove.

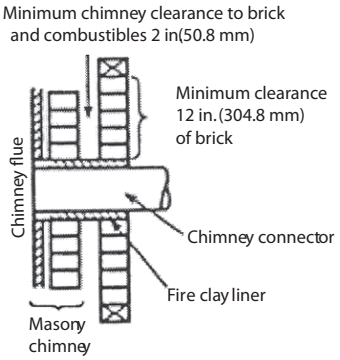


Combustible Wall Chimney Connector Pass-Throughs

Method A 12” (304.8 mm) Clearance to Combustible Wall Member:

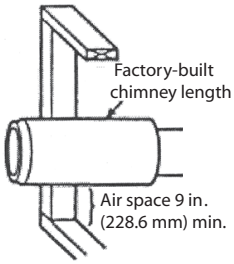
Using a minimum thickness 3.5” (89 mm) brick and a 5/8” (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12” (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.

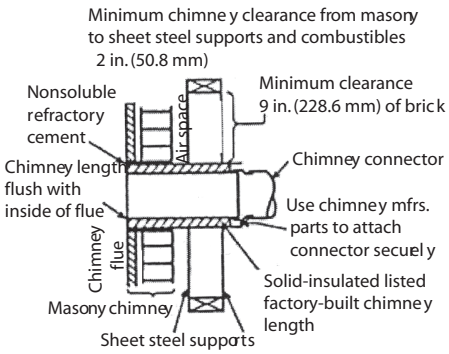




Method B 9” (228.6 mm) Clearance to Combustible Wall Member:

Using a 6” (152.4 mm) inside diameter, listed factory-built Solid-Pak chimney section with insulation of 1”(25.4 mm) or more, build a wall pass-through with a minimum 9” (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9” (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water soluble refractory cement. Use this cement to also seal to the brick masonry penetration

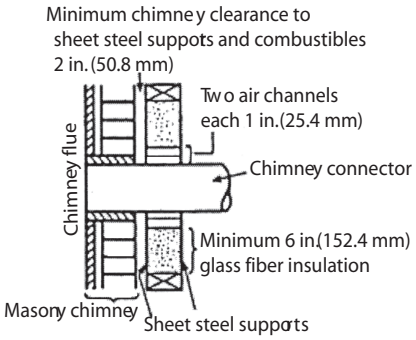




Method C 6” (152.4 mm) Clearance to Combustible Wall Member:

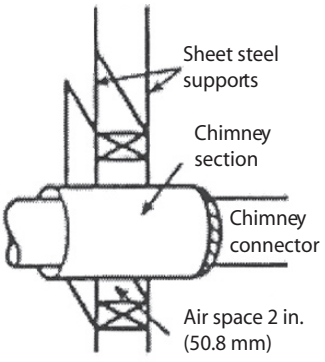
Starting with a minimum 24 gage (.024” [.61 mm]) 6” (152.4 mm) metal chimney connector, and a minimum 24 gage ventilated wall thimble which has two air channels of 1 in. (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6” (152.4) mm separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24-gage minimum sheet metal support. Maintain the 6” (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.

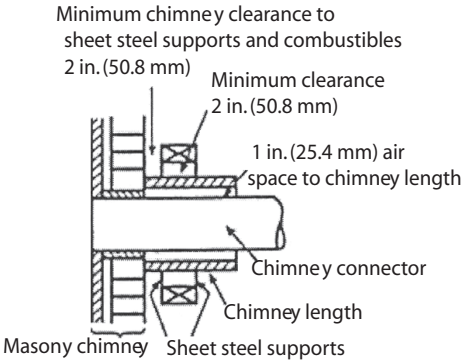




Method D 2” (50.8 mm) Clearance to Combustible Wall Member:

Start with a solid-pak listed factory built chimney section at least 12” (304 mm) long, with insulation of 1” (25.4 mm) or more, and an inside diameter of 8” (2 inches [51 mm] larger than the 6” [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1” (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gage minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure chimney flue liner do not penetrate the liner.





Notes

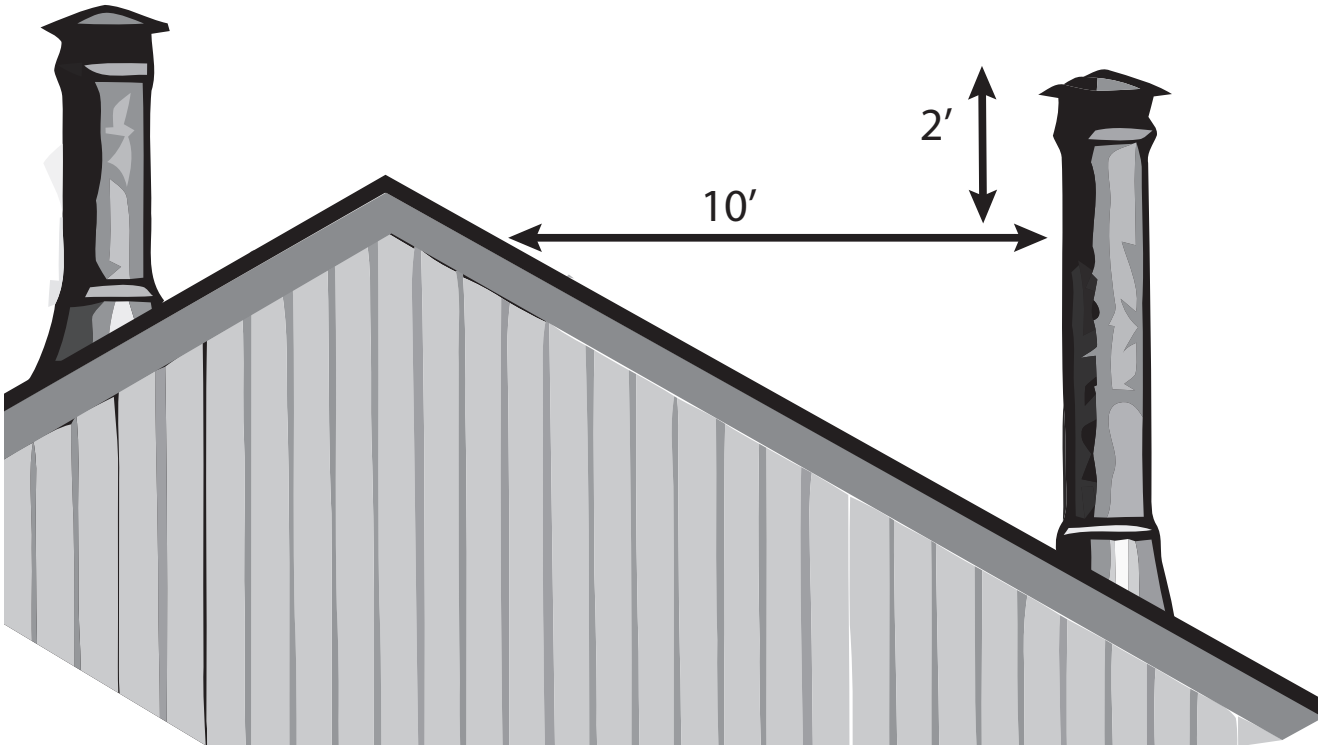
1. **Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, to but not past the inner flue liner face.**

2. **A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.**

Chimney height requirements

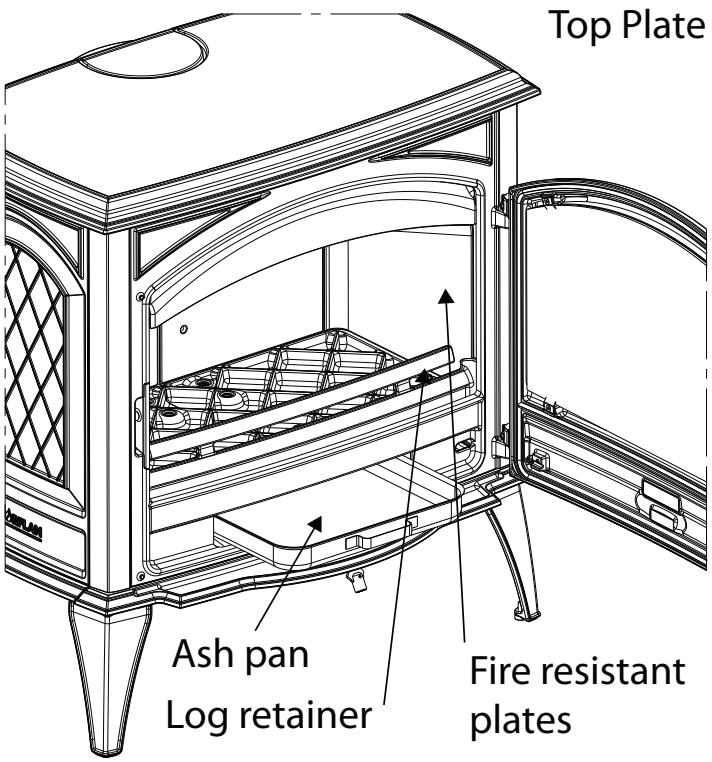
The chimney must extend 3 feet above the level of roof penetration and a minimum of 2 feet higher than any roof surface within 10 feet. Check with your local building officials for additional requirements for your area.

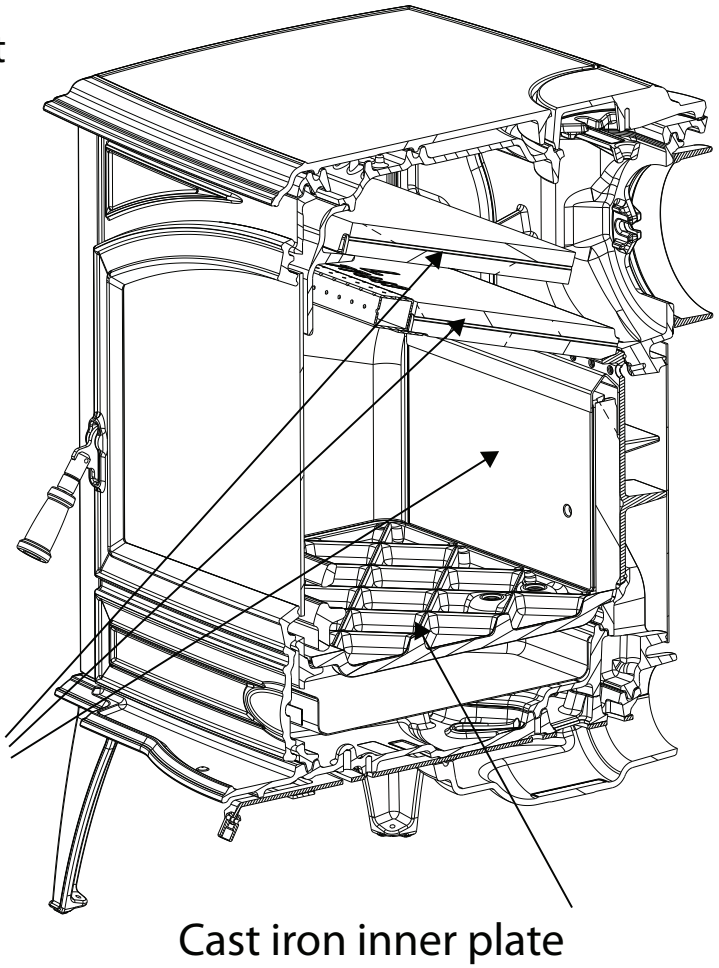
The condition of the chimney and height is very important; we suggest a total minimum height of 13’ (4.0 m). Measured from the top of the stove.



4. Prepare the Stove

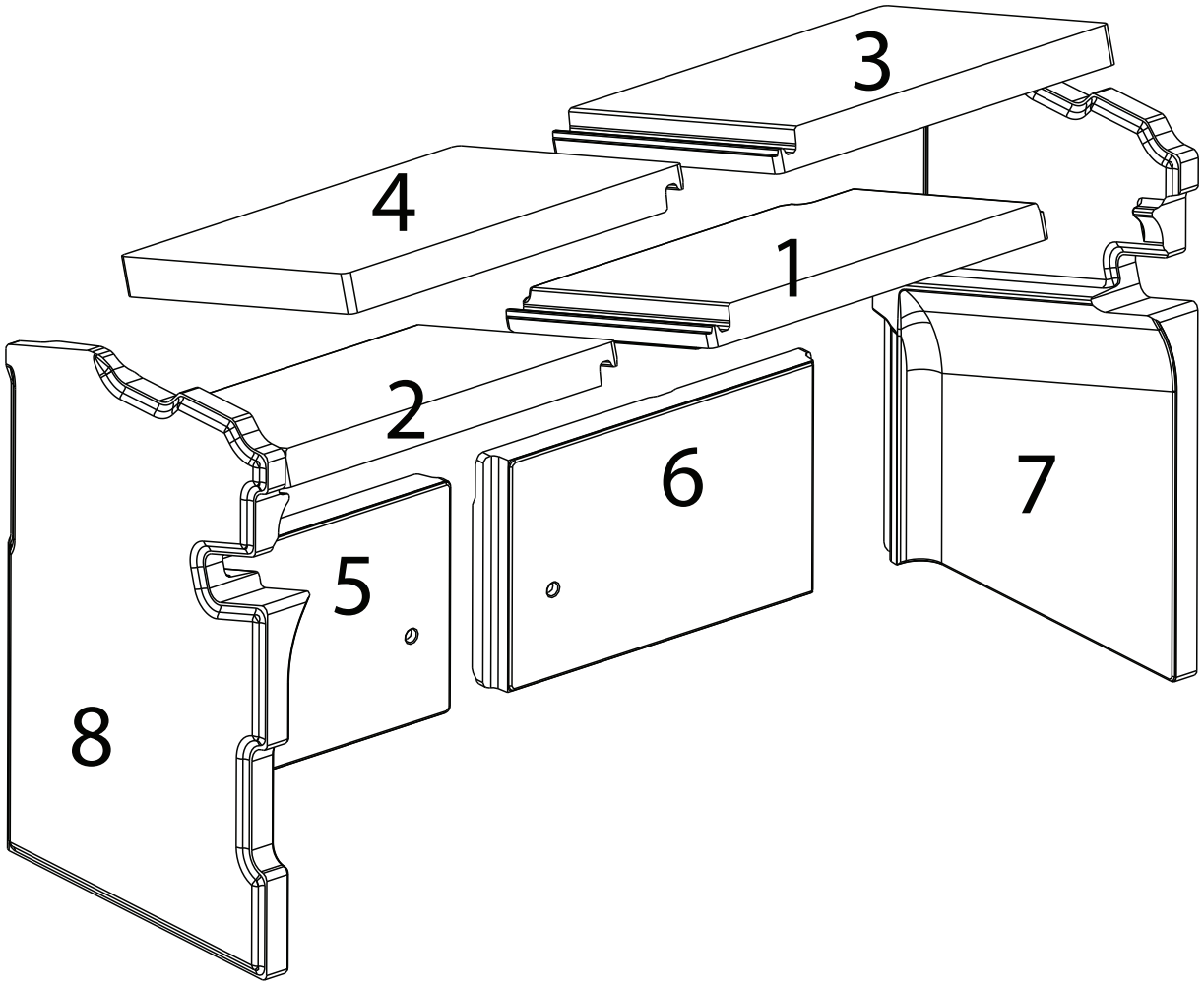
Please check the appliance for damage caused during transport or any other damage or defects immediately after delivery. The appliance is attached to the pallet with screws at the bottom. If you detect damage caused during transport or any other damage or defects, do not use the appliance and notify the supplier. Remove the removable parts (fire resistant inner plates, ash pan) from the stove before you start installation. By removing removable parts, it is easier to move the appliance and to avoid damage. Note the location of those removable parts, so that you have no difficulties in installing the parts in the right place later on. Cast iron inner plates protect the combustion chamber and dissipate heat to the environment.





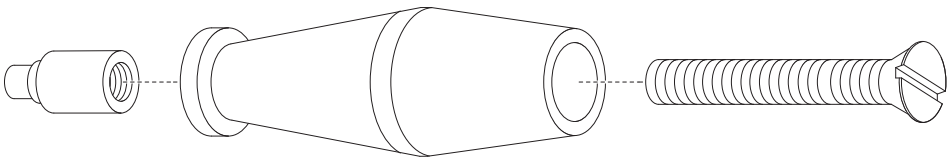
Exploded view of the fire resistant inner plates.

These plates are made from a very heat resistant and highly insulating material made of processed vermiculite. This material is capable of service temperatures up to 1150 C (2101 F) It is however somewhat fragile. Care should be used when handling these pieces and when fueling the stove. Please remove the pieces in numerical order when installing or cleaning the stove.



Cold Handle

The stove is supplied with a cold handle. Assemble the cold handle using the M8x50 screw provided. When not in uses store the handle in the hole provided at the side of the stove.



5. Instructions

Fire resistant inner plates

Fire resistant inner plates are delivered in all Norflam wood-burning stoves. We recommend that you treat the plates with care because it is a delicate material (not covered by the limited warranty). Small cracks may arise in the plates from minor water content, especially if the stove is overheated during the first fire. These cracks do not influence the performance of the stove and are not covered by the limited warranty.

Glass

The glass is a heat resistance ceramic glass that can withstand continuous temperatures up to 1390°F (754°C). This temperature is well above the temperatures in which you operate your stove. This stove is designed to provide a flow of air over the inside of the glass. This air combined with high temperatures helps keep the glass optimally clean when the air wash air intake is fully opened. When operating the stove on low for extended periods of time, the glass may become dirty. A short, hot fire will help clean off much of the normal soot buildup (see section 6: Troubleshooting). In order to keep glass soot free the moisture content of the wood must be between 15 and 18%.

Smoke & Carbon Monoxide Detectors

Norflam strongly recommends installing smoke detectors throughout your home. However, do not install them too close to the stove as the heat can activate them. Poor draft or improperly installed stoves and chimney components can allow smoke and carbon monoxide to escape into the home. Operating the stove on low-burn settings can make these problems worse. During testing this appliance was shown to emit between _____ and _____ carbon monoxide. Carbon monoxide is a colorless and odorless gas and extremely toxic.

Gaskets

The stoves are equipped with ceramic gaskets to ensure the tightness of the doors and the glass. These gaskets are wearing parts and must be changed from time to time. Note the position of and remove worn gaskets. Place the new gasket in the same position as the worn one. Secure the new gasket in place with wood stove gasket cement. Place a piece of paper or plastic between the door and the stove until the gasket cement has dried.

Protected Wall Reduced Clearances

Local codes in some areas will allow reduced clearances when the stove is installed adjacent to a protected wall system. Your local building official must approve the variance. Check your local building codes or with a qualified installer.

Room Ventilation & Combustion Air Supply

Provide for an adequate supply of air for combustion. Proper ventilation is essential when using a solid fuel-burning appliance. The combustion process uses oxygen from inside the dwelling and if there is not adequate make-up air (such as in newer homes which are well insulated and weather

tight), it may be difficult to obtain an adequate draft in your chimney (caused by a shortage of air in the house). To correct this, it may be necessary to crack a window on the windward side of the dwelling, or provide combustion air to a nearby floor/wall vent (fresh air duct), or directly to the stove. Please refer to your local building codes.

Draft Requirements

The Norflam wood-burning stove is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an oversized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .05" W.C. (Inches Water Column) and less than .08" W.C. The chimney draft also depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the smoke pipe (if a damper has been installed). An uncontrollable burn or excessive temperature indicates excessive draft. If the chimney draft is strong, the combustion air supply should be reduced accordingly.

Operate Efficiently

Use seasoned wood versus high moisture wood to get the most efficient heat; Operate the stove at the medium burn rate setting.

6. Operation

WARNING! DO NOT USE GASOLINE, LIGHTER FLUID, KEROSENE OTHER FLAMMABLE LIQUIDS TO START OR FRESHEN A FIRE IN THE STOVE KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.

Fueling the wood-burning stove

Your Norflam freestanding wood-burning stove is designed for burning natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. Wood should be stored in a dry place for at least two years before being used for fuel. Some trees have very high moisture content and it is necessary to thoroughly dry the wood. Cutting and splitting the wood can speed up the drying process, then stacking it with both ends of the stick exposed. More drying occurs through the end than through the sides even when the wood is split. We recommend that the moisture content of the wood be between 15-18%. If your wood sizzles or you see bubbles coming from the end of the logs, the wood is not dry.

Green or uncured wood does not work well as fuel, and can cause increased creosote buildups. The value of green wood as a source of heat is limited. Do not overload, use kindling wood, or mill ends for primary fuel as this may cause over-firing. Although feeding excessive amounts of fuel to the stove should be avoided, it is important to supply it with sufficient fuel to maintain a moderately hot fire (this is particularly important since burning wood produces volatile substances).

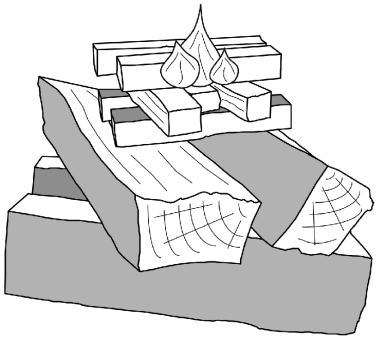
Do not store wood within the installation clearances or within the space required for refueling or ash removal.

WARNING! BURNING MATERIALS OTHER THAN NATURAL DRY WELL SEASONED WOOD MAY SHORTEN THE LIFE OF YOUR STOVE AND POSSIBLY LEAD TO A DANGEROUS OVER-FIRING CONDITION. DO NOT BURN GARBAGE, RUBBER OR PLASTIC, PARTICLE, BOARD, SALT WATER DRIFTWOOD OR PRESSED LOGS USING BONDING AGENTS BECAUSE THEY CAN PRODUCE CONDITIONS, WHICH WILL DETERIORATE METAL. OVER FIRING THE STOVE MAY CAUSE PAINT DISCOLORATION. A WHITE GLAZE ON THE GLASS IS AN INDICATION OF OVER FIRING.

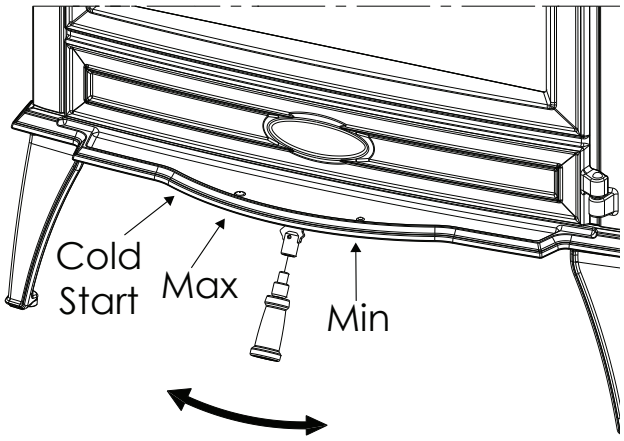
Starting the Stove

Do not elevate the fire on a grate. Build fire directly on the cast iron plates inside the stove. Do not build the fire close to the glass. A cold flue often does not have enough draft, and consequently, some smoke may escape into the room instead of up the chimney. By lighting the fire in the way described here, you can avoid this problem. Building your fire as described here with the kindling on top will decrease visible smoke and emissions.

- Stack two layers of medium sized logs crosswise. Use about 11 lb. or 5 kg of wood.
- Stack two layers of kindling crosswise on top of the logs.
- Place a fire lighter in the lower layer of kindling and light the fire lighter according to the instructions on the packaging.

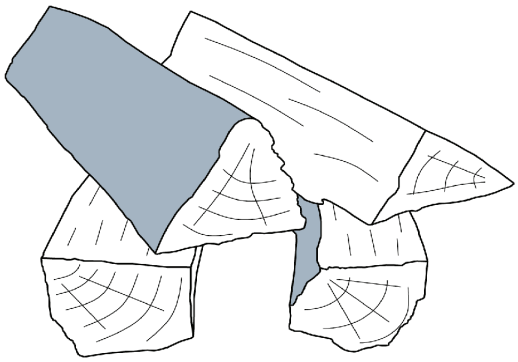


- Close the door of the appliance and move the air control to the cold-start position; see the following figure.
- When the fire is burning well move the control arm to the desired position for heat output.
- Let this fire develop into a good blaze until there is glowing bed of charcoal. You can then add fuel and adjust the appliance, see the following section “Burning Wood”.

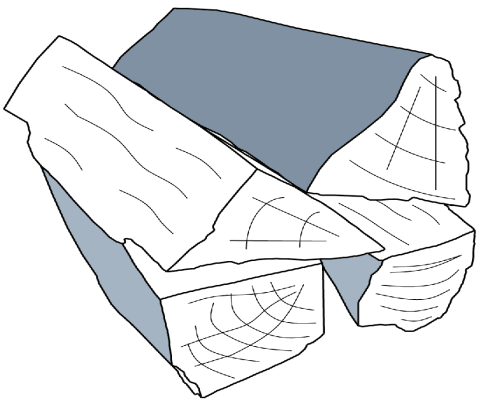


Refueling the Stove

After you have followed the instructions for lighting:
- Slowly open the door of the appliance.
- Move the control arm to the “MAX” position
- Spread out the charcoal bed evenly across the bottom of the fire compartment.
- Stack a few logs on the charcoal bed.
- Close the door of the appliance.
- When the fire is burning well move the control arm to the desired position for heat output.



Open stacking
If the logs are stacked openly, the wood will burn quickly as the oxygen can reach each log easily. If you want to use the stove for a short while, make an open stack.



Compact stacking
If the logs are stacked tightly, the wood will burn more slowly as the oxygen can only reach some logs easily. If you want to burn wood for a longer period, make a compact stack.

Advice

- Never burn wood with an open door.
- Regularly burn wood with intense roaring fires.
- If you frequently have low intensity fires, tar and creosote may be deposited in the chimney. Tar and creosote are highly combustible substances. Thicker layers of these substances might catch fire when the temperature in the chimney increases suddenly and steeply. Therefore it is necessary for the fire to regularly burn very intensely, so that layers of tar and creosote disappear. Low intensity fires also cause tar deposits on the stove window and door.
- When the outside temperature is not very low,it is better to burn wood intensely for a few hours instead of having a low intensity fire for a long period of time.
- It is better to add a small amount of logs regularly than to add many logs at the same time.
- Never slam the door shut or close the door against protruding firewood. Do not strike the door.

Extinguishing the fire

Do not add fuel and just let the fire go out. If a fire is damped down by reducing the supply of air, harmful substances will be produced and released. Therefore, let the fire go out naturally. Keep an eye on the fire until it has gone out. When the fire has died completely, all air inlets can be closed.

7. Maintenance

Ash Disposal and Removal

Caution

Make sure the fire is out and stove is cold before removing ashes! The cast iron inner plates on the bottom of the fire chamber have pockets. You should leave ash in the pockets during the heating season. This helps insulate the bottom of the stove and protects the combustion chamber components. Be careful when you remove ashes from the stove, there may be embers left as long as 24 hours after the stove was last used. Ashes should be placed in a metal container with a tight fitting lid and moved outdoors immediately. Other waste should not be placed in this container. The closed container of ashes should be places on a noncombustible floor or on the ground well away from all combustible materials, pending final disposal.

If ashes are disposed of by burial in soil or otherwise locally dispersed, they should be kept in the closed container until all cinders have thoroughly cooled.

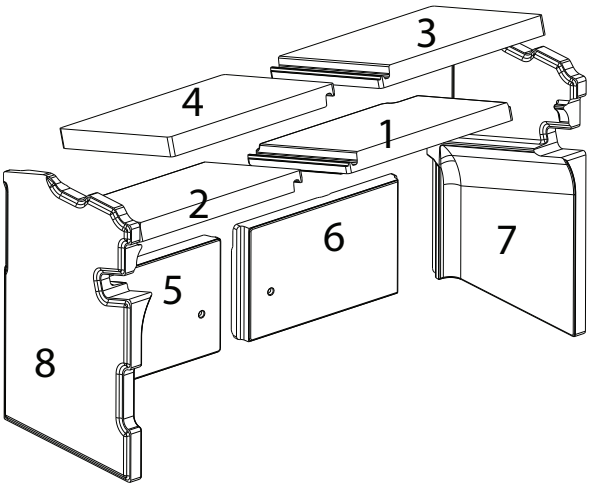
Cleaning Your Stove

Do not clean the appliance when it is still warm.
Clean the exterior of the appliance with a dry lint-free cloth.
At the end of the heating season, you can clean the interior of the appliance thoroughly: If necessary, first remove the fire-resistant inner plates. Checking fire-resistant inner plates The fire-resistant inner plates are consumables and subject to wear. Check the fire-resistant inner plates frequently and replace them when necessary. The insulating vermiculite inner plates may develop hairline cracks, but that does not affect their performance adversely.

Removing the Fire Resistant Plates for Cleaning

Make sure the fire is out and stove is cold before removing the plates, be careful when handling the plates, they are made of a breakable material.

Push plate (1) up and move to the side to remove. Repeat the process for plates 2,3, and 4. Remove the back plates 5 and 6 and finally the side plates. Reverse the process to re-install the plates



WARNING! DO NOT OPERATE WOOD-BURNING STOVE WITHOUT FIRE RESISTANT PLATES PROPERLY INSTALLED OR WARRANTY WILL BE VOID.

WARNING! DO NOT USE SUBSTITUTE MATERIALS. ALWAYS USE LISTED SPARE PARTS FROM NORFLAM.

The cast-iron inner plates will last a long time if you frequently remove the ash that may pile up underneath them. If accumulated ash under a cast-iron plate is not removed, the plate cannot dissipate the heat anymore to its surroundings and that may cause the plate to warp or crack. Never use the appliance without the fire-resistant inner plates.

Cleaning glass

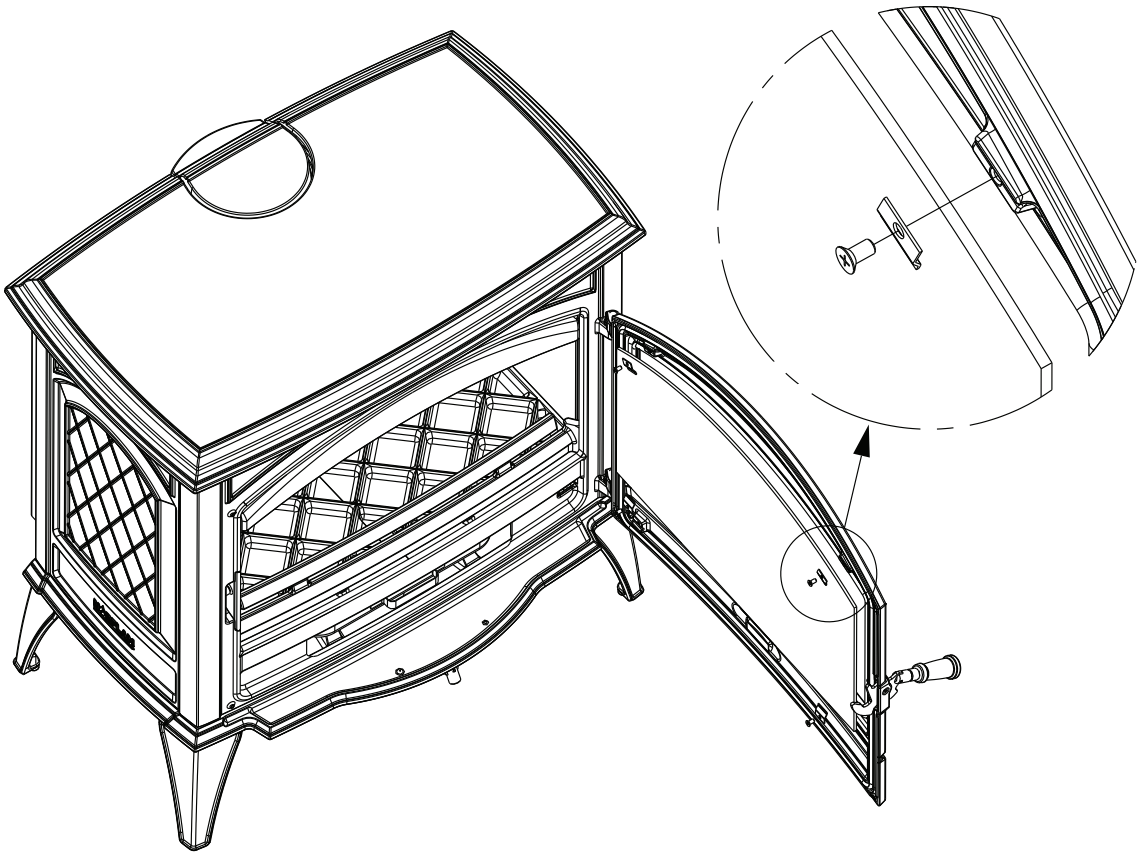
Dirt and soot cling less easily to well-cleaned glass. Proceed as follows:

- Remove dust and loose soot with a dry cloth.
- Clean the glass with stove window cleaner:
  - Apply stove window cleaner to a kitchen sponge, rub down the entire glass surface and give the cleaning agent time to react.
  - Remove the dirt with a moist cloth or kitchen tissue.
- Clean the glass again with a normal glass cleaning product.
- Rub the glass clean with a dry cloth or kitchen tissue.
- Do not clean the glass when hot

Do not use abrasive or aggressive products to clean the glass. Wear household gloves to protect your hands. If the glass in the appliance is broken or cracked, it must be replaced before you can use the appliance again. Make sure that no stove window cleaner runs between the glass and the cast-iron door.

Replacing Door Glass

Use only Norflam ceramic replacement glass 4 mm in thickness. The use of any other glass is prohibited. Do not remove the door before installing new glass. When replacing the glass all gaskets must be installed correctly. Make note of the gasket locations as you take the door apart. Remove the steel washers and their gaskets from the screw posts. Remove any left over pieces of broken glass. Replace any damaged or worn gaskets. Center the new glass between the screw posts and reinstall the washers and their gaskets.



Creosote Formation and the Need for Removal

When wood is burned slowly it produces tar and other organic vapors, which combine with expelled-moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates in the flue lining. When ignited this creosote makes an extremely hot and dangerous fire.

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if soot creosote and ash build up has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

8. Troubleshooting

					Problem	
●					Wood does not keep burning	
	●				Gives off insufficient heat	
		●			Smoke emissions into the room when adding wood	
			●		Fire in appliance is too intense, is hard to adjust	
				●	Deposit on the glass	
					Possible cause	**Possible solution**
●	●	●		●	Insufficient draught	A cold flue usually fails to create sufficient draught. Follow the instructions for lighting in the "Operation" chapter; open a window.
●	●	●		●	Wood too damp	Use wood with no more than 20% moisture.
●	●	●		●	Pieces of wood too big	Use small pieces of kindling. Use split logs no larger than 30 cm in circumference.
●	●	●	●	●	Wood stacked up incorrectly	Stack up the wood in a way that allows an adequate air flow between the logs (open stacking, see "Burning wood")
●	●	●		●	Chimney does not work properly	Check whether the chimney meets the requirements: at least 4 metres high, right diameter, well insulated, smooth inside, not too many bends, no obstructions in chimney (bird's nest, too much soot deposit), hermetically tight (no leaks).
●	●	●		●	Chimney stack incorrect	Sufficiently high above the roof, no obstacles in its vicinity
●	●	●	●	●	Air inlet set incorrectly	Open the air inlet completely.
●	●	●		●	Appliance connected to chimney incorrectly	Connection should be hermetically tight.
●	●	●		●	Vacuum in area where appliance is installed	Switch off extraction systems.
●	●	●		●	Insufficient supply of fresh air	Provide an adequate air supply; if necessary use connection to outside air.
●	●	●		●	Adverse weather conditions? Inversion(reversed airflow in chimney from high outside temperatures), extreme wind velocities	We recommend you don't use the appliance in the case of inversion. Install an extra piece on the flue to increase the draught if need be.
		●			Draft in the living room	Avoid draft in the living room, do not place the appliance near a door or heating air ducts.
				●	Flames touch the glass	Make sure the wood does not lie too close to the glass.
			●		Appliance is leaking air	Check the door seals and the appliance joints.

9. Norflam Limited Warranty

What's Covered

NORFLAM warrants, to the original retail buyer only , that the cast iron and steel components of this appliance will be free of defects in material and workmanship for a period of five (5) years from the date of purchase.

The enamel finish on the cast iron components is warranted against peeling or fading for a period of two years from the purchase date to the original retail buyer .

The Warranty expires when the original retail buyer transfers ownership.
These warranties are subject to the terms, exclusions and limitations set forth below.

What's not Covered:

- Repair or replacement of parts that are subject to normal wear and tear during the warranty period or to parts that may require replacement in connection with normal maintenance. These parts include paint, gaskets, , vermiculite baffles and panels , and glass
- Damage due to incorrect installation that do not comply instructions contained in this owner's manual or local and/or national fire and building regulations.
- Damage, including damage to enamel surfaces, caused by improper operation, over firing, and/or misuse. Do not burn the appliance with the door open. If any part of the stove or chimney connector glows red it is being over-fired. Warped plates, rust colored cast iron, paint pigment that has turned dusty white, or bubbling, cracking and discoloration of the enamel finish are indications of over-firing. Misuse also includes, any use that does not conform with the operating instructions contained in this owner's manual.
- Damage to enamel finish including chipping, mechanical or chemical abrasion, crazing, or staining
- Rust caused by high humidity or salt air environments.
- Damage from or repair of rust.
- Damage due to service performed by an installer or service agency.
- Damage caused by unauthorized modification, use or repair.
- Costs incurred by travel time and/or loss of service.
- Labor or other costs associated with the repair of components beyond the warranty period.
- Damage incurred while the appliance is in transit.
- Norflam will not cover labor charges, consequential damages (including, but not limited to: the costs of repairing or replacing other property that is damaged when the warranted product fails), or incidental damages (including, but not limited to: the costs a consumer incurs in order to obtain warranty service, such as shipping charges, telephone charges, time lost from work, transportation costs, and the cost of renting a product temporarily to replace the warranted product). Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How to Get Service

NORFLAM will repair or replace, at its option, any of the above components determined by NORFLAM to be covered by this warranty. You must, at your own expense, arrange to deliver or ship the component to an authorized NORFLAM dealer and arrange for pickup or delivery of the component after repairs have been made.

For the address of your authorized Norflam dealer contact:
Norflam
BE0437960542
Nijverheidsstraat 18
B-2381 Weelde, Belgium
info@dovre.be

If, upon inspection, NORFLAM determines that the component is covered by this warranty, the repair or replacement will be made as set forth above. This warranty is not transferable and is extended only to, and is solely for the benefit of, the original retail purchaser of this NORFLAM appliance.

The warranty period for any replaced component will be the remaining unexpired portion of the warranty period for the original component.

Please retain your dated sales receipt in your records as proof of purchase.

ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WRITTEN WARRANTY. EXCEPT AS EXPRESSLY SET FORTH HEREIN, NORFLAM MAKES NO ORAL, WRITTEN OR OTHER WARRANTY WITH RESPECT TO NORFLAM PRODUCTS.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

NORFLAM reserves the right to discontinue, modify or change the materials used to produce NORFLAM products. NORFLAM shall have the right to replace any defective component with substitute components determined by NORFLAM to be of substantially equal quality.

The dollar value of NORFLAM's liability for breach of this warranty shall be limited exclusively to the cost of furnishing a replacement component.

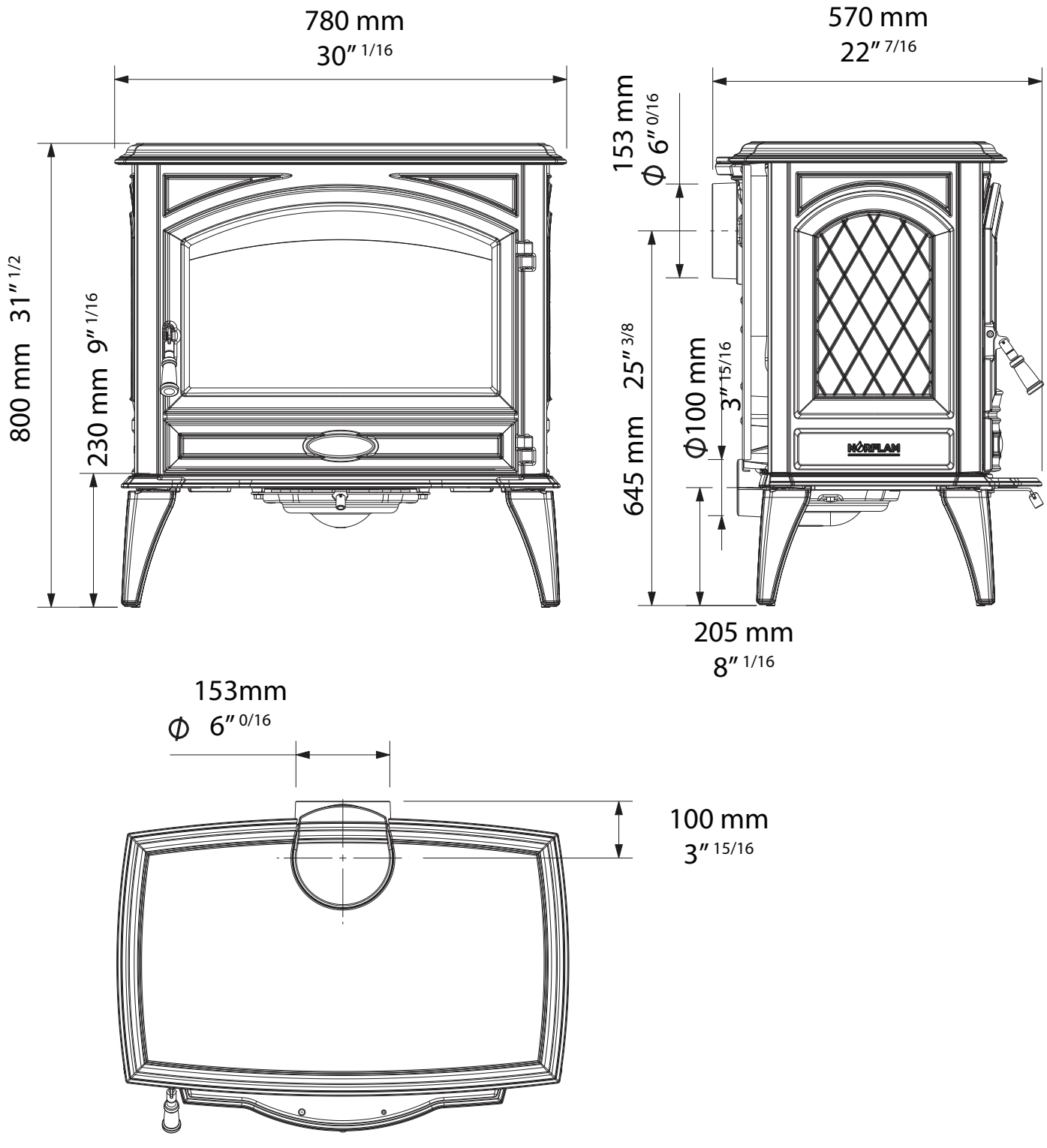
No dealer, distributor, or other person is authorized to modify, augment, or extend this limited warranty on behalf of NORFLAM.

An authorized installer may have been provided with certain information related particularly to the NORFLAM Stove or Fireplace; however, no authorized installer or other person who may service the appliance is an agent of NORFLAM. No inference should be made that NORFLAM has tested, certified, or otherwise pronounced any person as qualified to install or service the appliance. NORFLAM shall not be liable or otherwise responsible for any error or omission by a person installing or servicing a NORFLAM product.

IN ORDER TO QUALIFY FOR WARRANTY COVERAGE, NORFLAM MUST RECEIVE NOTICE OF A POSSIBLE DEFECT WITHIN SIXTY (60) DAYS OF THE DATE THE DEFECT IS FIRST DISCOVERED, OR REASONABLY COULD HAVE BEEN DISCOVERED.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Dimensioned Drawing



Spare Parts

SBI Cape Town 1800

Non-Catalytic Woodstove

Installation and Operation Instructions
for the United States and Canada



This stove is listed to burn solid wood only. Do not burn any other fuels.

Read this entire manual before you install and use this appliance.

Read this entire manual before installation and use of this wood stove. Failure to follow these instructions could result in property damage, injury or even death.

Manufactured by:
Norflam
BE0437960542
Nijverheidsstraat 18
B-2381 Weelde, Belgium

Distributed in the United States and Canada by:
Stove Builder International Inc.
250, De Copenhague Street
G3A 2H3 Saint-Augustin-de-Desmaures
Quebec, Canada

US Environmental Protection Agency phase II certified wood stove compliant with 2020 cord wood standard

This solid fuel heater has been tested and listed according to ULC S627-00 (2016) and UL 1482-2011 standards by an accredited laboratory.

Certified Safety Tests performed by:

PFS C US
PFS F19-461

READ AND KEEP THIS MANUAL FOR FUTURE REFERENCE

CAUTION !!

IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS INCLUDED. **DO NOT DISCARD.** LEAVE THIS MANUAL WITH THE HOMEOWNER.



Risk of Fire

Hot while in operation, keep children, clothing and furniture away. Contact may cause skin burns.

Failure to follow the information in this manual may result in a fire; causing property damage, personal injury, or death. Read this booklet completely before installing or operating this appliance.

For use with solid wood fuel only. This appliance has not been tested for the use of compressed wood logs or bricks.



Caution

Do not modify this appliance in any way.

The chimney connector must be in good condition and kept clean.



Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Do not use chemicals or fluids to start the fire.

Comply with all minimum clearances to combustibles as specified. Failure to comply may cause a house fire.



HOT

Glass and other surfaces are hot during operation and for some time after the fire has gone out. Supervise children around this appliance. Warn children and adults about high temperatures. High temperatures may ignite clothing or other flammable materials. Keep clothing, furniture, draperies and other combustible materials away.

DO NOT OPERATE WITH THE DOOR OPEN AND KEEP ALL SEALS IN A GOOD CONDITION.



Do not operate with door open

CALIFORNIA PROP 65 WARNING:

Use of this product may produce smoke which contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Do not store anything including fuel under the appliance.

Table of Contents

1. Introduction 4
2. General Information 5
    - Performances 5
    - Warnings! 6
3. Installation 7
    - Pre Installation Check List 7
    - Floor protection 8
    - Ceiling height clearance 8
    - Clearance to combustibles 9
    - Combustible Wall Clearance for top vent installation 9
    - Combustible Wall Clearance for rear vent installation 9
    - Draft Requirements 10
    - Chimney Installation 10
    - Factory Built Chimney 10
    - Masonry Chimney 11
    - Factory Chimney Top vent installation 12
    - Rear vent installation 13
    - Mounting the flue collar for rear venting: 14
    - Mounting the connector pipe to the stove 14
    - Combustible Wall Chimney Connector Pass-Throughs 15
    - Chimney height requirements 17
4. Prepare the Stove 18
5. Instructions 20
    - Fire resistant inner plates 20
    - Glass 20
    - Smoke & Carbon Monoxide Detectors 20
    - Room Ventilation & Combustion Air Supply 20
    - Draft Requirements 21
    - Operate Efficiently 21
6. Operation 22
    - Fueling the wood-burning stove 22
    - Starting the Stove 22
    - Advice 24
7. Maintenance 24
    - Removing the Fire Resistant Plates for Cleaning 25
    - Replacing Door Glass 26
    - Creosote Formation and the Need for Removal 26
8. Troubleshooting 27
9. SBI Limited Warranty 28

Dimensioned Drawing 30

Spare Parts 31

1. Introduction

We welcome you as a new owner of a SBI wood-burning stove. This manual will explain the installation, operation and maintenance of the SBI wood-burning stove. Please familiarize yourself with the owner's manual before operating your stove and save the manual for future reference. 'This manual describes the installation and operation of the SBI Cape Town 1800 non-catalytic wood heater. This heater meets the US Environmental Protection Agency phase II cord wood and may be sold after 2020. Under specific test conditions this heater has been shown to deliver 57,700 Btu/hr

'This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

Please read the entire manual carefully before you install and use your new SBI wood-burning stove. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR LOSS OF LIFE. This manual contains important user information. Keep this manual with the stove after installation is complete.

Safety and environmental testing

SBI Cape Town 1800 has been tested by PFS of Cottage Grove, Wisconsin, to the Environmental Protection Agency 2020 Cord wood standard and is safety listed by PFS to ULC S627-00 (2016) and UL 1482-2011 . The serial number is fixed to the stove and to the guarantee card. If you need to contact the factory please refer to this serial number.

Combustion Efficiency

This wood heater has an EPA tested High Heating Value (HHV) efficiency rate of 71%. There are, however, aspects of efficiency that you should be aware of in order to get the most from your stove. Operation habits and fuel moisture can have a significant effect on efficiency. Poorly seasoned wood having a higher than optimum moisture content, can reduce the amount of energy transferred to the living area as a result of the energy expended to evaporate the excess fuel moisture in order for the wood to burn. Operational habits - such as not building a robust kindling fire to readily ignite the larger fuel pieces - can result in an inefficient, smoldering fire. Additionally, most modern wood heaters' optimum performance and efficiency are at the medium to medium-low burn rates.
The location of the stove can also have a significant effect on heating efficiency, primarily in regard to distribution of the heat. For example, a wood heater centrally located in an open living area, will likely provide better circulation of heat than will a stove located in a room adjacent to the larger living area.

Items included:

1 instruction and maintenance manual, 1 warranty card, and 1 detachable handle.

2. General Information

Performances

Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

Model	Cape Town 1800
Type	Solid Fuel Room Heater
Type of Combustion	Non-catalytic
Fuel Type	Dry Cordwood (20% moisture)
Main Material	Cast Iron
Firebox Isolation	Vermiculite
Flue Exit	6” (150 mm) Back and top connector
Recommended Heating Area (sq. ft..)	450 to 2000 ft^2 (42 to 185 m^2)
Nominal Firebox Volume	1.55 ft^3 (0.044 m^3)
Maximum burn Time[1]	14 hours
Maximum Heat Output (dry cordwood)[2]	57,700 BTU/h (16.91 kW)
Overall Heat Output Rate (min. to max.)[2 3]	13,784 BTU/h to 57,684 BTU/h (4.04 kW to 16.91 kW)
Average Overall Efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78 %
Average particulate emissions rate[7]	1.81 g/h (EPA / CSA B415.1-10)
Average CO[8]	120 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation
[2] Heat Output Range results are determined during specific emissions tests established by the EPA.
[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified
[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[6] Optimum overall efficiency at a specific burn rate (LHV).
[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

CONTACT YOUR LOCAL BUILDING OFFICIALS FOR INFORMATION ON RESTRICTIONS AND INSTALLATION AND PERMIT REQUIREMENTS IN YOUR AREA.

WARNINGS!

1. **KEEP ASH DRAWER CLOSED DURING FIRING IN THIS STOVE. USE A METAL CONTAINER WITH A TIGHT FITTING LID TO DISPOSE OF ASHES.**

2. **NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR 'FRESHEN UP' A FIRE IN THIS STOVE. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.**

3. **DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.**

4. **THE STOVE IS HOT WHILE IN OPERATION. DO NOT TOUCH AND KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. USE GLOVES WHEN STOKING THE FIRE.**

5. **DO NOT CONNECT THIS STOVE TO A CHIMNEY FLUE CONNECTED TO ANOTHER STOVE OR APPLIANCE.**

6. **DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.**

7. **DO NOT INSTALL IN A MOBILE HOME.**

8. **BE SURE TO ALLOW AN ADEQUATE SOURCE OF FRESH AIR INTO THE ROOM WHERE THE STOVE IS OPERATING .**

9. **DO NOT OPERATE THE STOVE WITHOUT THE FIREBOX REFRACTORY PLATES PROPERLY INSTALLED.**

10. **BUILD FIRES DIRECTLY ON THE BOTTOM OF THE STOVE.**

11. **DO NOT USE GRATES, IRONS OR ANY OTHER METHOD TO ELEVATE THE FIRE.**

12. **THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH OPERATING INSTRUCTIONS IN THIS MANUAL**

What to do if you have a chimney fire

If you realize a chimney fire is occurring, follow these steps:

Get everyone out of the house, including yourself.

Call the fire department. If you can do so without risk to yourself, these additional steps may help save your home. Remember, however, that homes are replaceable, lives are not.
Put a chimney fire extinguisher into the stove.

Close the air controls on the stove and the damper on the chimney connector.

Use a garden hose to spray down the roof (not the chimney) so the fire won't spread to the rest of the structure.

Once it's over, call a CSIA Certified Chimney Sweep to inspect for damage. Chimney fire damage and repair normally is covered by homeowner insurance policies.

3. Installation

WARNING

IF YOUR SBI WOOD-BURNING STOVE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW ALL INSTALLATION, OPERATION AND MAINTENANCE DIRECTIONS.

Pre Installation Check List

Before you begin an installation, review your plans, check to see:

- Your stove and chimney connector will be far enough from combustible material to meet all clearance requirements.
- The floor protection is large enough and is constructed properly to meet all requirements.
- You have all necessary permits from your local authorities. Your local building official is the final authority for approving your installation as safe and in determining that it meets all local and state building and safety codes.

The metal label permanently attached to the back of every SBI wood-burning stove shows that it has been tested to current UL and ULC safety standards, and gives the name of the testing laboratory. Clearance and installation information is also printed on the label. Local authorities will generally accept the label as evidence that, when the stove is installed according to the information on the label and in this manual, the installation meets codes and can be approved.

This wood stove must be connected to 1) a chimney complying with the requirements for Type HT chimneys in the standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or 2) a code-approved masonry chimney with a flue liner.

For any unresolved questions about installation in the USA, refer to the national Fire Protection Association's publication ANSI/NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. For installation in Canada, refer to CSA CAN-B365, Installation Code for Solid Fuel Burning Applications and Equipment. These standards are the basis for many national codes.

They are nationally recognized and are accepted by most local authorities. Your local dealer or your local building official may have a copy of these regulations.

WARNING!

CHECK ALL LOCAL BUILDING AND SAFETY CODES BEFORE INSTALLATION. THE INSTALLATION INSTRUCTIONS AND APPROPRIATE CODE REQUIREMENTS MUST BE FOLLOWED EXACTLY AND WITHOUT COMPROMISE. ALTERATIONS TO THE STOVE ARE NOT ALLOWED. DO NOT CONNECT THE STOVE TO A CHIMNEY SYSTEM SERVING ANOTHER STOVE, APPLIANCE OR ANY AIR DISTRIBUTION DUCT. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID THE MANUFACTURERS WARRANTY.

NOTE

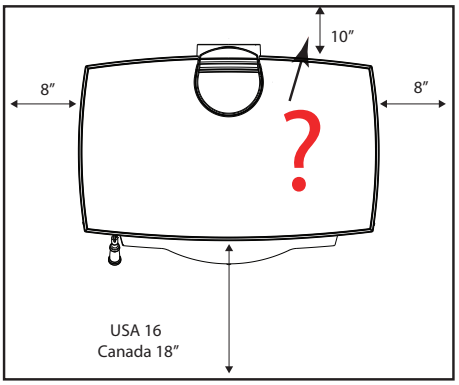
If you plan to vent your stove into an existing masonry chimney, have the chimney inspected by a local fire marshal or qualified installer. Remember that the chimney and its location on the roof heavily influences the stoves performance. An oversized flue may not provide effective draft and a flue liner may be required. (Observe draft requirements). Consult your dealer or qualified installer before final selection is made.

You may wish to leave enough room between the stove and the wall to make cleaning easier.

Floor protection

If the stove is to be installed on a combustible floor, the stove must be placed on a noncombustible hearth pad, which extends 8” (200 mm measured from the legs) beyond the stove sides and back, and 18” (455 mm) measured from side and back panels to the front. The floor protection can be any noncombustible material that has a minimum R- value of 1.0 and listed to UL-1618.

FLOOR PROTECTOR



FRONT
Floor protection for Canada 18″ (45 cm) from unit to front of floor protector - and 8″ (20 cm) to the sides.

Floor Protector must be under connector pipe and 2″ (5 cm) to the side for a through the wall configuration.

Ceiling height clearance

Do not install in an alcove or confined space and do not install in a room with a ceiling high below 7’0” (210 cm).

Clearance to combustibles

You must install the stove with sufficient space between the stove (top, sides, back, front, and under stove pipes) and any material that can catch fire. This includes furniture, especially in front of the stove.

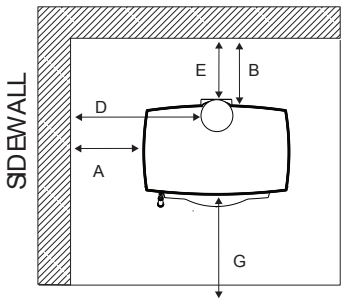
Combustible Wall Clearance for top vent installation

When installing stove the following clearances to combustible materials must be kept.

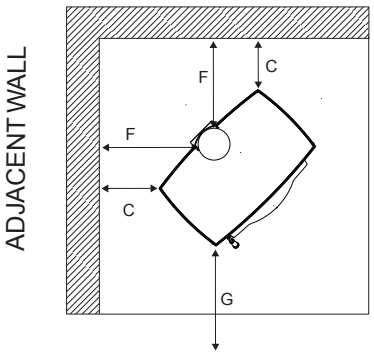
Chimney connector pipe	A	B	C	D	E	F	G
6” single wall							

CLEARANCE TO COMBUSTIBLE SURFACES

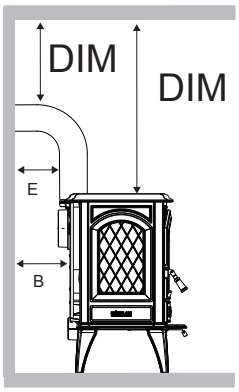
TOP VENT OPTION
BACKWALL



TOP VENT OPTION
ADJACENT WALL



TOP VENT OPTION
CEILING

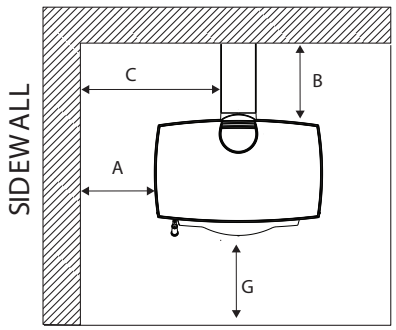


Combustible Wall Clearance for rear vent installation

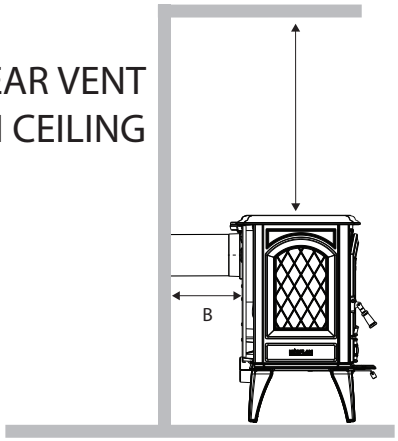
In placing to stove the following clearances to combustible materials must be kept.

Chimney connector pipe	A	B	C	G
6” single wall				

BACKWALL



REAR VENT
OPTION CEILING



Refer to the chimney connector manufacturer’s instructions concerning installation of listed connector pipe, wall thimble and chimney.

Draft Requirements

SBI Cape Town is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an oversized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .06" W.C. (Inches Water Column) and less than 08" W.C. (15 Pa - 20 Pa). A stove located in a basement may not generate sufficient draft to burn efficiently.

The chimney draft depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the chimney connector pipe (if a damper has been installed). If the chimney draft is strong, the combustion air supply should also be reduced.

Chimney Installation

DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

SBI Cape Town is listed for installation as a vertically top or rear vented wood-burning stove using a listed class A (UL103HT) for Canada (CAN/ULC-S629) factory built chimney exiting through the ceiling/attic/roof.

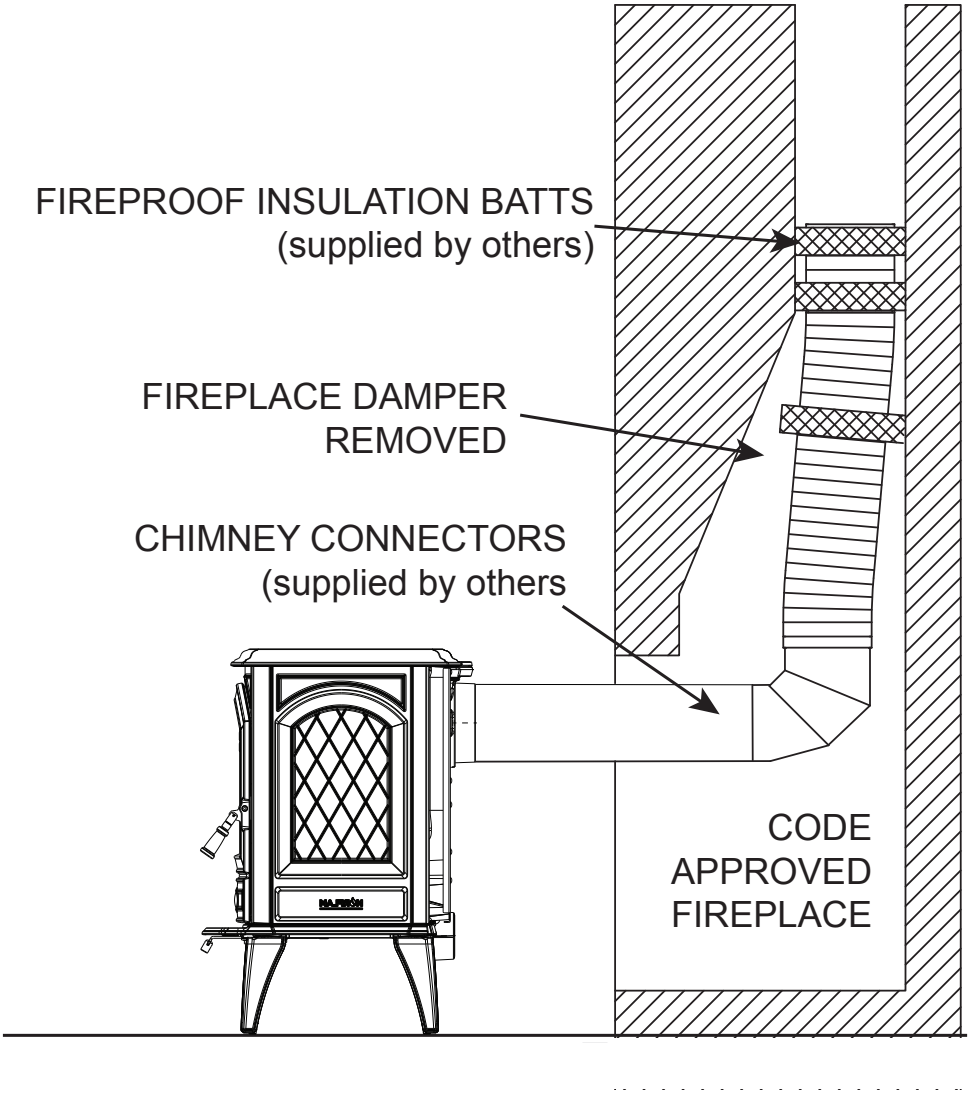
The inside diameter of the chimney and connector pipe must not be smaller than 6" (152 cm) diameter. Single wall 24 gauge MSG (0.58 - 0.71 mm) , this may be used in the room where the stove is installed, follow the chimney manufacturer's instruction for installation of chimney and chimney adapter. In Canada, where passage through wall, or partition of combustible construction is desired, the installation shall conform to CAN/CSA B365.

Factory Built Chimney

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase (from the same manufacturer) and install the ceiling support package or wall pass-through and "T" section package, fire stops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain the proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation.

Masonry Chimney

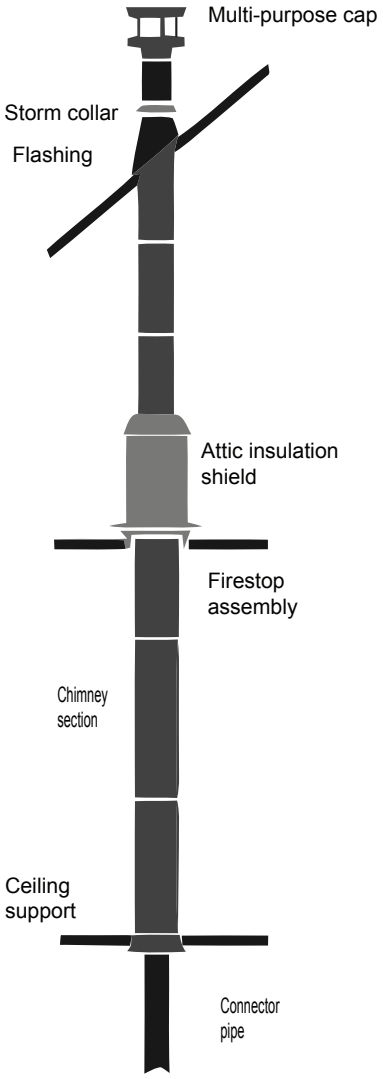
Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed. Refer to Combustible Wall Chimney Connector Pass-Throughs on the following pages. When connecting the SBI Cape Town to an existing chimney:
Remove the existing damper and/or any portion of the smoke shelf necessary to accommodate a 6 inch chimney connector. Install fireproof insulation batts between the connector pipes and the existing flue. Connector pipes must be installed to allow access for chimney cleaning. Large chimneys may not generate sufficient draft. A 6 inch stainless steel chimney liner extending tot he top of the chimney is recommended.



Factory Chimney Top vent installation

Required installation components:

- Chimney cap
- Insulated chimney
- Storm collar
- Roof flashing
- Ceiling support box or joist shield/fire stop spacer
- Chimney connector pipe
- Chimney connector adapter

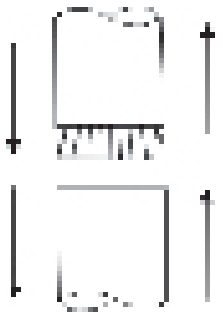


Chimney connector

The chimney connector is a single or walled pipe used to connect the stove to the chimney. For use with the SBI wood-burning stoves the chimney connector MUST be 6” in diameter, with a minimum thickness of 24 gauge black steel or 26 gauge blued steel

Aluminum and galvanized steel pipe is not acceptable for use with the SBI wood-burning stove. These materials cannot withstand the extreme temperatures of a wood fire and can give off toxic fumes when heated.

DO NOT USE THE CONNECTOR PIPE AS A CHIMNEY



Each chimney connector or stove pipe section must be connected to the stove flue collar and to each other with the male (crimped) end toward the stove. Each adjacent piece of connector must be fastened with 2 screws. This prevents any condensed or liquid creosote from running down the outside of the pipe or the stove top. All joints, including the flue collar connection must be secured with three sheet metal screws to ensure that the sections do not separate. For the best performance the chimney connector should be as short and direct as possible, with no more than one 90 degree elbow. The maximum horizontal run is 36” and a recommended total length of connector pipe should not exceed 10 feet. Always slope horizontal runs upward ¼” per foot toward the chimney. No part of the chimney connector may pass through an attic or roof space, closet or other concealed-space, or through a floor ceiling. All sections of the chimney connectors must be accessible for cleaning. Where passage through a wall or partition of combustible construction is desired, the installation must conform with NFPA 211 or CAN/CSA-B365.

Rear vent installation

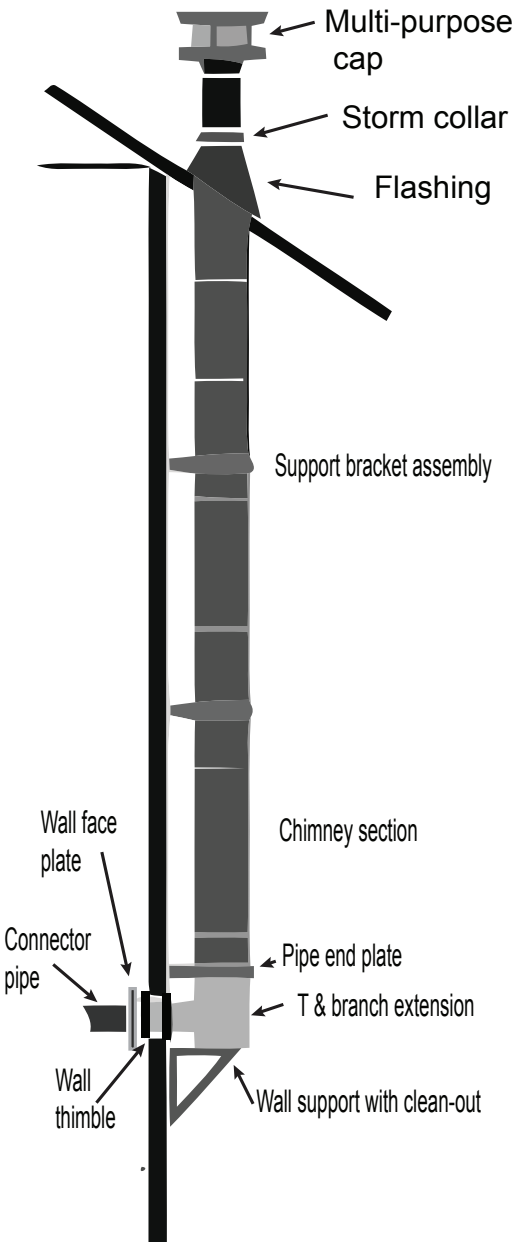
For venting into a masonry or a back standing steel chimney through the top vent the top horizontal portion of a single wall connector pipe can be located not closer than 18” below a combustible ceiling.

From the factory the stove is prepared for top mounting of the flue collar, but all SBI wood-burning stoves have an optional rear flue outlet, therefore the flue collar can be fitted either on the top or at the rear as required.

Rear venting into a masonry or steel chimney through a thimble vent configuration or other than described here must follow local codes or NFPA 211 or CAN/CSA_B365 guidelines and methods.

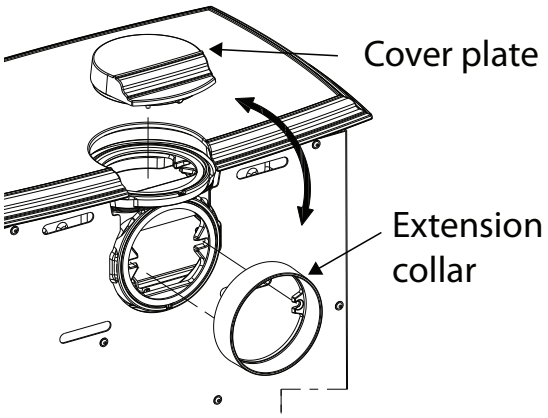
Required installation components:

- Chimney cap
- Insulated chimney
- Tee section
- Tee support bracket
- Chimney connector pipe
- Wall thimble
- Wall strap

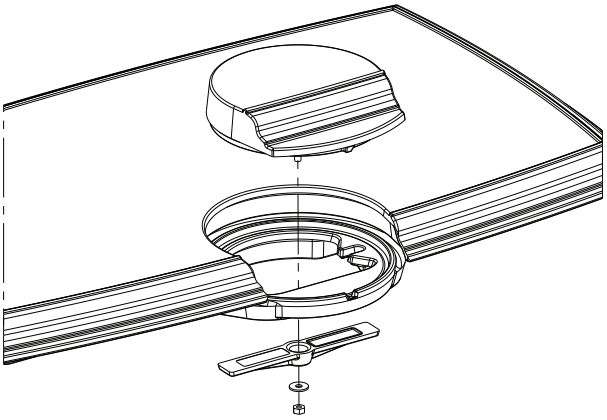


Mounting the flue collar for rear venting:

Step 1:
Remove the cover plate on the rear of the stove. remove the connection collar from the top of the stove. Mount the connection collar on the rear of the stove and the cover plate on the top of the stove.



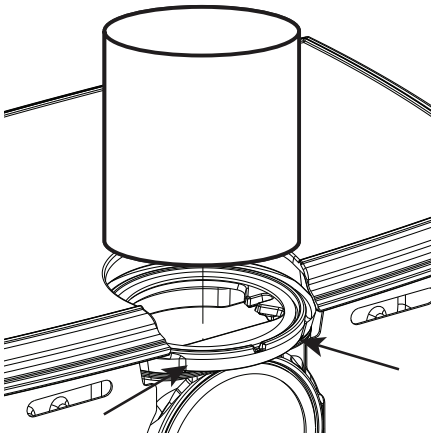
Step 2:
Remount the cover plate in the top outlet using the same bracket and fasteners that you removed in step 1



Mounting the connector pipe to the stove

Place connector pipe in the flue collar.

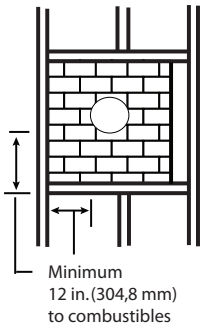
Use two self-tapping screws in the holes provided to secure the connector pipe so that it cannot be lifted of turned from the stove.

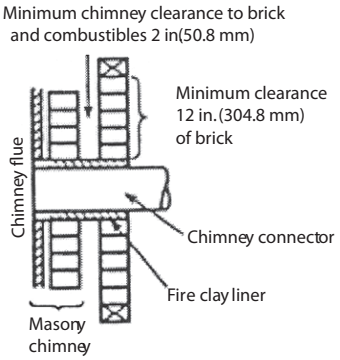


Combustible Wall Chimney Connector Pass-Throughs

Method A 12” (304.8 mm) Clearance to Combustible Wall Member:

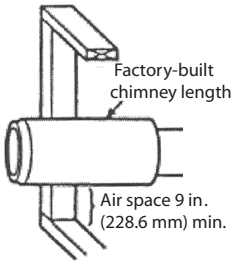
Using a minimum thickness 3.5” (89 mm) brick and a 5/8” (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12” (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.

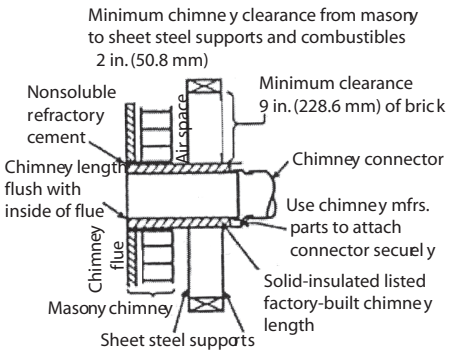




Method B 9” (228.6 mm) Clearance to Combustible Wall Member:

Using a 6” (152.4 mm) inside diameter, listed factory-built Solid-Pak chimney section with insulation of 1”(25.4 mm) or more, build a wall pass-through with a minimum 9” (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9” (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water soluble refractory cement. Use this cement to also seal to the brick masonry penetration

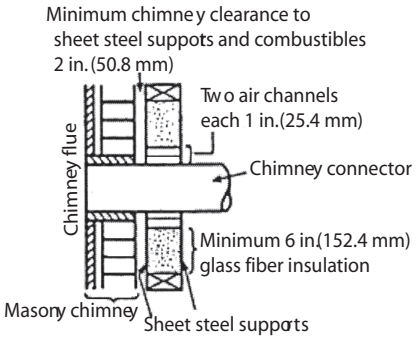




Method C 6” (152.4 mm) Clearance to Combustible Wall Member:

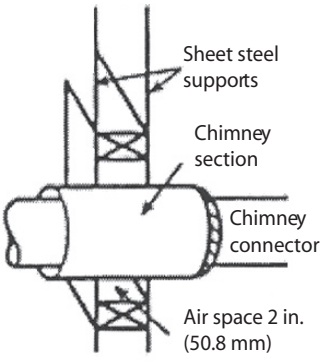
Starting with a minimum 24 gage (.024” [.61 mm]) 6” (152.4 mm) metal chimney connector, and a minimum 24 gage ventilated wall thimble which has two air channels of 1 in. (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6” (152.4) mm separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24-gage minimum sheet metal support. Maintain the 6” (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.

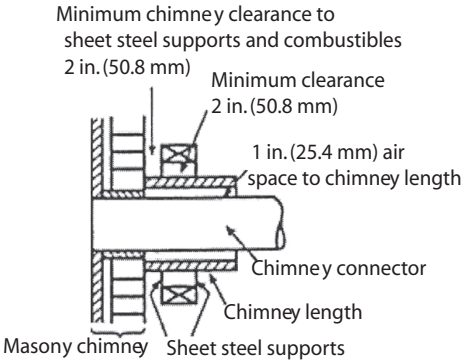




Method D 2” (50.8 mm) Clearance to Combustible Wall Member:

Start with a solid-pak listed factory built chimney section at least 12” (304 mm) long, with insulation of 1” (25.4 mm) or more, and an inside diameter of 8” (2 inches [51 mm] larger than the 6” [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1” (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gage minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure chimney flue liner do not penetrate the liner.





Notes

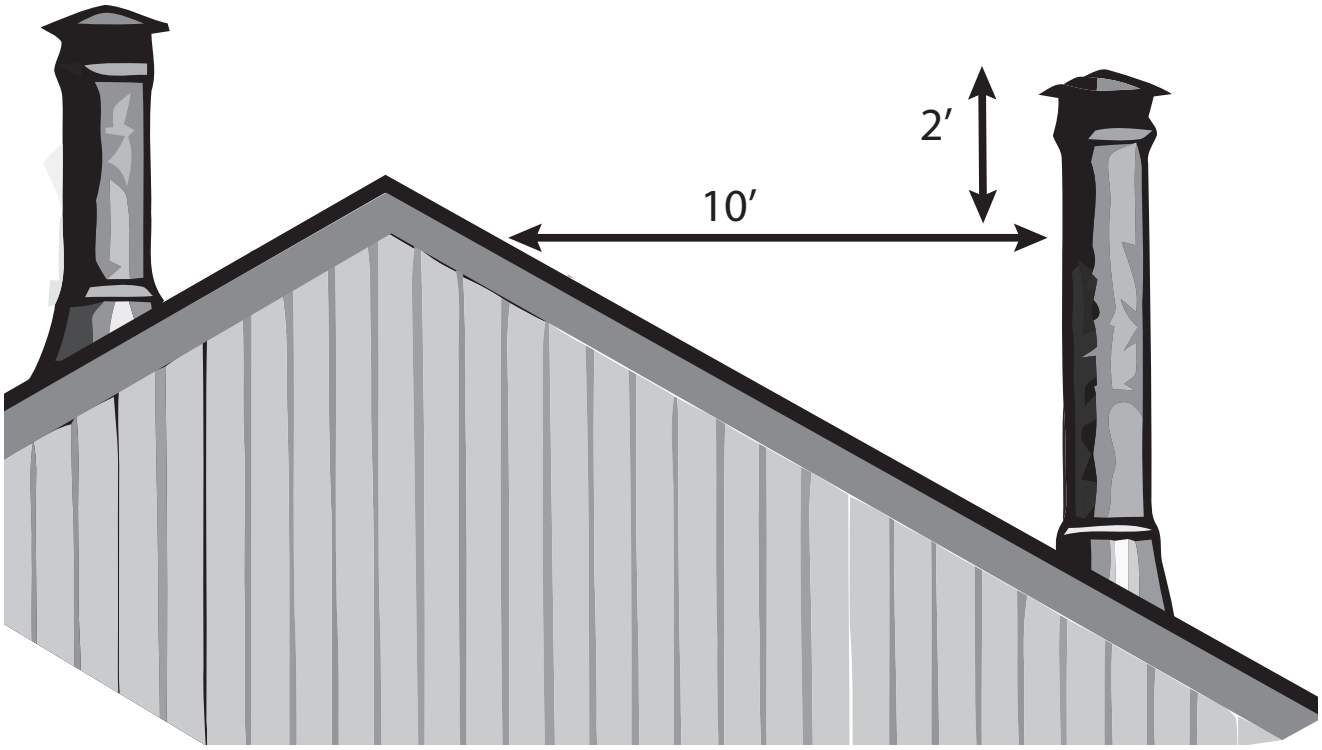
1. **Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, to but not past the inner flue liner face.**

2. **A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.**

Chimney height requirements

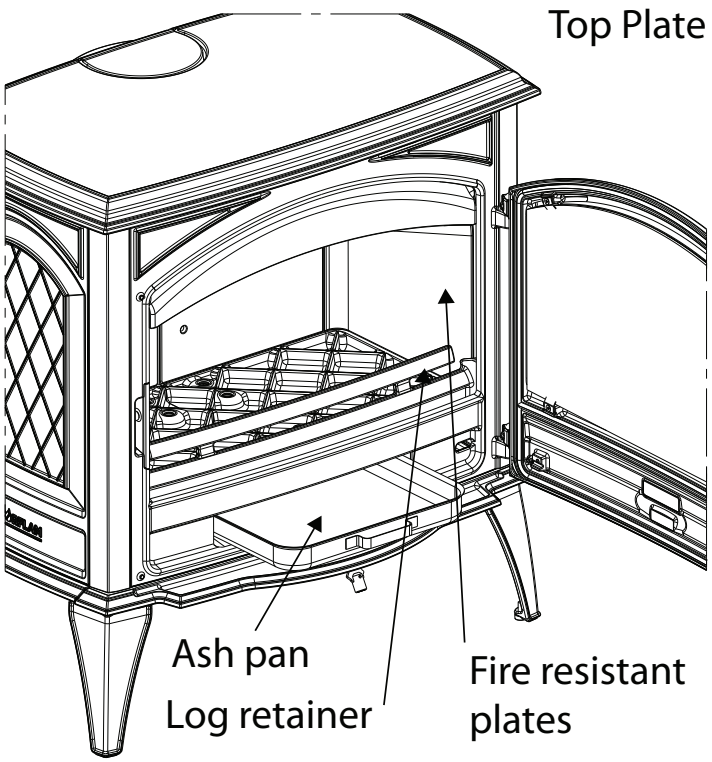
The chimney must extend 3 feet above the level of roof penetration and a minimum of 2 feet higher than any roof surface within 10 feet. Check with your local building officials for additional requirements for your area.

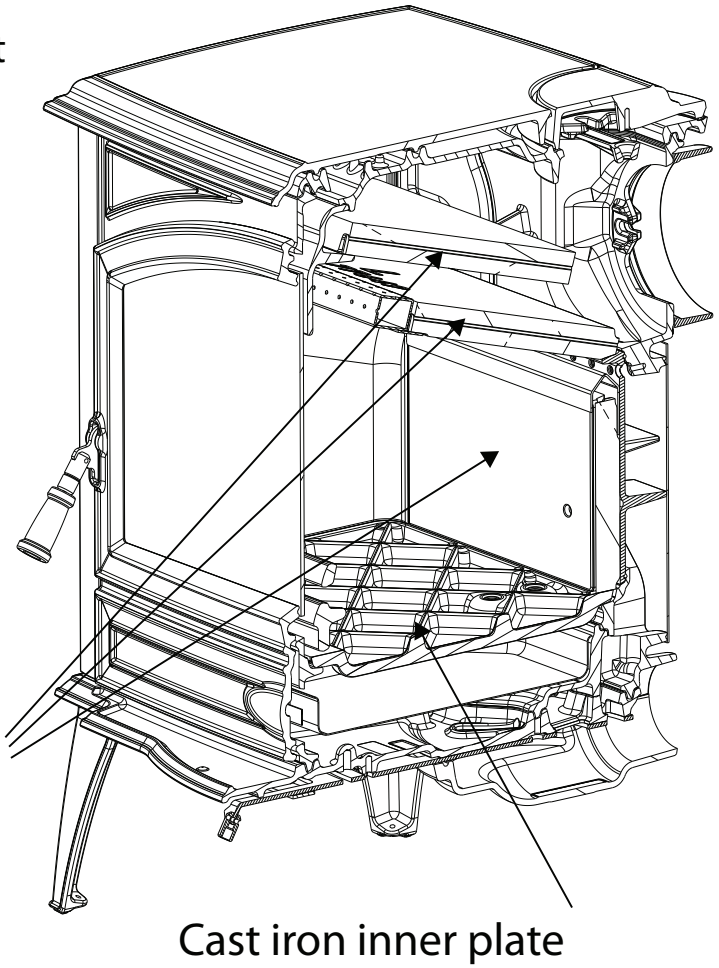
The condition of the chimney and height is very important; we suggest a total minimum height of 13’ (4.0 m). Measured from the top of the stove.



4. Prepare the Stove

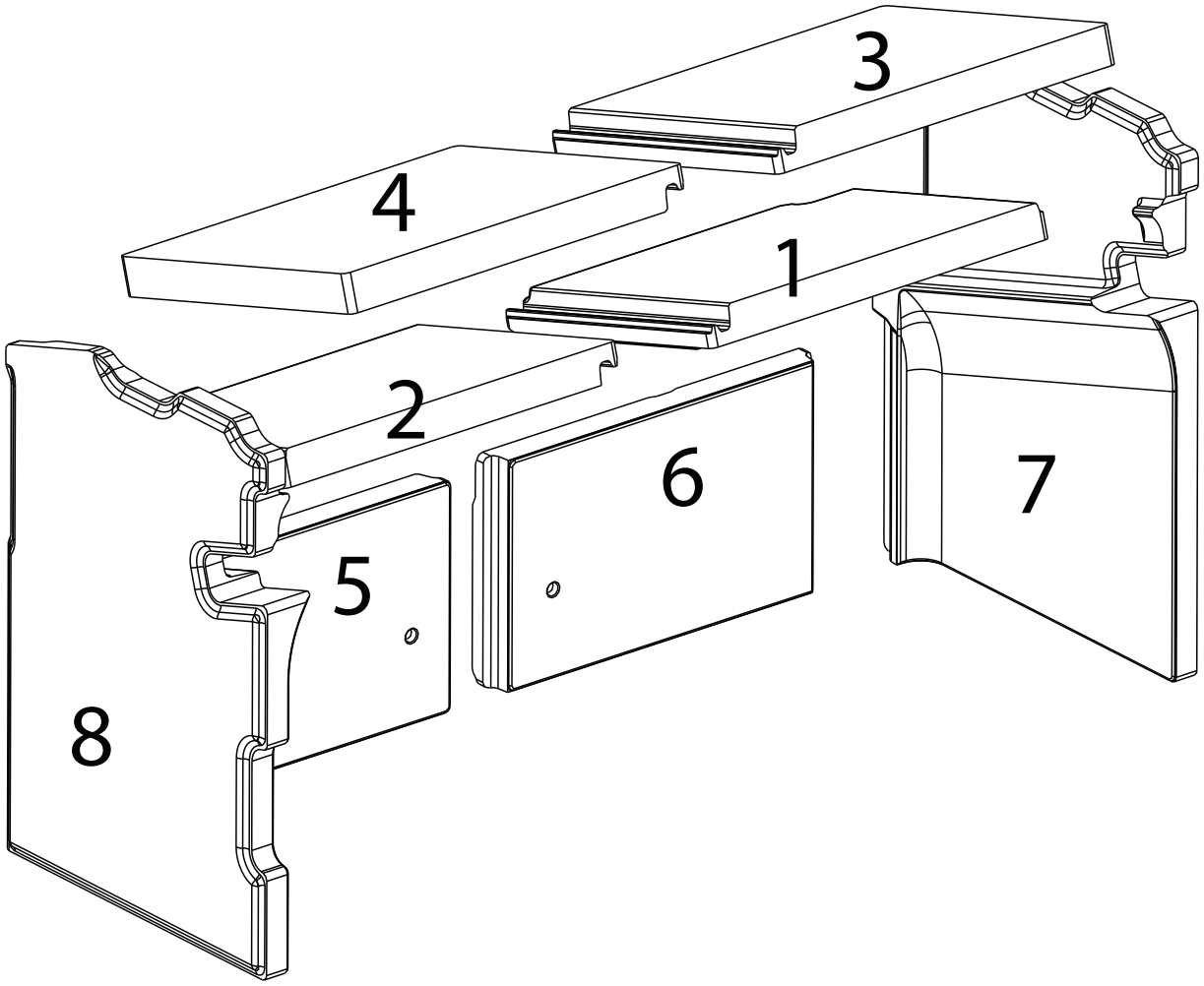
Please check the appliance for damage caused during transport or any other damage or defects immediately after delivery. The appliance is attached to the pallet with screws at the bottom. If you detect damage caused during transport or any other damage or defects, do not use the appliance and notify the supplier. Remove the removable parts (fire resistant inner plates, ash pan) from the stove before you start installation. By removing removable parts, it is easier to move the appliance and to avoid damage. Note the location of those removable parts, so that you have no difficulties in installing the parts in the right place later on. Cast iron inner plates protect the combustion chamber and dissipate heat to the environment.





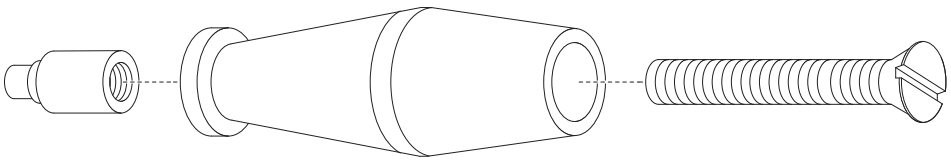
Exploded view of the fire resistant inner plates.

These plates are made from a very heat resistant and highly insulating material made of processed vermiculite. This material is capable of service temperatures up to 1150 C (2101 F) It is however somewhat fragile. Care should be used when handling these pieces and when fueling the stove. Please remove the pieces in numerical order when installing or cleaning the stove.



Cold Handle

The stove is supplied with a cold handle. Assemble the cold handle using the M8x50 screw provided. When not in uses store the handle in the hole provided at the side of the stove.



5. Instructions

Fire resistant inner plates

Fire resistant inner plates are delivered in this SBI wood-burning stoves. We recommend that you treat the plates with care because it is a delicate material (not covered by the limited warranty). Small cracks may arise in the plates from minor water content, especially if the stove is overheated during the first fire. These cracks do not influence the performance of the stove and are not covered by the limited warranty.

Glass

The glass is a heat resistance ceramic glass that can withstand continuous temperatures up to 1390°F (754°C). This temperature is well above the temperatures in which you operate your stove. This stove is designed to provide a flow of air over the inside of the glass. This air combined with high temperatures helps keep the glass optimally clean when the air wash air intake is fully opened. When operating the stove on low for extended periods of time, the glass may become dirty. A short, hot fire will help clean off much of the normal soot buildup (see section 6: Troubleshooting). In order to keep glass soot free the moisture content of the wood must be between 15 and 18%.

Smoke & Carbon Monoxide Detectors

SBI strongly recommends installing smoke detectors throughout your home. However, do not install them too close to the stove as the heat can activate them. Poor draft or improperly installed stoves and chimney components can allow smoke and carbon monoxide to escape into the home. Operating the stove on low-burn settings can make these problems worse. During testing this appliance was shown to emit between _____ and _____ carbon monoxide. Carbon monoxide is a colorless and odorless gas and extremely toxic.

Gaskets

The stoves are equipped with ceramic gaskets to ensure the tightness of the doors and the glass. These gaskets are wearing parts and must be changed from time to time. Note the position of and remove worn gaskets. Place the new gasket in the same position as the worn one. Secure the new gasket in place with wood stove gasket cement. Place a piece of paper or plastic between the door and the stove until the gasket cement has dried.

Protected Wall Reduced Clearances

Local codes in some areas will allow reduced clearances when the stove is installed adjacent to a protected wall system. Your local building official must approve the variance. Check your local building codes or with a qualified installer.

Room Ventilation & Combustion Air Supply

Provide for an adequate supply of air for combustion. Proper ventilation is essential when using a solid fuel-burning appliance. The combustion process uses oxygen from inside the dwelling and if there is not adequate make-up air (such as in newer homes which are well insulated and weather

tight), it may be difficult to obtain an adequate draft in your chimney (caused by a shortage of air in the house). To correct this, it may be necessary to crack a window on the windward side of the dwelling, or provide combustion air to a nearby floor/wall vent (fresh air duct), or directly to the stove. Please refer to your local building codes.

Draft Requirements

The SBI wood-burning stove is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an oversized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .05" W.C. (Inches Water Column) and less than .08" W.C. The chimney draft also depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the smoke pipe (if a damper has been installed). An uncontrollable burn or excessive temperature indicates excessive draft. If the chimney draft is strong, the combustion air supply should be reduced accordingly.

Operate Efficiently

Use seasoned wood versus high moisture wood to get the most efficient heat; Operate the stove at the medium burn rate setting.

6. Operation

WARNING! DO NOT USE GASOLINE, LIGHTER FLUID, KEROSENE OTHER FLAMMABLE LIQUIDS TO START OR FRESHEN A FIRE IN THE STOVE KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.

Fueling the wood-burning stove

Your SBI freestanding wood-burning stove is designed for burning natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. Wood should be stored in a dry place for at least two years before being used for fuel. Some trees have very high moisture content and it is necessary to thoroughly dry the wood. Cutting and splitting the wood can speed up the drying process, then stacking it with both ends of the stick exposed. More drying occurs through the end than through the sides even when the wood is split. We recommend that the moisture content of the wood be between 15-18%. If your wood sizzles or you see bubbles coming from the end of the logs, the wood is not dry.

Green or uncured wood does not work well as fuel, and can cause increased creosote buildups. The value of green wood as a source of heat is limited. Do not overload, use kindling wood, or mill ends for primary fuel as this may cause over-firing. Although feeding excessive amounts of fuel to the stove should be avoided, it is important to supply it with sufficient fuel to maintain a moderately hot fire (this is particularly important since burning wood produces volatile substances).

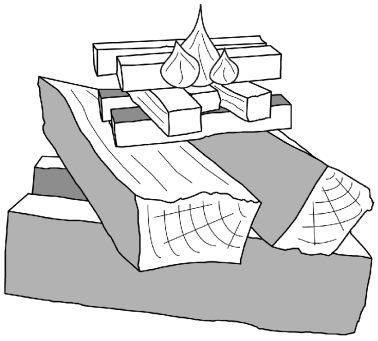
Do not store wood within the installation clearances or within the space required for refueling or ash removal.

WARNING! BURNING MATERIALS OTHER THAN NATURAL DRY WELL SEASONED WOOD MAY SHORTEN THE LIFE OF YOUR STOVE AND POSSIBLY LEAD TO A DANGEROUS OVER-FIRING CONDITION. DO NOT BURN GARBAGE, RUBBER OR PLASTIC, PARTICLE, BOARD, SALT WATER DRIFTWOOD OR PRESSED LOGS USING BONDING AGENTS BECAUSE THEY CAN PRODUCE CONDITIONS, WHICH WILL DETERIORATE METAL. OVER FIRING THE STOVE MAY CAUSE PAINT DISCOLORATION. A WHITE GLAZE ON THE GLASS IS AN INDICATION OF OVER FIRING.

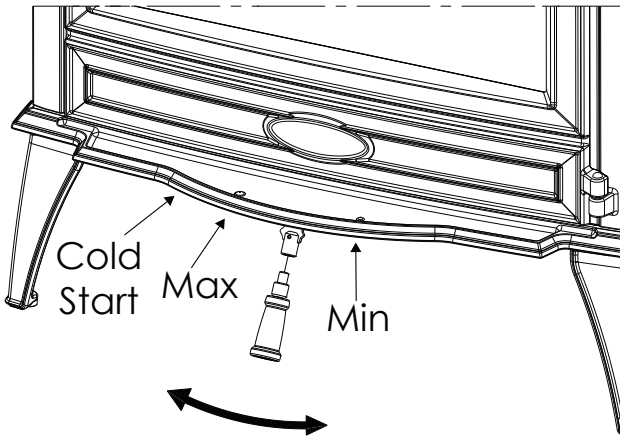
Starting the Stove

Do not elevate the fire on a grate. Build fire directly on the cast iron plates inside the stove. Do not build the fire close to the glass. A cold flue often does not have enough draft, and consequently, some smoke may escape into the room instead of up the chimney. By lighting the fire in the way described here, you can avoid this problem. Building your fire as described here with the kindling on top will decrease visible smoke and emissions.

- Stack two layers of medium sized logs crosswise. Use about 11 lb. or 5 kg of wood.
- Stack two layers of kindling crosswise on top of the logs.
- Place a fire lighter in the lower layer of kindling and light the fire lighter according to the instructions on the packaging.

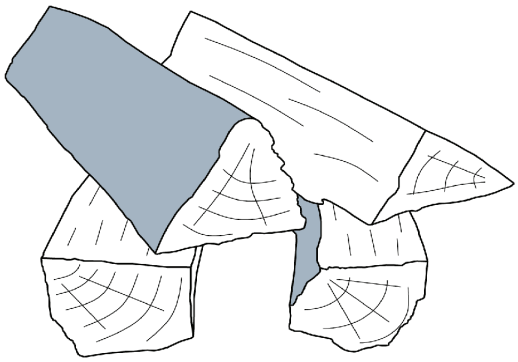


- Close the door of the appliance and move the air control to the cold-start position; see the following figure.
- When the fire is burning well move the control arm to the desired position for heat output.
- Let this fire develop into a good blaze until there is glowing bed of charcoal. You can then add fuel and adjust the appliance, see the following section “Burning Wood”.

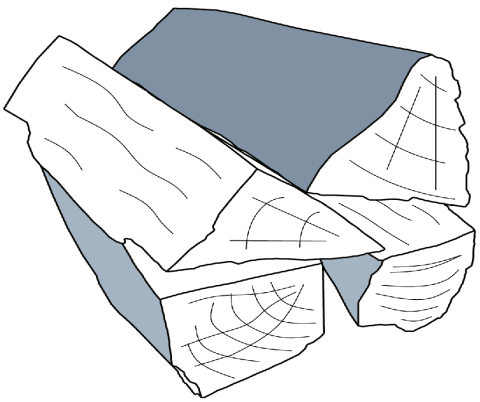


Refueling the Stove

After you have followed the instructions for lighting:
- Slowly open the door of the appliance.
- Move the control arm to the “MAX” position
- Spread out the charcoal bed evenly across the bottom of the fire compartment.
- Stack a few logs on the charcoal bed.
- Close the door of the appliance.
- When the fire is burning well move the control arm to the desired position for heat output.



Open stacking
If the logs are stacked openly, the wood will burn quickly as the oxygen can reach each log easily. If you want to use the stove for a short while, make an open stack.



Compact stacking
If the logs are stacked tightly, the wood will burn more slowly as the oxygen can only reach some logs easily. If you want to burn wood for a longer period, make a compact stack.

Advice

- Never burn wood with an open door.
- Regularly burn wood with intense roaring fires.
- If you frequently have low intensity fires, tar and creosote may be deposited in the chimney. Tar and creosote are highly combustible substances. Thicker layers of these substances might catch fire when the temperature in the chimney increases suddenly and steeply. Therefore it is necessary for the fire to regularly burn very intensely, so that layers of tar and creosote disappear. Low intensity fires also cause tar deposits on the stove window and door.
- When the outside temperature is not very low,it is better to burn wood intensely for a few hours instead of having a low intensity fire for a long period of time.
- It is better to add a small amount of logs regularly than to add many logs at the same time.
- Never slam the door shut or close the door against protruding firewood. Do not strike the door.

Extinguishing the fire

Do not add fuel and just let the fire go out. If a fire is damped down by reducing the supply of air, harmful substances will be produced and released. Therefore, let the fire go out naturally. Keep an eye on the fire until it has gone out. When the fire has died completely, all air inlets can be closed.

7. Maintenance

Ash Disposal and Removal

Caution

Make sure the fire is out and stove is cold before removing ashes! The cast iron inner plates on the bottom of the fire chamber have pockets. You should leave ash in the pockets during the heating season. This helps insulate the bottom of the stove and protects the combustion chamber components. Be careful when you remove ashes from the stove, there may be embers left as long as 24 hours after the stove was last used. Ashes should be placed in a metal container with a tight fitting lid and moved outdoors immediately. Other waste should not be placed in this container. The closed container of ashes should be places on a noncombustible floor or on the ground well away from all combustible materials, pending final disposal.

If ashes are disposed of by burial in soil or otherwise locally dispersed, they should be kept in the closed container until all cinders have thoroughly cooled.

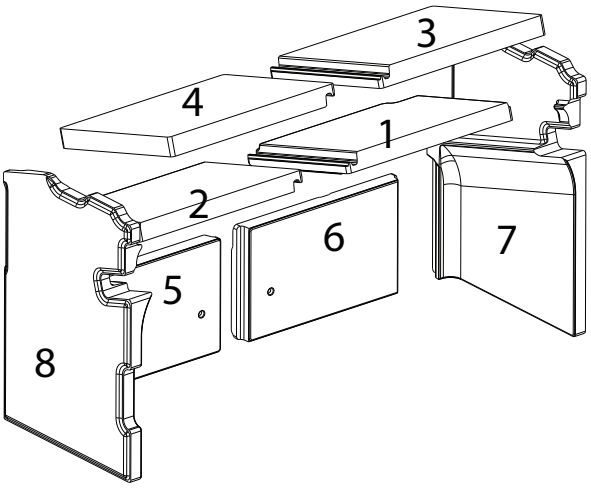
Cleaning Your Stove

Do not clean the appliance when it is still warm.
Clean the exterior of the appliance with a dry lint-free cloth.
At the end of the heating season, you can clean the interior of the appliance thoroughly: If necessary, first remove the fire-resistant inner plates. Checking fire-resistant inner plates The fire-resistant inner plates are consumables and subject to wear. Check the fire-resistant inner plates frequently and replace them when necessary. The insulating vermiculite inner plates may develop hairline cracks, but that does not affect their performance adversely.

Removing the Fire Resistant Plates for Cleaning

Make sure the fire is out and stove is cold before removing the plates, be careful when handling the plates, they are made of a breakable material.

Push plate (1) up and move to the side to remove. Repeat the process for plates 2,3, and 4. Remove the back plates 5 and 6 and finally the side plates. Reverse the process to re-install the plates



WARNING! DO NOT OPERATE WOOD-BURNING STOVE WITHOUT FIRE RESISTANT PLATES PROPERLY INSTALLED OR WARRANTY WILL BE VOID.

WARNING! DO NOT USE SUBSTITUTE MATERIALS. ALWAYS USE LISTED SPARE PARTS FROM SBI.

The cast-iron inner plates will last a long time if you frequently remove the ash that may pile up underneath them. If accumulated ash under a cast-iron plate is not removed, the plate cannot dissipate the heat anymore to its surroundings and that may cause the plate to warp or crack. Never use the appliance without the fire-resistant inner plates.

Cleaning glass

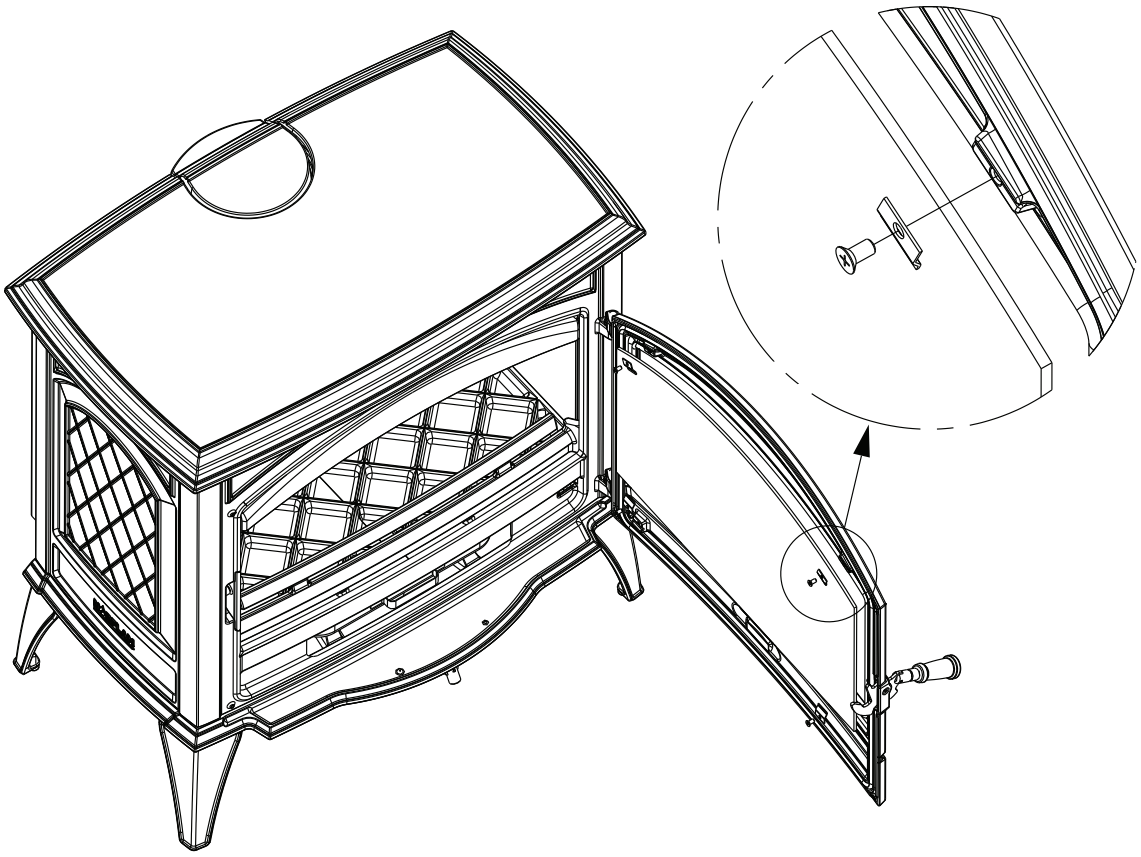
Dirt and soot cling less easily to well-cleaned glass. Proceed as follows:

- Remove dust and loose soot with a dry cloth.
- Clean the glass with stove window cleaner:
  - Apply stove window cleaner to a kitchen sponge, rub down the entire glass surface and give the cleaning agent time to react.
  - Remove the dirt with a moist cloth or kitchen tissue.
- Clean the glass again with a normal glass cleaning product.
- Rub the glass clean with a dry cloth or kitchen tissue.
- Do not clean the glass when hot

Do not use abrasive or aggressive products to clean the glass. Wear household gloves to protect your hands. If the glass in the appliance is broken or cracked, it must be replaced before you can use the appliance again. Make sure that no stove window cleaner runs between the glass and the cast-iron door.

Replacing Door Glass

Use only SBI ceramic replacement glass 4 mm in thickness. The use of any other glass is prohibited. Do not remove the door before installing new glass. When replacing the glass all gaskets must be installed correctly. Make note of the gasket locations as you take the door apart. Remove the steel washers and their gaskets from the screw posts. Remove any left over pieces of broken glass. Replace any damaged or worn gaskets. Center the new glass between the screw posts and reinstall the washers and their gaskets.



Creosote Formation and the Need for Removal

When wood is burned slowly it produces tar and other organic vapors, which combine with expelled-moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates in the flue lining. When ignited this creosote makes an extremely hot and dangerous fire.

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if soot creosote and ash build up has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

8. Troubleshooting

					Problem	
●					Wood does not keep burning	
	●				Gives off insufficient heat	
		●			Smoke emissions into the room when adding wood	
			●		Fire in appliance is too intense, is hard to adjust	
				●	Deposit on the glass	
					Possible cause	**Possible solution**
●	●	●		●	Insufficient draught	A cold flue usually fails to create sufficient draught. Follow the instructions for lighting in the "Operation" chapter; open a window.
●	●	●		●	Wood too damp	Use wood with no more than 20% moisture.
●	●	●		●	Pieces of wood too big	Use small pieces of kindling. Use split logs no larger than 30 cm in circumference.
●	●	●	●	●	Wood stacked up incorrectly	Stack up the wood in a way that allows an adequate air flow between the logs (open stacking, see "Burning wood")
●	●	●		●	Chimney does not work properly	Check whether the chimney meets the requirements: at least 4 metres high, right diameter, well insulated, smooth inside, not too many bends, no obstructions in chimney (bird's nest, too much soot deposit), hermetically tight (no leaks).
●	●	●		●	Chimney stack incorrect	Sufficiently high above the roof, no obstacles in its vicinity
●	●	●	●	●	Air inlet set incorrectly	Open the air inlet completely.
●	●	●		●	Appliance connected to chimney incorrectly	Connection should be hermetically tight.
●	●	●		●	Vacuum in area where appliance is installed	Switch off extraction systems.
●	●	●		●	Insufficient supply of fresh air	Provide an adequate air supply; if necessary use connection to outside air.
●	●	●		●	Adverse weather conditions? Inversion(reversed airflow in chimney from high outside temperatures), extreme wind velocities	We recommend you don't use the appliance in the case of inversion. Install an extra piece on the flue to increase the draught if need be.
		●			Draft in the living room	Avoid draft in the living room, do not place the appliance near a door or heating air ducts.
				●	Flames touch the glass	Make sure the wood does not lie too close to the glass.
			●		Appliance is leaking air	Check the door seals and the appliance joints.

9. SBI Limited Warranty

What's Covered

SBI warrants, to the original retail buyer only , that the cast iron and steel components of this appliance will be free of defects in material and workmanship for a period of five (5) years from the date of purchase.

The enamel finish on the cast iron components is warranted against peeling or fading for a period of two years from the purchase date to the original retail buyer .

The Warranty expires when the original retail buyer transfers ownership.
These warranties are subject to the terms, exclusions and limitations set forth below.

What's not Covered:

- Repair or replacement of parts that are subject to normal wear and tear during the warranty period or to parts that may require replacement in connection with normal maintenance. These parts include paint, gaskets, , vermiculite baffles and panels , and glass
- Damage due to incorrect installation that do not comply instructions contained in this owner's manual or local and/or national fire and building regulations.
- Damage, including damage to enamel surfaces, caused by improper operation, over firing, and/or misuse. Do not burn the appliance with the door open. If any part of the stove or chimney connector glows red it is being over-fired. Warped plates, rust colored cast iron, paint pigment that has turned dusty white, or bubbling, cracking and discoloration of the enamel finish are indications of over-firing. Misuse also includes, any use that does not conform with the operating instructions contained in this owner's manual.
- Damage to enamel finish including chipping, mechanical or chemical abrasion, crazing, or staining
- Rust caused by high humidity or salt air environments.
- Damage from or repair of rust.
- Damage due to service performed by an installer or service agency.
- Damage caused by unauthorized modification, use or repair.
- Costs incurred by travel time and/or loss of service.
- Labor or other costs associated with the repair of components beyond the warranty period.
- Damage incurred while the appliance is in transit.
- SBI will not cover labor charges, consequential damages (including, but not limited to: the costs of repairing or replacing other property that is damaged when the warranted product fails), or incidental damages (including, but not limited to: the costs a consumer incurs in order to obtain warranty service, such as shipping charges, telephone charges, time lost from work, transportation costs, and the cost of renting a product temporarily to replace the warranted product). Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How to Get Service

SBI will repair or replace, at its option, any of the above components determined by SBI to be covered by this warranty. You must, at your own expense, arrange to deliver or ship the component to an authorized SBI dealer and arrange for pickup or delivery of the component after repairs have been made.

For the address of your authorized SBI dealer contact:
Stove Builder International Inc.
250, De Copenhague Street
G3A 2H3 Saint-Augustin-de-Desmaures
Quebec, Canada

If, upon inspection, SBI determines that the component is covered by this warranty, the repair or replacement will be made as set forth above. This warranty is not transferable and is extended only to, and is solely for the benefit of, the original retail purchaser of this SBI appliance.

The warranty period for any replaced component will be the remaining unexpired portion of the warranty period for the original component.

Please retain your dated sales receipt in your records as proof of purchase.

ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WRITTEN WARRANTY. EXCEPT AS EXPRESSLY SET FORTH HEREIN, SBI MAKES NO ORAL, WRITTEN OR OTHER WARRANTY WITH RESPECT TO SBI PRODUCTS.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

SBI reserves the right to discontinue, modify or change the materials used to produce SBI products. SBI shall have the right to replace any defective component with substitute components determined by SBI to be of substantially equal quality.

The dollar value of SBI's liability for breach of this warranty shall be limited exclusively to the cost of furnishing a replacement component.

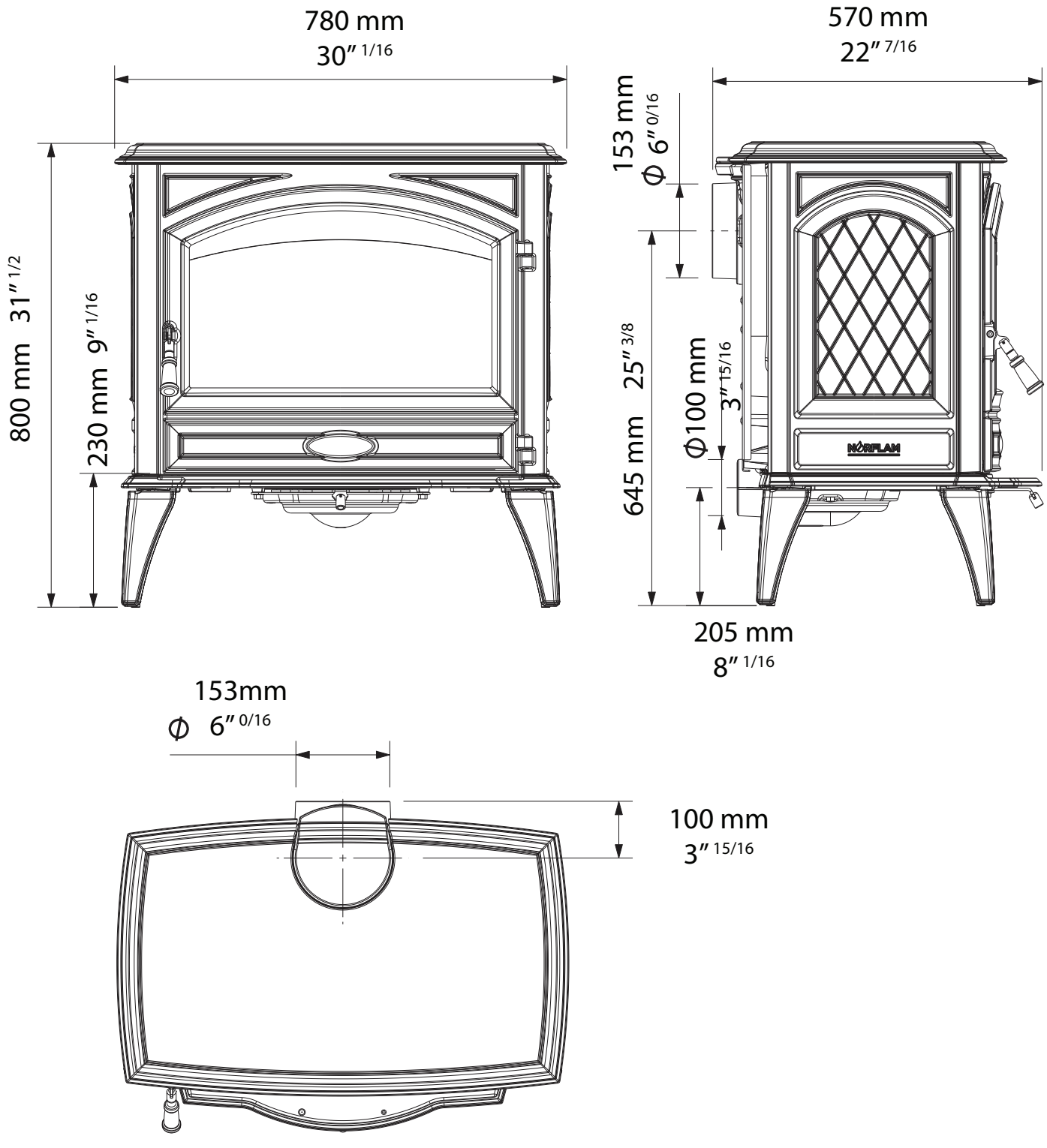
No dealer, distributor, or other person is authorized to modify, augment, or extend this limited warranty on behalf of SBI.

An authorized installer may have been provided with certain information related particularly to the SBI Stove or Fireplace; however, no authorized installer or other person who may service the appliance is an agent of SBI. No inference should be made that SBI has tested, certified, or otherwise pronounced any person as qualified to install or service the appliance. SBI shall not be liable or otherwise responsible for any error or omission by a person installing or servicing a SBI product.

IN ORDER TO QUALIFY FOR WARRANTY COVERAGE, SBI MUST RECEIVE NOTICE OF A POSSIBLE DEFECT WITHIN SIXTY (60) DAYS OF THE DATE THE DEFECT IS FIRST DISCOVERED, OR REASONABLY COULD HAVE BEEN DISCOVERED.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Dimensioned Drawing



Spare Parts

SIERRA FLAME

SIERRA FLAME Lynwood W76

Non-Catalytic Woodstove

Installation and Operation Instructions
for the United States and Canada



This stove is listed to burn solid wood only. Do not burn any other fuels.

Read this entire manual before you install and use this appliance.

Read this entire manual before installation and use of this wood stove. Failure to follow these instructions could result in property damage, injury or even death.

Manufactured by:
Norflam
BE0437960542
Nijverheidsstraat 18
B-2381 Weelde, Belgium

Distributed in the United States and Canada by:
SIERRA FLAME
502-1027 Davie straat
V6E 4L2 Vancouver
British Columbia, Canada

US Environmental Protection Agency phase II certified wood stove compliant with 2020 cord wood standard

This solid fuel heater has been tested and listed according to ULC S627-00 (2016) and UL 1482-2011 standards by an accredited laboratory.

Certified Safety Tests performed by:

PFS C US
PFS F19-461

READ AND KEEP THIS MANUAL FOR FUTURE REFERENCE

CAUTION !!

IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS INCLUDED. **DO NOT DISCARD.** LEAVE THIS MANUAL WITH THE HOMEOWNER.



Risk of Fire

Hot while in operation, keep children, clothing and furniture away. Contact may cause skin burns.

Failure to follow the information in this manual may result in a fire; causing property damage, personal injury, or death. Read this booklet completely before installing or operating this appliance.

For use with solid wood fuel only. This appliance has not been tested for the use of compressed wood logs or bricks.



Caution

Do not modify this appliance in any way.

The chimney connector must be in good condition and kept clean.



Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Do not use chemicals or fluids to start the fire.

Comply with all minimum clearances to combustibles as specified. Failure to comply may cause a house fire.



HOT

Glass and other surfaces are hot during operation and for some time after the fire has gone out. Supervise children around this appliance. Warn children and adults about high temperatures. High temperatures may ignite clothing or other flammable materials. Keep clothing, furniture, draperies and other combustible materials away.

DO NOT OPERATE WITH THE DOOR OPEN AND KEEP ALL SEALS IN A GOOD CONDITION.



Do not operate with door open

CALIFORNIA PROP 65 WARNING:

Use of this product may produce smoke which contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Do not store anything including fuel under the appliance.

Table of Contents

1. Introduction 4
2. General Information 5
    - Performances 5
    - Warnings! 6
3. Installation 7
    - Pre Installation Check List 7
    - Floor protection 8
    - Ceiling height clearance 8
    - Clearance to combustibles 9
    - Combustible Wall Clearance for top vent installation 9
    - Combustible Wall Clearance for rear vent installation 9
    - Draft Requirements 10
    - Chimney Installation 10
    - Factory Built Chimney 10
    - Masonry Chimney 11
    - Factory Chimney Top vent installation 12
    - Rear vent installation 13
    - Mounting the flue collar for rear venting: 14
    - Mounting the connector pipe to the stove 14
    - Combustible Wall Chimney Connector Pass-Throughs 15
    - Chimney height requirements 17
4. Prepare the Stove 18
5. Instructions 20
    - Fire resistant inner plates 20
    - Glass 20
    - Smoke & Carbon Monoxide Detectors 20
    - Room Ventilation & Combustion Air Supply 20
    - Draft Requirements 21
    - Operate Efficiently 21
6. Operation 22
    - Fueling the wood-burning stove 22
    - Starting the Stove 22
    - Advice 24
7. Maintenance 24
    - Removing the Fire Resistant Plates for Cleaning 25
    - Replacing Door Glass 26
    - Creosote Formation and the Need for Removal 26
8. Troubleshooting 27
9. SIERRA FLAME Limited Warranty 28

Dimensioned Drawing 30

Spare Parts 31

1. Introduction

We welcome you as a new owner of a SIERRA FLAME wood-burning stove. This manual will explain the installation, operation and maintenance of the SIERRA FLAME wood-burning stove. Please familiarize yourself with the owner's manual before operating your stove and save the manual for future reference. 'This manual describes the installation and operation of the SIERRA FLAME Lynwood W76 non-catalytic wood heater. This heater meets the US Environmental Protection Agency phase II cord wood and may be sold after 2020. Under specific test conditions this heater has been shown to deliver 57,700 Btu/hr

'This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

Please read the entire manual carefully before you install and use your new SIERRA FLAME wood-burning stove. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR LOSS OF LIFE. This manual contains important user information. Keep this manual with the stove after installation is complete.

Safety and environmental testing

SIERRA FLAME Lynwood W76 has been tested by PFS of Cottage Grove, Wisconsin, to the Environmental Protection Agency 2020 Cord wood standard and is safety listed by PFS to ULC S627-00 (2016) and UL 1482-2011 . The serial number is fixed to the stove and to the guarantee card. If you need to contact the factory please refer to this serial number.

Combustion Efficiency

This wood heater has an EPA tested High Heating Value (HHV) efficiency rate of 71%. There are, however, aspects of efficiency that you should be aware of in order to get the most from your stove. Operation habits and fuel moisture can have a significant effect on efficiency. Poorly seasoned wood having a higher than optimum moisture content, can reduce the amount of energy transferred to the living area as a result of the energy expended to evaporate the excess fuel moisture in order for the wood to burn. Operational habits - such as not building a robust kindling fire to readily ignite the larger fuel pieces - can result in an inefficient, smoldering fire. Additionally, most modern wood heaters' optimum performance and efficiency are at the medium to medium-low burn rates.
The location of the stove can also have a significant effect on heating efficiency, primarily in regard to distribution of the heat. For example, a wood heater centrally located in an open living area, will likely provide better circulation of heat than will a stove located in a room adjacent to the larger living area.

Items included:

1 instruction and maintenance manual, 1 warranty card, and 1 detachable handle.

2. General Information

Performances

Values are as measured per test method, except for the recommended heating area, firebox volume, maximum burn time and maximum heat output.

Model	Lynwood W76
Type	Solid Fuel Room Heater
Type of Combustion	Non-catalytic
Fuel Type	Dry Cordwood (20% moisture)
Main Material	Cast Iron
Firebox Isolation	Vermiculite
Flue Exit	6” (150 mm) Back and top connector
Recommended Heating Area (sq. ft..)	450 to 2000 ft^2 (42 to 185 m^2)
Nominal Firebox Volume	1.55 ft^3 (0.044 m^3)
Maximum burn Time[1]	14 hours
Maximum Heat Output (dry cordwood)[2]	57,700 BTU/h (16.91 kW)
Overall Heat Output Rate (min. to max.)[2 3]	13,784 BTU/h to 57,684 BTU/h (4.04 kW to 16.91 kW)
Average Overall Efficiency[3]	71 % (HHV)[4] 76 % (LHV)[5]
Optimum efficiency[6]	78 %
Average particulate emissions rate[7]	1.81 g/h (EPA / CSA B415.1-10)
Average CO[8]	120 g/h

[1] Maximum Burn Time will vary depending on design of home, climate, wood type and operation
[2] Heat Output Range results are determined during specific emissions tests established by the EPA.
[3] As measured per CSA B415.1-10 stack loss method. The Maximum Heat Output value is representative of a morefrequent re-fueling cycle than specified
[4] Higher Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[5] Lower Heating Value of the fuel is obtained per CSA B415.1-10 test method.
[6] Optimum overall efficiency at a specific burn rate (LHV).
[7] This appliance is officially tested and certified by an independent agency. Particulate Emissions rate is obtained using EPA Test Method.
[8] Carbon Monoxide Emissions rate results from Test Method CSA B415.1-10.

CONTACT YOUR LOCAL BUILDING OFFICIALS FOR INFORMATION ON RESTRICTIONS AND INSTALLATION AND PERMIT REQUIREMENTS IN YOUR AREA.

WARNINGS!

1. **KEEP ASH DRAWER CLOSED DURING FIRING IN THIS STOVE. USE A METAL CONTAINER WITH A TIGHT FITTING LID TO DISPOSE OF ASHES.**

2. **NEVER USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR LIQUIDS TO START OR 'FRESHEN UP' A FIRE IN THIS STOVE. KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.**

3. **DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA OR ENGINE OIL.**

4. **THE STOVE IS HOT WHILE IN OPERATION. DO NOT TOUCH AND KEEP CHILDREN, CLOTHING AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. USE GLOVES WHEN STOKING THE FIRE.**

5. **DO NOT CONNECT THIS STOVE TO A CHIMNEY FLUE CONNECTED TO ANOTHER STOVE OR APPLIANCE.**

6. **DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.**

7. **DO NOT INSTALL IN A MOBILE HOME.**

8. **BE SURE TO ALLOW AN ADEQUATE SOURCE OF FRESH AIR INTO THE ROOM WHERE THE STOVE IS OPERATING .**

9. **DO NOT OPERATE THE STOVE WITHOUT THE FIREBOX REFRACTORY PLATES PROPERLY INSTALLED.**

10. **BUILD FIRES DIRECTLY ON THE BOTTOM OF THE STOVE.**

11. **DO NOT USE GRATES, IRONS OR ANY OTHER METHOD TO ELEVATE THE FIRE.**

12. **THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH OPERATING INSTRUCTIONS IN THIS MANUAL**

What to do if you have a chimney fire

If you realize a chimney fire is occurring, follow these steps:

Get everyone out of the house, including yourself.

Call the fire department. If you can do so without risk to yourself, these additional steps may help save your home. Remember, however, that homes are replaceable, lives are not.
Put a chimney fire extinguisher into the stove.

Close the air controls on the stove and the damper on the chimney connector.

Use a garden hose to spray down the roof (not the chimney) so the fire won't spread to the rest of the structure.

Once it's over, call a CSIA Certified Chimney Sweep to inspect for damage. Chimney fire damage and repair normally is covered by homeowner insurance policies.

3. Installation

WARNING

IF YOUR SIERRA FLAME WOOD-BURNING STOVE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. FOR YOUR SAFETY, FOLLOW ALL INSTALLATION, OPERATION AND MAINTENANCE DIRECTIONS.

Pre Installation Check List

Before you begin an installation, review your plans, check to see:

- Your stove and chimney connector will be far enough from combustible material to meet all clearance requirements.
- The floor protection is large enough and is constructed properly to meet all requirements.
- You have all necessary permits from your local authorities. Your local building official is the final authority for approving your installation as safe and in determining that it meets all local and state building and safety codes.

The metal label permanently attached to the back of every SIERRA FLAME wood-burning stove shows that it has been tested to current UL and ULC safety standards, and gives the name of the testing laboratory. Clearance and installation information is also printed on the label. Local authorities will generally accept the label as evidence that, when the stove is installed according to the information on the label and in this manual, the installation meets codes and can be approved.

This wood stove must be connected to 1) a chimney complying with the requirements for Type HT chimneys in the standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or 2) a code-approved masonry chimney with a flue liner.

For any unresolved questions about installation in the USA, refer to the national Fire Protection Association's publication ANSI/NFPA 211 Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. For installation in Canada, refer to CSA CAN-B365, Installation Code for Solid Fuel Burning Applications and Equipment. These standards are the basis for many national codes.

They are nationally recognized and are accepted by most local authorities. Your local dealer or your local building official may have a copy of these regulations.

WARNING!

CHECK ALL LOCAL BUILDING AND SAFETY CODES BEFORE INSTALLATION. THE INSTALLATION INSTRUCTIONS AND APPROPRIATE CODE REQUIREMENTS MUST BE FOLLOWED EXACTLY AND WITHOUT COMPROMISE. ALTERATIONS TO THE STOVE ARE NOT ALLOWED. DO NOT CONNECT THE STOVE TO A CHIMNEY SYSTEM SERVING ANOTHER STOVE, APPLIANCE OR ANY AIR DISTRIBUTION DUCT. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID THE MANUFACTURERS WARRANTY.

NOTE

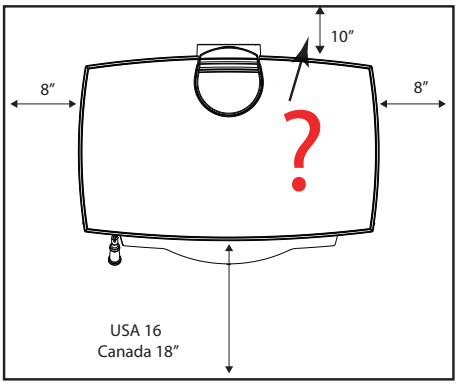
If you plan to vent your stove into an existing masonry chimney, have the chimney inspected by a local fire marshal or qualified installer. Remember that the chimney and its location on the roof heavily influences the stoves performance. An oversized flue may not provide effective draft and a flue liner may be required. (Observe draft requirements). Consult your dealer or qualified installer before final selection is made.

You may wish to leave enough room between the stove and the wall to make cleaning easier.

Floor protection

If the stove is to be installed on a combustible floor, the stove must be placed on a noncombustible hearth pad, which extends 8” (200 mm measured from the legs) beyond the stove sides and back, and 18” (455 mm) measured from side and back panels to the front. The floor protection can be any noncombustible material that has a minimum R- value of 1.0 and listed to UL-1618.

FLOOR PROTECTOR



FRONT
Floor protection for Canada 18″ (45 cm) from unit to front of floor protector - and 8″ (20 cm) to the sides.

Floor Protector must be under connector pipe and 2″ (5 cm) to the side for a through the wall configuration.

Ceiling height clearance

Do not install in an alcove or confined space and do not install in a room with a ceiling high below 7’0” (210 cm).

Clearance to combustibles

You must install the stove with sufficient space between the stove (top, sides, back, front, and under stove pipes) and any material that can catch fire. This includes furniture, especially in front of the stove.

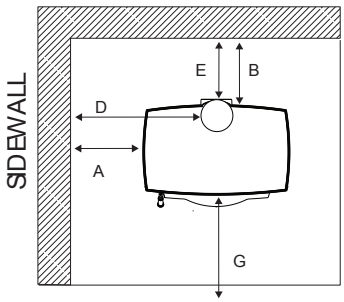
Combustible Wall Clearance for top vent installation

When installing stove the following clearances to combustible materials must be kept.

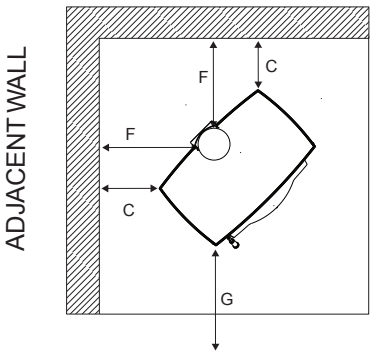
Chimney connector pipe	A	B	C	D	E	F	G
6” single wall							

CLEARANCE TO COMBUSTIBLE SURFACES

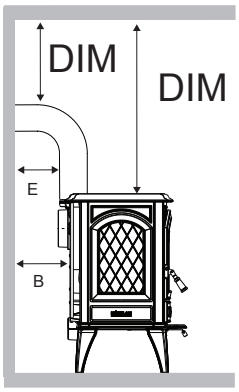
TOP VENT OPTION
BACKWALL



TOP VENT OPTION
ADJACENT WALL



TOP VENT OPTION
CEILING

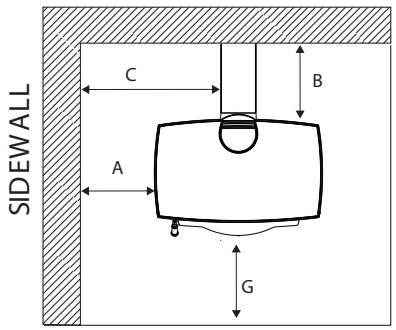


Combustible Wall Clearance for rear vent installation

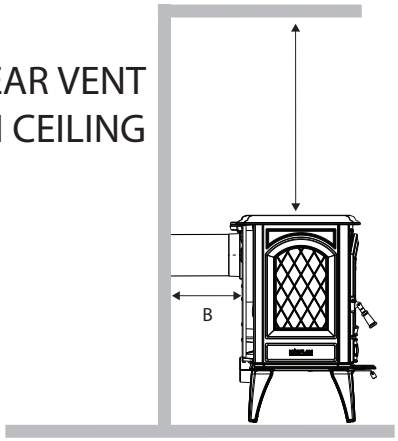
In placing to stove the following clearances to combustible materials must be kept.

Chimney connector pipe	A	B	C	G
6” single wall				

BACKWALL



REAR VENT
OPTION CEILING



Refer to the chimney connector manufacturer’s instructions concerning installation of listed connector pipe, wall thimble and chimney.

Draft Requirements

SIERRA FLAME Lynwood is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an oversized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .06" W.C. (Inches Water Column) and less than 08" W.C. (15 Pa - 20 Pa). A stove located in a basement may not generate sufficient draft to burn efficiently.

The chimney draft depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the chimney connector pipe (if a damper has been installed). If the chimney draft is strong, the combustion air supply should also be reduced.

Chimney Installation

DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. DO NOT CONNECT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.

SIERRA FLAME Lynwood is listed for installation as a vertically top or rear vented wood-burning stove using a listed class A (UL103HT) for Canada (CAN/ULC-S629) factory built chimney exiting through the ceiling/attic/roof.

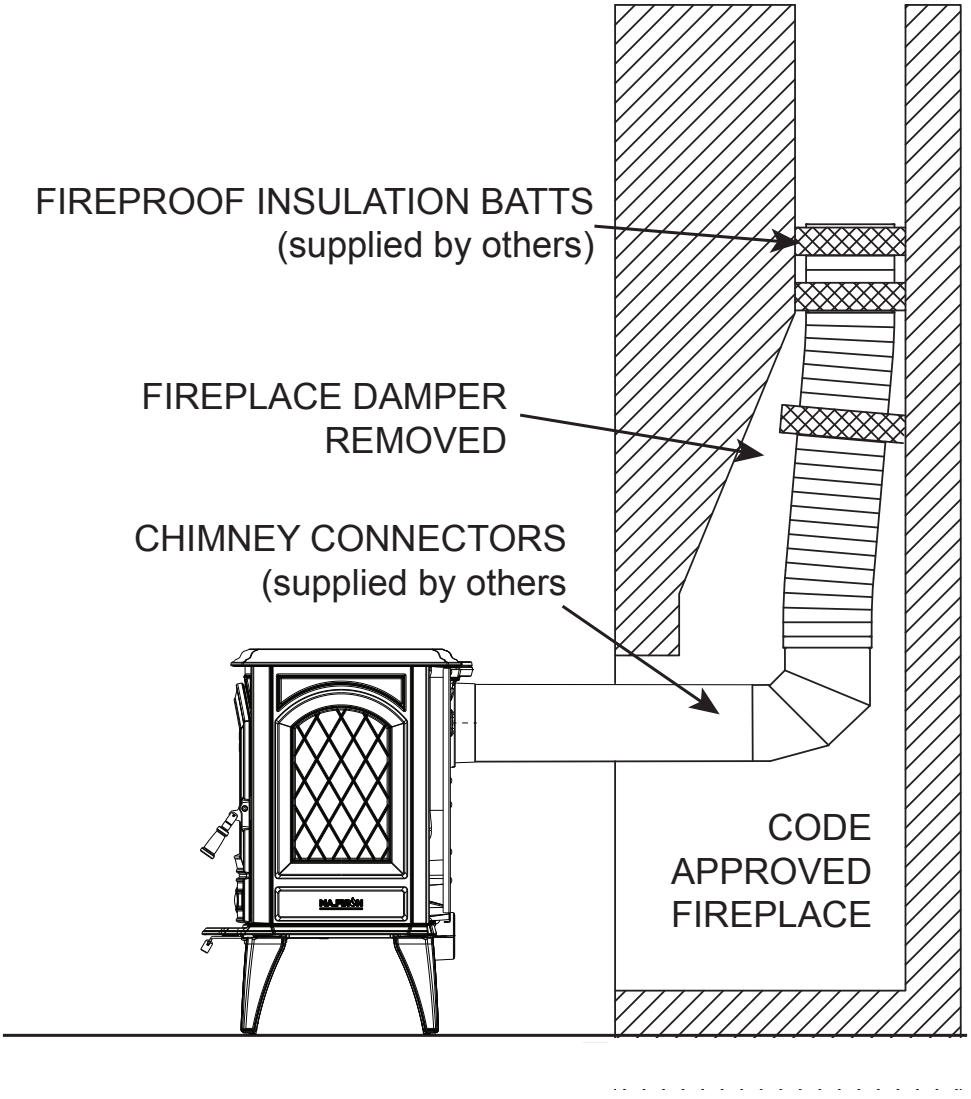
The inside diameter of the chimney and connector pipe must not be smaller than 6" (152 cm) diameter. Single wall 24 gauge MSG (0.58 - 0.71 mm) , this may be used in the room where the stove is installed, follow the chimney manufacturer's instruction for installation of chimney and chimney adapter. In Canada, where passage through wall, or partition of combustible construction is desired, the installation shall conform to CAN/CSA B365.

Factory Built Chimney

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed. You must also purchase (from the same manufacturer) and install the ceiling support package or wall pass-through and "T" section package, fire stops (where needed), insulation shield, roof flashing, chimney cap, etc. Maintain the proper clearance to the structure as recommended by the manufacturer. The chimney must be the required height above the roof or other obstructions for safety and proper draft operation.

Masonry Chimney

Ensure that a masonry chimney meets the minimum standards of the National Fire Protection Association (NFPA) by having it inspected by a professional. Make sure there are no cracks, loose mortar or other signs of deterioration and blockage. Have the chimney cleaned before the stove is installed and operated. When connecting the stove through a combustible wall to a masonry chimney, special methods are needed. Refer to Combustible Wall Chimney Connector Pass-Throughs on the following pages. When connecting the SIERRA FLAME Lynwood to an existing chimney: Remove the existing damper and/or any portion of the smoke shelf necessary to accommodate a 6 inch chimney connector. Install fireproof insulation batts between the connector pipes and the existing flue. Connector pipes must be installed to allow access for chimney cleaning. Large chimneys may not generate sufficient draft. A 6 inch stainless steel chimney liner extending tot he top of the chimney is recommended.



Factory Chimney Top vent installation

Required installation components:

Chimney cap

Insulated chimney

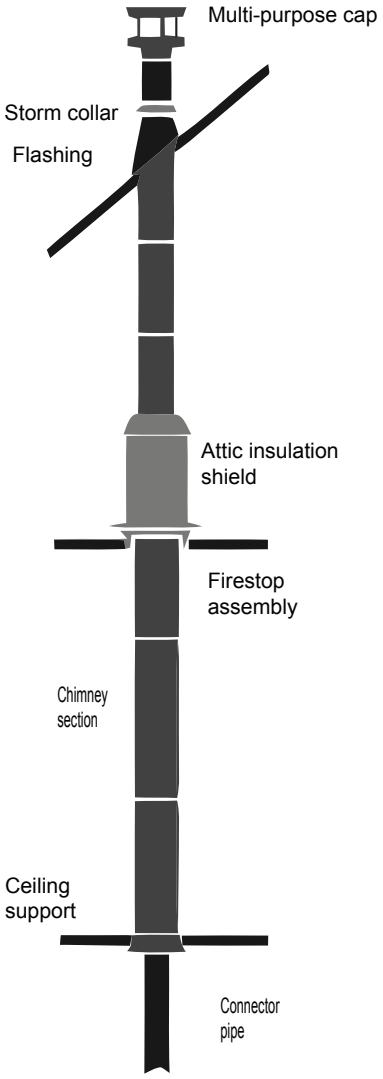
Storm collar

Roof flashing

Ceiling support box or joist shield/fire stop spacer

Chimney connector pipe

Chimney connector adapter

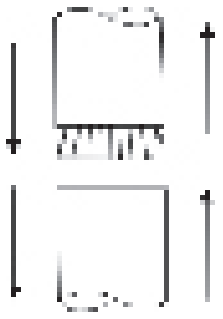


Chimney connector

The chimney connector is a single or walled pipe used to connect the stove to the chimney. For use with the SIERRA FLAME wood-burning stoves the chimney connector MUST be 6” in diameter, with a minimum thickness of 24 gauge black steel or 26 gauge blued steel

Aluminum and galvanized steel pipe is not acceptable for use with the SIERRA FLAME wood-burning stove. These materials cannot withstand the extreme temperatures of a wood fire and can give off toxic fumes when heated.

DO NOT USE THE CONNECTOR PIPE AS A CHIMNEY



Each chimney connector or stove pipe section must be connected to the stove flue collar and to each other with the male (crimped) end toward the stove. Each adjacent piece of connector must be fastened with 2 screws. This prevents any condensed or liquid creosote from running down the outside of the pipe or the stove top. All joints, including the flue collar connection must be secured with three sheet metal screws to ensure that the sections do not separate. For the best performance the chimney connector should be as short and direct as possible, with no more than one 90 degree elbow. The maximum horizontal run is 36” and a recommended total length of connector pipe should not exceed 10 feet. Always slope horizontal runs upward ¼” per foot toward the chimney. No part of the chimney connector may pass through an attic or roof space, closet or other concealed-space, or through a floor ceiling. All sections of the chimney connectors must be accessible for cleaning. Where passage through a wall or partition of combustible construction is desired, the installation must conform with NFPA 211 or CAN/CSA-B365.

Rear vent installation

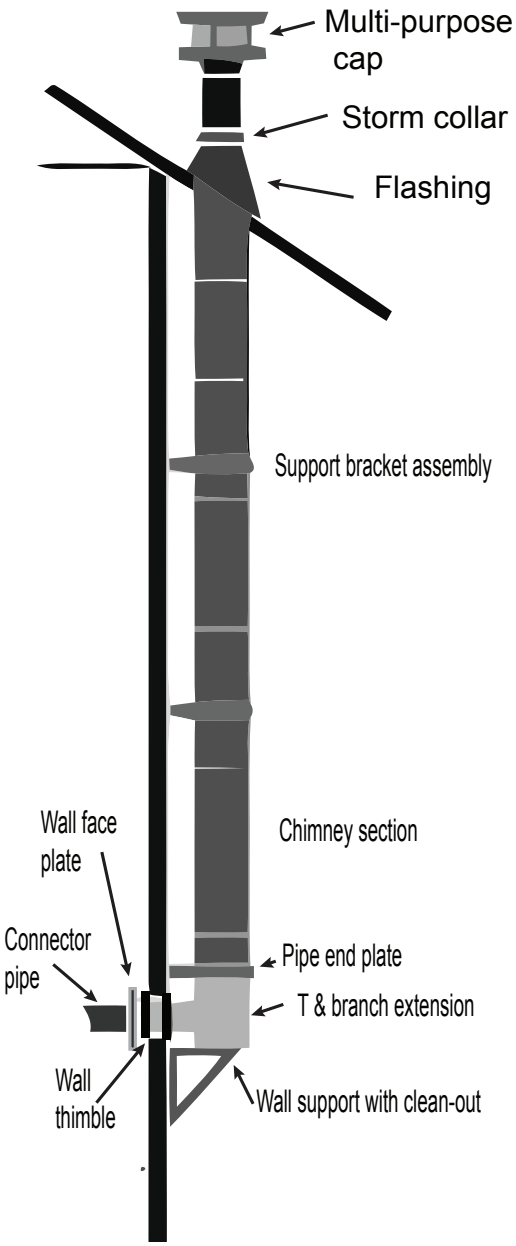
For venting into a masonry or a back standing steel chimney through the top vent the top horizontal portion of a single wall connector pipe can be located not closer than 18” below a combustible ceiling.

From the factory the stove is prepared for top mounting of the flue collar, but all SIERRA FLAME wood-burning stoves have an optional rear flue outlet, therefore the flue collar can be fitted either on the top or at the rear as required.

Rear venting into a masonry or steel chimney through a thimble vent configuration or other than described here must follow local codes or NFPA 211 or CAN/CSA_B365 guidelines and methods.

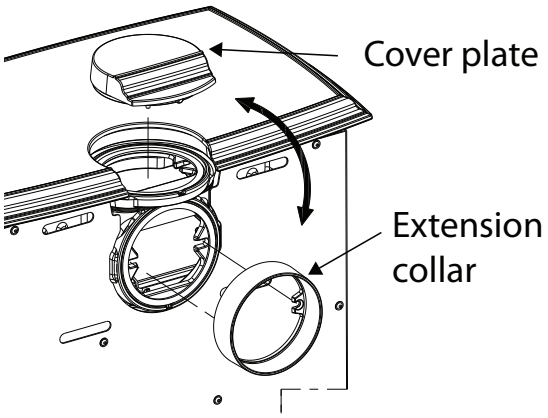
Required installation components:

- Chimney cap
- Insulated chimney
- Tee section
- Tee support bracket
- Chimney connector pipe
- Wall thimble
- Wall strap

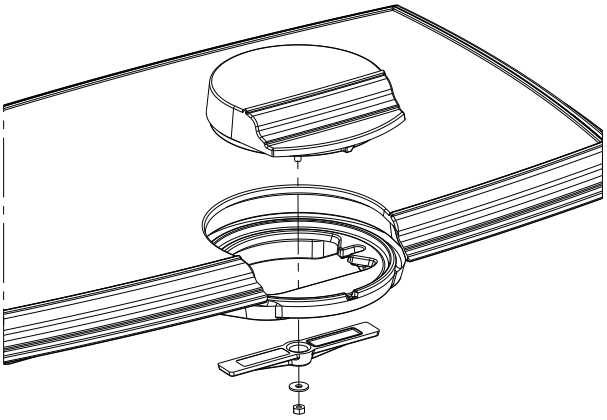


Mounting the flue collar for rear venting:

Step 1:
Remove the cover plate on the rear of the stove. remove the connection collar from the top of the stove. Mount the connection collar on the rear of the stove and the cover plate on the top of the stove.



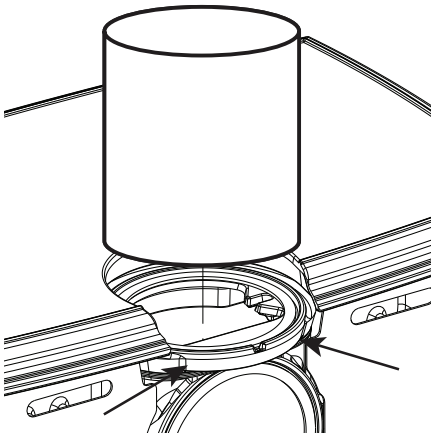
Step 2:
Remount the cover plate in the top outlet using the same bracket and fasteners that you removed in step 1



Mounting the connector pipe to the stove

Place connector pipe in the flue collar.

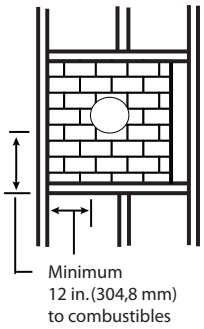
Use two self-tapping screws in the holes provided to secure the connector pipe so that it cannot be lifted of turned from the stove.

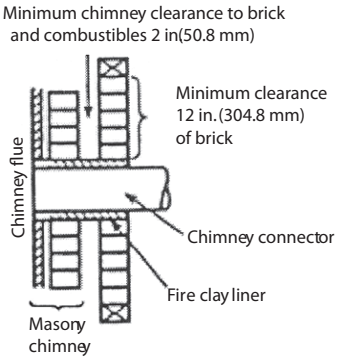


Combustible Wall Chimney Connector Pass-Throughs

Method A 12” (304.8 mm) Clearance to Combustible Wall Member:

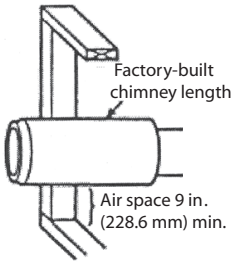
Using a minimum thickness 3.5” (89 mm) brick and a 5/8” (15.9 mm) minimum wall thickness clay liner, construct a wall pass-through. The clay liner must conform to ASTM C315 (Standard Specification for Clay Fire Linings) or its equivalent. Keep a minimum of 12” (304.8 mm) of brick masonry between the clay liner and wall combustibles. The clay liner shall run from the brick masonry outer surface to the inner surface of the chimney flue liner but not past the inner surface. Firmly grout or cement the clay liner in place to the chimney flue liner.

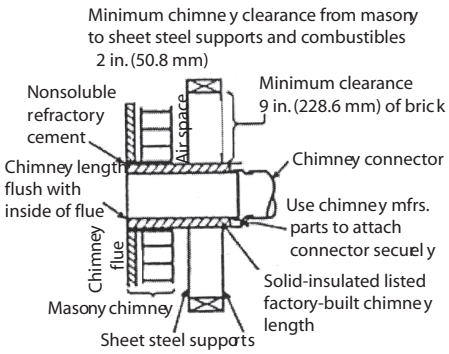




Method B 9” (228.6 mm) Clearance to Combustible Wall Member:

Using a 6” (152.4 mm) inside diameter, listed factory-built Solid-Pak chimney section with insulation of 1”(25.4 mm) or more, build a wall pass-through with a minimum 9” (228.6 mm) air space between the outer wall of the chimney length and wall combustibles. Use sheet metal supports fastened securely to wall surfaces on all sides, to maintain the 9” (228.6 mm) air space. When fastening supports to chimney length, do not penetrate the chimney liner (the inside wall of the Solid-Pak chimney). The inner end of the Solid-Pak chimney section shall be flush with the inside of the masonry chimney flue, and sealed with a non-water soluble refractory cement. Use this cement to also seal to the brick masonry penetration

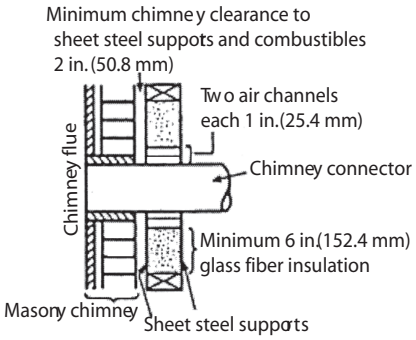




Method C 6” (152.4 mm) Clearance to Combustible Wall Member:

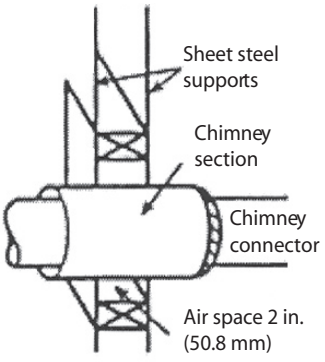
Starting with a minimum 24 gage (.024” [.61 mm]) 6” (152.4 mm) metal chimney connector, and a minimum 24 gage ventilated wall thimble which has two air channels of 1 in. (25.4 mm) each, construct a wall pass-through. There shall be a minimum 6” (152.4) mm separation area containing fiberglass insulation, from the outer surface of the wall thimble to wall combustibles. Support the wall thimble, and cover its opening with a 24-gage minimum sheet metal support. Maintain the 6” (152.4 mm) space. There should also be a support sized to fit and hold the metal chimney connector. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure the metal chimney connector do not penetrate chimney flue liner.

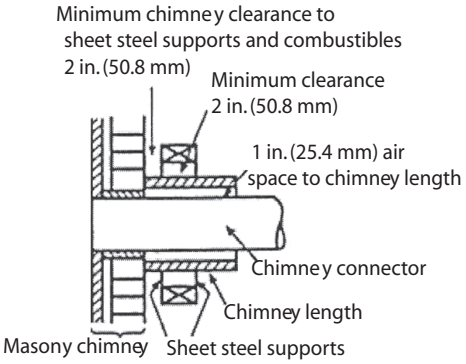




Method D 2” (50.8 mm) Clearance to Combustible Wall Member:

Start with a solid-pak listed factory built chimney section at least 12” (304 mm) long, with insulation of 1” (25.4 mm) or more, and an inside diameter of 8” (2 inches [51 mm] larger than the 6” [152.4 mm] chimney connector). Use this as a pass-through for a minimum 24-gage single wall steel chimney connector. Keep solid-pak section concentric with and spaced 1” (25.4 mm) off the chimney connector by way of sheet metal support plates at both ends of chimney section. Cover opening with and support chimney section on both sides with 24 gage minimum sheet metal supports. See that the supports are fastened securely to wall surfaces on all sides. Make sure fasteners used to secure chimney flue liner do not penetrate the liner.





Notes

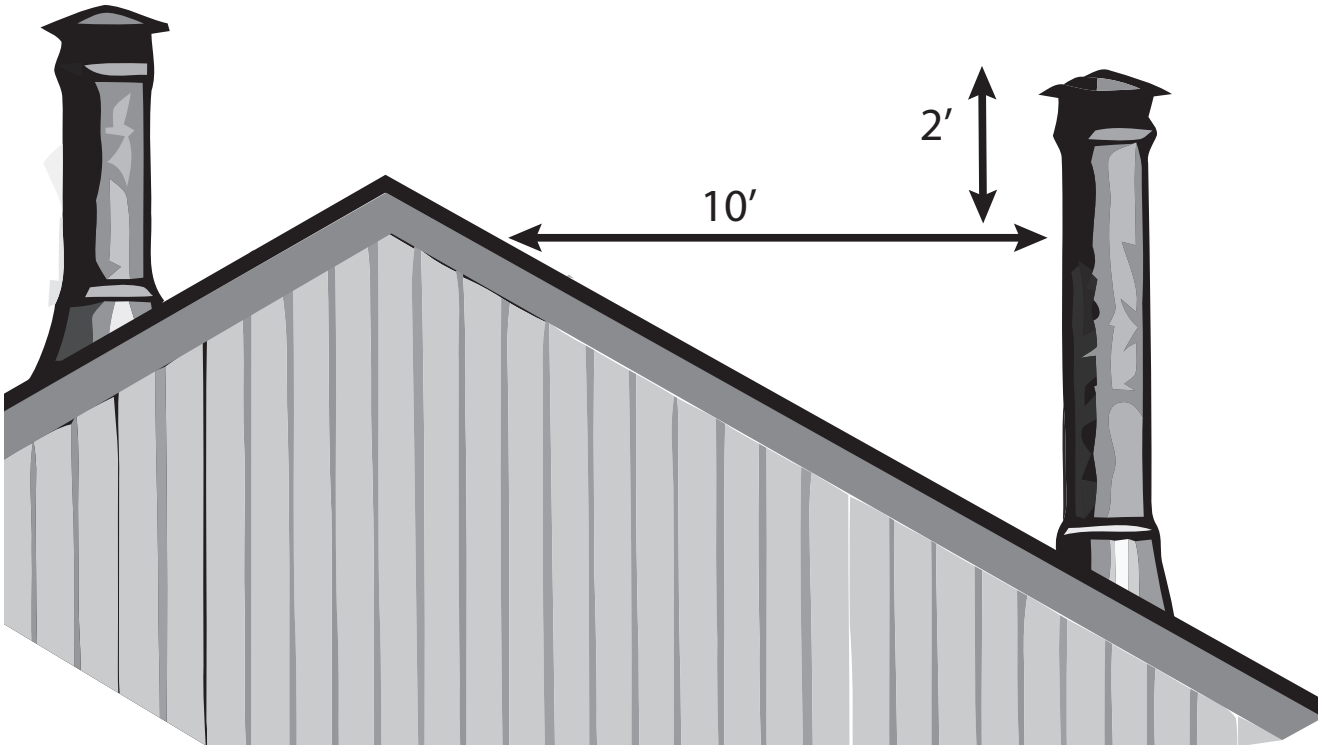
1. **Connectors to a masonry chimney, excepting method B, shall extend in one continuous section through the wall pass-through system and the chimney wall, to but not past the inner flue liner face.**

2. **A chimney connector shall not pass through an attic or roof space, closet or similar concealed space, or a floor, or ceiling.**

Chimney height requirements

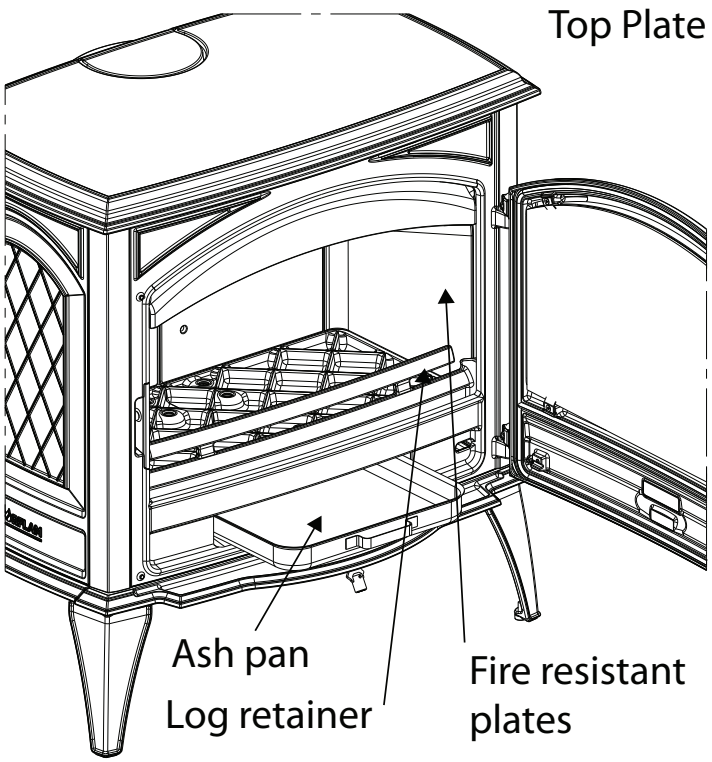
The chimney must extend 3 feet above the level of roof penetration and a minimum of 2 feet higher than any roof surface within 10 feet. Check with your local building officials for additional requirements for your area.

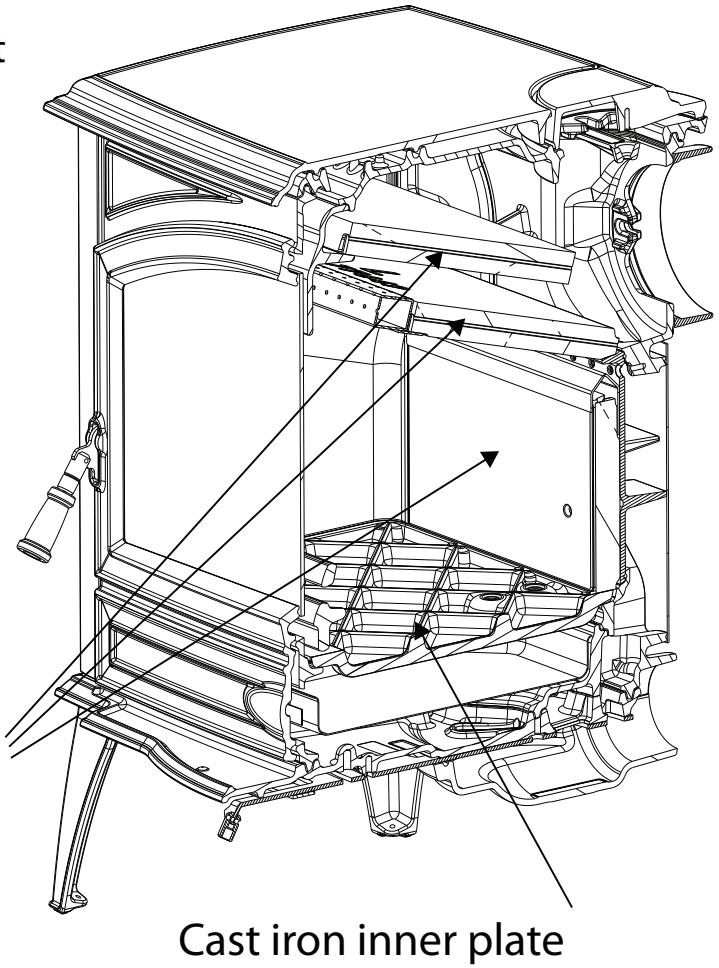
The condition of the chimney and height is very important; we suggest a total minimum height of 13’ (4.0 m). Measured from the top of the stove.



4. Prepare the Stove

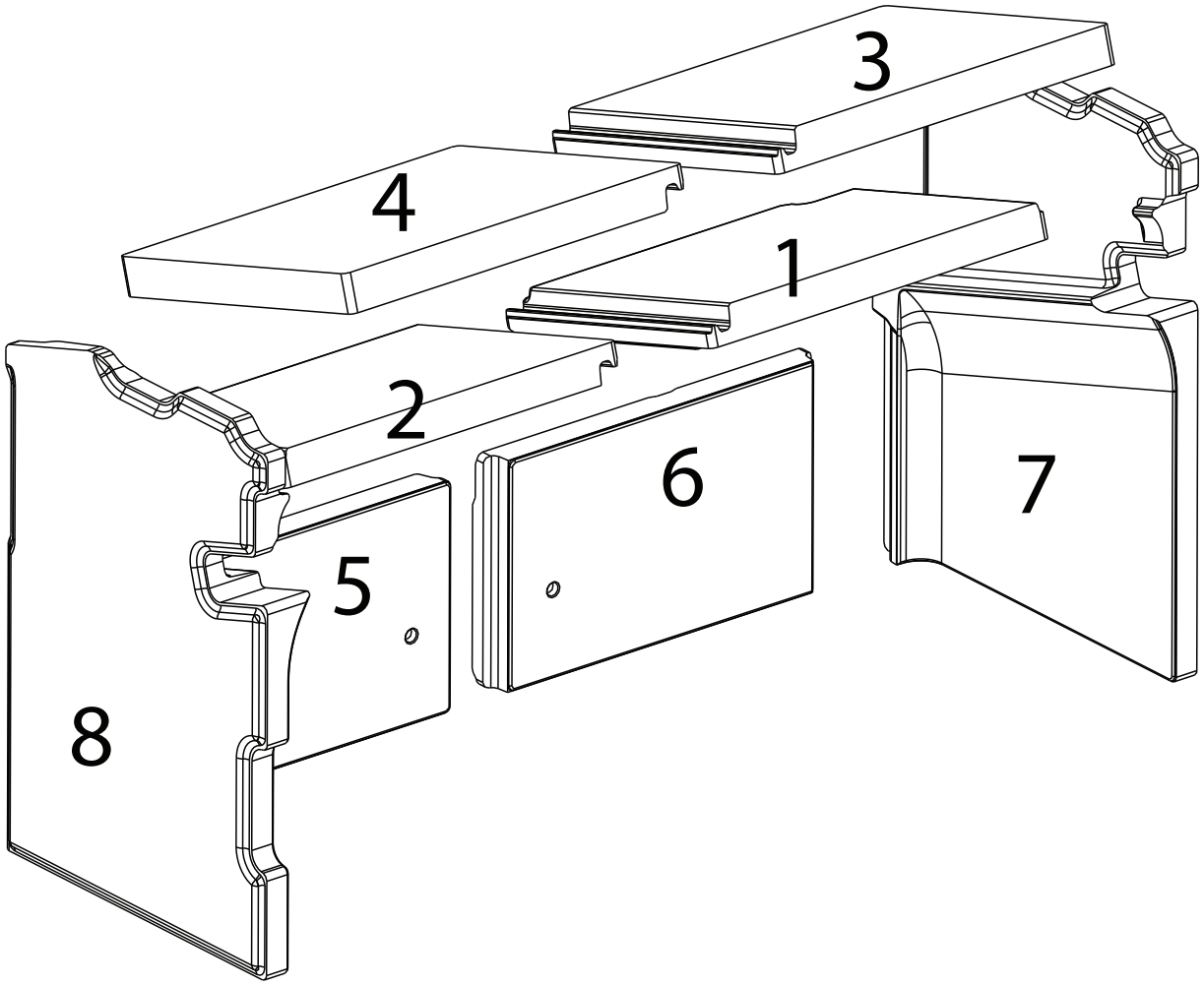
Please check the appliance for damage caused during transport or any other damage or defects immediately after delivery. The appliance is attached to the pallet with screws at the bottom. If you detect damage caused during transport or any other damage or defects, do not use the appliance and notify the supplier. Remove the removable parts (fire resistant inner plates, ash pan) from the stove before you start installation. By removing removable parts, it is easier to move the appliance and to avoid damage. Note the location of those removable parts, so that you have no difficulties in installing the parts in the right place later on. Cast iron inner plates protect the combustion chamber and dissipate heat to the environment.





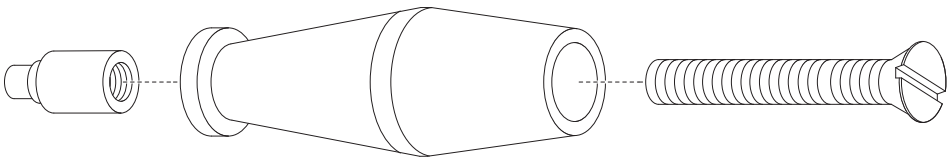
Exploded view of the fire resistant inner plates.

These plates are made from a very heat resistant and highly insulating material made of processed vermiculite. This material is capable of service temperatures up to 1150 C (2101 F) It is however somewhat fragile. Care should be used when handling these pieces and when fueling the stove. Please remove the pieces in numerical order when installing or cleaning the stove.



Cold Handle

The stove is supplied with a cold handle. Assemble the cold handle using the M8x50 screw provided. When not in uses store the handle in the hole provided at the side of the stove.



5. Instructions

Fire resistant inner plates

Fire resistant inner plates are delivered in this SIERRA FLAME wood-burning stoves. We recommend that you treat the plates with care because it is a delicate material (not covered by the limited warranty). Small cracks may arise in the plates from minor water content, especially if the stove is overheated during the first fire. These cracks do not influence the performance of the stove and are not covered by the limited warranty.

Glass

The glass is a heat resistance ceramic glass that can withstand continuous temperatures up to 1390°F (754°C). This temperature is well above the temperatures in which you operate your stove. This stove is designed to provide a flow of air over the inside of the glass. This air combined with high temperatures helps keep the glass optimally clean when the air wash air intake is fully opened. When operating the stove on low for extended periods of time, the glass may become dirty. A short, hot fire will help clean off much of the normal soot buildup (see section 6: Troubleshooting). In order to keep glass soot free the moisture content of the wood must be between 15 and 18%.

Smoke & Carbon Monoxide Detectors

SIERRA FLAME strongly recommends installing smoke detectors throughout your home. However, do not install them too close to the stove as the heat can activate them. Poor draft or improperly installed stoves and chimney components can allow smoke and carbon monoxide to escape into the home. Operating the stove on low-burn settings can make these problems worse. During testing this appliance was shown to emit between _____ and _____ carbon monoxide. Carbon monoxide is a colorless and odorless gas and extremely toxic.

Gaskets

The stoves are equipped with ceramic gaskets to ensure the tightness of the doors and the glass. These gaskets are wearing parts and must be changed from time to time. Note the position of and remove worn gaskets. Place the new gasket in the same position as the worn one. Secure the new gasket in place with wood stove gasket cement. Place a piece of paper or plastic between the door and the stove until the gasket cement has dried.

Protected Wall Reduced Clearances

Local codes in some areas will allow reduced clearances when the stove is installed adjacent to a protected wall system. Your local building official must approve the variance. Check your local building codes or with a qualified installer.

Room Ventilation & Combustion Air Supply

Provide for an adequate supply of air for combustion. Proper ventilation is essential when using a solid fuel-burning appliance. The combustion process uses oxygen from inside the dwelling and if there is not adequate make-up air (such as in newer homes which are well insulated and weather

tight), it may be difficult to obtain an adequate draft in your chimney (caused by a shortage of air in the house). To correct this, it may be necessary to crack a window on the windward side of the dwelling, or provide combustion air to a nearby floor/wall vent (fresh air duct), or directly to the stove. Please refer to your local building codes.

Draft Requirements

The SIERRA FLAME wood-burning stove is only one component of the total system. The venting system is equally important for achieving the required flow of combustion air to the firebox and for safely removing unwanted combustion by-products from the appliance. If the venting system's design does not promote these ends, the system may not function properly. Poorly functioning venting systems may create performance problems as well as be a safety hazard (i.e. an over-sized chimney may result in less than optimum performance. Installations into a large, masonry chimney may require a liner to improve performance). A draft test should read greater than .05" W.C. (Inches Water Column) and less than .08" W.C. The chimney draft also depends on the weather conditions. In stormy weather, you may reduce the chimney draft by closing the damper in the smoke pipe (if a damper has been installed). An uncontrollable burn or excessive temperature indicates excessive draft. If the chimney draft is strong, the combustion air supply should be reduced accordingly.

Operate Efficiently

Use seasoned wood versus high moisture wood to get the most efficient heat; Operate the stove at the medium burn rate setting.

6. Operation

WARNING! DO NOT USE GASOLINE, LIGHTER FLUID, KEROSENE OTHER FLAMMABLE LIQUIDS TO START OR FRESHEN A FIRE IN THE STOVE KEEP ALL SUCH LIQUIDS WELL AWAY FROM THE STOVE WHILE IT IS IN USE.

Fueling the wood-burning stove

Your SIERRA FLAME freestanding wood-burning stove is designed for burning natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. Wood should be stored in a dry place for at least two years before being used for fuel. Some trees have very high moisture content and it is necessary to thoroughly dry the wood. Cutting and splitting the wood can speed up the drying process, then stacking it with both ends of the stick exposed. More drying occurs through the end than through the sides even when the wood is split. We recommend that the moisture content of the wood be between 15-18%. If your wood sizzles or you see bubbles coming from the end of the logs, the wood is not dry.

Green or uncured wood does not work well as fuel, and can cause increased creosote buildups. The value of green wood as a source of heat is limited. Do not overload, use kindling wood, or mill ends for primary fuel as this may cause over-firing. Although feeding excessive amounts of fuel to the stove should be avoided, it is important to supply it with sufficient fuel to maintain a moderately hot fire (this is particularly important since burning wood produces volatile substances).

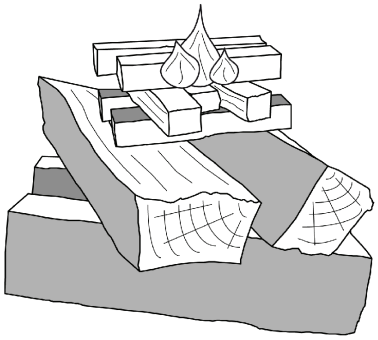
Do not store wood within the installation clearances or within the space required for refueling or ash removal.

WARNING! BURNING MATERIALS OTHER THAN NATURAL DRY WELL SEASONED WOOD MAY SHORTEN THE LIFE OF YOUR STOVE AND POSSIBLY LEAD TO A DANGEROUS OVER-FIRING CONDITION. DO NOT BURN GARBAGE, RUBBER OR PLASTIC, PARTICLE, BOARD, SALT WATER DRIFTWOOD OR PRESSED LOGS USING BONDING AGENTS BECAUSE THEY CAN PRODUCE CONDITIONS, WHICH WILL DETERIORATE METAL. OVER FIRING THE STOVE MAY CAUSE PAINT DISCOLORATION. A WHITE GLAZE ON THE GLASS IS AN INDICATION OF OVER FIRING.

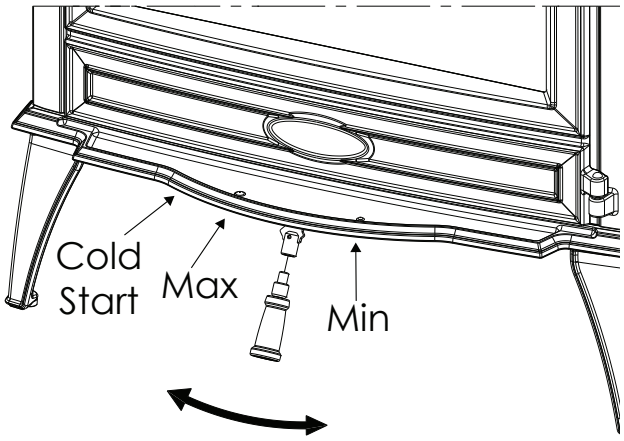
Starting the Stove

Do not elevate the fire on a grate. Build fire directly on the cast iron plates inside the stove. Do not build the fire close to the glass. A cold flue often does not have enough draft, and consequently, some smoke may escape into the room instead of up the chimney. By lighting the fire in the way described here, you can avoid this problem. Building your fire as described here with the kindling on top will decrease visible smoke and emissions.

- Stack two layers of medium sized logs crosswise. Use about 11 lb. or 5 kg of wood.
- Stack two layers of kindling crosswise on top of the logs.
- Place a fire lighter in the lower layer of kindling and light the fire lighter according to the instructions on the packaging.

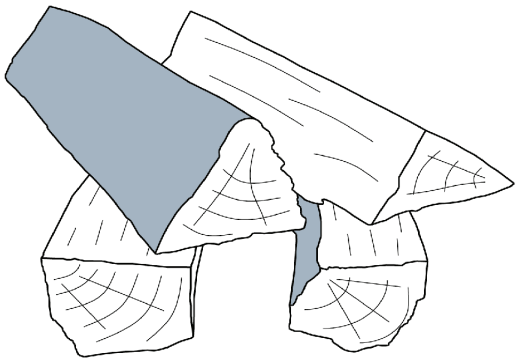


- Close the door of the appliance and move the air control to the cold-start position; see the following figure.
- When the fire is burning well move the control arm to the desired position for heat output.
- Let this fire develop into a good blaze until there is glowing bed of charcoal. You can then add fuel and adjust the appliance, see the following section “Burning Wood”.

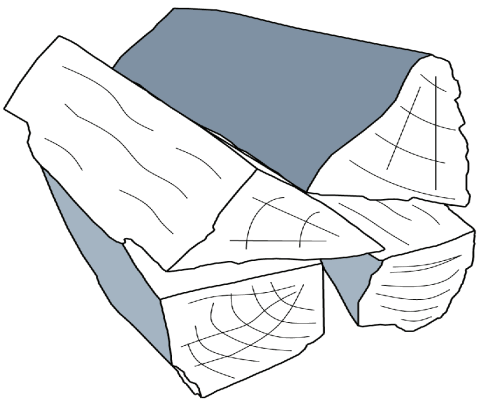


Refueling the Stove

After you have followed the instructions for lighting:
- Slowly open the door of the appliance.
- Move the control arm to the “MAX” position
- Spread out the charcoal bed evenly across the bottom of the fire compartment.
- Stack a few logs on the charcoal bed.
- Close the door of the appliance.
- When the fire is burning well move the control arm to the desired position for heat output.



Open stacking
If the logs are stacked openly, the wood will burn quickly as the oxygen can reach each log easily. If you want to use the stove for a short while, make an open stack.



Compact stacking
If the logs are stacked tightly, the wood will burn more slowly as the oxygen can only reach some logs easily. If you want to burn wood for a longer period, make a compact stack.

Advice

- Never burn wood with an open door.
- Regularly burn wood with intense roaring fires.
- If you frequently have low intensity fires, tar and creosote may be deposited in the chimney. Tar and creosote are highly combustible substances. Thicker layers of these substances might catch fire when the temperature in the chimney increases suddenly and steeply. Therefore it is necessary for the fire to regularly burn very intensely, so that layers of tar and creosote disappear. Low intensity fires also cause tar deposits on the stove window and door.
- When the outside temperature is not very low,it is better to burn wood intensely for a few hours instead of having a low intensity fire for a long period of time.
- It is better to add a small amount of logs regularly than to add many logs at the same time.
- Never slam the door shut or close the door against protruding firewood. Do not strike the door.

Extinguishing the fire

Do not add fuel and just let the fire go out. If a fire is damped down by reducing the supply of air, harmful substances will be produced and released. Therefore, let the fire go out naturally. Keep an eye on the fire until it has gone out. When the fire has died completely, all air inlets can be closed.

7. Maintenance

Ash Disposal and Removal

Caution

Make sure the fire is out and stove is cold before removing ashes! The cast iron inner plates on the bottom of the fire chamber have pockets. You should leave ash in the pockets during the heating season. This helps insulate the bottom of the stove and protects the combustion chamber components. Be careful when you remove ashes from the stove, there may be embers left as long as 24 hours after the stove was last used. Ashes should be placed in a metal container with a tight fitting lid and moved outdoors immediately. Other waste should not be placed in this container. The closed container of ashes should be places on a noncombustible floor or on the ground well away from all combustible materials, pending final disposal.

If ashes are disposed of by burial in soil or otherwise locally dispersed, they should be kept in the closed container until all cinders have thoroughly cooled.

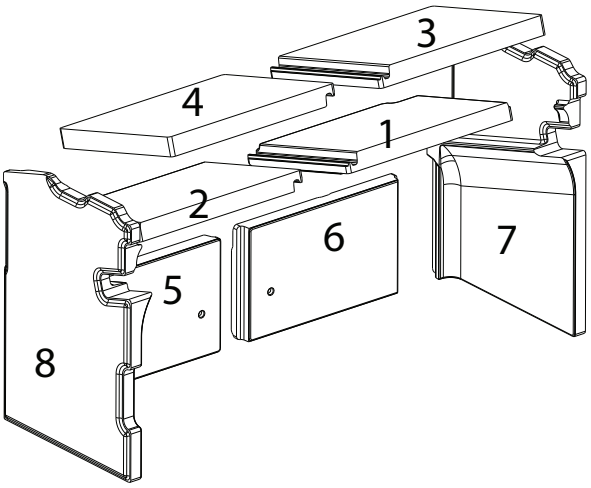
Cleaning Your Stove

Do not clean the appliance when it is still warm.
Clean the exterior of the appliance with a dry lint-free cloth.
At the end of the heating season, you can clean the interior of the appliance thoroughly: If necessary, first remove the fire-resistant inner plates. Checking fire-resistant inner plates The fire-resistant inner plates are consumables and subject to wear. Check the fire-resistant inner plates frequently and replace them when necessary. The insulating vermiculite inner plates may develop hairline cracks, but that does not affect their performance adversely.

Removing the Fire Resistant Plates for Cleaning

Make sure the fire is out and stove is cold before removing the plates, be careful when handling the plates, they are made of a breakable material.

Push plate (1) up and move to the side to remove. Repeat the process for plates 2,3, and 4. Remove the back plates 5 and 6 and finally the side plates. Reverse the process to re-install the plates



WARNING! DO NOT OPERATE WOOD-BURNING STOVE WITHOUT FIRE RESISTANT PLATES PROPERLY INSTALLED OR WARRANTY WILL BE VOID.

WARNING! DO NOT USE SUBSTITUTE MATERIALS. ALWAYS USE LISTED SPARE PARTS FROM SIERRA FLAME.

The cast-iron inner plates will last a long time if you frequently remove the ash that may pile up underneath them. If accumulated ash under a cast-iron plate is not removed, the plate cannot dissipate the heat anymore to its surroundings and that may cause the plate to warp or crack. Never use the appliance without the fire-resistant inner plates.

Cleaning glass

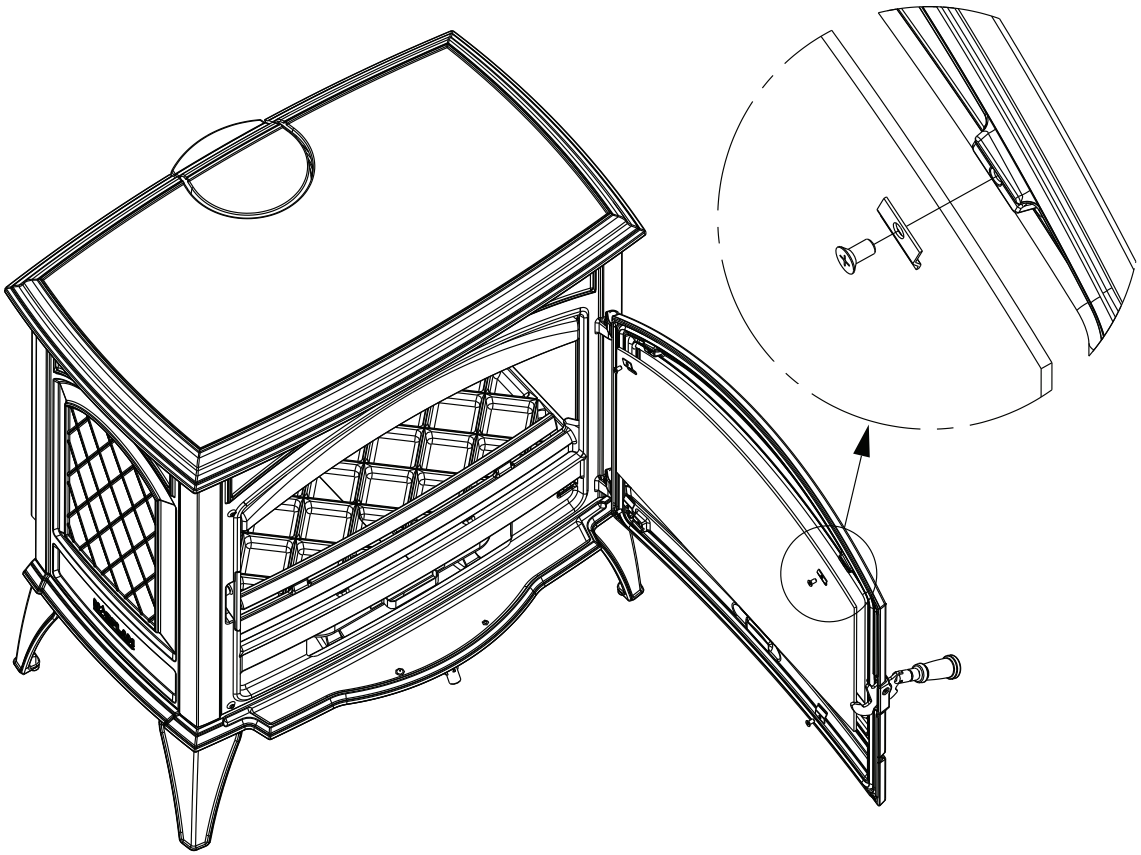
Dirt and soot cling less easily to well-cleaned glass. Proceed as follows:

- Remove dust and loose soot with a dry cloth.
- Clean the glass with stove window cleaner:
  - Apply stove window cleaner to a kitchen sponge, rub down the entire glass surface and give the cleaning agent time to react.
  - Remove the dirt with a moist cloth or kitchen tissue.
- Clean the glass again with a normal glass cleaning product.
- Rub the glass clean with a dry cloth or kitchen tissue.
- Do not clean the glass when hot

Do not use abrasive or aggressive products to clean the glass. Wear household gloves to protect your hands. If the glass in the appliance is broken or cracked, it must be replaced before you can use the appliance again. Make sure that no stove window cleaner runs between the glass and the cast-iron door.

Replacing Door Glass

Use only SIERRA FLAME ceramic replacement glass 4 mm in thickness. The use of any other glass is prohibited. Do not remove the door before installing new glass. When replacing the glass all gaskets must be installed correctly. Make note of the gasket locations as you take the door apart. Remove the steel washers and their gaskets from the screw posts. Remove any left over pieces of broken glass. Replace any damaged or worn gaskets. Center the new glass between the screw posts and reinstall the washers and their gaskets.



Creosote Formation and the Need for Removal

When wood is burned slowly it produces tar and other organic vapors, which combine with expelled-moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates in the flue lining. When ignited this creosote makes an extremely hot and dangerous fire.

The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if soot creosote and ash build up has occurred. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

8. Troubleshooting

					Problem	
●					Wood does not keep burning	
	●				Gives off insufficient heat	
		●			Smoke emissions into the room when adding wood	
			●		Fire in appliance is too intense, is hard to adjust	
				●	Deposit on the glass	
					Possible cause	**Possible solution**
●	●	●		●	Insufficient draught	A cold flue usually fails to create sufficient draught. Follow the instructions for lighting in the "Operation" chapter; open a window.
●	●	●		●	Wood too damp	Use wood with no more than 20% moisture.
●	●	●		●	Pieces of wood too big	Use small pieces of kindling. Use split logs no larger than 30 cm in circumference.
●	●	●	●	●	Wood stacked up incorrectly	Stack up the wood in a way that allows an adequate air flow between the logs (open stacking, see "Burning wood")
●	●	●		●	Chimney does not work properly	Check whether the chimney meets the requirements: at least 4 metres high, right diameter, well insulated, smooth inside, not too many bends, no obstructions in chimney (bird's nest, too much soot deposit), hermetically tight (no leaks).
●	●	●		●	Chimney stack incorrect	Sufficiently high above the roof, no obstacles in its vicinity
●	●	●	●	●	Air inlet set incorrectly	Open the air inlet completely.
●	●	●		●	Appliance connected to chimney incorrectly	Connection should be hermetically tight.
●	●	●		●	Vacuum in area where appliance is installed	Switch off extraction systems.
●	●	●		●	Insufficient supply of fresh air	Provide an adequate air supply; if necessary use connection to outside air.
●	●	●		●	Adverse weather conditions? Inversion(reversed airflow in chimney from high outside temperatures), extreme wind velocities	We recommend you don't use the appliance in the case of inversion. Install an extra piece on the flue to increase the draught if need be.
		●			Draft in the living room	Avoid draft in the living room, do not place the appliance near a door or heating air ducts.
				●	Flames touch the glass	Make sure the wood does not lie too close to the glass.
			●		Appliance is leaking air	Check the door seals and the appliance joints.

9. SIERRA FLAME Limited Warranty

What's Covered

SIERRA FLAME warrants, to the original retail buyer only , that the cast iron and steel components of this appliance will be free of defects in material and workmanship for a period of five (5) years from the date of purchase.

The enamel finish on the cast iron components is warranted against peeling or fading for a period of two years from the purchase date to the original retail buyer .

The Warranty expires when the original retail buyer transfers ownership.
These warranties are subject to the terms, exclusions and limitations set forth below.

What's not Covered:

- Repair or replacement of parts that are subject to normal wear and tear during the warranty period or to parts that may require replacement in connection with normal maintenance. These parts include paint, gaskets, , vermiculite baffles and panels , and glass
- Damage due to incorrect installation that do not comply instructions contained in this owner's manual or local and/or national fire and building regulations.
- Damage, including damage to enamel surfaces, caused by improper operation, over firing, and/or misuse. Do not burn the appliance with the door open. If any part of the stove or chimney connector glows red it is being over-fired. Warped plates, rust colored cast iron, paint pigment that has turned dusty white, or bubbling, cracking and discoloration of the enamel finish are indications of over-firing. Misuse also includes, any use that does not conform with the operating instructions contained in this owner's manual.
- Damage to enamel finish including chipping, mechanical or chemical abrasion, crazing, or staining
- Rust caused by high humidity or salt air environments.
- Damage from or repair of rust.
- Damage due to service performed by an installer or service agency.
- Damage caused by unauthorized modification, use or repair.
- Costs incurred by travel time and/or loss of service.
- Labor or other costs associated with the repair of components beyond the warranty period.
- Damage incurred while the appliance is in transit.
- SIERRA FLAME will not cover labor charges, consequential damages (including, but not limited to: the costs of repairing or replacing other property that is damaged when the warranted product fails), or incidental damages (including, but not limited to: the costs a consumer incurs in order to obtain warranty service, such as shipping charges, telephone charges, time lost from work, transportation costs, and the cost of renting a product temporarily to replace the warranted product). Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How to Get Service

SIERRA FLAME will repair or replace, at its option, any of the above components determined by SIERRA FLAME to be covered by this warranty. You must, at your own expense, arrange to deliver or ship the component to an authorized SIERRA FLAME dealer and arrange for pickup or delivery of the component after repairs have been made.

For the address of your authorized SIERRA FLAME dealer contact:
Stove Builder International Inc.
250, De Copenhague Street
G3A 2H3 Saint-Augustin-de-Desmaures
Quebec, Canada

If, upon inspection, SIERRA FLAME determines that the component is covered by this warranty, the repair or replacement will be made as set forth above. This warranty is not transferable and is extended only to, and is solely for the benefit of, the original retail purchaser of this SIERRA FLAME appliance.

The warranty period for any replaced component will be the remaining unexpired portion of the warranty period for the original component.

Please retain your dated sales receipt in your records as proof of purchase.

ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WRITTEN WARRANTY. EXCEPT AS EXPRESSLY SET FORTH HEREIN, SIERRA FLAME MAKES NO ORAL, WRITTEN OR OTHER WARRANTY WITH RESPECT TO SIERRA FLAME PRODUCTS.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

SIERRA FLAME reserves the right to discontinue, modify or change the materials used to produce SIERRA FLAME products. SIERRA FLAME shall have the right to replace any defective component with substitute components determined by SIERRA FLAME to be of substantially equal quality.

The dollar value of SIERRA FLAME's liability for breach of this warranty shall be limited exclusively to the cost of furnishing a replacement component.

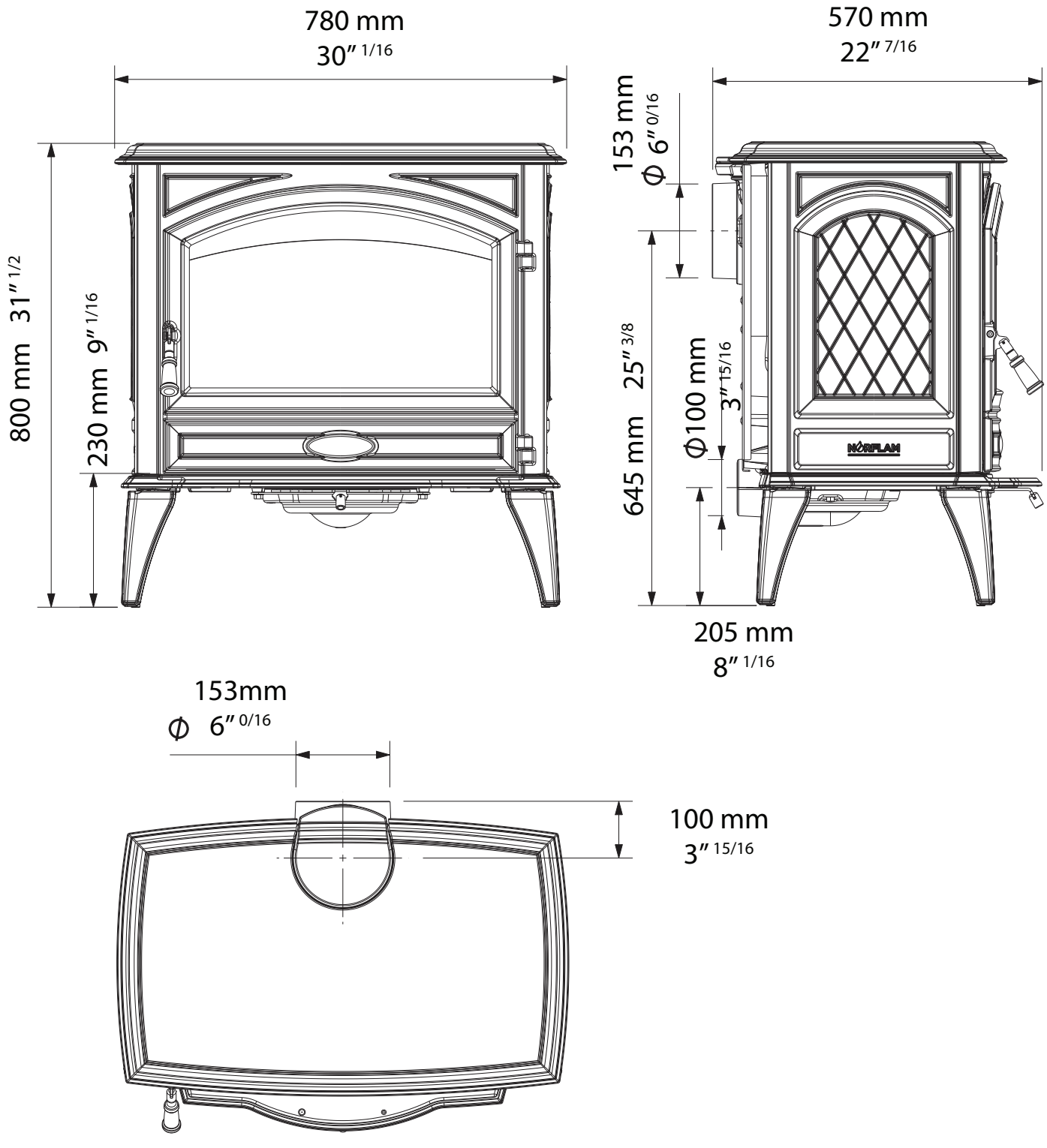
No dealer, distributor, or other person is authorized to modify, augment, or extend this limited warranty on behalf of SIERRA FLAME.

An authorized installer may have been provided with certain information related particularly to the SIERRA FLAME Stove or Fireplace; however, no authorized installer or other person who may service the appliance is an agent of SIERRA FLAME. No inference should be made that SIERRA FLAME has tested, certified, or otherwise pronounced any person as qualified to install or service the appliance. SIERRA FLAME shall not be liable or otherwise responsible for any error or omission by a person installing or servicing a SIERRA FLAME product.

IN ORDER TO QUALIFY FOR WARRANTY COVERAGE, SIERRA FLAME MUST RECEIVE NOTICE OF A POSSIBLE DEFECT WITHIN SIXTY (60) DAYS OF THE DATE THE DEFECT IS FIRST DISCOVERED, OR REASONABLY COULD HAVE BEEN DISCOVERED.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Dimensioned Drawing



Spare Parts

SBI

250, De Copenhague Str.
G3A 2H3 Saint-Augustin-de-Desmaures
Quebec Canada

CERTIFIED FOR CANADA AND U.S.A.
LISTED ROOM HEATER, SOLID FUEL TYPE
TESTED TO CAN/ULC S627-00 (R2018) AND UL1482-2011

PFS C US

MADE IN BELGIUM

PFS File NO. : F18-481

U.S. ENVIRONMENTAL PROTECTION AGENCY
Certified to comply with 2020 particulate emission standards using cord wood.
Tested to ASTM E3053 – 1.2 g/hr.

DO NOT REMOVE OR COVER THIS LABEL

MODEL	CAPETOWN 1800	MODEL NO.	01.23456.789
SERIAL NO.	1234567890	MFG. DATE	MM/DD/YYYY

INSTALL AND USE IN ACCORDANCE WITH THE NORFLAM HARBOR LIGHT INSTALLATION AND OPERATING INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS, INSTALLATION PERMIT AND INSPECTION IN YOUR AREA.
DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE (USA ONLY).
USE A 6 INCH / 150MM DIAMETER MINIMUM 24 MSG BLACK OR LISTED CONNECTOR.
CONNECTED TO A LINED MASONARY CHIMNEY SUITABLE FOR USE WITH SOLID FUELS.
DO NOT PASS A CHIMNEY CONNECTOR THROUGH A COMBUSTABLE WALL OR CEILING. SEE LOCAL BUILDING CODE FOR PRECAUTIONS REQUIRED.
DO NOT OVERFIRE - IF HEATER OR CHIMNEY CONNECTOR GLOWS, YOU ARE OVERFIRING.
INSPECT AND CLEAN CHIMNEY FREQUENTLY - UNDER CERTAIN CONDITIONS OF USE, CREOSOTE BUILDUP MAY OCCUR RAPIDLY.
DO NOT USE GRATE OR ELEVATE FIRE- BUILD WOOD FIRE DIRECTLY ON HEARTH.
FOR USE WITH SOLID FUEL ONLY.
REPLACE GLASS ONLY WITH GLASS SUPPLIED BY THE STOVE MANUFACTURER.
RISK OF FIRE OR EXPLOSION. DO NOT BURN GARBAGE, GASOLINE, OIL, OR OTHER FLAMMABLE LIQUIDS.
DO NOT OPERATE WITH FUEL LOADING DOOR OPEN

THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. CONSULT THE OWNER'S MANUAL FOR FURTHER INFORMATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH THE OPERATING INSTRUCTIONS IN THE OWNER'S MANUAL.

SIERRA FLAME

502-1027 Davie Street
V8E 4L2 Vancouver
British Columbia
MADE IN BELGIUM

CERTIFIED FOR CANADA AND U.S.A.
LISTED ROOM HEATER, SOLID FUEL TYPE
TESTED TO CAN/ULC S627-00 (R2018) AND UL1482-2011

PFS C US

PFS File NO. : F18-481

U.S. ENVIRONMENTAL PROTECTION AGENCY
Certified to comply with 2020 particulate emission standards using cord wood.
Tested to ASTM E3053 – 1.2 g/hr.

DO NOT REMOVE OR COVER THIS LABEL

MODEL	LYNWOOD W76	MODEL NO.	01.23456.789
SERIAL NO.	1234567890	MFG. DATE	MM/DD/YYYY

INSTALL AND USE IN ACCORDANCE WITH THE NORFLAM HARBOR LIGHT INSTALLATION AND OPERATING INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS, INSTALLATION PERMIT AND INSPECTION IN YOUR AREA.
DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVICING ANOTHER APPLIANCE (USA ONLY).
USE A 6 INCH / 150MM DIAMETER MINIMUM 24 MSG BLACK OR LISTED CONNECTOR.
CONNECTED TO A LINED MASONARY CHIMNEY SUITABLE FOR USE WITH SOLID FUELS.
DO NOT PASS A CHIMNEY CONNECTOR THROUGH A COMBUSTABLE WALL OR CEILING. SEE LOCAL BUILDING CODE FOR PRECAUTIONS REQUIRED.
DO NOT OVERFIRE - IF HEATER OR CHIMNEY CONNECTOR GLOWS, YOU ARE OVERFIRING.
INSPECT AND CLEAN CHIMNEY FREQUENTLY - UNDER CERTAIN CONDITIONS OF USE, CREOSOTE BUILDUP MAY OCCUR RAPIDLY.
DO NOT USE GRATE OR ELEVATE FIRE- BUILD WOOD FIRE DIRECTLY ON HEARTH.
FOR USE WITH SOLID FUEL ONLY.
REPLACE GLASS ONLY WITH GLASS SUPPLIED BY THE STOVE MANUFACTURER.
RISK OF FIRE OR EXPLOSION. DO NOT BURN GARBAGE, GASOLINE, OIL, OR OTHER FLAMMABLE LIQUIDS.
DO NOT OPERATE WITH FUEL LOADING DOOR OPEN

THIS WOOD HEATER NEEDS PERIODIC INSPECTION AND REPAIR FOR PROPER OPERATION. CONSULT THE OWNER'S MANUAL FOR FURTHER INFORMATION. IT IS AGAINST FEDERAL REGULATIONS TO OPERATE THIS WOOD HEATER IN A MANNER INCONSISTENT WITH THE OPERATING INSTRUCTIONS IN THE OWNER'S MANUAL.