EPA Standard of Performance for New Residential Wood Heaters

Certification Test Report

Confidential Business Information (CBI)

Manufacturer: Morsø Jernstøberi A/S
Heater Type: Wood-Fired, Freestanding Room Heater
Series Name: 6100 B
Models: 6140 B, 6143 B, 6148 B, 6170 B

Prepared for: Morsø Jernstøberi A/S
Furvej 19
DK-7900 Nykøbing Mors
Denmark

Prepared by: OMNI-Test Laboratories, Inc.
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Test Period: February 20-21, 2019

Report Date: September 23, 2019

OMNI Report Number: 0192WS015E
DTI Report Number: 300-ELAB-2381-EPA

- Document Edition # 001 (10/4/19) -

AUTHORIZED SIGNATORIES

This report has been reviewed and approved by the following authorized signatories:

Evaluator:

Bruce Davis
Technician

Reviewer:

Alex Tiegs
President

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Sampling Procedures and Test Results

INTRODUCTION

Morso Jernstoberi A/S retained *OMNI* to perform U.S. Environmental Protection Agency (EPA) third party certification on the 6100 B frestanding room heater. The 6100 B is a cast iron freestanding wood burning room heater. The firebox is constructed of cast iron. Usable firebox volume was measured to be 0.5050 cubic feet and the stove is vented through 6" flue collar located on the stove top.

Testing was performed at Danish Technological Institute (DTI) located at Kongsvangalle 29, DK-8000 Aarhus C, Denmark. Report number 300-ELAB-2381-EPA dated August 27, 2019 was generated by DTI and submitted to OMNI for review and third-party certification.

This report is organized in accordance with the EPA-recommended outline and is summarized in the Table of Contents immediately preceding this section. The results in this report are limited to the item submitted.

SAMPLING PROCEDURE

The 6100 B was tested in accordance with the U.S. EPA 40 CFR Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters using EPA ASTM E2515 and E3053 *per* EPA Alt-125's requirements for cordwood testing in accordance with the CFR. No 28R. Particulate emissions were measured using sampling trains consisting of two Teflon coated 47mm filters (front and back).

The model 6100 B was tested for thermal efficiency and carbon monoxide (CO) emissions in accordance with CSA B415.1-10 using Birch cordwood.

SUMMARY OF RESULTS

The weighted average emissions of the four test runs included in the results indicate a particulate emission rate of 0.67 grams per hour. Particulate emissions were sampled on one of the high burn fuel loads. The 6100 B results are within the emission limit of 2.5 g/hr for affected facilities tested with cordwood, manufactured on or after May 15, 2020.

The proportionality results for all 3 test runs were acceptable when calculated at a 10-minute sample rate. Quality check results for each test run are presented in Section 2 of this report.

INDIVIDUAL RUN SUMMARIES

Run 1 - HF Test procedures followed to produce a high burn rate with a primary air setting of fully open. Observed burn rate was calculated at 1.81 kg/hr. Emissions results were calculated using particulate sampling from kindling, start-up fuel, and test fuel load combined (cold to hot). Burn rate, and efficiency were calculated using data from the test fuel load only (hot to hot). No sampling anomalies occurred; this test run was determined to be valid for inclusion in the weighted average.

Run 2 - MF Test procedures were followed to produce a medium burn rate with a primary air setting of 2 mm open from the factory set minimum setting. Observed burn rate was calculated at 1.25 kg/hr. Emissions and efficiency results were calculated using a hot to hot burn cycle, a coal bed generated by the high burn procedure was used. No sampling anomalies occurred; this test run was determined to be valid for inclusion in the weighted average.

Run 3 - HF Test procedures followed to produce a high burn rate with a primary air setting of fully open. Observed burn rate was calculated at 1.74 kg/hr. Emissions sampling did not occur during this procedure, it was conducted to create a coal bed for run 4.

Run 4 - LF Test procedures were followed to produce a low burn rate with a primary air setting of full closed, a factory installed stop is used to prevent the air control from fully closing. Observed burn rate was calculated at 0.95 kg/hr. Emissions and efficiency results were calculated using a hot to hot burn cycle, a coal bed generated by the high burn procedure was used. No sampling anomalies occurred; this test run was determined to be valid for inclusion in the weighted average.

Table 1 – Particulate Emissions

Run	**Burn Rate** Calculated from a Hot to Hot burn cycle (kg/hr dry)	**ASTM E2515 Emissions** (g/hr)	**ASTM E3053 Weighting Factor** (%)	**ASTM E3053 Weighted Emissions** (g/hr)
1	1.81	[1.] 0.68	20	0.136
2	1.25	0.66	40	0.264
4	0.95	0.68	40	0.268
The sum of weighted particulate emission of 3 test runs: 0.136 + 0.264 + 0.268 = **0.67 g/hr.**				

1. Based on a cold start including kindling and start-up fuel.

Table 2 – Particulate Emissions (First Hour)

Run	**ASTM E2515 Emissions – First Hour** (g/hr)
1	0.55
2	0.81
4	1.54

Table 3 – B415.1 Efficiency and CO Emissions

Run	Heat Output (BTU/hr)	HHV Efficiency (%)	LHV Efficiency (%)	ASTM E3053 Weighted HHV Efficiency	CO Emissions (g/MJ Output)	CO Emissions (g/kg Dry Fuel)	CO Emissions (g/min)
1	36,148	75.2	80.8	15.04	0.61	9.16	0.385
2	18,081	75.2	80.8	30.08	2.07	31.36	0.658
4	14,270	78.8	84.7	31.52	3.22	50.99	0.807
Weighted average HHV efficiency of 3 tests: 15.04 + 30.08 + 31.52 = **76.64 %.** Average CO emissions: (0.385 + 0.658 + 0.807)/3 = **0.617 g/min**							

Table 4 – Test Facility Conditions

Run	Room Temperature (°F)		Barometric Pressure (Hg)		Air Velocity (ft/min)	
	Before	After	Before	After	Before	After
1	74.5	75.7	29.96	29.97	<50	<50
2	75.7	76.6	29.97	29.98	<50	<50
4	76.5	76.1	30.29	30.06	<50	<50

Table 5 – Kindling and Start-up Fuel Description Summary
Birch Cordwood

Run	Kindling Weight Wet Basis (lbs)	Start-up Fuel Weight Wet Basis (lbs)	Residual Start-up fuel weight (lbs)
1	1.54	2.31	1.19
3	1.66	2.48	0.88

Table 6 – Fuel Measurement and Cordwood Description Summary – TEST
Birch Cordwood

Run	Test Fuel Wet Basis (lbs)	Firebox Volume (ft^3)	Fuel Loading Density Wet Basis (lbs/ft^3)	Test Fuel Dry Basis (lbs)	1. Test Fuel Consumed During Test Dry Basis (lbs)
1	5.09	0.505	10.08	4.197 + 0.979	4.601[1]
2	5.94	0.505	11.76	4.945	4.945
3	5.09	0.505	10.08	4.227 + 0.985	4.64[1]
4	6.19	0.505	12.26	5.091	5.091

1. Includes start-up and kindling fuel for high burn tests 1, 3

Table 7 – Dilution Tunnel Gas Measurements and Sampling Data Summary

Run	Length of Test (hh:mm;ss)	Average Dilution Tunnel Gas Measurements	
		Velocity (ft/sec)	Temperature (°F)
1	1:17:50	21.59	91
2	2:30:50	21.59	91
4	02:26:10	21.29	88

Model Similarities

All versions of the 6100 B series share the same firebox, flue, and combustion air system. Model differences are limited to variations of the pedestal base.

Model 6140 B was the tested model, it sets on a short pedestal base that is approximately the same diameter as the stove body.

Model 6143 B has a taller pedestal similar in diameter as the 6140 B that is offered with and without a wood storage compartment.

Model 6148 B has a pedestal that is similar in height to the 6143 B but has a reduced diameter between the base and the firebox.

Model 6170 B has no pedestal, it is designed as a wall hanging appliance.

Photos of these variations are in Appendix 26 of DTI report number 300-ELAB-2381-EPA.

Appendix A
User Manual / Labels

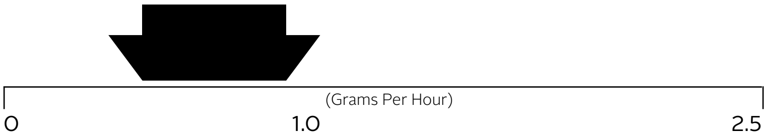
Manufactured by: Morsø
Model: 6100 B series

U.S. ENVIRONMENTAL PROTECTION AGENCY

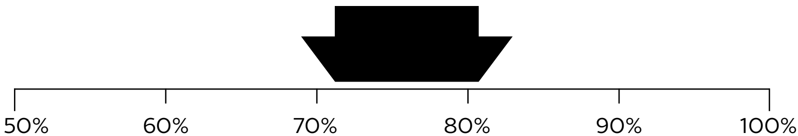
Certified to comply with 2020 particulate emission standards using cord wood.

SMOKE

THIS MODEL



EFFICIENCY



Particulate emission using ASTM E3053-17 cordwood test method:

Emission
0.67 g/h

Wood heaters with higher efficiencies cost less to operate.

HEAT OUTPUT
15,043 to 38,107 Btu/Hr

Use this to choose the right size appliance for your needs.
ASK DEALER FOR HELP

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.

OMNI-Test Laboratories, Inc.

Portland
Oregon USA

Report No./Rapport Nu: 0192WS015E

Solid Fuel Room Heater
Fournaise de Pièce Au Gas Solide
Tested to/Testé à:
UL 1482-2011(R2015), ULC -S627-00

DO NOT REMOVE THIS LABEL / NE PAS ENLEVER CETTE ÉTIQUETTE

MADE IN DENMARK / FABRIQUÉ AU DANEMARK

DATE OF MAUFACTURE / DATE DU MANUFACTURE

2019 2020 2021

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Model/Modèle:
6140 B 6143 B 6148 B 6170 B

Serial No./
Nu.de Série

morsø
DK-7900
Nykøbing Mors
Denmark

PREVENT HOUSE FIRES:

Install and use only in accordance with manufacturer's installation and operating instructions and local codes. Contact local building or fire officials about restrictions and installation inspection in your area. In absence of any local codes, installation must meet minimum requirements of NFPA 211 in USA, and B365 in Canada. Refer to manufacturer's instructions and local codes for precautions required for passing chimney through a combustible wall or ceilling. Inspect and clean chimney system frequently in accordance with manufacturer's instructions.
For use with solid wood fuel only. Do not connect this unit to a chimney flue serving another appliance.
Do not use grate or elevate fire. Build wood fire directly on hearth.
Use a residential type masonry or listed type HT factory-built chimney.
High Temperature (H.T.) Chimney Standard UL-103-1985 (2100º F.) for the USA, and High Temperature (650ºC) Standard ULC S-629 for Canada.
NOTE: Replace glass only with factory supplied ceramic. Operate only with door closed. Do not operate with start device open or ajar.
Do not obstruct beneath the heater

PREVENT CREOSOTE FIRES: Inspect and clean chimney frequently. Under certain conditions of use creosote buildup may occur rapidly.

CAUTION: Fully open combustion air control before opening the fuel feed door.

PRÉVENTION DES FEUX DE MAISON:

Installez et utilisez seulement en accord avec les instructions d'installation et d'opération du manufacturier et des codes locaux. Contactez les autorités locales en charge des constructions et de la prévention contre le feu au sujet des restrictions et l'inspection des installations dans votre région. Dans l'absence des codes locaux, l'Installation doit être conforme aux exigences de NFPA 211 aux États-Unis, et B365 au Canada. Référez-vous aux instructions du manufacturier et des codes locaux pour les précautions exigées pour passer une cheminée à travers un mur ou un plafond combustibles. Inspectez et nettoyez le système de la cheminée frequemment en accord avec les instructions du manufacturier.
Pour une utilisation avec des combustibles solides uniquement. Ne pas brancher cette unité à une cheminée utilisée pour une autre installation.
N'utilisez pas un âtre et n'élevez pas la feu. Édifiez le bois de feu directement sur le foyer.
Utilisez une cheminée maçonnée de type résidentiel ou une cheminée préfabriquée répertoriée de type HT. Cheminée Haute Température (HT), norme UL-103-1985 (2100 °F) pour les États-Unis et Haute Température (650 °C), norme ULC S-629 pour le Canada.
NOTE: Remplacez la vitre seulement avec de la céramique fournie par l'usine.
Opérer seulement avec la porte fermée. Ne pas opérer si le démarreur d'opération est ouvert ou entrouvert.
Ne pas obstruer sous le poêle.

PRÉVENEZ LES FEUX DE CRÉOSOTE: Inspectez et nettoyez la cheminée fréquemment. Sous certaines conditions d'usage, le résidu de créosote peut se former rapidement.

AVIS: Ouvrez complétement le contrôle d'air de combustion avant d'ouvrir la porte du foyer.

FREESTANDING INSTALLATION

STANDARD RESIDENTIAL FREESTANDING INSTALLATIONS REQUIRE: 6'' diameter, minimum 24 MSG black or 26 MSG blued steel connector, with listed (type UL103 HT or ULC S629) factory-built chimney, suitable for use with solid fuel or masonry chimney. / POUR LES INSTALLATIONS RÉSIDENTIELLES: Utiliser un connecteur de cheminée de 6'' de diamètre, en acier noir de minimum 24 MSG ou en acier bleu de minimum 26 MSG vers une cheminée préfabriquée homologuée (type UL103 HT ou ULC S629) ou vers une cheminée maçonnée.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Certified to comply with 2020 particulate emission standards using cord wood.
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. Test results using ASTM E3053-17 cordwood test method:

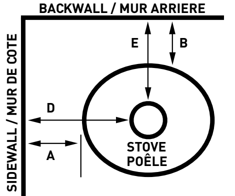
Certifié conforme aux normes EPA de 2020 les émissions de particules solides utilisant le bois de crèche.
Ce poêle doit être revisé et reparé périodiquement pour une utilisation correcte.
Il est contre la loi fédérale d'utiliser ce poêle contredit les instructions de ce manuel.
Résultats des tests utilisant la méthode d'essai ASTM E3053-17 cordwood:

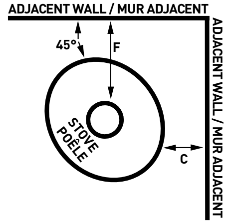
PARTICULATE EMISSION / EMISSION DE PARTICULATE : 0.67 g/h

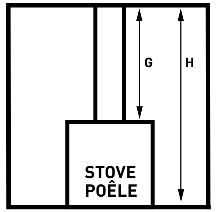
HEAT OUTPUT / PUISSANCE CALORIFIQUE: 15,043 - 38,107 BTU/Hr

CLEARANCE REQUIREMENTS DÉGAGEMENT MINIMAUX DES MATÉRIAUX COMBUSTIBLES:	STANDARD RESIDENTIAL FREESTANDING INSTALLATIONS (SINGLEWALL & DOUBLEWALL CONNECTOR): INSTALLATION RÉSIDETIELLE STANDARD (TUYAU DE RACCORDEMENT À SIMPLE PAROI ET À DOUBLE PAROI):		ALCOVE INSTALLATION WITH DOUBLEWALL CONNECTOR: INSTALLATION DANS UN ALCÔVE TUYAU DE RACCORDEMENT À DOUBLE PAROI
	SINGLEWALL	DOUBLEWALL	DOUBLEWALL
A. SIDEWALL TO UNIT / DU MUR DE CÔTÉ AU POÊLE	10.0'' (254mm)	10.0'' (254mm)	12.0'' (305mm)
B. BACKWALL TO UNIT / DU MUR ARRIÈRE AU POÊLE	3.0'' (76mm)	2.0'' (51mm)	3.0'' (76mm)
C. CORNERWALL TO UNIT / DU MUR DU COIN AU POÊLE	5.0'' (127mm)	5.0'' (127mm)	N/A
D. SIDEWALL TO CONNECTOR / DU MUR DE CÔTÉ AU RACCORD DE CHEMINÉE	15.5'' (394mm)	15.5'' (394mm)	17.5''(445mm)
E. BACKWALL TO CONNECTOR / DU MUR ARRIÈRE AU RACCORD DE CHEMINÉE	7.5'' (191mm)	6.5'' (165mm)	7.5'' (191mm)
F. CORNERWALL TO CONNECTOR / DU MUR DE COIN AU RACCORD DE CHEMINÉE	10.0''(254mm)	10.0''(254mm)	N/A
G. UNIT TO CEILING / DU POÊLE AU PLAFOND	54,5''(1435mm)	54,5''(1435mm)	24.5''(622mm)
H. FLOOR TO CEILING / DU SOL AU PLAFOND	84.0'' (2134mm)	84.0'' (2134mm)	54.0'' (1372mm)

For additional types of installations and clearances consult your owners manual.
Pour d'autres modes d'installation et degagements supplementalres consultez votres manual du proprietaire

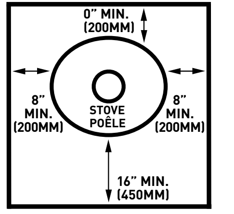






FLOOR PROTECTION REQUIREMENTS/ EXIGENCES PROTECTION DU SOL	NON -COMBUSTIBLE MATERIAL BENEATH STOVE/ MATÉRIEUX NON COMBUSTIBLES AU-DESSOUS DU POÊLE	
	USA	CANADA
A EXTENDING DISTANCE, BACK DISTANCE, ARRIÈRE	-	8'' (200 mm.)
B EXTENDING DISTANCE, RIGHT SIDE DISTANCE, CÔTÉ DROIT	6''	8'' (200 mm.)
C EXTENDING DISTANCE, LEFT SIDE DISTANCE, CÔTÉ GAUCHE	6''	8'' (200 mm.)
D EXTENDING DISTANCE, FRONT DISTANCE, AVANT	16''	18'' (450 mm.)

FLOOR PROTECTOR MUST BE NON-COMBUSTIBLE MATERIAL. IT MUST EXTEND BENEATH HEATER, AND TO THE FRONT / SIDES / REAR AS INDICATED
LE PROTECTEUR DE PLANCHER DOIT ÊTRE D'UN MATÉRIAL INCOMBUSTIBLE. IL DOIT S'ÉTENDRE EN DESSEUS DE L'APPAREIL ET AU DEVANT, AUX CÔTÉS ET À L'ARRIÈRE DE L'APPAREIL COMME INDIQUÉ



FLOOR PROTECTION REQUIREMENTS/
EXIGENCES PROTECTION DU SOL

Installation and Operating Instructions

Morsø 6100 B

For use in North America

Save these instructions

MORSØ JERNSTØBERI A/S . DK-7900 NYKØBING MORS
E-Mail: stoves@morsoe.com · Website: www.morsoe.com

Enjoy your new Morsø stove!

We congratulate you on your choice of a Morsø stove. Morsø has been producing some of the world's best stoves since 1853. If you follow this installation- and operating instruction carefully, we can assure you many years of warmth and pleasure.

Contents

Read this entire manual before you install and use your new room heater. If this room heater is not properly installed, a house fire may result. To reduce the risk of fire, follow the installation instructions. Failure to follow instructions may result in property damage, bodily injury, or even death.

Contact local building officials about restrictions and installation inspectionrequirements in your area.

Save these instructions

Optional Accessories
A wide range of accessories (such as handling gloves, fireside tools, glass cleaner and heat-proof paint) are available for use with your Morsø stove. They help with day-to-day running and maintenance. Contact your Morsø dealer for more information.

The Morsø 6100 B series have been tested by OMNI-Test Laboratories, Inc. The test standards are UL-1482-2012 (R2015)for the United States and ULC-S627-00 for Canada.

Tested & Listed By **Portland Oregon USA**

OMNI-Test Laboratories, inc.
Report Numbers: 0192WS015E

The stove is listed for burning wood only. Do not burn other fuels.

U.S. ENVIRONMENTAL PROTECTION AGENCY. Certified to comply with 2020 particulate emission standards using cord wood.

Average particulate emission using ASTM E3053-17 cord wood test method is 0.67 g/h
Under specific test conditions this heater has been shown to deliver heat at rates ranging from 15,043 to 38,107 Btu/hr.
This appliance was determined to have an average higher heating efficiency value of 77% when tested in accordance with CSA B415.1

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.

We suggest that our woodburning hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Woodburning Specialists or who are certified in Canada by Wood Energy Technical Training (WETT).

Cast iron
Cast iron is a live material. There are no two ovens that are identical. This is partly due to the tolerances of the casting process, partly because the ovens are a work of craftsmanship. Minor unevennesses may also occur in the cast iron surface.

1.0 Installation of your Morsø stove

Installation of woodburning stoves must be safe and legal.

The installation must conform standard CAN/CSA-B365, Installation Code For Solid-Fuel-Burning Appliances and Equipment
Make-shift compromises during installation can have consequences, the Installation of the woodburning stoves must be safe and legal.
If your Morsø stove is not installed correctly, it may cause a house fire. To reduce the risk of fire, the installation instructions must be followed carefully. Contact the local building officials about restrictions and installation inspection in your are

Before you start installing your stove, make sure that:
- The stove and chimney connection are placed far enough from combustible materials to meet all clearance requirements.
- The floor protection must be adequate and must be made correctly according to the requirements.

All neccessary approvals are needed from the local building officials.

The data plate, which is located on the back of the stove, provides information regarding safety testing information, name of certified testing laboratory, and installation requirements.

Installation requirements vary in different districts, and the local building officials have the final authorization to approve your installation. You should discuss the installation with them before beginning. Please ask your dealer for further information.

Do not connect to any air distribution duct or system.

Important: If the installation instructions are not followed carefully, it may cause dangerous situations like chimney - and house fires. Follow the instructions carefully and do not deviate from them as it may cause injuries to people or property.

1.1 Checking loose parts in the stove
After unpacking, check that the fire bricks are firmly in position and have not shifted in transit. Check also that the air control works freely.
Before starting the initial fire, make sure that the baffles is placed correctly.

Standard Accessories
A Morsø glove and ceramic flue connection gasket are standard accessories that usually can be found in the ashpan or firebox area.

1.2 The chimney / flue system
Note that the flue system must be independently secured and must not rely on the stove for support.

The stove must not be connected to a chimney flue serving any other appliance. (Several flues may run up a single chimney stack; use one flueway per appliance).

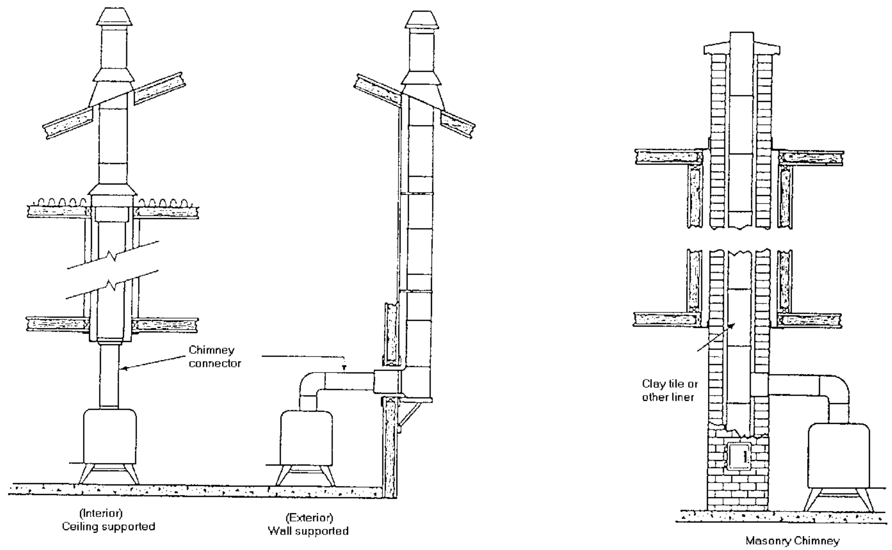
Use a code-approved masonry chimney with a flue liner or listed type HT factory-built chimney

High Temperature (H.T.) Chimney Standard UL-103-1985 (2100° F.) or a code-approved masonry chimney with flue liner for the USA, and High Temperature (650°C) Standard ULC S-629 for Canada.

The internal dimensions of the chimney connector and chimney must not be less than 6 inches diameter (or equivalent cross section), and should not be significantly larger than this. Too large a section will tend to allow the flue gases to cool excessively, causing sluggishness or unpredictability in the stove's performance.

We recommend the length of the chimney system should be at least 16 feet (not required) above the stove in normal domestic situations, measured from the flue collar to the top of the chimney.
Local conditions like for example - roof constructions, large trees nearby and high altitude, may influence the chimney draft and height. Therefore, contact the local professional chimney sweep or your Morsø dealer.

Typical Factory-Built or Masonry Chimney Installations



1.3 Flue Connection

The stove is supplied from the factory with a round blanking plate blocking off the top and rear flue exit (behind the rear shield plate). A flue collar are placed in the firebox area.

Use a 24 MSG black or blue chimney connector or listed double wall chimney connector. Refer to local codes and the chimney manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling. Remember to secure the chimney connector with a minimum of three screws to the product and to each adjoining section.
The collar can be fitted to the rear outlet. Simply knock out the round panel on the rear heat shield plate to reveal the cast iron plate. Untwist the blanking plate and the flue collar and swap their positions. Re-secure by pushing down and tighten the enclosed screws.
Position the stove and connect to the flue system.

Wear gloves and protective eyewear when drilling, cutting or joining sections of chimney connector

1.4 Connection to the existing chimney

A chimney connector is the double-wall or single-wall pipe that connects the stove to the chim-ney. The chimney itself is the masonry or prefabricated structure that encloses the flue. Chimney connectors are used only to connect the stove to the chimney.
Double-wall connectors must be tested and listed for use with solid-fuel burning appliances. Single-wall connectors should be made of 24 gauge or heavier gauge steel. Do not use galvanized connector; it cannot withstand the high-temperatures that smoke and exhaust gases can reach, and may release toxic fumes under high heat. The connector must be 6 inches (150mm) in diameter.

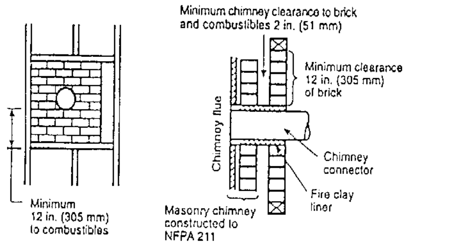
If possible, do not pass the chimney connector through a combustible wall or ceiling. If passage through a combustible wall is unavoidable, refer to the sections on Wall Pass- Throughs. Do not pass the connector through an attic, a closet or similar concealed space when installing the chimney connectors.

It is important to keep the flue gases moving smoothly in the right direction. Do not vent into a large void at this location; rather form one continuous section all the way up. Use mild bends (e.g. 45° vs. 90°) rather than sharp angles where a change of direction is required. All parts of the venting must be accessible for cleaning purposes.
In horizontal runs of chimney, maintain a distance of 18 inches from the ceiling. Keep it as short and direct as possible, with no more than two 90 degree turns. Slope horizontal runs of connector upward 1/4 inch per foot (20 mm per metre) going from the stove toward the chimney. The recommended maximum length of a horizontal run is 3 feet (1 metre), and the total length should be no longer than 8 feet (2.5 metres).
Information on assembling and installing connectors is provided by the manufacturer's instructions exactly as you assemble the connector and attach it to the stove and chimney.

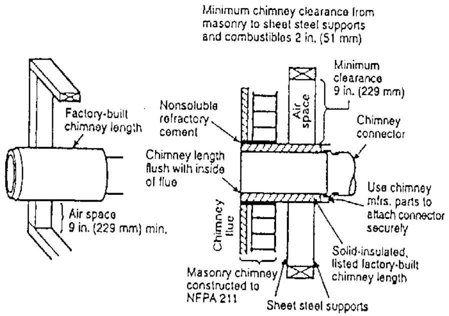
Be sure the installed stove and chimney connector are correct distances from near by combustible materials. See the clearance paragraph page 8.

Where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365.

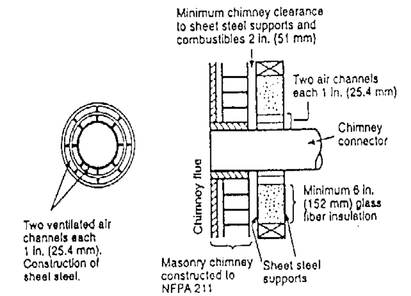
Chimney Connector Systems and Clearances from Combustible Walls for Residential Heating Appliances



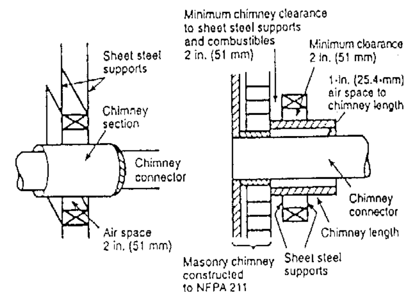
A Minimum 3.5-in thick brick masonry all framed into combustible wall with a minimum of 12-in brick separation from clay liner to combustibles. The fireclay liner shall run from outer surface of brick wall to, but not beyond, the inner surface of chimney flue liner and shall be firmly cemented in place.



B Solid-insulated, listed factory-built chimney length of the same inside diameter as the chimney connector and having 1-in. or more of insulation with a minimum 9-in. air space between the outer wall of the chimney length and combustibles.



C Sheet steel chimney connector, minimum 24 gauge in thickness, with a ventilated thimble, minimum 24 gauge in thickness, having two 1-in. air channels, separated from combustibles by a minimum of 6-in. of glass fiber insulation. Opening shall be covered, and thimble supported with a sheet steel support, minimum 24 gauge in thickness.



D Solid insulated, listed factory-built chimney length with an inside diameter 2-in. larger than the chimney connector and having 1-in. or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of minimum 24 gauge thickness, with a minimum 2-in. air space between the outer wall of chimney section and combustibles. Minimum length of chimney section shall be 12-in. chimney section spaced 1-in. away from connector using sheet steel support plates on both ends of chimney section. Opening shall be covered, and chimney section supported on both sides with sheet steel supports securely fastened to wall surfaces of minimum 24 gauge thickness. Fasteners used to secure chimney section shall not penetrate chimney flue liner.

1.5 Positioning the stove

Distance to walls and lintel

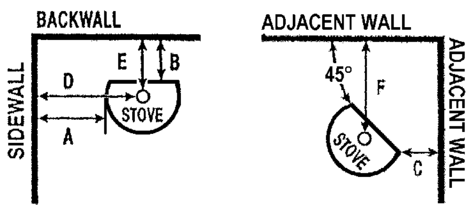
When the stove is positioned near combustible materials, observe all current local and national building regulations with regards to clearances. Whatever regulations apply to your area, do not in any case install the stove within 8 inches of combustible materials around the sides or 16 inches above the top of the stove (fireplace installations require greater clearances above the stove - see below in the clearance chart). These distances may need to be increased if the materials are sensitive to heat. Note also that wall paper and other decorative materials may become detached with the effects of heat and care should be taken to ensure that they do not fall towards the stove in such an event.

When the stove is positioned near non-combustible materials, a gap of 4 inches or more is recommended for cleaning purposes and to ensure that heat circulates around the stove and out into the room.

If using rear exit, the floor protection must extend beneath the chimney connector and 2-in beyond each side.

CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION SINGLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	3"	76 mm
C. Cornerwall to unit	5"	127 mm
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	7.5"	190 mm
F. Cornerwall to connector	10"	254 mm
G. Unit to ceiling	54.5"	1384 mm
H. Floor to ceiling	84"	2134 mm

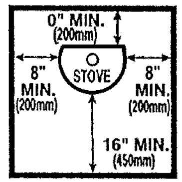
MINIMUM CLEARANCES TO COMBUSTIBLES:



CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION DOUBLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	2"	51 mm
C. Cornerwall to unit	5"	127 mm
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	6.5"	165 mm
F. Cornerwall to connector	10"	254 mm
G. Unit to ceiling	54.5"	1384 mm
H. Floor to ceiling	84"	2134 mm

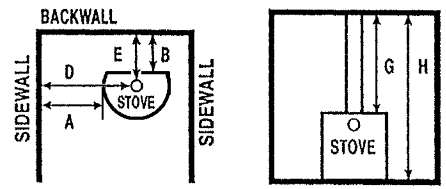
CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION REAR VENT OUT BACK WALL SINGLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	6.5"	165 mm
C. Cornerwall to unit	-	-
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	-	-
F. Cornerwall to connector	-	-
G. Unit to ceiling	-	-
H. Floor to ceiling	-	-

NON-COMBUSTIBLE FLOOR PROTECTOR



FLOOR PROTECTOR MUST BE NON-COMBUSTIBLE MATERIAL. IT MUST EXTEND BENEATH HEATER, AND TO THE FRONT/SIDES/REAR AS INDICATED.

ALCOVE INSTALLATION



*Maximum alcove depth must be no more than 32" (813mm)

CLEARANCE REQUIREMENTS	ALCOVE INSTALLATION DOUBLEWALL CONNECTOR
A. Sidewall to unit	12" (305 mm)
B. Backwall to unit	3" (76 mm)
C. Cornerwall to unit	-
D. Sidewall to connector	17" (432 mm)
E. Backwall to connector	7.5" (190 mm)
F. Cornerwall to connector	-
G. Unit to ceiling	24.5" (622 mm)
H. Floor to ceiling	54" (1372 mm)

FLOOR PROTECTION REQUIREMENTS	NON-COMBUSTIBLE MATERIALS BENEATH STOVE	
	USA	CANADA
Extending distance, back	-	200 mm
Extending distance, right side	8"	200 mm
Extending distance, left side	8"	200 mm
Extending distance, front	16"	450 mm

Distance to furniture

The recommended minimum distance from stove to furniture is 30 inches. Note that some furniture is more easily affected by heat and may need to be moved to a greater distance. This is your responsibility.

In addition other combustible materials, away from the stove. In general, a distance of 30 inches must be maintained between the stove and moveable combustible item such as drying clothes, newspapers, firewood etc.

1.6 Mobile Home Installation

(Mobile home installation is only applicable for USA)

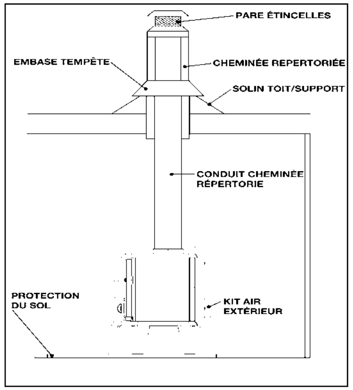
The Morsø 6100 can be installed in a mobile home if equipped with an outside combustion air kit, a terminal cap with a spark arrestor, and if it meets the following installation requirements:

- The stove must be secured to the mobile home structure by bolting through the hearth pad and into flooring.
- The stove must be installed with a listed Type HT chimney connector, HT Chimney, and terminal cap with spark arrestor. Never use a single wall connector (stovepipe) in a mobile home installation.
- Floor protection requirements in section 1.5 must be followed precisely.
- In Canada, this appliance must be connected to a 6" (152 mm) factory-built chimney conforming to CAN/ULC-629M, STANDARD FOR FACTORY BUILT CHIMNEYS. Floor protection as referenced in section 1.5 must be followed, as well as use of Canadian Floor Protector.
- Follow the chimney and chimney connector manufacturer's instructions when installing the flue system for use in a mobile home.
- Outside air kit should be installed according to installation guide in the kit.
- Intake air piping can be installed through the floor into a vented crawl space or through the wall of the residence to obtain outside air.
- Install in accordance with 24 CFR, Part 3280 (HUD).
- NOTE: Top sections of chimney must be removable to allow maximum clearance of 13.5' from ground level for transportation purposes.

WARNING:
NEVER DRAW COMBUSTION AIR FROM A WALL, FLOOR OR CEILING CAVITY OR FROM ANY ENCLOSED SPACE SUCH AS AN ATTIC OR GARAGE.
DO NOT INSTALL IN A SLEEPING ROOM.

CAUTION:
THE STRUCTURAL INTEGRITY OF THE MOBILE HOME FLOOR, WALL, AND CEILING/ROOF MUST BE MAINTAINED (I.E., DO NOT CUT THROUGH FLOOR JOIST, WALL STUD, CEILING TRUSS, ETC.)
DO NOT USE A GRATE TO ELEVATE FIRE - BUILD FIRE DIRECTLY ON HEARTH.

Note:
Acid Protection
If acid-washing the masonry around the stove, protect the stove surface with an acid-proof cover.



Fresh Air Inlet
Unless there is deemed to be sufficient ambient leakage of air into the room via doorways, windows and the like, a dedicated fresh air inlet will be needed. This inlet should have 2 square inches (1250 square mm) of free air space. This is particularly important where the room is well sealed, or where an extractor hood or ventilation system disturbs the natural air pressure. Such an inlet should not be on a wall that is usually subject to negative pressure from normal wind pattern. Avoid placing the inlet directly across the room from the stove, thus causing a cold air draft.

2.0 Operation

2.1 Before you start firing

For use with solid wood fuel only. 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. Because of risk of smoke and flame spillage, operate only with door fully closed.

CAUTION:
Hot while in operation. Keep children, clothing and furniture away. Contact may cause skin burns.
DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE
DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS
DO NOT USE A GRATE, ANDIRONS, OR OTHER WAYS OF ELEVATING THE FIRE - BUILD FIRE DIRECTLY ON HEARTH.
DO NOT USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER OR FLUID OR SIMILAR LIQUIDS TO START OR FRESHEN UP A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS AWAY FROM THE HEATER WHILE IT IS IN USE

Choosing your fuel
All types of natural wood can be burned on your stove, but they must be well-seasoned and dry. Once the wood is cut to length, it should be split down middle - to suit the dimensions given below - to allow moisture to evaporate.Cut the wood to a length of max 12 inches (30 cm) and approx. 3 to 3.5 inches (7-8 cm) in section. If you can weigh your wood, aim for around 2 lbs. For correct combustion and heat output, wood fuel should contain no more than 20% moisture; this can easily be checked by using the Morsø Moisture Meter (part # 62929900).

To naturally season wood fuel, stack and store it under cover in an airy location where fresh air can move through each piece. Some soft woods may take as little as one good summer to season whereas harder woods such as oak, maple, and elm may require seasoning up to 18 months. Avoid overly dry wood that is gray in color as under certain conditions it can cause performance problems, such as back-puffing and sluggishness. Well seasoned wood will be light to hold and will show signs of cracking from the center-out in the ends. If your wood spits or sizzles when b urnt, and your stove's door glass persistently mists up, your wood is not properly seasoned. Never use drift wood (from the sea), whose salt content may cause corrosion, nor construction wood that may have been impregnated with chemicals.

To optimize efficiency:
Burning wet wood has a negative impact on efficiency

CAUTION Do not place fuel within the installation clearances for the stove or within the space required for loading fuel and ash removal.

Starting the First Fire
The initial fire should be small, so that the stove paint can cure and the main plates of the stove can settle into position. Some fumes will be given off by the paint. Ventilate the room during this phase.
The setting of the air control, lighting techniques and loading intervals will depend on chimney draft, the fuel used, the heat required and so on. Some basic techniques are outlined below.

In principle
Your stove should be with Primary and Secondary air and Pilot air inlets.
Primary Air is controlled using the lever situated over the door. Moving the control lever to right position will open the air inlet and will allow a supply of preheated air to enter the firebox via the 'airwash' system situated inside the stove and above the glass.
The secondary air is injected into the flue gases above the fire resulting in a cleaner, more efficient combustion process. The supply of secondary air and Pilot air is fixed open and is not adjustable.
For extra safety, your stove should be with a removable handle.

2.2 Lighting and loading intervals

When first lighting the stove, a large volume of air is needed. When the stove is cold, you should leave the door open an inch or two for the first few minutes and open the primary air supply completely. While the door is open, do not leave the stove unattended.
To form a reasonable bed of ash on the floor of the stove, you should use 2-4 pounds of dry kindling at the initial lighting. If possible, maintain a 1-1.5 inch (2-3 cm) layer of ash on the floor of the combustion chamber for added insulation.

1. We recommend using the "top-down" method to light your wood-burning stove. It is the most environmentally-friendly method of lighting. Use two firelighters and approx. 2-4 lbs of dry kindling sticks to quickly create a glowing layer of wood. Place the firelighters directly under the top layer of kindling sticks.This minimizes soot formation on the glass. Soot formation on the glass is often caused by too vigorous burning in contact with cold surfaces. If you avoid the formation of soot when lighting the fire and build up a layer of hot embers, you will have minimal soot formation when getting the fire burning again later.

2. The air supply must be fully open.

3. Light the fire.

4. After lighting, partially close the door, leaving it open an inch or two to allow in plenty of combustion air.

5. When the chimney is warm after about 5-10 minutes, the door should be closed. A suitable layer of ember will be formed after about 15-20 minutes.

6. When ready to reload, use a poker to spread the embers across the firebox floor, bringing plenty towards the front of the stove.

7. Lay two pieces of wood onto the embers. Leave half an inch or more between each piece.

8. Close the door. Leave the primary air supply fully open. If it does not light, leave the door slightly ajar to allow the necessary amount of air in to ignite the wood.
Close the door again once the wood has kindled.

9. After a few minutes, adjust the primary air supply to suit your heating requirements.
Make sure that there is always enough air to sustain clear, enduring flames when you reduce the amount of combustion air, and afterwards.

10. For refueling, add a layer of wood while there are still plenty of live embers, repeat steps 6-9.
We recommend using fuel load with a weight of 3 lbs (2 pieces) and up to 6 lbs (5 pieces).
Always keep the fuel load beneath the secondary stainless-steel air box. The space in front and above the air box is reserved for volatile gas combustion only.

Do not for any reason attempt to increase the firing of your heater by altering the air control adjustment range outlined in these directions.

Warning: Fireplace stoves must never be left unattended with the door open.

If the door is left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke. We recommend that you fit a smoke detector in the room where the stove is installed.

DO NOT OVERFIRE THIS HEATER. Overfiring may cause a house fire, or can result in permanent damage to the stove. If any part of the stove glows, you are overfiring.

The maximum recommended weight of wood fuel per load is 6lbs (5 split logs).

Under normal firing, the average flue temperature in the stove pipe, measured 20 cm above the stove, is approx. 300° C (550°F). The maximum flue temperature in the stove pipe must not exceed 450° C (750°F). If the flue temperature exceeds 450°C (750°F), it is considered as over firing and may cause premature wear and tear of the stove.

To help gauge the correct running temperature of your stove, we recommend you use the Morsø Flue Gas Thermometer (part # 62901200). The Flue Gas Thermometer magnetically attaches onto the stove pipe approx 20 cm (8") above the stove's top plate and measures the surface temperature of the stove pipe. Please see your authorized Morsø Dealer for availability.

Draft conditions
If smoke or fumes come out of your stove when lightning up and reloading, or if the fire simply will not respond, a poor draft is almost certainly to blame. (In a very few cases, there may be insufficient fresh air getting into the room - see installation advice above). Take advice from your stove supplier on how best to upgrade your flue system to improve draft.

Rules of woodburning
If you want less heat, put fewer logs on the stove and reduce the amount of air. It is still important to maintain a good layer of embers.
Less heat - less wood - less air
Greater heat - more wood - more air
Soot deposits will settle on the glass if the stove is run too slowly or if your wood is not well seasoned.

We would strongly recommend that you do not leave your stove alit at night. It harms the environment, and constitutes very poor use of the wood, as the gases in the wood do not ignite at the low temperature, but settle as soot (unburned gases) in the chimney and stove instead.

Carbon monoxide detectors
It is required in some jurisdictions to install smoke and carbon monoxide detectors where heaters are installed. Install at least one smoke detector on each floor of your home to ensure your safety. It should be located away from the wood appliance and close to the sleeping areas. Locating a smoke detector too close to a wood appliance can cause the smoke detector alarm to sound if a puff of smoke is emitted while the wood appliance door is open during reloading. Follow the smoke detector manufacturers placement, installation, and maintenance instructions

3.0 Maintenance

When perfoming maintenance on your stove, always protect yourself, using safety goggles and gloves.

3.1 Exterior Maintenance
The stove surface is painted with heat-resistant Senotherm paint. It is best kept clean by vacuuming with a soft brush attachment or by wiping with a lint-free cloth.
Over a period of time, the painted surface may become slightly grey. A can of Morsø touch-up spray paint should be available from your stove supplier. This can be applied - in accordance with the instructions - in just a few minutes. When first firing after touching up, the stove will give off a slight smell as the paint cures. Make sure to ventilate the room well during this phase.

3.2 Internal maintenance
Glass
If the stove is generally run at the correct temperatures, there should be little or no dirt on the glass. If dirt does settle during lighting, most will burn off as temperatures increase.For heavier deposits that will not burn off, use morsø glass cleaner, applied when the glass is cold, in accordance with the instructions. Never use abrasive cleaners on the glass surface.

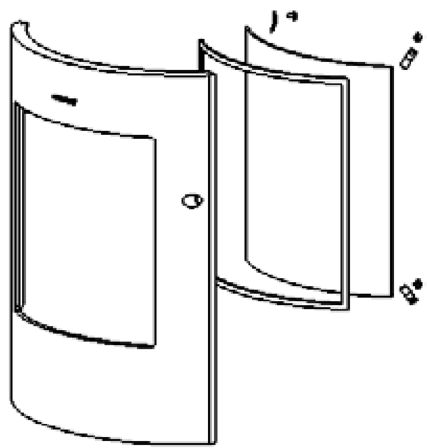
Reasons for dirty glass
- Fuel too wet
- Logs too large or not split
- Combustion temperatures too low

Do not clean the glass while hot
Replace broken glass immediately.
Do not operate your stove if the glass in the door is damaged.

If you need to replace the glass, it should be replaced with the high temperature ceramic class supplied by Morsø, contact your Morsø dealer.

Installing the glass
Never install the glass when the stove is in function.

Ceramic glass replacement
Ceramic glass cannot be recycled because it has a higher melting point that ordinary glass. If ceramic glass is mixed with ordinary glass, the raw material is spoiled, and the reclaiming process may be halted. Take care that the ovenproof glass does not end up among ordinary recycled waste. That will be a great benefit to the environment.
Note: Should be handed in to a recycling station as ceramic glass.



1. When you open the door, you will find two hinge pins, one in each hinge. Remove the two hinge pins, lift the door off the hinges and place it face down on a sheet of cardboard or other nonabrasive fabric.

2. Unscrew the 4 bolts that secure the glass. (In the event that a bolt sheers off when being unscrewed, remove the remaining body of the bolt by drilling down its centre with 1/8 inch high speed steel drill bit. Smaller drill bits may be successful, but do not use a lager bit. Make sure the bit stays away from the edges of the bolt - this may damage the thread in the cast iron).

3. Remove the old ceramic gaskets and clean up the surface underneath with wire wool or emery paper to remove loose particles.

4. Place the new gasket material in position around the perimeter of the window area, making sure to pinch them to the length in such a way that they make a continuous seal. Leave no gaps.

5. Place the new glass in position on the strips and screw home the fresh bolts and fitting by hand.

6. Finally, give each of the bolts an extra half turn or so. The glass should held tight enough by that cleaning will not dislodge it. Do not over-tighten the bolts as this may put excessive pressure on the glass, resulting in cracking - important!

To reduce the risk of breaking the glass, avoid striking the glass or slamming the door.

Internal service parts
The flame-path equipment - consisting of the ashpan, grate, firebricks, Cast iron fire plates, glass, baffle and flue collar - are subject to the extremes of heat produced by the fire. From time to time, one or other of these parts may need replacing as a matter of routine maintenance.

NOTE: The flame-path equipment, the ceramic rope and the paint finish are not covered by guarantee.

All of these service parts can be bought from your morsø dealer, and we recommend that damaged parts are replaced as soon as possible to avoid collateral damage.
Should the baffle be distorted by an overfire, the stove will still function, although its efficiency may be compromised. Replace it as soon as possible.

Reasons for fast internal wear and tear
Persistent heavy firing
Soot and ashes left to accumulate

Gasket
The gasket around the perimeter of the door may harden over a period of time. It should be replaced if it becomes difficult to close the doors or if air starts to leak in around the perimeter of the doors, causing the fire to become a little less controllable. A morsø rope gasket kit is available from your stove supplier.

3.3 Cleaning the Stove and the Flue
Check for soot above the baffle plate and around the flue outlet every month or so to start with. If the stove suddenly becomes sluggish, check for a soot fall around the flue collar or in the flue/chimney.

The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

Clean the flue/chimney - all the way from the stove to the flue terminal point above the house. A good routine is to clean the flue after each heating season in any case, and inspect prior to the season to ensure that bird's nests or other blockages have not occurred during the off season.

Ash disposal
Empty the ashpan on a daily basis or as needed. Ash allowed to build up towards the underside of the grate will trap heat and could cause premature failure of the grate.

Empty the ashpan according to this procedure:
Open the front door, and use a shovel or poker to stir excess ash through the ash slots in the grate down into the ash pan. Take out the ash pan, making sure to keep it level to avoid spilling ash.

Dispose the ash in a metal container with a tight fitting lid.
The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally disperded, they should be retained in the closed container until all cinders have thoroughly cooled.
Return the ash pan to its original position in the stove, and close the door.

CAUTION:
Never empty a stove in operation.
Never use your household or shop vacuum cleaner to remove ash from the stove; always remove and dispose of the ash properly.

Creosote - formation and 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 on the flue lining. When ignited this creosote makes an extremely hot fire. When burning wood, the chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

Chimney sweeping
Inspect the system regularly during the heating season as part of a regular maintenance schedule. To inspect the chimney, let the stove cool completely. Then, using a mirror, sight up through the flue collar into the chimney flue. If you cannot inspect the flue system in this fashion, the stove must be disconnected to provide better viewing access.
Clean the chimney using a brush the same size and shape as the flue liner. Run the brush up and down the liner, causing any deposits to fall to the bottom of the chimney where they can be removed through the clean-out door.

Clean the chimney connector disconnecting the sections, taking them outside, and removing any deposits with a stiff wire brush. Reinstall the connector sections after cleaning, being sure to secure the joints between individual sections with sheet metal screws.
If you cannot inspect or clean the chimney yourself, contact your local Morsø Dealer or a professional chimney sweep.

If you do experience a chimney fire, act promptly and:
1. Close the air control.
2. Get everyone out of the house.
3. Call the Fire Department.

Annual maintenance
Before the heating season, perform a thorough cleaning, inspection and repair:
Thoroughly clean the chimney and chimney connector.
Inspect the chimney for damage and deterioration. Replace weak sections of prefabricated chimney. Have a mason make repairs to a masonry chimney.
Inspect the chimney connector and replace any damaged sections.
Check gasketing for wear or compression, and replace if necessary.
Check the glass for cracking; replace if needed.
Check door and handle for tightness. Adjust if needed.

How to clean the inside parts of Morsø 6100
When cleaning the inside parts of the stove in connection with the annual visits from your local chimney sweep we recommend that you remove the inside parts from the fire chamber. Please be careful as the vermiculite parts are porous. Cleaning of the stove must be done when the stove is cold.

ALWAYS USE ORIGINAL MORSØ SPAREPARTS

1. The bottom baffle is lifted up a bit and held in that position. Loosen the side bricks.

2. Tip the side bricks and remove them from the fire chamber.

3. Tip the other side brick and remove it from the fire chamber.

4 When the side bricks are removed the bottom baffle is lowered and lifted out of the fire chamber.

5. The upper baffle is removed from the brackets and lifted out of the firechamber.

3.4 Leaving the stove for extended periods

Important:

If the stove is to be left unused for any period of time, clean it out thoroughly and leave the air control slightly open to allow airflow. Make sure that the flue does not allow rainwater to come anywhere near the stove; install a chimney cap, but do not block off the flue completely.

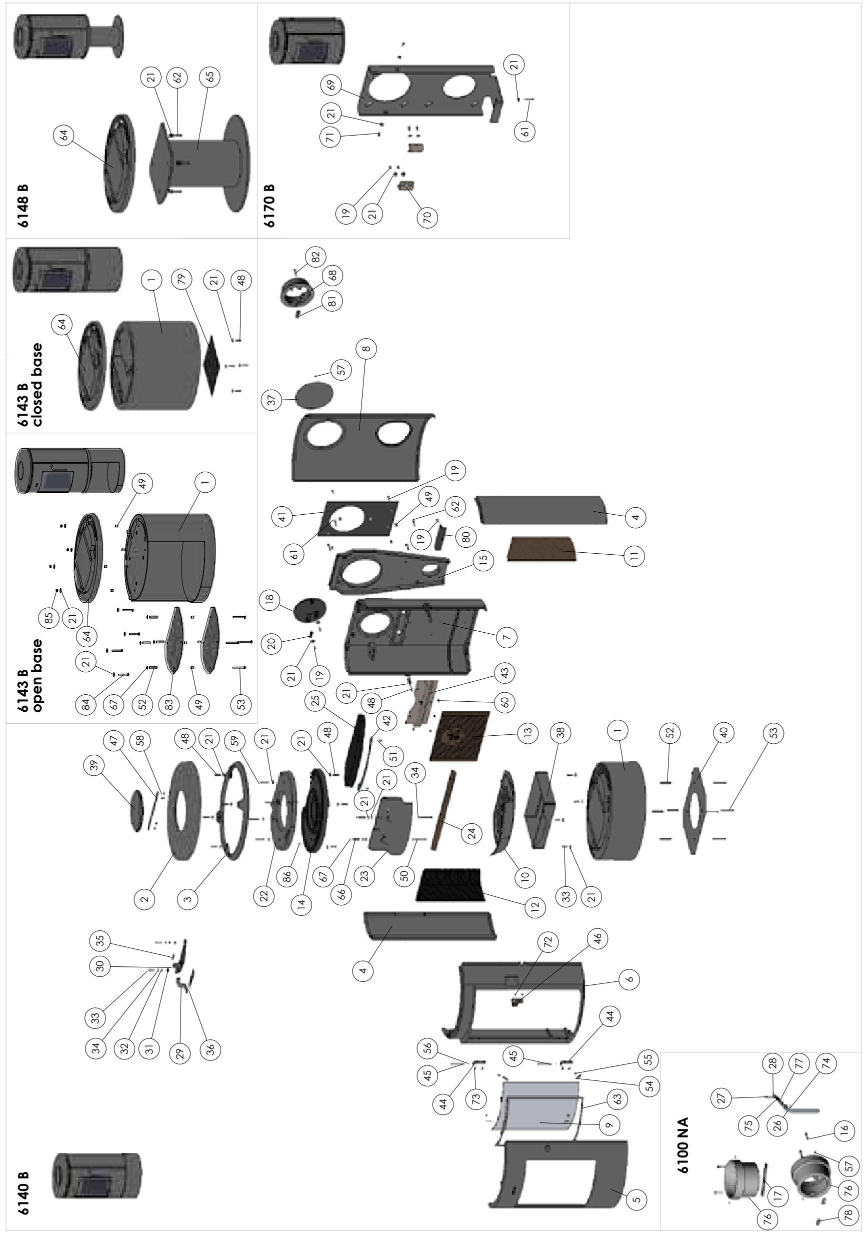
These measures should ensure there is a slight movement of air through the stove, and that the body of the stove remains dry, right into the corners.

Any ash left within an unfired stove can attract moisture like blotting paper. If moisture is allowed to settle within the stove, rust will form. Rust expands as it takes a grip. This can lead to undue pressure on the stove joints, and this in turn may result in damage to the stove.

NOTE: It is best to thoroughly clean the stove after the heating season has concluded. Adding a dessicant, such as kitter litter, into the ash pan helps absorb moisture during the summer months. Be sure to remove this prior to the heating season.

We hope you have many years of carefree warmth in its company. Some initial experimentation with loading and running techniques will decide your normal routine. If you have any problems after this short learning phase, please refer to your stove dealer. Should they be unable to help for any reason, please contact us in writing at the address on the front of this publication.

3.5 Parts diagram for model Morsø 6100



3.6 Parts list for model Morsø 6100

Pos. No.	Parts	SKU number
1	Socle	44610100
2	Top plate, outside	44610900
3	Top frame	44610600
4	Side plate, outside	44610700
5	Door	44610300
6	Front frame	44610200
7	Rear plate, inside	44610400
8	Rear plate, outside	44610800
9	Glass	79610100
10	Intermediate frame	346110
11	Brick, side, right	79610200
12	Brick, side, left	79610300
13	Brick, back	79610400
14	Top plate, inside	44610500
15	Air canal, rear	44611200
16	Screw M6x35 DIN 933	743625
17	Stop bar	71611900
18	Cover	44141000
19	Screw M6x16 DIN 933	731616
20	Lug	44256800
21	Washer Ø6 DIN 9021 fzb	791891
22	Air canal, top	44611300
23	Air canal, front	44611600
24	Baffle plate, lower	79610500
25	Baffle plate, top	79610600
26	Handle	75610061
27	Hinge pin Ø6x40	542056
28	Screw pinol msp ISO 4029-45h	73950500
29	Handle primary air controller	71611261
30	Primary air controller	71611100
31	Distance tube Ø12x1.5 L=8mm	71810300
32	Distance tube Ø8x1 L=10mm	71810200
33	Screw M6x20 DIN 933	74162000
34	Washer 6.5x16x1 DIN 522-A fzb	736106
35	Screw M5x10 ISO 7380 Buttonhead	73851100
36	Closure plate for Primary air control	71610800
37	Roundel	71611000
38	Ash pan	71610100
39	Cover	44812000
40	Radiant shielding, bottom	71610300
41	Radiant shielding, rear	71610200
42	Fitting plate for baffle	71610461
43	Tertiary box	71610561
44	Hinge fitting	71810100
45	Screw Ø5x60 DIN 660 KN KULLRIG NIT	74701000
46	Closure fitting	71610700
47	Lug for cover	71813200
48	Screw M6x25 dIN 933	731625
49	Distance tube Ø10x1 L=10mm	541439
50	Screw M6x50 DIN 931	731650

Pos. No.	Parts	SKU number
51	Screw M6x12 DIN 933	731612
52	Distance tube Ø10x1 L=35mm	542641
53	Screw M6x55 DIN 933	731640
54	Glass fitting	71814561
55	Screw M5x8 ISO 7380	73850800
56	Retaining Ring Washer 4mm DIN 6799	746006
57	Screw 3.5x9.5 DIN 7981 fzb	791835
58	Screw M6x8 DIN 933	731608
59	Screw M6x40 DIN 933	731640
60	Screw M6x10 DIN 965A	74361000
61	Screw M6x35 DIN 933	731635
62	Screw M6x30 DIN 933	731630
63	Tape for glass	79074200
64	Bottom plate	44611500
65	Pedestal	71611500
66	Distance tube Ø10x1 L=30	541440
67	Vistop lock washer 6 mm	746206
68	Flue collar	44141900
69	Fitting for wall	71612000
70	Bracket for wall fitting	71612100
71	Screw M6x16 Buttonhead ISO 7380	73861400
72	Screw M5x8 DIN 933	74150804
73	Screw M5x12 DIN 7991	73856100
74	Cotter pin Ø2x10 DIN 1481	74201900
75	Axle f. door	75610161
76	Flue collar	44611800
77	Spring 1.5x14x21 5 turns	79048800
78	Fitting w. thread for flue collar	44256700
79	Radiant shielding, Bottom for 6143	71612500
80	Bracket for optional outside air kit	71613700
81	Fitting w. thread for flue collar	542630
82	Screw M6x35 DIN 7991	74241900
83	Radiant shielding, open base 6143	71617000
84	Screw M6x45 DIN 933	731645
85	Nut 6mm kl.8 DIN934	735006
86	Screw M6 x 16 DIN 913-45H	73961700

Guarantee
Product Registration

MORSØ 10 YEAR GUARANTEE CERTIFICATE

Behind every Morsø stove is more than 160 years of dedicated stove design and manufacturing experience. Quality control has always been at the heart of the production process and detailed measures have been put into place at all key stages of the build. Accordingly, provided that the stove has been supplied by an authorised Morsø dealer, Morsø will offer a 10-Year Manufacturers Guarantee against manufacturing defect to any of the main exterior body parts of its stoves.

Read more about ”Morsø 10 years guarantee/product registration card” and REGISTER your new Morsø stove online: http://international.morsoe.com/warranty-registration

Morsø Jernstøberi A/S - 10.09.2019 - 72611600

IMPORTANT!

How to heat safely for the environment and yourself!

- **Use only dry wood**
  Use only dry (max. 20% moisture content) and untreated wood. The fuel must be split and 8 - 12 cm thick.

- **Light**
  Light with dry kindling (use 1 - 2 kg). Leave the door ajar and stay close to the stove during the lighting phase.

- **Good layer of embers**
  Be certain to have a good layer of embers before refilling. The wood should light within 2 minutes. If the logs do not ignite it may, in an extreme case, cause the flue gases to ignite which may pose a risk to material damage or personal injury.

- **Refuelling**
  When refuelling use 2 - 3 pieces of wood - no more than 2 - 2.5 kg.

- **Ensure adequate air**
  I.e. clear and yellow flames.

- **Never burn overnight**

By appointment to The Royal Danish Court

Morsø Jernstøberi A/S -10.09.2019 - 72611600

MORSØ JERNSTØBERI A/S . DK-7900 NYKØBING MORS
E-Mail: stoves@morsoe.com · Website: www.morsoe.com

Appendix C
DTI CBI Test Report
300-ELAB-2381-EPA

TEST REPORT

Report no.:
300-ELAB-2381-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/MGJN
Order no.: 847607
No. of appendices: 29 (CBI report)
No. of appendices: 26 (non-CBI report)

Requested by:	Company:	Morsø Jernstøberi A/S
	Address:	Furvej 19
	Postcode/town:	DK-7900 Nykøbing Mors
	Country:	Denmark
	Email:	info@morsoe.com
	Web:	www.morsoe.com

Product: Wood stove Type: Morsø 6140B

Sample: Receipt at DTI, Aarhus: 15. February 2019

Test period: Date of testing: 20-21 February 2019

Procedure Testing of solid fuel appliance in accordance with DTI method "ELAB-PP-BR-15" based on a 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: 06.09.2019, Danish Technological Institute, Aarhus, Stoves&Boiler test lab

Signature:

Jes Sig Andersen
Senior Specialist

Morten Gottlieb Warming-Jespersen
Quality Assurance

Test reg. no. 300

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Indhold

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1. Introduction

1.1. General

This report concerns testing of a free-standing stove of landscape format, type Morsø 6100B

There is a CBI version of the report holding all of the 29 annexes. In the non-CBI report, annex 12 (DTI test procedure), annex 22 (Assembly drawings) and annex 23 (parts drawings are excluded. Please find the full list of annexes in chapter 13.

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, Kongsvangallé 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 appendix 12 to 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:

- Frank Juel Nielsen, Morsø Jernstøberi A/S

1.5. Test specimen

The stove was manufactured by:

Company:	Morsø Jernstøberi A/S
Address:	Furvej 6
Postcode/town:	DK-7900 Nykøbing Mors
Country:	Denmark

The stove weighs 105 kg.

The stove is not equipped with a catalyst. The portrait type of firebox is of ellipsoidal shape

The effective firebox volume used for fuel load calculation is 0.0143 m^3 (0.5050ft^3)
Please find the firebox dimensions in detail in the Main drawing 6100-254, dated 6. May 2019 in appendix 22

Variants: At the time of testing there are these basic variants in the 6100B series, all having identical firebox design and air system:

- Type 6140B on a small base
- Type 6143B on an extended base with and without a log store
- Type 6148B on a pedestal
- Type 6170B low version for use against a masonry wall

1.6. Description of the wood heater

Wood Stove Model: 6100 B series

Type: Freestanding, convection-type wood fired room heater.

WOOD HEATER INFORMATION
Materials of Construction: The unit is constructed primarily of cast iron with a stainless-steel secondary combustion air box placed at the upper back of the firebox. The firebox is lined with molded vermiculite firebricks, sides, back and two baffles. The feed door has a large glass panel and 8 mm diameter fiberglass gasket.

Air Injection System: Air enters the firebox through an opening located at the back of the appliance.
Primary combustion air is channeled through the air controller holes down through the manifold that is located behind the door at the top of the door frame.
Secondary air enters the appliance through the back and is channeled internally to a stainless-steel box located at the upper back of the firebox. The stainless-steel box has two rows of air nozzles.

Combustion Control Mechanisms: The combustion air inlet is controlled by a handle located above the fuel loading door. Combustion air control mechanism is a sliding rod with flat plates attached that cover and uncover air inlets when the rod is pushed left or right. Only the primary combustion air is adjustable, the secondary combustion air is fixed.

Combustor: N/A

Internal Baffles: A angled baffle made of vermiculite is mounted in the upper portion of the firebox. The flame path is forced to the front of the firebox where it travels up through the opening between the baffle and primary air manifold. Above this baffle there is a second baffle also made of vermiculite

Other Features: None

Flue Outlet: The 6” diameter flue outlet is centered at the top of the appliance.

2. Aging prior to testing

The stove had been aged in excess of 50 hours of operation prior to the certification test, while pre-testing at Morsø.
There is an XLS file holding all the documentation of aging including plots of the course of the platform scale, the flue gas temperature and the flue draft. Further the full set of logger data is present.
The stove was pre-tested these days: the 22, 23, 24, 25, 28, 29, 30 and 31 of January and further the 1, 4, 5, 6, and 7 of February, each day of approximately 10 hours of operation, thus in total no less than 120 hours of operation with active combustion.

In order not to feed excessive page into the report, only plots of the course of the platform scale are shown in appendix 2. However, the full file has been presented to the third-party certifier, prior to commencement of the test work.

Please find documentation of aging in appendix 2.

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3. Summary of test results

3.1. Test schedule

The full certification test comprises one HF test run, one MF test run and one LF test run. On the 21st of January, a dummy HF test (no PM sampling) was performed in order to condition the firebed.

Date	Test I	Test II	Remarks
20-2-2019	HF test	MF test	Both valid tests
21-2-2019	Dummy HF	LF test	HF only to prepare firebed. The LF test was valid

3.2. Main results

Please see also the full set of test results in chapter 10

		Burn rate kg dry matter/hour	Emission grams/hour
#1	HF 20-2	1,81	0.68
#2	MF 20-2	1.25	0.66
#3	Dummy HF 21-2	1.74	
#4	LF 21-2	0.95	0.68
	Weighted average		0.67

3.3. Summary of the HF and MF tests the 20-02-2019

Data logger file Id: 2019-02-20_08-40-43

11:05:20	Ignition of the Cold Start part test using the gas torch for 45 seconds. The air valve is set in position 100% open (full action 45 mm). 0,454 kg of kindling (10% moisture wb) and 0,679 kg start-up fuel (16.2% moisture wb) was added
11:07:05	Ignition is over, the door is closed after1½ min ajar. The air valve is maintained at 100% open
11:23:10	End of Kindling+Start-up at 325 grams of embers, taring of the platform scale, evening out of the embers
11:23:20	Start of High Fire test using 2,308 kg firewood (17,5% moisture wb)
11:24:00	End of loading time after 40 seconds.
11:28:40	The door was closed, and the air valve was maintained in position 100% open, being the High Fire setting allowing maximum air supply
12:05:30	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 33082,0 normal litres
12:18:04	End of High Fire test cycle at 250 grams of embers, taring of the platform scale, evening out of the embers, the air valve still in position 100% open for ignition
12:18:20	Start of Medium Fire test using in total 2,695 kg of firewood (16,2% moisture wb)
12:18:50	End of the loading time after 30 seconds
12:21:35	The door was closed after 3:15 minutes ajar
12:22:50	The air valve was reduced from 45 mm open (100%) to 10 mm open, which setting was maintained throughout the remaining MF test
13:18:20	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 33563,50 normal litres
14:04:20	The Medium Fire test is over at platform scale reading 0 kg

Please find the corresponding sequence of images in appendix 3

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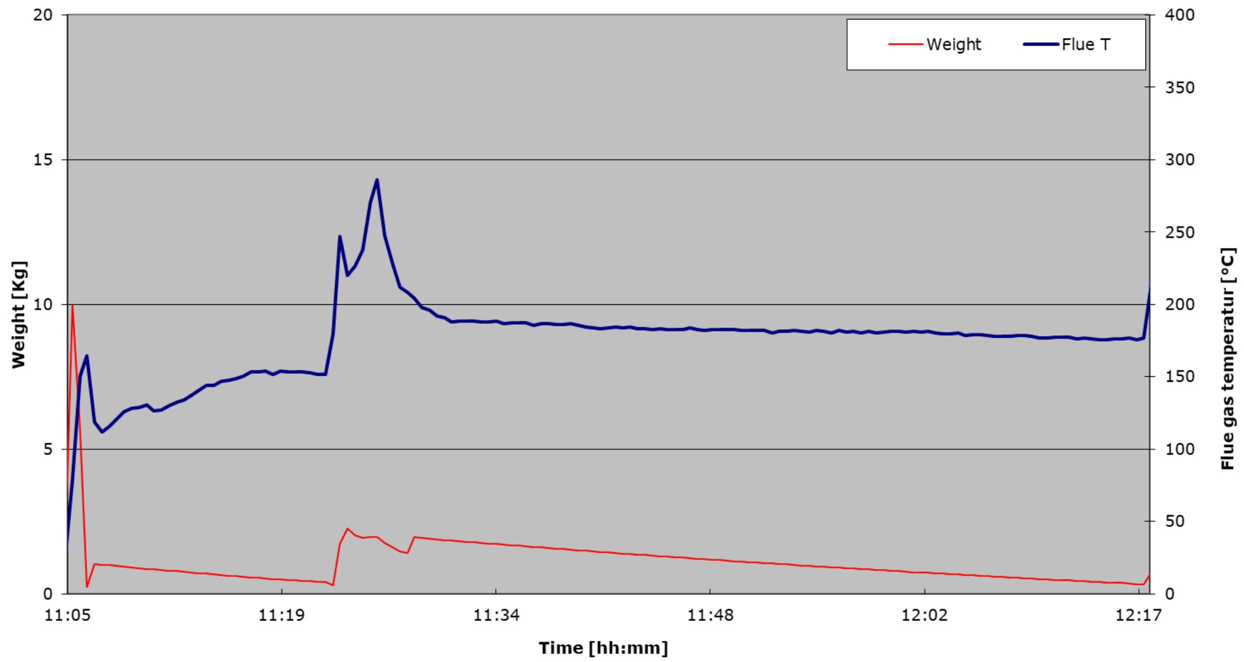
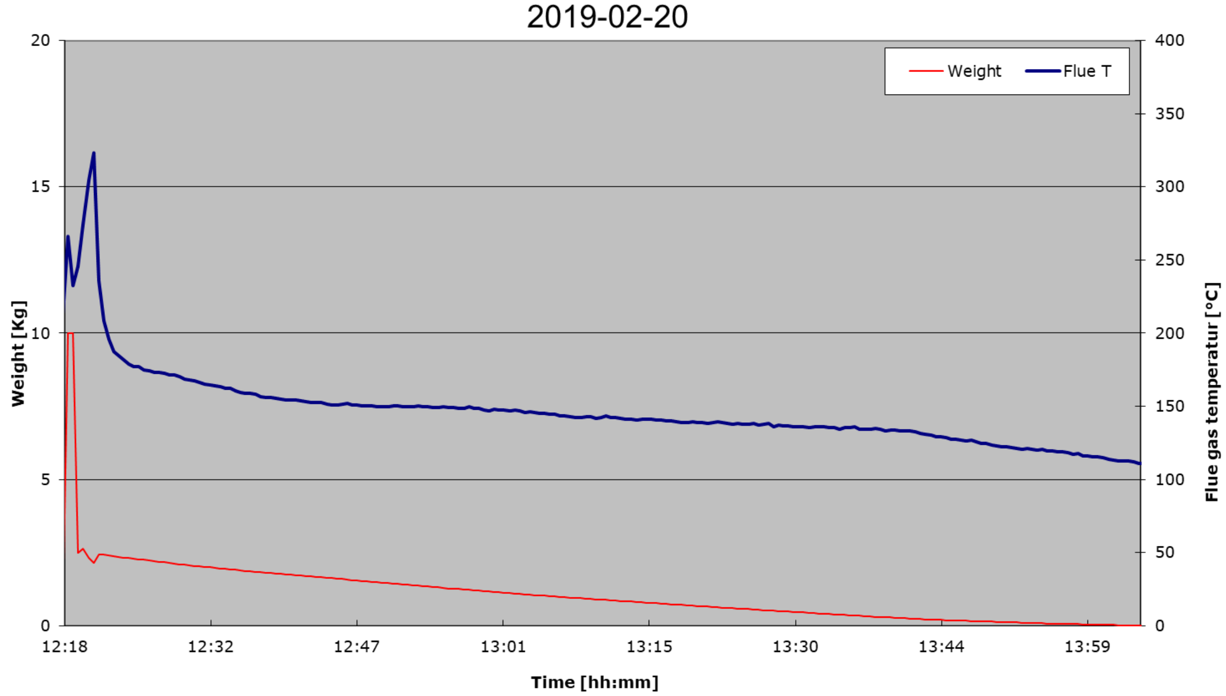
High Fire test
2019-02-20



Medium Fire test
2019-02-20



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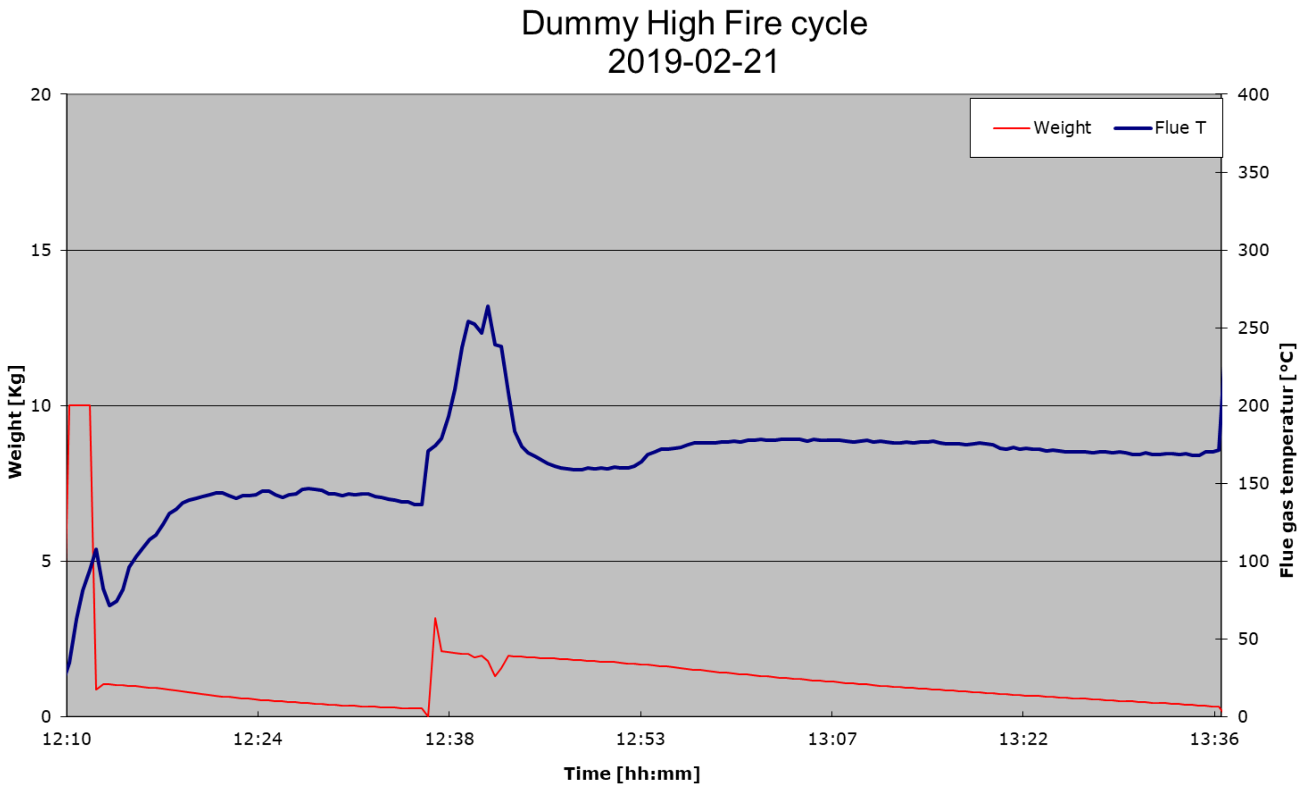
3.4. Summary of the dummy HF and LF test the 21-02-2019

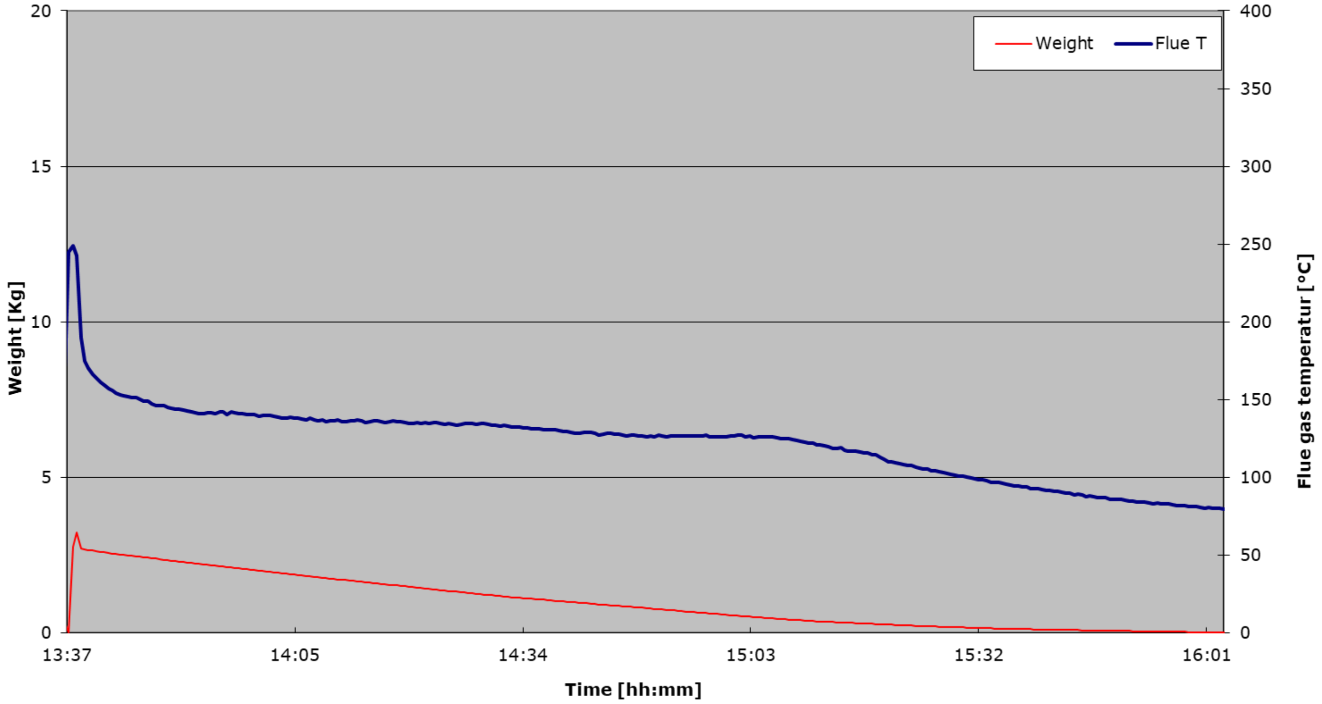
Data logger file Id: 2019-02-21_08-45-13

12:10:00	Ignition of the Cold Start part test using the gas torch for 1 minute. The air valve is 100% open (full action 45 mm). 0,461 kg of kindling (10% moisture wb) and 0,680 kg start-up fuel (16,3% moisture wb) was entered
12:12:30	Ignition is over, the door is closed after 1½ min ajar. The air valve is maintained at 100% open
12:37:05	End of Kindling+Start-up at 331 grams of embers, taring of the platform scale, evening out of the embers
12:37:10	Start of dummy High Fire using 2,307 kg firewood (16.9% moisture wb)
12:37:45	End of loading time after 35 seconds
13:39:00	The door was closed, and the air valve was adjusted from fully open (45 mm) to 10 mm open
13:37:00	End of dummy High Fire cycle at 250 grams of embers, taring of the platform scale, evening out of the embers, the air valve still in position 100% open for ignition and begin of Low Fire test using in total 2,806 kg of firewood (17,7% moisture wb).
13:37:45	End of the loading time after 45 seconds
13:39:00	The air valve was reduced from fully open, 45 mm 10 mm open
13:44:30	At platform scale reading of 2,500 kg, corresponding to 11% of the fuel load had been combusted, the air valve was further reduced from 10 mm to 8 mm open
14:37:00	Change of the filter holder arrangement in the split extraction train at the hour at gas meter reading 34291,13 normal litres
15:19:30	The fire is out at platform scale reading 0,270 kg
16:03:10	The Low Fire test is over at platform scale reading 0 kg

Please find the corresponding sequence of images in appendix 4



Low Fire test
2019-02-21



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3.5. Anomalies

Start of testing, which was otherwise scheduled to being Monday the 18th of February, had to be postponed for two days. Friday afternoon, the week before, there had been an accident with a Soap stone slow heat release appliance, which slipped of the fork lifter upon dismantling from the test rig. Several test rig accessories were broken irreparable and had to be replaced. The test rig was not fully operational again until Wednesday the 20th of February. The incident is recorded in DTI's workplace safety system.

The camera ran out of power late in the morning, so pictures of the firebed at the end of the Cold start is missing. Further, the image of loading of the MF fuel load was delayed approximately 5 minutes (please see appendix 3) All events could however be reconstructed from the set of logger data.

3.6. High Fire net fuel consumption

HF; 20-02-2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	0,454	10	WB	0,409
Start-up fuel	0,679	16,2	WB	0,569
HF fuel load	2,308	17,5	WB	1,904
Total mass entered				2,882
Tare prior to loading	-0,325	0	na	-0,325
Bed of embers, tared at the end	-0,25	0	na	-0,25
Cascaded tare	-0,575	**Total wood consumption**		**2,307**
Net dry fuel mass for PM calc		0		2,307
Net dry fuel mass for burn rate calc				1,654
Test duration (hours)	00:54:44		decimal	0,9125
Resulting burn rate HF (kg/h) dry				1,813

dummy HF; 21-02-2019	Mass (kg AF)	%-moisture	Ref basis	Dry mass (kg)
Kindling	0,461	10	WB	0,415
Start-up fuel	0,68	16,3	WB	0,569
HF fuel load	2,307	16,9	WB	1,917
Total mass entered				2,901
Tare prior to loading	-0,331	0	na	-0,331
Bed of embers, tared at the end	-0,25	0	na	-0,250
Cascaded tare	-0,581	**Total wood consumption**		**2,320**
Net dry fuel mass for PM calc		0		2,320
Net dry fuel mass for burn rate calc				1,667
Test duration (hours)	00:59:45		decimal	0,996
Resulting burn rate HF (kg/h) dry				1,674

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3.7. 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 (BT/h) at HHV	Emission of CO (g/MJ)	Overall efficiency (%) at HHV
1	HF	0,55	0,68	1,81	38107	0,61	75,2
2	MF	0,81	0,66	1,25	19061	2,07	75,2
3	Dummy HF			1,67			
4	LF	1,54	0,68	0,95	15043	3,22	78,8

3.8. Weighted average calculation

Model names	Morsø 6100B series		
Usable Firebox Volume - ft3	1,554		
Convection air fan	No		
Average for Each Test Run Category	L	M	H
Burn Rate - kg/h DB	0,95	1,25	1,81
PM Emission Rate - g/h	0,68	0,66	0,68
CO Emissions Rate - g/h	48,4	39,5	23,1
Overall Efficiency - CSA B415.1-10			
% HHV Basis	78,8	75,2	75,2
% LHV Basis	84,7	80,8	80,8
Heat Output - Btu/h (HHV)	15043	19061	38107
Category Weighting	40%	40%	20%

ASTM E3053 Weighted Averages	
PM Emission Rate - g/h	0,67
CO Emissions Rate - g/h	40
Overall Efficiency - CSA B415.1-10	
% HHV Basis	77
% LHV Basis	82
Heat Output Range - Btu/h (HHV)	15043 to 38107

CO arithmetical average for EPA g/h	37,0
CO arithmetical average for EPA g/min	0,6

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

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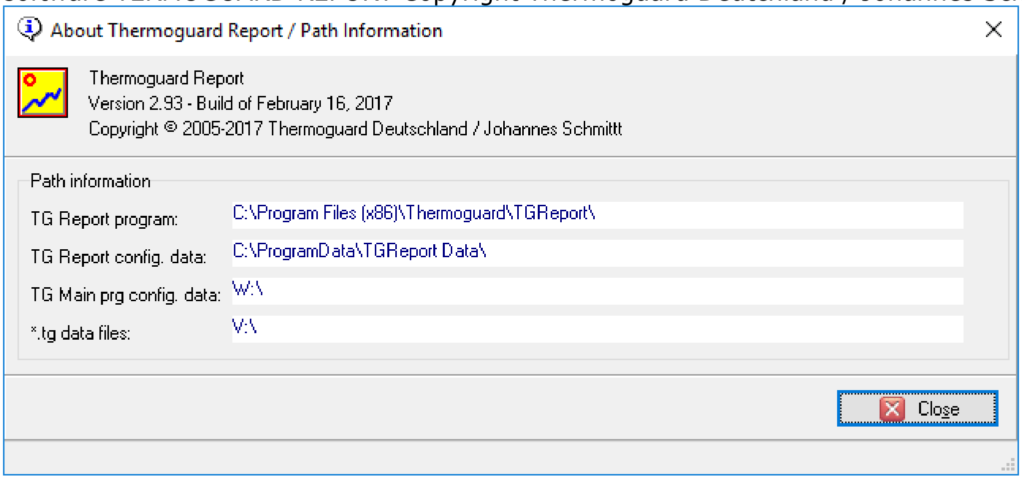
3.9. Test facility conditions

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 Deutchland / Johannes Schmitt



3.10. Fuel properties

The test fuel was Birch wood split and cut according to the manufacturer' written instructions and compliant with the provisions of E3053, clause 8.4
The specific gravity of 0,65 dry weight to dry volume ratio was taken from E3053 Fig 2 page 6.
Similarly, the gross calorific value of 20,12 MJ/kg or 8.656 Btu/lb was taken from E3053 Annex A1, table A.1.1 page 17.
The length of the wood logs was 18 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 were calculated using the standard XLS Wood calculator adjunct to ASTM E3053-15

The nominal mass of the HF fuel load was 2,291 kg or 5,050 lb
The nominal HF mass range was 2,20-2,40 kg or 4,80-5,30 lb
The allowable mass range of the HF Core load was 1,00-1,50 kg or 2,30-3,30 lb
The allowable mass range of the HF Remainder load was 0,80-1,30 kg or 1,80-2,80 lb

The nominal mass of the LF/MF fuel load was 2,749 kg or 6,060 lb
The nominal LF/MF mass range was 2,61-2,89 kg or 5,76-6,36 lb
The allowable mass range of the LF/MF Core load was 1,24-1,79 kg or 2,73-3,94 lb
The allowable mass range of the LF/MF Remainder load was 0,96-1,51 kg or 2,12-3,33 lb

For all test fuel loads, only 5 logs were used; 3 core and 2 remainder.

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3.11. Summary of test fuel load properties

	Core 1	Core 2	Core 3	Remainder 1	Remainder 2	Remainder 3
HF mass (kg)	0,458	0,469	0,451	0,582	0,348	
HF moist. (% DB)	20,4	23,8	20,5	20,9	20,3	
MF mas (kg)	0,555	0,557	0,549	0,399	0,635	
MF moist. (% DB)	19,9	21,6	19,9	20,0	19,4	
Dummy HF mas (kg)	0,447	0,457	0,461	0,603	0,339	
Dummy HF moist. (% DB)	20,6	20,3	21,4	19,4	20,1	
LF mass (kg)	0,547	0,572	0,576	0,418	0,693	
LF moist (%DB)	22,1	22,6	21,5	20,4	20,9	

Please find the fuel load calculations enclosed in appendices 5-8

Example of batch of firewood

4. Test accomplishment

4.1. Remarks

The certification tests were accomplished in accordance with the manufacturers written test procedure (please find enclosed in appendix 9), the ASTM E3035-15 Cordwood test standard, the EPA ALT125 letter and the ASTM E2515-11 dilution tunnel and sampling standard.

4.2. Start-up operation

The Morsø 6100B stove has an integrated air control system offering control of all the combustion air supplied by means of a unitary control lever. For start-up, the lever is set in the left-most position, giving maximum combustion air.

Please find a detailed description of the start-up procedure in the manufacturers test procedure (appendix 9)

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4.3. Sampling arrangement

The PM specimen is extracted from the Ø150 mm 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.

During the course of the test, the filter holders in the PM sampling lines may be heated respectively cooled as appropriate, to control the filter temperature in the narrow band of 80-90 degrees F.

4.4. 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 2.52 m above the test rig floor. In combination, the insulated system chimney extends to 4.58 m above the test rig floor, compliant with ASTM E3953-17 clause 8.2.3

Please find a schematic drawing of the chimney configuration in appendix 11

The chimney was connected to the stove using the top flue outlet

5. Sampling methods

5.1. Particulate extraction system

The particulate matter is sampled in 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.

The sampling train operated throughout the entire duration of the test is called the 'Main train'. The other sampling train, shifting filters at the hour is called the 'Split train'.

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 test (test run #1) in appendix 14; the calculations of the Medium Fire test (test run #2) in appendix 15; the calculations of the dummy High Fire test (test run #3) in appendix 16 and the calculations of the Low Fire test (test run #4) in appendix 17
Test run #3 is a dry HF run only aimed at conditioning the firebed prior to the LF test.

6. Quality assurance

6.1. Instrument calibration

There is a set of EPA instrument calibration certificates in appendix 13

6.2. Logger data

Please find the sets of logger data, sampled every 5 seconds and recorded every 30 seconds in appendices 18 (HF test 200219), appendix 19 (MF test 200219), appendix 20 (dummy HF run the 210219) and in appendix 21 (LF test 210119)

Legend:

Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]
1	2	3
Ambient temperature	Main train filter temp	Split train 1H filter temp

Row 1 is the original Danish notation incl metric
Row 2 is the data logger channel number
Row 3 -5 are the corresponding terms in English

7. Documentation material

Documentation material:

Assembly drawings in appendix 22

Parts drawings in appendix 23

Materials sheets in appendix 24

Label(s) in appendix 25

Picture(s) in appendix 26

User's manual in appendix 27

The drawings and parts drawings are amended to the CBI report variant only.

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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. Request of restriction of the air valve action

The action of the air valve must be restricted by means of a physical stop or by blanking out a corresponding proportion of the opening of the air valve plate, as to prevent use of the stove at any valve setting lower than the one used during the Low Fire test, here 8 mm open.

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9. Discussion of Results

None

10. Main results

	High Fire	Medium Fire	Dummy HF	Low Fire
Date	20-2-2019	20-2-2019	21-2-2019	21-2-2019
Run Number	1	2	3	4
Emission Rate g/Hr.	0,68	0,66		0,68
ASTM E2515 Emissions – First Hour (g/hr)	0,55	0,81		1,54
Burn Rate Kg/Hr.	1,81	1,25	1,67	0,95
BTU/Hr. (HHV)	38.107	19.061		15.043
Overall Efficiency (%) HHV	75,2	75,2		78,8
CO Emissions (g/MJ Output)	0,61	2,07		3,22
CO Emissions (g/kg Dry Fuel)	9,16	31,36		50,99
CO Emissions (g/hr)	23,08	39,51		48,40
CO Emissions (g/min)	0,38	0,66		0,81
Weighed particle emission rate, average of 3 test runs			0,67 g/h	
Weighted average energy efficiency (at HHV) of 3 test runs			77 %	
Arithmetical average emission of CO of 3 test runs			37,00 g/h	0,62 g/min

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

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11.2. Data, test run 1 – High Fire test 20. February

Parameter	Value	Unit
Pitot factor (F_p)	0,9540	
Dynamic pressure duct, Pd	27,3	Pa
Static pressure duct, Ps	125,7	Pa
Date of testing	20-02-2019	dd-mm-yyyy
Start of test (from cold)	11:05:20	hh:mm:ss
End of test	12:18:04	hh:mm:ss
Test duration (Cold start + High Fire)	1:12:44	hh:mm:ss
Mean stove surface temperature at the start	22,5	°C
Kindling and Start-up fuel load	1,133	kg
Start-up fuel moisture	20,0	% DB
Test fuel load	2,308	kg
Test fuel moisture	22,0	% DB
Resulting burn rate	1,81	kg (dry matter)/h
Particulate emission rate, first hour	0,55	g/h
Particulate emission rate, overall	0,68	g/h
Sampled gas volume (nl), train 1	492,6	Nl
Captured pm mass, train 1	1,2	mg
Sampled gas volume (nl), train2	493,1	Nl
Captured pm mass, train 2	1,1	mg
PM mass total (average)	0,826	g
Relative deviation in pm emission, train 1 to train 2	5,41	%
Absolute deviation in pm emission, train 1 to train 2	0,04	g/kg (dry matter)
Mean flow rate probe, train 1	6,66	m/s
Mean flow rate probe, train 2	6,69	m/s
Mean flow rate duct	6,58	m/s
Flue gas temperature (mean)	176	°C
Flue draught (mean)	14	Pa

Parameter	Start value	End value	Units
Ambient temperature	23,6	24,3	°C
Relative humidity	30,8	19,3	%
Barometric pressure	1014,6	1015,0	hPa
Draft in front of the test rig	0,07	0,09	m/s
Flue gas temperature	22,0	159	°C

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11.3. Data, test run 2 – Medium Fire test 20. January

Parameter	Value	Unit
Pitot factor (F_p)	0,9540	
Dynamic pressure duct, Pd	27,3	Pa
Static pressure duct, Ps	125,7	Pa
Date of testing	20-02-2019	dd-mm yyyy
Start of test	12:18:20	hh:mm:ss
End of test	14:04:20	hh:mm:ss
Test duration	01:46:00	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	2,695	kg
Test fuel moisture	22,3	% DB
Resulting burn rate	1,25	kg (dry matter)/h
Particulate emission rate, first hour	0,81	g/h
Particulate emission rate, overall	0,66	g/h
Sampled gas volume (nl), train 1	701,9	Nl
Captured pm mass, train 1	1,5	mg
Sampled gas volume (nl), train2	704,8	Nl
Captured pm mass, train 2	1,5	mg
PM mass total (average)	1,173	g
Relative deviation in pm emission, train 1 to train 2	0	%
Absolute deviation in pm emission, train 1 to train 2	0	g/kg (dry matter)
Mean flow rate probe, train 1	6,45	m/s
Mean flow rate probe, train 2	6,48	m/s
Mean flow rate duct	6,58	m/s
Flue gas temperature (mean)	161	°C
Flue draught (mean)	12	Pa

Parameter	Start value	End value	Units
Ambient temperature	24,3	24,8	°C
Relative humidity	19,3	29,2	%
Barometric pressure	1015,0	1015,4	hPa
Draft in front of the test rig	0,09	0,08	m/s
Flue gas temperature	159	111	°C

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11.4. Data test run 3 – Dummy High Fire 21. February

Parameter	Value	Unit
Pitot factor (F_p)	0,9475	
Dynamic pressure duct, Pd	27,5	Pa
Static pressure duct, Ps	125,9	Pa
Date of testing	21-02-2019	dd-mm-yyyy
Start of test (from cold)	12:10:00	hh:mm:ss
End of test	13:36:55	hh:mm:ss
Test duration (Cold start + High Fire)	1:26:55	hh:mm:ss
Mean stove surface temperature at the start	23,2	°C
Kindling and Start-up fuel load	1,141	kg
Start-up fuel moisture	20,1	% DB
Test fuel load	2,307	kg
Test fuel moisture	21,0	% DB
Resulting burn rate	1,67	kg (dry matter)/h
Particulate emission rate, first hour	NA	g/h
Particulate emission rate, overall	NA	g/h
Sampled gas volume (nl), train 1	NA	Nl
Captured pm mass, train 1	NA	mg
Sampled gas volume (nl), train2	NA	Nl
Captured pm mass, train 2	NA	mg
PM mass total (average)	NA	g
Relative deviation in pm emission, train 1 to train 2	NA	%
Absolute deviation in pm emission, train 1 to train 2	NA	g/kg (dry matter)
Mean flow rate probe, train 1	NA	m/s
Mean flow rate probe, train 2	NA	m/s
Mean flow rate duct	NA	m/s
Flue gas temperature (mean)	162	°C
Flue draught (mean)	13	Pa

Parameter	Start value	End value	Units
Ambient temperature	24,1	24,7	°C
Relative humidity	35,9	36,0	%
Barometric pressure	1016,2	1016,9	hPa
Draft in front of the test rig	0,04	0,06	m/s
Flue gas temperature	22,7	169	°C

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11.5. Data test run 4 – Low Fire test the 21. February

Parameter	Value	Unit
Pitot factor (F_p)	0,9475	
Dynamic pressure duct, Pd	27,5	Pa
Static pressure duct, Ps	125,9	Pa
Date of testing	21-02-2019	dd-mm-yyyy
Start of test	13:37:30	hh:mm:ss
End of test	16:03:10	hh:mm:ss
Test duration	02:26:10	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	2,806	kg
Test fuel moisture	22,4	% DB
Resulting burn rate	0,95	kg (dry matter)/h
Particulate emission rate, first hour	1,54	g/h
Particulate emission rate, overall	0,68	g/h
Sampled gas volume (nl), train 1	969,7	Nl
Captured pm mass, train 1	2,0	mg
Sampled gas volume (nl), train2	972,9	Nl
Captured pm mass, train 2	1,9	mg
PM mass total (average)	1,647	g
Relative deviation in pm emission, train 1 to train 2	4,56	%
Absolute deviation in pm emission, train 1 to train 2	0,07	g/kg (dry matter)
Mean flow rate probe, train 1	6,52	m/s
Mean flow rate probe, train 2	6,55	m/s
Mean flow rate duct	6,49	m/s
Flue gas temperature (mean)	143	°C
Flue draught (mean)	13	Pa

Parameter	Start value	End value	Units
Ambient temperature	24,7	24,5	°C
Relative humidity	36,0	35,8	%
Barometric pressure	1016,9	1018,1	hPa
Draft in front of the test rig	0,06	0,09	m/s
Flue gas temperature	169	80,5	°C

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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

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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 20. February 2019
Appendix 4: Images from the test sequence the 21. February 2019
Appendix 5: High Fire fuel load calculator 200219
Appendix 6: Medium Fire fuel load calculator 200219
Appendix 7: Dummy High Fire fuel load calculator 210219
Appendix 8: Low Fire fuel calculator 210219
Appendix 9: Manufacturer's test instruction
Appendix 10: Manufacturer's description of the stove

Appendix 11: Chimney configuration
Appendix 12: DTI test procedure EPA tests
Appendix 13: Set of calibration certificates
Appendix 14: HF ASTM calculations
Appendix 15: MF ASTM calculations
Appendix 16: Dummy HF ASTM calculations
Appendix 17: LF ASTM calculations
Appendix 18: Set of HF logger data 200219
Appendix 19: Set of MF logger data 200219
Appendix 20: Set of dummy HF logger data 210219

Appendix 21: Set of LF logger data 210219
Appendix 22: Assembly drawings
Appendix 23: Parts drawings
Appendix 24: Material sheets
Appendix 25: Label(s)
Appendix 26: Picture(s)
Appendix 27: User' manual
Appendix 28: Sample analysis
Appendix 29: CSA reports, test #1, #2 and #4

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.

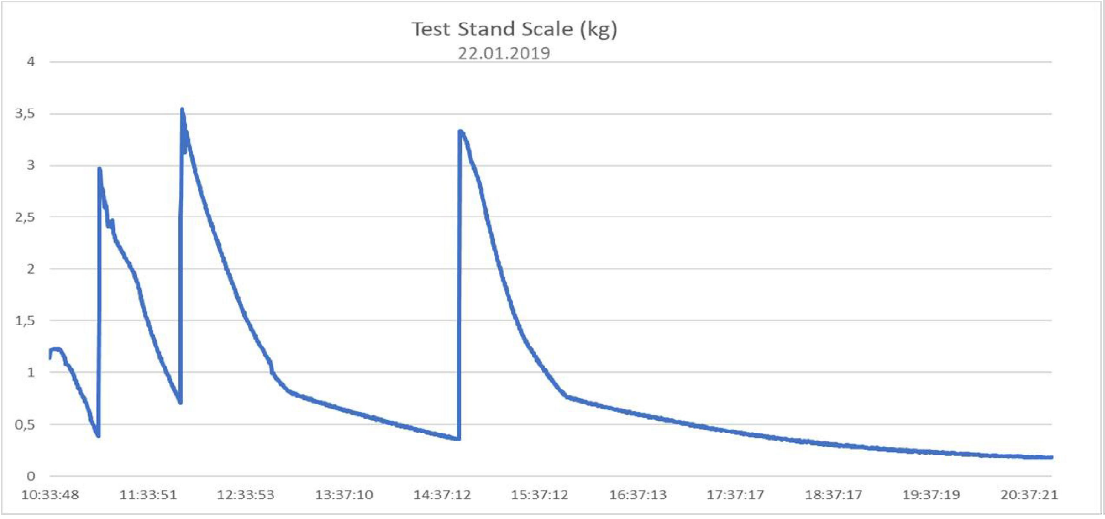
It is reasonable that this alternative test method approval be broadly applicable to all wood heaters subject to the requirements of 40 CFR part 60, Subpart AAA. For this reason, we will post this letter as ALT-125 on our website at *http://www3.epa.gov/ttn/emc/approalt.html* for use by other interested 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.

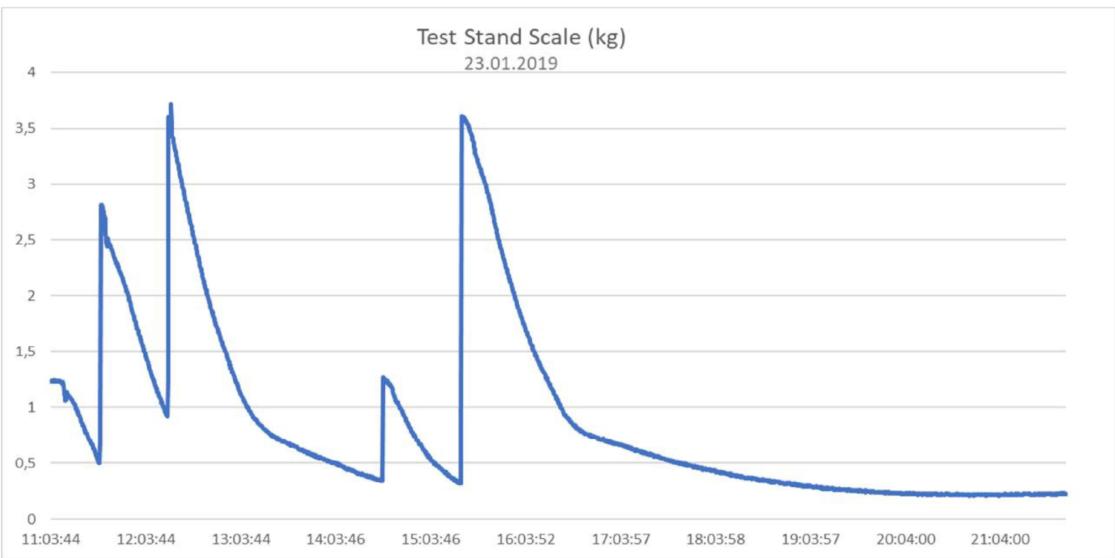
If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

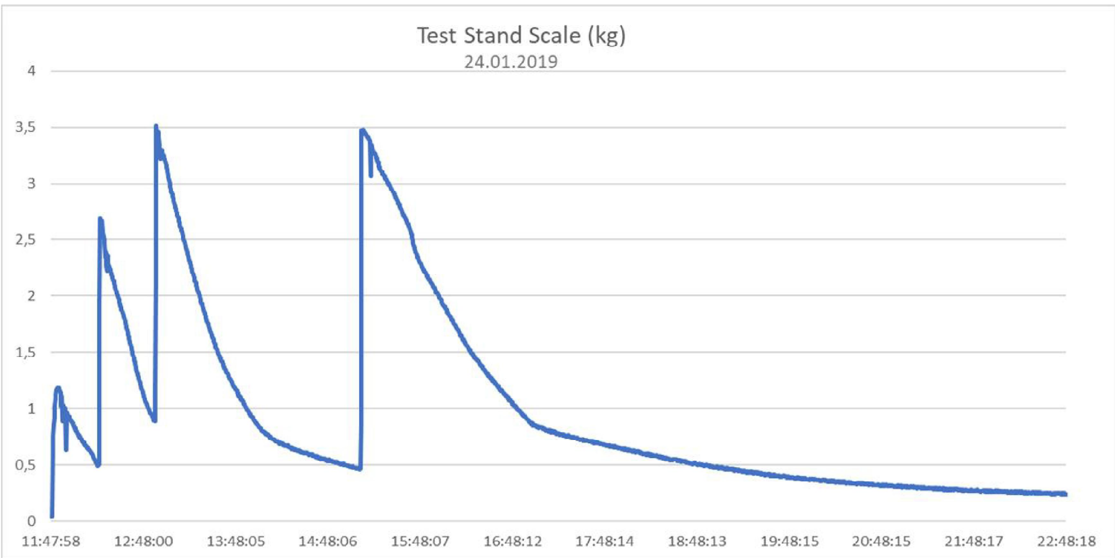
Sincerely,

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


Test Stand Scale (kg)
22.01.2019
4
3,5
3
2,5
2
1,5
1
0,5
0
10:33:48
11:33:51
12:33:53
13:37:10
14:37:12
15:37:12
16:37:13
17:37:17
18:37:17
19:37:19
20:37:21


Test Stand Scale (kg)
23.01.2019
4
3,5
3
2,5
2
1,5
1
0,5
0
11:03:44
12:03:44
13:03:44
14:03:46
15:03:46
16:03:52
17:03:57
18:03:58
19:03:57
20:04:00
21:04:00


Test Stand Scale (kg)
24.01.2019
4
3,5
3
2,5
2
1,5
1
0,5
0
11:47:58
12:48:00
13:48:05
14:48:06
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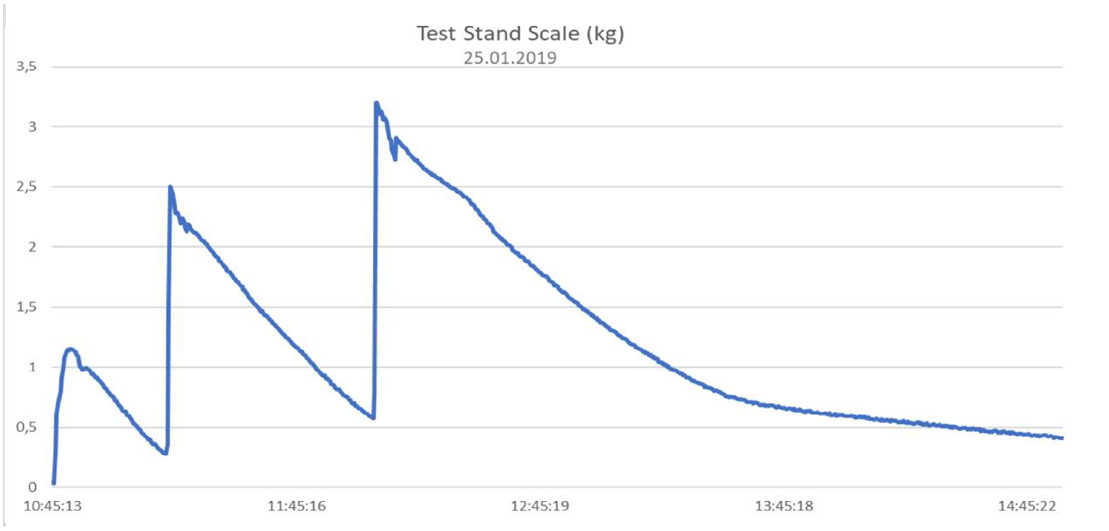
19:48:15
20:48:15
21:48:17
22:48:18


Test Stand Scale (kg)
25.01.2019
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3
2,5
2
1,5
1
0,5
0
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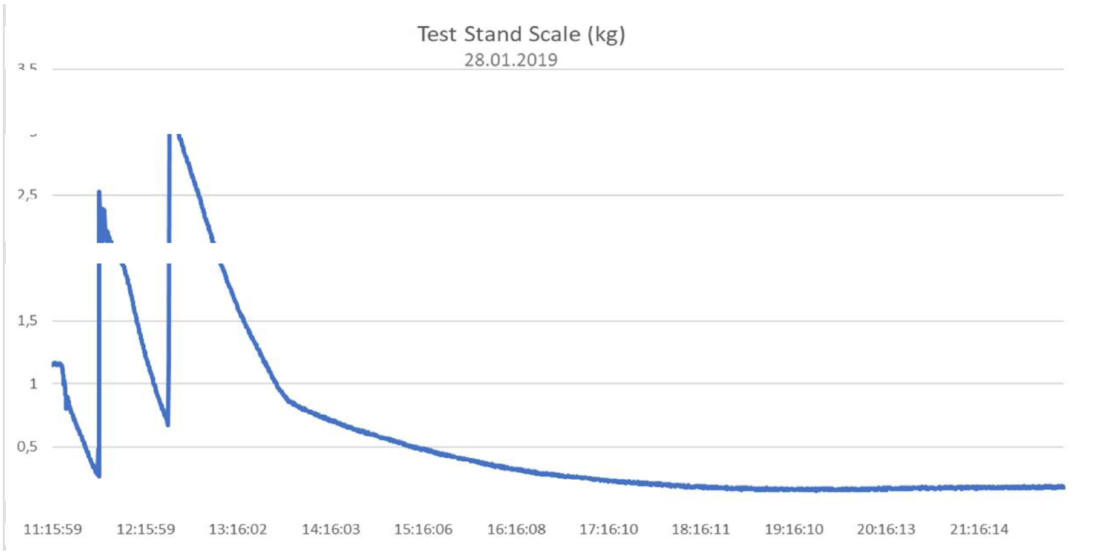
13:45:18
14:45:22


Test Stand Scale (kg)
28.01.2019
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1,5
1
0,5
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12:15:59
13:16:02
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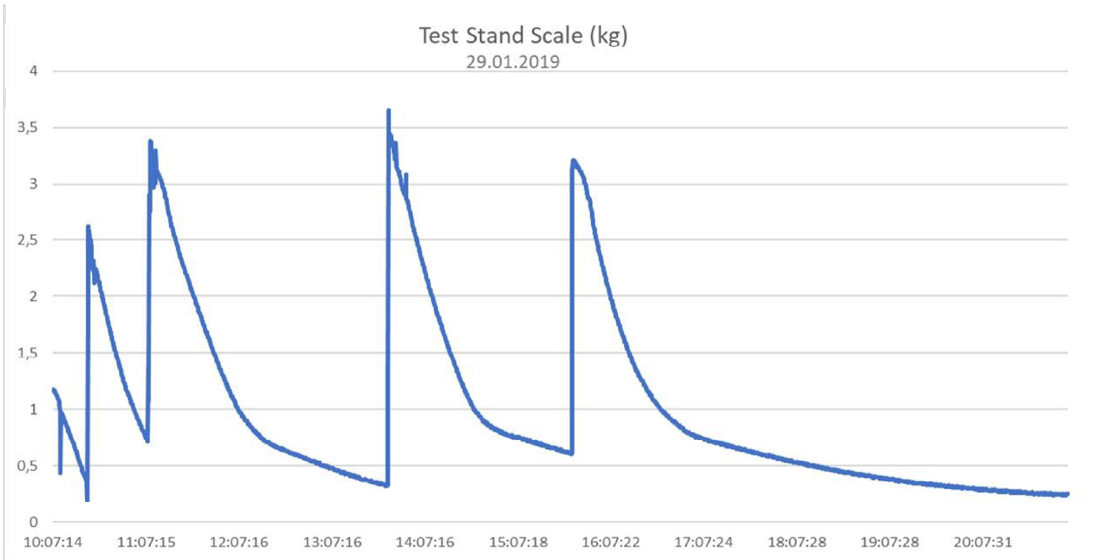
17:16:10
18:16:11
19:16:10
20:16:13
21:16:14


Test Stand Scale (kg)
29.01.2019
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3,5
3
2,5
2
1,5
1
0,5
0
10:07:14
11:07:15
12:07:16
13:07:16
14:07:16
15:07:18
16:07:22
17:07:24
18:07:28
19:07:28
20:07:31

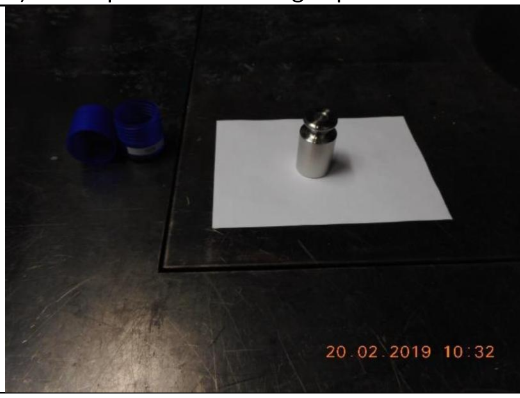
1) 6100B stove on test rig with surface TCs

2) Traverse operation on the FFDT

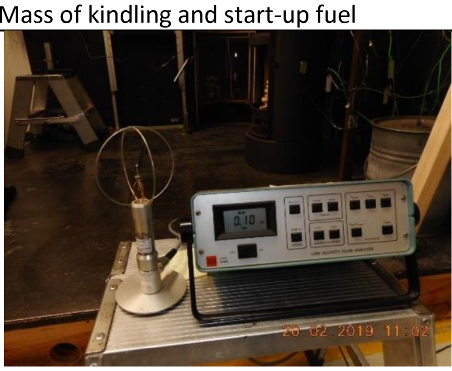
3) Measurement of fuel moisture

4) Start-up fuel and kindling in place

5) Mass of kindling and start-up fuel



6) Auditing of platform scale



7) Measurement of air velocity

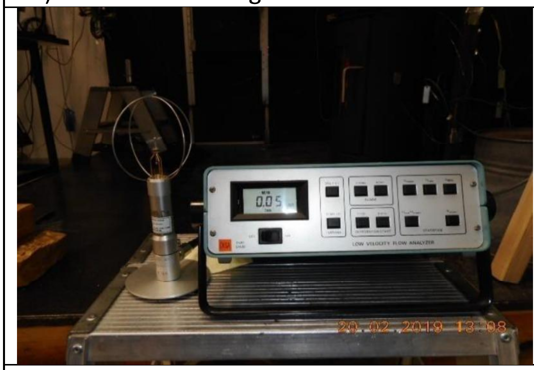
8) Arrangement of the HF fuel load

9) Ignition with gas torch

10) After loading of the HF fuel load (iphone)

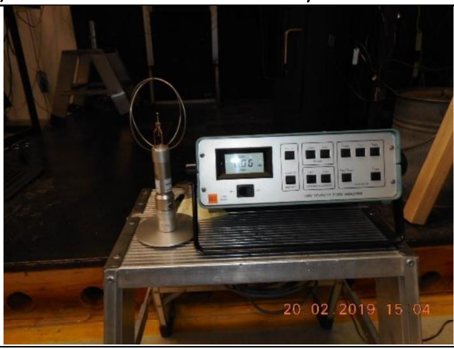
11) 5 min after loading of the MF fuel load

12) PM sampling Main and Split trains



13) Measurement of air velocity

14) Repeated measurement of air velocity



15) Final measurement of air velocity

16) Exposed filters MF tests

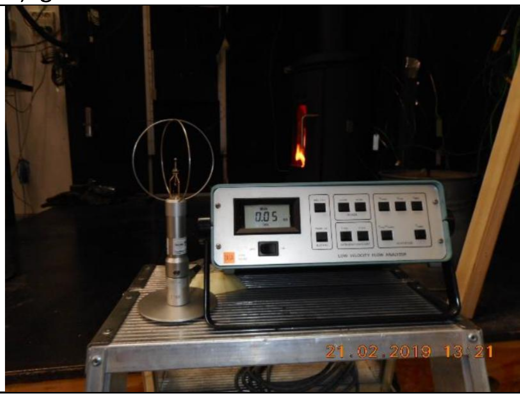

1) Preparation of dummy HF fuel load

2) Arrangement of kindling and start-up fuel


3) Arrangement of dummy HF load

4) Ignition


5) Preparation of the LF fuel load

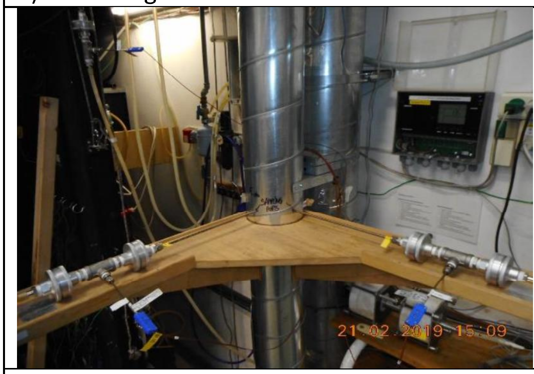

6) Measurement of air velocity

7) End of Cold start firebed

8) Loading of LF fuel load

9) Effective gas combustion

10) Repeated air velocity measurement



11) Main and Split sampling trains

12) Flow measurement devices

13) Final air velocity measurement

14) Exposed filters LF test

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	0,014	m³			
Total Nom. Load Wt. Target	2,291	kg			
Total Load Wt. Allowable Range	2,200	to	2,400	kg	
Core Target Wt. Allowable Range	1,000	to	1,500	kg	
Remainder Load Wt. Allowable Range	0,800	to	1,300	kg	
Core Load Pc. Wt. Allowable Range	0,300	to	0,600	kg	
Remainder Load Pc. Wt. Allowable Range	0,200	to	1,300	kg	
	Pc. #				
Core Load Piece Wt. Actual	1	0,458	kg		In Range
	2	0,469	kg		In Range
	3	0,451	kg		In Range
Core Load Total. Wt. Actual		1,38	kg		In Range
	Pc. #				
Remainder Load Piece Wt.	1	0,582	kg		In Range
(1 to 3 Pcs.)	2	0,348	kg		In Range
	3	0,000	kg		Out of Range
Remainder Load Tot. Wt. Act		0,930	kg		In Range
Total Load Wt. Actual		2,308	kg		In Range
Core % of Total Wt.		60%			In Range
Remainder % of Total Wt.		40%			In Range
Actual Load % of Nominal Target		101%			In Range
Actual Fuel Load Density		161,4	kg/m³		
Kindling and Start-up Fuel					
Maximim Kindling Wt. (20% of Tot. Load Wt.)		0,462	kg		
Actual Kindling Wt.		0,454	kg		In Range
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		0,692	kg		
Actual Start-up Fuel Wt.		0,679	kg		In Range
Allowable Residual Start-up Fuel Wt. Range	0,231	to	0,462	kg	
Actual Residual Start-up Fuel Wt.		0,325	kg		In Range
Total Wt. All Fuel Added (wet basis)		3,44	kg		
High Fire Test Run End Point Range	Low		High		
Based on Fuel Load Wt. (w/tares)	0,208	to	0,254	kg	
Actual Fuel Load Ending Wt.		0,250	kg		In Range

Metric units 2

Mid-Point						
0,450						
0,750	Fuel Piece Moisture Reading (%-dry basis)					
	1	2	3	Ave.		Pc. Wt. Dry
	20,7	20,9	19,7	20,4	In Range	0,838 lb
	23,4	24,5	23,5	23,8	In Range	0,835 lb
	20,1	21,1	20,3	20,5	In Range	0,825 lb
	20,3	22	20,5	20,9	In Range	1,061 lb
	19,6	20,9	20,4	20,3	In Range	0,638 lb
				NA	NA	NA lb
	Total Load Ave. MC (%-dry basis)			21,2	In Range	
	Total Load Ave. MC % (wet basis)			17,5		
45-65%	Total Test Load Weight (dry basis)					4,197 lb
35-55%						
95-105%	Kindling Moisture (%-dry basis)					
	10	10	10	10,0	In Range	0,413 lb
	Start-up Fuel Moisture Readings (%-dry basis)					
	19,4	20,8	19,7	20,0	In Range	0,566 lb
19,7%						
	Total Wt. All Fuel Added (dry basis)					5,176 lb
29,4%	Total Wt. All Fuel Burned (dry basis)					4,601 lb
Mid-Point						
0,346						
Mid-Point						
0,231						

y Basis	
0,380	kg
0,379	kg
0,374	kg
0,481	kg
0,289	kg
NA	kg
1,904	kg
0,187	kg
0,257	kg
2,35	kg
2,087	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

Metric units

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)	192,222	kg/m³			
Usable Firebox Volume	0,014	m³			
Total Nom. Load Wt. Target	2,749	kg			
Total Load Wt. Allowable Range	2,611	to	2,886		kg
Core Target Wt. Allowable Range	1,237	to	1,787		kg
Remainder Load Wt. Allowable Range	0,962	to	1,512		kg
Core Load Fuel Pc. Wt. Allowable Range	0,412	to	0,687		kg
Remainder Load Pc. Wt. Allowable Range	0,275	to	0,825		kg
	Pc. #				
Core Load Piece Wt. Actual	1	0,555	kg		In Range
	2	0,557	kg		In Range
	3	0,549	kg		In Range
Core Load Total. Wt. Actual		1,66	kg		In Range
	Pc. #				
Remainder Load Piece Wt.	1	0,399	kg		In Range
(2 or 3 Pcs.)	2	0,635	kg		In Range
	3		kg		NA
Remainder Load Piece Weight Ratio - Small/Large		63%			In Range
Remainder Load Tot. Wt. Act		1,034	kg		In Range
Total Load Wt. Actual		2,695	kg		In Range
Core % of Total Wt.		62%			In Range
Remainder % of Total Wt.		38%			In Range
Actual Load % of Nominal Target		98%			In Range
Actual Fuel Load Density		188,462	kg/m³		
Allowable Charcoal Bed Wt. Range (kg)	0,320	to	0,489		
Actual Charcoal Bed Wt.		0,320	kg		In Range

Actual Fuel Load Ending Wt.	0,000	kg	Valid Test
Total Wt. of Fuel Burned During Test Run lb.	2,695	kg	

Mid-Point
0,550
0,550

Fuel Piece Moisture Reading (%-dry basis)								
1	2	3	Ave.		Pc. Wt. Dry Basis			
19,4	21	19,2	19,9	In Range	1,021	lb	0,463	kg
21,1	21,6	22,2	21,6	In Range	1,010	lb	0,458	kg
20,8	20	18,9	19,9	In Range	1,009	lb	0,458	kg
19,8	21,8	18,4	20,0	In Range	0,733	lb	0,333	kg
20,1	19	19,2	19,4	In Range	1,172	lb	0,532	kg
			NA	NA	NA	lb	NA	kg
Total Load Ave. MC % (dry basis)			20,2	In Range				
Total Load Ave. MC % (wet basis)			16,8					
Total Test Load Weight (dry basis)					4,945	lb	2,243	kg
Total Fuel Weight Burned During Test Run (dry basis)					4,945	lb	2,243	kg

≤ 67%

45-65%

35-55%

95-105%

Mid-Point
0,404

≥ 90%

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	0,014	m³			
Total Nom. Load Wt. Target	2,291	kg			
Total Load Wt. Allowable Range	2,200	to	2,400	kg	
Core Target Wt. Allowable Range	1,000	to	1,500	kg	
Remainder Load Wt. Allowable Range	0,800	to	1,300	kg	
Core Load Pc. Wt. Allowable Range	0,300	to	0,600	kg	
Remainder Load Pc. Wt. Allowable Range	0,200	to	1,300	kg	
	Pc. #				
Core Load Piece Wt. Actual	1	0,447	kg		In Range
	2	0,457	kg		In Range
	3	0,461	kg		In Range
Core Load Total. Wt. Actual		1,37	kg		In Range
	Pc. #				
Remainder Load Piece Wt.	1	0,603	kg		In Range
(1 to 3 Pcs.)	2	0,339	kg		In Range
	3	0,000	kg		Out of Range
Remainder Load Tot. Wt. Act		0,942	kg		In Range
Total Load Wt. Actual	2,3	2,307	kg		In Range
Core % of Total Wt.		59%			In Range
Remainder % of Total Wt.		41%			In Range
Actual Load % of Nominal Target		101%			In Range
Actual Fuel Load Density		161,3	kg/m³		
Kindling and Start-up Fuel					
Maximim Kindling Wt. (20% of Tot. Load Wt.)		0,461	kg		
Actual Kindling Wt.		0,461	kg		In Range
Maximum Start-up Fuel Wt. (30% of Tot. Load Wt.)		0,692	kg		
Actual Start-up Fuel Wt.		0,680	kg		In Range
Allowable Residual Start-up Fuel Wt. Range	0,231	to	0,461	kg	
Actual Residual Start-up Fuel Wt.		0,320	kg		In Range
Total Wt. All Fuel Added (wet basis)		3,45	kg		
High Fire Test Run End Point Range	Low		High		
Based on Fuel Load Wt. (w/tares)	0,208	to	0,254	kg	
Actual Fuel Load Ending Wt.		0,250	kg		In Range

Metric units 2

Mid-Point						
0,450	Fuel Piece Moisture Reading (%-dry basis)					
0,750	1	2	3	Ave.		Pc. Wt. Dry
	21,2	21,2	19,5	20,6	In Range	0,817 lb
	20,2	20,8	19,8	20,3	In Range	0,838 lb
	20,9	20	23,4	21,4	In Range	0,837 lb
	20,9	18,4	18,9	19,4	In Range	1,113 lb
	18,4	21,8	20,2	20,1	In Range	0,622 lb
	20	19	21	20,0	In Range	0,000 lb
	Total Load Ave. MC (%-dry basis)			20,3	In Range	
	Total Load Ave. MC % (wet basis)			16,9		
45-65%	Total Test Load Weight (dry basis)					4,227 lb
35-55%						
95-105%	Kindling Moisture (%-dry basis)					
	10	10	10	10,0	In Range	0,419 lb
	Start-up Fuel Moisture Readings (%-dry basis)					
	21,2	18,8	20,4	20,1	In Range	0,566 lb
20,0%						
	Total Wt. All Fuel Added (dry basis)					5,212 lb
29,5%	Total Wt. All Fuel Burned (dry basis)					4,642 lb
Mid-Point						
0,346						
Mid-Point						
0,231						

y Basis	
0,371	kg
0,380	kg
0,380	kg
0,505	kg
0,282	kg
0,000	kg
1,917	kg
0,190	kg
0,257	kg
2,36	kg
2,106	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

Metric units

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)	**192,222**	kg/m³				
Usable Firebox Volume	0,014	m³				
Total Nom. Load Wt. Target	2,749	kg				
Total Load Wt. Allowable Range	2,611	to		2,886	kg	
Core Target Wt. Allowable Range	1,237	to		1,787	kg	
Remainder Load Wt. Allowable Range	0,962	to		1,512	kg	
Core Load Fuel Pc. Wt. Allowable Range	0,412	to		0,687	kg	
	0,275	to		0,825	kg	
	Pc. #					
Core Load Piece Wt. Actual	1	0,547	kg			In Range
	2	0,572	kg			In Range
	3	0,576	kg			In Range
Core Load Total. Wt. Actual		1,70	kg			In Range
	Pc. #					
Remainder Load Piece Wt.	1	0,418	kg			In Range
(2 or 3 Pcs.)	2	0,693	kg			In Range
	3		kg			NA
Remainder Load Piece Weight Ratio - Small/Large		60%				In Range
Remainder Load Tot. Wt. Act		1,111	kg			In Range
Total Load Wt. Actual		2,806	kg			In Range
Core % of Total Wt.		60%				In Range
Remainder % of Total Wt.		40%				In Range
Actual Load % of Nominal Target		102%				In Range
Actual Fuel Load Density		196,224	kg/m³			
Allowable Charcoal Bed Wt. Range (kg)	0,331	to		0,511		
Actual Charcoal Bed Wt.		0,331	kg			In Range

Actual Fuel Load Ending Wt.	0,000	kg	Valid Test
Total Wt. of Fuel Burned During Test Run lb.	2,806	kg	

Mid-Point
0,550
0,550

Fuel Piece Moisture Reading (%-dry basis)					Pc. Wt. Dry Basis			
1	2	3	Ave.					
24	22,5	19,8	22,1	In Range	0,988	lb	0,448	kg
24,6	20	23,3	22,6	In Range	1,028	lb	0,466	kg
22	23,3	19,2	21,5	In Range	1,045	lb	0,474	kg
20,4	21,8	18,9	20,4	In Range	0,766	lb	0,347	kg
20	23,4	19,2	20,9	In Range	1,264	lb	0,573	kg
			NA	NA	NA	lb	NA	kg
Total Load Ave. MC % (dry basis)			21,5	In Range				
Total Load Ave. MC % (wet basis)			17,7					
Total Test Load Weight (dry basis)					5,091	lb	2,309	kg
Total Fuel Weight Burned During Test Run (dry basis)					5,091	lb	2,309	kg

≤ 67%

45-65%

35-55%

95-105%

Mid-Point
0,421

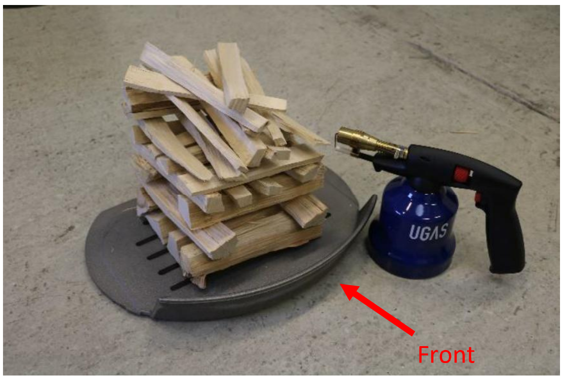
≥ 90%

Manufacturers instruction for testing procedure
according to ASTM E3053-17
Morsø 6100 B series High Fire Procedure

Test Fuel:
Recommended test fuel species is birch.
The guidelines of the Cordwood standard E3053-17 are followed in regards of moisture content and weight ratios for kindling, startup, core and sub loads.
The nominal length for High Burn core and sub load is approximately 7'' (18 cm.)
When cutting the core and sub load wood into right weight then try to cut all the outer bark of.
The usable firebox volume is 0.505 ft^3 (0,0143m^3)

Kindling and Startup:
Load configuration

Kindling right and startup load left
Kindling is 16-20 pieces. Weight of each pieces varies from 20-75 grams.
Startup load consist of 8 pieces. Weight of each pieces varies from 75-150 grams



Startup load at the bottom, distributed in three layers. Each layer is perpendicular to each other.
The biggest startup pieces should be places in the back and bottom of the load.
On top of the startup load the kindling is distributed in four layers.
The upper kindling pieces is pointed towards the front, with smaller distance between each piece than in the back.
Front of load is parallel with stove front.
Load shown on an actual bottom grate part

Load ignition

Set the air controller at maximum setting and fully open the stove door.

Use a “top-down” approach when igniting the fire.
Ignition point is in the front of the load and in between second and third layer of kindling from the top.

Ignite the load with a handheld propane torch. Only ignite the top three layers of kindling. Use the torch approximately 45-60 seconds.

Next, keep the stove door ajar for 3 to 5 minutes. The space between door and door frame should be 0-1.5’’ (0-4 cm). Most important in this step is to view the flames and how it catches on, not to slow not to fast. That’s why minutes and spaces isn’t specified more precisely.

When the fire is steady within the time frame close the door. Keep air controller fully open.

High Fire loading and ignition:

The charcoal bed for the High Fire should be at the middle to the lower end of the allowable range. But keep an eye on the charcoal bed, don’t wait to the very end of the range, if the charcoal bed seems to burn out and getting too cold.

High Fire Load sample
Front/left side view

High Fire Load sample
Top view

The High Fire fuel load consist of five pieces distributed in three layers. The preferred configuration of the load is a bottom layer of two pieces, a middle layer of two pieces and finally the smallest of the remainder load pieces on top.
The two bottom layers of the load should be stacked compact without much air between each piece. These two layers should orientate so that the log lengthwise is in a 45° angle with the stove front. The remainder load piece on top should be placed so the log lengthwise is almost parallel with the backwall of the firebox, with ends sticking out from the lower lying layers.
It is important that the fuel load height is kept just below the path of the secondary air outlet stream (stainless steel box)

Start the High Fire by fully open the stove door. Keep the air controller setting at maximum. Even out the smaller charcoal pieces. The bigger charcoal pieces at the back of the firebox should still be unbroken. Turn these charcoals around. This will revive the charcoal and they maybe even catch flames again. Relocate the bigger charcoal pieces to the back and left side of the firebox. Keep bigger charcoal pieces close to the back and left side of the High Fire load.
After placement of the fuel load keep the door ajar. The space between door and door frame should be 0-3’’ (0-7.5 cm). Most important in this step is to view the flames and how it catches on. The air inlet flow should be at a speed which create an upward “swirl” clockwise around the compact fuel load. This will cause an ignition of the load primarily on the back and on the top remainder piece. Try to maintain this “swirl” effect until the ignition of the load is stable. This step will approximately take 4-6 minutes from start. When the fire is stable the secondary nozzle air outlet from the stainless-steel box will feed the fire and promote a “top-down” burn.
When the fire is steady within the time frame close the door. Keep air controller fully open.

The High Fire should be stopped at the upper end of the allowable weight range.

Manufacturers instruction for testing procedure according to ASTM E3053-17 Morsø 6100 B series Medium and Low Fire Procedure

Test Fuel:

Recommended test fuel species is birch.
The guidelines of the Cordwood standard E3053-17 are followed in regards of moisture content and weight ratios for kindling, startup, core and sub loads.
The nominal length for Medium and Low Burn core and sub load is approximately 7’’ (18 cm.)
When cutting the core and sub load wood into right weight then try to cut all the outer bark of.
The usable firebox volume is 0.505 ft^3 (0,0143m^3)

Low and Medium Fire loading and ignition:

The Low and Medium Fire test procedure differ from the High Fire regarding orientation of the fuel load Otherwise the test procedure is similar.

When the charcoal bed is in the allowable weight range it will be much more voluminous and hotter with bigger charcoal pieces than the coalbed seen from the kindling/startup. So, it is important to arrange and even out the coalbed in such a way that the fuel load do not build up in height. The fuel load height must be kept below the path of the secondary air outlet stream (stainless steel box).

The Low/Medium Fire fuel load consist of five pieces. The preferred configuration of the load is a bottom layer of three pieces and second layer on top with two pieces. The load should be stacked compact without much air between each piece. The load should be orientated so that the log lengthwise is parallel with the stove door.

The load is placed a bit to the right side on the bottom grate, not centered.

Start the Low/Medium Fire by fully open the stove door. Keep the air controller setting at maximum. Even out the smaller charcoal pieces. There will be five bigger charcoal pieces from the previous High Fire which still will be unbroken. Turn these charcoals around. This will revive the charcoal and they maybe even catch flames again. Relocate these charcoal pieces to the back and left side of the firebox. Next load the fuel, keep a distance between fuel load and the back wall of the firebox of approximately 1’’ (2.5 cm). Keep bigger charcoal pieces close to the back and left side of the Low/Medium Fire load.

After placement of the fuel load keep the door ajar. The space between door and door frame should be 0-3’’ (0-7.5 cm). Most important in this step is to view the flames and how it catches on. The air inlet flow should be at a speed which create an upward “swirl” clockwise around the compact fuel load. This will cause an ignition of the load primarily on the back and on the top. Try to maintain this “swirl” effect until the ignition of the load is stable. This step will approximately take 3-4 minutes from start. When the fire is stable the secondary nozzle air outlet from the stainless-steel box will feed the fire and promote a “top-down” burn.

When the fire is steady within the time frame close the door, at latest half a minute before the allowable timeframe closes. Use the remaining time to adjust the primary air controller. The Low Fire air controller setting is 8 mm from closed position. The Medium Fire air controller setting is 10 mm from closed position.

The Low/Medium Fire ends when 100 % of the load is burnt.

Low/Medium Fire Load sample
Front/left side view

High Fire Load sample
The load is placed a bit to the right, not centered
Top view

WOOD HEATER DESCRIPTION

Appliance Manufacturer: Morsø Jernstøberi A/S

Wood Stove Model: 6100 B series

Type: Freestanding, convection-type wood fired room heater.

WOOD HEATER INFORMATION

Materials of Construction: The unit is constructed primarily of cast iron with a stainless-steel secondary combustion air box placed at the upper back of the firebox. The firebox is lined with molded vermiculite firebricks, sides, back and two baffles. The feed door has a large glass panel and 8 mm diameter fiberglass gasket.

Air Introduction System: Air enters the firebox through an opening located at the back of the appliance. Primary combustion air is channeled through the air controller holes down through the manifold that is located behind the door at the top of the door frame.
Secondary air enters the appliance through the back and is channeled internally to a stainless-steel box located at the upper back of the firebox. The stainless-steel box has two rows of air nozzles.

Combustion Control Mechanisms: The combustion air inlet is controlled by a handle located above the fuel loading door. Combustion air control mechanism is a sliding rod with flat plates attached that cover and uncover air inlets when the rod is pushed left or right. Only the primary combustion air is adjustable, the secondary combustion air is fixed.

Combustor: N/A

Internal Baffles: A angled baffle made of vermiculite is mounted in the upper portion of the firebox. The flame path is forced to the front of the firebox where it travels up through the opening between the baffle and primary air manifold. Above this baffle there is a second baffle also made of vermiculite

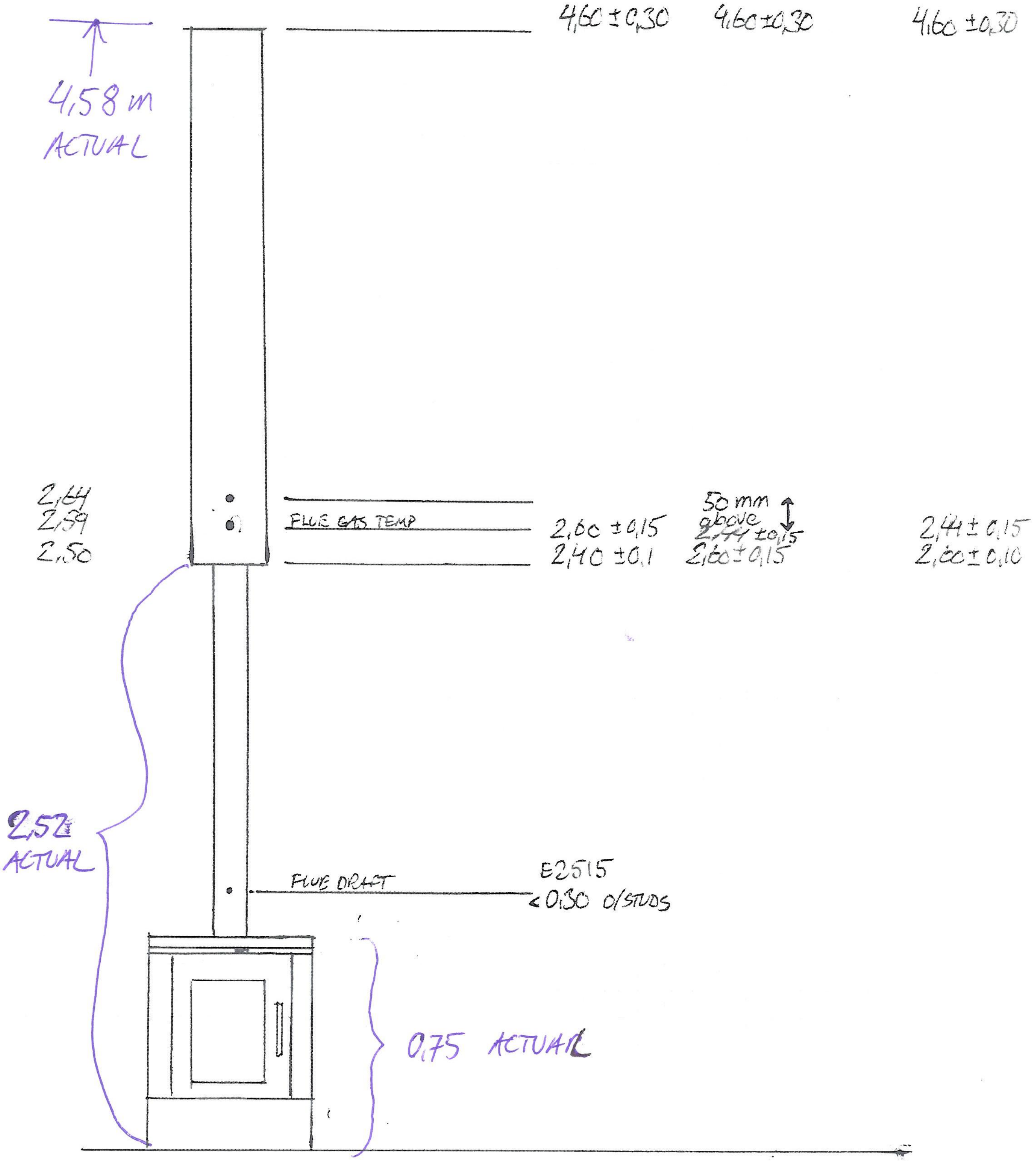
Other Features: None

Flue Outlet: The 6” diameter flue outlet is centered at the top of the appliance.

APPENDIX 11

EPA SKORSTEN
25/10 18

E2780-10 CRIB WOOD | CSA B415-1 | E3053 CORDWOOD



MORSØ 6100 B 20-21 FEBR 2019

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 Afdelingsnummer: 270	Laboratorium: ELAB Certifikatnummer: ELAB-36-2018

Dato for kalibrering/klassificering af lodder: 12.11.2014/F1 09.04.2014 /M2 + ukendte 15x20kg fra murværk, 300kg i alt	Dato for modtagelse af lodder: 03.09.2018	Dato for kalibreringens udførelse: 04.09.2018	Certifikatdato: 04.09.2018	Vedr. akkr. Nr.: 300	Sidenummer: Side 1 af 1
Identifikation den kalibrerede vægt: 270-A-1638, KC 600, 600kg, Stand C				Ansvarlig:	Antal bilag:
Vægtens max-kapacitet: 600kg	Vægtens deling i 1. range: d =1g	Vægtens deling i 2. range:	Vægtens kalibreringsværdi i 1. range: e =	Vægtens kalibreringsværdi i 2. range:	Vægtens serienummer:

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: 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\01-Id-5820-270-A-1638-ELAB-36-2018.docx

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

#nye korr.

					(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

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www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:

200-E-20663

Antal bilag: 0

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

DANAK
CAL Reg.nr. 200

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

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

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

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

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

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
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www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-T-22737

Antal bilag: 0

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

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	

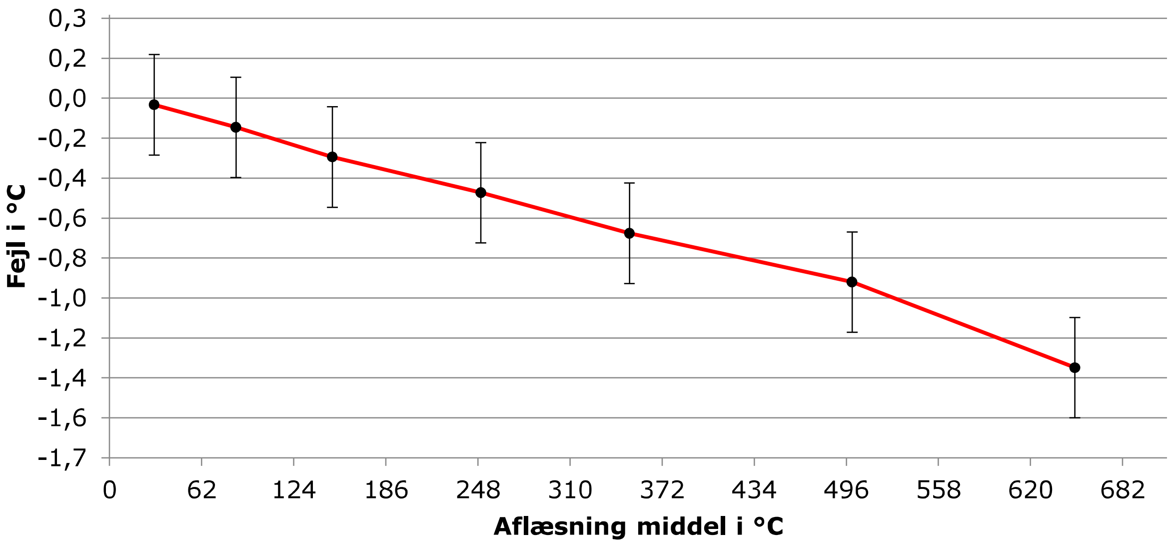
Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

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

Antal bilag: 0

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

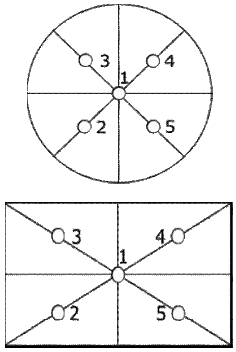
Ivan Sand - Automobilteknik

ilac-MRA DANAK
CAL Reg.nr. 200

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	Däknings 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
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www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-L-21099

Antal bilag: 0

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

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:

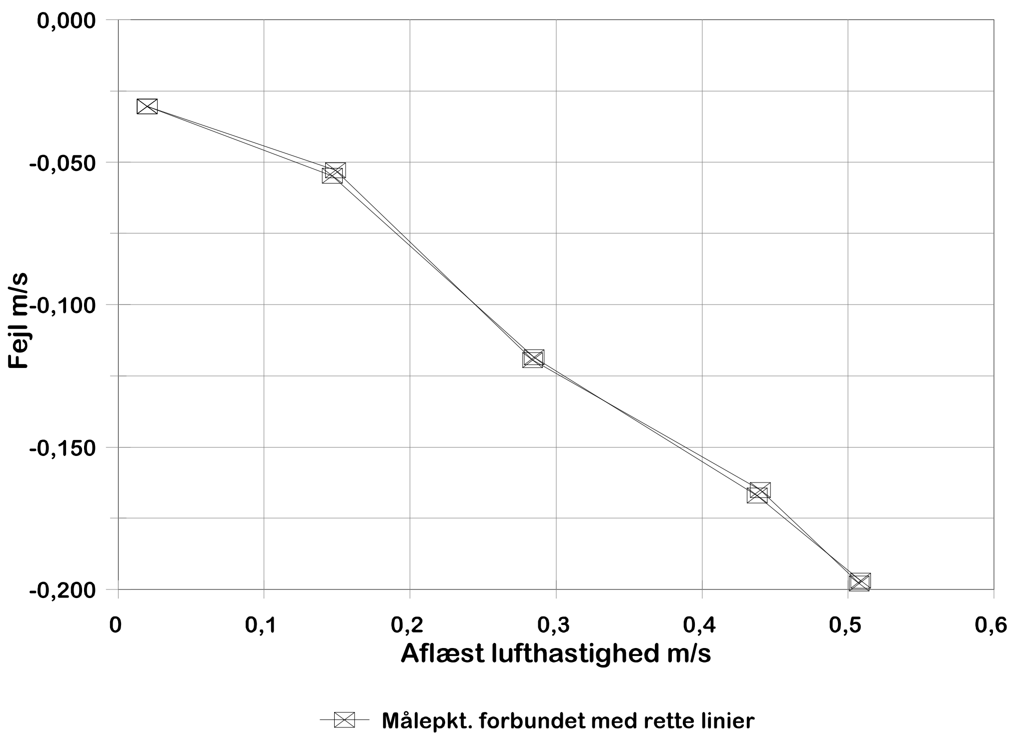
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-04/2.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

FEJLKURVE



Sand hastighed = Aflæst - Fejl (med fortegn)

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

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www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24527

Antal bilag: 0

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
Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: -1245 - 3735 Pa

Reference	Aflæsning	Reference	Aflæsning	Reference	Aflæsning	Reference	Aflæsning
Op 1		Ned 1		Op 2		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

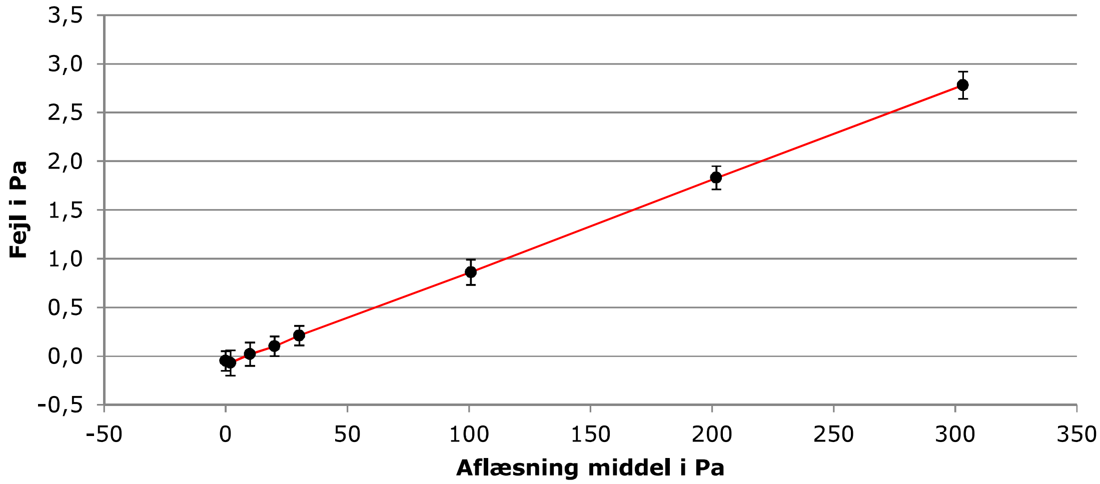
Reference middelværdi Pa	Aflæsning middelværdi Pa	Opløsning Pa	Hysterese Pa	Fejl Pa	Usikkerhed Pa
0,00	-0,04	0,1	0,04	-0,05	0,10
2,00	1,93	0,1	0,09	-0,07	0,13
9,97	10,00	0,1	0,07	0,02	0,12
20,02	20,12	0,1	0,01	0,10	0,10
30,02	30,23	0,1	0,03	0,21	0,10
99,96	100,82	0,1	0,07	0,86	0,13
199,88	201,71	0,1	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
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info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-U-22989

Antal bilag: 0

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 Østergaard

Peter Friis Østergaard
Konsulent, PhD

ilac-MRA DANAK
CAL Reg.nr. 200

FUGTLABORATORIET

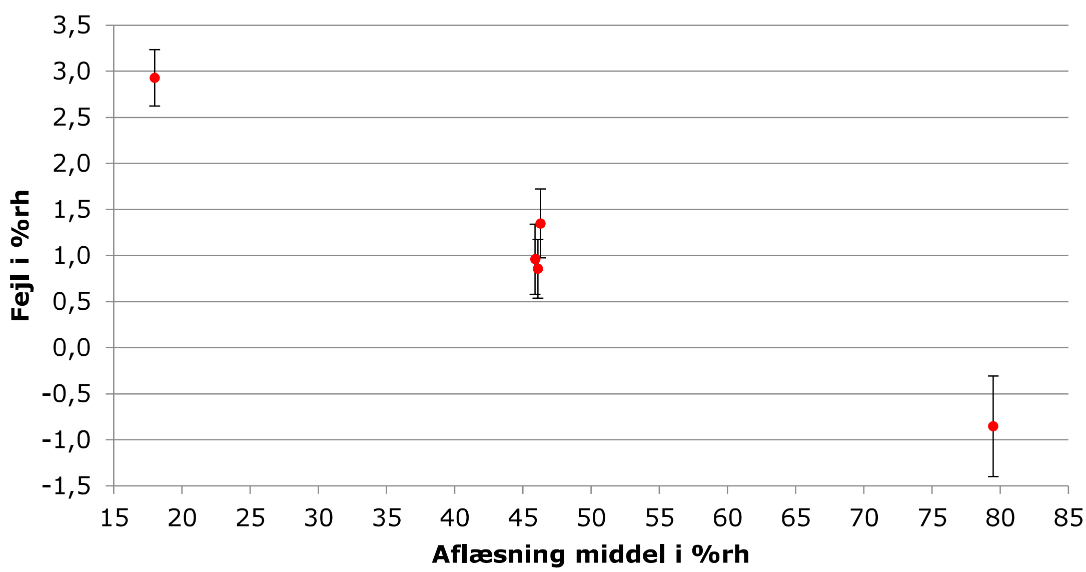
TEKNOLOGISK INSTITUT

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.

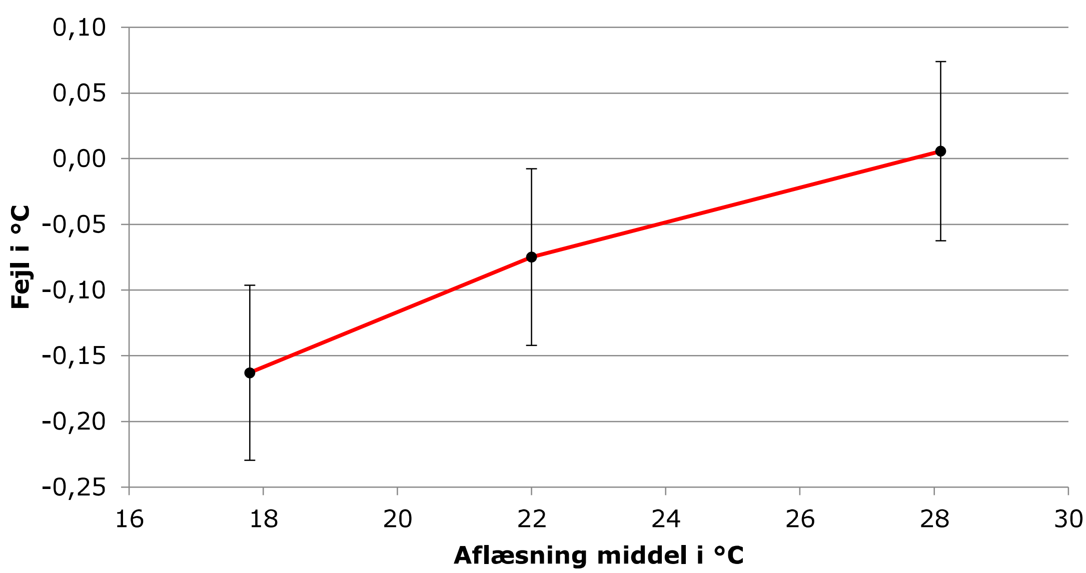
Bemærkninger:
Aflæsning er middelværdien af flere aflæsninger på det kalibrerede måleinstrument.
Fejl = Aflæsning - referenceværdi.

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.

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
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KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24401

Antal bilag: 0

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

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

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

KALIBRERINGSCERTIFIKAT
Resultater

Måleområde: 700 - 1050 mbar a

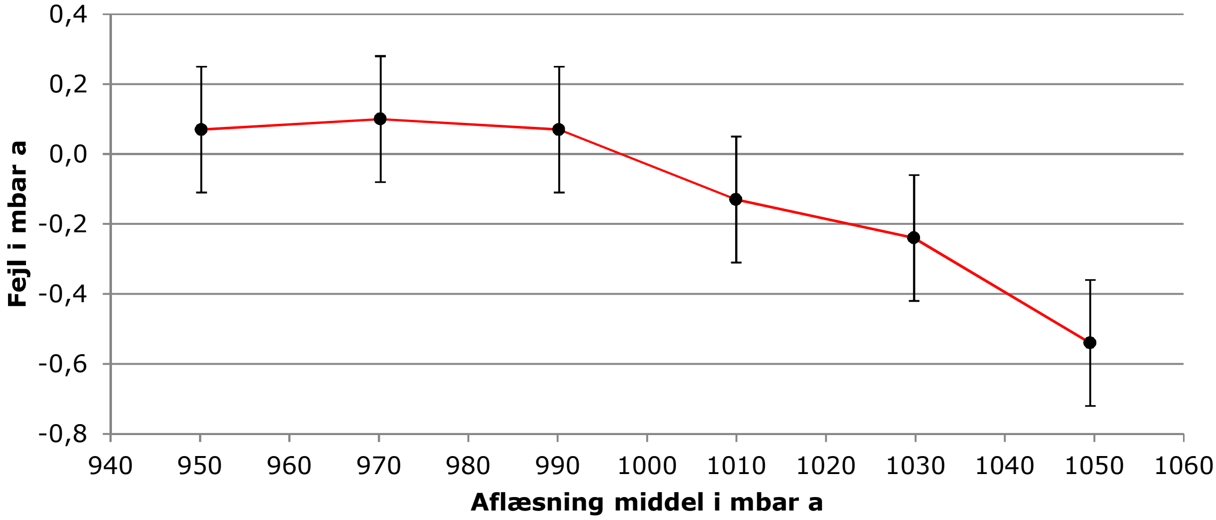
Reference middelværdi mbar a	Aflæsning middelværdi mbar a	Opløsning mbar a	Hysterese mbar a	Fejl mbar a	Usikkerhed mbar a
950,08	950,15	0,1	0,10	0,07	0,18
970,08	970,18	0,1	0,05	0,10	0,18
990,08	990,15	0,1	0,10	0,07	0,18
1.010,08	1.009,95	0,1	0,10	-0,13	0,18
1.030,09	1.029,85	0,1	0,10	-0,24	0,18
1.050,09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

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:	20,6 °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

FORCE Technology, Navervej 1 6600 Vejen tlf: 76961600

OBJEKT:

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

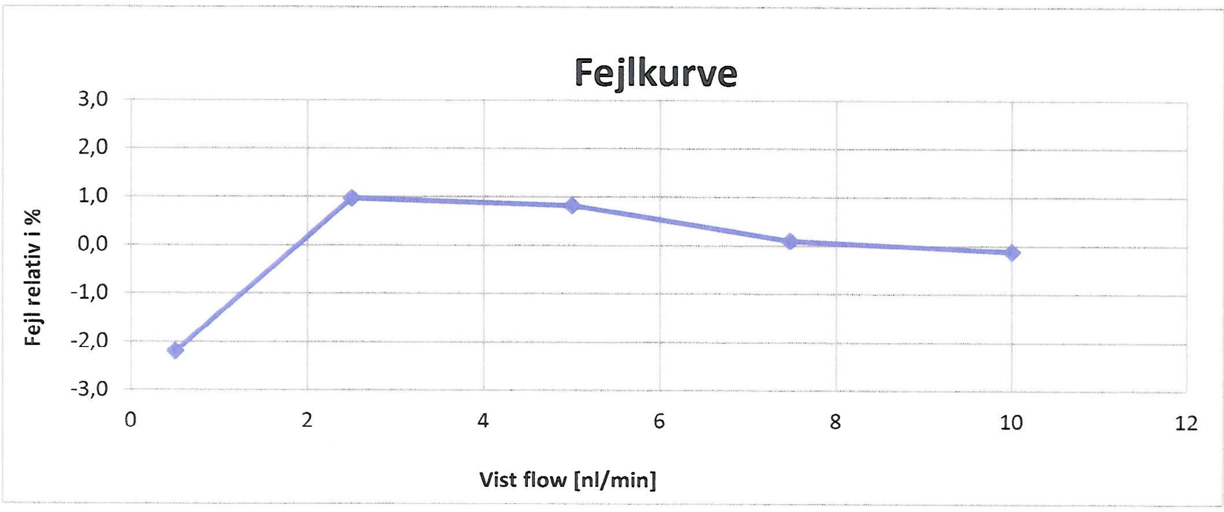
Qmax: 10 nl/min
Qmin: 0 nl/min
Scale division: 0,1 nl/min

Referenceværdier		Udstyr under kalibrering						
Virkeligt flow nl/min	Ucmc ±nl/min	Vist flow nl/min	Standard-usikkerhed nl/min	Fejl Relativ %	Ekspanderet usikkerhed ±%	Dæknings-faktor (k)	Tryk mbara	Tempera-tur °C
10,012	0,017	10,00	0,03	-0,12	0,60	2,00	1020,4	20,5
7,467	0,013	7,48	0,03	0,10	0,90	2,00	1020,2	20,5
4,959	0,008	5,00	0,03	0,82	0,97	1,65	1020,0	20,5
2,4760	0,0042	2,50	0,03	0,97	1,93	1,65	1020,5	20,5
0,51123	0,00087	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:

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

"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.

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

FORCE TECHNOLOGY

OBJEKT:

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

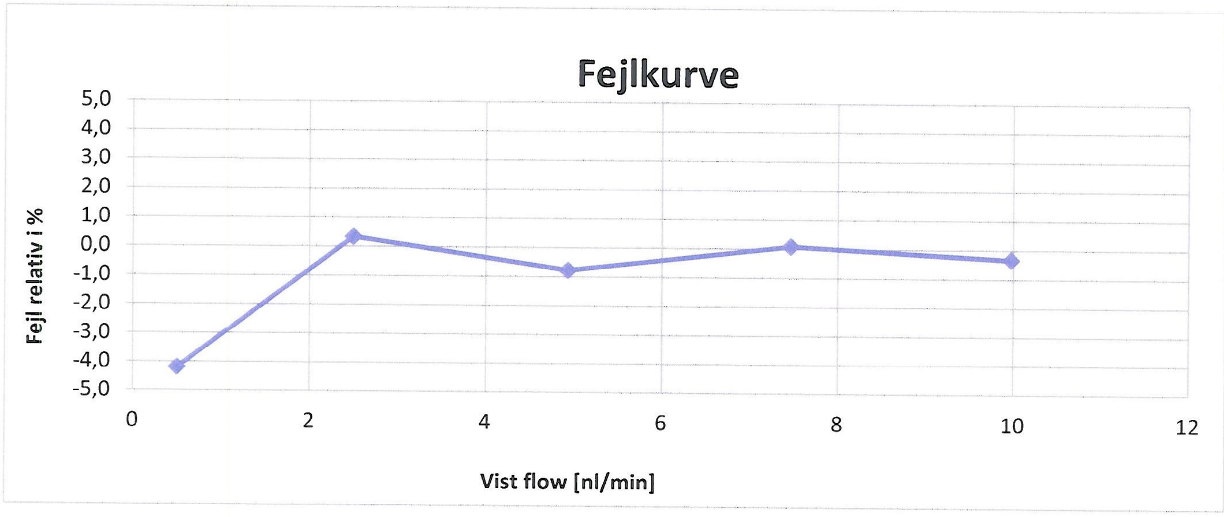
Qmax: 10 nl/min
Qmin: 0 nl/min
Scale division: 0,1 nl/min

Referenceværdier		Udstyr under kalibrering						
Virkeligt flow	Ucmc	Vist flow	Standard-usikkerhed	Fejl Relativ	Ekspanderet usikkerhed	Dæknings-faktor (k)	Tryk	Tempera-tur
nl/min	±nl/min	nl/min	nl/min	%	±%		mbara	°C
10,008	0,017	9,98	0,03	-0,33	0,68	2,00	1020,5	20,4
7,456	0,013	7,46	0,03	0,09	0,93	2,00	1020,2	20,4
4,969	0,008	4,93	0,03	-0,78	1,09	1,65	1020,0	20,4
2,4916	0,0042	2,50	0,03	0,34	1,92	1,65	1020,4	20,4
0,52187	0,00089	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:

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

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



Målepunkter er forbundet med rette linier

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

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	Ref. Delt.		Ref. d.d.	
			23	°C
l/m	nl/m		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

Antal bilag: 0

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 væskebade 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

TEMPERATURLABORATORIET

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.

KALIBRERINGSCERTIFIKAT
Resultater

Føler mærket: 270-A-1629

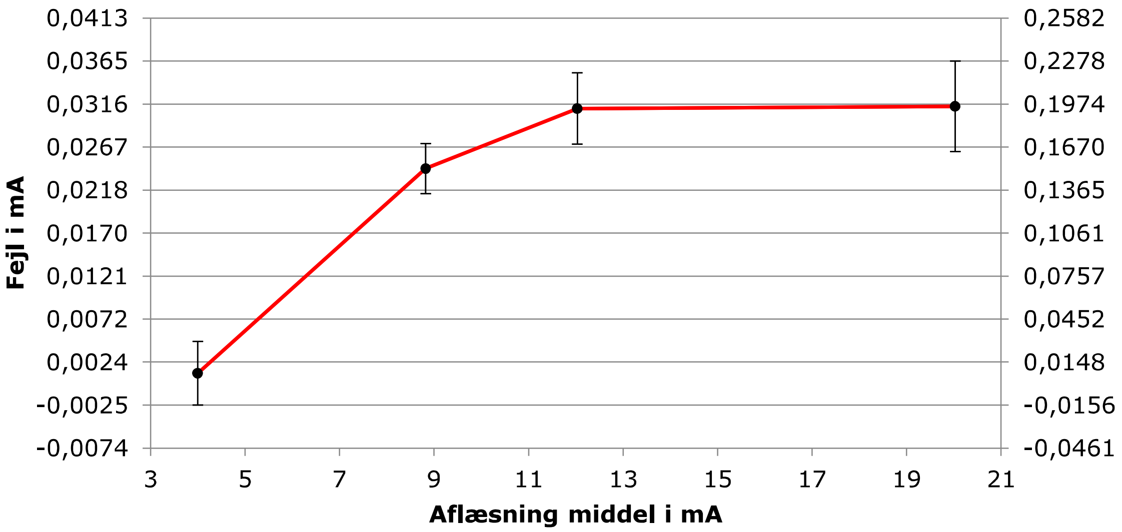
4 - 20 mA ~ 0 - 100 °C

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.

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.

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:

200-L-21096

TEKNOLOGISK INSTITUT

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

Antal bilag: 0

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

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 0,09 - 0,9 m^3/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

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:

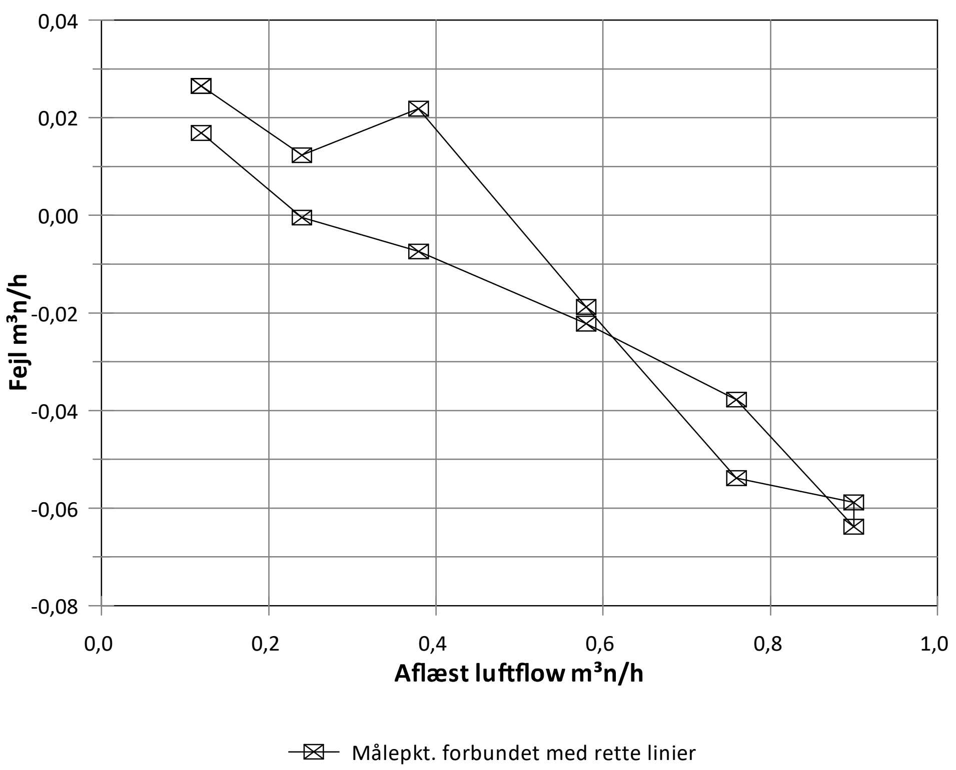
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

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

Antal bilag: 0

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

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 0,5 - 5,0 m^3/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

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:

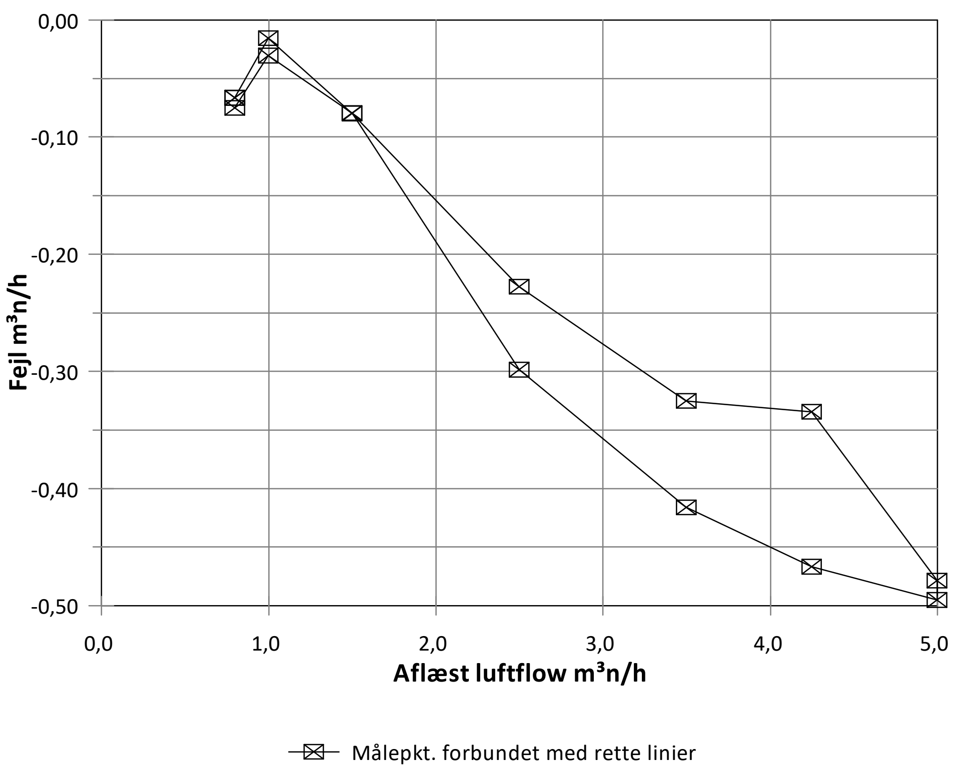
Den rapporterede ekspanderede usikkerhed er angivet som standardusikkerheden multipliceret med dækningsfaktoren k = 2, som for en normalfordeling svarer til en dækningssandsynlighed på ca. 95%. Standardusikkerheden er fastlagt i overensstemmelse med EA-4/02.

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

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

Antal bilag: 0

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

LUFTLABORATORIET

TEKNOLOGISK INSTITUT

KALIBRERINGSCERTIFIKAT

LUFTFLOWMÅLER

Måleområde: 2,7 - 21 m^3/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

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.

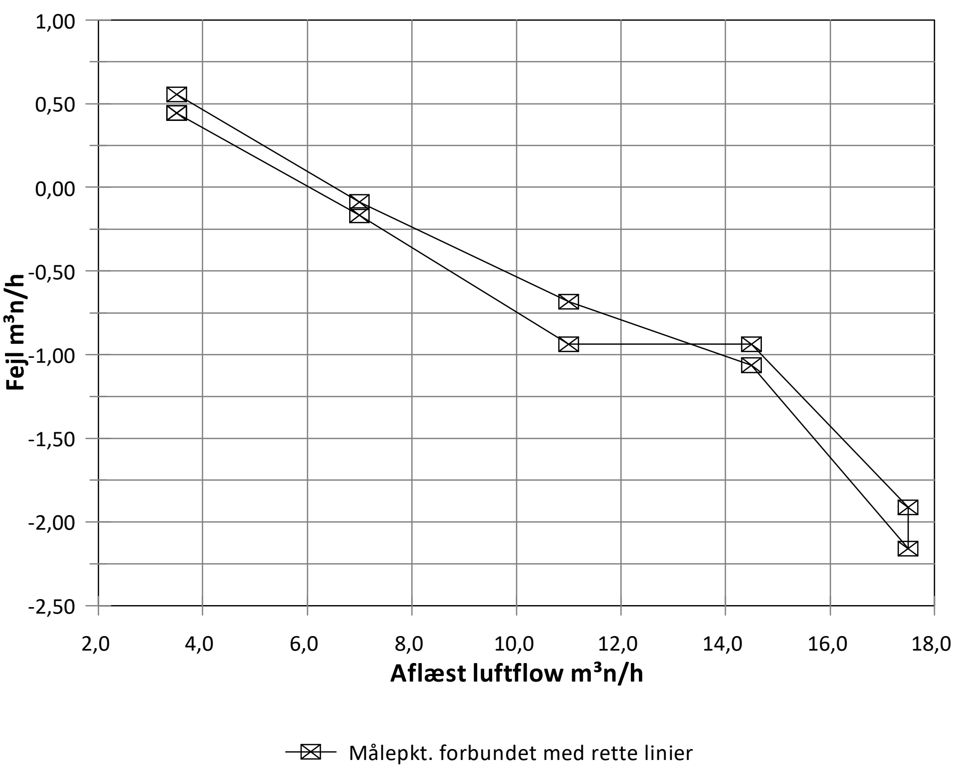
LUFTLABORATORIET

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℃)
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.		

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:

200-P-24528

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

Antal bilag: 0

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
Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

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

KALIBRERINGSCERTIFIKAT
Resultater

Måleområde: 0 - -1 bar

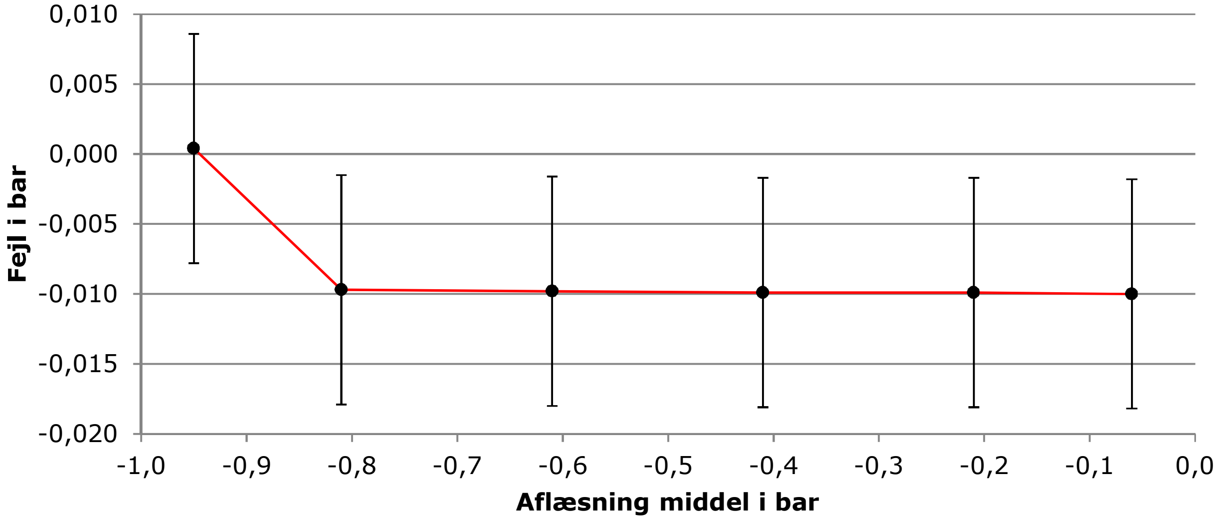
Reference middelværdi bar	Aflæsning middelværdi bar	Opløsning bar	Hysterese bar	Fejl bar	Usikkerhed bar
-0,0500	-0,0600	0,01	0,0000	-0,0100	0,0082
-0,2001	-0,2100	0,01	0,0000	-0,0099	0,0082
-0,4001	-0,4100	0,01	0,0000	-0,0099	0,0082
-0,6002	-0,6100	0,01	0,0000	-0,0098	0,0082
-0,8003	-0,8100	0,01	0,0000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

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:	62,9 %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
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8000 Aarhus C
Tlf. +45 72 20 20 00
info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:

200-P-24529

Antal bilag: 0

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

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

KALIBRERINGSCERTIFIKAT
Målinger

Måleområde: 0 - -1 bar

Reference bar	Aflæsning Ned 1 bar	Reference bar	Aflæsning Op 1 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

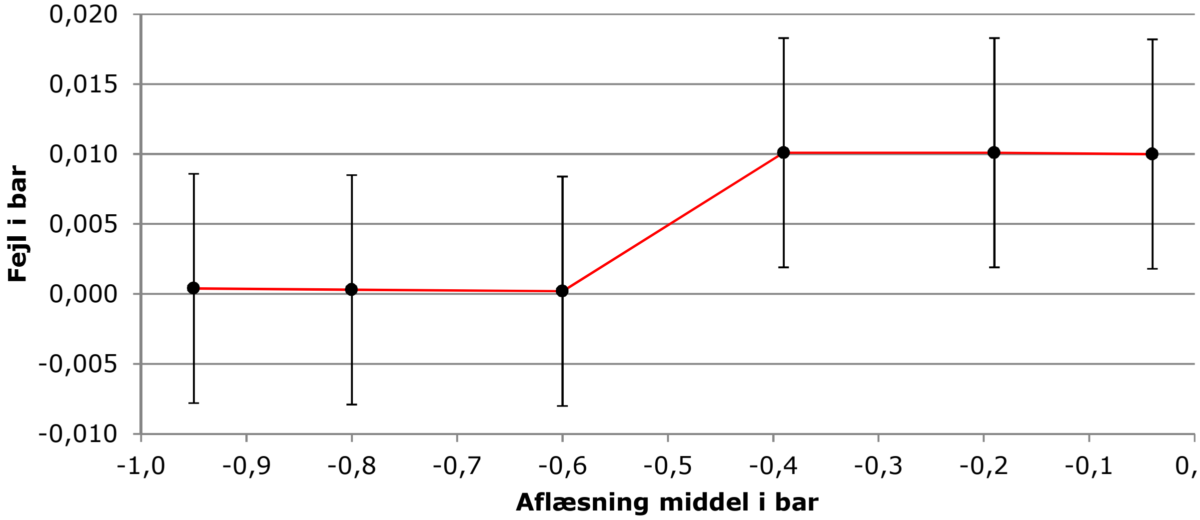
KALIBRERINGSCERTIFIKAT
Resultater

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
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Bygning 14
8000 Aarhus C
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info@teknologisk.dk
www.teknologisk.dk

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:

200-P-24530

Antal bilag: 0

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

Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

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

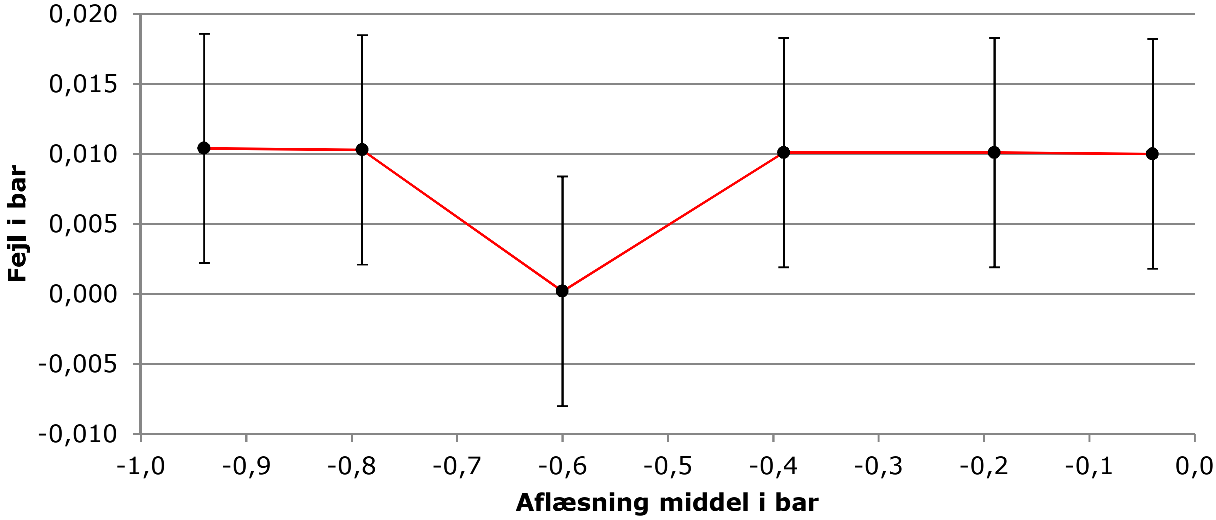
Reference middelværdi bar	Aflæsning middelværdi bar	Opløsning bar	Hysterese bar	Fejl bar	Usikkerhed bar
-0,0500	-0,0400	0,01	0,0000	0,0100	0,0082
-0,2001	-0,1900	0,01	0,0000	0,0101	0,0082
-0,4001	-0,3900	0,01	0,0000	0,0101	0,0082
-0,6002	-0,6000	0,01	0,0000	0,0002	0,0082
-0,8003	-0,7900	0,01	0,0000	0,0103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

KALIBRERINGSCERTIFIKAT

CERTIFIKATNR.:
200-P-24531

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

Antal bilag: 0

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
Mette Pedersen
Kvalitets & måletekniker

ilac-MRA DANAK
CAL Reg.nr. 200

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

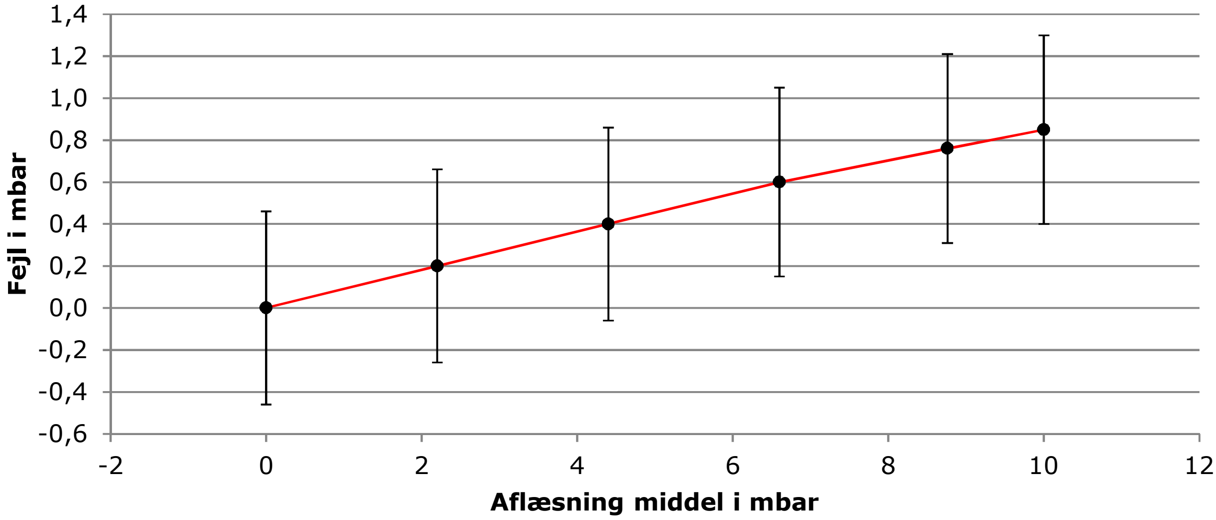
KALIBRERINGSCERTIFIKAT
Resultater

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

Antal bilag: 0

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

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

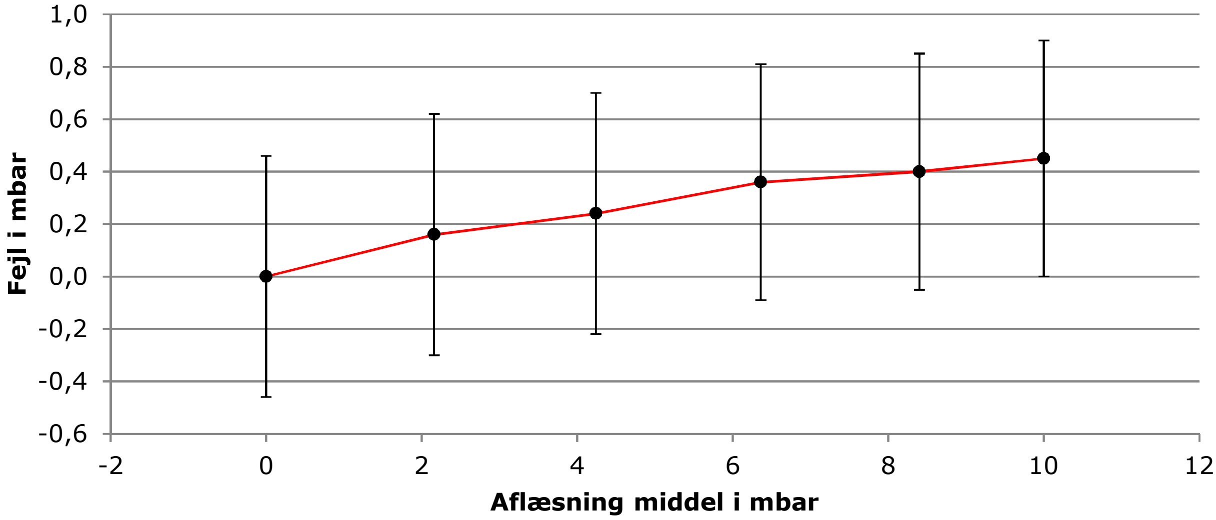
KALIBRERINGSCERTIFIKAT
Resultater

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.
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Prøvemedium:	Nitrogen
Rumtemperatur:	20,3 °C ± 0,3 °C
Relativ fugtighed:	62,1 %rh ± 4,2 %rh
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Sporbarhed:
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Kalibrering af løse termofølere i EPA stand E

Måleskema til kontrol af temofølere 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)

Manufacturer:	Morsø
Type:	6100B series
ELAB no.:	2381
Order number:	859499
Testdate:	43516,4
File Name:	3-44 Gld HF emi calc
Testrun:	HF run at valve fully open
Fil dato og tid (Start):	02-20-19 08:41:07

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 2,307 kg (wet basis)
FM_CPn 0 % (dry basis)

M_Cdb = Σ[(2,3) x (100 / (100 + 0))] kg (dry basis)

M_Cdb = 2,307 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 2,307 kg (dry basis)
V_C 0,02 m3

D_Cdb = 2,307 / 0,02 kg (dry) / m3

D_Cdb = 115,35 kg (dry) / m3

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

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

M_Sdb	0	kg (dry basis)
M_Cdb	2,307	kg (dry basis)

M_FTAdb = 0 + 2,307 kg (dry basis)

M_FTAdb = 2,307 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$Equation\,(5)$ $$BR = \frac{60 * M\_FTAdb}{\theta}$$

M_FTAdb	2,307	kg (dry basis)
θ	72,73	min

$$BR = \frac{60 \times 2,307}{73}$$

BR = 1,90312

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	2,78	mmVS	P_Dynamisk	27,30	Pa			
T_s	296,60	K	T_Kanal	23,60	°C			
P_s	760,16	mmHg	P_s	101354	Pa	Ps_Tryk	-126	Pa
M_s	29,00	g/g mole						

$$V\_s = 1,00 \times 34,97 \times 0,99 \times (2,78)^{0,5} \times \left(\frac{296,60}{760,16 \times 29,00}\right)^{0,5}$$

V_s = 6,70 m/s (V_scent)

Pitot tube factor for center:

E2515

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

V_strav	6,39	m/s	(Average)
V_scent	6,70	m/s	(Average)

$$F\_p = \frac{6,39}{6,70}$$

F_p = 0,9540 -

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	0,9540	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,86	mmVS	P_Dynamisk	28,04	Pa
T_s	305,73	K			
P_s	760,13	mmHg			
M_s	29,00	g/g mole			

$$V\_s = 0{,}9540 \times 34{,}97 \times 0{,}99 \times (2{,}86)^{0,5} \times \left(\frac{305{,}73}{760{,}13 \times 29{,}00}\right)^{0,5}$$

V_s = 6,58 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	6,57639	m/s						
A	0,017671	m2						
T_std	293	K						
P_s	760,1318	mmHg	P_s	####	Pa	Ps_Tryk	###	Pa
T_s	305,7267	K	T_Kanal	32,7	°C			
P_std	760	mmHg						

$$Q\_std = 60 \times (1 - 0{,}02) \times 6{,}6 \times 0 \times \left(\frac{293 \times 760}{305{,}73 \times 760}\right)$$

Q_std = 6,55008 dscm/min

Measurements sample train 1 entire 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	0,49262	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	72,73333	min			

V_mc = 0,49262 - (0 - 0) x 73

V_mc = 0,49262 dscm

V_mc(std) = 0,3855 x 0,49262 x 0,999 x $\left(\frac{760 + \frac{0}{13{,}6}}{273} \right)$

V_mc(std) = 0,52814 dscm

Equation (12) $m_n = m_p + m_f + m_g$

m_p	0	mg
m_f	-0,4	mg
m_g	1,6	mg

m_n = 0 + -0,4 + 1,6

m_n = 1,2 mg

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

K_2	0,001	g/mg
m_n	1,2	mg
V_m(std)	0,528143	dscm

C_s = 0,001 x $\frac{1{,}2}{0{,}52814}$

C_s = 0,00227 g/dscm

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

c_s	0,002272	g/dscm
c_r	0,000435	g/dscm
Q_std	6,550084	dscm/min
θ	72,73333	min

E_T = (0 - 0) x 6,6 x 73

E_T = 0,87508 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	0,40399	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 = 0,40399 - (0 - 0) x 60

V_mc = 0,40399 dcm

$$V\_mc(std) = 0{,}3855 \times 0{,}40399 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,43317 dscm

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

m_p	0,1	mg
m_f	-1,6	mg
m_g	2,3	mg

m_n = 0,1 + -1,6 + 2,3

m_n = 0,8 mg

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

K_2	0,001	g/mg
m_n	0,8	mg
V_m(std)	0,433166	dscm

$$C\_s = 0{,}001 \times \frac{0{,}8}{0{,}43317}$$

C_s = 0,00185 g/dscm

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

c_s	0,001847	g/dscm
c_r	0,000435	g/dscm
Q_std	6,550084	dscm/min
θ	60	min

E_T = (0 - 0) x 6,6 x 60

E_T = 0,55476 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	0,0891	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	12,73333	min			

V_mc = 0,0891 - (0 - 0) x 13

V_mc = 0,0891 dcm

$$V\_mc(std) = 0,3855 \times 0,0891 \times 0,9991 \times \left(\frac{760 + \frac{0}{13,6}}{273}\right)$$

V_mc(std) = 0,09553 dscm

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

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

m_n = 0,1 + -1 + 1,2

m_n = 0,3 mg

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

K_2	0,001	g/mg
m_n	0,3	mg
V_m(std)	0,095535	dscm

$$C\_s = 0,001 \times \frac{0,3}{0,09553}$$

C_s = 0,00314 g/dscm

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

c_s	0,00314	g/dscm
c_r	0,000435	g/dscm
Q_std	6,550084	dscm/min
θ	12,73333	min

E_T = (0 - 0) x 6,6 x 13

E_T = 0,2256 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	0,463574	dcm			
Y	1	Gasmåler Faktor			
P_bar	761,1609	mmHg	P_bar	1014,8	mBar
Delta_H	0	mmVS			
T_m	296,0454	K	T_Gasmåler	23,0454	°C

$$V\_mr(std) = 0,3855 \times 0,46357 \times 1 \times \left(\frac{761,2 + \frac{0}{13,6}}{296} \right)$$

V_mr(std) = 0,45948 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)	0,459475	dscm

$$C\_r = 0,001 \times \frac{0,2}{0,45948}$$

C_r = 0,00044 g/dscm

Proportional Rate first 10 minutes
E2515

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

θ	72,73	min
V_mi	67,51048	l
V_s	6,58	m/s
T_m	299,7693	K
T_si	299,7172	K
V_m	492,62	l
V_si	6,86	m/s
T_s	305,7267	K
T_mi	299,0813	K

$$PR = \frac{72{,}73 \times (67{,}5 \times 6{,}58 \times 299{,}8 \times 300)}{10 \times (493 \times 6{,}86 \times 305{,}7 \times 299)} \times 100$$

PR = 93,9607 -

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:	Morsø
Type:	6100 B
ELAB no.:	2381
Order number:	859499
Testdate:	43516,4
File Name:	3-44 Gld MF ber
Testrun:	MF kørt ved spj konstant 10 mm åben
Fil dato og tid (Start):	02-20-19 08:41:07

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 2,695 kg (wet basis)
FM_CPn 21,6545 % (dry basis)

M_Cdb = Σ[(2,7) x (100 / (100 + 22))] kg (dry basis)

M_Cdb = 2,21529 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 2,21529 kg (dry basis)
V_C 0,02 m3

D_Cdb = 2,21529 / 0,02 kg (dry) / m3

D_Cdb = 110,765 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	2,21529	kg (dry basis)

M_FTAdb = 0 + 2,21529 kg (dry basis)

M_FTAdb = 2,21529 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\,(5) \qquad BR = \frac{60 * M\_FTAdb}{\theta}$$

M_FTAdb	2,21529	kg (dry basis)
θ	106,00	min

$$BR = \frac{60 \quad x \quad 2,21529}{106}$$

BR = 1,25394

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	2,78	mmVS	P_Dynamisk	27,30	Pa		
T_s	296,63	K	T_Kanal	23,63	°C		
P_s	760,49	mmHg	P_s	101399	Pa	Ps_Tryk	-126 Pa
M_s	29,00	g/g mole					

$$V\_s = 1{,}00 \times 34{,}97 \times 0{,}99 \times \left(2{,}78 \right)^{0,5} \times \left(\frac{296{,}63}{760{,}49 \times 29{,}00} \right)^{0,5}$$

V_s = 6,70 m/s (V_scent)

Pitot tube factor for center:

E2515

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

V_strav	6,39	m/s	(Average)
V_scent	6,70	m/s	(Average)

$$F\_p = \frac{6{,}39}{6{,}70}$$

F_p = 0,9540 -

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	0,9540	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,86	mmVS	P_Dynamisk	28,04	Pa
T_s	306,21	K			
P_s	760,47	mmHg			
M_s	29,00	g/g mole			

$$V\_s = 0{,}9540 \times 34{,}97 \times 0{,}99 \times (2{,}86)^{0,5} \times \left(\frac{306{,}21}{760{,}47 \times 29{,}00}\right)^{0,5}$$

V_s = 6,58 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	6,580075	m/s					
A	0,017671	m2					
T_std	293	K					
P_s	760,4708	mmHg	P_s	####	Pa	Ps_Tryk	### Pa
T_s	306,2122	K	T_Kanal	33,2	°C		
P_std	760	mmHg					

$$Q\_std = 60 \times (1 - 0{,}02) \times 6{,}6 \times 0 \times \left(\frac{293 \times 760}{306{,}21 \times 760}\right)$$

Q_std = 6,54628 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	0,70187	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	106	min			

V_mc = 0,70187 - (0 - 0) x 106

V_mc = 0,70187 dscm

$$V\_mc(std) = 0{,}3855 \times 0{,}70187 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,75248 dscm

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

m_p	0	mg
m_f	-1,3	mg
m_g	2,8	mg

m_n = 0 + -1,3 + 2,8

m_n = 1,5 mg

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

K_2	0,001	g/mg
m_n	1,5	mg
V_m(std)	0,752483	dscm

$$C\_s = 0{,}001 \times \frac{1{,}5}{0{,}75248}$$

C_s = 0,00199 g/dscm

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

c_s	0,001993	g/dscm
c_r	0,000303	g/dscm
Q_std	6,546281	dscm/min
θ	106	min

E_T = (0 - 0) x 6,5 x 106

E_T = 1,1727 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	0,39236	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 = 0,39236 - (0 - 0) x 60

V_mc = 0,39236 dcm

$$V\_mc(std) = 0{,}3855 \times 0{,}39236 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,4207 dscm

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

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

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

m_n = 1 mg

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

K_2	0,001	g/mg
m_n	1	mg
V_m(std)	0,420696	dscm

$$C\_s = 0{,}001 \times \frac{1}{0{,}4207}$$

C_s = 0,00238 g/dscm

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

c_s	0,002377	g/dscm
c_r	0,000303	g/dscm
Q_std	6,546281	dscm/min
θ	60	min

E_T = (0 - 0) x 6,5 x 60

E_T = 0,81447 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	0,3124	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	46	min			

V_mc = 0,3124 - (0 - 0) x 46

V_mc = 0,3124 dcm

$$\text{V\_mc(std)} = 0{,}3855 \times 0{,}3124 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,33496 dscm

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

m_p	0	mg
m_f	-1,1	mg
m_g	1,6	mg

m_n = 0 + -1,1 + 1,6

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)	0,334961	dscm

$$\text{C\_s} = 0{,}001 \times \frac{0{,}5}{0{,}33496}$$

C_s = 0,00149 g/dscm

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

c_s	0,001493	g/dscm
c_r	0,000303	g/dscm
Q_std	6,546281	dscm/min
θ	46	min

E_T = (0 - 0) x 6,5 x 46

E_T = 0,35814 g

Room blanc
E2515

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

K_1	0,3855	K/mmHg			
V_mr	0,670281	dcm			
Y	1	Gasmåler Faktor			
P_bar	761,4984	mmHg	P_bar	1015,25	mBar
Delta_H	0	mmVS			
T_m	298,4953	K	T_Gasmåler	25,4953	°C

$$V\_mr(std) = 0,3855 \times 0,67028 \times 1 \times \left(\frac{761,5 + \frac{0}{13,6}}{298}\right)$$

V_mr(std) = 0,65919 dscm

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

K_2	0,001	g/mg
m_r	0,2	mg
V_m_r(std)	0,659194	dscm

$$C\_r = 0,001 \times \frac{0,2}{0,65919}$$

C_r = 0,0003 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	106,00	min
V_mi	64,86636	l
V_s	6,58	m/s
T_m	302,218	K
T_si	316,2825	K
V_m	701,87	l
V_si	7,00	m/s
T_s	306,2122	K
T_mi	301,2925	K

$$PR = \frac{106{,}00 \times (64{,}9 \times 6{,}58 \times 302{,}2 \times 316)}{10 \times (702 \times 7{,}00 \times 306{,}2 \times 301)} \times 100$$

PR = 95,4242 -

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:	Morsø
Type:	6100B
ELAB no.:	2381
Order number:	859499
Testdate:	43517,4
File Name:	3-44 Dummy HF calc
Testrun:	High Fire run af valve fully open - no emi measurements
Fil dato og tid (Start):	43517,4

Weight of test fuel spacers, dry basis, kg
E2780

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

M_swb	#N/A	kg (wet basis)
FM_s	#N/A	% (dry basis)

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

M_sbd = #N/A 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	#N/A	kg (wet basis)
FM_CPn	#N/A	% (dry basis)

M_Cdb = Σ[(###) x (100 / (100 + ###))] kg (dry basis)

M_Cdb = #N/A 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	#N/A	kg (dry basis)
V_C	#N/A	m3

D_Cdb = #N/A / #N/A kg (dry) / m3

D_Cdb = #N/A 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	#N/A	kg (dry basis)
M_Cdb	#N/A	kg (dry basis)

M_FTAdb = #N/A + #N/A kg (dry basis)

M_FTAdb = #N/A kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\,(5) \qquad BR = \frac{60 * M\_FTAdb}{\theta}$$

M_FTAdb	#N/A	kg (dry basis)
θ	86,92	min

$$BR = \frac{60 \quad x \quad \#N/A}{87}$$

BR = #N/A

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	#N/A	mmVS	P_Dynamisk	#N/A	Pa		
T_s	#N/A	K	T_Kanal	#N/A	°C		
P_s	#N/A	mmHg	P_s	#N/A	Pa	Ps_Tryk	### Pa
M_s	29,00	g/g mole					

V_s = 1,00 x 34,97 x 0,99 x (#N/A) 0,5 x (#N/A / (#N/A x 29,00)) 0,5

V_s = #N/A m/s (V_scent)

Pitot tube factor for center:

E2515

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

V_strav	#N/A	m/s	(Average)
V_scent	#N/A	m/s	(Average)

F_p = #N/A / #N/A

F_p = #N/A -

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	#N/A	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,83	mmVS	P_Dynamisk	27,73	Pa
T_s	305,48	K			
P_s	#N/A	mmHg			
M_s	29,00	g/g mole			

V_s = #N/A x 34,97 x 0,99 x (2,83) 0,5 x (305,48 / (#N/A x 29,00)) 0,5

V_s = #N/A 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	#N/A	m/s						
A	0,017671	m2						
T_std	293	K						
P_s	#N/A	mmHg	P_s	#N/A	Pa	Ps_Tryk	###	Pa
T_s	305,4779	K	T_Kanal	32,5	°C			
P_std	760	mmHg						

Q_std = 60 x (1 - 0,02) x ### x 0 x ((293 x ###) / (305,48 x 760))

Q_std = #N/A dscm/min

Measurements sample train 1 entire 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	#N/A	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	86,91667	min			

V_mc = #N/A - (0 - 0) x 87

V_mc = #N/A dscm

V_mc(std) = 0,3855 x #N/A x 0,999 x $\left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$

V_mc(std) = #N/A dscm

Equation (12) $m_n = m_p + m_f + m_g$

m_p	0	mg
m_f	0	mg
m_g	0	mg

m_n = 0 + 0 + 0

m_n = 0 mg

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

K_2	0,001	g/mg
m_n	0	mg
V_m(std)	#N/A	dscm

C_s = 0,001 x $\frac{0}{\#N/A}$

C_s = #N/A g/dscm

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

c_s	#N/A	g/dscm
c_r	#N/A	g/dscm
Q_std	#N/A	dscm/min
θ	86,91667	min

E_T = (### - #N/A) x ### x 87

E_T = #N/A 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	#N/A	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 = #N/A - (0 - 0) x 60

V_mc = #N/A dcm

$$V\_mc(std) = 0{,}3855 \times \#N/A \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = #N/A dscm

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

m_p	0	mg
m_f	0	mg
m_g	0	mg

m_n = 0 + 0 + 0

m_n = 0 mg

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

K_2	0,001	g/mg
m_n	0	mg
V_m(std)	#N/A	dscm

$$C\_s = 0{,}001 \times \frac{0}{\#N/A}$$

C_s = #N/A g/dscm

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

c_s	#N/A	g/dscm
c_r	#N/A	g/dscm
Q_std	#N/A	dscm/min
θ	60	min

E_T = (### - #N/A) x ### x 60

E_T = #N/A 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	#N/A	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	26,91667	min			

V_mc = #N/A - (0 - 0) x 27

V_mc = #N/A dcm

$$V\_mc(std) = 0{,}3855 \times \#N/A \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = #N/A dscm

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

m_p	0	mg
m_f	0	mg
m_g	0	mg

m_n = 0 + 0 + 0

m_n = 0 mg

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

K_2	0,001	g/mg
m_n	0	mg
V_m(std)	#N/A	dscm

$$C\_s = 0{,}001 \times \frac{0}{\#N/A}$$

C_s = #N/A g/dscm

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

c_s	#N/A	g/dscm
c_r	#N/A	g/dscm
Q_std	#N/A	dscm/min
θ	26,91667	min

E_T = (### - #N/A) x ### x 27

E_T = #N/A g

Room blanc

E2515

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

K_1	0,3855	K/mmHg			
V_mr	#N/A	dcm			
Y	1	Gasmåler Faktor			
P_bar	#N/A	mmHg	P_bar	#N/A	mBar
Delta_H	0	mmVS			
T_m	#N/A	K	T_Gasmåler	#N/A	°C

$$V\_mr(std) = 0,3855 \quad x \quad \#N/A \quad x \quad 1 \quad x \left(\frac{\#N/A + \frac{0}{13,6}}{\#\#\#}\right)$$

V_mr(std) = #N/A dscm

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

K_2	0,001	g/mg
m_r	0	mg
V_m_r(std)	#N/A	dscm

$$C\_r = 0,001 \quad x \quad \frac{0}{\#N/A}$$

C_r = #N/A 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	86,92	min
V_mi	3,422309	l
V_s	#N/A	m/s
T_m	#N/A	K
T_si	298,9379	K
V_m	#N/A	l
V_si	#N/A	m/s
T_s	305,4779	K
T_mi	298,6851	K

$$PR = \frac{86{,}92 \times (3{,}42 \times \#N/A \times \#N/A \times 299)}{10 \times (\#N/A \times \#N/A \times 305{,}5 \times 299)} \times 100$$

PR = #N/A -

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:	Morsø
Type:	6100 B
ELAB no.:	2381
Order number:	859499
Testdate:	43517,4
File Name:	3-44 Gld LF calc
Testrun:	Air valve at 8 mm after 2 min at fully open and another 5½ min at 10 mm open
Fil dato og tid (Start):	02-21-19 08:45:40

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	2,806	kg (wet basis)
FM_CPn	21,50668	% (dry basis)

M_Cdb = Σ[(2,8) x (100 / (100 + 22))] kg (dry basis)

M_Cdb = 2,30934 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	2,309338	kg (dry basis)
V_C	0,02	m3

D_Cdb = 2,30934 / 0,02 kg (dry) / m3

D_Cdb = 115,467 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	2,309338	kg (dry basis)

M_FTAdb = 0 + 2,30934 kg (dry basis)

M_FTAdb = 2,30934 kg (dry basis)

Burn rate, kg (dry/h)
E2780

$$Equation\,(5) \qquad BR = \frac{60 * M\_FTAdb}{\theta}$$

M_FTAdb	2,309338	kg (dry basis)
θ	146,17	min

$$BR = \frac{60 \quad x \quad 2,30934}{146}$$

BR = 0,94796

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	2,80	mmVS	P_Dynamisk	27,50	Pa			
T_s	296,90	K	T_Kanal	23,90	°C			
P_s	761,88	mmHg	P_s	101584	Pa	Ps_Tryk	-126	Pa
M_s	29,00	g/g mole						

$$V\_s = 1,00 \times 34,97 \times 0,99 \times (2,80)^{0,5} \times \left(\frac{296,90}{761,88 \times 29,00}\right)^{0,5}$$

V_s = 6,72 m/s (V_scent)

Pitot tube factor for center:

E2515

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

V_strav	6,37	m/s	(Average)
V_scent	6,72	m/s	(Average)

$$F\_p = \frac{6,37}{6,72}$$

F_p = 0,9475 -

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	0,9475	-			
K_p	34,97	-			
C_p	0,99	-			
Delta P_avg	2,84	mmVS	P_Dynamisk	27,86	Pa
T_s	304,12	K			
P_s	761,86	mmHg			
M_s	29,00	g/g mole			

$$V\_s = 0{,}9475 \times 34{,}97 \times 0{,}99 \times (2{,}84)^{0{,}5} \times \left(\frac{304{,}12}{761{,}86 \times 29{,}00}\right)^{0{,}5}$$

V_s = 6,49 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	6,486504	m/s						
A	0,017671	m2						
T_std	293	K						
P_s	761,8647	mmHg	P_s	####	Pa	Ps_Tryk	###	Pa
T_s	304,1221	K	T_Kanal	31,1	°C			
P_std	760	mmHg						

$$Q\_std = 60 \times (1 - 0{,}02) \times 6{,}5 \times 0 \times \left(\frac{293 \times 762}{304{,}12 \times 760}\right)$$

Q_std = 6,50945 dscm/min

Measurements sample train 1 entire 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	0,96972	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	146,1667	min			

V_mc = 0,96972 - (0 - 0) x 146

V_mc = 0,96972 dscm

V_mc(std) = $0{,}3855 \times 0{,}96972 \times 0{,}999 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$

V_mc(std) = 1,03965 dscm

Equation (12) $m_n = m_p + m_f + m_g$

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

m_n = 0 + 1,6 + 0,4

m_n = 2 mg

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

K_2	0,001	g/mg
m_n	2	mg
V_m(std)	1,039648	dscm

C_s = $0{,}001 \times \frac{2}{1{,}03965}$

C_s = 0,00192 g/dscm

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

c_s	0,001924	g/dscm
c_r	0,000109	g/dscm
Q_std	6,50945	dscm/min
θ	146,1667	min

E_T = (0 - 0) x 6,5 x 146

E_T = 1,72622 g

Measurements sample train 2 first hour 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	0,41522	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 = 0,41522 - (0 - 0) x 60

V_mc = 0,41522 dcm

$$V\_mc(std) = 0{,}3855 \times 0{,}41522 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,44521 dscm

Equation (12) $m_n = m_p + m_f + m_g$

m_p	0,1	mg
m_f	1,9	mg
m_g	-0,2	mg

m_n = 0,1 + 1,9 + -0,2

m_n = 1,8 mg

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

K_2	0,001	g/mg
m_n	1,8	mg
V_m(std)	0,445207	dscm

$$C\_s = 0{,}001 \times \frac{1{,}8}{0{,}44521}$$

C_s = 0,00404 g/dscm

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

c_s	0,004043	g/dscm
c_r	0,000109	g/dscm
Q_std	6,50945	dscm/min
θ	60	min

E_T = (0 - 0) x 6,5 x 60

E_T = 1,53634 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	0,55766 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	86,16667 min			

V_mc = 0,55766 - (0 - 0) x 86

V_mc = 0,55766 dcm

$$V\_mc(std) = 0{,}3855 \times 0{,}55766 \times 0{,}9991 \times \left(\frac{760 + \frac{0}{13{,}6}}{273}\right)$$

V_mc(std) = 0,59793 dscm

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

m_p	0 mg
m_f	0 mg
m_g	0,1 mg

m_n = 0 + 0 + 0,1

m_n = 0,1 mg

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

K_2	0,001 g/mg
m_n	0,1 mg
V_m(std)	0,597933 dscm

$$C\_s = 0{,}001 \times \frac{0{,}1}{0{,}59793}$$

C_s = 0,00017 g/dscm

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

c_s	0,000167 g/dscm
c_r	0,000109 g/dscm
Q_std	6,50945 dscm/min
θ	86,16667 min

E_T = (0 - 0) x 6,5 x 86

E_T = 0,03241 g

Room blanc
E2515

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

K_1	0,3855	K/mmHg			
V_mr	0,925627	dcm			
Y	1	Gasmåler Faktor			
P_bar	762,886	mmHg	P_bar	1017,1	mBar
Delta_H	0	mmVS			
T_m	297,9563	K	T_Gasmåler	24,9563	°C

$$V\_mr(std) = 0{,}3855 \times 0{,}92563 \times 1 \times \left(\frac{762{,}9 + \frac{0}{13{,}6}}{298} \right)$$

V_mr(std) = 0,91362 dscm

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

K_2	0,001	g/mg
m_r	0,1	mg
V_m_r(std)	0,913624	dscm

$$C\_r = 0{,}001 \times \frac{0{,}1}{0{,}91362}$$

C_r = 0,00011 g/dscm

Proportional Rate first 10 minutes
E2515

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

θ	146,17	min
V_mi	63,64054	l
V_s	6,49	m/s
T_m	301,7455	K
T_si	309,7652	K
V_m	969,72	l
V_si	6,85	m/s
T_s	304,1221	K
T_mi	300,5081	K

$$PR = \frac{146,17 \times (63,6 \times 6,49 \times 301,7 \times 310)}{10 \times (970 \times 6,85 \times 304,1 \times 301)} \times 100$$

PR = 92,8419 -

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

Datotid	Scantid	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]
		1	2	3
Datotid	Scantime	Ambient temperature	Main train filter temp	Split train 1H filter temp
20-02-2019 11:05:39	3,066	23,214594	26,582395	26,476657
20-02-2019 11:06:09	3,066	23,204046	26,690639	26,49249
20-02-2019 11:06:39	3,066	23,290998	26,825128	26,609872
20-02-2019 11:07:09	3,065	23,29101	26,859439	26,661354
20-02-2019 11:07:39	3,067	23,272527	26,8911	26,685117
20-02-2019 11:08:09	3,066	23,301557	26,951803	26,664016
20-02-2019 11:08:39	3,066	23,401672	26,997821	26,764202
20-02-2019 11:09:09	3,067	23,338369	27,001793	26,748354
20-02-2019 11:09:39	3,066	23,44128	26,993887	26,777383
20-02-2019 11:10:09	3,067	23,417532	26,996523	26,774747
20-02-2019 11:10:39	3,067	23,514907	27,204694	26,905237
20-02-2019 11:11:09	3,066	23,520279	27,202118	27,076749
20-02-2019 11:11:39	3,067	23,57834	27,318155	27,14138
20-02-2019 11:12:09	3,066	23,559869	27,328689	27,236326
20-02-2019 11:12:39	3,065	23,689085	27,436742	27,271902
20-02-2019 11:13:09	3,067	23,654596	27,547262	27,464208
20-02-2019 11:13:39	3,066	23,712608	27,59996	27,482639
20-02-2019 11:14:09	3,066	23,720592	27,651403	27,547245
20-02-2019 11:14:39	3,067	23,628347	27,626392	27,57887
20-02-2019 11:15:09	3,067	23,47005	27,652738	27,589426
20-02-2019 11:15:39	3,067	23,628137	27,772436	27,713113
20-02-2019 11:16:09	3,066	23,646577	27,858018	27,703874
20-02-2019 11:16:39	3,067	23,583294	27,85144	27,715738
20-02-2019 11:17:09	3,066	23,572837	27,818571	27,739484
20-02-2019 11:17:39	3,064	23,575386	27,919889	27,743398
20-02-2019 11:18:09	3,065	23,849527	28,002742	27,840759
20-02-2019 11:18:39	3,066	23,820531	28,026437	27,853937
20-02-2019 11:19:09	3,066	23,90488	28,04224	27,896055
20-02-2019 11:19:39	3,066	23,63599	28,069917	27,906629
20-02-2019 11:20:09	3,066	23,836256	28,171117	28,077648
20-02-2019 11:20:39	3,067	23,997036	28,24743	28,103967
20-02-2019 11:21:09	3,066	24,118255	28,27111	28,217121
20-02-2019 11:21:39	3,066	23,904779	28,310564	28,282911
20-02-2019 11:22:09	3,066	24,126154	28,411848	28,324985
20-02-2019 11:22:39	3,066	24,170854	28,513044	28,390691
20-02-2019 11:23:09	3,066	24,033855	28,513044	28,474872
20-02-2019 11:23:39	3,066	23,89418	29,175262	28,8157
20-02-2019 11:24:09	3,067	24,033855	29,883783	29,765115
20-02-2019 11:24:39	3,068	24,107637	30,242864	30,165805
20-02-2019 11:25:09	3,065	24,16024	30,689344	30,67465
20-02-2019 11:25:39	3,066	24,023241	31,038692	31,08896
20-02-2019 11:26:09	3,067	23,986356	31,524997	31,718252
20-02-2019 11:26:39	3,066	24,033794	31,692199	31,903478

20-02-2019 11:27:09	3,066	24,215482	31,608537	31,705156
20-02-2019 11:27:39	3,066	24,170719	31,447837	31,401054
20-02-2019 11:28:09	3,066	24,223405	31,294914	31,317301
20-02-2019 11:28:39	3,067	24,144376	31,17465	31,16871
20-02-2019 11:29:09	3,066	24,326084	31,135376	31,099431
20-02-2019 11:29:39	3,066	24,37869	31,09087	30,990893
20-02-2019 11:30:09	3,066	24,333976	30,982338	30,871953
20-02-2019 11:30:39	3,066	24,178575	30,952274	30,734643
20-02-2019 11:31:09	3,065	24,141677	30,889474	30,721555
20-02-2019 11:31:39	3,067	24,344438	30,952205	30,716277
20-02-2019 11:32:09	3,066	24,357593	30,923427	30,674432
20-02-2019 11:32:39	3,067	24,283899	30,837103	30,593335
20-02-2019 11:33:09	3,067	24,328659	30,789981	30,598565
20-02-2019 11:33:40	3,066	24,383909	30,878913	30,648242
20-02-2019 11:34:10	3,066	24,318063	30,868457	30,593299
20-02-2019 11:34:40	3,066	24,328622	30,87107	30,614815
20-02-2019 11:35:10	3,065	24,162666	30,874998	30,63312
20-02-2019 11:35:40	3,067	24,362829	30,899835	30,703755
20-02-2019 11:36:10	3,068	24,391792	30,915544	30,727309
20-02-2019 11:36:40	3,068	24,252208	30,948259	30,67236
20-02-2019 11:37:10	3,067	24,29433	30,905075	30,766564
20-02-2019 11:37:40	3,067	24,252195	30,988786	30,800576
20-02-2019 11:38:10	3,066	24,299606	30,973106	30,79271
20-02-2019 11:38:40	3,067	24,399681	30,973106	30,824097
20-02-2019 11:39:10	3,066	24,491827	31,067266	30,84243
20-02-2019 11:39:40	3,066	24,544475	31,017564	30,886881
20-02-2019 11:40:10	3,065	24,428625	31,030655	30,86859
20-02-2019 11:40:40	3,066	24,415474	31,056812	30,860724
20-02-2019 11:41:10	3,067	24,426006	31,101291	30,886912
20-02-2019 11:41:40	3,067	24,415462	31,059433	30,894749
20-02-2019 11:42:10	3,066	24,215326	31,077753	30,934595
20-02-2019 11:42:40	3,067	24,394432	31,149711	30,989553
20-02-2019 11:43:10	3,065	24,555006	31,072521	30,981695
20-02-2019 11:43:40	3,066	24,20743	31,075136	30,994781
20-02-2019 11:44:10	3,066	24,236415	31,094776	30,997408
20-02-2019 11:44:40	3,066	24,420808	31,173267	31,096823
20-02-2019 11:45:10	3,067	24,457628	31,130104	31,07851
20-02-2019 11:45:40	3,067	24,315445	31,127489	31,057583
20-02-2019 11:46:10	3,065	24,381328	31,230833	31,109953
20-02-2019 11:46:40	3,066	24,481359	31,237373	31,098164
20-02-2019 11:47:10	3,066	24,431339	31,245201	31,099459
20-02-2019 11:47:40	3,066	24,536644	31,190292	31,112547
20-02-2019 11:48:10	3,067	24,634119	31,300184	31,217207
20-02-2019 11:48:40	3,067	24,486646	31,247856	31,170099
20-02-2019 11:49:10	3,067	24,641948	31,203397	31,109968
20-02-2019 11:49:40	3,067	24,692045	31,302864	31,198971
20-02-2019 11:50:10	3,066	24,621008	31,266246	31,196337
20-02-2019 11:50:40	3,066	24,494596	31,263603	31,185863

20-02-2019 11:51:10	3,066	24,589397	31,31722	31,209421
20-02-2019 11:51:40	3,065	24,705263	31,363063	31,282677
20-02-2019 11:52:10	3,067	24,576259	31,343399	31,235603
20-02-2019 11:52:40	3,067	24,515722	31,323783	31,356506
20-02-2019 11:53:10	3,066	24,650072	31,429758	31,419344
20-02-2019 11:53:40	3,065	24,600076	31,459838	31,427206
20-02-2019 11:54:10	3,065	24,634225	31,40752	31,41148
20-02-2019 11:54:40	3,066	24,697376	31,399662	31,372261
20-02-2019 11:55:10	3,066	24,742263	31,514806	31,471719
20-02-2019 11:55:40	3,067	24,800142	31,512197	31,453416
20-02-2019 11:56:10	3,065	24,655344	31,428499	31,411544
20-02-2019 11:56:40	3,066	24,663328	31,504373	31,453451
20-02-2019 11:57:10	3,067	24,666046	31,548874	31,500566
20-02-2019 11:57:40	3,067	24,697584	31,527931	31,456121
20-02-2019 11:58:10	3,067	24,644891	31,501762	31,429922
20-02-2019 11:58:40	3,066	24,660863	31,601217	31,511119
20-02-2019 11:59:10	3,067	24,689809	31,577695	31,526786
20-02-2019 11:59:40	3,066	24,613409	31,514928	31,500602
20-02-2019 12:00:10	3,066	24,716161	31,585592	31,560814
20-02-2019 12:00:40	3,066	24,729383	31,622238	31,623592
20-02-2019 12:01:10	3,066	24,763603	31,624849	31,618345
20-02-2019 12:01:40	3,067	24,852928	31,585565	31,571254
20-02-2019 12:02:10	3,066	24,863617	31,641891	31,624954
20-02-2019 12:02:40	3,067	24,824207	31,70593	31,634161
20-02-2019 12:03:10	3,066	24,863634	31,682403	31,618461
20-02-2019 12:03:40	3,067	24,800489	31,657571	31,615825
20-02-2019 12:04:10	3,066	24,858528	31,729578	31,67869
20-02-2019 12:04:40	3,067	24,90588	31,75048	31,69788767
20-02-2019 12:05:10	3,066	24,719003	31,733406	31,72800217
20-02-2019 12:05:40	3,066	24,579708	31,793659	
20-02-2019 12:06:10	3,067	24,669229	31,776716	
20-02-2019 12:06:40	3,066	24,713947	31,750597	
20-02-2019 12:07:10	3,067	24,666463	31,693033	
20-02-2019 12:07:40	3,067	24,861438	31,795154	
20-02-2019 12:08:10	3,067	24,924556	31,789909	
20-02-2019 12:08:40	3,066	24,845575	31,799005	
20-02-2019 12:09:10	3,065	25,032381	31,776859	
20-02-2019 12:09:40	3,066	25,203415	31,889307	
20-02-2019 12:10:10	3,067	24,83789	31,881456	
20-02-2019 12:10:40	3,067	24,82467	31,823955	
20-02-2019 12:11:10	3,067	24,914255	31,882858	
20-02-2019 12:11:40	3,067	24,872242	31,884229	
20-02-2019 12:12:10	3,066	24,906427	31,860727	
20-02-2019 12:12:40	3,066	24,658968	31,808391	
20-02-2019 12:13:10	3,066	24,782951	31,918342	
20-02-2019 12:13:40	3,066	24,964456	31,866119	
20-02-2019 12:14:10	3,066	24,77767	31,896129	
20-02-2019 12:14:40	3,066	24,980074	31,842498	

20-02-2019 12:15:10	3,066	25,077701	31,942457
20-02-2019 12:15:40	3,066	25,067196	31,931566
20-02-2019 12:16:10	3,067	25,011919	31,930215
20-02-2019 12:16:40	3,066	24,780443	31,941285
20-02-2019 12:17:10	3,067	24,951658	31,944981
20-02-2019 12:17:40	3,066	24,999002	31,946639

Filter-3-D2 - [°C]	Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]
4	5	6	7	8
Split train rem. filter temp	Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature
	23,031497	18,912717	21,185112	25,682593
	23,04733	18,416829	20,550635	25,989935
	23,115882	18,245977	20,17054	26,113272
	23,160783	18,067153	19,819458	26,131628
	23,152868	17,957694	19,540028	26,14477
	23,118545	17,880252	19,305693	26,123763
	23,233279	17,829429	19,168408	26,161755
	23,21878	17,786683	18,993878	26,147297
	23,258369	17,687862	18,855242	26,110556
	23,263669	17,65578	18,713929	26,110556
	23,304465	17,717151	18,596499	26,157765
	23,326934	17,647702	18,51113	26,115744
	23,30581	17,655709	18,393704	26,134125
	23,361242	17,588899	18,35635	26,063235
	23,355939	17,647674	18,230883	26,084227
	23,468028	17,658319	18,225499	26,084202
	23,502349	17,634269	18,193468	26,076332
	23,489139	17,647617	18,095988	26,080241
	23,508939	17,618228	18,073288	26,060538
	23,482553	17,620897	18,035885	26,05267
	23,568229	17,6716	18,046532	26,077568
	23,547124	17,711669	17,958369	26,092026
	23,573508	17,711669	17,934325	26,077578
	23,590667	17,679616	17,926325	26,044732
	23,573478	17,749053	17,871539	26,082802
	23,628852	17,74101	17,886204	26,078848
	23,602447	17,770391	17,84347	26,089341
	23,620921	17,757047	17,827427	26,073603
	23,599828	17,759717	17,807375	26,067025
	23,694741	17,778358	17,859455	26,081421
	23,681539	17,783696	17,808686	26,11557
	23,692105	17,756984	17,803349	26,081421
	23,715821	17,687516	17,819365	26,076178
	23,696037	17,722238	17,739195	26,111615
	23,750062	17,767629	17,741845	26,152291
	23,816003	17,711534	17,733834	26,12604
	23,808097	17,724879	17,696402	26,131283
	23,816003	17,730241	17,667002	26,136528
	23,818635	17,730241	17,634932	26,149668
	23,891092	17,815667	17,673659	26,208704
	23,876609	17,791652	17,610829	26,199507
	23,879245	17,796991	17,562727	26,17326
	23,873975	17,759578	17,498543	26,162768

23,913474	17,786287	17,519926	26,202128
23,922704	17,794284	17,507882	26,237545
23,88449	17,786277	17,474457	26,249377
23,895026	17,778272	17,447718	26,259861
23,931922	17,775575	17,466442	26,286103
23,979348	17,807618	17,486483	26,304469
23,985948	17,78894	17,502541	26,321522
23,937183	17,802282	17,47445	26,320219
23,975391	17,767545	17,46242	26,320225
24,01624	17,837001	17,473109	26,37007
24,005704	17,820966	17,470436	26,388443
24,003066	17,780915	17,471774	26,409436
24,041286	17,756877	17,499859	26,370076
24,090047	17,820979	17,513243	26,417298
24,042604	17,853023	17,454398	26,419943
23,995149	17,861026	17,466444	26,464539
24,020185	17,850347	17,51323	26,47896
24,063682	17,866384	17,49185	26,511776
24,066316	17,850373	17,478491	26,475037
24,022834	17,89042	17,485169	26,526196
24,113765	17,85304	17,560038	26,530163
24,097957	17,93583	17,465144	26,561625
24,116414	17,909129	17,470486	26,559002
24,126943	17,898456	17,459801	26,545903
24,153323	18,002631	17,489228	26,656065
24,182304	17,9519	17,521334	26,614121
24,177041	17,965236	17,513295	26,629841
24,142768	17,970571	17,443785	26,648205
24,190242	18,002649	17,50533	26,721657
24,208667	17,922546	17,526699	26,698077
24,169158	17,911876	17,467879	26,724299
24,229808	17,943944	17,50804	26,785954
24,211349	17,914575	17,521418	26,758412
24,208717	17,914575	17,51338	26,761053
24,224538	17,909259	17,513401	26,775486
24,266738	17,933337	17,52146	26,830563
24,24038	17,970708	17,51879	26,852862
24,248277	17,962705	17,545525	26,842362
24,295762	18,008123	17,564284	26,901396
24,274684	18,053537	17,553612	26,921072
24,264133	18,037511	17,484084	26,934163
24,279947	18,042844	17,470726	26,923689
24,362992	18,072286	17,532275	26,97354
24,337968	18,064283	17,48684	26,989273
24,308995	18,034921	17,49218	26,973544
24,389409	18,05368	17,583167	27,044361
24,370967	18,05368	17,59385	27,033894
24,345943	18,040319	17,604561	27,04963

	24,363088	18,05103	17,643353	27,098122
	24,413182	18,056443	17,676814	27,096861
	24,388156	18,067109	17,663462	27,111288
	24,385526	18,061776	17,687519	27,107367
	24,433006	18,139264	17,71698	27,158511
	24,413278	18,155292	17,684931	27,19126
	24,430373	18,139266	17,679594	27,199141
	24,398776	18,14729	17,663571	27,227955
	24,468684	18,20342	17,711745	27,25161
	24,492362	18,214107	17,698395	27,264716
	24,483146	18,187423	17,679711	27,283066
	24,512183	18,224845	17,711834	27,334185
	24,521434	18,270238	17,741267	27,359095
	24,47536	18,25691	17,70788	27,353859
	24,45164	18,270238	17,711901	27,359112
	24,550517	18,302385	17,778803	27,406338
	24,542627	18,254352	17,776133	27,374926
	24,517579	18,198314	17,744074	27,414225
	24,588762	18,241084	17,769541	27,435217
	24,605933	18,273172	17,760228	27,458838
	24,571691	18,2865	17,728163	27,4693
	24,56508	18,25715	17,733513	27,479802
	24,617847	18,281257	17,757662	27,533553
	24,621848	18,297309	17,736298	27,561053
	24,612628	18,283979	17,72163	27,568917
	24,620551	18,26798	17,739048	27,578127
	24,690421	18,305457	17,768521	27,618779
	24,666728	18,302791	17,784563	27,603066
	24,615359	18,340133	17,67541	27,630581
28,742881	24,673419	18,404302	17,699166	27,685643
29,16727	24,674773	18,380302	17,725918	27,70529
29,374732	24,677404	18,369641	17,768685	27,694834
29,532193	24,681331	18,353622	17,80345	27,684399
29,744937	24,730207	18,420497	17,886416	27,744694
29,815774	24,759155	18,396487	17,891755	27,723759
29,925901	24,674911	18,465823	17,855713	27,787888
29,969255	24,774987	18,449899	17,850441	27,781424
30,112245	24,7751	18,508661	17,795739	27,825974
30,172527	24,761928	18,554004	17,78773	27,839037
30,194804	24,735608	18,559333	17,78105	27,836451
30,286653	24,781783	18,594135	17,873364	27,8928
30,337794	24,780538	18,602191	17,884093	27,888926
30,350908	24,796312	18,570173	17,916146	27,878451
30,366561	24,75549	18,59151	17,88144	27,909884
30,474257	24,814925	18,645032	17,908314	27,96233
30,489928	24,817554	18,562377	17,945729	27,933564
30,527887	24,824107	18,530359	17,924353	27,955809
30,544873	24,816192	18,485038	17,937737	27,951914

30,668182	24,867723	18,530559	17,985993	28,033142
30,657718	24,878261	18,498563	17,95928	28,014836
30,690893	24,834821	18,522567	17,932566	28,044924
30,734682	24,859868	18,530624	17,958043	28,050251
30,770983	24,870557	18,528081	17,980843	28,093462
30,805911	24,888978	18,45609	18,002217	28,080401

Gasm-D - [°C]	Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C]
9	10	12	13	24
Split train dry gas meter temperature	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
25,434187	21,834449	6,684661	6,840445	79,09478
25,618184	21,876798	6,644834	6,825359	150,734116
25,698233	21,946899	6,610975	6,846077	164,758041
25,699547	21,932328	6,799044	6,852983	118,796753
25,715323	21,945552	6,777991	6,877857	111,683502
25,712696	21,950866	6,753988	6,888384	115,818069
25,763869	21,961393	6,712619	6,892876	120,663696
25,749409	21,971967	6,701356	6,885233	125,682373
25,752036	21,921666	6,68627	6,911583	127,989166
25,778305	21,91373	6,810509	6,926332	128,71579
25,774319	21,991779	6,900889	6,790427	130,457169
25,787436	21,991758	6,829886	6,798138	126,475098
25,780877	21,990428	6,814532	6,811414	126,843315
25,780877	21,942771	6,800787	6,794115	129,85466
25,755898	21,983821	6,7914	6,786069	132,36586
25,792645	22,010266	6,768537	6,788551	134,013031
25,808415	21,970548	6,753988	6,774269	136,983688
25,800511	22,04333	6,719995	6,775744	140,329803
25,76241	22,011565	6,746411	6,801759	143,949463
25,767683	22,022145	6,712284	6,783119	144,230804
25,805752	22,048597	6,72737	6,786472	146,942078
25,803101	22,079034	6,76143	6,794048	147,602295
25,774205	22,06446	6,719056	6,789154	148,883957
25,796515	22,075046	6,720397	6,801692	150,327408
25,799155	22,129277	6,705043	6,787075	153,696182
25,829338	22,116048	6,701221	6,68865	153,472366
25,795197	22,145152	6,69331	6,695958	153,957336
25,805695	22,131908	6,700618	6,699779	151,864426
25,81226	22,13984	6,708597	6,673497	154,008545
25,837189	22,17159	6,689622	6,693477	153,606155
25,852936	22,174236	6,674872	6,696025	153,648758
25,845061	22,179523	6,708597	6,688449	153,598236
25,852936	22,179523	6,686136	6,677252	153,029419
25,872624	22,248317	6,693712	6,703668	151,890564
25,915947	22,293266	6,674805	6,706551	151,658356
25,913325	22,264169	6,655964	6,66049	179,576859
25,915947	22,28267	6,620362	6,631659	247,243698
25,939585	22,287982	6,599577	6,595721	220,17067
25,9107	22,295909	6,609768	6,601554	226,478882
25,965836	22,389787	6,588112	6,607186	237,863602
25,971085	22,420203	6,542922	6,616774	270,300323
25,960593	22,3964	6,591867	6,647281	286,353943
25,952696	22,404351	6,592135	6,639436	247,838654

25,992093	22,414916	6,564176	6,631659	228,704468
26,018355	22,445325	6,588112	6,639369	211,870941
26,028853	22,451938	6,603198	6,635481	208,152557
26,047238	22,459865	6,55432	6,658747	204,39418
26,066925	22,471772	6,561829	6,647013	197,787888
26,083994	22,50217	6,697534	6,647013	195,913269
26,11549	22,516717	6,719794	6,718217	192,29689
26,118119	22,568286	6,700618	6,734175	190,657089
26,143055	22,552417	6,704976	6,723112	188,161652
26,173254	22,634381	6,719794	6,733236	188,66394
26,181124	22,63174	6,734209	6,688516	188,521912
26,223133	22,639665	6,72737	6,734912	188,260727
26,229697	22,637033	6,712553	6,722173	187,673813
26,272993	22,68991	6,697534	6,720095	187,926331
26,233614	22,729547	6,697601	6,737326	188,274719
26,259867	22,711044	6,701221	6,692136	186,934738
26,297947	22,732211	6,694718	6,703468	187,296539
26,328129	22,742782	6,716173	6,731024	187,225647
26,335993	22,777154	6,716173	6,740879	187,209
26,329449	22,787723	6,700685	6,739069	185,883514
26,418663	22,819452	6,679565	6,740947	186,687546
26,427857	22,882867	6,697668	6,7034	186,709
26,430476	22,885507	6,696931	6,741215	186,361969
26,446228	22,851165	6,680772	6,729482	186,353531
26,532832	22,941034	6,701289	6,710843	186,611893
26,522324	22,946311	6,682381	6,703333	185,558609
26,538073	22,935756	6,688549	6,726398	184,556259
26,538073	22,96745	6,689957	6,740812	183,945206
26,577456	23,04411	6,678426	6,737259	183,162674
26,619427	22,98862	6,693712	6,740544	183,925797
26,627291	23,020339	6,693645	6,735181	184,234024
26,639134	23,0864	6,686136	6,744634	183,588104
26,669295	23,099612	6,704909	6,710776	184,520798
26,695517	23,107553	6,689891	6,742489	183,32814
26,707329	23,099626	6,68627	6,750601	183,440063
26,762419	23,110213	6,686203	6,748456	182,705734
26,803078	23,152503	6,674872	6,722173	183,09169
26,805699	23,152503	6,682582	6,711848	182,684311
26,854222	23,178949	6,687544	6,737125	182,957672
26,856892	23,2331	6,692506	6,718217	182,777496
26,868679	23,260833	6,674872	6,734041	184,018356
26,871298	23,252895	6,757608	6,744567	182,761414
26,908038	23,305751	6,738567	6,748456	182,359406
26,947396	23,334819	6,702361	6,737259	182,423721
26,947396	23,345367	6,722945	6,743025	182,696579
26,981491	23,371825	6,719927	6,742221	182,420441
26,984106	23,369189	6,708664	6,733437	182,433823
27,02084	23,395614	6,716173	6,736119	182,248901

27,07326	23,408841	6,712419	6,725794	182,019669
27,07329	23,451078	6,698339	6,707289	182,024506
27,103474	23,466937	6,697467	6,706686	181,932083
27,128361	23,459048	6,715369	6,733236	180,519806
27,137593	23,514516	6,685466	6,748389	181,280853
27,183417	23,522443	6,701154	6,744567	181,699997
27,204417	23,527755	6,704909	6,711312	181,836304
27,209647	23,564681	6,695321	6,710843	181,280258
27,280449	23,612252	6,690829	6,748389	181,071228
27,280449	23,609616	6,704976	6,72566	182,191422
27,280493	23,636041	6,701087	6,744567	181,216568
27,348627	23,658517	6,689957	6,730085	180,604324
27,356495	23,665115	6,696796	6,729549	182,214935
27,355221	23,688886	6,691701	6,732297	180,649902
27,37226	23,691537	6,686136	6,740679	181,339828
27,432562	23,733838	6,692506	6,733303	180,473648
27,424691	23,720639	6,687745	6,729414	181,603317
27,424734	23,74179	6,682314	6,699444	180,381302
27,478468	23,76558	6,694919	6,720296	180,826141
27,490265	23,760329	6,683454	6,714463	181,236816
27,498137	23,797263	6,670983	6,741014	181,578598
27,521748	23,823686	6,659652	6,728476	180,855042
27,566304	23,85143	6,669039	6,748255	181,482117
27,561095	23,868591	6,659652	6,740947	180,752777
27,575514	23,894979	6,669843	6,728207	181,368881
27,622683	23,908208	6,671922	6,729348	180,382828
27,64497	23,926751	6,678626	6,733102	179,975479
27,64761	23,90829	6,692438	8,056083	179,62178
27,656807	23,971605	6,666357	6,651304	180,530823
27,693541	24,016509	6,675341	6,635682	178,393951
27,684399	24,01917	6,673129	6,661697	179,34787
27,721018	24,003345	6,546677	6,645404	179,184418
27,728924	24,045587	6,640744	6,64299	178,418716
27,783976	24,056236	6,616406	6,650298	178,028976
27,77875	24,040414	6,637191	6,635145	178,149567
27,794493	24,103713	6,629346	6,640509	178,074539
27,827261	24,099839	6,632296	6,638028	178,48671
27,857386	24,140744	6,702026	6,797401	178,325714
27,844319	24,185521	6,668838	6,695622	177,856918
27,845644	24,197414	6,703434	6,710708	176,648636
27,896794	24,213332	6,674805	6,729616	177,059174
27,899435	24,235778	6,697467	6,718217	177,335144
27,922972	24,190982	6,693645	6,699713	177,564301
27,925656	24,259563	6,693645	6,710574	177,242813
27,951914	24,288642	6,677084	6,69636	176,268356
27,975451	24,241243	6,693846	6,710708	176,844284
27,995093	24,254403	6,689824	6,727068	176,323303
28,006899	24,3019	6,701021	6,702461	175,883987

28,038407	24,341535	6,683856	6,682213	175,744278
28,064553	24,320459	6,677286	6,684962	176,447205
28,095963	24,337609	6,690829	6,809335	176,113785
28,103903	24,373275	7,542869	6,838836	176,904083
28,117056	24,418111	7,353862	6,838903	175,576584
28,145811	24,378616	7,390403	6,636956	176,821701

Ovf-Top - [°C]	Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
27	28	29	30	31	36
Surface temperature Top	Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
23,116671	21,491557	21,303959	22,735384	23,179595	23,660356
23,156548	21,507491	21,301302	22,756408	23,171681	25,971475
23,265506	21,504836	21,325226	22,743258	23,184854	28,870619
23,512606	21,486245	21,370388	22,753784	23,182225	28,567562
23,877827	21,503477	21,383612	22,80233	23,180869	27,7811
24,405976	21,549794	21,41131	22,898014	23,203113	27,174975
25,036094	21,568234	21,46302	22,993769	23,207028	26,8793
25,746899	21,576199	21,529442	23,104099	23,191225	26,670781
26,560569	21,594815	21,561321	23,248523	23,220202	26,560825
27,521849	21,626706	21,641035	23,3982	23,228088	26,411981
28,580142	21,682541	21,736691	23,595113	23,199139	26,312081
29,737738	21,694456	21,894724	23,788002	23,201697	26,313419
30,95213	21,744955	22,027534	24,087161	23,193783	26,291963
32,333367	21,818961	22,287386	24,3885	23,261831	26,339569
33,760339	21,910445	22,514204	24,722713	23,290629	26,455563
35,214543	21,950291	22,774353	25,055711	23,277459	26,548756
36,748132	22,014077	23,01586	25,472464	23,306408	26,694919
38,415822	22,096438	23,352825	25,875945	23,26168	26,918856
40,135957	22,168177	23,663172	26,336899	23,277459	26,968475
41,877042	22,255835	24,005236	26,849995	23,29589	26,951712
43,7548	22,387053	24,429115	27,433219	23,357623	27,032169
45,67146	22,543581	24,823771	28,041081	23,386497	27,006688
47,62576	22,644503	25,303169	28,655247	23,391758	27,0382
49,630345	22,7957	25,817894	29,344543	23,470299	27,08245
51,686696	22,908488	26,274317	30,071412	23,500549	27,1676
53,850457	23,057164	26,829748	30,84083	23,542635	27,304381
56,006257	23,21642	27,416624	31,627903	23,584743	27,389531
58,192948	23,379454	28,070311	32,484526	23,643837	27,537719
60,44706	23,562313	28,749985	33,404146	23,701614	27,6517
62,735402	23,750677	29,436029	34,32964	23,775282	27,834069
65,055424	23,920435	30,116348	35,321818	23,85948	28,113656
67,353246	24,113974	30,889618	36,27795	23,90923	28,35905
69,624158	24,322018	31,693905	37,345929	24,049737	28,509231
72,00359	24,580378	32,49498	38,397412	24,125938	28,611144
74,371983	24,874264	33,321545	39,557605	24,266514	28,713056
76,721219	25,075657	34,212124	40,651008	24,366436	28,574938
79,078351	25,343232	35,115047	41,766604	24,568856	33,012138
81,526028	25,626635	36,103752	42,932691	24,758132	38,442306
83,899937	25,886132	36,992069	43,9869	24,865887	40,7521
86,243993	26,121745	37,866562	45,032471	25,039314	42,59255
88,606824	26,45987	38,799938	46,094587	25,319841	44,275437
91,023511	26,785311	39,657379	47,148714	25,574638	47,15245
93,42149	27,09478	40,550766	48,207169	25,858249	48,024738

95,808713	27,404129	41,440849	49,344358	26,118163	45,670025
98,206044	27,679062	42,379845	50,57809	26,309766	43,279787
100,598149	27,914275	43,250362	51,785164	26,661416	41,279763
103,065236	28,258728	44,172073	53,121595	26,850143	39,681338
105,492719	28,578085	45,081444	54,363626	27,160555	38,360506
107,949422	28,914704	45,99823	55,584557	27,591808	37,161025
110,358678	29,249941	46,975487	56,772802	27,809357	36,289413
112,71642	29,542843	47,855995	58,036927	28,026886	35,585412
115,112225	29,889475	48,877136	59,282215	28,424965	35,108706
117,461903	30,254618	49,886089	60,461939	28,798101	34,642056
119,701062	30,628952	50,814125	61,706213	29,324267	34,3504
121,940335	30,995016	51,859211	62,953484	29,772596	34,071487
124,177487	31,329592	52,889671	64,163579	30,128294	33,84285
126,419682	31,729502	53,96706	65,402201	30,594816	33,700713
128,562634	32,098055	55,019592	66,601316	30,945011	33,600144
130,668683	32,421744	56,092236	67,830617	31,331673	33,512981
132,737698	32,77429	57,161713	69,011317	31,477947	33,470737
134,819531	33,152789	58,273041	70,1979	31,76608	33,418444
136,820157	33,558695	59,438015	71,314404	32,316719	33,407044
138,738507	33,922579	60,495636	72,480506	32,730224	33,417775
140,649564	34,250964	61,661182	73,591935	33,118831	33,367488
142,525311	34,610777	62,77475	74,749116	33,350885	33,396987
144,34306	34,953368	63,856949	75,856669	33,651839	33,370169
146,158032	35,342726	65,024796	76,928298	33,915952	33,391625
147,869733	35,728247	66,123093	78,087967	34,40563	33,354075
149,546994	36,071833	67,307487	79,077483	34,543648	33,294406
151,182858	36,396975	68,558601	80,219747	34,86129	33,23205
152,790524	36,719382	69,644737	81,257857	35,204892	33,2173
154,368436	37,075621	70,811646	82,368555	35,646926	33,264231
155,909543	37,465487	71,978218	83,34173	35,865124	33,239425
157,421368	37,847819	73,010056	84,367706	36,309771	33,142881
158,883221	38,211699	74,088173	85,376105	36,829594	33,057056
160,369809	38,502184	75,18689	86,415315	37,227106	33,106
161,819669	38,7965	76,333229	87,39493	37,030937	33,197187
163,266873	39,158202	77,41481	88,458407	37,714742	33,2696
164,659085	39,479842	78,454536	89,442471	38,200161	33,319212
165,968945	39,783068	79,561348	90,421754	37,938015	33,366144
167,287259	40,138499	80,573067	91,347791	38,739841	33,311169
168,571118	40,483382	81,554077	92,184793	39,131477	33,272281
169,908261	40,845812	82,732971	93,128731	39,333126	33,305131
171,115231	41,135645	83,786491	94,02505	39,447182	33,355419
172,276944	41,430643	84,799057	94,829731	39,579402	33,353406
173,457593	41,715121	85,675255	95,673014	40,286784	33,278312
174,606366	42,03604	86,750206	96,531944	40,501779	33,28435
175,786908	42,403323	87,628967	97,339566	41,160168	33,264231
176,879666	42,724032	88,485176	98,132529	41,65311	33,254175
177,983365	42,989954	89,27977	98,951493	42,069577	33,2059
179,038907	43,27146	90,170082	99,765623	42,390251	33,348712

180,125363	43,538527	91,09417	100,558276	42,82324	33,490856
181,204724	43,861075	91,944557	101,366177	43,132921	33,496887
182,243085	44,156687	92,754333	102,086355	43,493238	33,519013
183,215878	44,411898	93,50882	102,845346	43,880655	33,562594
184,167249	44,651427	94,310081	103,555864	44,154368	33,597463
185,129239	44,945452	94,992508	104,303778	44,683452	33,5579
186,068234	45,232626	95,932266	105,023443	44,514013	33,553881
186,937878	45,431662	96,593277	105,683354	44,806816	33,565275
187,784756	45,665808	97,395607	106,361567	44,473898	33,502925
188,594128	45,847895	97,954826	106,947502	45,072569	33,466044
189,488797	46,185633	98,594116	107,625873	45,808728	33,363462
190,305997	46,442839	99,135292	108,283959	46,348412	33,3467
191,101895	46,710596	99,71312	108,903941	46,81224	33,396987
191,860272	46,962721	100,259979	109,454668	47,19863	33,486162
192,662732	47,192671	100,835457	109,947594	47,655699	33,537119
193,431271	47,43001	101,602737	110,502196	47,60524	33,594775
194,158566	47,629889	102,134407	111,071239	47,468476	33,627631
194,868527	47,837721	102,710487	111,589118	48,135253	33,700713
195,543591	48,019514	103,390602	112,076237	48,480108	33,734906
196,271756	48,242487	103,745956	112,625108	48,898014	33,781169
196,917142	48,426619	104,293716	113,091618	48,531024	33,763738
197,543851	48,610941	104,860077	113,530129	49,145842	33,746306
198,173199	48,800444	105,27063	113,968775	49,446724	33,681938
198,803601	49,016901	105,626503	114,452516	49,64588	33,674563
199,412488	49,252829	106,061684	114,926016	50,307528	33,661156
199,998807	49,407107	106,637573	115,341602	50,127409	33,700713
200,523511	49,544604	107,045937	115,783318	49,731544	33,632325
201,099072	49,71065	107,389336	116,170852	50,394668	33,638356
201,639325	49,858145	107,914635	116,625402	50,002575	33,683281
202,179852	50,000597	108,182526	117,036101	51,15968	33,689312
202,661557	50,161379	108,476662	117,408425	50,340165	33,644394
203,127164	50,303992	108,697975	117,765306	51,657864	33,645062
203,675305	50,539595	109,127289	118,098704	52,128758	33,751669
204,138058	50,69493	109,585495	118,486494	51,932004	33,826094
204,58215	50,803801	109,82518	118,750418	52,132221	33,831456
204,999478	50,954146	110,116997	119,076524	51,341476	33,831456
205,420529	51,128855	110,372177	119,44004	51,717537	33,817375
205,841504	51,354113	110,613037	119,826881	52,806781	33,841513
206,2319	51,456339	111,086082	120,031344	52,321596	33,819387
206,600964	51,606623	111,15905	120,339556	53,447832	33,7282
206,996289	51,798006	111,583755	120,714896	54,300173	33,725519
207,353223	51,940421	111,685417	120,953188	54,867743	33,659144
207,685971	52,134554	111,849602	121,263971	55,548946	33,6511
207,974683	52,308062	112,034798	121,463541	56,02788	33,655794
208,281766	52,448889	112,609787	121,684934	55,279855	33,650425
208,583783	52,479891	112,656685	121,897459	56,485998	33,659813
208,86427	52,664874	112,762207	122,173335	57,110224	33,6873
209,088803	52,812468	113,164139	122,352273	56,941299	33,757031

209,359799	52,88082	113,445877	122,57902	56,975757	33,726862
209,601514	52,971289	113,742065	122,783816	57,063954	33,716806
209,831158	53,091505	113,610023	123,049489	58,276404	33,748988
210,071637	53,277869	113,646591	123,189569	58,813475	33,738256
210,249203	53,436945	114,073463	123,417839	58,553879	33,631656
210,477338	53,471648	114,199883	123,651207	57,834971	33,681269

Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [10(	CO-Høj - [%]
38	39	40	43	44	45
Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range	CO high range
8,711378	28,574617	129,229439	9,991569	0,06275	0,021883
13,937563	28,894497	129,318006	5,645953	4,151574	0,060704
10,439078	27,452136	127,982839	0,251918	7,699456	0,085425
9,349834	28,11883	129,719913	1,033422	22,442124	0,801712
9,735395	28,246034	128,374539	1,012168	22,441587	1,254524
10,543132	28,260951	129,549606	0,989506	22,441454	2,000401
11,261969	28,374072	129,13238	0,961949	22,441185	2,715341
11,130839	28,064133	126,991699	0,934326	22,441051	2,388163
11,257031	27,859857	127,790402	0,908714	22,440918	1,631184
11,395656	28,495478	129,680734	0,885851	22,440783	1,098136
11,708157	28,192171	132,507722	0,864798	22,440649	0,518343
11,4774	28,289128	132,27101	0,845689	15,176459	0,189516
11,331111	29,072253	132,575842	0,825441	4,207224	0,066256
11,859724	27,406971	129,105122	0,805126	4,975721	0,076615
12,312383	27,8582	129,348661	0,785883	5,360036	0,07227
11,922735	27,481139	131,058462	0,766506	8,242543	0,092585
11,689083	27,951016	128,146336	0,745454	5,28776	0,077359
12,255163	28,707209	130,237629	0,723596	6,943966	0,072974
12,671547	28,577517	130,440273	0,701739	15,090906	0,149126
12,782583	29,712019	134,062567	0,677736	17,048825	0,184346
12,862625	28,873366	130,481151	0,657488	18,610764	0,201745
12,800976	28,415505	129,474676	0,636636	20,50432	0,244689
12,955097	28,232778	129,658604	0,61565	10,620044	0,136857
13,093041	28,25805	129,190276	0,595401	6,79244	0,080477
13,159629	28,806239	128,967184	0,574349	11,229776	0,12688
13,242053	27,169547	126,836728	0,554234	13,461385	0,152264
12,726043	27,424789	128,039037	0,536668	11,992775	0,136354
12,345934	28,423794	129,340136	0,518565	10,029759	0,12163
12,639872	28,835247	129,374203	0,500194	4,951181	0,067684
12,682787	27,702819	129,212405	0,483701	4,951048	0,067282
12,917461	27,620363	129,742043	0,467274	3,051594	0,041274
12,942665	27,561112	129,392936	0,450646	2,368781	0,037714
12,274407	28,277525	130,247836	0,437706	2,917768	0,034958
12,515382	28,69768	129,832308	0,423961	3,606612	0,057003
12,932107	28,118	128,497157	0,409345	3,417941	0,054046
15,449493	28,2825	131,748183	0,292213	4,482386	0,063178
17,286695	28,771851	131,499548	1,723072	5,348906	0,078264
15,628649	28,510808	131,169158	2,253284	7,876328	0,092465
16,75774	27,492742	129,442323	2,039	10,504991	0,12515
17,098172	28,262194	128,549942	1,953649	13,383341	0,162663
19,223184	28,24562	130,149062	1,975841	19,459316	0,193941
19,462966	28,483462	129,738646	1,962029	4,270249	0,065109
17,267961	27,540394	126,846935	1,75787	4,009701	0,052317

17,315986	26,708373	127,965821	1,63048	3,646975	0,058411
16,296567	27,355592	127,374874	1,471846	6,397396	0,074583
16,250245	26,938338	126,53869	1,403389	15,578475	0,17266
16,125585	27,247446	128,149733	1,960286	22,441051	0,372273
15,92974	28,341337	128,04926	1,93273	22,440649	0,561689
15,514888	28,560943	127,442994	1,909867	22,440649	0,515407
15,948984	28,322693	130,443686	1,883316	19,709269	0,238132
15,7201	27,965103	127,941977	1,864878	14,138429	0,155583
14,930244	27,656412	127,306755	1,845703	14,616879	0,165962
14,986613	27,590529	127,567311	1,825588	17,643405	0,184165
15,352592	28,018142	127,919831	1,804535	16,641176	0,185372
14,901634	28,476416	128,289385	1,785427	16,244121	0,187786
15,11553	26,2559	127,742714	1,762429	14,763581	0,167611
15,446769	28,465227	129,444022	1,74312	15,207435	0,178815
15,071593	27,961789	128,159957	1,723877	14,831836	0,164474
15,432292	28,067451	127,759748	1,706848	15,233048	0,172197
15,148058	28,207915	128,558467	1,683515	14,282984	0,156629
14,911341	28,483044	127,305056	1,664406	12,367036	0,151259
15,327387	27,639838	129,098312	1,642348	12,88786	0,141845
15,073297	27,78652	129,142587	1,623038	10,685483	0,121771
14,836069	27,866489	127,533259	1,604734	10,296608	0,12688
15,626775	27,937756	129,064244	1,584419	10,545621	0,128187
15,241213	28,276285	129,101725	1,563567	12,759397	0,139471
15,052519	27,491498	128,58401	1,546202	13,411904	0,157071
14,665768	28,502106	129,4849	1,526892	14,009564	0,148945
14,75245	27,972978	129,428702	1,507784	13,152564	0,160712
14,781062	27,895906	129,476375	1,487535	12,911326	0,146974
14,682797	27,88265	129,088088	1,468091	9,804749	0,11811
15,059331	27,634867	128,362617	1,451799	8,863401	0,104714
14,846456	27,766215	128,561864	1,431751	8,138351	0,093531
14,724863	27,804334	129,140889	1,414184	7,221945	0,093531
14,711067	27,722707	128,17699	1,395813	7,460634	0,093712
14,974522	28,934277	129,105122	1,378448	7,154092	0,090493
14,445739	27,651441	127,958995	1,360077	6,034	0,091821
14,922921	28,517023	129,358868	1,341974	5,515455	0,054911
14,747853	27,780718	129,713103	1,324542	6,77541	0,078385
14,755685	27,978363	128,910987	1,306104	6,397396	0,086571
15,156063	27,075905	127,158593	1,290616	6,293741	0,082749
14,918323	27,946458	129,997504	1,270636	6,569574	0,081864
14,628812	28,2999	130,370455	1,254142	7,024155	0,077982
14,661169	28,213303	129,362281	1,236576	6,96797	0,085203
14,678369	27,722707	129,326515	1,219211	7,343166	0,098157
14,625066	28,372415	129,885093	1,203723	8,472515	0,100088
14,736953	28,925575	128,19912	1,184412	7,466668	0,09341
14,597988	28,839387	134,85446	1,169059	7,285371	0,094416
15,025953	28,467301	127,77848	1,152431	6,931361	0,093169
14,833514	28,156949	127,267575	1,134932	7,307364	0,090976
14,345091	26,959883	129,253284	1,11931	7,813839	0,097292

14,31052	27,754612	128,893953	1,101878	8,259975	0,100048
14,63341	28,358324	128,900763	1,085518	8,101741	0,099303
14,633921	28,056261	129,042114	1,069024	8,53031	0,106102
14,568697	27,677543	128,601027	1,05186	7,731371	0,094758
14,498363	28,078224	127,173913	1,038853	7,808207	0,091399
14,632729	27,863175	128,592519	1,020549	8,051991	0,097493
14,337428	28,64547	130,046891	1,003921	7,266062	0,087617
14,623704	27,941487	129,541097	0,988433	8,005059	0,093812
14,26982	27,91041	128,80029	0,971939	7,66486	0,09703
14,603438	26,683927	129,362281	0,956519	7,451649	0,108476
14,46362	28,260537	128,258731	0,94264	7,796944	0,102079
14,486271	28,111785	130,111597	0,927152	7,434887	0,088864
14,251427	28,476416	129,58196	0,910457	6,656065	0,094677
14,28191	28,10764	129,602407	0,894902	6,294545	0,069937
14,524077	28,377386	128,614664	0,87747	6,359314	0,06877
14,621659	28,045076	129,527477	0,860306	6,693478	0,092344
14,692674	28,9032	130,287016	0,847499	5,69179	0,081543
14,382899	28,161507	128,5227	0,831811	5,801881	0,078586
14,737975	27,496886	128,207645	0,815585	5,399059	0,07398
14,50279	28,515779	128,89735	0,802444	5,709223	0,081201
14,598158	28,213716	128,948452	0,786822	5,438616	0,069736
14,710216	27,78859	128,478425	0,768517	6,293473	0,092042
14,692505	27,916624	129,125553	0,754907	6,275504	0,086571
14,686034	28,130846	128,887143	0,739218	6,155891	0,091278
14,509261	28,052117	130,501582	0,727552	6,504404	0,086953
14,330447	27,314569	127,533259	0,712668	5,922165	0,091298
14,642097	27,612904	127,785291	0,699057	6,667865	0,082971
14,544173	27,873948	127,969218	0,684239	7,354431	0,105217
14,186202	28,456528	129,369092	0,667679	6,360789	0,085968
14,432626	27,680031	129,600692	0,654806	8,020614	0,101476
14,584534	27,766628	126,797548	0,643341	7,6953	0,099384
14,340153	27,319126	127,582646	0,626511	7,72118	0,088703
14,464473	27,433491	127,822756	0,612901	6,9264	0,09337
14,224179	27,943971	129,094899	0,598151	7,221409	0,086732
14,597307	27,754612	126,57106	0,585478	7,011953	0,087114
14,198463	29,277364	135,843917	0,570594	6,966226	0,090433
13,913891	27,850328	128,991029	0,558726	6,672692	0,087858
14,120125	28,224075	128,972296	0,54411	6,369772	0,087315
14,407933	27,335287	129,285637	0,528421	6,287841	0,074462
14,239505	27,989965	127,987951	0,516755	6,2865	0,083474
14,273055	28,188027	129,22093	0,502943	6,028636	0,084861
13,98661	27,176175	127,524734	0,490204	6,400079	0,08283
14,330275	28,797541	131,521678	0,477331	5,877914	0,074583
14,178367	27,585558	128,279162	0,464592	5,875097	0,075991
13,909123	28,528626	132,226735	0,450646	5,541871	0,071003
13,990357	28,192171	127,492381	0,437773	5,691521	0,081382
13,906398	28,511635	131,090831	0,42671	5,41582	0,075287
14,154356	28,42255	129,014857	0,412966	5,16694	0,078204

13,99768	27,721464	127,511113	0,399355	4,678299	0,064023
14,008238	27,793978	128,675973	0,386549	4,650541	0,060664
13,938074	27,751298	128,257032	0,375821	4,253486	0,053544
14,164915	27,75793	127,342521	0,361808	4,290363	0,060081
14,254832	27,36015	129,944703	0,345449	3,44999	0,061549
14,133749	27,985821	130,40111	0,332576	3,370337	0,054469

CO2 - [%]
46
CO2 - [%]
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13,880431
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13,063256
12,259493
10,301301
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10,815959
11,003424
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11,18767
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11,693074
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11,149051
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10,062076

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9,801797
9,764118
9,813062
9,843635
9,802066
9,76975
9,835992
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9,407156
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9,335951
9,36277
9,363709
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9,355128
9,354591
9,354992
9,350568
9,280169
9,30806
9,186034
9,195152
9,039334
9,04872
9,018281
9,079965
9,083585
9,161896
9,147146

9,263272
9,248254
9,264211
9,30216
9,351239
9,451409

Datotid	Scantid	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]
		1	2	3
Datotid	Scantime	Ambient temperature	Main train filter temp	Split train 1H filter temp
02-20-19 12:18:10	3,066	24,80944	29,11396	28,671287
02-20-19 12:18:40	3,066	24,617717	29,804515	29,485853
02-20-19 12:19:10	3,066	24,815055	30,349701	30,167688
02-20-19 12:19:40	3,066	24,967622	30,73463	30,675819
02-20-19 12:20:10	3,067	25,188303	31,061544	31,076057
02-20-19 12:20:40	3,067	24,991497	31,626556	31,690633
02-20-19 12:21:10	3,066	25,288564	31,85186	31,82284
02-20-19 12:21:40	3,065	25,485649	31,90018	31,920197
02-20-19 12:22:10	3,068	24,930812	31,817094	31,857668
02-20-19 12:22:40	3,067	25,15728	31,769071	31,782226
02-20-19 12:23:10	3,068	25,286123	31,655508	31,646438
02-20-19 12:23:40	3,067	25,175733	31,590181	31,534095
02-20-19 12:24:10	3,067	25,002042	31,505132	31,413759
02-20-19 12:24:40	3,066	25,191303	31,404493	31,364082
02-20-19 12:25:10	3,066	25,378116	31,430807	31,355112
02-20-19 12:25:40	3,067	25,317876	31,43622	31,387958
02-20-19 12:26:10	3,066	25,128584	31,40876	31,33303
02-20-19 12:26:40	3,067	25,089016	31,396881	31,271509
02-20-19 12:27:10	3,066	25,088983	31,412534	31,24926
02-20-19 12:27:40	3,066	25,007471	31,422979	31,244035
02-20-19 12:28:10	3,066	24,892107	31,523939	31,364601
02-20-19 12:28:40	3,066	24,897438	31,546209	31,382944
02-20-19 12:29:10	3,066	24,965602	31,488542	31,333147
02-20-19 12:29:40	3,066	24,97874	31,499012	31,317453
02-20-19 12:30:10	3,067	25,102375	31,52779	31,360622
02-20-19 12:30:40	3,065	25,357746	31,59346	31,440685
02-20-19 12:31:10	3,066	25,244669	31,555526	31,431499
02-20-19 12:31:40	3,066	25,039444	31,548858	31,38042
02-20-19 12:32:10	3,066	24,976341	31,577598	31,328138
02-20-19 12:32:40	3,065	25,013267	31,584234	31,346531
02-20-19 12:33:10	3,066	25,176637	31,6564	31,456602
02-20-19 12:33:40	3,067	25,121189	31,645761	31,404195
02-20-19 12:34:10	3,067	25,12644	31,645761	31,406805
02-20-19 12:34:40	3,067	25,01864	31,601366	31,435556
02-20-19 12:35:11	3,067	25,092313	31,598802	31,442136
02-20-19 12:35:41	3,066	24,856012	31,72845	31,47252
02-20-19 12:36:11	3,067	24,90315	31,679971	31,422727
02-20-19 12:36:41	3,067	24,826864	31,67214	31,425338
02-20-19 12:37:11	3,066	25,000469	31,640794	31,414894
02-20-19 12:37:41	3,065	25,19013	31,689432	31,473991
02-20-19 12:38:11	3,068	25,27174	31,74048	31,48063
02-20-19 12:38:41	3,065	24,995441	31,698515	31,441267
02-20-19 12:39:11	3,066	24,871816	31,617506	31,438657

02-20-19 12:39:41	3,066	24,837627	31,67239	31,42299
02-20-19 12:40:11	3,066	25,137861	31,75246	31,514816
02-20-19 12:40:41	3,065	25,366451	31,707996	31,506946
02-20-19 12:41:11	3,066	25,337453	31,696149	31,47812
02-20-19 12:41:41	3,066	25,347955	31,703977	31,483341
02-20-19 12:42:11	3,066	25,156091	31,693542	31,454593
02-20-19 12:42:41	3,066	25,072145	31,718521	31,514869
02-20-19 12:43:11	3,066	24,951257	31,740804	31,52544
02-20-19 12:43:41	3,067	25,006481	31,751268	31,473175
02-20-19 12:44:11	3,066	24,982813	31,691171	31,452261
02-20-19 12:44:41	3,066	24,911794	31,680736	31,436571
02-20-19 12:45:11	3,067	25,101598	31,776508	31,515367
02-20-19 12:45:41	3,066	24,97781	31,720197	31,481268
02-20-19 12:46:11	3,067	24,87523	31,746318	31,452526
02-20-19 12:46:41	3,066	24,92258	31,699293	31,460384
02-20-19 12:47:11	3,066	25,040935	31,717586	31,457769
02-20-19 12:47:41	3,066	25,201648	31,81454	31,463264
02-20-19 12:48:11	3,067	25,298879	31,742721	31,515573
02-20-19 12:48:41	3,067	25,453865	31,777942	31,460653
02-20-19 12:49:11	3,066	25,319856	31,749216	31,450208
02-20-19 12:49:41	3,066	25,175283	31,754434	31,437128
02-20-19 12:50:11	3,067	25,209474	31,728313	31,395326
02-20-19 12:50:41	3,067	25,196502	31,749385	31,421629
02-20-19 12:51:11	3,066	25,241279	31,772991	31,434824
02-20-19 12:51:41	3,066	25,133504	31,739042	31,458343
02-20-19 12:52:11	3,067	25,201866	31,725973	31,437433
02-20-19 12:52:41	3,067	25,10984	31,731216	31,434824
02-20-19 12:53:11	3,067	25,130767	31,715475	31,419069
02-20-19 12:53:41	3,068	25,349332	31,768085	31,503069
02-20-19 12:54:11	3,066	25,194261	31,7707	31,466491
02-20-19 12:54:41	3,068	25,183755	31,773307	31,453411
02-20-19 12:55:11	3,066	25,283641	31,757625	31,445577
02-20-19 12:55:41	3,067	25,333528	31,730173	31,439031
02-20-19 12:56:11	3,065	25,19411	31,722274	31,433755
02-20-19 12:56:41	3,067	25,126213	31,789268	31,479866
02-20-19 12:57:11	3,066	25,07888	31,757932	31,456346
02-20-19 12:57:41	3,068	25,34439	31,757932	31,41974
02-20-19 12:58:11	3,067	25,265524	31,757932	31,417127
02-20-19 12:58:41	3,066	25,141948	31,699148	31,387046
02-20-19 12:59:11	3,066	25,171201	31,753019	31,469726
02-20-19 12:59:41	3,068	25,200142	31,779138	31,482782
02-20-19 13:00:11	3,065	25,299999	31,781747	31,464508
02-20-19 13:00:41	3,066	25,37096	31,7478	31,472339
02-20-19 13:01:11	3,066	25,084396	31,775194	31,45532
02-20-19 13:01:41	3,066	25,176162	31,677032	31,432932
02-20-19 13:02:11	3,066	25,394672	31,758348	31,493368
02-20-19 13:02:41	3,067	25,421217	31,782079	31,511861
02-20-19 13:03:11	3,067	25,387041	31,800369	31,446516

02-20-19 13:03:41	3,066	25,387041	31,789905	31,446516
02-20-19 13:04:11	3,066	25,347515	31,740203	31,381113
02-20-19 13:04:41	3,067	25,158069	31,677356	31,365295
02-20-19 13:05:11	3,067	25,19025	31,75366	31,457302
02-20-19 13:05:41	3,065	25,216537	31,792846	31,397194
02-20-19 13:06:11	3,067	25,08246	31,761512	31,423332
02-20-19 13:06:41	3,067	25,258602	31,719711	31,459938
02-20-19 13:07:11	3,066	25,195423	31,73402	31,407615
02-20-19 13:07:41	3,067	25,197879	31,669904	31,373542
02-20-19 13:08:11	3,066	25,19536	31,705234	31,382757
02-20-19 13:08:41	3,066	25,243057	31,804866	31,411853
02-20-19 13:09:11	3,066	25,266821	31,733116	31,457653
02-20-19 13:09:41	3,067	25,074899	31,777523	31,402769
02-20-19 13:10:11	3,066	25,180061	31,735723	31,40538
02-20-19 13:10:41	3,067	25,143095	31,680744	31,396118
02-20-19 13:11:11	3,066	25,043033	31,685836	31,337204
02-20-19 13:11:41	3,065	25,22969	31,678005	31,331981
02-20-19 13:12:11	3,066	25,234943	31,630977	31,337204
02-20-19 13:12:41	3,066	25,095857	31,731781	31,337406
02-20-19 13:13:11	3,067	25,132911	31,716323	31,413442
02-20-19 13:13:41	3,066	25,493135	31,736074	31,442323
02-20-19 13:14:11	3,067	25,398542	31,751728	31,421411
02-20-19 13:14:41	3,066	25,251165	31,679762	31,395141
02-20-19 13:15:11	3,067	25,311483	31,660066	31,353231
02-20-19 13:15:41	3,067	25,316757	31,652212	31,324478
02-20-19 13:16:11	3,066	25,356165	31,636549	31,308784
02-20-19 13:16:41	3,066	25,374565	31,683576	31,259103
02-20-19 13:17:11	3,066	25,358789	31,631332	29,196972
02-20-19 13:17:41	3,066	25,180772	31,72859	
02-20-19 13:18:11	3,065	25,1387	31,681566	
02-20-19 13:18:41	3,067	25,038694	31,701086	
02-20-19 13:19:11	3,066	25,09629	31,605535	
02-20-19 13:19:41	3,066	24,864858	31,615978	
02-20-19 13:20:11	3,067	25,035797	31,600315	
02-20-19 13:20:41	3,065	24,796445	31,63949	
02-20-19 13:21:11	3,066	25,277673	31,600315	
02-20-19 13:21:41	3,067	25,264612	31,623905	
02-20-19 13:22:11	3,066	25,312534	31,74201	
02-20-19 13:22:41	3,065	25,441206	31,696239	
02-20-19 13:23:11	3,067	25,257005	31,650299	
02-20-19 13:23:41	3,065	25,159738	31,595436	
02-20-19 13:24:11	3,066	25,170242	31,592828	
02-20-19 13:24:41	3,066	25,033529	31,605901	
02-20-19 13:25:11	3,067	25,088745	31,587608	
02-20-19 13:25:41	3,066	25,149204	31,587608	
02-20-19 13:26:11	3,066	25,168052	31,642868	
02-20-19 13:26:41	3,067	25,065767	31,673128	
02-20-19 13:27:11	3,067	25,052383	31,615467	

02-20-19 13:27:41	3,066	24,918163	31,624548
02-20-19 13:28:11	3,067	25,060188	31,601032
02-20-19 13:28:41	3,066	25,283624	31,572294
02-20-19 13:29:11	3,066	25,375616	31,585348
02-20-19 13:29:41	3,066	25,175859	31,577512
02-20-19 13:30:11	3,066	25,023363	31,561853
02-20-19 13:30:41	3,067	25,1522	31,556606
02-20-19 13:31:11	3,066	25,1865	31,556745
02-20-19 13:31:41	3,066	25,149973	31,581842
02-20-19 13:32:11	3,066	25,28663	31,5596
02-20-19 13:32:41	3,066	25,291881	31,564819
02-20-19 13:33:11	3,066	25,412767	31,56743
02-20-19 13:33:41	3,067	25,622921	31,572652
02-20-19 13:34:11	3,066	25,386495	31,596168
02-20-19 13:34:41	3,067	25,152578	31,604025
02-20-19 13:35:11	3,065	25,441671	31,58834
02-20-19 13:35:41	3,067	25,423271	31,543913
02-20-19 13:36:11	3,067	25,333824	31,55299
02-20-19 13:36:41	3,067	25,415252	31,54516
02-20-19 13:37:11	3,065	25,242323	31,604389
02-20-19 13:37:41	3,067	25,35795	31,539077
02-20-19 13:38:11	3,066	25,368452	31,546911
02-20-19 13:38:41	3,066	25,218662	31,573038
02-20-19 13:39:11	3,066	25,168716	31,528612
02-20-19 13:39:41	3,067	25,234418	31,573038
02-20-19 13:40:11	3,065	25,302765	31,573038
02-20-19 13:40:41	3,067	25,447301	31,557354
02-20-19 13:41:11	3,066	25,336834	31,537693
02-20-19 13:41:41	3,066	25,352583	31,533807
02-20-19 13:42:11	3,066	25,515865	31,619083
02-20-19 13:42:41	3,068	25,539627	31,565584
02-20-19 13:43:11	3,065	25,366218	31,604789
02-20-19 13:43:41	3,067	25,353069	31,576049
02-20-19 13:44:11	3,067	25,150703	31,560363
02-20-19 13:44:41	3,066	25,295257	31,581274
02-20-19 13:45:12	3,067	25,416147	31,570829
02-20-19 13:45:42	3,066	25,33469	31,562976
02-20-19 13:46:12	3,066	25,263628	31,556362
02-20-19 13:46:42	3,067	25,139801	31,513038
02-20-19 13:47:12	3,066	25,413324	31,527591
02-20-19 13:47:42	3,067	25,242971	31,601192
02-20-19 13:48:12	3,066	25,358621	31,582899
02-20-19 13:48:42	3,067	25,48484	31,599949
02-20-19 13:49:12	3,065	25,511112	31,59473
02-20-19 13:49:42	3,066	25,616176	31,568601
02-20-19 13:50:12	3,067	25,52688	31,55816
02-20-19 13:50:42	3,065	25,490089	31,560772
02-20-19 13:51:12	3,066	25,466346	31,556768

02-20-19 13:51:42	3,066	25,539856	31,550216
02-20-19 13:52:12	3,065	25,450294	31,516042
02-20-19 13:52:42	3,066	25,468889	31,556713
02-20-19 13:53:12	3,066	25,60334	31,606805
02-20-19 13:53:42	3,067	25,535162	31,595148
02-20-19 13:54:12	3,067	25,424802	31,595148
02-20-19 13:54:42	3,066	25,527263	31,595148
02-20-19 13:55:12	3,067	25,47735	31,55072
02-20-19 13:55:42	3,065	25,456352	31,561163
02-20-19 13:56:12	3,066	25,243476	31,55594
02-20-19 13:56:42	3,067	25,29079	31,52981
02-20-19 13:57:12	3,066	25,164617	31,532421
02-20-19 13:57:42	3,066	25,235351	31,483892
02-20-19 13:58:12	3,066	25,285131	31,469413
02-20-19 13:58:42	3,066	25,25097	31,47986
02-20-19 13:59:12	3,066	25,398145	31,448501
02-20-19 13:59:42	3,067	25,668701	31,477251
02-20-19 14:00:12	3,066	25,729194	31,464281
02-20-19 14:00:42	3,066	25,813123	31,435424
02-20-19 14:01:12	3,066	25,516464	31,482559
02-20-19 14:01:42	3,066	25,645265	31,455204
02-20-19 14:02:12	3,066	25,474935	31,523502
02-20-19 14:02:42	3,066	25,130739	31,523618
02-20-19 14:03:12	3,067	25,538179	31,527624
02-20-19 14:03:42	3,065	25,333238	31,477968
02-20-19 14:04:12	3,066	25,430469	31,464889

Filter-3-D2 - [°C]	Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]
4	5	6	7	8
Split train remain. filter temp	Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature
	24,879728	18,362716	18,031636	28,096138
	24,92864	18,410958	18,066531	28,140744
	24,878654	18,41629	18,079897	28,156416
	24,915475	18,41629	18,071867	28,164277
	24,882545	18,458953	18,098614	28,148619
	24,963031	18,528531	18,149542	28,195841
	24,936723	18,557862	18,125508	28,21937
	24,936723	18,565854	18,096136	28,211533
	24,903815	18,629838	18,06678	28,256014
	24,972427	18,718028	18,085644	28,288849
	24,994819	18,715383	18,021569	28,303231
	24,976423	18,742038	18,00289	28,303231
	24,940864	18,704728	17,984229	28,322894
	24,954005	18,654073	18,008271	28,318962
	24,979137	18,702188	18,036415	28,355648
	25,010822	18,720954	18,080565	28,355742
	25,009513	18,747609	18,064558	28,380581
	24,991058	18,763612	18,029866	28,410651
	24,96738	18,768939	18,040539	28,428944
	24,96738	18,750274	18,085947	28,428944
	25,030744	18,830438	18,134198	28,45917
	25,02423	18,809161	18,11553	28,470936
	25,009698	18,809161	18,134276	28,4945
	24,991302	18,763843	18,128916	28,504963
	25,007102	18,74521	18,185023	28,512841
	25,074434	18,804071	18,246626	28,539099
	25,099395	18,769429	18,251959	28,522139
	25,059926	18,76144	18,26801	28,557444
	24,994159	18,809396	18,201283	28,557444
	25,010003	18,81746	18,198666	28,592751
	25,082578	18,817653	18,222845	28,583756
	25,054906	18,833654	18,169497	28,641282
	25,049651	18,820316	18,145464	28,643889
	25,09962	18,780351	18,1775	28,620387
	25,104909	18,75373	18,169533	28,609972
	25,115691	18,849906	18,191096	28,668917
	25,105142	18,815269	18,177784	28,701613
	25,044639	18,817931	18,159087	28,685938
	25,065683	18,775277	18,13772	28,688546
	25,144811	18,794141	18,148573	28,703087
	25,112025	18,839523	18,119284	28,71489
	25,100141	18,818221	18,132676	28,738444
	25,134322	18,754237	18,167378	28,714947

25,073844	18,796893	18,143345	28,717553
25,142484	18,839761	18,183617	28,76083
25,180652	18,829162	18,20102	28,784398
25,168781	18,861139	18,221077	28,796175
25,174058	18,879773	18,183684	28,770068
25,147763	18,87445	18,202382	28,790932
25,2123	18,887885	18,24119	28,792345
25,242694	18,92006	18,290778	28,830407
25,176954	18,976012	18,229386	28,846053
25,176954	18,922721	18,258751	28,819949
25,171701	18,93337	18,221362	28,819949
25,221961	18,970922	18,269637	28,863228
25,20355	18,978959	18,24037	28,882899
25,158845	19,024257	18,157584	28,903786
25,193019	18,95498	18,157584	28,872466
25,187762	18,952317	18,117543	28,888113
25,195892	19,021772	18,09235	28,937865
25,266944	19,019227	18,18194	28,944527
25,232774	19,075191	18,163243	28,969338
25,216991	19,053876	18,176606	28,964119
25,219617	19,048553	18,18194	28,94324
25,216991	19,029899	18,184607	28,964119
25,251359	19,056718	18,230185	28,979985
25,254102	19,094148	18,243672	29,019247
25,014816	19,054181	18,270367	28,980093
25,290899	19,03555	18,265032	29,008797
25,301427	19,051519	18,214308	29,000975
25,261964	18,995578	18,17026	29,024491
25,322763	19,003898	18,211954	29,035227
25,335918	18,977256	18,19595	29,05871
25,304353	18,955938	18,158556	29,079565
25,288598	18,939967	18,153222	29,071743
25,287267	18,905309	18,165242	29,073079
25,297818	18,929385	18,148003	29,083655
25,325723	18,974914	18,105502	29,126877
25,325723	18,932298	18,126845	29,100788
25,288907	18,948272	18,084132	29,126877
25,304687	18,96693	18,097475	29,116429
25,316514	18,934962	18,120192	29,10994
25,360227	18,996585	18,18594	29,155898
25,357598	19,012555	18,156573	29,15329
25,323413	18,996585	18,116532	29,16895
25,339193	18,985913	18,100502	29,15329
25,308942	18,975267	18,091177	29,185944
25,336473	18,900657	18,117916	29,166428
25,363027	18,908872	18,155466	29,197905
25,402612	18,890344	18,159605	29,216248
25,352676	18,906343	18,106202	29,216248

	25,355302	18,869046	18,119542	29,208426
	25,347373	18,869046	18,099526	29,221518
	25,344699	18,815723	18,094241	29,203297
	25,381946	18,869392	18,122584	29,2792
	25,329377	18,87738	18,085207	29,271382
	25,366164	18,848067	18,103884	29,276596
	25,381946	18,773437	18,122584	29,229643
	25,346416	18,805442	18,094563	29,246636
	25,351693	18,768161	18,111992	29,279339
	25,378007	18,789518	18,154749	29,267643
	25,388789	18,853709	18,156308	29,343464
	25,440095	18,81647	18,187037	29,284789
	25,408563	18,848447	18,171008	29,323916
	25,426969	18,827121	18,179036	29,305657
	25,424289	18,797807	18,153691	29,30048
	25,384834	18,821798	18,121682	29,339659
	25,395337	18,821798	18,105652	29,316189
	25,390086	18,81647	18,148384	29,30053
	25,354766	18,917871	18,115132	29,356732
	25,454803	18,896692	18,186013	29,346398
	25,458875	18,864806	18,219462	29,368616
	25,458875	18,856818	18,203434	29,360796
	25,460101	18,851495	18,187457	29,367369
	25,456147	18,819493	18,127419	29,389569
	25,443019	18,832833	18,090018	29,384356
	25,42724	18,830169	18,114054	29,368702
	25,390458	18,872794	18,079346	29,389569
28,744207	25,41674	18,811506	18,130087	29,345232
29,158639	25,453981	18,939794	18,166439	29,426363
29,284709	25,472381	18,902499	18,206501	29,423758
29,447423	25,423732	18,958451	18,170462	29,438118
29,474876	25,451274	18,905162	18,223923	29,434267
29,529996	25,438123	18,915837	18,205227	29,423853
29,600862	25,443372	18,873191	18,194558	29,444712
29,687444	25,390811	18,86254	18,173193	29,460339
29,724191	25,411843	18,822553	18,170525	29,442107
29,81215	25,439511	18,841243	18,16655	29,455189
29,938491	25,488527	18,905564	18,209578	29,502346
29,938453	25,487189	18,870906	18,237605	29,501076
29,95275	25,475293	18,870906	18,245663	29,507672
29,960611	25,454267	18,870906	18,245663	29,489417
29,997337	25,462169	18,865581	18,234993	29,481606
30,04189	25,42011	18,897554	18,189602	29,515484
30,06025	25,42011	18,900214	18,149563	29,494625
30,091706	25,406959	18,886903	18,168261	29,505066
30,165443	25,467698	18,879152	18,21118	29,507876
30,254741	25,47968	18,879302	18,238022	29,519715
30,241544	25,498025	18,871316	18,244723	29,527581

30,286037	25,459914	18,842004	18,243422	29,544567
30,293916	25,496692	18,839341	18,264782	29,531523
30,3175	25,499341	18,855317	18,25409	29,534125
30,35679	25,459914	18,865991	18,232754	29,547173
30,382991	25,444137	18,881965	18,240754	29,549775
30,398719	25,452037	18,884628	18,256756	29,539357
30,417041	25,438886	18,911275	18,240754	29,549775
30,436811	25,458718	18,92736	18,236809	29,555092
30,498643	25,508901	18,986236	18,295813	29,580077
30,509137	25,515496	18,967645	18,323922	29,563212
30,535327	25,518121	18,991626	18,299895	29,584069
30,543178	25,523372	19,018266	18,318562	29,581467
30,577216	25,528621	19,020929	18,321228	29,584069
30,61128	25,533872	19,044906	18,318562	29,594485
30,637464	25,50497	19,071544	18,302561	29,604922
30,653159	25,518121	19,06356	18,334587	29,599715
30,650544	25,525996	19,012944	18,331919	29,576256
30,664935	25,498376	18,991626	18,326588	29,569748
30,68983	25,489251	18,975747	18,341385	29,609009
30,766137	25,531661	18,994716	18,383049	29,639222
30,726878	25,563182	18,949414	18,399075	29,607932
30,747802	25,552682	18,922773	18,407071	29,61837
30,797546	25,526412	18,978721	18,385716	29,623577
30,779239	25,542161	18,946754	18,40174	29,633994
30,844663	25,518512	19,010684	18,372385	29,647036
30,831586	25,521159	19,008023	18,388409	29,628785
30,849893	25,565808	18,965411	18,40174	29,61056
30,840722	25,54609	18,952077	18,391074	29,619709
30,838159	25,572458	18,936197	18,437909	29,628945
30,962804	25,58456	19,035032	18,442126	29,685208
30,913112	25,629268	19,00846	18,511584	29,652676
30,939279	25,613523	19,048408	18,52491	29,652676
30,941892	25,616143	19,019107	18,527577	29,647469
30,928823	25,621396	19,040424	18,535597	29,637032
30,962833	25,584626	19,059077	18,514248	29,652676
30,947149	25,589877	19,032438	18,532931	29,631823
30,944509	25,584626	19,056417	18,490233	29,652676
30,979831	25,588533	19,048408	18,458218	29,667023
30,952235	25,577977	19,072383	18,423571	29,671021
30,964118	25,613553	19,096479	18,425	29,675017
31,01292	25,692687	19,123367	18,463929	29,688256
31,015535	25,671668	19,136697	18,461262	29,706505
31,015588	25,663839	19,171384	18,471991	29,679156
31,028659	25,645446	19,171384	18,482655	29,684388
31,018203	25,640199	19,192666	18,490677	29,673949
31,020818	25,632322	19,190007	18,504004	29,684388
31,03127	25,637571	19,221955	18,504004	29,689595
31,037809	25,630975	19,211314	18,496006	29,706549

31,028627	25,646747	19,205995	18,502705	29,684424
31,025891	25,633546	19,216636	18,52273	29,700125
31,063972	25,653375	19,222076	18,508143	29,732762
31,091834	25,70362	19,272929	18,579104	29,756441
31,102344	25,724679	19,2863	18,613848	29,736927
31,094482	25,708913	19,302285	18,608517	29,744738
31,104959	25,727304	19,288985	18,576487	29,760378
31,073569	25,724679	19,288985	18,573822	29,760378
31,078799	25,693168	19,291646	18,560494	29,747366
31,076184	25,677402	19,296968	18,573822	29,77602
31,055253	25,674773	19,275661	18,549809	29,744738
31,052638	25,669526	19,259677	18,547144	29,768189
31,047294	25,653711	19,257016	18,561856	29,76178
31,039394	25,649751	19,257016	18,555203	29,763104
31,042007	25,644477	19,273002	18,54987	29,776116
31,023708	25,662873	19,283641	18,555203	29,75527
31,028939	25,657623	19,291646	18,555203	29,776116
31,027692	25,707589	19,273061	18,637957	29,757946
31,005389	25,702283	19,26502	18,61122	29,760476
31,046012	25,676051	19,342267	18,616612	29,783995
31,017299	25,722114	19,315707	18,676657	29,777516
31,072553	25,723653	19,3745	18,694195	29,803738
31,102725	25,696166	19,414476	18,678246	29,811606
31,08446	25,701484	19,403913	18,734314	29,810341
31,037364	25,780273	19,393251	18,739645	29,792097
31,037364	25,767131	19,369291	18,768975	29,802512

Gasm-D - [°C]	Gasm-R - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]	NS-Røgtemp - [°C]
9	10	12	13	24
Split train dry gas meter temperature	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
28,135439	24,383962	7,355069	6,623278	213,735382
28,156479	24,449933	7,282254	6,474031	266,417786
28,166924	24,455196	7,280578	6,472891	232,305313
28,169537	24,431516	6,753652	6,755697	245,470612
28,187922	24,47635	6,738634	6,718151	274,195557
28,253405	24,513354	6,736824	6,714329	304,385406
28,258624	24,510722	6,734879	6,69931	323,055267
28,258624	24,505462	6,440541	6,741751	236,14119
28,277012	24,568729	6,075133	6,746914	208,438568
28,33856	24,600438	6,079759	6,72566	196,21405
28,334652	24,611013	6,086866	6,748121	187,230026
28,339873	24,637336	6,092296	6,739472	184,336548
28,369992	24,624223	6,098532	6,740879	181,513199
28,360873	24,611106	6,105304	6,755764	178,999695
28,401446	24,636182	6,099739	6,755697	177,146423
28,397599	24,661256	6,093972	6,752009	177,317749
28,406758	24,663884	6,085793	6,748121	174,956375
28,443406	24,691594	6,689891	6,749194	174,399338
28,462996	24,687673	6,704708	6,744902	173,277878
28,478678	24,700845	6,709401	6,757776	172,87085
28,493184	24,724639	6,843966	6,751808	172,466599
28,51801	24,732562	6,866694	6,736991	171,289917
28,539009	24,772145	6,870583	6,732164	171,226334
28,520718	24,803718	6,846916	6,755764	170,06459
28,545555	24,765598	6,677956	6,768838	168,440231
28,578341	24,803889	6,749831	6,766693	167,899582
28,581	24,805227	6,742053	6,752948	167,596802
28,596732	24,796079	6,730924	6,746176	166,232559
28,573223	24,869758	6,721604	6,725191	165,295258
28,587632	24,846112	6,712016	6,751071	164,76976
28,612559	24,880449	6,723481	6,740611	164,159744
28,62834	24,930539	6,755798	6,755697	163,502167
28,646603	24,898973	6,731192	6,769643	162,05513
28,670107	24,872665	6,708463	6,754557	162,148727
28,671435	24,876634	6,704775	6,736253	160,275818
28,708159	24,941232	6,70853	6,746512	159,665421
28,730437	24,951875	6,727303	6,706954	158,931244
28,704327	24,983438	6,726029	6,752814	158,567001
28,714762	24,917663	6,751708	6,754356	158,334793
28,748866	24,934888	6,723347	6,740679	156,674759
28,717553	24,98097	6,723481	6,741818	156,169067
28,769879	24,996871	6,7385	6,748121	155,895737
28,785551	24,952148	6,727102	6,725995	155,266541

28,741164	24,994245	6,720531	6,752009	154,645355
28,766138	25,046998	6,725359	6,721302	154,242493
28,827563	25,01818	6,741986	6,754423	154,376831
28,845887	25,033988	6,735482	6,754423	154,001129
28,830214	25,052407	6,747954	6,748188	153,672043
28,851101	25,026105	6,723347	6,763206	152,830109
28,85117	25,03143	6,716039	6,71567	152,354477
28,895766	25,084247	6,718319	6,736522	152,708282
28,864449	25,123706	6,719727	6,739204	152,604492
28,869664	25,092153	6,7092	6,721771	151,178497
28,877486	25,065854	6,730924	6,725593	150,851059
28,915528	25,100192	6,712284	6,759318	150,917618
28,940428	25,108236	6,730387	6,718016	151,141998
28,924788	25,163455	6,701021	6,752211	151,799637
28,932608	25,121373	6,70216	6,763877	150,906433
28,932608	25,126653	6,723213	6,714262	150,736099
28,939259	25,166202	6,702965	6,744232	150,501877
29,012503	25,168994	6,726364	6,724252	150,076889
28,995552	25,211089	6,709468	6,765754	150,047501
28,985123	25,213716	6,714229	6,736857	149,830734
28,972065	25,216367	6,720397	6,744366	149,873291
28,964241	25,179544	6,727169	6,740611	149,902542
29,008797	25,206046	6,721939	6,745104	150,236298
29,032406	25,224561	6,726967	6,742489	150,392914
29,042857	25,219306	6,712218	6,714731	149,851486
29,027192	25,200917	6,674604	6,714262	149,481674
29,014132	25,227208	6,697332	6,740679	149,561478
29,042878	25,240386	6,708396	6,736857	150,33313
29,090142	25,293262	6,694986	6,740679	149,61853
29,103173	25,287988	6,683119	6,724721	149,674194
29,105805	25,29589	6,682046	6,730689	149,398682
29,092747	25,282731	6,704708	6,763139	148,858673
29,107113	25,2867	6,703903	6,737326	149,576904
29,121617	25,328942	6,68218	6,719023	149,100739
29,142666	25,343536	6,692036	6,740879	148,9758
29,142666	25,322503	6,70739	6,75382	148,48584
29,121792	25,351417	6,689756	6,748724	148,568298
29,132218	25,304122	6,704775	6,744232	149,467331
29,136155	25,313342	6,719727	6,721838	148,765076
29,197777	25,380683	6,693712	6,706753	148,664017
29,17951	25,378057	6,704708	6,733839	147,658936
29,166479	25,399089	6,704708	6,734242	146,974136
29,174298	25,38856	6,701087	6,751942	147,719574
29,201714	25,379399	6,722006	6,753149	147,560074
29,213566	25,401847	6,708396	6,76971	147,392593
29,23457	25,420385	6,699679	6,740209	146,768036
29,252911	25,420459	6,680973	6,738466	147,686417
29,221617	25,465141	6,704708	6,766961	146,682892

29,229432	25,467767	6,68741	6,744433	145,776611
29,239905	25,425761	6,709602	6,785869	145,981064
29,245226	25,433751	6,734075	6,760592	145,500305
29,287182	25,465518	6,723414	6,748121	145,198929
29,268917	25,507545	6,750971	6,763206	144,965302
29,281971	25,481271	6,727303	6,757977	144,569672
29,292389	25,470769	6,716039	6,746311	144,686218
29,251986	25,531245	6,709334	6,723783	143,455719
29,288641	25,555036	6,715838	6,728476	143,522049
29,297787	25,540601	6,699947	6,759318	142,92511
29,322724	25,574882	6,717715	6,742355	142,146729
29,318848	25,557855	6,715569	6,733035	142,319122
29,324059	25,573604	6,723347	6,725526	142,921219
29,311007	25,5815	6,720464	6,760927	142,573318
29,32021	25,543472	6,711748	6,751942	141,906174
29,35027	25,568496	6,717983	6,738265	142,24295
29,329405	25,607915	6,697332	6,751942	143,256271
29,332013	25,555371	6,697467	6,763139	142,483047
29,346428	25,618486	6,69512	6,740611	142,228455
29,354346	25,608087	6,701021	6,760524	141,759125
29,363549	25,621286	6,731057	6,751876	141,270981
29,355732	25,639655	6,743997	6,761799	141,054749
29,390982	25,63977	6,724755	6,763005	140,779114
29,415839	25,663446	6,724017	6,78198	141,117096
29,41063	25,650321	6,725426	6,741818	140,881226
29,39758	25,634549	6,722945	6,757641	141,310623
29,387164	25,666064	6,727102	6,755161	140,343338
29,392371	25,62668	6,738567	6,709032	140,833481
29,431721	25,697835	6,715905	6,597196	139,79187
29,410859	25,687341	6,716039	6,76676	139,802353
29,430449	25,695268	6,729046	6,778292	139,181335
29,442309	25,70588	6,731795	6,763139	138,976151
29,442309	25,734771	6,727035	6,766827	139,103256
29,444912	25,713756	6,710139	6,757709	139,320358
29,447518	25,724248	6,723347	6,748054	138,907318
29,439679	25,747888	6,730991	6,766156	138,682281
29,454054	25,729551	6,715905	6,764614	138,386932
29,492079	25,795396	6,720799	6,759519	138,599731
29,501227	25,774438	6,734813	6,736991	139,372864
29,520897	25,782434	6,725291	6,759519	138,790344
29,49483	25,798198	6,712486	6,755697	138,162994
29,489624	25,785058	6,710943	6,729348	137,795166
29,49483	25,798198	6,723347	6,741684	138,327087
29,500039	25,771939	6,71624	6,748255	137,853363
29,505274	25,779811	6,710876	6,736857	137,568893
29,539303	25,803596	6,704708	6,740611	138,007828
29,566792	25,828664	6,712284	6,747987	137,32106
29,526465	25,844518	6,718184	6,748121	137,860809

29,573443	25,830098	6,704104	6,747249	138,093689
29,570841	25,830098	6,704306	6,733169	135,885101
29,536942	25,840617	6,723347	6,763274	136,863464
29,536942	25,83537	6,712351	6,732432	136,318695
29,54217	25,819604	6,704708	6,748121	136,593689
29,549986	25,822231	6,734813	6,748523	136,157486
29,534336	25,824851	6,704574	6,733035	136,162277
29,538332	25,835458	6,698339	6,721838	136,26004
29,584158	25,886905	6,719794	6,743093	135,163101
29,594698	25,896177	6,700953	6,699378	135,86348
29,576447	25,888284	6,727169	6,718284	135,77626
29,579075	25,901424	6,689756	6,707088	135,784195
29,631199	25,872546	6,689756	6,72566	135,591248
29,605137	25,883039	6,702831	6,729281	135,149887
29,589491	25,890908	6,712284	6,72157	134,312439
29,594698	25,911914	6,696864	6,722777	135,286087
29,581679	25,896177	6,713894	6,710574	135,561981
29,598637	25,875201	6,705513	6,714128	135,749329
29,58837	25,930516	6,722409	6,732968	134,539093
29,634207	25,930711	6,715101	6,718151	133,98439
29,644652	25,909728	6,712016	6,703065	134,385834
29,629004	25,925466	6,703635	6,721838	134,65535
29,615984	25,962234	6,701087	6,721704	134,412323
29,644652	25,907079	6,693645	6,725593	133,37851
29,613356	25,935981	6,70853	6,710508	133,906525
29,608151	25,956962	6,716709	6,710508	133,627731
29,610754	25,941226	6,727839	6,705747	133,384567
29,604277	25,949151	6,719458	6,716609	133,160156
29,644812	25,9388	6,705781	6,7327	133,044006
29,663256	26,013803	6,697266	6,675039	132,320953
29,671124	25,965274	6,716039	6,707758	131,669373
29,647665	25,999416	6,707792	6,699243	130,815002
29,655501	25,957406	6,704708	6,706686	130,32872
29,660708	25,954782	6,715972	6,667999	129,415588
29,645064	25,941646	6,715972	6,6916	129,009674
29,663309	25,965274	6,716039	6,687845	128,49614
29,632044	25,983657	6,693645	6,704137	127,46434
29,641188	25,986337	6,701691	6,699914	127,616974
29,659537	26,008783	6,719659	6,652377	126,953934
29,692196	26,006194	6,710742	6,692203	126,135986
29,697571	26,024745	6,704775	6,691868	126,648491
29,684554	26,032636	6,697332	6,681677	125,500801
29,695027	26,047092	6,706049	6,680671	124,524544
29,687191	26,026092	6,712218	6,687845	124,424728
29,661135	26,031335	6,698473	6,671687	123,526611
29,671572	26,020847	6,693578	6,646678	122,951752
29,687191	26,033956	6,689824	6,654053	122,513519
29,685927	26,039262	6,699881	6,670144	122,083275

29,684649	26,045852	6,686069	6,676849	121,744934
29,709502	26,06171	6,6974	6,670815	120,871803
29,705668	26,080144	6,702093	6,658009	120,625397
29,734492	26,098695	6,697266	6,658009	120,973984
29,750172	26,110528	6,716039	6,649359	120,591179
29,760607	26,107906	6,685264	6,636956	120,178345
29,729346	26,110528	6,681309	6,646678	120,716751
29,726744	26,107906	6,701021	6,653249	119,435448
29,73976	26,089532	6,702026	6,657942	119,495682
29,729346	26,113151	6,680772	6,638967	119,01384
29,713704	26,102662	6,670447	6,654121	118,838409
29,726744	26,102662	6,697467	6,654053	118,066208
29,738558	26,10538	6,676682	6,642856	116,989731
29,775084	26,117282	6,689891	6,644398	117,437012
29,756842	26,127792	6,682314	6,609466	115,954338
29,7438	26,135658	6,687142	6,642185	115,836754
29,764649	26,140897	6,685331	6,633871	115,562332
29,758177	26,129113	6,684259	6,639302	115,468239
29,777687	26,130414	6,685599	6,625021	114,71846
29,750368	26,189481	6,670782	6,638967	113,825424
29,792097	26,154069	6,65583	6,616573	113,235535
29,798741	26,176522	6,659585	6,638296	112,531067
29,766217	26,227712	6,686069	6,622339	112,540222
29,7871	26,22644	6,676347	6,619992	112,382263
29,802742	26,187097	6,663272	6,619992	112,126595
29,815777	26,155591	6,693645	6,638967	111,022369

Ovf-Top - [°C]	Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]
27	28	29	30	31
Surface temperature Top	Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom
210,653546	53,593081	114,332886	123,817061	58,713223
211,083661	53,800097	114,30677	123,959803	59,94292
211,507031	53,922976	114,458183	124,051923	60,493628
211,847211	54,068854	114,698265	123,881672	61,111793
212,074139	54,159262	114,925476	123,810116	60,277345
212,397198	54,252345	115,063881	123,79833	60,765242
212,788434	54,320856	114,831245	123,59456	60,268229
213,267331	54,438246	114,76828	123,699431	60,293645
213,761121	54,568781	114,722458	123,922513	61,613024
214,289609	54,626883	114,671402	124,031419	60,987004
214,916623	54,713343	114,837151	124,194853	61,661304
215,530133	54,8231	114,642303	124,430958	62,714546
216,133038	54,945826	114,465874	124,638566	63,484048
216,706509	55,058215	114,741394	124,848776	62,781844
217,304959	55,0502	114,709778	125,077145	62,896606
217,884839	55,119948	114,660088	125,279693	63,923948
218,447339	55,211638	114,533249	125,466624	64,50687
218,985745	55,380885	114,307213	125,515844	64,945524
219,542401	55,57448	114,181511	125,76501	65,571638
220,038052	55,670107	114,053528	125,933933	66,023102
220,577466	55,772066	113,884926	126,081871	66,362048
221,058331	55,892214	113,7034	126,248147	66,59784
221,585278	56,000449	113,870178	126,47405	65,428288
222,08595	56,165846	113,810127	126,619619	66,601496
222,537152	56,32979	113,644142	126,91842	67,126542
222,981656	56,396845	113,657082	127,121104	67,026962
223,456479	56,529696	113,759995	127,368008	67,075264
223,86636	56,640803	113,754753	127,656718	67,133929
224,276089	56,758284	113,855202	127,937587	67,094238
224,687024	56,858839	113,750549	128,278239	67,248275
225,092404	56,983893	113,824745	128,538294	67,220125
225,475461	57,094992	113,832565	128,824592	67,288941
225,807843	57,199492	113,925194	129,001486	66,356791
226,166791	57,205859	114,187561	129,311191	66,127063
226,516232	57,312823	114,200447	129,585754	66,791305
226,852383	57,435439	114,307381	129,920329	66,709626
227,136807	57,484518	114,270821	130,141745	66,839668
227,447675	57,58763	114,252342	130,459322	66,825302
227,673596	57,685767	114,53968	130,725093	66,593248
227,964383	57,730723	114,646591	130,966009	66,479687
228,204724	57,814562	114,811066	131,207001	66,418416
228,423917	57,890662	114,894615	131,401119	66,285671
228,629712	57,956408	114,868355	131,600395	66,177065

228,810361	58,075171	114,912773	131,782899	65,995986
229,013364	58,187281	115,066765	132,052637	65,805875
229,192502	58,296923	115,0196	132,197271	65,963954
229,338528	58,428442	114,988113	132,440963	66,143544
229,4819	58,505839	114,967148	132,53085	66,130666
229,580151	58,567786	115,006325	132,747395	65,977632
229,695584	58,618044	115,093773	132,783832	65,932979
229,797528	58,70946	115,08963	132,843647	65,955796
229,887738	58,871954	115,099968	132,998748	66,102243
229,935498	58,923533	115,308975	133,099102	66,0103
229,962048	58,920954	115,24884	133,193046	65,928666
229,993909	58,990626	115,290688	133,24262	65,859819
230,052014	59,053591	115,328278	133,335026	65,70921
230,070462	59,147639	115,232742	133,366155	65,629903
230,067761	59,186285	115,190865	133,443057	65,639956
230,041226	59,199179	115,303223	133,503068	65,453749
229,99606	59,224986	115,358116	133,550047	63,7519
230,018338	59,22732	115,289917	133,560303	64,300451
229,987714	59,287882	115,170906	133,642469	64,450924
229,979596	59,369009	115,221725	133,664443	64,465947
229,958356	59,369009	115,130241	133,654006	64,361307
229,884	59,423228	115,245216	133,661834	63,986208
229,852017	59,436003	115,096153	133,602954	63,89937
229,834454	59,531226	115,281456	133,624913	63,728191
229,80383	59,515631	115,278702	133,640402	63,559485
229,758664	59,544005	115,310074	133,572534	63,056633
229,705563	59,544005	115,440765	133,580377	63,041334
229,628537	59,54143	115,45121	133,603844	62,969848
229,587262	59,465193	115,460266	133,55421	61,308683
229,584317	59,446833	115,144989	133,609982	62,161319
229,537747	59,48157	115,440254	133,538103	62,272349
229,476636	59,499648	115,414108	133,616422	62,259573
229,420865	59,497065	115,552643	133,558991	62,068064
229,41293	59,486727	115,714722	133,598143	61,971022
229,365018	59,481448	115,610039	133,603241	61,407655
229,396451	59,540442	115,67762	133,644625	61,602767
229,377881	59,535288	115,675011	133,657686	61,56189
229,367245	59,543017	115,750839	133,717727	61,531251
229,324765	59,493987	115,62796	133,600255	60,560466
229,335355	59,455294	115,638405	133,696823	61,066346
229,335248	59,522177	115,669617	133,696642	61,271726
229,378781	59,58779	115,491615	133,781281	61,44013
229,390637	59,586382	115,62484	133,80597	61,479697
229,406583	59,705096	115,509834	133,800752	61,586966
229,398618	59,663798	115,679756	133,756381	61,581864
229,419858	59,705096	115,556885	133,798143	61,64315
229,435666	59,730711	115,848145	133,921964	61,613451
229,432874	59,73062	115,828461	133,938856	61,120419

229,453946	59,755026	115,97213	134,036646	60,857216
229,448575	59,629794	116,000832	134,116188	59,675242
229,46449	59,547205	115,736748	134,152731	60,178762
229,455212	59,556219	116,071365	134,227114	58,722777
229,465741	59,517393	116,042473	134,24393	59,864104
229,4763	59,556036	116,03196	134,322205	60,068521
229,485455	59,610094	116,24102	134,331254	60,129792
229,503857	59,613837	116,149384	134,30106	60,191059
229,490567	59,637057	116,204292	134,274954	60,203827
229,471967	59,627982	116,182045	134,276235	60,527066
229,428067	59,671729	116,243347	134,303518	60,507647
229,381543	59,590411	116,194931	134,208171	60,465451
229,299222	59,592993	116,278603	134,208171	60,401579
229,281705	59,600546	116,432716	134,117937	60,315881
229,243054	59,535918	116,68502	134,10738	59,53114
229,150067	59,53076	116,637924	134,102146	60,01168
229,078305	59,497099	116,86277	134,021082	59,340496
228,993268	59,45574	116,900597	134,003994	59,580681
228,924161	59,476393	116,633797	133,962248	59,728949
228,828549	59,502196	116,657341	133,852603	59,820953
228,734006	59,473635	116,87429	133,775445	59,54608
228,636884	59,509653	116,543297	133,736187	59,827211
228,525281	59,503157	116,43734	133,708723	60,040597
228,437482	59,558501	116,413628	133,672014	60,311191
228,296674	59,607535	116,502563	133,687684	60,362302
228,15849	59,555926	116,737953	133,575415	59,968748
228,041577	59,52236	116,549637	133,486704	59,932946
227,91264	59,521048	116,592758	133,315722	59,918883
227,798154	59,48733	116,663193	133,254248	60,106649
227,659802	59,47431	116,435516	133,12367	59,692467
227,510907	59,480677	116,162163	133,063539	59,895517
227,371335	59,480601	116,047066	132,883432	60,198283
227,225156	59,485777	115,942474	132,76866	60,384852
227,063	59,483176	115,939865	132,685182	60,499826
226,922101	59,447058	115,803902	132,567786	60,512617
226,738644	59,369639	115,806511	132,421719	60,377167
226,552411	59,335974	115,893997	132,349884	60,180333
226,440396	59,402724	115,675331	132,30387	60,504486
226,27287	59,327879	115,944595	132,176066	60,105822
226,092038	59,258189	115,97599	132,040466	59,469367
225,919202	59,232378	116,083183	131,933551	59,748001
225,725034	59,193678	116,057037	131,803184	59,643202
225,573453	59,170454	115,824341	131,737971	59,89881
225,37663	59,160117	115,944595	131,586776	59,89881
225,236874	59,143256	115,605972	131,500614	60,122288
225,098248	59,13782	115,608284	131,427316	60,357136
224,939877	59,120932	115,672234	131,351666	60,524468
224,77757	59,069312	115,614731	131,192659	60,626669

224,623257	59,056422	115,397797	131,140521	60,774868
224,405087	59,020274	115,426537	131,046697	60,695666
224,248105	58,929945	115,335052	130,911172	60,596014
224,053876	58,904139	115,225288	130,817348	60,652221
223,888852	58,837019	115,102448	130,770459	60,350727
223,726453	58,845969	115,050087	130,702576	60,747847
223,609006	58,895975	115,218338	130,596732	60,85873
223,459897	58,857218	115,347641	130,540673	60,616015
223,289517	58,751387	115,413002	130,457301	59,614183
223,15112	58,692004	115,311066	130,389538	60,304253
222,986096	58,694579	115,439133	130,413006	60,53423
222,844968	58,686835	115,611656	130,389538	59,701081
222,685239	58,666186	115,601196	130,402569	60,314495
222,54147	58,58874	115,525391	130,32443	59,200039
222,406918	58,580885	115,4011	130,27086	59,960258
222,293744	58,605376	115,580139	130,281236	60,45087
222,179044	58,614287	115,481941	130,234226	60,618175
222,08833	58,632155	115,182549	130,232778	60,988583
221,955182	58,616686	115,477875	130,214514	60,383028
221,822034	58,487608	115,294914	130,110329	60,142798
221,720822	58,495341	115,122429	130,144188	61,152074
221,585034	58,487608	115,274017	130,172858	61,394758
221,47308	58,481066	115,137985	130,102396	61,492915
221,342511	58,524878	115,229424	130,072368	61,523429
221,279904	58,477091	115,141838	130,1049	61,726464
221,174527	58,493811	115,035912	130,188212	62,026515
221,078442	58,492316	115,080154	130,161984	62,07879
220,985242	58,489714	114,905106	130,172406	62,413305
220,865353	58,518134	114,748306	130,227107	62,576698
220,724164	58,520712	115,072327	130,201061	62,660972
220,620251	58,515528	115,082764	130,167203	62,847333
220,45773	58,487139	115,379387	130,236187	62,969825
220,355023	58,46115	115,4524	130,286786	62,063132
220,233685	58,374598	115,173943	130,268507	62,735921
220,100308	58,409293	114,976509	130,334806	63,025605
219,948361	58,440218	115,040497	130,343871	63,150692
219,791119	58,419562	115,354103	130,328261	63,262995
219,609906	58,404082	115,351494	130,296996	63,377874
219,447339	58,39892	115,08754	130,291763	63,538668
219,246106	58,397585	115,067909	130,26439	63,810467
219,060635	58,459395	114,913574	130,189991	63,909877
218,864636	58,504481	114,938316	130,13259	64,098621
218,644574	58,574015	114,736938	130,116769	64,301294
218,412625	58,592093	114,627213	130,041224	64,574327
218,186032	58,586909	114,862358	129,986523	64,112447
217,884732	58,574015	115,013916	129,947476	63,87767
217,607419	58,550784	115,000832	129,900572	63,744962
217,319424	58,499148	114,59066	129,804199	64,194126

217,015378	58,512068	114,501808	129,629703	64,29107
216,70332	58,481066	114,183151	129,512532	64,589622
216,348538	58,504305	114,283661	129,354943	64,717141
216,025571	58,515749	114,000084	129,150358	64,730925
215,699948	58,504034	113,75322	128,956316	65,096956
215,32771	58,519476	113,477745	128,735021	65,283193
214,95535	58,51684	113,223122	128,511117	65,352002
214,536267	58,452235	113,020782	128,265163	65,474445
214,1172	58,392836	112,819839	128,015333	65,834101
213,692776	58,395441	112,616287	127,757766	65,923379
213,262952	58,333464	112,561485	127,505448	65,948885
212,822354	58,263747	112,41404	127,251818	65,938613
212,372342	58,219763	112,314758	127,016331	66,16794
211,908932	58,153872	112,232552	126,760182	66,184489
211,417493	58,063513	112,381279	126,47681	64,898876
210,950009	57,97571	112,222122	126,172671	64,756009
210,453076	57,965392	111,692574	125,954369	65,666732
209,956082	57,952471	111,50222	125,58798	65,880983
209,453671	57,906008	111,137131	125,364543	66,255896
208,959271	57,882761	110,868607	125,006072	66,421679
208,427319	57,80271	110,806053	124,780101	65,827416
207,911404	57,758807	110,435913	124,478888	66,600189
207,415433	57,696772	110,128342	124,224383	66,705948
206,90321	57,642329	110,120316	123,971009	66,963206
206,370969	57,57384	110,025169	123,741275	67,354585
205,80798	57,52862	109,926109	123,46745	66,90961

Kanal-EPA - [°C]	Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]
36	38	39	40	43
EPA Duct temperature	Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading
33,659144	17,097321	27,764558	128,444357	0,750214
38,973319	17,343064	28,244377	130,990342	10,002699
44,607325	16,033112	28,270483	129,336738	10,002498
48,146763	17,495483	28,972396	130,561193	2,497806
50,583262	18,621683	27,2201	128,992727	2,63418
53,696956	20,549313	28,731658	131,548936	2,312889
55,957794	20,933169	27,98292	129,612614	2,142522
54,887719	16,734069	27,858617	127,397004	2,421707
50,99225	15,831477	27,327002	129,496822	2,424389
47,521206	15,726231	27,20891	130,424954	2,392676
44,659619	15,201873	27,970077	128,738981	2,370014
42,227812	15,021866	27,909996	128,32004	2,346681
40,459763	15,09816	27,668015	127,543467	2,329249
39,171106	14,97912	27,729339	128,682784	2,307257
38,122488	14,970265	27,664283	127,737618	2,288819
37,19455	15,167983	27,507659	127,441295	2,265419
36,5395	15,037533	28,593678	128,493744	2,248792
36,022562	14,63324	27,925327	128,578898	2,228744
35,567312	14,799964	28,418823	127,776782	2,206686
35,229394	14,545705	27,457107	128,316627	2,186304
35,089931	14,923092	28,274211	128,534622	2,169006
34,924325	14,511645	27,922426	129,222629	2,145204
34,721175	14,424282	28,395617	128,708327	2,122341
34,503937	14,576871	27,590942	128,405193	2,102159
34,3504	14,393288	28,907344	128,61976	2,082044
34,344369	14,362633	28,22946	128,812213	2,062667
34,242456	14,433479	27,08212	128,59763	2,044632
34,182113	13,621993	27,681688	128,609552	2,026194
34,133837	14,317843	27,794805	128,93653	2,007756
34,082881	14,42326	27,950603	129,246473	1,98972
33,995719	13,738312	28,285814	128,061182	1,971282
33,8918	14,178878	27,859444	129,307783	1,955593
33,857606	14,031909	28,034303	128,609552	1,935344
33,682613	14,164743	28,36537	128,165068	1,921801
33,575331	13,967366	28,003225	127,77167	1,904302
33,596787	13,735417	27,607516	128,703215	1,888747
33,5103	13,618928	27,849085	128,144637	1,872454
33,492194	13,695226	28,460256	126,203204	1,85757
33,411738	13,685349	27,697431	127,667784	1,840271
33,397656	13,609903	27,976706	128,640207	1,82646
33,388944	13,354963	28,057505	129,811877	1,811978
33,323906	13,554043	28,524481	129,949815	1,795417
33,155619	13,590659	28,466888	129,266904	1,782611

33,148912	13,459015	28,217861	129,740344	1,767123
33,194506	13,231665	27,939	128,767921	1,750495
33,156287	13,464637	29,239658	129,333325	1,736751
33,057056	13,260105	27,247029	129,266904	1,721262
33,054375	13,50057	28,195899	128,429038	1,705439
33,00275	13,191644	28,06372	129,195388	1,69384
33,00275	13,066474	29,404985	136,782256	1,677145
32,97325	13,049785	27,049385	128,778145	1,662529
32,987331	12,913885	27,597161	127,907909	1,648717
32,893462	12,901624	28,306115	127,13305	1,633095
32,902181	13,29689	28,327664	129,399746	1,618412
32,915587	12,870628	26,823147	127,574121	1,604667
32,926313	13,275774	27,820081	128,296196	1,589045
32,918938	13,121481	27,900464	128,759412	1,574563
32,9062	12,993075	27,932372	129,793145	1,559946
32,951794	12,970594	28,231947	129,050623	1,54238
32,890781	12,751418	27,735554	127,77167	1,528702
32,819038	13,441134	27,577686	127,587742	1,514086
32,712431	13,236434	28,218274	128,505666	1,499469
32,648069	12,737794	27,731823	128,682784	1,485725
32,653431	13,079757	27,578513	128,362617	1,470103
32,597781	12,775941	27,847841	128,040751	1,454682
32,633987	13,036671	28,013585	127,981141	1,441742
32,616556	13,018789	27,329903	128,033941	1,424308
32,760706	12,92853	28,13126	127,645654	1,412441
32,8586	12,897025	29,535093	135,53056	1,396752
32,882062	13,00721	27,642738	128,989314	1,379186
32,803619	12,825158	27,78652	126,995097	1,366581
32,757356	12,930403	28,511635	129,358868	1,349551
32,695	12,936364	27,566083	129,191974	1,335471
32,636	12,506185	27,645226	127,887478	1,32072
32,588394	13,033605	27,177419	127,655862	1,306104
32,636669	12,144808	28,212473	128,403479	1,290817
32,658794	12,553699	28,477243	129,217517	1,273384
32,646056	12,868585	27,872291	127,388495	1,26145
32,634656	12,910309	28,135817	128,333661	1,247706
32,406025	12,663203	28,197969	127,589457	1,232955
32,397312	12,573114	27,922013	128,119078	1,217601
32,3953	12,571411	27,694531	128,968883	1,203723
32,4134	12,390892	28,459429	127,214791	1,191654
32,487825	12,731323	28,425864	128,241697	1,175294
32,610525	12,351383	27,790247	128,44777	1,163427
32,619238	13,159118	27,261533	127,366349	1,148676
32,571638	12,89975	28,011928	128,614664	1,134999
32,535431	12,655709	28,127115	128,973995	1,119377
32,552863	12,546206	27,501444	129,459341	1,105699
32,513975	12,629142	28,07905	127,751239	1,093698
32,533419	12,32686	28,359155	127,43277	1,078209

32,499225	12,557446	27,621193	128,02713	1,063728
32,409381	12,869777	27,745913	129,120457	1,051726
32,252488	12,307275	27,559868	129,185164	1,042541
32,248469	12,522535	28,156949	130,581624	1,029734
32,196838	12,578053	27,984994	128,59763	1,018672
32,193488	12,375055	28,347552	128,222964	1,00667
32,240419	12,268106	28,97364	134,735254	0,993998
32,204888	11,94317	28,466057	128,934831	0,983003
32,145212	12,320899	28,007783	129,147699	0,969191
32,141188	12,184658	27,278937	128,870109	0,960072
32,12845	12,291436	27,978363	128,853075	0,945456
32,103644	12,586227	29,080129	134,050645	0,934527
32,047325	12,223658	28,205014	127,96752	0,923397
32,078837	11,998179	28,322276	129,781223	0,912334
32,137837	12,377268	28,306532	130,646347	0,900467
32,086212	12,399067	27,602545	127,843203	0,887594
32,060731	12,118411	27,585558	128,963771	0,876665
32,085544	11,983704	26,780057	127,614999	0,863859
32,063412	12,355639	27,729753	127,848314	0,854674
32,092919	11,979616	28,693122	130,178018	0,842002
32,082187	12,272023	27,937756	130,670191	0,829933
32,0024	12,356492	28,573373	131,550634	0,819004
31,960831	11,939935	27,508072	127,769971	0,806131
31,868306	12,133397	27,695361	128,645319	0,796946
31,868975	12,290415	28,553485	130,55097	0,78414
31,862944	12,130673	28,385258	129,152811	0,773144
31,863613	12,107342	28,967425	129,038701	0,761947
31,875013	12,170524	27,005047	125,917105	0,748471
31,796569	12,433978	27,15173	127,664387	0,739151
31,877694	11,887994	28,084852	128,391573	0,728424
31,945412	11,574812	28,055018	127,616698	0,717226
31,973569	11,927845	27,668428	127,570724	0,707103
31,993013	11,965653	27,411116	127,506002	0,695369
31,926638	12,11773	27,486114	129,031891	0,685111
31,901831	11,593886	27,92657	128,119078	0,673311
31,966194	11,87982	28,36827	128,231489	0,662114
32,022519	11,897871	28,39603	128,58401	0,650246
31,944744	12,041095	28,028915	131,279854	0,639318
31,885737	12,017253	27,799776	128,529511	0,62745
31,813331	11,991708	28,322693	128,268954	0,617393
31,804612	11,626583	29,482884	133,46481	0,60566
31,798581	11,603252	27,373823	128,422212	0,597212
31,775781	11,726889	28,416749	129,517253	0,587423
31,67655	11,490854	28,606108	128,756015	0,575354
31,668506	11,900256	27,764558	129,156208	0,566169
31,685269	11,736256	27,837899	127,451503	0,554234
31,734212	11,740683	28,600723	129,331627	0,543037
31,781819	11,644465	27,190266	127,528147	0,531103

31,808638	11,545691	27,838312	129,215819	0,521314
31,805281	11,933293	27,902538	129,943005	0,510251
31,783156	12,197772	28,21496	130,327878	0,50006
31,748294	11,569873	27,894666	128,686181	0,490137
31,737562	11,463946	27,535419	128,873522	0,483634
31,74695	11,877265	28,474759	128,914384	0,470023
31,680575	11,84031	27,783619	127,943675	0,457082
31,645038	11,774745	27,270235	127,843203	0,447964
31,600787	12,273215	28,695609	127,851712	0,437639
31,580006	11,761802	27,62202	128,405193	0,429526
31,603469	11,304886	27,812209	128,558467	0,417525
31,601456	11,72672	29,584398	134,944725	0,407468
31,545138	11,475868	27,618706	129,86636	0,398416
31,569944	11,663197	27,74674	128,59763	0,385678
31,563244	11,431419	28,854304	129,740344	0,377431
31,583356	11,314422	28,07698	128,383048	0,366301
31,582013	11,219564	27,962206	128,498856	0,355372
31,681244	11,550799	28,451554	128,132715	0,346521
31,701362	11,748178	28,333465	128,803688	0,333448
31,716112	11,532067	27,720637	127,652465	0,324262
31,583356	11,792455	28,280843	129,372489	0,315211
31,504237	11,638504	28,408463	129,69437	0,303142
31,597438	11,387141	28,264682	129,883394	0,297711
31,662475	11,508905	28,11883	129,033605	0,283095
31,605481	11,680057	28,317305	126,191282	0,275921
31,551175	11,129135	27,946045	129,079579	0,26754
31,587381	11,379306	28,830272	129,358868	0,257483
31,614869	11,262139	28,773922	129,83742	0,24823
31,673869	11,106656	27,955987	127,742714	0,241794
31,651075	11,223822	27,515117	128,175292	0,231937
31,667162	11,330261	28,265926	132,405551	0,223489
31,713425	11,330089	27,2375	128,698103	0,216181
31,665825	11,362277	27,831267	127,427659	0,207867
31,653756	10,962411	27,530448	129,573451	0,201431
31,531056	10,625217	27,997424	128,89735	0,193184
31,520331	10,926137	28,001151	128,718534	0,187686
31,502231	10,816293	27,869803	128,175292	0,180378
31,434513	10,861764	29,64821	129,249886	0,176824
31,407019	11,005837	28,422137	129,156208	0,168712
31,356062	10,476544	28,800442	128,32685	0,161269
31,248119	10,354269	27,670498	128,188913	0,158454
31,275606	10,634583	27,917455	129,391222	0,152151
31,296394	10,789726	27,687903	128,268954	0,146519
31,34735	10,606824	28,259294	128,738981	0,140284
31,314494	10,540236	28,499205	130,230803	0,132841
31,324556	10,643098	28,454871	128,119078	0,125599
31,378194	11,007882	28,166482	128,331962	0,126404
31,397638	10,43993	28,193411	127,184136	0,118358

31,425794	10,545856	27,540394	128,657241	0,110849
31,400319	10,549944	28,146177	127,626922	0,105351
31,424456	10,713603	28,143276	129,135777	0,098177
31,329244	10,20372	27,922013	128,694706	0,096299
31,284325	10,50805	27,984164	128,168466	0,092478
31,23605	10,34405	28,135817	129,51384	0,085237
31,244769	9,987609	28,045489	129,21412	0,080611
31,187775	10,234714	27,703646	129,835706	0,074375
31,153581	10,280185	28,230704	130,167795	0,069614
31,122069	10,145817	27,837068	129,263507	0,065056
31,091231	10,126062	27,257805	129,573451	0,060362
31,053681	10,140369	27,446747	129,350359	0,05587
31,032225	10,136792	28,055018	128,570373	0,051512
31,018819	9,678003	28,965768	128,32685	0,048763
30,985962	9,77252	28,113029	128,728758	0,041254
30,912213	9,765708	28,846019	129,275429	0,038504
30,900144	9,764686	27,87146	128,566976	0,03589
30,926963	9,720918	28,11883	128,939927	0,030325
30,765375	9,685155	28,038861	129,93448	0,028113
30,789513	9,628275	28,24562	129,799955	0,024894
30,688944	9,658588	27,641495	129,140889	0,019329
30,649387	9,592683	28,091897	128,568674	0,015574
30,703694	9,269452	28,073666	129,273715	0,012691
30,745262	9,634917	27,889278	127,940262	0,008401
30,615194	9,546871	28,296173	128,096949	0,005584
30,5991	9,542274	29,271562	130,525427	0,001092

CO-Lav - [100ppm]	CO-Høj - [%]	CO2 - [%]
44	45	46
CO low range	CO high range	CO2 - [%]
3,46769	0,056018	9,385433
7,896308	0,099605	4,53227
13,764841	0,14629	3,452671
20,573512	0,216569	2,829263
22,441051	0,317221	3,288137
19,695591	0,213512	4,12462
22,346113	0,218782	5,351856
20,900034	0,245534	8,091014
22,440649	1,269469	13,166241
22,440515	1,177245	13,112335
22,440515	1,011906	12,465059
22,440649	0,955607	11,204164
22,440246	0,591921	10,91358
22,44038	0,388988	10,793431
22,439979	0,333232	10,73148
22,440113	0,397979	10,759908
22,440246	0,43505	10,849617
22,440113	0,478135	10,992965
22,439979	0,480569	11,282744
22,439979	0,46488	11,689319
22,439979	0,523734	12,098712
22,439979	0,480629	12,321846
22,439844	0,453012	12,336596
22,439844	0,43676	12,331501
22,439844	0,371831	12,288322
22,43971	0,289343	12,102333
21,891932	0,235477	11,946512
21,102919	0,223851	11,75288
15,980894	0,17789	11,577618
12,133577	0,140176	11,426627
10,647265	0,123782	11,32847
10,423595	0,116843	11,127595
10,168681	0,102582	11,01442
9,972635	0,111332	10,95515
11,103056	0,131949	10,801611
9,696801	0,118653	10,739258
11,057464	0,12509	10,565467
10,852568	0,113162	10,373712
11,871285	0,123038	10,245651
12,02603	0,13221	10,198719
12,398816	0,142468	10,181689
12,440251	0,150735	10,172303
13,384146	0,163749	10,144679

11,979634	0,146773	10,12376
12,933586	0,147537	10,153931
12,433949	0,143394	10,100293
12,411421	0,137239	10,046521
13,283171	0,151359	10,077497
11,314926	0,131929	10,162111
10,81663	0,125311	10,178873
10,467176	0,113725	10,142668
10,971241	0,125231	10,241361
10,258391	0,120343	10,399056
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8,52213	0,100711	10,650753
7,722789	0,095944	10,604221
8,41633	0,10922	10,595102
8,092354	0,092987	10,659736
7,173402	0,083654	10,760041
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6,126659	0,086229	11,044189
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6,256865	0,091801	11,081467
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5,591352	0,083011	11,060011
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5,251554	0,062977	11,053978
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8,085784	0,100249	11,149051
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7,846826	0,110829	9,776589
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8,278614	0,09876	9,980279
10,521619	0,118492	9,703373
8,935009	0,110406	9,913096
10,7469	0,124647	9,948766
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9,175976	0,10922	10,04223
10,796917	0,130501	9,698545
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12,012755	0,145606	9,950911
11,623746	0,120403	9,686074
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11,829448	0,128288	9,641152
13,81097	0,153471	9,782756
11,451836	0,135046	9,82741
9,603204	0,126719	9,81923
10,709084	0,131023	9,853022
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12,561339	0,148121	9,847524
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11,670142	0,136716	9,917656
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9,175976	0,108274	9,799116
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15,503516	0,172137	9,975316
17,759396	0,172942	10,216955
18,810298	0,193619	10,109278
22,440649	0,258326	10,10217
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12,335926	0,152687	10,101902
9,867906	0,106182	10,098147
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16,623074	0,177387	10,059796
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12,52044	0,136012	9,654696
11,907491	0,135529	9,592744
15,452292	0,156528	9,42888
12,415043	0,143756	9,275609
16,10225	0,171433	9,269977
14,410105	0,165761	9,164713
19,120459	0,20788	9,087071
17,863186	0,20438	9,088145
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19,392805	0,208363	8,561554
18,592795	0,208081	8,344858
21,167821	0,23087	8,059904
22,440246	0,29417	7,75296
22,440246	0,439355	7,61672
22,439844	0,399126	7,315677
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22,43971	0,379233	7,283629
22,439844	0,405542	8,213846
22,439979	0,427145	7,350274
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22,439844	0,519128	7,25386
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22,439979	0,68153	6,95751
22,439576	0,717273	6,77836
22,439844	0,685674	6,629514
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22,439576	0,674309	6,802496
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22,439576	0,600128	6,841786
22,439844	0,516654	6,931361
22,439844	0,518605	7,136526
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22,439576	0,441447	7,316347
22,439441	0,4473	7,348396
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22,439576	0,433964	7,189896
22,439844	0,43318	7,039442
22,439576	0,458725	6,865924
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22,439576	0,490163	6,59237
22,43971	0,499597	6,613558
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Datotid	Scantid	Rum - [°C]	NS-Røgtemp - [°C]	Ovf-Top - [°C]
		1	24	27
Datotid		Ambient temperature	EPA Flue gas temperature	Surface temperature Top
21-02-2019 12:10:13	3,066	23,659284	34,684452	23,855143
21-02-2019 12:10:43	3,066	23,777921	62,791283	23,89878
21-02-2019 12:11:13	3,067	23,867525	81,413101	23,946435
21-02-2019 12:11:43	3,065	24,00983	94,55481	24,002131
21-02-2019 12:12:13	3,066	24,078352	107,493553	24,069814
21-02-2019 12:12:43	3,067	24,067821	82,448296	24,268945
21-02-2019 12:13:13	3,067	24,004562	71,4048	24,523803
21-02-2019 12:13:43	3,064	23,967678	74,029449	24,831672
21-02-2019 12:14:13	3,066	23,954515	81,634598	25,224313
21-02-2019 12:14:43	3,067	23,962421	96,009262	25,659278
21-02-2019 12:15:13	3,066	23,793712	102,749672	26,215966
21-02-2019 12:15:43	3,066	23,777906	107,912407	26,846537
21-02-2019 12:16:13	3,065	23,764736	113,859764	27,540278
21-02-2019 12:16:43	3,067	23,759443	116,510094	28,345858
21-02-2019 12:17:13	3,067	23,743637	123,620544	29,280192
21-02-2019 12:17:43	3,065	23,791101	130,657867	30,326085
21-02-2019 12:18:13	3,067	23,814811	133,166504	31,413192
21-02-2019 12:18:43	3,065	23,883321	137,692398	32,637471
21-02-2019 12:19:13	3,065	23,949213	139,272751	33,972112
21-02-2019 12:19:43	3,067	24,05989	140,088516	35,39314
21-02-2019 12:20:13	3,068	24,215332	141,416138	36,900239
21-02-2019 12:20:43	3,066	24,117851	142,789673	38,498242
21-02-2019 12:21:13	3,066	24,120483	143,894119	40,279336
21-02-2019 12:21:43	3,067	24,049343	143,716324	42,007134
21-02-2019 12:22:13	3,067	23,920232	142,106125	43,875848
21-02-2019 12:22:43	3,067	24,094169	140,309006	45,840676
21-02-2019 12:23:13	3,067	24,062557	142,259933	47,846722
21-02-2019 12:23:43	3,066	24,125745	142,161804	49,893971
21-02-2019 12:24:13	3,067	24,115217	142,602127	51,965443
21-02-2019 12:24:43	3,067	24,123113	144,811386	54,030427
21-02-2019 12:25:13	3,067	24,117849	145,187973	56,118478
21-02-2019 12:25:43	3,067	24,05723	142,559021	58,179791
21-02-2019 12:26:13	3,067	23,962373	141,193512	60,289597
21-02-2019 12:26:43	3,066	23,949195	142,694275	62,420789
21-02-2019 12:27:13	3,067	24,131015	143,474258	64,555493
21-02-2019 12:27:43	3,065	24,028255	145,839752	66,660489
21-02-2019 12:28:13	3,067	23,980814	146,666	68,800488
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21-02-2019 12:29:13	3,067	24,059869	145,220901	73,09628
21-02-2019 12:29:43	3,066	24,123113	143,23114	75,340962
21-02-2019 12:30:13	3,065	24,128381	143,468353	77,560117
21-02-2019 12:30:43	3,065	24,281162	142,261383	79,734624
21-02-2019 12:31:13	3,066	24,125742	143,269333	81,881306

21-02-2019 12:31:43	3,066	24,325941	142,447006	83,979817
21-02-2019 12:32:13	3,066	24,220588	143,248123	86,019879
21-02-2019 12:32:43	3,067	24,212705	143,136688	88,058369
21-02-2019 12:33:13	3,068	24,296995	141,757568	90,116055
21-02-2019 12:33:43	3,067	24,331226	141,192917	92,133832
21-02-2019 12:34:13	3,067	24,2364	139,986801	94,179929
21-02-2019 12:34:43	3,066	24,154743	139,462128	96,151418
21-02-2019 12:35:13	3,067	24,244346	138,265549	98,066403
21-02-2019 12:35:43	3,066	24,204836	137,889755	99,97408
21-02-2019 12:36:13	3,066	24,191644	136,159882	101,818661
21-02-2019 12:36:43	3,066	24,225881	136,125504	103,6078
21-02-2019 12:37:13	3,066	24,162668	170,664993	105,359654
21-02-2019 12:37:43	3,066	24,307592	174,16037	107,070103
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21-02-2019 12:39:13	3,067	24,391851	210,617859	112,12225
21-02-2019 12:39:43	3,067	24,381307	237,618896	113,746617
21-02-2019 12:40:13	3,067	24,310197	254,050674	115,328076
21-02-2019 12:40:43	3,066	24,349758	252,476044	116,849561
21-02-2019 12:41:13	3,067	24,434049	246,765976	118,385114
21-02-2019 12:41:43	3,067	24,418241	263,57605	119,866124
21-02-2019 12:42:13	3,066	24,478763	238,857635	121,387715
21-02-2019 12:42:43	3,066	24,526146	238,090591	122,918469
21-02-2019 12:43:13	3,066	24,462972	208,314331	124,524098
21-02-2019 12:43:43	3,066	24,518318	183,640366	126,175946
21-02-2019 12:44:13	3,067	24,665731	173,874069	127,822758
21-02-2019 12:44:43	3,066	24,52098	169,403763	129,478665
21-02-2019 12:45:13	3,066	24,43408	167,097351	130,998212
21-02-2019 12:45:43	3,067	24,38928	164,789352	132,458386
21-02-2019 12:46:14	3,066	24,515689	162,629593	133,861676
21-02-2019 12:46:44	3,066	24,531574	161,245728	135,198651
21-02-2019 12:47:14	3,065	24,576328	160,063858	136,45863
21-02-2019 12:47:44	3,066	24,52103	159,482574	137,701978
21-02-2019 12:48:14	3,067	24,476255	158,609543	138,820737
21-02-2019 12:48:44	3,067	24,3472	158,598892	139,874036
21-02-2019 12:49:14	3,067	24,391973	159,78421	140,859021
21-02-2019 12:49:44	3,065	24,457857	159,036667	141,764966
21-02-2019 12:50:14	3,066	24,407911	159,718826	142,627576
21-02-2019 12:50:44	3,067	24,36577	159,286301	143,475858
21-02-2019 12:51:14	3,066	24,331544	160,675537	144,269818
21-02-2019 12:51:44	3,066	24,394691	159,898453	145,015393
21-02-2019 12:52:14	3,066	24,339384	159,87973	145,702832
21-02-2019 12:52:44	3,067	24,373735	161,27652	146,337354
21-02-2019 12:53:14	3,066	24,36849	163,841797	146,977383
21-02-2019 12:53:44	3,067	24,363227	168,328156	147,584286
21-02-2019 12:54:14	3,066	24,49222	170,071106	148,209592
21-02-2019 12:54:44	3,066	24,32633	171,746902	148,842175
21-02-2019 12:55:14	3,067	24,265691	171,928955	149,43237

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21-02-2019 12:56:14	3,065	24,442291	173,28653	150,703687
21-02-2019 12:56:44	3,067	24,450185	175,004532	151,362149
21-02-2019 12:57:14	3,067	24,442291	175,746017	152,069592
21-02-2019 12:57:44	3,067	24,373825	176,090271	152,712445
21-02-2019 12:58:14	3,066	24,394868	175,768799	153,436749
21-02-2019 12:58:44	3,066	24,392265	176,232239	154,193204
21-02-2019 12:59:14	3,065	24,434478	176,54837	154,912564
21-02-2019 12:59:44	3,066	24,434478	176,79213	155,698758
21-02-2019 13:00:14	3,066	24,368665	177,159836	156,586057
21-02-2019 13:00:44	3,066	24,416067	176,445984	157,42854
21-02-2019 13:01:14	3,066	24,368703	177,563156	158,308774
21-02-2019 13:01:44	3,067	24,439855	177,627441	159,178601
21-02-2019 13:02:14	3,067	24,484621	178,050781	160,064679
21-02-2019 13:02:44	3,068	24,442485	177,67691	160,968335
21-02-2019 13:03:14	3,066	24,360862	177,640442	161,905408
21-02-2019 13:03:44	3,066	24,352943	178,236313	162,858807
21-02-2019 13:04:14	3,066	24,458305	178,020737	163,816525
21-02-2019 13:04:44	3,067	24,397838	178,277939	164,778622
21-02-2019 13:05:14	3,067	24,484718	178,015366	165,762341
21-02-2019 13:05:44	3,066	24,426801	176,87941	166,75163
21-02-2019 13:06:14	3,067	24,400468	178,176147	167,687665
21-02-2019 13:06:44	3,066	24,408426	177,675125	168,666699
21-02-2019 13:07:14	3,067	24,513801	177,954834	169,648419
21-02-2019 13:07:44	3,066	24,548013	177,683868	170,674283
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21-02-2019 13:12:44	3,066	24,564079	176,020981	180,002835
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21-02-2019 13:14:44	3,066	24,674766	176,389374	183,324307
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21-02-2019 13:15:44	3,082	24,658968	175,891861	184,997449
21-02-2019 13:16:14	3,066	24,759151	175,289139	185,777341
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21-02-2019 13:17:14	3,066	24,559106	175,190048	187,256787
21-02-2019 13:17:44	3,066	24,498569	174,975769	187,969678
21-02-2019 13:18:14	3,067	24,603887	175,168686	188,695905
21-02-2019 13:18:44	3,066	24,71997	175,869934	189,451245
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21-02-2019 13:22:14	3,066	24,554174	172,422424	193,914822
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21-02-2019 13:23:14	3,065	24,662441	172,031525	194,994519
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21-02-2019 13:24:14	3,068	24,683324	171,139984	196,017819
21-02-2019 13:24:44	3,067	24,635952	170,956726	196,474377
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21-02-2019 13:28:14	3,066	24,723371	169,939743	199,195752
21-02-2019 13:28:44	3,067	24,607483	169,800507	199,525037
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21-02-2019 13:29:44	3,067	24,728416	169,551605	200,114041
21-02-2019 13:30:14	3,066	24,797046	168,695251	200,387143
21-02-2019 13:30:44	3,067	24,763046	168,590805	200,663968
21-02-2019 13:31:14	3,067	24,699804	169,623322	200,956815
21-02-2019 13:31:44	3,066	24,644424	168,475266	201,173627
21-02-2019 13:32:14	3,067	24,760198	168,630463	201,374387
21-02-2019 13:32:44	3,067	24,662855	169,021164	201,593869
21-02-2019 13:33:14	3,067	24,76057	169,250015	201,782544
21-02-2019 13:33:44	3,067	24,773756	168,728195	202,015271
21-02-2019 13:34:14	3,066	24,655162	169,290924	202,230344
21-02-2019 13:34:44	3,066	24,678848	168,049301	202,41232
21-02-2019 13:35:14	3,068	24,702535	167,666702	202,591626
21-02-2019 13:35:44	3,066	24,760686	170,104538	202,778973
21-02-2019 13:36:14	3,066	24,789798	169,980118	202,938199
21-02-2019 13:36:44	3,067	24,652736	171,340012	203,145444

Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]	Ovf-Bund - [°C]	Kanal-EPA - [°C]
28	29	30	31	36
Surface temperature Rear	Surface temperature Right side	Surface temperature Left side	Surface temperature Bottom	EPA Duct temperature
22,333884	22,13818	23,452455	23,93904	23,774338
22,342976	22,130053	23,487699	23,992862	24,269813
22,346857	22,125952	23,515165	23,975658	25,515556
22,377299	22,139088	23,532113	24,006996	26,589656
22,37328	22,166929	23,558301	24,006928	26,932269
22,365292	22,19614	23,558301	24,017438	26,726431
22,362639	22,220041	23,587173	23,970089	26,270506
22,378586	22,19614	23,663302	24,001646	25,9574
22,383894	22,209431	23,721046	23,980624	25,698594
22,378586	22,267849	23,773542	23,962206	25,60875
22,39984	22,307665	23,841791	23,972716	25,554444
22,407801	22,366102	23,946768	23,975342	25,604056
22,423748	22,408569	24,077974	23,959577	25,750219
22,440897	22,529257	24,222197	23,972652	25,807881
22,507058	22,621962	24,402996	23,968586	25,984219
22,506989	22,748014	24,598378	23,981751	26,106244
22,541506	22,862137	24,834393	23,994888	26,314763
22,574667	23,027966	25,083397	23,993479	26,520594
22,636965	23,208235	25,400415	24,041881	26,744531
22,683401	23,397913	25,723991	24,030004	27,027475
22,736508	23,633984	26,069761	24,069467	27,329187
22,809506	23,873943	26,547616	24,0681	27,541737
22,878159	24,246061	27,021073	24,104774	27,67315
22,96311	24,566765	27,50505	24,117935	27,787131
23,061339	24,91913	28,096001	24,154742	27,974869
23,17812	25,337591	28,691845	24,181042	27,964137
23,292263	25,814112	29,30041	24,183666	27,898431
23,414322	26,286427	30,009028	24,186229	27,8924
23,560122	26,765039	30,762714	24,263557	27,921225
23,690127	27,322859	31,527655	24,348968	27,870275
23,854306	27,963346	32,333524	24,396152	27,839431
24,042481	28,612776	33,185697	24,417121	27,809256
24,18038	29,235586	34,095804	24,490741	27,724781
24,376583	29,931833	34,992111	24,514381	27,661081
24,548916	30,603931	35,962929	24,601149	27,610125
24,739758	31,312454	36,932873	24,653722	27,612813
24,927918	32,041557	37,87864	24,714172	27,748244
25,166411	32,772793	38,911566	24,808801	28,070075
25,388922	33,541611	39,999098	24,961139	28,496494
25,678519	34,368603	41,108454	25,085561	28,823688
25,936516	35,248936	42,200236	25,249671	29,089863
26,182688	36,051411	43,265387	25,370523	29,205856
26,436766	36,874271	44,39398	25,499233	29,191775

26,674897	37,733162	45,555021	25,585899	29,034212
26,883883	38,638485	46,660999	25,753986	28,886713
27,108679	39,488213	47,755816	26,003408	28,757306
27,394255	40,332104	48,939559	26,126796	28,593713
27,687672	41,164944	50,073604	26,326292	28,627906
28,007241	42,127384	51,184822	26,469214	28,593713
28,279133	42,987469	52,337437	26,728761	28,625894
28,590666	43,849598	53,426609	27,049838	28,813631
28,918068	44,698307	54,488378	27,275379	29,044269
29,1794	45,569878	55,567386	27,440558	29,199819
29,448573	46,357712	56,548709	27,752504	29,299725
29,725607	47,204838	57,567838	28,127259	29,948744
30,068434	48,155224	58,502181	28,437667	34,261231
30,41619	48,958241	59,345366	28,764886	37,586781
30,678423	49,701393	60,206314	29,046286	40,41685
30,977347	50,45306	61,050223	29,456863	43,327388
31,25659	51,181271	61,868564	29,888527	45,997213
31,541048	51,839256	62,658665	30,299114	48,164194
31,845152	52,516342	63,396278	30,687294	47,6191
32,10673	53,183872	64,17805	31,094802	46,841344
32,335696	53,851425	64,870786	31,470968	46,711938
32,583044	54,461853	65,609221	31,792156	46,848719
32,832812	55,043499	66,439058	31,97597	45,009606
33,100996	55,711594	67,231833	32,518673	43,598263
33,39284	56,336926	68,140374	33,178561	41,296525
33,667479	56,909126	69,029649	33,667322	39,322637
33,975951	57,58548	69,880451	34,114103	37,761775
34,222895	58,176727	70,66775	34,638866	36,60185
34,467181	58,8246	71,433392	34,98774	35,714144
34,729773	59,495548	72,148133	35,440553	34,9431
35,002665	60,175133	72,82069	35,879909	34,408731
35,258452	60,774723	73,475489	36,438808	34,030588
35,554678	61,417847	74,132678	36,879226	33,684619
35,813052	62,061043	74,706155	37,301334	33,462694
36,083205	62,666756	75,232607	37,719451	33,209925
36,327052	63,249191	75,705663	38,150352	33,01415
36,547274	63,867615	76,188883	38,544794	32,9176
36,78179	64,460075	76,678431	39,025847	32,8586
37,041006	65,121864	77,11949	39,475385	32,865975
37,298746	65,737129	77,571928	39,889929	32,855244
37,555434	66,339691	77,971271	40,288907	32,76205
37,793723	66,924187	78,324834	40,641149	32,631306
37,987479	67,526634	78,663156	40,94668	32,468381
38,183791	68,131599	78,973486	41,337523	32,63265
38,419215	68,68354	79,296418	41,743562	32,670863
38,646452	69,356239	79,591116	42,017415	32,752662
38,863581	69,919868	79,865876	42,040694	32,849213
39,059771	70,555519	80,110118	42,674198	32,997387

39,305582	71,134537	80,382359	42,989522	33,087231
39,509528	71,775284	80,616428	43,371939	33,126787
39,706877	72,408218	80,902635	43,768431	33,178413
39,928545	73,235031	81,246975	43,651777	33,289044
40,110133	73,817802	81,626079	43,957723	33,300438
40,285204	74,54084	82,040866	44,554063	33,405706
40,496809	75,140381	82,430315	44,910192	33,397656
40,674429	75,92778	82,819727	45,170763	33,458
40,841566	76,728065	83,229529	45,477705	33,418444
41,084074	77,517784	83,710397	45,713513	33,433194
41,287505	78,302536	84,206603	46,173323	33,424475
41,530241	79,08757	84,715832	46,462007	33,437888
41,681612	79,937019	85,301533	46,78151	33,441913
41,879939	80,781433	85,872039	47,124145	33,447275
42,07165	81,551277	86,469338	47,382952	33,441237
42,290579	82,429291	87,111234	47,745924	33,461356
42,516005	83,325401	87,757036	48,022511	33,450625
42,727076	84,198586	88,452638	48,379966	33,458669
42,927836	85,113327	89,089942	48,647579	33,505606
43,123354	85,976723	89,750328	48,976868	33,5693
43,342276	86,925407	90,426166	49,342061	33,605506
43,563784	87,729919	91,188912	49,434646	33,580025
43,756575	88,642998	91,936561	49,830569	33,604838
44,014346	89,527817	92,662606	50,162093	33,604838
44,249667	90,49913	93,434567	50,473961	33,635006
44,467055	91,300743	94,193	50,850237	33,717475
44,717005	92,171036	94,915968	51,030043	33,705406
44,969508	93,041618	95,608494	51,363916	33,726862
45,169913	93,858231	96,247532	51,769604	33,775137
45,362463	94,685455	96,981382	52,039156	33,835475
45,569289	95,560783	97,755062	52,309897	33,894481
45,78628	96,394859	98,523743	52,495733	33,905206
46,040892	97,243446	99,276	52,598115	33,862969
46,246329	97,898407	100,036461	52,941895	33,938731
46,462157	98,708992	100,702466	53,18816	33,896494
46,698721	99,403297	101,442966	53,398468	33,826094
46,896246	100,15741	102,109415	53,819025	33,7805
47,091177	100,82888	102,755572	54,203584	33,734237
47,345766	101,49395	103,437766	54,472591	33,829444
47,594897	102,117599	104,099502	54,775969	33,860956
47,849242	102,771355	104,725593	55,2025	33,917944
48,075198	103,493004	105,277594	55,563693	33,935381
48,301119	104,072083	105,876039	55,924807	33,852238
48,482859	104,78904	106,474665	55,917133	33,7919
48,625624	105,285378	107,042615	56,372921	33,876375
48,838354	105,805077	107,600355	56,576239	33,841513
49,070265	106,474236	108,185038	56,872906	33,891125
49,260981	106,982666	108,723918	56,625863	33,89515

49,421839	107,49778	109,297727	56,200858	33,984325
49,572321	107,950592	109,856304	56,636094	34,009131
49,761679	108,541496	110,389301	57,081481	34,014494
49,887389	109,007446	110,885002	57,040332	34,023212
50,090819	109,414864	111,3743	57,774554	33,968231
50,316145	109,845787	111,875317	58,183731	33,940744
50,487284	110,205376	112,277443	58,559721	33,888444
50,668757	110,606712	112,754427	58,871702	33,795919
50,865786	111,000359	113,149027	59,250124	33,765075
51,01871	111,373199	113,512747	59,671915	33,668531
51,227164	111,745941	113,95119	60,093363	33,689312
51,403063	112,247803	114,34447	60,084254	33,704062
51,567557	112,564781	114,670983	60,637451	33,699369
51,720419	112,901443	114,993726	61,069224	33,651769
51,906931	113,201607	115,316514	61,391103	33,634338
52,057173	113,439178	115,636775	61,79721	33,628969
52,217554	113,758781	115,973687	62,040749	33,694681
52,348055	114,08757	116,242136	62,352171	33,714794
52,489153	114,269043	116,545755	62,511707	33,618913
52,68854	114,485863	116,737007	62,86659	33,630312
52,78176	114,653046	117,026532	63,088696	33,576675
52,944857	114,9039	117,19716	63,481782	33,512306
53,112856	115,12178	117,438612	63,884687	33,452638
53,257563	115,311028	117,667252	64,354093	33,53175
53,355921	115,446953	117,881933	64,650062	33,563263
53,487914	115,609009	118,07593	64,968991	33,581369
53,612135	115,776306	118,293244	65,379706	33,48415
53,685839	115,849457	118,480786	65,666588	33,399669
53,822806	116,027046	118,678516	65,999166	33,375531
53,960959	116,157532	118,92928	66,172457	33,429169
54,059275	116,22551	119,128571	66,424942	33,535106
54,149813	116,262123	119,283883	66,756448	33,5874
54,235201	116,489647	119,44179	67,026751	33,714125
54,323088	116,585014	119,646261	67,317311	33,769769
54,418658	116,626732	119,885647	67,524878	33,844194

Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]	Vægt - [Kg]	CO-Lav - [100ppm]
38	39	40	43	44
Flue draft Pascals	Duct dynamic pressure	Duct static pressure	Platform scale reading	CO low range
3,136078	27,629065	126,465475	10,002498	0,020109
6,880646	28,013585	128,570373	10,002498	4,840285
6,91164	27,437219	127,470235	10,002364	4,387045
8,486923	28,312747	128,830945	10,00223	2,646894
8,949117	27,210154	126,114653	0,870363	3,42545
5,734355	27,34482	126,453553	1,046228	11,061621
6,285276	27,079219	125,814917	1,037042	14,97116
6,838412	27,880162	127,884065	1,026986	15,167475
7,994583	28,00737	127,613285	1,013039	16,836955
9,334336	28,026014	126,736239	0,996613	22,441855
9,627083	28,43498	131,230467	0,978309	22,441319
10,273543	27,308354	126,889512	0,960139	22,441185
10,824127	26,753123	124,777788	0,940025	22,441051
10,754644	27,408628	126,152118	0,917966	22,440918
11,654512	28,24355	127,037673	0,892153	22,441051
12,035306	28,317305	127,453217	0,866608	22,440515
12,456798	27,671329	125,995432	0,837308	22,440649
13,129655	27,322444	127,638844	0,805126	22,440649
12,534797	27,527964	127,827867	0,774753	22,440515
12,551656	27,467052	126,143593	0,746526	22,440515
12,677508	26,755194	126,286659	0,721852	22,44038
12,07175	27,604619	126,678343	0,695302	22,440113
12,450156	26,811548	125,355114	0,670427	22,440515
12,445559	27,253248	126,441631	0,647498	22,440246
12,513508	26,912649	126,824806	0,628523	14,984435
12,648216	27,593016	126,637465	0,60747	9,018951
12,46327	27,503101	126,175962	0,587222	5,096004
12,318514	27,538319	125,82684	0,570728	16,193703
12,162349	27,402	126,760083	0,552357	8,541306
12,488815	27,631135	125,384054	0,531103	7,647025
12,511635	28,650445	130,537349	0,514944	9,665155
12,255333	28,106814	130,481151	0,499457	6,59532
12,264188	28,029328	129,442323	0,485444	6,536184
11,797905	29,096703	130,227405	0,471699	7,522451
13,090146	28,873779	135,935865	0,455339	5,78646
12,546887	28,304875	130,542461	0,441461	4,087342
12,657582	27,706547	130,985246	0,42671	4,570755
12,208842	28,176837	132,504325	0,410351	5,68428
11,878458	28,966595	131,215148	0,399489	3,962768
12,156218	28,679035	132,136469	0,387488	5,575261
11,812891	29,025432	130,986945	0,376693	6,984061
12,081456	28,338436	129,488297	0,365496	11,214489
12,340142	28,841875	131,189605	0,354567	17,172594

12,096444	28,342164	130,278491	0,343639	12,270621
12,037179	27,683345	131,213449	0,332576	13,944663
12,144639	29,353606	132,010454	0,322317	10,961317
12,024746	27,738455	129,920859	0,312394	10,800136
11,866707	28,779723	131,417808	0,303946	11,070471
11,722973	28,683176	130,438575	0,296772	12,64944
11,808804	27,937343	131,511471	0,287788	14,519259
11,484893	29,16259	132,771692	0,280413	17,662177
11,339116	28,587877	131,206623	0,273976	20,096673
11,433292	28,347139	131,935524	0,266668	20,261206
11,671202	28,170622	130,101374	0,260232	22,392776
13,847304	28,703068	134,023404	0,004579	22,440649
12,880846	29,180403	132,964128	3,179277	12,6072
13,92973	28,567989	133,750925	2,093778	17,754704
14,840836	28,87958	134,008068	2,087408	18,215185
16,055251	29,150156	132,255675	2,052544	14,941659
17,577568	28,945876	132,260786	2,020696	12,778036
17,560198	28,002395	130,014522	2,019824	7,67532
17,737139	28,659974	131,59491	1,898066	13,056149
17,384959	27,890935	133,156565	1,951838	15,275019
18,498893	29,179577	131,380343	1,799037	14,349093
16,407092	28,062476	130,617391	1,30892	6,682347
17,545382	27,960545	130,593546	1,551632	9,733812
15,061716	27,798119	129,665415	1,95385	13,528297
14,668152	27,811379	131,116374	1,940909	22,441051
14,269309	28,307776	129,701181	1,926494	22,440783
13,836064	27,850328	128,72536	1,913621	22,44038
13,648563	27,565253	129,144286	1,898938	22,44038
13,775777	27,722707	131,10615	1,887339	22,44038
13,549105	28,263438	127,945374	1,875069	22,440515
13,226215	28,56053	130,648045	1,862129	22,44038
13,347981	28,814941	131,763518	1,84939	22,440515
13,135445	29,701659	137,390269	1,837456	22,44038
13,544847	27,881819	129,665415	1,825521	22,440113
13,497674	28,835247	130,624201	1,812782	22,440246
13,559323	28,15985	129,440609	1,800914	22,439979
12,955608	28,524481	130,234216	1,788109	22,440246
13,430917	28,664945	130,155873	1,772419	22,440113
13,549957	28,236092	130,101374	1,760552	22,439844
13,391577	28,270897	130,525427	1,746874	22,440246
13,490862	27,524233	127,64394	1,733733	22,440246
13,751425	26,54843	125,305727	1,717441	22,440113
13,671555	27,384596	126,582982	1,700947	22,440113
13,543145	27,518018	126,978079	1,683515	22,439979
14,10565	28,115516	130,281904	1,665345	22,439979
14,008068	27,09538	125,472621	1,644158	14,480371
14,123191	27,641081	126,000544	1,625653	10,888772
14,699658	27,459181	127,00532	1,604734	10,691115

14,572444	27,116511	125,81152	1,578116	14,694656
14,724691	26,940408	125,48794	1,560818	22,440783
14,509091	26,966928	127,20117	1,537821	22,440515
14,074484	27,695774	128,19231	1,514153	22,440113
14,552859	28,051704	126,155516	1,495849	22,440113
14,450849	27,875191	125,951157	1,471913	22,44038
14,398396	28,22946	126,72092	1,449922	21,225616
14,592538	27,301726	126,014164	1,427124	15,366606
14,43416	26,140709	125,612257	1,408753	9,750842
14,589984	26,543873	123,747468	1,390315	8,487803
14,591006	27,296755	125,770642	1,371073	6,833339
14,384772	27,371336	125,995432	1,351897	6,264509
14,693357	26,703401	125,18822	1,331716	5,85391
14,631027	29,244629	129,822085	1,313613	5,851363
14,380855	27,685415	125,171186	1,293365	5,444249
14,885626	26,689311	124,665393	1,274256	5,332011
14,37166	27,010022	126,099318	1,256824	5,947509
14,238314	27,727265	126,024388	1,236576	6,158305
14,891756	27,380038	125,518595	1,220216	6,077178
14,391243	27,210984	125,699109	1,203656	6,49904
14,49751	27,314986	125,394278	1,184547	7,234684
14,322101	27,475338	125,571395	1,16812	7,481686
14,325508	27,589285	125,637816	1,149749	7,055131
14,560693	27,464982	125,029835	1,134999	7,59969
14,682627	27,890522	124,862941	1,115622	7,644075
14,241208	26,935024	125,464096	1,098257	7,56268
14,130344	26,990547	125,620782	1,082769	7,659228
14,444548	27,694948	128,851376	1,065404	8,106703
14,099859	27,387083	125,646325	1,048172	8,088198
14,275779	28,122144	127,587742	1,033422	8,3348
14,274248	27,227971	125,866003	1,016728	8,522533
14,38903	26,949524	125,61567	0,999362	8,889283
13,898905	27,623264	125,189919	0,984746	8,084979
14,405378	27,353518	124,997482	0,969191	9,370414
14,482013	26,86541	126,322409	0,954641	8,124674
14,564268	26,938338	125,537327	0,939958	8,10107
14,098667	27,474511	125,511784	0,92333	8,20674
14,537361	27,805995	126,276435	0,906836	7,397341
14,115017	28,02187	126,407563	0,89222	7,281483
14,515733	27,111123	125,186505	0,876665	7,70777
14,449146	27,252417	126,589792	0,862921	8,247504
14,399928	27,257388	126,220238	0,846561	7,372667
14,127618	27,751711	126,603413	0,832749	6,592101
14,062904	27,07176	125,14223	0,817194	7,028177
14,469412	27,481139	127,395305	0,802511	9,541118
14,19659	27,72105	125,169487	0,787626	3,976714
14,297408	26,852154	126,605111	0,774686	3,147606
14,110759	27,675886	125,610558	0,758394	3,304229

13,891071	27,116094	126,99851	0,74485	3,627799
13,804389	26,368604	125,077524	0,732916	4,2323
14,396012	26,813618	124,941284	0,718165	4,765595
13,998019	27,272722	125,802995	0,704622	6,039765
14,030889	27,659726	125,613972	0,693425	7,047756
13,879832	27,665114	126,812883	0,68149	6,609802
14,12234	27,540807	125,772341	0,666807	7,380445
13,774415	27,934855	125,629291	0,655677	7,311117
14,016582	27,450065	126,233859	0,644882	6,532027
13,740867	27,886377	126,112939	0,631205	7,065054
13,455099	27,705307	125,894959	0,620142	7,059154
13,612968	27,768702	127,267575	0,60928	5,855251
13,53463	26,580338	125,407898	0,597144	5,8755
13,956297	27,392885	126,421184	0,58635	5,720754
13,797747	27,728922	125,90858	0,572538	6,132828
13,476046	27,230872	125,154152	0,562414	6,078787
13,766411	26,884058	125,421535	0,548804	5,910766
13,807965	28,027258	126,070378	0,536668	5,856592
13,587422	27,99618	125,9767	0,522186	5,37586
13,754832	27,107396	125,418122	0,510318	6,759989
13,749552	27,118995	127,075138	0,500127	5,32839
13,507552	27,712348	126,710696	0,488327	5,261342
13,559323	26,86417	125,523706	0,477331	6,422606
13,947951	27,792317	126,061853	0,464592	5,193894
13,697099	27,380451	125,666756	0,450579	4,945281
13,62012	26,502026	124,656884	0,441461	5,97768
13,721451	27,44219	125,33127	0,429459	4,877028
13,579248	28,006953	126,445028	0,420207	5,106061
13,641751	27,500614	125,395976	0,405724	6,075032
13,533607	27,322027	125,707634	0,392047	5,069588
13,54655	27,795218	124,665393	0,381185	3,437519
13,82789	27,261119	125,012801	0,366434	6,712652
14,092707	27,259876	125,917105	0,351014	8,987976
13,831295	26,285317	122,887456	0,336263	9,186704
13,850369	26,543459	124,357148	0,322384	10,565467

CO-Høj - [%]	CO2 - [%]
45	46
CO high range	CO2 - [%]
0,018283	0,091045
0,078304	0,985728
0,066859	2,002836
0,025665	2,049232
0,057385	3,725286
0,128509	7,060629
0,172821	8,417402
0,176562	8,220954
0,183984	8,983685
0,306741	11,153208
0,431369	12,293284
0,341981	12,220069
0,351556	11,996797
0,456291	11,759852
0,298555	11,517677
0,537291	13,037376
0,661154	13,231009
0,57937	13,318975
1,039986	13,917844
0,930585	13,573354
1,017377	13,929644
0,72204	13,563699
0,513234	13,312136
0,326695	12,556377
0,192352	11,79284
0,116119	11,112845
0,056701	10,770233
0,178795	11,225485
0,121731	10,819311
0,097674	10,629699
0,113745	10,900841
0,092947	10,130464
0,072873	9,353517
0,092766	9,029679
0,090312	9,146207
0,055354	9,557075
0,062474	10,1837
0,09339	9,90599
0,074764	9,77109
0,078867	9,17772
0,093712	8,605135
0,117225	8,095304
0,205607	7,728689

0,148121	7,831138
0,15333	7,934525
0,140377	8,003584
0,133638	7,781523
0,12507	7,52406
0,144581	7,159189
0,165801	6,792976
0,183984	6,499174
0,228537	6,293473
0,229744	6,09917
0,252151	5,908219
0,257421	5,77171
0,151158	2,479542
0,186639	2,087719
0,196596	2,51481
0,168235	2,806734
0,136173	3,349419
0,106766	4,731936
0,155462	6,82422
0,181731	6,411207
0,148583	6,04647
0,096266	6,325655
0,113383	9,959091
0,161818	7,174744
0,30294	9,47702
0,458765	6,528005
0,510237	5,68723
0,511786	5,415418
0,492838	5,309885
0,490284	5,279178
0,467515	5,210521
0,466066	5,297549
0,453897	5,343006
0,449331	5,444249
0,436317	5,708685
0,408479	6,090855
0,414111	6,23018
0,408037	6,4391
0,360667	6,76495
0,383638	6,957108
0,403651	7,157848
0,394198	7,20277
0,423122	7,340888
0,37877	8,36524
0,243341	9,247851
0,177286	10,11786
0,139854	10,772781
0,117748	11,297494

0,168235	11,819793
0,256074	12,188959
0,250965	12,362745
0,289423	12,347056
0,29073	12,39761
0,278823	12,438375
0,241752	12,172062
0,187102	12,002296
0,124064	11,858277
0,109642	11,579092
0,102803	11,515398
0,09172	11,423006
0,068086	11,333699
0,083614	11,257936
0,093772	11,277111
0,083574	11,122634
0,079632	10,991088
0,077379	10,841705
0,093028	10,72142
0,058974	10,508075
0,084298	10,398654
0,093309	10,282394
0,090634	10,225537
0,096347	10,205825
0,094416	10,159563
0,088462	10,060466
0,10757	10,022384
0,096186	9,878634
0,109662	9,95708
0,104432	9,811989
0,105398	9,821644
0,102381	9,67709
0,107791	9,621306
0,114449	9,582955
0,103185	9,488686
0,100671	9,458114
0,115415	9,50813
0,098961	9,439206
0,10041	9,54085
0,074885	9,394685
0,102582	9,453151
0,089065	9,55198
0,10222	9,664754
0,073497	9,518187
0,119478	9,564316
0,074	9,650003
0,053644	9,653891
0,062394	9,616076

0,057949	9,32737
0,065049	9,093509
0,07229	9,003665
0,070279	8,921599
0,087617	8,756527
0,103889	8,704499
0,092927	8,505235
0,092786	8,401445
0,078224	8,402786
0,093048	8,309992
0,091338	8,421827
0,084721	8,43041
0,081804	8,438188
0,072813	8,38817
0,085867	8,474259
0,08824	8,463397
0,074483	8,518644
0,081643	8,626859
0,073457	8,711339
0,091861	8,76806
0,078063	8,643353
0,071103	8,589044
0,082769	8,693771
0,077238	8,651934
0,070399	8,559677
0,090654	8,664539
0,082367	8,741241
0,079511	8,800511
0,074261	8,916235
0,076836	8,987439
0,060523	9,064544
0,078646	9,570082
0,112941	10,35561
0,110748	10,727454
0,127403	10,898964

Datotid	Scantid	Rum - [°C]	Filter-1-H - [°C]	Filter-2-D1 - [°C]
		1	2	3
Datotid	Scantime	Ambient temperature	Main train filter temp	Split train 1H filter temp
21-02-2019 13:36:44	3,067	24,652736	28,268229	27,683325
21-02-2019 13:37:14	3,067	24,692222	28,244576	27,688581
21-02-2019 13:37:44	3,066	24,694852	28,234051	27,683325
21-02-2019 13:38:14	3,065	24,784702	28,353985	27,786236
21-02-2019 13:38:44	3,066	24,884733	28,373726	27,794193
21-02-2019 13:39:14	3,066	24,863506	28,808205	28,369764
21-02-2019 13:39:44	3,066	24,837154	29,195158	28,779428
21-02-2019 13:40:14	3,066	24,829435	29,537434	29,015749
21-02-2019 13:40:44	3,066	24,842657	29,641043	29,249287
21-02-2019 13:41:14	3,065	24,884733	29,735348	29,322714
21-02-2019 13:41:44	3,066	25,032449	29,87849	29,442362
21-02-2019 13:42:14	3,068	24,840255	29,89537	29,430458
21-02-2019 13:42:44	3,066	24,83237	29,937279	29,451435
21-02-2019 13:43:14	3,067	25,001188	30,033266	29,611687
21-02-2019 13:43:44	3,066	24,958871	30,01869	29,569633
21-02-2019 13:44:14	3,067	25,066686	29,966326	29,603693
21-02-2019 13:44:44	3,065	24,872125	30,068508	29,628622
21-02-2019 13:45:14	3,067	25,022318	30,098862	29,742861
21-02-2019 13:45:44	3,067	25,137952	30,105339	29,755907
21-02-2019 13:46:14	3,067	25,258855	30,128899	29,787361
21-02-2019 13:46:44	3,066	24,974905	30,144611	29,813555
21-02-2019 13:47:14	3,066	24,961864	30,204903	29,855547
21-02-2019 13:47:44	3,066	25,038286	30,273119	29,936911
21-02-2019 13:48:14	3,067	25,014642	30,265276	29,934296
21-02-2019 13:48:44	3,065	24,956764	30,275736	29,923809
21-02-2019 13:49:14	3,066	24,996223	30,299284	29,931683
21-02-2019 13:49:44	3,067	25,0097	30,374176	30,021008
21-02-2019 13:50:14	3,066	25,030687	30,385906	30,010502
21-02-2019 13:50:44	3,066	25,078025	30,385906	30,026222
21-02-2019 13:51:15	3,066	25,283048	30,370224	30,065477
21-02-2019 13:51:44	3,067	25,101665	30,422544	30,034067
21-02-2019 13:52:15	3,065	25,151914	30,480352	30,127295
21-02-2019 13:52:45	3,066	25,094078	30,485605	30,180965
21-02-2019 13:53:15	3,066	25,283342	30,506508	30,170483
21-02-2019 13:53:45	3,066	25,096708	30,506508	30,160023
21-02-2019 13:54:15	3,067	25,080921	30,503897	30,175714
21-02-2019 13:54:45	3,067	25,030794	30,452765	30,165142
21-02-2019 13:55:15	3,068	25,196567	30,477741	30,169203
21-02-2019 13:55:45	3,067	25,157467	30,538204	30,228365
21-02-2019 13:56:15	3,065	25,14431	30,556515	30,215271
21-02-2019 13:56:45	3,066	25,333578	30,566969	30,225752
21-02-2019 13:57:15	3,065	25,275739	30,556515	30,223141
21-02-2019 13:57:45	3,067	25,086403	30,536854	30,270199

21-02-2019 13:58:15	3,066	25,131025	30,557728	30,281939
21-02-2019 13:58:45	3,066	25,134018	30,63913	30,350294
21-02-2019 13:59:15	3,067	25,09992	30,692789	30,330717
21-02-2019 13:59:45	3,067	25,168285	30,705847	30,354265
21-02-2019 14:00:15	3,066	25,431095	30,67448	30,369974
21-02-2019 14:00:45	3,066	25,283813	30,658718	30,351585
21-02-2019 14:01:15	3,066	25,104887	30,611492	30,335762
21-02-2019 14:01:45	3,066	25,178503	30,585344	30,348856
21-02-2019 14:02:15	3,066	25,420889	30,687872	30,412146
21-02-2019 14:02:45	3,066	25,426138	30,700956	30,378145
21-02-2019 14:03:15	3,066	25,289499	30,66695	30,414757
21-02-2019 14:03:45	3,066	25,055528	30,67481	30,37553
21-02-2019 14:04:15	3,067	25,026332	30,637999	30,372749
21-02-2019 14:04:45	3,065	25,191944	30,671942	30,370087
21-02-2019 14:05:15	3,068	24,942299	30,702137	30,381985
21-02-2019 14:05:45	3,066	25,0795	30,779692	30,467405
21-02-2019 14:06:15	3,066	25,205698	30,782301	30,480474
21-02-2019 14:06:45	3,067	25,295078	30,769243	30,530172
21-02-2019 14:07:15	3,066	25,090032	30,76141	30,530172
21-02-2019 14:07:45	3,067	25,158069	30,729773	30,451509
21-02-2019 14:08:15	3,066	25,271091	30,682714	30,451509
21-02-2019 14:08:45	3,067	25,18452	30,689404	30,468637
21-02-2019 14:09:15	3,066	25,284805	30,760366	30,47682
21-02-2019 14:09:45	3,065	25,211282	30,793077	30,47298
21-02-2019 14:10:15	3,066	25,403123	30,774796	30,488655
21-02-2019 14:10:45	3,067	25,411024	30,756493	30,506973
21-02-2019 14:11:15	3,066	25,176782	30,727497	30,472757
21-02-2019 14:11:45	3,066	25,071621	30,745779	30,457079
21-02-2019 14:12:15	3,067	25,24776	30,745779	30,470144
21-02-2019 14:12:45	3,066	25,369064	30,808893	30,551565
21-02-2019 14:13:15	3,067	25,37194	30,856152	30,554382
21-02-2019 14:13:45	3,066	25,101192	30,832624	30,598846
21-02-2019 14:14:15	3,066	25,174808	30,83526	30,585779
21-02-2019 14:14:45	3,066	25,250787	30,771004	30,54509
21-02-2019 14:15:15	3,066	25,237568	30,782705	30,504484
21-02-2019 14:15:45	3,067	25,127166	30,748732	30,486172
21-02-2019 14:16:15	3,067	25,208894	30,747654	30,525618
21-02-2019 14:16:45	3,067	25,393293	30,819921	30,554743
21-02-2019 14:17:15	3,067	25,290804	30,846054	30,515503
21-02-2019 14:17:45	3,066	25,267122	30,834259	30,511549
21-02-2019 14:18:15	3,066	25,358833	30,798773	30,510096
21-02-2019 14:18:45	3,066	25,240537	30,78306	30,536219
21-02-2019 14:19:15	3,066	25,329885	30,798752	30,494364
21-02-2019 14:19:45	3,067	25,279951	30,775225	30,546673
21-02-2019 14:20:15	3,067	25,277673	30,833035	30,561354
21-02-2019 14:20:45	3,065	25,393653	30,859482	30,654461
21-02-2019 14:21:15	3,068	25,377878	30,885618	30,596941
21-02-2019 14:21:45	3,066	25,343721	30,851627	30,623087

21-02-2019 14:22:15	3,067	25,335537	30,835716	30,544449
21-02-2019 14:22:45	3,067	25,167282	30,793863	30,515635
21-02-2019 14:23:15	3,067	25,067371	30,767725	30,533945
21-02-2019 14:23:45	3,068	25,178402	30,876747	30,575001
21-02-2019 14:24:15	3,067	25,367715	30,896433	30,579
21-02-2019 14:24:45	3,066	25,291504	30,880745	30,581612
21-02-2019 14:25:15	3,067	25,388691	30,876795	30,606428
21-02-2019 14:25:45	3,067	25,485717	30,837448	30,615461
21-02-2019 14:26:15	3,067	25,375249	30,830812	30,563082
21-02-2019 14:26:45	3,066	25,459325	30,856947	30,544769
21-02-2019 14:27:15	3,067	25,412027	30,822979	30,568308
21-02-2019 14:27:45	3,066	25,499086	30,87294	30,630053
21-02-2019 14:28:15	3,067	25,691188	30,915081	30,691814
21-02-2019 14:28:45	3,066	25,772581	30,943823	30,610762
21-02-2019 14:29:15	3,066	25,612373	30,892838	30,619884
21-02-2019 14:29:45	3,066	25,507007	30,846905	30,571333
21-02-2019 14:30:15	3,066	25,275749	30,862545	30,524225
21-02-2019 14:30:45	3,067	25,267847	30,83902	30,529448
21-02-2019 14:31:15	3,066	25,28663	30,862875	30,633051
21-02-2019 14:31:45	3,066	25,292263	30,946831	30,62422
21-02-2019 14:32:15	3,066	25,35795	30,938974	30,63728
21-02-2019 14:32:45	3,065	25,4578	30,918089	30,658203
21-02-2019 14:33:15	3,065	25,410169	30,89953	30,60832
21-02-2019 14:33:45	3,066	25,557247	30,860292	30,605677
21-02-2019 14:34:15	3,066	25,423271	30,909946	30,550741
21-02-2019 14:34:45	3,066	25,289255	30,886427	30,532452
21-02-2019 14:35:15	3,068	25,313099	30,900972	30,554852
21-02-2019 14:35:45	3,066	25,379346	30,965492	30,624596
21-02-2019 14:36:15	3,066	25,442417	30,923674	30,611532
21-02-2019 14:36:45	3,066	25,584167	30,906628	30,621952
21-02-2019 14:37:15	3,067	25,184476	30,839767	30,58774
21-02-2019 14:37:45	3,066	25,242323	30,847599	
21-02-2019 14:38:15	3,066	25,223917	30,878958	
21-02-2019 14:38:45	3,066	25,336923	30,855457	
21-02-2019 14:39:15	3,066	25,213411	30,839767	
21-02-2019 14:39:45	3,066	25,384306	30,85816	
21-02-2019 14:40:15	3,068	25,563446	30,93829	
21-02-2019 14:40:45	3,066	25,450695	31,02599	
21-02-2019 14:41:15	3,066	25,177068	30,933012	
21-02-2019 14:41:45	3,067	25,253221	30,915936	
21-02-2019 14:42:15	3,066	24,969268	30,884581	
21-02-2019 14:42:45	3,066	24,995567	30,897659	
21-02-2019 14:43:15	3,067	25,061294	30,858446	
21-02-2019 14:43:45	3,066	25,027118	30,840143	
21-02-2019 14:44:15	3,067	25,053415	30,824476	
21-02-2019 14:44:45	3,066	25,402994	30,774811	
21-02-2019 14:45:15	3,066	25,279676	30,859921	
21-02-2019 14:45:45	3,066	25,306415	30,928265	

21-02-2019 14:46:15	3,066	25,398227	30,899435
21-02-2019 14:46:45	3,066	25,335067	30,848383
21-02-2019 14:47:15	3,067	25,358718	30,856241
21-02-2019 14:47:45	3,066	25,563644	30,824858
21-02-2019 14:48:15	3,066	25,348217	30,798719
21-02-2019 14:48:45	3,066	25,166858	30,793497
21-02-2019 14:49:15	3,067	25,269374	30,775215
21-02-2019 14:49:45	3,067	25,358718	30,772579
21-02-2019 14:50:15	3,066	25,04591	30,775215
21-02-2019 14:50:45	3,066	25,277334	30,822367
21-02-2019 14:51:15	3,066	25,172166	30,813194
21-02-2019 14:51:45	3,066	25,017122	30,839418
21-02-2019 14:52:15	3,067	25,209213	30,86832
21-02-2019 14:52:45	3,066	25,288164	30,822666
21-02-2019 14:53:15	3,066	25,193531	30,869715
21-02-2019 14:53:45	3,066	25,261882	30,796526
21-02-2019 14:54:15	3,066	25,282913	30,81744
21-02-2019 14:54:45	3,067	25,204059	30,783445
21-02-2019 14:55:15	3,067	25,235597	30,778219
21-02-2019 14:55:45	3,067	25,043687	30,772999
21-02-2019 14:56:15	3,066	25,072609	30,741634
21-02-2019 14:56:45	3,067	25,159364	30,739025
21-02-2019 14:57:16	3,066	25,298568	30,716711
21-02-2019 14:57:46	3,067	25,003931	30,682577
21-02-2019 14:58:16	3,065	25,109203	30,708817
21-02-2019 14:58:46	3,066	25,209314	30,765194
21-02-2019 14:59:16	3,066	25,159471	30,762705
21-02-2019 14:59:46	3,066	25,191219	30,829523
21-02-2019 15:00:16	3,067	25,306961	30,841364
21-02-2019 15:00:46	3,067	25,257021	30,815229
21-02-2019 15:01:16	3,066	25,088789	30,810005
21-02-2019 15:01:46	3,067	25,036199	30,781256
21-02-2019 15:02:16	3,067	25,228111	30,749891
21-02-2019 15:02:46	3,065	25,083532	30,713278
21-02-2019 15:03:16	3,067	25,178165	30,721138
21-02-2019 15:03:46	3,067	25,115079	30,681911
21-02-2019 15:04:16	3,067	25,093982	30,685795
21-02-2019 15:04:46	3,066	25,401207	30,689505
21-02-2019 15:05:16	3,067	25,206684	30,668516
21-02-2019 15:05:46	3,067	25,240852	30,705132
21-02-2019 15:06:16	3,066	25,267131	30,655455
21-02-2019 15:06:46	3,065	25,162098	30,66864
21-02-2019 15:07:16	3,066	25,117399	30,671249
21-02-2019 15:07:46	3,065	25,12832	30,718685
21-02-2019 15:08:16	3,066	25,157554	30,739853
21-02-2019 15:08:46	3,067	25,015583	30,716322
21-02-2019 15:09:16	3,067	25,076053	30,700626
21-02-2019 15:09:46	3,066	25,118131	30,682344

21-02-2019 15:10:16	3,067	25,128639	30,687565
21-02-2019 15:10:46	3,067	25,044506	30,669258
21-02-2019 15:11:16	3,066	25,181217	30,677094
21-02-2019 15:11:46	3,066	25,165332	30,67572
21-02-2019 15:12:16	3,066	25,112695	30,669163
21-02-2019 15:12:46	3,065	24,8311	30,648087
21-02-2019 15:13:16	3,066	24,994115	30,624491
21-02-2019 15:13:46	3,066	25,112455	30,629715
21-02-2019 15:14:16	3,067	25,023038	30,621881
21-02-2019 15:14:46	3,066	25,023038	30,624491
21-02-2019 15:15:16	3,066	25,246519	30,58267
21-02-2019 15:15:46	3,066	25,073001	30,587894
21-02-2019 15:16:16	3,067	25,109825	30,55127
21-02-2019 15:16:46	3,068	25,283306	30,564358
21-02-2019 15:17:16	3,066	25,217607	30,564358
21-02-2019 15:17:46	3,066	24,946796	30,58267
21-02-2019 15:18:16	3,066	24,954677	30,574808
21-02-2019 15:18:46	3,065	24,973095	30,572193
21-02-2019 15:19:16	3,066	25,044078	30,561743
21-02-2019 15:19:46	3,067	25,165033	30,548655
21-02-2019 15:20:16	3,066	25,020412	30,559134
21-02-2019 15:20:46	3,067	25,322738	30,56958
21-02-2019 15:21:16	3,066	25,338514	30,53298
21-02-2019 15:21:46	3,065	24,983606	30,517279
21-02-2019 15:22:16	3,066	25,025688	30,470192
21-02-2019 15:22:46	3,067	24,928379	30,464966
21-02-2019 15:23:16	3,067	24,983606	30,480669
21-02-2019 15:23:46	3,064	25,201824	30,446653
21-02-2019 15:24:16	3,067	25,370042	30,425741
21-02-2019 15:24:46	3,067	24,949422	30,483284
21-02-2019 15:25:16	3,066	24,912586	30,433584
21-02-2019 15:25:46	3,066	24,912586	30,430969
21-02-2019 15:26:16	3,066	24,825786	30,464966
21-02-2019 15:26:46	3,066	24,941515	30,425741
21-02-2019 15:27:16	3,066	25,020412	30,381264
21-02-2019 15:27:46	3,067	24,902076	30,383879
21-02-2019 15:28:16	3,066	25,080906	30,31846
21-02-2019 15:28:46	3,067	24,965189	30,328939
21-02-2019 15:29:16	3,066	25,012472	30,332825
21-02-2019 15:29:46	3,066	24,999395	30,334167
21-02-2019 15:30:16	3,065	24,996742	30,305389
21-02-2019 15:30:46	3,066	24,87577	30,253054
21-02-2019 15:31:16	3,066	24,915212	30,253054
21-02-2019 15:31:46	3,066	24,949422	30,308001
21-02-2019 15:32:16	3,066	24,928379	30,268742
21-02-2019 15:32:46	3,067	24,904703	30,300161
21-02-2019 15:33:16	3,066	24,980978	30,247824
21-02-2019 15:33:46	3,067	24,970443	30,263514

21-02-2019 15:34:16	3,067	25,012529	30,226883
21-02-2019 15:34:46	3,066	25,009903	30,205944
21-02-2019 15:35:16	3,066	25,028318	30,219042
21-02-2019 15:35:46	3,067	24,931005	30,232115
21-02-2019 15:36:16	3,066	25,151878	30,216404
21-02-2019 15:36:46	3,066	24,917844	30,234732
21-02-2019 15:37:16	3,067	25,054615	30,234732
21-02-2019 15:37:46	3,067	25,157154	30,224274
21-02-2019 15:38:16	3,066	24,904493	30,191376
21-02-2019 15:38:46	3,067	24,972679	30,106113
21-02-2019 15:39:16	3,066	24,775077	30,105869
21-02-2019 15:39:46	3,066	24,840755	30,090057
21-02-2019 15:40:16	3,067	24,995943	30,058651
21-02-2019 15:40:46	3,067	24,864435	30,050779
21-02-2019 15:41:16	3,066	24,824985	30,027216
21-02-2019 15:41:46	3,066	24,843383	30,042931
21-02-2019 15:42:16	3,067	24,932832	29,993187
21-02-2019 15:42:46	3,067	24,801307	29,972235
21-02-2019 15:43:16	3,067	24,961761	29,967003
21-02-2019 15:43:46	3,066	24,872343	29,985336
21-02-2019 15:44:16	3,065	24,832952	30,012892
21-02-2019 15:44:46	3,066	24,912042	30,01173
21-02-2019 15:45:16	3,067	24,930406	30,006443
21-02-2019 15:45:46	3,067	24,99097	30,047096
21-02-2019 15:46:16	3,067	24,927961	30,032764
21-02-2019 15:46:46	3,067	25,080104	29,951252
21-02-2019 15:47:16	3,065	24,835298	29,923576
21-02-2019 15:47:46	3,067	25,037626	29,87495
21-02-2019 15:48:16	3,067	24,882454	29,859228
21-02-2019 15:48:46	3,066	24,987661	29,869719
21-02-2019 15:49:16	3,067	24,85878	29,853992
21-02-2019 15:49:46	3,065	24,832471	29,833036
21-02-2019 15:50:16	3,066	24,727232	29,848761
21-02-2019 15:50:46	3,067	24,719345	29,851376
21-02-2019 15:51:16	3,067	24,800907	29,846146
21-02-2019 15:51:46	3,067	24,96664	29,827805
21-02-2019 15:52:16	3,066	24,953476	29,81472
21-02-2019 15:52:46	3,067	24,764085	29,809462
21-02-2019 15:53:16	3,067	24,737772	29,840912
21-02-2019 15:53:46	3,067	24,716716	29,78591
21-02-2019 15:54:16	3,066	24,772071	29,797771
21-02-2019 15:54:46	3,066	24,948366	29,796469
21-02-2019 15:55:16	3,066	25,121589	29,705778
21-02-2019 15:55:46	3,067	24,955909	29,737211
21-02-2019 15:56:16	3,066	24,784822	29,683422
21-02-2019 15:56:46	3,066	24,695289	29,654518
21-02-2019 15:57:16	3,067	24,555786	29,68857
21-02-2019 15:57:46	3,066	24,647918	29,646667

21-02-2019 15:58:16	3,067	24,647918	29,672869
21-02-2019 15:58:46	3,066	24,692663	29,625698
21-02-2019 15:59:16	3,067	24,768945	29,678102
21-02-2019 15:59:46	3,067	24,708437	29,672869
21-02-2019 16:00:16	3,066	24,621599	29,675484
21-02-2019 16:00:46	3,065	24,647918	29,662373
21-02-2019 16:01:16	3,066	24,629398	29,632189
21-02-2019 16:01:46	3,066	24,847564	29,599216
21-02-2019 16:02:16	3,066	24,726451	29,576817
21-02-2019 16:02:46	3,068	24,713281	29,568937

Filter-3-D2 - [°C]	Filter-4-R - [°C]	Køler-1-H - [°C]	Køler-2-D - [°C]	Gasm-H - [°C]
4	5	6	7	8
Split train rem. filter temp	Room blank filter temp	Main train dryer outlet temperature	Split train dryer outlet temperature	Main train dry gas meter temperature
	24,920524	21,437886	23,428854	26,473853
	24,936292	21,421998	23,43413	26,473853
	24,94155	21,398143	23,428854	26,465966
	24,981254	21,456664	23,458083	26,512049
	24,99051	21,106744	23,204598	26,783497
	25,044397	19,581931	21,723088	27,541909
	25,070697	19,001514	20,969935	27,71855
	25,058965	18,759111	20,408352	27,780125
	25,1104	18,570012	20,114819	27,79209
	25,102517	18,468667	19,800959	27,784224
	25,176439	18,410257	19,537714	27,79624
	25,123811	18,348909	19,335387	27,800215
	25,136974	18,242185	19,148915	27,789738
	25,20827	18,223787	19,063898	27,801754
	25,1977	18,154391	18,938679	27,774327
	25,234521	18,084983	18,858704	27,729845
	25,210897	18,111716	18,685404	27,742987
	25,305776	18,058593	18,624335	27,749762
	25,300525	18,069261	18,538948	27,724923
	25,295272	18,023896	18,461571	27,711827
	25,305776	17,997199	18,317469	27,688277
	25,308507	18,021333	18,266854	27,711941
	25,337615	17,989482	18,259041	27,735688
	25,332366	17,957448	18,20298	27,688589
	25,321836	17,930747	18,14958	27,67549
	25,306079	17,914716	18,048098	27,644093
	25,372087	17,957744	18,117842	27,698044
	25,351056	17,96041	18,067126	27,701977
	25,351056	17,933709	18,075133	27,675812
	25,379962	17,88833	18,067126	27,639187
	25,366836	17,96041	18,005682	27,654875
	25,411769	17,931316	18,078076	27,678715
	25,445966	17,923345	18,086136	27,665661
	25,435466	17,910005	18,051402	27,673504
	25,396035	17,958074	18,022026	27,681372
	25,41969	17,920676	18,019358	27,639491
	25,410428	17,904668	18,038102	27,630391
	25,425037	17,920785	18,036868	27,634432
	25,441043	17,945047	17,979618	27,676457
	25,438417	17,950381	17,912848	27,665997
	25,435765	17,974414	17,923525	27,652905
	25,427892	17,961051	17,910181	27,64506
	25,44234	17,926347	17,908863	27,612383

25,439733	17,915744	17,864872	27,646525
25,471519	18,001403	17,87175	27,678091
25,465005	17,974759	17,867773	27,700354
25,46763	17,985431	17,865107	27,700354
25,493907	17,953393	17,926545	27,661091
25,480735	17,95873	17,914528	27,676833
25,467561	17,969402	17,962674	27,697819
25,485963	17,929361	17,989386	27,684723
25,573072	17,98845	18,033747	27,716393
25,520526	18,044513	18,028387	27,713778
25,573072	17,98845	18,081801	27,708546
25,520526	18,025817	18,031056	27,708546
25,524385	18,017816	18,001723	27,737408
25,457376	18,03918	17,92562	27,740023
25,50872	18,049922	17,910984	27,757096
25,539249	18,116931	17,924576	27,813538
25,528751	18,127597	17,895192	27,797856
25,560273	18,066213	17,953959	27,779538
25,568149	18,071544	17,964634	27,771695
25,523402	18,092904	17,955363	27,813641
25,536554	18,047517	17,998085	27,800553
25,558992	18,074315	17,994164	27,804554
25,585508	18,122577	17,995692	27,864899
25,547485	18,168018	17,965006	27,876673
25,555358	18,178682	17,973013	27,876673
25,586904	18,186679	17,999724	27,868834
25,552655	18,168018	17,985104	27,897688
25,531635	18,221391	17,953055	27,923844
25,536884	18,184015	17,953055	27,926455
25,597585	18,21894	17,985295	27,937119
25,61614	18,280444	17,992102	28,007813
25,647657	18,21108	18,037489	27,96074
25,61614	18,272447	18,032153	27,973803
25,617393	18,235101	18,016167	27,996115
25,60554	18,229743	17,98548	28,015738
25,600291	18,229743	17,980143	28,000065
25,638549	18,208543	18,013644	28,02763
25,674298	18,30218	17,979124	28,044798
25,632259	18,312843	17,901654	28,094475
25,609931	18,323529	17,865591	28,085341
25,601995	18,312843	17,850941	28,120709
25,658452	18,26481	17,895041	28,112875
25,592767	18,296849	17,854977	28,125933
25,663699	18,240792	17,841605	28,141629
25,658666	18,326366	17,865788	28,170527
25,745576	18,302552	17,950119	28,183739
25,679931	18,377258	17,939446	28,18113
25,703569	18,297219	17,968827	28,19941

	25,639144	18,350579	17,998259	28,223053
	25,622041	18,34525	18,012967	28,212584
	25,648307	18,289224	18,069048	28,238722
	25,673673	18,409602	18,072009	28,279509
	25,690816	18,414994	18,060034	28,296523
	25,661926	18,43101	18,084072	28,306965
	25,684232	18,433677	18,104103	28,310913
	25,715678	18,393651	18,121504	28,316189
	25,703855	18,390987	18,037409	28,343659
	25,664443	18,398982	17,970621	28,346268
	25,70123	18,33763	17,967953	28,343659
	25,732967	18,348499	17,994812	28,369938
	25,793618	18,367387	18,009703	28,422335
	25,727977	18,394061	17,990998	28,430167
	25,75027	18,332713	18,019066	28,410599
	25,742341	18,330022	18,001728	28,427678
	25,662217	18,359391	17,941643	28,45641
	25,68061	18,311364	17,976385	28,453801
	25,751762	18,306215	18,013913	28,461787
	25,741502	18,367782	17,9914	28,511567
	25,749374	18,386462	17,999432	28,529854
	25,804517	18,287742	18,028807	28,511567
	25,72173	18,349124	17,986119	28,545636
	25,775546	18,290408	18,003489	28,558684
	25,717775	18,325111	17,963435	28,569146
	25,704631	18,314424	17,944729	28,584803
	25,71396	18,327867	17,975535	28,609707
	25,778674	18,378871	18,015873	28,642582
	25,802312	18,330871	18,050585	28,624293
	25,785205	18,317519	18,0199	28,628239
	25,77856	18,32818	17,974554	28,634854
29,634272	25,752299	18,378871	17,923796	28,632243
29,654046	25,744426	18,384227	17,918459	28,67923
30,057193	25,757571	18,365545	17,95051	28,692295
29,599046	25,781209	18,368211	17,987898	28,650505
30,346349	25,753698	18,41629	17,951872	28,684508
29,949033	25,788131	18,459232	17,969473	28,743464
28,8	25,807954	18,429992	17,981573	28,755284
28,369466	25,772447	18,429992	17,962927	28,787978
28,668668	25,742225	18,419309	17,91354	28,789318
28,820863	25,726459	18,40332	17,881487	28,8076
28,928414	25,729081	18,379308	17,889494	28,804993
28,993998	25,69757	18,371312	17,868117	28,810208
29,041205	25,684426	18,323287	17,873478	28,818032
29,075286	25,702819	18,296605	17,886824	28,804993
29,056926	25,744849	18,269923	17,921547	28,815422
29,185559	25,709529	18,350061	17,901591	28,855967
29,260606	25,749215	18,371686	17,948607	28,887505

29,29859	25,754462	18,401075	17,97939	28,900662
29,316888	25,771516	18,361072	17,95938	28,907215
29,353566	25,74788	18,419755	17,919321	28,912455
29,361445	25,771516	18,371734	17,95938	28,920275
29,374537	25,795152	18,339727	17,962048	28,902001
29,392888	25,761024	18,326398	17,98609	28,91767
29,400742	25,753152	18,326398	17,980753	28,91506
29,426944	25,73476	18,289031	18,002127	28,930706
29,463641	25,742633	18,291696	17,978085	28,928101
29,525292	25,728269	18,329095	17,899311	28,959471
29,526612	25,745374	18,323827	17,919426	28,976515
29,580455	25,741559	18,356002	17,903584	29,015837
29,634272	25,729881	18,404121	17,909018	29,047261
29,62122	25,79297	18,345508	17,973191	29,019875
29,663136	25,735177	18,412187	17,935803	29,074667
29,65265	25,798215	18,353503	17,994564	29,07206
29,650029	25,774581	18,353503	18,002594	29,059025
29,644799	25,785073	18,345508	18,03731	29,07206
29,670987	25,737823	18,358834	17,981221	29,100758
29,697175	25,743072	18,366855	18,005263	29,092938
29,668372	25,727304	18,334821	18,0106	29,074667
29,699794	25,695792	18,342843	18,002594	29,077299
29,687995	25,697068	18,321494	18,002594	29,1047
29,6997	25,70362	18,316163	18,017296	29,10998
29,737752	25,714217	18,350936	18,041447	29,125737
29,77455	25,720931	18,423104	18,025538	29,153225
29,799514	25,702596	18,441817	18,068314	29,179371
29,854655	25,717183	18,471254	18,08042	29,21204
29,878272	25,732995	18,460668	18,101855	29,231648
29,849479	25,704108	18,433995	18,123223	29,229042
29,873044	25,706733	18,449983	18,09385	29,231648
29,870404	25,68834	18,458003	18,075148	29,229042
29,870404	25,690963	18,420646	18,077816	29,229042
29,841607	25,740869	18,356633	18,136561	29,215989
29,857323	25,722476	18,375314	18,131224	29,226435
29,854712	25,725126	18,37798	18,139227	29,189904
29,893966	25,719854	18,388641	18,120552	29,238186
29,90825	25,681686	18,455339	18,069861	29,234375
29,88597	25,721095	18,407321	18,08856	29,242194
29,896434	25,686958	18,452647	18,077889	29,276091
29,878125	25,723718	18,41265	18,1206	29,257828
29,905667	25,739522	18,426036	18,142029	29,268345
29,918767	25,721154	18,455373	18,147364	29,28398
29,964865	25,74768	18,484945	18,199629	29,284106
29,980777	25,757066	18,503795	18,249174	29,305117
29,978167	25,722932	18,493137	18,249174	29,323382
29,954606	25,717685	18,519807	18,217144	29,305117
29,949376	25,709815	18,519807	18,179751	29,310355

29,957223	25,673026	18,554467	18,15841	29,312958
29,967706	25,673026	18,554467	18,091641	29,312958
29,978167	25,654634	18,527799	18,070273	29,325985
29,979449	25,658559	18,514453	18,040896	29,345587
29,996432	25,661184	18,55713	17,996846	29,372994
29,981957	25,648002	18,551803	17,998219	29,380869
29,962291	25,663747	18,495801	18,006249	29,357399
29,957064	25,668994	18,48512	18,024929	29,380869
29,959678	25,637479	18,469131	18,030264	29,373057
29,972775	25,57969	18,527799	18,000887	29,388686
29,943986	25,605962	18,482455	18,089039	29,404341
29,93876	25,619107	18,490447	18,086371	29,393895
29,912583	25,603337	18,525136	18,075674	29,401734
29,930888	25,605962	18,554467	18,081009	29,404341
29,930888	25,611211	18,559797	18,081009	29,414757
29,957064	25,590188	18,594453	18,094374	29,433016
29,972775	25,590188	18,591788	18,102377	29,43562
29,949216	25,595462	18,554467	18,113076	29,430415
29,967547	25,574441	18,570453	18,086371	29,448643
29,923039	25,582315	18,57314	18,139777	29,474711
29,967547	25,540271	18,559797	18,126416	29,472109
29,959678	25,540271	18,615789	18,097042	29,48255
29,933503	25,545545	18,610461	18,123747	29,490364
29,912583	25,54292	18,586459	18,142445	29,479947
29,902095	25,584939	18,538457	18,158451	29,474711
29,88115	25,57969	18,514453	18,179816	29,49297
29,899482	25,527145	18,562461	18,153115	29,506016
29,883765	25,513997	18,559797	18,155783	29,498179
29,836665	25,584939	18,530463	18,195845	29,513827
29,868073	25,537646	18,586459	18,091708	29,51643
29,857585	25,558667	18,567786	18,075674	29,50078
29,862845	25,571817	18,570453	18,115742	29,537289
29,873303	25,545545	18,645114	18,102377	29,534686
29,862845	25,561296	18,63446	18,123747	29,53208
29,807866	25,595462	18,607797	18,163786	29,534686
29,805226	25,548169	18,655793	18,099711	29,53208
29,760733	25,569194	18,60247	18,129082	29,524247
29,745013	25,550796	18,64245	18,129082	29,534686
29,772477	25,503497	18,709113	18,099711	29,551644
29,779046	25,511373	18,695771	18,131749	29,573771
29,747628	25,500869	18,68778	18,145113	29,568562
29,695256	25,556043	18,663783	18,187819	29,539894
29,71098	25,537646	18,685117	18,161118	29,550311
29,763346	25,490371	18,746421	18,065003	29,576373
29,713595	25,529773	18,735769	18,078341	29,57898
29,726676	25,537646	18,738433	18,081009	29,581606
29,692639	25,54292	18,711776	18,105048	29,571165
29,71621	25,492995	18,749084	18,083678	29,57898

29,687407	25,503497	18,706449	18,099711	29,594626
29,650727	25,513997	18,685117	18,155783	29,594626
29,635028	25,516647	18,68778	18,171812	29,605065
29,655984	25,477222	18,709113	18,171812	29,607666
29,650727	25,511373	18,698434	18,190512	29,618084
29,663834	25,477222	18,741096	18,20118	29,631127
29,690024	25,48772	18,751748	18,21185	29,641539
29,682174	25,511373	18,765086	18,249239	29,644143
29,642724	25,502052	18,77563	18,269162	29,637547
29,583669	25,550506	18,730207	18,303744	29,607504
29,592574	25,480695	18,743348	18,286246	29,617812
29,570239	25,441228	18,764617	18,272852	29,615141
29,533551	25,478006	18,721984	18,323571	29,609934
29,538808	25,493781	18,735299	18,304879	29,607304
29,507355	25,485881	18,772632	18,320904	29,604702
29,533551	25,417573	18,823249	18,270186	29,641203
29,486411	25,47013	18,78062	18,256825	29,635992
29,468066	25,48326	18,732637	18,259493	29,628157
29,444484	25,475381	18,721984	18,267517	29,615141
29,457574	25,449104	18,737964	18,251492	29,659424
29,517901	25,416265	18,772632	18,235463	29,655486
29,473401	25,454416	18,732637	18,266148	29,635933
29,481278	25,476724	18,708644	18,292839	29,643742
29,508807	25,449166	18,737964	18,255453	29,67107
29,495766	25,492542	18,748641	18,262049	29,660595
29,439132	25,479123	18,681752	18,23655	29,640908
29,407534	25,471132	18,676316	18,245819	29,623888
29,365439	25,446035	18,668204	18,200295	29,625115
29,344495	25,438161	18,65755	18,221657	29,622486
29,341851	25,414506	18,652198	18,200295	29,62772
29,33138	25,393476	18,668204	18,154925	29,62772
29,313023	25,364568	18,673532	18,154925	29,656384
29,32614	25,385598	18,686874	18,146895	29,643341
29,34973	25,369821	18,72951	18,136225	29,664194
29,318286	25,377723	18,697528	18,165594	29,664194
29,310406	25,385598	18,700189	18,154925	29,682442
29,305169	25,406629	18,734863	18,170929	29,679839
29,320903	25,388223	18,77217	18,149588	29,674609
29,32614	25,340911	18,806812	18,128222	29,711102
29,289435	25,361942	18,780156	18,14156	29,674609
29,302609	25,360664	18,780156	18,136225	29,699351
29,289435	25,327722	18,782714	18,118721	29,69529
29,207932	25,302495	18,750507	18,07448	29,636471
29,207932	25,249919	18,82248	18,055779	29,657324
29,172465	25,274831	18,779763	18,055706	29,679446
29,142228	25,27477	18,769056	18,023604	29,622055
29,194663	25,235351	18,814372	17,983549	29,666363
29,13437	25,261638	18,745063	18,028939	29,661135

29,173686	25,24323	18,782394	17,98622	29,679383
29,142228	25,293178	18,723758	18,028939	29,650719
29,15535	25,269517	18,755738	18,004923	29,681986
29,181567	25,258989	18,782394	17,98622	29,702837
29,15535	25,261638	18,798372	17,991557	29,679383
29,173686	25,25636	18,761066	17,975521	29,702837
29,13955	25,233949	18,769008	17,944769	29,667633
29,107886	25,196969	18,774179	17,888516	29,687029
29,085477	25,181052	18,766004	17,872307	29,654271
29,044816	25,157325	18,736652	17,850895	29,638583

Gasm-D - [°C]	Gasm-R - [°C]	Gas-Disp - [°C]	Flow-H - [ln/min]	Flow-D - [ln/min]
9	10	11	12	13
Split train dry gas meter temperature	Room blank dry gas meter temperature	Gas-Disp - [°C]	Main train flow rate Flow-H - [ln/min]	Split train flow rate Flow-D - [ln/min]
26,350632	23,270009	24,473603	0,000899	0,001401
26,355879	23,222484	24,513097	0,000966	0,001267
26,376873	23,21457	24,602645	6,674671	6,756569
26,378344	23,278062	24,547467	6,783166	6,737393
26,652455	23,280736	24,59357	6,787712	6,733706
27,23304	23,315135	24,67133	6,719927	6,707021
27,339125	23,296685	24,731908	6,721671	6,730487
27,375861	23,331052	24,57006	6,723548	6,737862
27,417935	23,325986	24,590012	6,703166	6,749261
27,386521	23,312801	24,671655	6,690024	6,756569
27,412909	23,351274	24,607327	6,704909	6,795993
27,402506	23,355313	24,513938	6,671989	6,794249
27,402506	23,334192	24,463897	6,674805	6,828444
27,448521	23,326448	24,548362	6,670916	6,819861
27,449938	23,323924	24,616944	6,674671	6,820331
27,426373	23,297527	24,706446	6,670983	6,830254
27,417216	23,327907	24,468173	6,665553	6,835618
27,448897	23,342677	24,61719	6,660054	6,828176
27,447604	23,337423	24,735715	6,667027	6,844937
27,431912	23,303115	24,727801	6,702965	6,756904
27,416191	23,347993	24,551415	6,712351	6,744366
27,424151	23,326989	24,591018	6,701021	6,759921
27,440049	23,382619	24,622813	6,696864	6,737393
27,416508	23,395805	24,54645	6,693243	6,743964
27,398175	23,385257	24,517484	6,674737	6,776347
27,377222	23,374685	24,493779	6,689957	6,759988
27,436432	23,390815	24,536187	6,685666	6,776817
27,398472	23,414588	24,565194	6,686002	6,768973
27,377547	23,41195	24,596787	6,682381	6,759921
27,385392	23,388196	24,723164	6,689689	6,764882
27,369675	23,417249	24,596787	6,682247	6,790159
27,405295	23,453132	24,593108	6,672458	6,793914
27,43022	23,47298	24,655043	6,674671	6,784862
27,414524	23,443952	24,80247	6,678559	6,79673
27,396193	23,483548	24,581315	6,70216	6,774739
27,370009	23,470342	24,626084	6,716106	6,77494
27,397547	23,467775	24,613002	6,685935	6,786271
27,371516	23,492974	24,663157	6,696461	6,812889
27,414843	23,489143	24,655391	6,674737	6,80605
27,42533	23,504983	24,605363	6,675408	6,786338
27,404377	23,489143	24,823849	6,815873	6,707088
27,37558	23,531369	24,642215	6,814331	6,677118
27,389998	23,523483	24,586974	6,783757	6,715804

27,422861	23,524959	24,643737	6,832634	6,718016
27,429554	23,617431	24,601718	6,832634	6,712586
27,44137	23,613506	24,518801	6,812252	6,699981
27,443987	23,618777	24,589907	6,815537	6,686437
27,475397	23,581853	24,916297	6,820767	6,704875
27,462344	23,618823	24,741353	6,813727	6,680872
27,47814	23,666394	24,672992	6,811313	6,699579
27,488625	23,629449	24,717753	6,795088	6,675441
27,533339	23,679803	24,756123	6,730521	6,688381
27,501931	23,721988	24,795594	6,702629	6,703333
27,520237	23,674531	24,713996	6,71624	6,705479
27,499318	23,703542	24,463858	6,723481	6,703468
27,550459	23,703679	24,50875	6,722006	6,680269
27,546542	23,748523	24,686511	6,690695	6,718284
27,564925	23,776263	24,446944	6,713961	6,695824
27,583407	23,825208	24,501092	6,704775	6,723514
27,588663	23,848943	24,561656	6,712419	6,695757
27,62529	23,804109	24,75384	6,709133	6,722039
27,622677	23,81994	24,508986	6,707591	6,710909
27,646367	23,885982	24,663188	6,708597	6,689991
27,643753	23,851714	24,850074	6,704708	6,71453
27,677817	23,837281	24,673772	6,693645	6,681409
27,705454	23,88224	24,68442	6,689824	6,700048
27,696305	23,936317	24,556746	6,689957	6,706819
27,696305	23,954751	24,733155	6,706451	6,715066
27,709401	23,931047	24,883183	6,697332	6,71453
27,735697	24,002347	24,674092	6,692237	6,71634
27,777542	24,015536	24,584555	6,681577	6,695153
27,785405	23,997079	24,716197	6,693645	6,713524
27,809094	24,063115	24,774272	6,678492	6,722173
27,856266	24,086925	24,736172	6,686002	6,68456
27,848427	24,065837	24,512357	6,703032	6,688113
27,858879	24,094825	24,559764	6,682851	6,710843
27,892987	24,101545	24,784985	6,689891	6,703601
27,913941	24,113424	24,7508	6,672793	6,715402
27,911326	24,123979	24,632346	6,693377	6,715134
27,925787	24,124055	24,694295	6,686873	6,725191
27,956021	24,15845	24,762866	6,706786	6,738131
27,95341	24,192722	24,628608	6,6974	6,722039
27,954745	24,22305	24,651021	6,719727	6,740812
27,991452	24,271905	24,731431	6,702764	6,737125
28,024165	24,229745	24,709071	6,705781	6,729348
28,034636	24,290353	24,882794	6,689287	6,713927
28,031998	24,261354	24,798585	6,695188	6,729549
28,049117	24,347099	24,705245	6,716911	6,742623
28,108078	24,338006	24,784329	6,711212	6,725995
28,100245	24,364345	24,729056	6,716039	6,707289
28,113305	24,319558	24,773787	6,689824	6,734108

28,135643	24,382938	24,742356	6,689824	6,729482
28,144814	24,396095	24,633128	6,689891	6,744634
28,155283	24,353969	24,556765	6,716039	6,740879
28,203856	24,41608	24,549056	6,688147	6,763474
28,18952	24,446393	24,682053	6,689488	6,752009
28,199965	24,472726	24,637315	6,686069	6,759519
28,21436	24,48986	24,765004	6,691231	6,740679
28,24577	24,462299	24,903249	6,693109	6,733102
28,265467	24,507104	24,883591	6,70853	6,743293
28,275914	24,554504	24,93096	6,704775	6,742019
28,291602	24,541326	24,880961	6,694382	6,740812
28,326989	24,563827	24,935027	6,685935	6,751942
28,359791	24,575811	25,035109	6,690762	6,734242
28,325806	24,620572	25,098254	6,708597	6,733035
28,353276	24,598222	25,091683	6,670782	6,74383
28,376902	24,607551	24,966874	6,68218	6,721838
28,378218	24,654939	24,760312	6,672928	6,733102
28,375609	24,633876	24,726098	6,682716	6,728342
28,437144	24,669547	24,740685	6,692841	6,733169
28,449036	24,705222	24,651288	6,688214	6,746512
28,467307	24,723626	24,77765	6,700886	6,706954
28,488209	24,673619	24,859237	6,684728	6,740746
28,515782	24,763274	24,885714	6,674737	6,707758
28,537995	24,736959	25,037028	6,693645	6,722039
28,517094	24,779075	24,894963	6,693645	6,734912
28,511876	24,78696	24,729134	6,698339	6,721972
28,53023	24,80677	24,666007	6,693645	6,695622
28,57222	24,797754	24,620135	6,703836	6,733303
28,614018	24,787212	24,770175	6,688549	6,734175
28,620572	24,792527	24,996558	6,682247	6,72566
28,640288	24,805803	24,721659	6,693578	6,747852
28,632435	24,866313	24,695334	6,685935	6,720028
28,653334	24,871595	24,674292	6,685935	6,721838
28,67162	24,858428	24,769044	6,715972	6,739404
28,674227	24,858428	24,713769	6,6622	6,749328
28,662501	24,918988	24,794085	6,678426	6,711111
28,725329	24,92706	24,899522	6,676548	6,736924
28,742381	24,958659	24,752187	6,674671	6,774604
28,779051	24,978524	24,603585	6,696997	6,816643
28,758215	25,006175	24,651021	6,689891	6,818118
28,78693	25,027223	24,437716	6,674805	6,819459
28,771258	25,019342	24,374507	6,68332	6,816174
28,760825	25,04564	24,458792	6,693578	6,793579
28,760825	25,032479	24,411374	6,700819	6,800753
28,799975	25,053525	24,453528	6,689891	6,801088
28,826075	25,021968	24,853711	6,686002	6,824421
28,826136	25,068071	24,714263	6,697332	6,819661
28,853743	25,135333	24,655228	6,689756	6,768838

28,883913	25,168328	24,740939	6,678426	6,793512
28,915263	25,161794	24,701499	6,682716	6,791232
28,912657	25,193341	24,722565	6,693578	6,811078
28,920504	25,169675	24,904168	6,700953	6,793512
28,928324	25,159167	24,725196	6,70739	6,789824
28,93093	25,143382	24,509269	6,695857	6,778426
28,9466	25,151288	24,622517	6,697735	6,785869
28,964852	25,156541	24,685696	6,685935	6,797199
28,970089	25,156541	24,461882	6,704775	6,778292
28,966191	25,201284	24,621238	6,690024	6,778359
28,993676	25,210572	24,595006	6,678426	6,753686
29,031706	25,256784	24,485932	6,700082	6,793512
29,03571	25,305494	24,55317	6,689824	6,779097
29,077502	25,29371	24,717744	6,703367	6,785936
29,087954	25,33838	24,525542	6,670916	6,774671
29,114045	25,304216	24,612435	6,683119	6,78969
29,087954	25,325248	24,596627	6,673196	6,782114
29,129681	25,322623	24,565032	6,674671	6,752077
29,121865	25,322623	24,591365	6,680906	6,75268
29,127077	25,325248	24,457057	6,670782	6,740544
29,116648	25,333125	24,422824	6,695857	6,789758
29,114045	25,356784	24,451793	6,679029	6,767028
29,112769	25,359473	24,59669	6,678694	6,757574
29,154566	25,343749	24,45851	6,674537	6,778292
29,179478	25,400394	24,575867	6,68218	6,755563
29,163884	25,475391	24,565383	6,682984	6,78198
29,195238	25,484613	24,511424	6,686069	6,736857
29,195313	25,505679	24,487792	6,678559	6,753552
29,242302	25,499156	24,631322	6,689824	6,770649
29,242302	25,504407	24,620801	6,670916	6,75563
29,234486	25,520179	24,50492	6,679498	6,764547
29,231879	25,51493	24,420642	6,693578	6,759452
29,234486	25,51493	24,589209	6,682113	6,763072
29,270987	25,465001	24,50492	6,68218	6,745774
29,273596	25,465001	24,491767	6,697332	6,76562
29,276225	25,45185	24,425906	6,692506	6,740611
29,281435	25,482091	24,400916	6,689891	6,767967
29,268511	25,553149	24,905257	6,670916	6,776347
29,327216	25,519069	24,703942	6,687946	6,75563
29,319401	25,561094	24,646027	6,678492	6,755496
29,308957	25,521693	24,711833	6,663272	6,766827
29,336373	25,536166	24,568375	6,66334	6,755697
29,341584	25,530915	24,547303	6,663809	6,762603
29,359944	25,570436	24,552682	6,671654	6,75563
29,362748	25,599448	24,50014	6,683253	6,785734
29,375769	25,588948	24,344725	6,670782	6,775878
29,362748	25,586326	24,452725	6,664949	6,782047
29,349697	25,602096	24,4422	6,674336	6,766961

29,367953	25,625718	24,447461	6,674604	6,757776
29,344483	25,644113	24,365807	6,688147	6,767162
29,339274	25,659881	24,529105	6,678426	6,75677
29,384926	25,673068	24,463319	6,679565	6,751876
29,386258	25,687535	24,438332	6,6565	6,77085
29,404578	25,725702	24,268496	6,667094	6,775878
29,421544	25,700786	24,420022	6,673464	6,763206
29,447615	25,685041	24,448994	6,674737	6,740679
29,424149	25,679771	24,391026	6,686069	6,766961
29,416336	25,706031	24,388394	6,679766	6,736857
29,452824	25,682416	24,625418	6,667027	6,773666
29,450222	25,690288	24,443732	6,663072	6,766961
29,450222	25,690288	24,433181	6,670849	6,770582
29,458037	25,713929	24,622788	6,667027	6,748121
29,455433	25,745441	24,530639	6,689891	6,767028
29,468478	25,77695	24,309357	6,640677	6,767497
29,445013	25,792714	24,322543	6,692371	6,778225
29,497151	25,766454	24,346257	6,682046	6,755563
29,484105	25,808456	24,435811	6,663206	6,754759
29,515404	25,795339	24,493752	6,668636	6,774202
29,515404	25,803207	24,377866	6,678426	6,764011
29,515404	25,837362	24,525376	6,783757	6,755496
29,502358	25,837362	24,607005	6,806084	6,751674
29,518008	25,826842	24,36205	6,806151	6,738868
29,541472	25,782195	24,36205	6,805078	6,756301
29,55449	25,795339	24,272481	6,793613	6,736857
29,533635	25,82422	24,264584	6,809838	6,745908
29,512803	25,855724	24,472703	6,781813	6,737661
29,557095	25,829465	24,546424	6,78369	6,751741
29,583161	25,845229	24,248763	6,787377	6,770716
29,57795	25,855724	24,280379	6,780002	6,737661
29,5936	25,850475	24,182895	6,764916	6,714195
29,596203	25,881978	24,164441	6,795021	6,733102
29,588368	25,90561	24,225045	6,772493	6,718754
29,611823	25,842605	24,343625	6,795021	6,744701
29,583161	25,908231	24,251397	6,773364	6,755697
29,5936	25,860969	24,401576	6,78436	6,758446
29,601412	25,863616	24,269849	6,780136	6,718821
29,59231	25,927964	24,284354	6,775912	6,744299
29,606619	25,910855	24,293567	6,765989	6,747987
29,611823	25,887223	24,290932	6,780002	6,729414
29,619658	25,874109	24,238234	6,750636	6,741349
29,635283	25,887223	24,267216	6,768738	6,748121
29,614432	25,937108	24,182895	6,757474	6,740544
29,637885	25,908231	24,298831	6,764916	6,744232
29,64572	25,916124	24,190793	6,759218	6,72975
29,650927	25,942374	24,356787	6,787579	6,746311
29,650927	25,992227	24,256663	6,764849	6,721771

29,632677	25,973872	24,322543	6,765989	6,747987
29,64572	25,96598	24,330441	6,764984	6,735516
29,669176	25,952869	24,343625	6,773499	6,732968
29,663945	25,94762	24,240866	6,791199	6,732901
29,67178	25,937108	24,40684	6,779734	6,733035
29,676987	25,986985	24,230311	6,764179	6,747517
29,695235	26,013234	24,306725	6,766928	6,729348
29,666573	26,015855	24,391026	6,765319	6,744366
29,68476	26,01971	24,209174	6,782818	6,7445
29,68075	25,969773	24,317141	6,766794	6,733102
29,670203	25,990674	24,120724	6,761229	6,740679
29,668873	26,01295	24,187918	6,783153	6,725526
29,710577	25,976188	24,390807	6,764849	6,736722
29,70537	25,970945	24,269604	6,761162	6,733169
29,694931	25,978835	24,227435	6,749831	6,706753
29,689724	26,031329	24,253787	6,749898	6,737527
29,713181	25,973567	24,356543	6,766123	6,729213
29,715783	25,986701	24,190551	6,772493	6,743428
29,726195	25,991946	24,327565	6,766056	6,736857
29,72099	26,007701	24,211638	6,769878	6,73679
29,713116	26,056226	24,137767	6,764916	6,727202
29,723477	26,025951	24,189093	6,764916	6,751808
29,753474	26,027297	24,237855	6,785567	6,740611
29,736494	26,074483	24,266795	6,745674	6,737661
29,722079	26,058686	24,236394	6,770951	6,706819
29,734993	26,042817	24,358823	6,776314	6,740477
29,717978	26,026998	24,211221	6,746546	6,754356
29,723149	26,020366	24,266492	6,772426	6,740544
29,730956	26,022987	24,21379	6,766928	6,764481
29,720543	26,015094	24,266492	6,776114	6,729079
29,730956	26,030854	24,179538	6,774236	6,751808
29,728354	26,017719	24,153182	6,761095	6,734778
29,746596	26,03872	24,095202	6,764916	6,746847
29,733557	26,057098	24,082009	6,763978	6,751674
29,764817	26,057098	24,142649	6,757407	6,757105
29,764817	26,054477	24,23751	6,773231	6,729146
29,77265	26,099097	24,187438	6,776314	6,751741
29,77005	26,138448	24,079377	6,770951	6,758111
29,77265	26,143691	24,116294	6,75734	6,761597
29,775256	26,133203	24,042481	6,776582	6,725526
29,77258	26,113483	24,087228	6,774638	6,75563
29,735932	26,117215	24,104171	6,770616	6,740544
29,717537	26,089532	24,210748	6,771889	6,740142
29,720139	26,123662	24,192317	6,774773	6,742958
29,73182	26,068484	24,122426	6,757407	6,758379
29,720084	26,085496	23,984013	6,75734	6,755429
29,730496	26,117007	23,902276	6,749831	6,736857
29,756548	26,090766	24,018279	6,776582	6,736857

29,756548	26,148492	23,960282	6,753586	6,754959
29,77219	26,130119	24,071004	6,752244	6,734376
29,782601	26,140628	23,999842	6,764849	6,737192
29,777396	26,166866	24,055201	6,755933	6,745506
29,782601	26,185216	23,899642	6,751239	6,725459
29,813883	26,169488	23,928645	6,772493	6,732633
29,792973	26,149766	23,936475	6,769878	6,730286
29,766816	26,152293	24,097192	6,764916	6,753083
29,730126	26,120578	24,054797	6,7385	6,755563
29,727463	26,141513	23,97038	6,764916	6,770582

NS-Røgtemp - [°C]	Ovf-Top - [°C]	Ovf-Bag - [°C]	Ovf-Side-1 - [°C]	Ovf-Side-2 - [°C]
24	27	28	29	30
EPA Flue gas temperature	Surface temperature Top	Surface temperature Rear	Surface temperature Right side	Surface temperature Left side
171,340012	203,145444	54,418658	116,626732	119,885647
245,117859	203,424863	54,516768	116,694557	120,080994
248,935577	203,864865	54,602	116,96257	120,267337
242,437241	204,231412	54,702872	116,96521	120,225899
189,487793	204,565808	54,819243	116,925941	120,474568
174,567551	204,9884	54,912207	116,829033	120,712792
170,077179	205,438962	54,943118	117,005463	121,009315
166,258575	205,867947	55,038535	116,920197	121,357637
163,67038	206,311917	55,056643	116,758011	121,647954
161,262817	206,742429	55,152319	116,697861	121,956467
159,233292	207,178296	55,160071	116,509552	122,275401
157,102234	207,667432	55,254301	116,454414	122,686312
155,772095	208,180341	55,244898	116,733955	123,021904
154,249786	208,637448	55,219042	116,733955	123,37475
152,928146	209,051755	55,237147	116,658104	123,683565
152,549896	209,455273	55,250067	116,529938	123,948333
152,047424	209,934644	55,289793	116,39357	124,195901
151,319077	210,37402	55,293505	116,171173	124,376188
151,478821	210,766721	55,306445	116,129318	124,573541
150,26767	211,196881	55,407278	115,724068	124,62028
149,009201	211,610883	55,523604	115,606438	124,641032
148,918289	212,024579	55,67198	115,630974	124,757652
147,322891	212,440961	55,742865	115,548424	124,798961
146,206802	212,801465	55,763522	115,415115	124,809322
146,278549	213,143246	55,828162	115,258301	124,858685
145,925201	213,474301	55,947062	115,070152	124,918432
145,001862	213,846387	55,963515	114,944344	125,028461
144,596878	214,170544	56,029257	114,79789	125,110136
143,795288	214,450848	56,083548	114,748245	125,167273
143,742203	214,701718	56,024092	114,4478	125,195853
143,177032	214,947247	56,099043	114,398163	125,224433
142,843491	215,245709	56,249876	114,331223	125,300785
142,258743	215,48576	56,364729	113,87532	125,281081
141,65155	215,688535	56,418993	113,979782	125,343414
140,840454	215,899289	56,499087	113,773483	125,278487
140,774185	216,07272	56,545611	113,499313	125,281081
141,622009	216,257901	56,650042	113,363373	125,318597
141,518478	216,467038	56,813834	113,209023	125,301366
140,816086	216,637753	56,893919	112,929749	125,236431
141,780945	216,779111	56,992091	113,049805	125,163699
141,833969	216,901822	57,046343	112,927116	125,085764
140,535202	217,021848	57,100581	112,715736	124,992249
141,786972	217,186826	57,127379	112,70887	124,982906

141,528564	217,309354	57,169852	112,556076	124,999556
141,070007	217,394681	57,146605	112,446449	124,960608
140,887131	217,474683	57,180178	112,23774	124,939833
140,561172	217,546704	57,193106	112,081207	124,95281
140,187607	217,608029	57,172438	111,942963	124,95281
140,069763	217,71066	57,127203	111,875069	124,967078
139,115921	217,830273	57,163016	111,879913	124,977085
139,675842	217,914182	57,210703	111,804207	125,01727
139,659958	217,980817	57,215857	111,679024	124,921169
139,850662	218,0715	57,275294	111,731186	124,954914
139,024384	218,159467	57,26237	111,70771	124,954914
138,621979	218,250119	57,288195	111,339996	124,967915
138,096649	218,304684	57,312575	111,394577	124,952132
138,224854	218,379193	57,347361	111,294098	124,981926
138,351471	218,473584	57,336806	111,349945	124,99599
138,089447	218,529599	57,360026	111,349945	124,993388
137,875107	218,572232	57,344542	111,136147	124,98041
137,316849	218,620206	57,37295	111,123093	124,972605
137,1436	218,690823	57,34838	110,867538	124,882989
137,818283	218,737378	57,432158	110,886932	124,893177
137,008759	218,76936	57,442503	111,113762	124,872409
136,503326	218,854459	57,497878	110,895927	124,906057
136,615402	218,904935	57,542925	111,049622	124,92279
135,843384	218,952908	57,568751	110,822815	124,917602
136,372131	218,98222	57,60232	110,723732	124,907196
136,288879	219,020871	57,572592	110,963501	124,877311
136,778152	219,070081	57,534998	110,748299	124,913507
135,828949	219,096722	57,609896	110,730064	124,926485
135,89502	219,096722	57,656393	110,610146	124,983607
136,035049	219,124677	57,647314	110,861687	124,906962
136,291138	219,145764	57,608416	110,754616	124,983426
136,96933	219,184308	57,576033	110,913559	125,031402
136,376938	219,168317	57,535963	110,847069	125,022285
134,94574	219,158887	57,541018	110,829964	125,08317
135,812592	219,197507	57,539702	110,695686	125,154582
136,108643	219,216168	57,578421	110,588829	125,172748
136,095444	219,208173	57,606833	110,565361	125,185749
136,005539	219,213498	57,578421	110,667007	125,190937
135,397293	219,242657	57,564082	110,467468	125,234983
135,48027	219,271756	57,541972	110,459518	125,277687
136,182129	219,273068	57,558745	110,623672	125,260781
135,685226	219,28497	57,621882	110,549255	125,31515
135,576828	219,311627	57,652861	110,484085	125,309962
135,315186	219,316983	57,670927	110,564873	125,317782
134,868607	219,338269	57,683848	110,424133	125,356723
134,75766	219,316983	57,668341	110,588333	125,351535
135,193649	219,316983	57,663187	110,776031	125,372325
134,841827	219,318097	57,61394	110,940071	125,425436

135,240646	219,357877	57,630583	110,899521	125,564294
134,850937	219,392453	57,62921	110,676552	125,634326
135,441559	219,375104	57,678202	110,806831	125,634251
135,092712	219,372433	57,654963	110,812042	125,647244
134,662079	219,391095	57,616228	110,973671	125,673237
134,036026	219,372433	57,531012	110,931953	125,688839
134,804733	219,367108	57,487097	110,929352	125,720006
133,994522	219,401395	57,479067	111,07901	125,76001
133,644669	219,405362	57,473849	111,004608	125,840517
134,03418	219,399976	57,53319	111,059303	125,911869
134,643097	219,43591	57,561526	111,067047	125,919621
134,577026	219,430585	57,587347	111,395599	126,002782
134,569122	219,411923	57,577025	111,372131	126,078153
134,127975	219,417294	57,610594	111,408638	126,137945
134,767258	219,427914	57,592528	111,552055	126,145727
134,414383	219,467786	57,620818	111,475037	126,232719
133,745819	219,499524	57,656798	111,485313	126,315714
133,698318	219,528806	57,630858	111,352196	126,406582
133,169037	219,592694	57,666953	111,400352	126,418202
132,928848	219,587369	57,703093	111,369041	126,514394
133,623108	219,598019	57,708285	111,481194	126,553373
132,58577	219,581998	57,687617	111,856743	126,579366
132,361481	219,563367	57,643706	111,937614	126,662572
132,229202	219,585828	57,622866	112,075699	126,757331
132,24498	219,596417	57,578898	111,994759	126,775467
131,992935	219,585583	57,653632	111,916351	126,924784
131,680405	219,576215	57,66392	112,059761	126,929912
131,353363	219,496274	57,607081	112,012794	127,002697
131,300629	219,477612	57,552855	111,960625	127,044323
131,42984	219,421643	57,573519	112,213676	127,054699
130,704758	219,370999	57,490878	112,195412	127,033931
130,854721	219,353452	57,43389	112,237007	127,032483
130,515732	219,309354	57,436339	112,16777	127,138976
130,358948	219,250653	57,35488	112,17807	127,109008
129,887268	219,170651	57,276034	112,166245	127,16089
129,639633	219,109341	57,203703	112,309753	127,108873
129,268204	219,010709	57,183031	112,228867	127,101075
129,033783	218,941418	57,188219	112,00972	126,991883
128,193787	218,820111	57,233382	112,029266	126,943742
128,492142	218,773175	57,233157	112,040794	126,944843
129,084579	218,701123	57,229269	112,206436	126,912297
128,654099	218,603726	57,222662	112,383705	126,857504
129,041214	218,506406	57,236826	112,155365	126,687178
128,427673	218,418454	57,275587	112,032753	126,622198
127,377167	218,342252	57,301249	112,003891	126,47776
127,675613	218,220822	57,267558	112,179886	126,443871
128,202042	218,095502	57,202967	112,117294	126,415254
128,441589	217,983517	57,231379	112,057289	126,319092

127,636154	217,847562	57,249472	112,099014	126,207298
127,720413	217,746121	57,270018	112,211082	126,152634
126,971901	217,612759	57,262221	112,314041	126,094064
126,398521	217,450101	57,264799	112,530617	125,953698
126,871941	217,316739	57,228617	112,452332	125,888748
126,845627	217,196744	57,249297	112,355797	125,764015
126,631119	217,080624	57,264723	112,43924	125,673011
126,482376	216,935223	57,227187	112,37262	125,61058
126,107422	216,801678	57,225779	112,343803	125,585793
126,604424	216,630948	57,177962	112,318993	125,519494
126,24028	216,486783	57,106768	112,217056	125,542712
126,86882	216,326718	57,075777	112,073593	125,5479
126,558456	216,212018	57,130022	111,875336	125,472551
126,211349	216,011929	57,075777	111,950981	125,394616
126,787285	215,878537	57,011183	112,047516	125,394616
126,797829	215,769162	56,941447	111,880539	125,340058
126,832008	215,657117	56,944029	111,817955	125,256927
126,650513	215,542355	56,962092	111,815353	125,230956
126,484848	215,398267	56,93886	111,744919	125,251739
126,755783	215,310147	56,858714	111,550537	125,252938
126,575668	215,232724	56,893504	111,551773	125,239839
126,538826	215,144666	56,901247	111,56218	125,247622
126,407349	215,037915	56,846995	111,700401	125,289202
126,957039	214,947186	56,777235	111,723885	125,286608
126,068138	214,853757	56,759165	111,512634	125,31
126,212761	214,797696	56,733328	111,371834	125,403522
125,807861	214,720364	56,766913	111,650856	125,489255
126,162804	214,666974	56,759165	111,593468	125,600965
125,692154	214,630856	56,786269	111,485237	125,680182
126,488853	214,581525	56,76174	111,61956	125,759452
126,482147	214,554639	56,711176	111,419861	125,84894
126,880577	214,5332	56,718817	111,641403	125,96182
126,897484	214,543759	56,615355	111,53698	126,098189
126,205788	214,511731	56,514582	111,469177	126,168365
126,711945	214,492993	56,489996	111,462646	126,255409
125,276459	214,479657	56,453814	111,376572	126,367196
126,188622	214,46362	56,420226	111,280113	126,507569
126,149193	214,487637	56,389223	111,264473	126,634942
126,172859	214,501004	56,350443	111,063683	126,725961
126,125534	214,501004	56,386637	111,194046	126,835153
125,896797	214,527692	56,332373	111,332268	126,900141
125,405243	214,551724	56,334959	111,387024	126,993768
125,029503	214,594357	56,405928	111,518616	127,136683
125,045334	214,618298	56,383891	111,519836	127,228924
124,856155	214,628979	56,324442	111,582413	127,301738
124,538254	214,631665	56,358057	111,54332	127,408367
123,927528	214,622296	56,310221	111,665833	127,490291
123,272339	214,658261	56,259726	111,608391	127,522717

122,341835	214,683438	56,313898	111,741295	127,640988
122,190834	214,666028	56,303488	111,793411	127,744992
121,904922	214,663327	56,267325	111,741257	127,804837
121,050056	214,609982	56,205286	111,767334	127,888073
120,696182	214,580609	56,12776	111,663002	127,968715
120,308311	214,54057	56,101912	111,441322	128,031184
119,375687	214,481854	56,140688	111,707344	127,966121
118,582321	214,415112	56,143275	111,616051	128,010356
118,529961	214,335065	56,210455	111,717773	127,950527
119,120399	214,229596	56,254355	111,855949	127,963482
117,648079	214,15881	56,259467	111,848091	127,865827
116,859459	214,058682	56,37316	111,705894	127,727935
116,690781	213,942563	56,422209	111,639359	127,649841
116,505135	213,763699	56,409281	111,683708	127,509384
116,41626	213,611539	56,401534	111,884552	127,311708
115,561531	213,413968	56,422209	111,668045	127,101045
115,794128	213,211072	56,432536	111,581985	126,911211
114,550522	212,978757	56,494574	111,592415	126,692796
114,733345	212,709058	56,445471	111,652412	126,399026
112,637222	212,474072	56,463545	111,433342	126,123534
111,541862	212,169644	56,507471	111,482887	125,97019
110,180084	211,863797	56,400221	111,472397	125,711605
109,66172	211,532605	56,356284	111,00827	125,389413
109,200752	211,193311	56,385966	111,158165	125,149085
108,655205	210,828564	56,353579	111,092926	124,859416
108,190483	210,458432	56,341898	110,744804	124,545112
107,642654	210,064267	56,362498	110,554489	124,285426
107,433289	209,621976	56,315936	110,580475	123,888172
106,70771	209,159634	56,207404	110,439735	123,514438
105,777069	208,683896	56,178976	110,11525	123,16543
105,140518	208,162595	56,129797	109,99794	122,796967
105,015808	207,667981	56,127215	109,79734	122,384563
103,97831	207,121198	56,047053	109,762131	121,925541
103,903015	206,557004	56,008273	109,47036	121,440783
103,523987	205,981976	55,966936	109,238556	120,989837
102,927063	205,401593	55,990199	109,043213	120,47683
102,345871	204,754269	55,938502	108,777618	120,000276
102,029404	204,138959	55,837695	108,613564	119,619619
101,212532	203,47807	55,762732	108,308983	119,140689
100,652565	202,830487	55,669665	107,884705	118,708475
100,707001	202,137341	55,617964	107,634865	118,258277
100,121292	201,470898	55,506815	107,421524	117,774551
99,42173	200,761517	55,439585	107,059898	117,228899
98,994362	200,057416	55,418894	106,784164	116,7481
98,51786	199,329144	55,362021	106,583916	116,264804
98,194199	198,582089	55,287039	106,219833	115,81008
97,839561	197,861707	55,217219	105,6427	115,298642
96,918228	197,11987	55,142233	105,585518	114,764128

96,856117	196,36987	55,059496	105,333412	114,294331
96,607727	195,598431	54,96123	105,02935	113,806578
95,930016	194,84567	54,84228	104,611038	113,337007
95,469681	194,066022	54,687113	104,18502	112,934632
95,071495	193,32655	54,555186	103,787674	112,45246
94,474342	192,570981	54,431044	103,416359	112,006454
94,422646	191,812665	54,358611	103,081451	111,542553
93,773972	191,038235	54,221491	102,705116	111,086495
93,598267	190,298611	54,172354	102,346992	110,599647
92,732826	189,532162	54,125788	102,232811	110,087198
92,652748	188,768384	54,071455	101,846245	109,667532
92,461609	188,001859	53,960192	101,542747	109,206829
91,844421	187,232693	53,892931	101,226326	108,771961
91,330643	186,455457	53,823065	101,117424	108,324348
91,772125	185,688947	53,672972	100,832184	107,894842
90,956314	184,930524	53,647093	100,233292	107,493711
90,835014	184,188153	53,584998	100,197014	107,0901
90,558846	183,432385	53,478869	99,891174	106,617188
89,8311	182,668607	53,388297	99,70977	106,260014
89,663414	181,894147	53,271811	99,251114	105,846411
88,904945	181,173306	53,212286	98,782242	105,448304
88,961685	180,428387	53,119093	98,761505	105,034875
88,768242	179,691525	52,979308	98,427399	104,675453
87,664444	178,943997	52,870589	97,96904	104,300693
87,881058	178,223309	52,754069	97,723053	103,928596
87,739227	177,510693	52,715243	97,469368	103,518032
86,878174	176,792844	52,627242	97,27652	103,098667
86,699173	176,052335	52,500433	97,009995	102,819142
86,695496	175,339978	52,409903	96,619308	102,499958
85,832085	174,633023	52,369784	96,266151	102,121805
85,975204	173,924771	52,307681	96,081184	101,783475
85,988106	173,244687	52,188559	95,894913	101,486183
85,931389	172,567334	52,06164	95,695755	101,183793
85,14801	171,895398	51,994284	95,429329	100,850712
84,887749	171,282452	51,978758	95,025887	100,517646
84,529633	170,616025	51,888083	94,966415	100,133445
84,308083	169,955045	51,823309	94,676834	99,844063
84,042732	169,315533	51,779284	94,418289	99,513749
83,810905	168,670773	51,722296	94,118416	99,219323
83,287987	168,039456	51,639372	94,00985	98,914701
83,071632	167,413586	51,605696	93,722969	98,640838
83,280251	166,811871	51,584967	93,389587	98,37981
83,004692	166,199551	51,486502	93,350807	98,052279
82,882332	165,58331	51,445063	93,181618	97,804108
82,71492	164,98988	51,347918	93,126083	97,554731
82,084076	164,375226	51,233946	92,898758	97,237598
81,860146	163,772733	51,227587	92,409355	96,952583
82,027649	163,186353	51,190092	92,082672	96,687988

81,878403	162,606747	51,087817	91,910995	96,425987
81,125389	162,044522	51,015295	91,674721	96,134615
81,05072	161,494366	50,91421	91,532677	95,963331
81,176872	160,930981	50,844237	91,54303	95,728183
80,76239	160,348965	50,75091	91,403572	95,447051
80,25782	159,831128	50,660189	91,194427	95,224715
80,690308	159,267987	50,587595	90,900116	95,05862
80,154854	158,744977	50,525359	90,579994	94,82866
80,242393	158,238095	50,473502	90,561913	94,565513
80,219223	157,717923	50,416472	90,499977	94,412237

Ovf-Bund - [°C]	Kanal-EPA - [°C]	Røgtræk - [Pa]	Pd Kanal - [Pa]	Ps Kanal - [Pa]
31	36	38	39	40
Surface temperature Bottom	EPA Duct temperature	Flue draft Pascals	Duct dynamic pressure	Duct static pressure
67,524878	33,844194	13,850369	26,543459	124,357148
67,814146	35,541163	17,48271	27,992866	127,781893
68,132744	41,607625	16,849022	28,172696	127,957296
68,739446	45,806131	15,94728	26,993031	125,123498
68,968849	44,21845	15,136138	27,380451	125,894959
69,500036	42,050806	14,443356	27,411529	126,051645
68,323573	40,212356	14,488144	27,267334	124,430379
69,241055	38,798994	14,313246	27,260289	126,681756
69,679407	37,559962	14,226053	27,812209	125,862606
69,406733	36,546875	13,812222	27,212641	125,133721
68,524825	35,783206	13,644477	27,541637	127,116016
68,751426	35,240794	13,842706	27,822569	126,38202
68,921967	34,786881	14,084703	27,055186	126,814582
69,449551	34,349063	13,607007	27,011266	126,746462
69,844586	33,9099	13,569031	26,989717	126,664722
70,30074	33,52505	13,414567	27,640251	125,785977
68,85664	33,409725	13,695567	27,44302	126,147007
68,885788	33,193831	13,539568	27,614975	124,501912
69,145758	33,012806	13,170697	26,560446	125,304012
69,59942	32,907544	13,55217	27,445507	126,513148
69,887412	32,843175	13,312558	27,764971	125,845572
69,466712	32,860606	13,071583	29,200295	132,158615
68,08744	32,877369	13,452715	27,782789	126,455251
68,451983	32,792219	13,556769	26,942065	126,368399
68,138431	32,707744	13,056426	27,336531	126,383719
67,360847	32,737913	12,938408	27,63321	127,606475
66,737082	32,661475	13,226556	28,036787	126,748161
66,450041	32,637344	12,996991	26,854638	126,295168
65,896603	32,650081	12,917972	27,395785	125,021326
65,248698	32,459663	12,849852	28,471859	127,776782
66,521456	32,330937	12,967529	27,779475	127,895987
65,730623	32,264556	12,62795	27,686245	126,148705
66,865228	32,231706	12,343549	27,293854	126,339443
65,656369	32,206225	12,851555	27,826709	126,443329
66,770867	32,040619	12,544844	27,060988	126,852047
66,867773	32,038606	12,233875	27,115681	126,557423
66,991349	32,0319	12,861603	27,669258	128,832644
67,288005	31,997706	12,693345	27,207666	126,497828
67,387449	32,006425	13,180235	28,318131	126,203204
67,354306	31,907194	12,427166	27,636106	127,410641
66,887683	31,986312	12,710376	28,365783	127,984554
65,002844	31,998381	12,774068	28,245207	127,143258
64,535746	32,053356	12,617221	28,398931	126,436519

64,499725	32,106325	12,261975	27,774086	126,57106
64,800799	32,104312	12,316812	27,909996	126,979777
63,583579	32,130463	12,593039	27,578513	126,651101
62,947986	32,111019	12,748524	27,343576	125,925614
62,889256	32,006425	12,617733	27,708204	126,400753
62,481967	31,900488	12,258229	28,051704	126,904847
62,884997	31,808638	12,261294	26,134081	125,292106
63,514196	31,780475	12,381697	27,326172	127,41915
63,302328	31,74025	12,276111	28,028502	128,914384
62,842839	31,639675	12,053016	28,061232	129,454245
62,8122	31,649062	12,283943	27,223	127,904512
63,366155	31,588719	12,104788	27,232116	127,122827
63,064662	31,681244	12,461908	27,255731	127,5077
62,283328	31,78785	12,683468	27,876018	127,112603
62,344493	31,774444	12,318174	26,662795	126,908245
61,838866	31,755669	12,384421	28,055848	128,495443
61,220758	31,721475	12,140721	27,387083	127,77848
61,215625	31,787181	12,267765	27,649366	126,16404
61,852828	31,700019	11,987281	27,019551	126,031198
61,936867	31,629619	11,876073	28,014411	126,049931
61,929212	31,600119	11,853081	27,239157	126,690265
62,088734	31,5505	12,171375	27,471197	126,751574
61,63151	31,546481	12,528155	28,24355	128,279162
62,052917	31,549831	12,197091	27,721881	127,335711
62,073348	31,649062	12,090652	27,420231	127,616698
60,815269	31,749631	12,24784	27,852816	126,972967
61,451146	31,757006	12,156218	27,847841	126,256004
61,645246	31,715438	12,149066	27,317887	127,150068
61,711664	31,702031	12,064767	27,717736	129,191974
61,230161	31,744269	12,304209	27,663457	126,559137
60,858364	31,671856	11,963438	28,171039	126,739652
60,340901	31,621575	11,921542	27,500614	126,419485
58,915786	31,589387	12,498181	27,360977	126,501225
59,065088	31,53575	11,887143	27,76083	127,124525
59,449843	31,54715	12,091333	27,469123	126,564249
59,948294	31,523012	12,104276	27,457107	127,633732
58,920589	31,492844	11,940958	27,595087	127,051294
59,511204	31,412388	11,696065	27,516774	126,961045
58,32846	31,4506	12,085544	27,806821	127,051294
58,463959	31,516981	12,256865	27,415256	127,05812
59,084001	31,533069	11,964119	28,109715	126,308789
59,393126	31,5438	12,023214	27,986651	126,317313
59,464715	31,596094	12,083329	27,480312	127,490682
59,290869	31,663144	11,711903	27,580587	126,823107
59,518395	31,712088	11,665752	28,096455	126,86227
59,434038	31,694656	12,011463	27,459181	126,257703
59,065892	31,705381	12,03258	27,962206	125,600335
58,811364	31,692644	11,991367	26,624672	128,183801

58,385403	31,649062	11,995455	26,549674	127,640542
58,770169	31,628275	12,033772	27,120652	127,088775
58,85575	31,5143	11,865854	27,245372	126,957632
58,582116	31,421775	12,033942	27,78859	127,538355
58,160086	31,420431	12,042288	27,642325	127,216489
57,707271	31,436525	11,774745	28,068278	126,726031
57,656098	31,484794	11,87999	27,589702	126,119765
56,986773	31,539775	11,538537	27,386666	129,278827
57,731335	31,52905	12,045353	27,514704	127,264178
57,848899	31,564581	11,864323	27,409872	125,7434
58,116143	31,525694	11,614321	27,910823	128,054372
58,172421	31,581344	11,605465	27,364295	127,827867
57,893583	31,606825	11,745963	28,941736	130,670191
58,026627	31,575313	11,642592	27,137226	128,325152
57,709389	31,531731	11,908941	28,323933	128,853075
57,857721	31,482788	12,106491	27,55241	127,400417
57,295989	31,557206	11,842694	27,808478	126,794151
57,824181	31,58805	11,593544	27,102838	124,92425
58,156616	31,553856	12,080946	26,386004	127,669498
58,266627	31,507594	11,556419	27,360977	125,741686
58,427753	31,521	11,578558	27,261533	126,925278
57,621939	31,474069	11,74392	28,86342	132,233545
57,460745	31,459319	11,737789	27,756269	131,635788
57,234193	31,496863	11,666093	28,209158	131,628977
57,185487	31,441888	11,275254	28,689395	133,142944
57,689373	31,409706	11,27355	28,324763	130,81324
57,595908	31,456637	11,566808	28,279186	130,496471
56,354559	31,459319	11,65877	28,706795	131,494437
57,416793	31,415069	11,445724	28,923918	134,454251
56,707844	31,411713	11,525083	28,435397	131,245802
56,282862	31,384894	11,744941	29,664784	131,904869
55,620779	31,255494	10,965647	29,20568	130,912015
55,582327	31,253481	11,512482	28,664118	133,309838
55,023688	31,290356	11,563572	29,114107	131,91849
54,755757	31,238731	11,381349	28,439954	133,529532
55,088864	31,229344	11,285471	28,609839	132,201192
55,590967	31,272256	11,230294	28,141206	131,2492
55,706239	31,285669	11,151445	28,895328	131,312223
55,635772	31,37685	11,41592	28,948777	131,124883
55,106712	31,39495	11,315273	27,919938	129,956626
56,022382	31,431156	11,374538	28,983999	131,710718
55,63283	31,381544	11,296201	28,933447	132,274407
56,34343	31,290356	11,213944	28,647544	132,8875
56,719744	31,228675	11,155872	27,980437	126,298581
57,03066	31,155594	11,464627	27,138887	128,364315
56,406003	31,101956	11,401446	27,191923	126,589792
56,889821	31,1328	11,285131	28,045489	126,860572
57,143205	31,042281	11,220417	27,943558	127,555389

57,173939	31,073794	11,03002	27,951429	127,308453
57,387427	31,133469	11,504478	27,127697	126,918468
57,241452	31,071112	10,826171	27,441776	126,961045
56,913855	31,117375	10,995279	28,330978	128,689594
57,512691	31,191131	11,150594	27,020381	126,533594
57,694347	31,230019	10,68959	27,969247	127,463425
57,698162	31,228675	11,041261	28,003225	128,292799
57,772307	31,260188	11,191635	28,505833	126,273022
57,772261	31,358075	10,834346	28,994772	134,559852
56,660275	31,308463	11,246302	27,880162	126,359874
56,076243	31,24745	11,39821	28,18844	128,381349
56,875017	31,162969	11,439933	27,686245	127,477046
57,235885	31,090556	11,183461	28,179325	127,070042
56,081356	30,994681	10,897186	27,711105	126,3139
56,447512	30,957131	10,885776	27,723121	125,866003
56,956919	30,9692	10,919836	27,339845	127,238635
56,990194	31,0101	11,152467	27,4973	127,034276
57,182145	30,889419	10,871641	27,824639	128,289385
56,089057	30,884725	10,93329	28,195485	132,441301
56,984907	30,930313	10,642246	28,161094	132,374896
57,257336	30,989319	10,748515	29,139384	134,037024
57,579763	31,071787	11,054544	27,710691	125,239306
57,129379	31,055025	10,990682	27,396612	126,479096
57,408323	31,061056	10,448955	28,472272	126,356477
56,448486	31,095919	10,866361	27,489428	128,527812
57,23686	31,0396	10,92784	27,934029	126,804359
57,479971	30,989319	10,959176	27,371336	126,860572
57,636049	30,989319	10,940953	27,434731	126,72773
57,975013	31,038931	10,997322	27,360563	126,467174
57,147299	30,989987	11,004306	28,371998	131,279854
57,063916	30,975237	11,094223	27,301726	126,954234
56,750198	30,970544	10,897357	27,207666	126,799263
56,888352	30,949088	11,16558	28,006539	127,701852
56,576062	30,915563	11,05795	27,998254	127,889177
56,640051	30,947075	11,087071	27,70572	127,616698
56,34565	30,911544	11,29024	29,287723	132,46686
56,501822	30,941712	10,849843	28,900712	131,582988
56,299561	30,990656	10,625387	29,072253	131,712416
56,977947	30,98395	10,944188	28,939662	132,512834
57,395093	30,960488	10,926137	29,01466	133,521007
56,837161	30,904837	10,829236	28,979855	132,785312
57,830054	30,939031	10,848821	28,426694	132,529868
58,356867	30,930988	10,689931	27,825052	129,249886
57,920581	31,037588	10,601885	28,111372	127,359539
57,848944	31,074469	10,596266	28,045489	127,00532
58,744202	31,081844	10,756348	28,439124	126,807772
57,952527	31,045638	10,8088	27,91248	126,336046
58,391219	30,959812	10,616871	28,772265	127,124525

58,590632	30,857231	10,540917	27,445921	127,638844
57,5354	30,801581	10,523377	27,44509	126,637465
57,811726	30,844494	10,235395	28,160263	127,2761
57,13876	30,873325	10,371469	27,478655	126,829917
57,0287	30,755994	10,3776	28,055018	128,343884
58,535634	30,725819	10,286827	28,056675	127,50089
58,402647	30,827063	10,27678	28,294516	128,19912
59,047074	30,784819	10,371639	28,056261	127,848314
59,1698	30,818344	10,034953	27,381695	125,702522
59,280936	30,743925	10,195204	27,957648	126,472285
59,641295	30,656094	10,141901	27,241645	126,64599
60,308324	30,668156	10,048065	28,735803	132,356164
60,752877	30,563562	9,920851	29,113281	132,560522
60,538233	30,562894	10,269966	27,960132	127,948787
60,757972	30,552169	10,079741	27,411942	127,504303
61,02625	30,597088	10,21462	28,42255	128,398383
61,299571	30,585694	10,035122	27,570228	127,739317
61,549895	30,571613	10,02848	28,941319	130,287016
60,729878	30,549488	9,910974	27,64854	127,996476
61,764453	30,445562	9,734883	27,791078	126,993398
61,279151	30,393937	9,749188	28,424207	127,354443
60,092294	30,411369	9,719386	27,739695	128,10206
61,344251	30,379856	9,781375	27,295094	127,5077
61,736291	30,3879	9,64224	27,88389	127,265876
60,283905	30,363094	9,689243	27,471197	128,125905
61,685156	30,303419	9,709337	28,661631	127,618397
61,995438	30,241069	9,646498	27,639424	126,393942
61,194628	30,149213	9,518942	28,759005	127,860221
60,962155	30,115019	9,218533	27,136813	126,109541
61,48322	30,124406	9,189241	29,388411	128,941642
61,776847	30,09155	9,306066	27,752955	128,647017
61,687468	30,013775	9,310324	27,431417	127,34422
61,196977	29,9655	9,344555	27,636937	128,255318
61,807441	29,9179	9,339617	28,040518	127,424261
62,108787	29,870294	9,010936	27,849915	127,96752
62,39477	29,80995	9,234711	27,779888	126,690265
61,222521	29,687925	9,187878	28,768951	132,635452
61,758909	29,671163	8,889852	28,582075	132,243753
61,079454	29,675856	8,683107	27,829197	127,695041
60,775434	29,678537	8,764341	27,231285	125,019612
61,102446	29,620881	9,169486	28,264269	129,183465
60,918513	29,479406	8,731133	27,808065	128,171879
61,917267	29,493488	8,640704	28,226146	127,681421
61,924922	29,497512	8,73539	27,774917	127,160292
62,481601	29,533719	8,591998	27,662626	129,367393
62,034729	29,502206	8,697073	28,03596	128,098647
62,887546	29,475388	8,749695	27,975879	127,848314
62,476495	29,463987	8,572583	27,674643	128,318341

62,116438	29,439181	8,444859	26,663622	127,104094
61,909593	29,439181	8,515191	27,793148	127,960709
61,237854	29,434488	8,218359	27,380869	126,889512
60,586361	29,4251	8,341485	27,723538	127,752937
60,563366	29,388225	8,333823	27,310841	126,845237
60,139157	29,382187	8,174422	28,698923	132,213098
59,809461	29,378169	8,272004	26,798288	127,943675
60,246495	29,331237	8,221594	27,660969	127,785291
61,623553	29,303075	8,204564	27,573955	128,280876
61,94791	29,235356	8,104257	28,154048	130,486263
62,343707	29,211887	7,955245	27,30297	128,015208
61,861064	29,2139	8,169142	28,159437	128,033941
62,430534	29,203844	7,716995	28,543543	127,633732
62,28499	29,214575	7,634399	27,6647	127,693327
62,297766	29,234019	7,919482	28,013998	129,067657
63,239826	29,152219	7,853234	28,025601	127,642241
63,392977	29,116681	7,963759	27,69163	127,574121
63,469554	29,083831	8,071729	27,735967	127,066629
62,129222	28,967837	7,882866	27,510146	127,412339
63,004981	28,94705	7,635591	27,148002	127,642241
63,829414	28,965156	7,54431	28,347552	129,835706
63,847292	29,06975	7,877077	28,379043	126,928691
62,731812	29,046281	7,74305	28,782207	131,053366
62,29008	28,88805	7,503949	28,572133	133,609574
63,334281	28,865256	7,337565	28,028915	128,791766
63,574194	28,8257	7,622648	27,6763	128,369427
63,114743	28,796869	7,392572	28,250595	127,23011
62,3731	28,796869	7,423566	28,153635	127,085362
63,787388	28,790831	7,528471	27,950189	128,178689
64,271002	28,816981	7,319002	27,319126	127,061518
64,459837	28,841788	7,300439	27,834585	127,725696
62,828919	28,769375	7,146317	27,658482	127,20117
63,834625	28,719762	7,161133	27,518431	127,267575
64,314387	28,70635	6,995262	28,305288	128,139525
64,814493	28,680206	7,286646	29,82514	133,197443
64,199546	28,661431	7,352722	26,823977	129,816973
64,985427	28,591031	7,25531	27,525063	127,068328
65,35278	28,5622	7,080412	26,170129	127,483872
65,610401	28,562869	7,222954	28,201287	127,109206
65,773669	28,572931	7,25514	28,011928	127,56901
66,097583	28,509231	6,942295	27,368022	128,563562
66,37303	28,490463	6,987427	28,262612	129,571752
66,43677	28,452244	6,962561	27,229215	126,785626
66,217511	28,36575	6,870598	27,899224	127,35784
65,864298	28,370444	7,064404	27,568984	128,478425
66,157653	28,342956	6,925264	28,143276	128,841153
66,379699	28,261831	7,017229	27,976292	127,662672
66,642403	28,222269	6,853057	28,085682	127,557088

66,633559	28,207519	6,969546	28,552241	128,58401
66,801857	28,223613	6,857314	27,566083	128,280876
66,896225	28,316806	6,793963	28,4644	128,219567
66,414255	28,313456	6,805203	28,806656	128,359204
65,768986	28,314125	6,675434	29,265761	133,977414
64,825127	28,327538	6,903466	28,501275	128,59763
65,600627	28,326194	6,75854	28,027258	128,270653
65,830188	28,276581	6,722096	28,030572	128,161655
65,914375	28,291331	6,762117	27,653098	127,506002
65,695018	28,123713	6,581599	27,905852	127,723981

Vægt - [Kg]	CO-Lav - [100ppm]	CO-Høj - [%]	CO2 - [%]
43	44	45	46
Platform scale reading	CO low range	CO high range	CO2 - [%]
0,322384	10,565467	0,127403	10,898964
0,001025	12,735394	0,146451	10,806439
2,766131	9,388382	0,118794	3,84101
3,219572	10,108205	0,125472	3,675939
2,695864	17,128209	0,182938	9,858922
2,685739	22,441051	0,378227	11,021259
2,663614	22,440783	0,340312	11,497697
2,643433	22,440649	0,323275	11,424079
2,622447	22,440515	0,345521	11,426225
2,60602	22,440515	0,296543	11,163668
2,585839	22,44038	0,263717	10,640963
2,569412	22,440113	0,251769	10,061943
2,549097	22,440246	0,306902	9,52677
2,533341	22,440113	0,386957	8,963972
2,519596	22,439844	0,468239	8,658236
2,503304	22,439979	0,464075	8,717239
2,487816	22,439979	0,370061	9,04148
2,471255	22,440113	0,291797	9,507191
2,455901	20,921086	0,227069	9,906258
2,442894	21,110965	0,234109	9,897408
2,426401	22,440113	0,282061	9,764788
2,408834	22,439979	0,304589	9,515237
2,392541	22,439979	0,358013	9,547152
2,379601	22,439844	0,392528	9,47702
2,363242	22,43971	0,416786	9,428479
2,348558	22,439844	0,391483	9,425796
2,332936	22,439979	0,407936	9,409435
2,317248	22,439844	0,379012	9,41936
2,303569	22,439844	0,377362	9,369341
2,288953	22,439844	0,35226	9,360625
2,275409	22,439979	0,344395	9,393612
2,259721	22,439576	0,362739	9,32442
2,249731	22,439844	0,377584	9,362905
2,229415	22,43971	0,344375	9,435049
2,216743	22,43971	0,370483	9,322944
2,202931	22,439979	0,277375	9,731533
2,188315	22,43971	0,263757	9,945011
2,173564	19,786239	0,226727	10,111422
2,161898	19,077547	0,218701	10,391681
2,144399	18,624174	0,206512	10,344748
2,12871	17,573005	0,201323	10,5711
2,111479	16,206575	0,181792	10,732955
2,0976	19,890565	0,213391	10,790615

2,082849	17,71823	0,196012	10,815289
2,067294	17,81451	0,189113	10,83594
2,051806	18,759744	0,208604	10,779084
2,037257	16,050622	0,185654	10,607171
2,021702	14,00581	0,166927	10,487692
2,009633	16,476643	0,188409	10,47482
1,993274	18,532453	0,20444	10,36969
1,979596	18,564501	0,189455	10,39396
1,965717	18,60996	0,210535	10,496811
1,952911	18,03067	0,203475	10,441699
1,937222	15,544951	0,178714	10,40737
1,925489	17,153419	0,187001	10,361778
1,912683	19,299072	0,214075	10,425473
1,895183	17,269545	0,19209	10,443978
1,882378	13,778519	0,167712	10,448403
1,867761	14,628411	0,170809	10,47254
1,856698	16,605641	0,180645	10,394095
1,838394	12,506629	0,161336	10,436066
1,826393	12,097238	0,143816	10,476429
1,812782	14,644235	0,175214	10,491179
1,797361	14,781819	0,176964	10,465433
1,785293	14,938307	0,173967	10,585447
1,770609	16,16514	0,180525	10,562651
1,756999	16,49555	0,188651	10,590275
1,742047	15,07495	0,171151	10,599394
1,728369	14,655633	0,174309	10,598589
1,716502	11,918755	0,147457	10,513841
1,703629	12,84562	0,154698	10,58585
1,69089	11,632596	0,138627	10,641098
1,674329	12,088655	0,156086	10,630773
1,662529	12,980787	0,150615	10,640426
1,648851	12,9478	0,159626	10,547634
1,636112	11,707555	0,148704	10,627285
1,622033	10,739122	0,128389	10,589605
1,608422	11,343354	0,13038	10,684946
1,596018	10,237204	0,134644	10,766612
1,582743	13,373686	0,145486	10,74328
1,570071	11,705007	0,138446	10,709217
1,555387	9,86965	0,131265	10,77801
1,540637	11,1048	0,132633	10,784984
1,528702	11,462966	0,13573	10,755349
1,516969	10,486889	0,132834	10,87885
1,501347	11,10614	0,132814	10,791018
1,488541	9,647991	0,123018	10,859004
1,477478	10,821725	0,138325	10,840766
1,462862	9,274804	0,122897	10,860076
1,449989	10,883678	0,132049	10,93517
1,435706	9,003932	0,122073	11,00101

1,421559	10,221515	0,12682	10,971644
1,411435	9,635119	0,108898	10,930745
1,396886	10,282125	0,126317	10,956893
1,382001	10,711229	0,128187	11,005301
1,369329	9,814135	0,127886	10,978348
1,358199	8,693771	0,109179	11,013884
1,344455	8,829878	0,112961	11,050223
1,329168	8,514219	0,104412	11,11955
1,317099	8,851735	0,112357	11,134836
1,305165	8,810569	0,115898	10,994171
1,292426	8,709595	0,114691	11,134435
1,279888	7,479005	0,102381	11,152001
1,266814	9,484932	0,117989	11,209259
1,255014	8,932058	0,118955	11,273625
1,241269	8,637453	0,12334	11,222133
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1,21559	9,171685	0,123501	11,329542
1,201711	8,604196	0,112257	11,224814
1,190849	10,164792	0,129636	11,068727
1,179116	10,066233	0,129072	10,810998
1,167181	10,56654	0,133498	10,61106
1,154309	13,046896	0,150112	10,297144
1,143179	14,005407	0,15683	10,288696
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1,123735	14,739445	0,163206	10,103511
1,11294	15,944689	0,17099	10,151785
1,099196	15,099086	0,166606	10,121077
1,092021	17,718364	0,198909	9,96526
1,080087	19,66314	0,202489	9,863481
1,067348	18,274455	0,206713	9,878232
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1,049111	19,515636	0,21486	9,840417
1,037981	21,178012	0,226707	9,75996
1,024103	19,083449	0,208664	9,973976
1,01599	21,903331	0,233847	9,972635
1,005799	19,74762	0,219727	10,018495
0,993998	19,840011	0,218641	10,009645
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0,922526	22,439844	0,259775	10,035794
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0,880219	20,448671	0,225098	9,94823

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0,859166	22,43971	0,246137	9,971294
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0,831811	22,439441	0,306963	9,942866
0,821888	22,439576	0,299842	10,073609
0,810758	22,43971	0,298917	10,12376
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0,777636	22,43971	0,252715	10,375054
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0,758327	22,43971	0,283972	10,542404
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0,736402	22,43971	0,27305	10,589471
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0,718098	22,43971	0,300788	10,705999
0,706298	22,439844	0,325749	10,780692
0,695302	22,439441	0,273191	10,71914
0,683301	22,439576	0,298354	10,786861
0,675054	22,439307	0,289483	10,814083
0,663991	22,439441	0,266191	10,781498
0,653062	22,43971	0,283349	10,823335
0,642066	22,439844	0,314505	10,808316
0,633887	22,439576	0,335022	10,759908
0,623092	22,439576	0,289322	10,783106
0,612968	22,43971	0,327861	10,889175
0,600832	22,439307	0,306239	10,890114
0,589971	22,439441	0,309658	10,862759
0,581053	22,439576	0,312313	10,913312
0,568046	22,439307	0,289483	10,818775
0,559598	22,439576	0,284354	10,808048
0,548736	22,439441	0,26072	10,815289
0,537741	22,439441	0,325287	10,766076
0,527482	22,439441	0,301854	10,816897
0,518498	22,291401	0,250039	10,861015
0,507502	22,29824	0,238816	10,804025
0,497512	21,777953	0,22908	10,849215
0,489198	18,023295	0,221075	10,761785
0,478269	17,583599	0,199191	10,713776
0,468213	13,637317	0,164654	10,745961
0,459027	12,954639	0,161175	10,745158
0,450646	17,060759	0,192211	10,351184
0,441394	14,135345	0,161235	10,655981
0,430465	15,098819	0,175757	10,598321
0,421212	8,59548	0,113725	10,516791
0,41196	4,777663	0,073175	10,409515
0,403177	4,088818	0,068227	10,342469
0,398617	12,577296	0,135509	9,761034

0,389432	16,388542	0,186478	9,317849
0,382996	18,483106	0,205607	8,97765
0,374749	22,440246	0,286245	8,633831
0,367441	22,44038	0,368955	8,356926
0,363619	22,440113	0,396994	8,085784
0,357182	22,439844	0,485135	8,003048
0,348197	22,439844	0,581663	7,802575
0,343571	22,43971	0,641905	7,681085
0,335324	22,43971	0,640135	7,607736
0,33157	22,439576	0,708885	7,361001
0,325201	22,439844	0,675536	7,366634
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0,283229	22,439576	0,799882	7,195126
0,277597	22,439576	0,802698	7,187751
0,273976	22,439576	0,75893	7,190299
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0,259293	22,439441	1,707819	5,224735
0,255673	22,439576	1,75026	5,19148
0,249236	22,43971	1,764179	5,180752
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0,238173	22,439576	1,79779	5,205158
0,232675	22,439576	1,778219	5,182093
0,225367	22,43971	1,754564	5,165198
0,221613	22,439441	1,723005	5,162649
0,217053	22,439576	1,66047	5,185445
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0,205119	22,43971	1,57589	5,203682
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0,197877	22,439441	1,509211	5,166538
0,192179	22,439307	1,478235	5,13811
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0,184066	22,439576	1,485677	5,214141
0,179439	22,439441	1,476807	5,204352
0,175685	22,439576	1,490967	5,244581
0,171327	22,439576	1,520173	5,31659
0,167773	22,439576	1,50018	5,288564
0,161269	22,439307	1,507159	5,271534
0,159459	22,439307	1,510277	5,304387
0,154967	22,439307	1,507119	5,305729
0,150274	22,439174	1,497726	5,307337
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0,128148	22,439441	1,353607	5,264964
0,125666	22,439576	1,349765	5,234657
0,122716	22,439576	1,312876	5,187054
0,119096	22,439307	1,317241	5,241631
0,117285	22,439307	1,299359	5,277032
0,115542	22,439576	1,275343	5,225004
0,114603	22,439441	1,279929	5,270997
0,110983	22,439307	1,260237	5,236804
0,1081	22,439576	1,267377	5,253297
0,106357	22,439174	1,241249	5,203414
0,104546	22,439307	1,244689	5,23667
0,101797	22,43971	1,254706	5,251286
0,097104	22,439441	1,242235	5,22326
0,096166	22,439441	1,23785	5,251823
0,092545	22,439307	1,222885	5,218835
0,090668	22,439441	1,240304	5,099759
0,088924	22,439441	1,244347	5,122286
0,08698	22,439576	1,236965	5,12926
0,085304	22,439576	1,225138	5,148167
0,081616	22,439441	1,228617	5,157554
0,079739	22,439576	1,220411	5,155006
0,076051	22,43971	1,22212	5,157956
0,077861	22,439441	1,210916	5,181825
0,074174	22,439576	1,209006	5,215214
0,071425	22,439307	1,189837	5,214544
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0,064049	22,439576	1,213149	5,216555
0,062173	22,439307	1,194423	5,198319
0,059557	22,439307	1,21504	5,235463
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0,053389	22,439441	1,203776	5,252761
0,049634	22,439307	1,198948	5,21736
0,049567	22,439441	1,211279	5,260539
0,047757	22,439576	1,214638	5,314176
0,045075	22,439307	1,196495	5,25142
0,041254	22,43971	1,188489	5,244849
0,039443	22,439307	1,178412	5,221919
0,037633	22,439307	1,170487	5,207571
0,035756	22,439441	1,182877	5,241631
0,031129	22,439576	1,175696	5,253834
0,029453	22,439441	1,177889	5,273814
0,030325	22,439441	1,163608	5,252359
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0,026302	22,439441	1,167349	5,248067

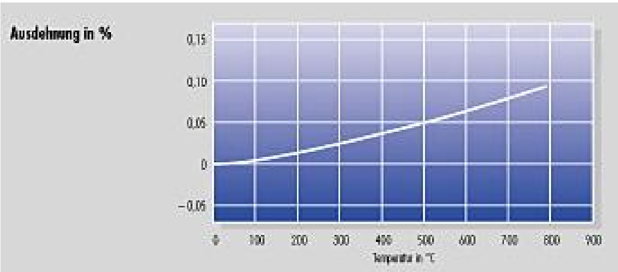
0,024023	22,439441	1,181007	5,2773
0,019329	22,439441	1,183501	5,323965
0,017452	22,439441	1,199451	5,35655
0,014702	22,439307	1,189495	5,312165
0,012758	22,439441	1,185874	5,294599
0,010144	22,439576	1,176219	5,278775
0,008534	22,439576	1,177466	5,265098
0,007327	22,439441	1,177366	5,274753
0,004646	22,439576	1,181811	5,297146
0,00364	22,439174	1,159042	5,244715

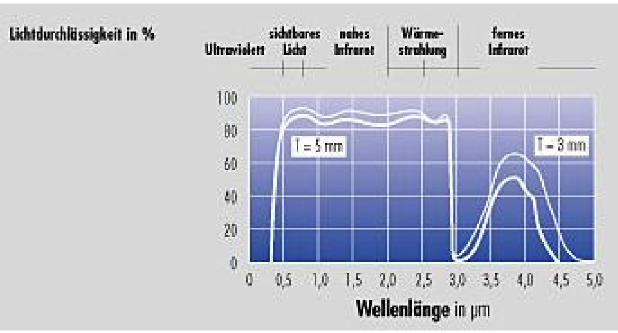
Glaskeramik NEOCERAM N-0 Technische Daten Wärmeausdehnung Lichtdurchlässigkeit

Oberflächenbeschaffenheit
Flache Scheiben/Beschichtete Glaskeramik/Einbaurichtlinien

Technische Daten

Ausdehnungs-koeffizient	· 10-7/K	(30 - 380° C) – 6 (30 - 750° C) – 3
Temperatur-wechselbeständigkeit	°C	800
Maximale Betriebstemperatur	°C	kontinuierlich 700 kurzzeitig 800
Wärmeleitfähigkeit	W/m · K (25° C)	1,51
Spezifische Wärme	J/kg · K	712
Dichte	g/cm3	2,51
Biege- und Schlagfestigkeit	entsprechen den Eigenschaften von Gussglas	





ROBAX® Glass Ceramic Panels

Technical Delivery Specification TL 1 00 05 51 - 00

SCHOTT
ROBAX®

ROBAX® Glass Ceramic Panels

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SCHOTT
glass made of ideas

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1. Description, Range of Application and Validity

1.1 Description

ROBAX® glass ceramic panels consist of a transparent glass ceramic material. Because of its material characteristics the product is designed for the use as thermal window in fireplaces. Other technical applications and shapes have to be proved separately.

1.2 Range of Application

This technical delivery specification applies to ROBAX® glass ceramic panels (delivery form: flat stock-size sheets, cut-to-size-panels and bent panels) for applications which require a low thermal expansion and transparency:

- electric, oil or gas stoves
- conventional heated fireplaces and room heaters (wood, coal, pellets, …)
- baking ovens
- special applications on request

1.3 Range of Validity

This technical delivery specification applies to the commercial relationship between the Business Unit Home Tech and its customers.

2. Technical Features

2.1 General Remarks

All data stated in this technical delivery specification are to be seen as guideline values.

Those values, for which no generally valid measuring method exist or which are not generally defined (e.g. by a technical standard), are specified and explained.

2.2 Appearance

- Transparent, slightly coloured due to the material composition and production process
- Surface appearance: plane, slightly textured due to the production process

2.3 Mechanical Characteristics

2.3.1 Density

ρ approx. 2.6 g / cm^3

2.3.2 Modulus of Elasticity

E approx. 93 $\times$ 10^3 MPa

2.3.3 Poisson's Ratio

μ approx. 0.25

2.3.4 Bending Strength

The bending strength testing is to be accomplished according to DIN EN 1288 part 5 (R45).

$\overline{\sigma}_{bB}$ approx. 35 MPa

2.3.5 Impact Resistance

The impact resistance of ROBAX® depends on the kind of installation, the size and thickness of the panel, the kind of impact, the geometry of the panel and especially here on the drilled holes and their position on the ROBAX® panel.

Therefore information regarding the impact resistance can only be given with knowledge of the respective application (especially in combination with the technical standards regarding impact resistance that have to be met for single applications). Corresponding guideline values on request.

2.4 Thermal Characteristics

2.4.1 Coefficient of Mean Linear Expansion

$\alpha_{(20-700°C)}$ $(0 \pm 0.5) \times 10^{-6}$ /K

2.4.2 Mean Specific Thermal Capacity

$c_{p(20-100°C)}$ approx. 0.8×10^{3} J / (kg · K)

2.4.3 Thermal Conductivity

$\lambda_{(90°C)}$ approx. 1.6 W / (m · K)

2.4.4 Resistance to Temperature Differences (RTD)

Resistance of the panel to temperature differences between heated zone and cold panel edge (room temperature).

No cracking due to thermal stress at $T_{es,\, max}$[1)] ≤ 700°C

2.4.5 Thermal Shock Resistance

Resistance of the panel to thermal shock when the hot panel is quenched with cold water (room temperature).

No cracking due to thermal stress at $T_{es,\, max}$[1)] ≤ 700°C

2.4.6 Temperature / Time Load Capacity (under consideration of items 2.4.4 and 2.4.5)

The temperature / time load capacity specifies the maximum permissible temperature for given load times for the fireplace panels, below which no cracking due to thermal stress occurs.

The value pairs specified in the following table 2.1 are relevant to the practical use of the glass ceramic material as fireplace panel. The temperature values refer to the hottest point on the exterior side of the panel ($T_{es,\, max}$) because this temperature can be measured more easily and more reliably.

[1)] $T_{es,\, max}$: Maximum temperature on the exterior side of the panel, that means the reverse side of the heat source, at the hottest point

Load temperature $T_{es,\,max}$ 1)	Load time
560°C (1040°F) 610°C (1130°F) 660°C (1220°F) 710°C (1310°F) 760°C (1400°F)	5000 hr 1000 hr 100 hr 10 hr 5 hr

Table 2.1: Temperature / time load capacity for ROBAX® panels

Note:

For ROBAX® fireplace panels the temperature / time load capacity specified in table 2.1 must be maintained. It must be ensured that this temperature / time load capacity is not exceeded during use, to prevent cracking due to thermal stress.

The temperature / time load data for even temperature distributions within an entire glass ceramic panel (e.g. homogeneous heating conditions in a testing furnace) are given in table 2.2. This data is to be seen purely as characteristic data for the glass ceramic material itself. It is not typical for use of the glass ceramic material as fireplace panels, which have a temperature distribution totally different from evenness. The temperatures refer to the homogeneous heating of the ROBAX® panel (T_{hom}).

Load temperature T_{hom} 2)	Load time
700°C (1292°F) 750°C (1382°F) 775°C (1427°F) 800°C (1472°F) 825°C (1517°F)	6000 hr 750 hr 275 hr 100 hr 35 hr

Table 2.2: Temperature / time load capacity for uniformly heated ROBAX® panels

1) $T_{es,\,max}$: Maximum temperature on the exterior side of the panel, that means the reverse side of the heat source, at the hottest point

2) T_{hom}: Homogenous temperature, i.e. material temperature under homogeneous heating conditions

2.5 Chemical Characteristics of Base Material

2.5.1 Acid Resistance

DIN 12116	at least class S3

2.5.2 Alkaline Resistance

based on ISO 695	at least class A2

2.5.3 Hydrolytic Class

DIN ISO 719	class HGB 1

2.5.4 Change of Surface due to Use

ROBAX® has a good resistance against chemical surface attack. In isolated cases and under special critical conditions, e.g. aggressive exhaust gases (acidification at high temperatures) changes of the surface may occur. For such applications practice tests have to be carried out before being used.

3. General Dimensional Tolerances and Material Characteristics

The following describes characteristics which are valid for all four product groups (stock-size sheets, cut-to-size panels, round bent and angular bent panels). With regard to stock-size sheets all of the following characteristics (with exception of flatness, see item 4.1) refer to the net-size as agreed on with the customer.

3.1 Dimensional Tolerances

Characteristics / Areas / Location	Tolerance
Thickness *t* *t* = 3.0 / 4.0 / 5.0 mm	± 0.2 mm

Table 3.1: Dimensional tolerances

3.2 Material Characteristics

Visual inspection in the normal installation position without visual aids and illumination of approx. 800 Lux when viewed from a minimum distance of 1 m.

The inspection shall be executed with a background in the colour of fireclay bricks:

Light ivory RAL-1015.

3.2.1 Bubbles

Bubbles are gaseous inclusions within the glass ceramic material. Closed bubbles can appear as low-spots on the surface depending on their size and position within the glass. Open bubbles are open towards the panel surface and are not permissible if bigger than 1 mm. The production of material totally free of bubbles is not possible due to the production process. Table 3.2 contains the permissible number of closed bubbles in dependence of their length and the panel size.

Characteristic's Length *L* [mm]	Panel Size *A*			
	A ≤ 20 dm²	20 dm² < *A* ≤ 40 dm²	40 dm² < *A* ≤ 80 dm²	80 dm² < *A* ≤ 150 dm²
L ≤ 1.0	unconsidered	unconsidered	unconsidered	unconsidered
1.0 < *L* ≤ 2.0	2 [1)]	6 [1)]	12 [1)]	33
2.0 < *L* ≤ 4.0	1 [1)]	2 [1)]	4 [1)]	20
4.0 < *L* ≤ 8.0	0	0	0	13
8.0 < *L*	0	0	0	0

[1)] The distance between two adjacent characteristics must be minimum 200 mm.

Table 3.2: Permissible number of closed bubbles per panel

3.2.2 Solid Inclusions and Stains

Solid inclusions are inhomogeneities within the glass ceramic material. Stains are deviations of the surface which are easily visible under normal inspection conditions. Both characteristics cannot be completely avoided due to the production process. Table 3.3 contains the permissible number of solid inclusions and stains in dependence of their length and the panel size.

Characteristic's Length *L* [mm]	Panel Size *A*			
	A ≤ 20 dm²	20 dm² < *A* ≤ 40 dm²	40 dm² < *A* ≤ 80 dm²	80 dm² < *A* ≤ 150 dm²
L ≤ 0.5	unconsidered	unconsidered	unconsidered	unconsidered
0.5 < *L* ≤ 2.0	0	3 [1)]	6 [1)]	30
2.0 < *L* ≤ 4.0	0	0	1 [1)]	3
4.0 < *L*	0	0	0	0

[1)] The distance between two adjacent characteristics must be minimum 200 mm.

Table 3.3: Permissible number of solid inclusions and stains per panel

3.2.3 Scratches

The delivery of ROBAX® panels totally free of scratches is not possible due to technical reasons. It has to be distinguished between slight scratches (scratches not detectable with finger nail) and strong scratches (scratches detectable with finger nail). Table 3.4 contains the permissible number of scratches in dependence of their length and the panel size.

Characteristic's Length L [mm]	Panel Size A			
	$A \leq 20$ dm²	20 dm² < $A \leq 40$ dm²	40 dm² < $A \leq 80$ dm²	80 dm² < $A \leq 150$ dm²
Slight Scratches:				
$L \leq 10$	unconsidered	unconsidered	unconsidered	unconsidered
$10 < L$	1[1)]	2[1)]	4[1)]	20
Strong Scratches:				
$L \leq 10$	1[1)]	2[1)]	4[1)]	20
$10 < L$	0	0	0	0

[1)] The distance between two adjacent characteristics must be minimum 200 mm.

Table 3.4: Permissible number of scratches per panel

3.2.4 Pits

ROBAX® panels may show pits. These pits must not be recognizable during a visual inspection according to the conditions for visual inspections as described in item 3.2.

3.2.5 Other Characteristics

If the panel - when inspected according to the conditions for visual inspections as described in item 3.2 - shows a number of defects which impair the aesthetic appearance SCHOTT and the customer will agree on limit values for the respective characteristics and, if necessary, limit samples will be defined.

4. Stock-Size Sheets

Stock-size sheets are large-size glass ceramic panels without any further processing, especially without edge processing. They serve as base material for cut-to-size panels.

4.1 Dimensional Tolerances

Characteristics / Areas / Location	Tolerance
Edge length of stock-size sheet	
Usable length:	at least 1580 mm
Usable width:	at least 840 mm
Flatness of stock-size sheet	
Flatness	≤ 0.3 % × measuring length (Measuring length at least 500 mm)

Table 4.1: Dimensional tolerances for stock-size sheets

4.2 Material Characteristics

The material characteristics comply with the specifications of item 3.2, incl. subitems.

5. Cut-to-Size Panels

5.1 Dimensional Tolerances

Characteristics / Areas / Location	Tolerance
Edge length *l*	
$l \leq 500$ mm $l > 500$ mm	± 1.0 mm ± 1.5 mm
Special designs (contour shapes)	as per separate agreement
Corner radius *r*	
$r \leq 20$ mm $r > 20$ mm	± 1.5 mm ± 2.0 mm
Squareness of cut-to-size panels *a* (according to fig. 5.1)	
Edge length ≤ 500 mm Edge length > 500 mm	$a \leq 1.0$ mm $a \leq 1.5$ mm
Flatness of cut-to-size panels	
Flatness	≤ 0.3% × ***D*** ***D***: diagonal of cut-to-size panel
Drilled hole diameter d_H	
4 mm $\leq d_H \leq$ 20 mm 20 mm $< d_H \leq$ 60 mm	± 0.2 mm ± 0.5 mm
Position of drilled hole	
• Deviation between drilled hole centre axis and panel centre axis	± 1.5 mm
• Deviation between drilled hole centre axis of adjacent drilled holes (max. distance 500 mm)	± 1.0 mm

Table 5.1: Dimensional tolerances for cut-to-size panels

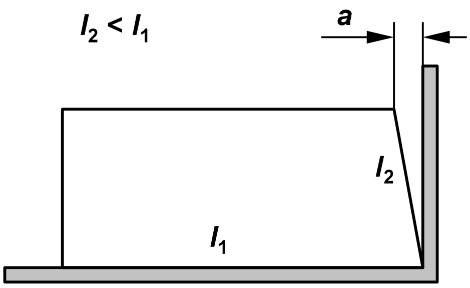

Fig. 5.1: Squareness measurement

5.2 Edge Finish

The edges of flat cut-to-size panels are processed according to DIN 1249, e.g. either arrissed or round ground to size.

ROBAX® panels may show small chippings at the edges. The maximum permissible size of these chippings is 1.5 mm when measured from the outer edge of the panel.

ROBAX® panels with V-shaped edge defects are not permissible.

5.3 Material Characteristics

The material characteristics comply with the specifications of item 3.2, incl. subitems.

6. Round Bent Panels

6.1 Dimensional and Form Tolerances

Characteristics / Areas / Location	Tolerance
Panel height *h*	
$h \leq 500$ mm	± 1.0 mm
500 mm $< h \leq$ 600 mm	± 1.5 mm
600 mm $< h$	Determination according to initial sample
Arc length l_A	
$l_A \leq 500$ mm	± 1.5 mm
$l_A > 500$ mm	± 2.0 mm
Corner radius *r*	
$r \leq 20$ mm	± 1.5 mm
$r > 20$ mm	± 2.0 mm
Sagging at panel edge s_h	
$h \leq 500$ mm	$s_h \leq 1.5$ mm
500 mm $< h \leq$ 600 mm	$s_h \leq 2.0$ mm
600 mm $< h$	Determination according to initial sample
Drilled hole diameter d_H	
4 mm $\leq d_H \leq$ 20 mm	± 0.2 mm
20 mm $< d_H \leq$ 60 mm	± 0.5 mm
Position of drilled hole	
• Deviation between drilled hole centre axis and panel centre axis	± 1.5 mm
• Deviation between drilled hole centre axis of adjacent drilled holes (max. distance 500 mm)	± 1.0 mm

Table 6.1: Dimensional and form tolerances for round bent panels (see also fig. 6.1)

SCHOTT
glass made of ideas

Table 6.2 contains the permissible overall torsion values of round bent panels.

	Panel Size *A*		
	A ≤ 20 dm²	20 dm² < ***A*** ≤ 40 dm²	40 dm² < ***A***
Permissible overall torsion s_T [mm]	2.5	4	5

Table 6.2: Permissible overall torsion of round bent panels (see also fig. 6.1)

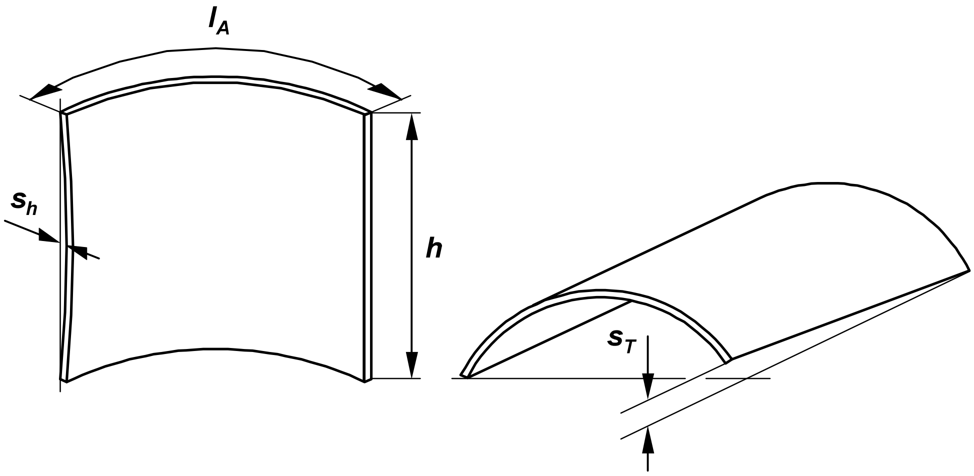

Fig. 6.1: Round bent ROBAX® panels

All geometric tolerances are specified by means of a two-dimensional enveloping contour. For testing the geometric tolerances a flat plastic gauge with a defined contour slot is used. The geometry of the contour slot is determined by the radius of curvature of the panel R_{soll}, by the arc length l_A and by the tolerance of the contour slot widths s_i, s_a (see fig. 6.2). If required the drawing of the contour slot gauge can be provided for the customer.

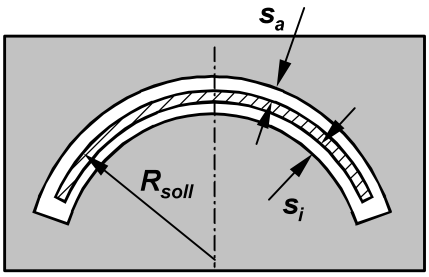

Fig. 6.2: Contour slot gauge geometry for round bent ROBAX® panels

The tolerances of the contour slot widths for round bent panels are given in table 6.3.

Aperture angle α_B	**Arc length** l_A					
	185 mm < l_A ≤ 400 mm		400 mm < l_A ≤ 600 mm		600 mm < l_A ≤ 1100 mm	
	s_i	s_a	s_i	s_a	s_i	s_a
α_B ≤ 130°	1.0 mm	1.0 mm	1.25 mm	1.25 mm	1.25 mm	1.25 mm
130° < α_B ≤ 180°	1.25 mm	1.25 mm	1.5 mm	1.5 mm	1.5 mm	1.5 mm

Table 6.3: Tolerances of the contour slot widths s_i , s_a for round bent panels

The glass ceramic panel must easily fit into the contour slot gauge.

6.2 Material Characteristics

The material characteristics comply with the specifications of item 3.2, incl. subitems.

7. Angular Bent Panels

7.1 Dimension and Form Tolerances

Characteristics / Areas / Location	Tolerance
Leg length l_1, l_3	± 2.0 mm
Middle section length l_2	± 1.0 mm
Panel height h $h \leq$ 500 mm 500 mm < $h \leq$ 600 mm 600 mm < h	 ± 1.0 mm ± 1.5 mm Determination according to initial sample
Corner radius r $r \leq$ 20 mm r > 20 mm	 ± 1.5 mm ± 2.0 mm
Sagging at leg edge s_{l1}, s_{l3}	s_{l1}, s_{l3} ≤ 2.0 mm
Sagging at middle section edge s_{l2}	s_{l2} ≤ 2.0 mm
Sagging at panel edge s_h $h \leq$ 500 mm 500 mm < $h \leq$ 600 mm 600 mm < h	 s_h ≤ 1.5 mm s_h ≤ 2.0 mm Determination according to initial sample
Drilled hole diameter d_H 4 mm ≤ d_H ≤ 20 mm 20 mm < d_H ≤ 60 mm	 ± 0.2 mm ± 0.5 mm
Position of drilled hole • Deviation between drilled hole centre axis and panel centre axis • Deviation between drilled hole centre axis of adjacent drilled holes (max. distance 500 mm)	 ± 1.5 mm ± 1.0 mm

Table 7.1: Dimension and form tolerances for angular bent panels (see also fig. 7.1)

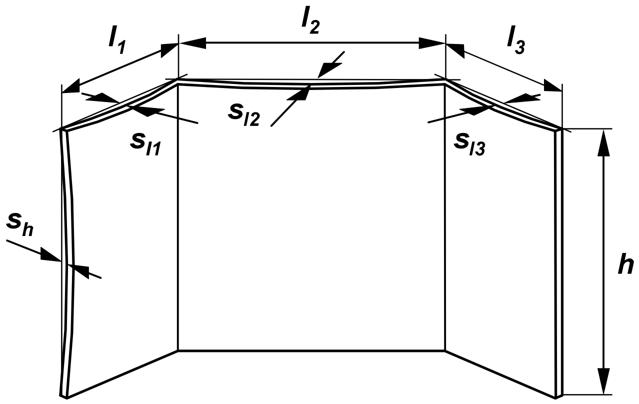

Fig. 7.1: Angular bent ROBAX® panels

Table 7.2 contains the permissible overall torsion values of angular bent panels.

	Panel Size *A*		
	A ≤ 20 dm²	20 dm² < ***A*** ≤ 40 dm²	40 dm² < ***A***
Permissible overall torsion s_T [mm]	2.5	4	5

Table 7.2: Permissible overall torsion of angular bent panels (see also fig. 7.2)

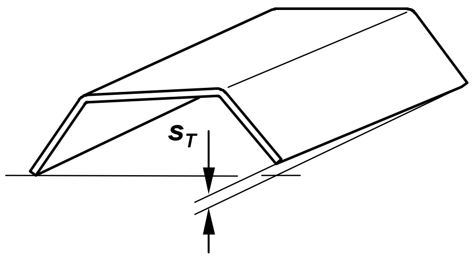

Fig. 7.2: Overall torsion of an angular bent ROBAX® panel

All geometric tolerances are specified by means of a two-dimensional enveloping contour. For testing the geometric tolerances a flat plastic gauge with a defined contour slot is used. The geometry of the slot is determined by the edge lengths l_1, l_2, and l_3, by the bending angle α_W and by the tolerances of the contour slot widths s_i, s_a (see fig. 7.1, 7.2, 7.3 and 7.4). If required the drawing of the contour slot gauge can be provided for the customer.

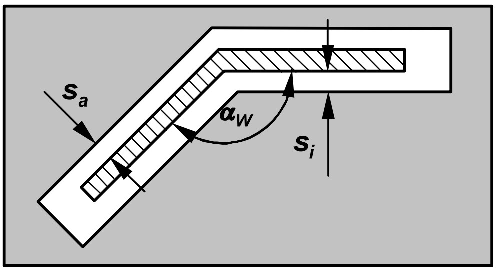

Fig. 7.3: Contour slot gauge geometry for single angular bent ROBAX® panels

The tolerances of the contour slot widths for single angular bent panels are given in table 7.3.

Bending angle α_W	**Sum of leg lengths L**					
	180 mm < L ≤ 440 mm		440 mm < L ≤ 900 mm		900 mm < L ≤ 1300 mm	
	s_i	s_a	s_i	s_a	s_i	s_a
90° < α_W ≤ 160°	1.0 mm	1.0 mm	1.5 mm	1.5 mm	2.0 mm	2.0 mm

Table 7.3: Tolerances of the contour slot widths s_i , s_a for single angular bent panels

The glass ceramic panel must easily fit into the slot gauge.

The contour slot gauge geometry as shown in fig. 7.4 is valid for double angular bent panels.

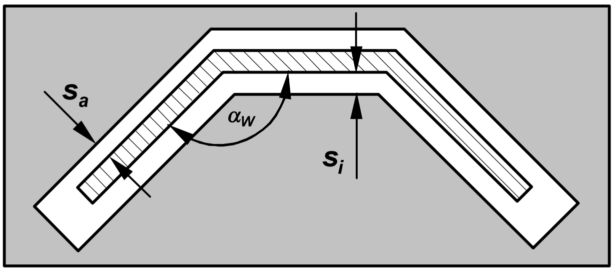

Abb. 7.4: Slot gauge geometry for double angular bent ROBAX® panels

The tolerances of the contour slot widths for double angular bent panels are given in table 7.4:

Bending angle α_W	**Longest leg length $l_{,max}$**					
	30 mm < l ≤ 100 mm		100 mm < l ≤ 200 mm		200 mm < l ≤ 340 mm	
	s_i	s_a	s_i	s_a	s_i	s_a
110° < α_W	1.0 mm	1.0 mm	1.25 mm	1.25 mm	1.5 mm	1.5 mm

Table 7.4: Tolerances of the contour slot widths s_i , s_a for double angular bent panels

The glass ceramic panel must easily fit into the slot gauge.

7.2 Material Characteristics

The material characteristics comply with the specifications of item 3.2, incl. subitems.

8. Transport, Storage and Handling

To avoid damage, it is necessary for the panels to be handled properly as well as transported and stored only vertically secured, and protected against touching each other by suitable intermediate layers (paper, cardboard, cork or PE foamfoils).

9. Installation Guidelines

The same conditions apply to the installation and the handling of ROBAX® panels as are generally valid for handling glass and glass ceramic parts.

- The **different thermal expansion** between the various frame materials and the ROBAX® panel has to be taken into account for the complete construction. Furthermore the possible production tolerances of frame and panel have to be considered.
- For installation it is necessary to use a sufficiently **low distortion frame construction**. As a minimal distortion of the frame construction cannot be excluded a **temperature stable, permanently resilient gasket** (e.g. fibre glass cloth or mineral fibre cloth) is required in order to prevent any transfer of distortions from the frame construction onto the ROBAX® panel. Any direct contact between glass ceramics and metal has to be avoided.
- If for constructive reasons a pressing of the panel in the frame is required the **contact pressure must be applied uniformly (never at points only)** over the entire edge area of the panel.

10. Procedures if Deviations Occur

10.1 Basic Action

Deviations should be handled in the most cost-effective manner for both partners. Deviations are estimated according to the state of the products at time of delivery. Changes in the material which occur during further processing of ROBAX® glass ceramic panels exclude warranty claims of the recipient against SCHOTT.

10.2 Obligation of Recipient to Provide Information

SCHOTT requires the following data for reporting, testing and evaluating deviations:

- SCHOTT order number
- Pallet voucher with production order number
- Warehouse unit number
- Delivery quantity affected
- Complaint quantity with article number
- Reasons for complaint
- Results of random sample tests

10.3 Recipient's Storage Obligation

All parts with characteristic values deviating from the specifications and complained about by the recipient must be stored by the recipient until final clarification of the facts and made available to SCHOTT upon request. If such parts are scrapped by the recipient without written authorization from SCHOTT or if they are no longer available for other reasons, all warranty rights regarding such parts shall be null and void.

GLASFIBERPRODUKTER
TEKNISKE DATA

Basismaterialet i **STEFFCA glasfiberprodukter** består af 6 - 9 mikron "E" glasfibertråde som kan volumineres, tekstureres, tvindes, forstærkes med ståltråde osv.
Produkterne er uorganiske, sterile, ildfaste, helt asbestfri, indeholder ingen giftstoffer eller tungmetaller, og forårsager ikke hudirritation.

"E" GLASFIBER - SAMMENSÆTNING

SiO_2 .... 53-55 %
Al_2O_3 .... 14-15,5 %
CaO - MgO .... 20-24 %
B_2O_3... 6,5-9 %
Fe_2O_3 - TiO_2... < 1 %
Na_2O-H_2O .... < 1 %

"E" GLASFIBER - GENERELLE EGENSKABER

Farve: ....**HVID**
Max. temperatur... 550 °C
Smeltepunkt... 1200 °C
Fiberdiameter .... 6-9 mikron
Trækstyrke - nyt filament .... 3400 MPa
Young's modul .... 74000 MPa
Varmeledningsevne...................................... 1,0 W/m °K
Reaktion på ild... ildfast
Glødetab .... < 1,5%
Dielektrisk stivhed.................................... 60-100 kV/mm
Opløsningsmiddelægthed... god
Basefasthed.. god
Syrefasthed .... god - bortset fra fluorbrintesyre

"E" GLASFIBERPRODUKTER - GENERELLE EGENSKABER

- stor mekanisk styrke
- gode elektriske egenskaber
- ildfaste
- lav varmeledningsevne
- god modstandsevne over for kemiske stoffer
- høj termisk modstand
- god fleksibilitet

MAX TEMPERATUR... 550 °C

STEFFCA GLASFIBERPRODUKTER - SORTIMENT

Snoede pakning - omflettede pakning - isolerende bånd - flettede pakninger i runde, firkantede og rektangulære dimensioner - vævet bændel - selvklæbende bændel - bånd - selvklæbende bånd - stigebånd - dielektrisk tape - lodde puder - rå, silikonecoatede, HT-behandlede, aluminiserede, grafitiserede, karamelliserede, teflonbelagte, - glasklæder - afdækninger

VETRO-REF:
GLASFIBERPRODUKTER MED SPECIEL HT-IMPRÆGNERING

Glasfiberprodukter kan imprægneres med speciel ildfast vermiculit for at øge deres resistens over for høje temperaturer og alle slags termisk chok op til 1000°C og for at reducere spild af glasfiber og pulver under håndteringen.
STEFFCA's "VETRO-REF" produkter er meget fleksible og modstandsdygtige over for gnister, svejsesprøjt og smeltet metal.
VETRO-REF produkternes farve.. **guld**
Imprægneringens max termiske fasthed ved kontinuerlig anvendelse.................... 700° C
Imprægneringens max termiske fasthed ved kortvarige påvirkninger .... 1000 °C

V-1100 (600) Vermiculite insulating slabs

for hot-face and back-up insulation - up to 1100°C (2012°F)

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DK-7900 Nykøbing Mors
Denmark
Tel: 45 9772 1533
Fax: 45 9772 4975
insulation@skamol.dk

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Fax: +49 (0) 2131-106464

Skamol Americas, Inc.
8318 Pineville-Matthews Road
Suite 267
Charlotte, NC 28226
USA
Tel: +1 (704) 544-1015
Fax: +1 (704) 544-1239

www.skamol.com

Maximum service temperature		
	°C	1100
	°F	2012
Bulk density, dry		
	kg/m^3	600
	lbs/cu.ft.	37.5
Compressive strength (EN 1094-5: 1995)		
@ room temperature	MPa	4.2
	lbs/sq.in.	609
Modulus of rupture (EN 993-6: 1995)		
	MPa	1.6
	lbs/sq.in.	232
Total porosity (EN 1094-4: 1995)		
	%	76
Specific heat		
	kJ/(kg×K)	0.94
	BTU/(lb×°F)	0.224
Coefficent of reversible thermal expansion (BS 1902: section 5.3: 1990)		
@ 20°C-750°C (68°F-1382°F)	K^{-1}	11×10^{-6}
	$°F^{-1}$	6.1×10^{-6}
Resistance to thermal shock (EN 993-11: 1998)		
heating to 950°C (1742°F)	cycles	>10
Linear reheat shrinkage (EN 1094-6: 1999)		
@ 1000°C	%	1.0
@ 1100°C	%	
Pyrometric cone equivalent (ASTM C24-89 ORTON cones)		
	°C	1300
	°F	2372
Thermal conductivity (ASTM C-182)		
mean temp. @ 200°C	W/(m×K)	0.15
mean temp. @ 400°C	W/(m×K)	0.16
mean temp. @ 600°C	W/(m×K)	0.19
mean temp. @ 800°C	W/(m×K)	-
mean temp. @ 392°F	BTU/(sq.ft.×h×°F/in.)	1.04
mean temp. @ 752°F	BTU/(sq.ft.×h×°F/in.)	1.11
mean temp. @ 1112°F	BTU/(sq.ft.×h×°F/in.)	1.32
mean temp. @ 1472°F	BTU/(sq.ft.×h×°F/in.)	-
Chemical analysis, typical	%	
Silica	SiO_2	47
Titanium dioxide	TiO_2	0.5
Ferric oxide	Fe_2O_3	4
Alumina	Al_2O_3	7
Magnesium oxide	MgO	21
Calcium oxide	CaO	2
Sodium oxide	Na_2O	0.5
Potassium oxide	K_2O	11
Loss on ignition 1025°C (1877°F)	LOI	7
Colour		sand

Data are average results of tests conducted under standard procedures and are subject to variation. Data contained in this data sheet are supplied in good faith as a technical service and are subject to change without notice. Misprint and errors excepted.

Skamol A/S is DS/EN ISO 9001 certified.

March 2004

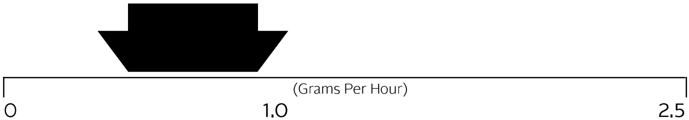
Manufactured by: Morsø
Model: 6100 B series

U.S. ENVIRONMENTAL PROTECTION AGENCY

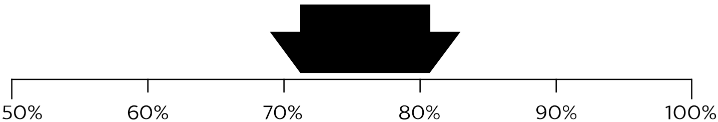
Certified to comply with 2020 particulate emission standards using cord wood.

SMOKE

THIS MODEL



EFFICIENCY



Particulate emission using ASTM E3053-17 cordwood test method:

Emission
0.67 g/h

Wood heaters with higher efficiencies cost less to operate.

HEAT OUTPUT
14,107 to 19,308 Btu/Hr

Use this to choose the right size appliance for your needs.
ASK DEALER FOR HELP

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.


morsø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Installation and Operating Instructions

Morsø 6100 B

For use in North America

Save these instructions

MORSØ JERNSTØBERI A/S . DK-7900 NYKØBING MORS
E-Mail: stoves@morsoe.com · Website: www.morsoe.com

Enjoy your new Morsø stove!

We congratulate you on your choice of a Morsø stove. Morsø has been producing some of the world's best stoves since 1853. If you follow this installation- and operating instruction carefully, we can assure you many years of warmth and pleasure.

Contents

Read this entire manual before you install and use your new room heater. If this room heater is not properly installed, a house fire may result. To reduce the risk of fire, follow the installation instructions. Failure to follow instructions may result in property damage, bodily injury, or even death.

Contact local building officials about restrictions and installation inspectionrequirements in your area.

Save these instructions

Optional Accessories

A wide range of accessories (such as handling gloves, fireside tools, glass cleaner and heat-proof paint) are available for use with your Morsø stove. They help with day-to-day running and maintenance. Contact your Morsø dealer for more information.

The Morsø 6100 B series meets the U.S. Environmental Protection Agency's emission limits for wood heaters sold on or after May 15, 2020

The Morsø 6100 B series have been tested by OMNI-Test Laboratories, Inc. The test standards are UL-1482-2012 (R2015)for the United States and ULC-S627-00 for Canada.

Tested & Listed By **Portland Oregon USA**

OMNI-Test Laboratories, inc.
Report Numbers: xxxxWSxxxx
xxxxWxxxx

The stove is listed for burning wood only. Do not burn other fuels.

Under specific test conditions this heater has been shown to deliver heat at rates ranging from 14,107 to 19,308 Btu/hr.
This appliance was determined to have an average higher heating efficiency value of 76% when tested in accordance with CSA B415.1

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.

NATIONAL FIREPLACE INSTITUTE® NFI CERTIFIED www.nficertified.org

We suggest that our woodburning hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Woodburning Specialists or who are certified in Canada by Wood Energy Technical Training (WETT).

Wood Energy Technical Training www.wettinc.ca

Cast iron

Cast iron is a live material. There are no two ovens that are identical. This is partly due to the tolerances of the casting process, partly because the ovens are a work of craftsmanship. Minor unevennesses may also occur in the cast iron surface.

1.0 Installation of your Morsø stove

Installation of woodburning stoves must be safe and legal.

The installation must conform standard CAN/CSA-B365, Installation Code For Solid-Fuel-Burning Appliances and Equipment
Make-shift compromises during installation can have consequences, the Installation of the woodburning stoves must be safe and legal.
If your Morsø stove is not installed correctly, it may cause a house fire. To reduce the risk of fire, the installation instructions must be followed carefully. Contact the local building officials about restrictions and installation inspection in your are

Before you start installing your stove, make sure that:
- The stove and chimney connection are placed far enough from combustible materials to meet all clearance requirements.
- The floor protection must be adequate and must be made correctly according to the requirements.

All neccessary approvals are needed from the local building officials.

The data plate, which is located on the back of the stove, provides information regarding safety testing information, name of certified testing laboratory, and installation requirements.

Installation requirements vary in different districts, and the local building officials have the final authorization to approve your installation. You should discuss the installation with them before beginning. Please ask your dealer for further information.

Do not connect to any air distribution duct or system.

Important: If the installation instructions are not followed carefully, it may cause dangerous situations like chimney - and house fires. Follow the instructions carefully and do not deviate from them as it may cause injuries to people or property.

1.1 Checking loose parts in the stove

After unpacking, check that the fire bricks are firmly in position and have not shifted in transit. Check also that the air control works freely.
Before starting the initial fire, make sure that the baffles is placed correctly.

Standard Accessories
A Morsø glove and ceramic flue connection gasket are standard accessories that usually can be found in the ashpan or firebox area.

1.2 The chimney / flue system

Note that the flue system must be independently secured and must not rely on the stove for support.

The stove must not be connected to a chimney flue serving any other appliance. (Several flues may run up a single chimney stack; use one flueway per appliance).

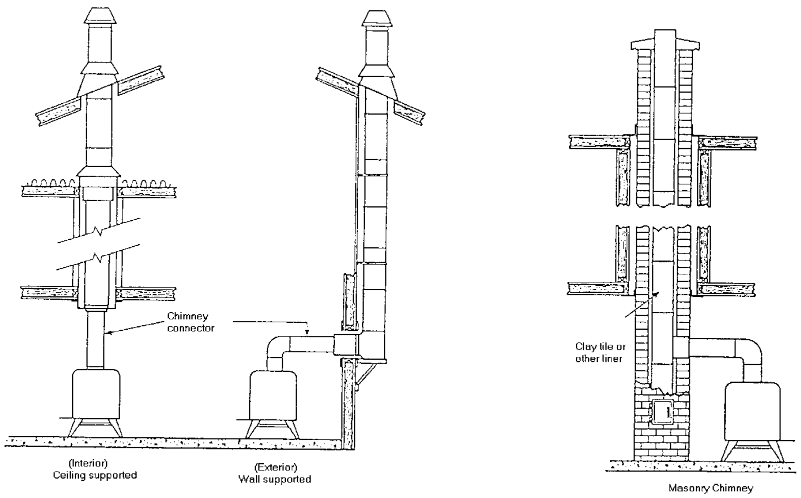
Use a code-approved masonry chimney with a flue liner or listed type HT factory-built chimney

High Temperature (H.T.) Chimney Standard UL-103-1985 (2100° F.) or a code-approved masonry chimney with flue liner for the USA, and High Temperature (650°C) Standard ULC S-629 for Canada.

The internal dimensions of the chimney connector and chimney must not be less than 6 inches diameter (or equivalent cross section), and should not be significantly larger than this. Too large a section will tend to allow the flue gases to cool excessively, causing sluggishness or unpredictability in the stove's performance.

We recommend the length of the chimney system should be at least 16 feet (not required) above the stove in normal domestic situations, measured from the flue collar to the top of the chimney.
Local conditions like for example - roof constructions, large trees nearby and high altitude, may influence the chimney draft and height. Therefore, contact the local professional chimney sweep or your Morsø dealer.

Typical Factory-Built or Masonry Chimney Installations



1.3 Flue Connection

The stove is supplied from the factory with a round blanking plate blocking off the top and rear flue exit (behind the rear shield plate). A flue collar are placed in the firebox area.

Use a 24 MSG black or blue chimney connector or listed double wall chimney connector. Refer to local codes and the chimney manufacturer's instructions for precautions required for passing a chimney through a combustible wall or ceiling. Remember to secure the chimney connector with a minimum of three screws to the product and to each adjoining section. The collar can be fitted to the rear outlet. Simply knock out the round panel on the rear heat shield plate to reveal the cast iron plate. Untwist the blanking plate and the flue collar and swap their positions. Re-secure by pushing down and tighten the enclosed screws. Position the stove and connect to the flue system.

Wear gloves and protective eyewear when drilling, cutting or joining sections of chimney connector

1.4 Connection to the existing chimney

A chimney connector is the double-wall or single-wall pipe that connects the stove to the chim-ney. The chimney itself is the masonry or prefabricated structure that encloses the flue. Chimney connectors are used only to connect the stove to the chimney.
Double-wall connectors must be tested and listed for use with solid-fuel burning appliances. Single-wall connectors should be made of 24 gauge or heavier gauge steel. Do not use galvanized connector; it cannot withstand the high-temperatures that smoke and exhaust gases can reach, and may release toxic fumes under high heat. The connector must be 6 inches (150mm) in diameter.

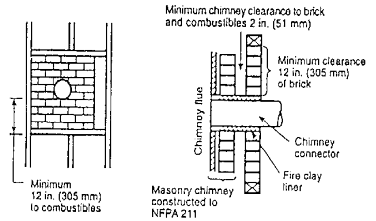
If possible, do not pass the chimney connector through a combustible wall or ceiling. If passage through a combustible wall is unavoidable, refer to the sections on Wall Pass-Throughs. Do not pass the connector through an attic, a closet or similar concealed space when installing the chimney connectors.

It is important to keep the flue gases moving smoothly in the right direction. Do not vent into a large void at this location; rather form one continuous section all the way up. Use mild bends (e.g. 45° vs. 90°) rather than sharp angles where a change of direction is required. All parts of the venting must be accessible for cleaning purposes.
In horizontal runs of chimney, maintain a distance of 18 inches from the ceiling. Keep it as short and direct as possible, with no more than two 90 degree turns. Slope horizontal runs of connector upward 1/4 inch per foot (20 mm per metre) going from the stove toward the chimney. The recommended maximum length of a horizontal run is 3 feet (1 metre), and the total length should be no longer than 8 feet (2.5 metres).
Information on assembling and installing connectors is provided by the manufacturer's instructions exactly as you assemble the connector and attach it to the stove and chimney.

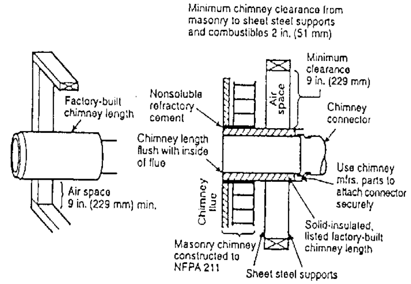
Be sure the installed stove and chimney connector are correct distances from near by combustible materials. See the clearance paragraph page 8.

Where passage through a wall or partition of combustible construction is desired, the installation shall conform to CAN/CSA-B365.

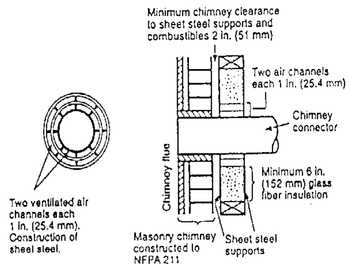
Chimney Connector Systems and Clearances from Combustible Walls for Residential Heating Appliances



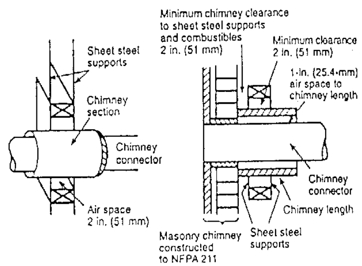
A Minimum 3.5-in thick brick masonry all framed into combustible wall with a minimum of 12-in brick separation from clay liner to combustibles. The fireclay liner shall run from outer surface of brick wall to, but not beyond, the inner surface of chimney flue liner and shall be firmly cemented in place.



B Solid-insulated, listed factory-built chimney length of the same inside diameter as the chimney connector and having 1-in. or more of insulation with a minimum 9-in. air space between the outer wall of the chimney length and combustibles.



C Sheet steel chimney connector, minimum 24 gauge in thickness, with a ventilated thimble, minimum 24 gauge in thickness, having two 1-in. air channels, separated from combustibles by a minimum of 6-in. of glass fiber insulation. Opening shall be covered, and thimble supported with a sheet steel support, minimum 24 gauge in thickness.



D Solid insulated, listed factory-built chimney length with an inside diameter 2-in. larger than the chimney connector and having 1-in. or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of minimum 24 gauge thickness, with a minimum 2-in. air space between the outer wall of chimney section and combustibles. Minimum length of chimney section shall be 12-in. chimney section spaced 1-in. away from connector using sheet steel support plates on both ends of chimney section. Opening shall be covered, and chimney section supported on both sides with sheet steel supports securely fastened to wall surfaces of minimum 24 gauge thickness. Fasteners used to secure chimney section shall not penetrate chimney flue liner.

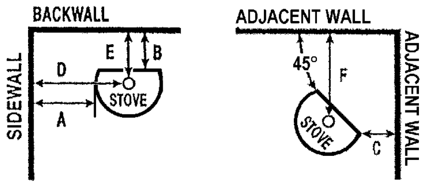
1.5 Positioning the stove

Distance to walls and lintel

When the stove is positioned near combustible materials, observe all current local and national building regulations with regards to clearances. Whatever regulations apply to your area, do not in any case install the stove within 8 inches of combustible materials around the sides or 16 inches above the top of the stove (fireplace installations require greater clearances above the stove - see below in the clearance chart). These distances may need to be increased if the materials are sensitive to heat. Note also that wall paper and other decorative materials may become detached with the effects of heat and care should be taken to ensure that they do not fall towards the stove in such an event.
When the stove is positioned near non-combustible materials, a gap of 4 inches or more is recommended for cleaning purposes and to ensure that heat circulates around the stove and out into the room.
If using rear exit, the floor protection must extend beneath the chimney connector and 2-in beyond each side.

CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION SINGLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	3"	76 mm
C. Cornerwall to unit	5"	127 mm
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	7.5"	190 mm
F. Cornerwall to connector	10"	254 mm
G. Unit to ceiling	54.5"	1384 mm
H. Floor to ceiling	84"	2134 mm

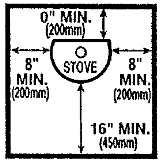
MINIMUM CLEARANCES TO COMBUSTIBLES:



CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION DOUBLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	2"	51 mm
C. Cornerwall to unit	5"	127 mm
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	6.5"	165 mm
F. Cornerwall to connector	10"	254 mm
G. Unit to ceiling	54.5"	1384 mm
H. Floor to ceiling	84"	2134 mm

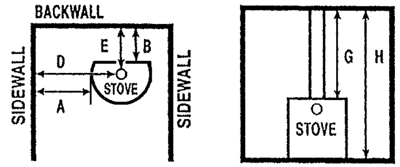
CLEARANCE REQUIREMENTS	STANDARD RESIDENTIAL INSTALLATION REAR VENT OUT BACK WALL SINGLEWALL CONNECTOR	
	USA	CANADA
A. Sidewall to unit	10"	254 mm
B. Backwall to unit	6.5"	165 mm
C. Cornerwall to unit	-	-
D. Sidewall to connector	15.5"	394 mm
E. Backwall to connector	-	-
F. Cornerwall to connector	-	-
G. Unit to ceiling	-	-
H. Floor to ceiling	-	-

NON-COMBUSTIBLE FLOOR PROTECTOR



FLOOR PROTECTOR MUST BE NON-COMBUSTIBLE MATERIAL. IT MUST EXTEND BENEATH HEATER, AND TO THE FRONT/SIDES/REAR AS INDICATED.

ALCOVE INSTALLATION



*Maximum alcove depth must be no more than 32" (813mm)

CLEARANCE REQUIREMENTS	ALCOVE INSTALLATION DOUBLEWALL CONNECTOR
A. Sidewall to unit	12" (305 mm)
B. Backwall to unit	3" (76 mm)
C. Cornerwall to unit	-
D. Sidewall to connector	17" (432 mm)
E. Backwall to connector	7.5" (190 mm)
F. Cornerwall to connector	-
G. Unit to ceiling	24.5" (622 mm)
H. Floor to ceiling	54" (1372 mm)

FLOOR PROTECTION REQUIREMENTS	NON-COMBUSTIBLE MATERIALS BENEATH STOVE	
	USA	CANADA
Extending distance, back	-	200 mm
Extending distance, right side	8"	200 mm
Extending distance, left side	8"	200 mm
Extending distance, front	16"	450 mm

Distance to furniture

The recommended minimum distance from stove to furniture is 30 inches. Note that some furniture is more easily affected by heat and may need to be moved to a greater distance. This is your responsibility.
In addition other combustible materials, away from the stove. In general, a distance of 30 inches must be maintained between the stove and moveable combustible item such as drying clothes, newspapers, firewood etc.

1.6 Mobile Home Installation

(Mobile home installation is only applicable for USA)

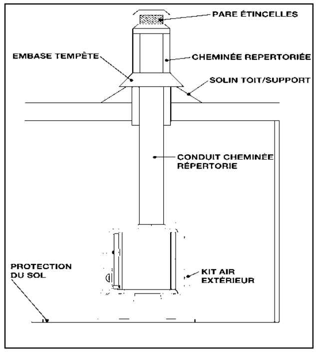
The Morsø 6100 can be installed in a mobile home if equipped with an outside combustion air kit, a terminal cap with a spark arrestor, and if it meets the following installation requirements:

- The stove must be secured to the mobile home structure by bolting through the hearth pad and into flooring.
- The stove must be installed with a listed Type HT chimney connector, HT Chimney, and terminal cap with spark arrestor. Never use a single wall connector (stovepipe) in a mobile home installation.
- Floor protection requirements in section 1.5 must be followed precisely.
- In Canada, this appliance must be connected to a 6" (152 mm) factory-built chimney conforming to CAN/ULC-629M, STANDARD FOR FACTORY BUILT CHIMNEYS. Floor protection as referenced in section 1.5 must be followed, as well as use of Canadian Floor Protector.
- Follow the chimney and chimney connector manufacturer's instructions when installing the flue system for use in a mobile home.
- Outside air kit should be installed according to installation guide in the kit.
- Intake air piping can be installed through the floor into a vented crawl space or through the wall of the residence to obtain outside air.
- Install in accordance with 24 CFR, Part 3280 (HUD).
- NOTE: Top sections of chimney must be removable to allow maximum clearance of 13.5' from ground level for transportation purposes.

WARNING:
NEVER DRAW COMBUSTION AIR FROM A
WALL, FLOOR OR CEILING CAVITY OR FROM ANY ENCLOSED SPACE SUCH AS AN ATTIC OR GARAGE.
DO NOT INSTALL IN A SLEEPING ROOM.

CAUTION:
THE STRUCTURAL INTEGRITY OF THE
MOBILE HOME FLOOR, WALL, AND
CEILING/ROOF MUST BE MAINTAINED (I.E., DO NOT CUT THROUGH FLOOR JOIST, WALL STUD, CEILING TRUSS, ETC.)
DO NOT USE A GRATE TO ELEVATE FIRE -
BUILD FIRE DIRECTLY ON HEARTH.

Note:
Acid Protection
If acid-washing the masonry around the stove, protect the stove surface with an acid-proof cover.



Fresh Air Inlet
Unless there is deemed to be sufficient ambient leakage of air into the room via doorways, windows and the like, a dedicated fresh air inlet will be needed. This inlet should have 2 square inches (1250 square mm) of free air space. This is particularly important where the room is well sealed, or where an extractor hood or ventilation system disturbs the natural air pressure. Such an inlet should not be on a wall that is usually subject to negative pressure from normal wind pattern. Avoid placing the inlet directly across the room from the stove, thus causing a cold air draft.

2.0 Operation

2.1 Before you start firing

For use with solid wood fuel only. 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. Because of risk of smoke and flame spillage, operate only with door fully closed.

CAUTION:
Hot while in operation. Keep children, clothing and furniture away. Contact may cause skin burns.
DO NOT USE CHEMICALS OR FLUIDS TO START THE FIRE
DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS
DO NOT USE A GRATE, ANDIRONS, OR OTHER WAYS OF ELEVATING THE FIRE - BUILD FIRE DIRECTLY ON HEARTH.
DO NOT USE GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER OR FLUID OR SIMILAR LIQUIDS TO START OR FRESHEN UP A FIRE IN THIS HEATER. KEEP ALL SUCH LIQUIDS AWAY FROM THE HEATER WHILE IT IS IN USE

Choosing your fuel
All types of natural wood can be burned on your stove, but they must be well-seasoned and dry. Once the wood is cut to length, it should be split down middle - to suit the dimensions given below - to allow moisture to evaporate.Cut the wood to a length of max 12 inches (30 cm) and approx. 3 to 3.5 inches (7-8 cm) in section. If you can weigh your wood, aim for around 2 lbs. For correct combustion and heat output, wood fuel should contain no more than 20% moisture; this can easily be checked by using the Morsø Moisture Meter (part # 62929900).

To naturally season wood fuel, stack and store it under cover in an airy location where fresh air can move through each piece. Some soft woods may take as little as one good summer to season whereas harder woods such as oak, maple, and elm may require seasoning up to 18 months. Avoid overly dry wood that is gray in color as under certain conditions it can cause performance problems, such as back-puffing and sluggishness. Well seasoned wood will be light to hold and will show signs of cracking from the center-out in the ends. If your wood spits or sizzles when b urnt, and your stove's door glass persistently mists up, your wood is not properly seasoned. Never use drift wood (from the sea), whose salt content may cause corrosion, nor construction wood that may have been impregnated with chemicals.

To optimize efficiency:
Burning wet wood has a negative impact on efficiency

CAUTION Do not place fuel within the installation clearances for the stove or within the space required for loading fuel and ash removal.

Starting the First Fire
The initial fire should be small, so that the stove paint can cure and the main plates of the stove can settle into position. Some fumes will be given off by the paint. Ventilate the room during this phase.
The setting of the air control, lighting techniques and loading intervals will depend on chimney draft, the fuel used, the heat required and so on. Some basic techniques are outlined below.

In principle
Your stove should be with Primary and Secondary air and Pilot air inlets.
Primary Air is controlled using the lever situated over the door. Moving the control lever to right position will open the air inlet and will allow a supply of preheated air to enter the firebox via the 'airwash' system situated inside the stove and above the glass.
The secondary air is injected into the flue gases above the fire resulting in a cleaner, more efficient combustion process. The supply of secondary air and Pilot air is fixed open and is not adjustable.
For extra safety, your stove should be with a removable handle.

2.2 Lighting and loading intervals

When first lighting the stove, a large volume of air is needed. When the stove is cold, you should leave the door open an inch or two for the first few minutes and open the primary air supply completely. While the door is open, do not leave the stove unattended.
To form a reasonable bed of ash on the floor of the stove, you should use 2-4 pounds of dry kindling at the initial lighting. If possible, maintain a 1-1.5 inch (2-3 cm) layer of ash on the floor of the combustion chamber for added insulation.

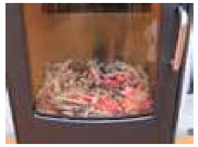
1. We recommend using the "top-down" method to light your wood-burning stove. It is the most environmentally-friendly method of lighting. Use two firelighters and approx. 2-4 lbs of dry kindling sticks to quickly create a glowing layer of wood. Place the firelighters directly under the top layer of kindling sticks.This minimizes soot formation on the glass. Soot formation on the glass is often caused by too vigorous burning in contact with cold surfaces. If you avoid the formation of soot when lighting the fire and build up a layer of hot embers, you will have minimal soot formation when getting the fire burning again later.

2. The air supply must be fully open.

3. Light the fire.

4. After lighting, partially close the door, leaving it open an inch or two to allow in plenty of combustion air.

5. When the chimney is warm after about 5-10 minutes, the door should be closed. A suitable layer of ember will be formed after about 15-20 minutes.



6. When ready to reload, use a poker to spread the embers across the firebox floor, bringing plenty towards the front of the stove.

7. Lay two pieces of wood onto the embers. Leave half an inch or more between each piece.

8. Close the door. Leave the primary air supply fully open. If it does not light, leave the door slightly ajar to allow the necessary amount of air in to ignite the wood.
Close the door again once the wood has kindled.

9. After a few minutes, adjust the primary air supply to suit your heating requirements.
Make sure that there is always enough air to sustain clear, enduring flames when you reduce the amount of combustion air, and afterwards.

10. For refueling, add a layer of wood while there are still plenty of live embers, repeat steps 6-9.
We recommend using fuel load with a weight of 3 lbs (2 pieces) and up to 6 lbs (5 pieces).
Always keep the fuel load beneath the secondary stainless-steel air box. The space in front and above the air box is reserved for volatile gas combustion only.

Do not for any reason attempt to increase the firing of your heater by altering the air control adjustment range outlined in these directions.

Warning: Fireplace stoves must never be left unattended with the door open.

If the door is left partly open, gas and flame may be drawn out of the fireplace stove opening, creating risks from both fire and smoke. We recommend that you fit a smoke detector in the room where the stove is installed.

DO NOT OVERFIRE THIS HEATER. Overfiring may cause a house fire, or can result in permanent damage to the stove. If any part of the stove glows, you are overfiring.

The maximum recommended weight of wood fuel per load is 6lbs (5 split logs).

Under normal firing, the average flue temperature in the stove pipe, measured 20 cm above the stove, is approx. 300° C (550°F). The maximum flue temperature in the stove pipe must not exceed 450° C (750°F). If the flue temperature exceeds 450°C (750°F), it is considered as over firing and may cause premature wear and tear of the stove.

To help gauge the correct running temperature of your stove, we recommend you use the Morsø Flue Gas Thermometer (part # 62901200). The Flue Gas Thermometer magnetically attaches onto the stove pipe approx 20 cm (8") above the stove's top plate and measures the surface temperature of the stove pipe. Please see your authorized Morsø Dealer for availability.

Draft conditions
If smoke or fumes come out of your stove when lightning up and reloading, or if the fire simply will not respond, a poor draft is almost certainly to blame. (In a very few cases, there may be insufficient fresh air getting into the room - see installation advice above). Take advice from your stove supplier on how best to upgrade your flue system to improve draft.

Rules of woodburning
If you want less heat, put fewer logs on the stove and reduce the amount of air. It is still important to maintain a good layer of embers.
Less heat - less wood - less air
Greater heat - more wood - more air
Soot deposits will settle on the glass if the stove is run too slowly or if your wood is not well seasoned.

We would strongly recommend that you do not leave your stove alit at night. It harms the environment, and constitutes very poor use of the wood, as the gases in the wood do not ignite at the low temperature, but settle as soot (unburned gases) in the chimney and stove instead.

Carbon monoxide detectors
It is required in some jurisdictions to install smoke and carbon monoxide detectors where heaters are installed. Install at least one smoke detector on each floor of your home to ensure your safety. It should be located away from the wood appliance and close to the sleeping areas. Locating a smoke detector too close to a wood appliance can cause the smoke detector alarm to sound if a puff of smoke is emitted while the wood appliance door is open during reloading. Follow the smoke detector manufacturers placement, installation, and maintenance instructions

3.0 Maintenance

When perfoming maintenance on your stove, always protect yourself, using safety goggles and gloves.

3.1 Exterior Maintenance
The stove surface is painted with heat-resistant Senotherm paint. It is best kept clean by vacuuming with a soft brush attachment or by wiping with a lint-free cloth.
Over a period of time, the painted surface may become slightly grey. A can of Morsø touch-up spray paint should be available from your stove supplier. This can be applied - in accordance with the instructions - in just a few minutes. When first firing after touching up, the stove will give off a slight smell as the paint cures. Make sure to ventilate the room well during this phase.

3.2 Internal maintenance
Glass
If the stove is generally run at the correct temperatures, there should be little or no dirt on the glass. If dirt does settle during lighting, most will burn off as temperatures increase.For heavier deposits that will not burn off, use morsø glass cleaner, applied when the glass is cold, in accordance with the instructions. Never use abrasive cleaners on the glass surface.

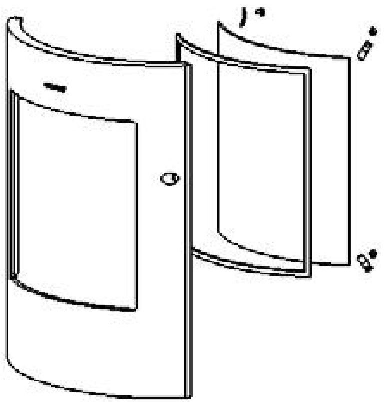
Reasons for dirty glass
- Fuel too wet
- Logs too large or not split
- Combustion temperatures too low

Do not clean the glass while hot
Replace broken glass immediately.
Do not operate your stove if the glass in the door is damaged.

If you need to replace the glass, it should be replaced with the high temperature ceramic class supplied by Morsø, contact your Morsø dealer.

Installing the glass
Never install the glass when the stove is in function.

Ceramic glass replacement
Ceramic glass cannot be recycled because it has a higher melting point that ordinary glass. If ceramic glass is mixed with ordinary glass, the raw material is spoiled, and the reclaiming process may be halted. Take care that the ovenproof glass does not end up among ordinary recycled waste. That will be a great benefit to the environment.
Note: Should be handed in to a recycling station as ceramic glass.



1. When you open the door, you will find two hinge pins, one in each hinge. Remove the two hinge pins, lift the door off the hinges and place it face down on a sheet of cardboard or other nonabrasive fabric.

2. Unscrew the 4 bolts that secure the glass. (In the event that a bolt sheers off when being unscrewed, remove the remaining body of the bolt by drilling down its centre with 1/8 inch high speed steel drill bit. Smaller drill bits may be successful, but do not use a lager bit. Make sure the bit stays away from the edges of the bolt - this may damage the thread in the cast iron).

3. Remove the old ceramic gaskets and clean up the surface underneath with wire wool or emery paper to remove loose particles.

4. Place the new gasket material in position around the perimeter of the window area, making sure to pinch them to the length in such a way that they make a continuous seal. Leave no gaps.

5. Place the new glass in position on the strips and screw home the fresh bolts and fitting by hand.

6. Finally, give each of the bolts an extra half turn or so. The glass should held tight enough by that cleaning will not dislodge it. Do not over-tighten the bolts as this may put excessive pressure on the glass, resulting in cracking - important!

To reduce the risk of breaking the glass, avoid striking the glass or slamming the door.

Internal service parts
The flame-path equipment - consisting of the ashpan, grate, firebricks, Cast iron fire plates, glass, baffle and flue collar - are subject to the extremes of heat produced by the fire. From time to time, one or other of these parts may need replacing as a matter of routine maintenance.

NOTE: The flame-path equipment, the ceramic rope and the paint finish are not covered by guarantee.

All of these service parts can be bought from your morsø dealer, and we recommend that damaged parts are replaced as soon as possible to avoid collateral damage.
Should the baffle be distorted by an overfire, the stove will still function, although its efficiency may be compromised. Replace it as soon as possible.

Reasons for fast internal wear and tear
Persistent heavy firing
Soot and ashes left to accumulate

Gasket
The gasket around the perimeter of the door may harden over a period of time. It should be replaced if it becomes difficult to close the doors or if air starts to leak in around the perimeter of the doors, causing the fire to become a little less controllable. A morsø rope gasket kit is available from your stove supplier.

3.3 Cleaning the Stove and the Flue
Check for soot above the baffle plate and around the flue outlet every month or so to start with. If the stove suddenly becomes sluggish, check for a soot fall around the flue collar or in the flue/chimney.

The chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

Clean the flue/chimney - all the way from the stove to the flue terminal point above the house. A good routine is to clean the flue after each heating season in any case, and inspect prior to the season to ensure that bird's nests or other blockages have not occurred during the off season.

Ash disposal
Empty the ashpan on a daily basis or as needed. Ash allowed to build up towards the underside of the grate will trap heat and could cause premature failure of the grate.

Empty the ashpan according to this procedure:
Open the front door, and use a shovel or poker to stir excess ash through the ash slots in the grate down into the ash pan. Take out the ash pan, making sure to keep it level to avoid spilling ash.

Dispose the ash in a metal container with a tight fitting lid.
The closed container of ashes should be placed on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally disperded, they should be retained in the closed container until all cinders have thoroughly cooled.
Return the ash pan to its original position in the stove, and close the door.

CAUTION:
Never empty a stove in operation.
Never use your household or shop vacuum cleaner to remove ash from the stove; always remove and dispose of the ash properly.

Creosote - formation and 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 on the flue lining. When ignited this creosote makes an extremely hot fire. When burning wood, the chimney and chimney connector should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

Chimney sweeping
Inspect the system regularly during the heating season as part of a regular maintenance schedule. To inspect the chimney, let the stove cool completely. Then, using a mirror, sight up through the flue collar into the chimney flue. If you cannot inspect the flue system in this fashion, the stove must be disconnected to provide better viewing access.
Clean the chimney using a brush the same size and shape as the flue liner. Run the brush up and down the liner, causing any deposits to fall to the bottom of the chimney where they can be removed through the clean-out door.

Clean the chimney connector disconnecting the sections, taking them outside, and removing any deposits with a stiff wire brush. Reinstall the connector sections after cleaning, being sure to secure the joints between individual sections with sheet metal screws.
If you cannot inspect or clean the chimney yourself, contact your local Morsø Dealer or a professional chimney sweep.

If you do experience a chimney fire, act promptly and:
1. Close the air control.
2. Get everyone out of the house.
3. Call the Fire Department.

Annual maintenance
Before the heating season, perform a thorough cleaning, inspection and repair:
Thoroughly clean the chimney and chimney connector.
Inspect the chimney for damage and deterioration. Replace weak sections of prefabricated chimney. Have a mason make repairs to a masonry chimney.
Inspect the chimney connector and replace any damaged sections.
Check gasketing for wear or compression, and replace if necessary.
Check the glass for cracking; replace if needed.
Check door and handle for tightness. Adjust if needed.

How to clean the inside parts of Morsø 6100
When cleaning the inside parts of the stove in connection with the annual visits from your local chimney sweep we recommend that you remove the inside parts from the fire chamber. Please be careful as the vermiculite parts are porous. Cleaning of the stove must be done when the stove is cold.

ALWAYS USE ORIGINAL MORSØ SPAREPARTS

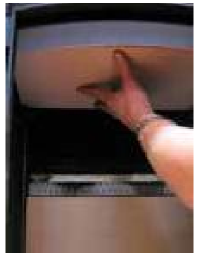
1. The bottom baffle is lifted up a bit and held in that position. Loosen the side bricks.

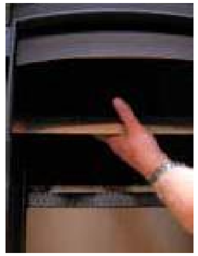
2. Tip the side bricks and remove them from the fire chamber.

3. Tip the other side brick and remove it from the fire chamber.

4 When the side bricks are removed the bottom baffle is lowered and lifted out of the fire chamber.

5. The upper baffle is removed from the brackets and lifted out of the firechamber.





3.4 Leaving the stove for extended periods

Important:

If the stove is to be left unused for any period of time, clean it out thoroughly and leave the air control slightly open to allow airflow. Make sure that the flue does not allow rainwater to come anywhere near the stove; install a chimney cap, but do not block off the flue completely.

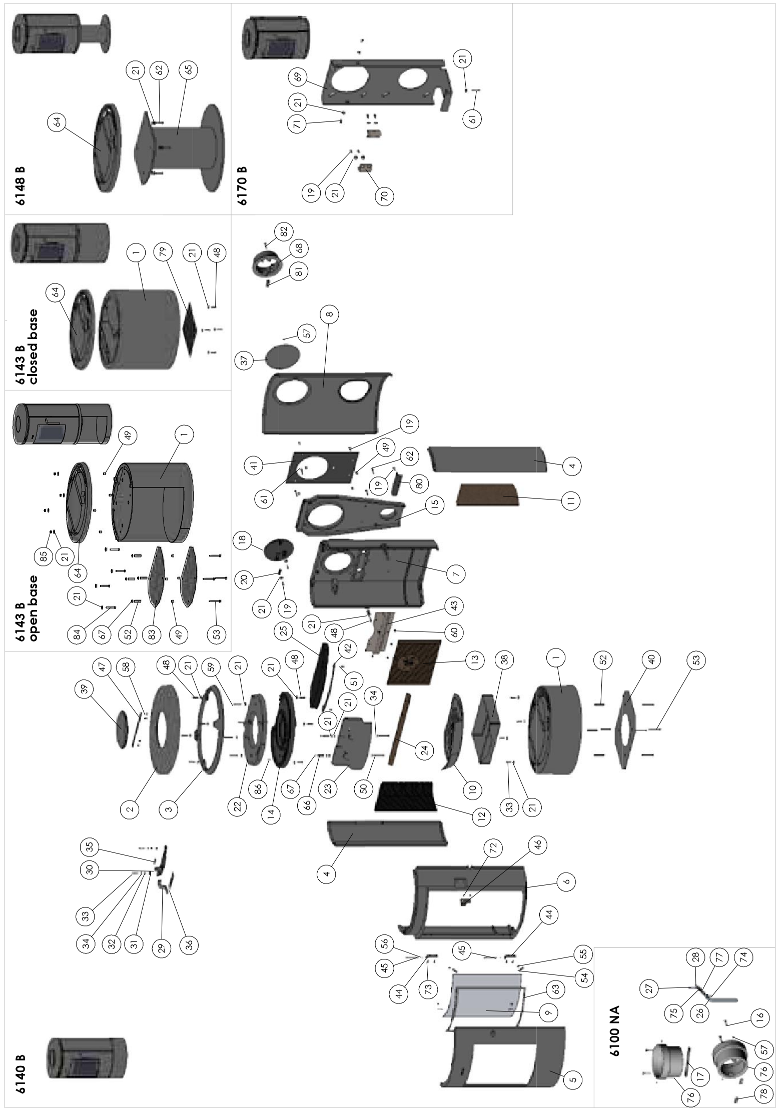
These measures should ensure there is a slight movement of air through the stove, and that the body of the stove remains dry, right into the corners.

Any ash left within an unfired stove can attract moisture like blotting paper. If moisture is allowed to settle within the stove, rust will form. Rust expands as it takes a grip. This can lead to undue pressure on the stove joints, and this in turn may result in damage to the stove.

NOTE: It is best to thoroughly clean the stove after the heating season has concluded. Adding a dessicant, such as kitter litter, into the ash pan helps absorb moisture during the summer months. Be sure to remove this prior to the heating season.

We hope you have many years of carefree warmth in its company. Some initial experimentation with loading and running techniques will decide your normal routine. If you have any problems after this short learning phase, please refer to your stove dealer. Should they be unable to help for any reason, please contact us in writing at the address on the front of this publication.

3.5 Parts diagram for model Morsø 6100



3.6 Parts list for model Morsø 6100

Pos. No.	Parts	SKU number
1	Socle	44610100
2	Top plate, outside	44610900
3	Top frame	44610600
4	Side plate, outside	44610700
5	Door	44610300
6	Front frame	44610200
7	Rear plate, inside	44610400
8	Rear plate, outside	44610800
9	Glass	79610100
10	Intermediate frame	346110
11	Brick, side, right	79610200
12	Brick, side, left	79610300
13	Brick, back	79610400
14	Top plate, inside	44610500
15	Air canal, rear	44611200
16	Screw M6x35 DIN 933	743625
17	Stop bar	71611900
18	Cover	44141000
19	Screw M6x16 DIN 933	731616
20	Lug	44256800
21	Washer Ø6 DIN 9021 fzb	791891
22	Air canal, top	44611300
23	Air canal, front	44611600
24	Baffle plate, lower	79610500
25	Baffle plate, top	79610600
26	Handle	75610061
27	Hinge pin Ø6x40	542056
28	Screw pinol msp ISO 4029-45h	73950500
29	Handle primary air controller	71611261
30	Primary air controller	71611100
31	Distance tube Ø12x1.5 L=8mm	71810300
32	Distance tube Ø8x1 L=10mm	71810200
33	Screw M6x20 DIN 933	74162000
34	Washer 6.5x16x1 DIN 522-A fzb	736106
35	Screw M5x10 ISO 7380 Buttonhead	73851100
36	Closure plate for Primary air control	71610800
37	Roundel	71611000
38	Ash pan	71610100
39	Cover	44812000
40	Radiant shielding, bottom	71610300
41	Radiant shielding, rear	71610200
42	Fitting plate for baffle	71610461
43	Tertiary box	71610561
44	Hinge fitting	71810100
45	Screw Ø5x60 DIN 660 KN KULLRIG NIT	74701000
46	Closure fitting	71610700
47	Lug for cover	71813200
48	Screw M6x25 dIN 933	731625
49	Distance tube Ø10x1 L=10mm	541439
50	Screw M6x50 DIN 931	731650

3.6 Parts list for model Morsø 6100

Pos. No.	Parts	SKU number
51	Screw M6x12 DIN 933	731612
52	Distance tube Ø10x1 L=35mm	542641
53	Screw M6x55 DIN 933	731640
54	Glass fitting	71814561
55	Screw M5x8 ISO 7380	73850800
56	Retaining Ring Washer 4mm DIN 6799	746006
57	Screw 3.5x9.5 DIN 7981 fzb	791835
58	Screw M6x8 DIN 933	731608
59	Screw M6x40 DIN 933	731640
60	Screw M6x10 DIN 965A	74361000
61	Screw M6x35 DIN 933	731635
62	Screw M6x30 DIN 933	731630
63	Tape for glass	79074200
64	Bottom plate	44611500
65	Pedestal	71611500
66	Distance tube Ø10x1 L=30	541440
67	Vistop lock washer 6 mm	746206
68	Flue collar	44141900
69	Fitting for wall	71612000
70	Bracket for wall fitting	71612100
71	Screw M6x16 Buttonhead ISO 7380	73861400
72	Screw M5x8 DIN 933	74150804
73	Screw M5x12 DIN 7991	73856100
74	Cotter pin Ø2x10 DIN 1481	74201900
75	Axle f. door	75610161
76	Flue collar	44611800
77	Spring 1.5x14x21 5 turns	79048800
78	Fitting w. thread for flue collar	44256700
79	Radiant shielding, Bottom for 6143	71612500
80	Bracket for optional outside air kit	71613700
81	Fitting w. thread for flue collar	542630
82	Screw M6x35 DIN 7991	74241900
83	Radiant shielding, open base 6143	71617000
84	Screw M6x45 DIN 933	731645
85	Nut 6mm kl.8 DIN934	735006
86	Screw M6 x 16 DIN 913-45H	73961700

Guarantee
Product Registration

MORSØ 10 YEAR GUARANTEE CERTIFICATE

Behind every Morsø stove is more than 160 years of dedicated stove design and manufacturing experience. Quality control has always been at the heart of the production process and detailed measures have been put into place at all key stages of the build. Accordingly, provided that the stove has been supplied by an authorised Morsø dealer, Morsø will offer a 10-Year Manufacturers Guarantee against manufacturing defect to any of the main exterior body parts of its stoves.

Read more about "Morsø 10 years guarantee/product registration card" and REGISTER your new Morsø stove online: http://international.morsoe.com/warranty-registration

Morsø Jernstøberi A/S - 07.05.2019 - 72611600

IMPORTANT!

How to heat safely for the environment and yourself!

- **Use only dry wood**
  Use only dry (max. 20% moisture content) and untreated wood. The fuel must be split and 8 - 12 cm thick.

- **Light**
  Light with dry kindling (use 1 - 2 kg). Leave the door ajar and stay close to the stove during the lighting phase.

- **Good layer of embers**
  Be certain to have a good layer of embers before refilling. The wood should light within 2 minutes. If the logs do not ignite it may, in an extreme case, cause the flue gases to ignite which may pose a risk to material damage or personal injury.

- **Refuelling**
  When refuelling use 2 - 3 pieces of wood - no more than 2 - 2.5 kg.

- **Ensure adequate air**
  I.e. clear and yellow flames.

- **Never burn overnight**

By appointment to The Royal Danish Court

morsø

Morsø Jernstøberi A/S - 20.05.2019 - 72611600

MORSØ JERNSTØBERI A/S . DK-7900 NYKØBING MORS
E-Mail: stoves@morsoe.com · Website: www.morsoe.com

Sample analysis, HF, 20. February 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	119808,7		1198080,7	Main train
Filter 1+2	179,6		179,2	
Gasket 1+2	4915,1		4916,7	
Split probe 1H	120123,7		120123,8	Split train, 1. hour
Filter 3+4	178,4		176,8	
Gasket 3+4	4904,0		4906,3	
Split probe remaining	120594,1		120594,2	Split train, remaining time
Filter 5+6	176,8		175,8	
Gasket 5+6	4942,5		4943,7	
Room probe	-		-	Room blanc
Filter 7	92,8		91,3	
Gasket 7	2438,6		2440,3	

Sample analysis, MF, 20. February 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	120165,2		120165,2	Main train
Filter 1+2	171,6		170,3	
Gasket 1+2	4884,9		4887,7	
Split probe 1H	120031,5		120031,5	Split train, 1. hour
Filter 3+4	176,1		174,6	
Gasket 3+4	4906,0		4908,5	
Split probe remaining	120684,5		120384,5	Split train, remaining time
Filter 5+6	179,2		178,1	
Gasket 5+6	4916,0		4917,6	
Room probe	-		-	Room blanc
Filter 7	91,7		90,2	
Gasket 7	2482,6		2484,3	

Sample analysis, HF, 21. February 2019

Test run #3 was a dry run only intended to condition the fire bed prior to the subsequent LF test. No PM sampling was performed.

Sample analysis, LF, 21. February 2019

Sample analysis, test run #4				
Filter series:	(1-4)	3		
Gasket series:	(1-4)	3		
Probe series:	(A-B-C)	C		
	PRIOR (mg)		**FINAL (mg)**	
Main probe	121231,0		121231,0	Main train
Filter 1+2	178,1		179,7	
Gasket 1+2	4897,7		4898,1	
Split probe 1H	120720,4		120720,4	Split train, 1. hour
Filter 3+4	177,9		177,9	
Gasket 3+4	4895,7		4895,8	
Split probe remaining	121051,4		121051,5	Split train, remaining time
Filter 5+6	177,1		179,0	
Gasket 5+6	4968,5		4968,3	
Room probe	-		-	Room blanc
Filter 7	90,5		90,1	
Gasket 7	2457,2		2457,7	

DTI stoves&boiler test lab

Manufacturer:	Morsø	**Technicians:**	JSA
Model:	6100B ser		
Date:	02-20-19		
Run:	#1		
Control #:	)0% open (45 mm)		
Test Duration:	55		
Output Category:	HIGH		

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	75,2%	80,8%
Combustion Efficiency	99,5%	99,5%
Heat Transfer Efficiency	76%	81,2%

Output Rate (kJ/h)	38.107	36.148	**(Btu/h)**
Burn Rate (kg/h)	2,52	5,55	**(lb/h)**
Input (kJ/h)	50.690	48.085	**(Btu/h)**

Test Load Weight (dry kg)	2,31	5,09	**dry lb**
MC wet (%)	0		
MC dry (%)	0,00		
Particulate (g)	0,83		
CO (g)	21		
Test Duration (h)	0,92	55 min. OK ✓	

Emissions	**Particulate**	**CO**
g/MJ Output	0,02	0,61
g/kg Dry Fuel	0,36	9,16
g/h	0,91	23,08
lb/MM Btu Output	0,06	1,41

Air/Fuel Ratio (A/F)	10,99

VERSION: **2,4** **15-04-2010**

DTI stoves&boiler test lab

Manufacturer:	Morsø	Technicians:	JSA
Model:	6100B series		
Date:	02-20-19		
Run:	#2		
Control #:	10 mm open		
Test Duration:	105,5		
Output Category:	MEDIUM		

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	75,2%	80,8%
Combustion Efficiency	98,1%	98,1%
Heat Transfer Efficiency	77%	82,3%

Output Rate (kJ/h)	19.061	18.081	(Btu/h)
Burn Rate (kg/h)	1,26	2,78	(lb/h)
Input (kJ/h)	25.350	24.047	(Btu/h)

Test Load Weight (dry kg)	2,22	4,88	dry lb
MC wet (%)	17,8		
MC dry (%)	21,65		
Particulate (g)	1,17		
CO (g)	69		
Test Duration (h)	1,76		

OK ✓

Emissions	Particulate	CO
g/MJ Output	0,03	2,07
g/kg Dry Fuel	0,53	31,36
g/h	0,67	39,51
lb/MM Btu Output	0,08	4,82

Air/Fuel Ratio (A/F)	10,91

VERSION: 2,4 15-04-2010

DTI stoves&boiler test lab

Manufacturer: Morsø
Model: 6100B series
Date: 02-21-19
Run: #4
Control #: ; mm op aft 8 min
Test Duration: 146
Output Category: LOW

Technicians: JSA

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	78,8%	84,7%
Combustion Efficiency	96,6%	96,6%
Heat Transfer Efficiency	82%	87,6%

Output Rate (kJ/h)	15.043	14.270	(Btu/h)
Burn Rate (kg/h)	0,95	2,09	(lb/h)
Input (kJ/h)	19.100	18.118	(Btu/h)

Test Load Weight (dry kg)	2,31	5,09	dry lb
MC wet (%)	17,7		
MC dry (%)	21,51		
Particulate (g)	1,65		
CO (g)	118		
Test Duration (h)	2,43		

OK

Emissions	Particulate	CO
g/MJ Output	0,05	3,22
g/kg Dry Fuel	0,71	50,99
g/h	0,68	48,40
lb/MM Btu Output	0,10	7,48

Air/Fuel Ratio (A/F)	11,53

VERSION: 2,4 15-04-2010