INITIAL TYPE TEST REPORT

AME 8E (LS)

IN ORDER OF:

AMI FIRES SRL

INITIAL TYPE TEST REPORT

AME 8E (LS)

EZKA/2018-05/00015-3D

JULY 22, 2022

Laboratory

SGS NEDERLAND BV

NOTIFIED BODY 0608

Customer

AMI FIRES SRL

Baroc Business Center
Rue Laid Burniat 3
Louvain-la-Neuve 1348
Belgium

Approved by

Jens Dekker
Project Leader

C. Wösten
Technical Manager Air Monitoring

SUMMARY

This report contains the test results of a room heater fired by solid fuels in accordance with NEN EN 13240:2001 and NEN EN 13240-A2:2004. The measurement of nitrogen oxides (NOx), organic gaseous carbon (OGC) and particulate matter (PM) are done in accordance with EN16510-1:2018 (Annex D, E, F2).

Brief description of the project

Description	
Date of test	June 19, 2018 June 21, 2018
Manufacturer	AMI FIRES SRL Baroc Business Center Rue Laid Burniat 3, Louvain-la-Neuve 1348 Belgium
Principal	AMI FIRES SRL
Appliance	AME 8E (LS)
Test category	Initial type test

Abstract of the test results

Essential characteristic			
Test fuel	Beech		
Fire safety	Pass		
Emission of combustion products (related to 13% O2)	CO:	0.09	vol%
	NOx:	120	mg/m_0^3
	CxHy:	65	mg/m_0^3
	Dust:	29	mg/m_0^3
Surface temperature	Pass		
Measured thermal output	8.0 kW		
Energy efficiency	80.2 %		
Release of dangerous substances	Pass		

Room heater **AME 8E (LS)** is an intermittent burning appliance. The appliance is not suitable for installation on a shared flue gas system.

This test report consists of pages 1 until 17 and the annexes 1 until 3.

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LIST OF APPENDICES

1. Version history		
Version	**Date**	**Changes**
0	March 5, 2019	Issued as final version
1	July 22, 2022	Company name changed. New door design.
2		
3		

Whenever a new version is made, the prior version is cancelled.

Project Description

General information

Company name	AMI FIRES SRL
Address	Baroc Business Center, Rue Laid Burniat 3,Louvain-la-Neuve 1348 Belgium
Internet address	www.amifires.com
Client reference number	-
SGS reference number	EZKA/2018-05/00015-3d

Appliance

Appliance name	AME 8E (LS)
Category	Space heating appliance fired by solid fuel.
Method	In accordance with NEN EN 13240:2001 and NEN EN 13240-A2:2004

Measurement details

Kind of measurement	Initial type test
Measurement period	June 2018
Measuring staff	R. van den Berg
Author	J. Dekker

Quality

For a list of the accredited activities (Belac 005-TEST) of the SGS Nederland BV, Industries & Environment Department in Arnhem, The Netherlands, we refer to the Belac website: (Beproevingslaboratoria (TEST) | FOD Economie (fgov.be).

Disclaimers

2. INTRODUCTION

SGS Nederland BV, Industries & Environment carried out an initial type test of room heater **AME 8E (LS)**. The appliance is made by AMI FIRES SRL.

This report contains the test results of a room heater fired by solid fuels in accordance with NEN-EN 13240: 2001 + A1:2004. Interpretations, opinions and assessments of conformity to clauses of this standard (chapter 4) are done as Notified Body. Unless described otherwise the reported tests (chapter 5) are covered by Belac-accreditation.

A short description of the appliance is included in chapter 3. Chapter 4 describes the results of the assessments. The results of the measurements are presented in chapter 5.

This report is issued under the following condition:

1. *It applies only to the tested model submitted to the test specified in this report.*
2. *It does not imply that the notified body has performed any surveillance or control of its manufacture.*
3. *The manufacturer shall ensure that the manufacturing process assures compliance of the products with the approved model subject to this certificate.*
4. *The applicant shall inform the notified body of all modifications made to the approved model which must receive, when necessary, additional approval leading to an addition to the original EC type-examination certificate.*
5. *As technical advances or new work could affect the conclusion of this EC type-examination, the applicant shall regularly keep himself informed of any modification made to tests carried out on the approved model by the notified body.*
6. *According to article 3h of the "Assignment of SGS Nederland as Notified Body" you can lodge an appeal against our decision. This appeal shall be made by registered mail within 30 days after the date of the SGS decision. SGS undertakes to investigate the appeal independently and with the necessary care and will communicate its motivated decision by registered mail within 30 days after receipt of the notice of appeal. Each party itself shall bear its costs resulting from this internal appeal procedure. In case this appeal is dismissed by SGS a second internal appeal procedure will not be possible.*
7. *The manufacturer always retains the overall responsibility for the conformity of the product with all the requirements of the applicable directive(s), even if some stages of the conformity assessment are carried out under the responsibility of a notified body.*

3. PROJECT DETAILS

In this chapter, the information of the appliance and the laboratory are given.

3.1 SPECIFICATION OF THE APPLIANCE

Freestanding appliance made of steel and cast iron elements and is equipped with a window door. The combustion chamber is made of vermiculite. Furthermore the appliance is equipped with a baffle plate made of vermiculite. The combustion air supply is regulated with one controller positioned below the door. The flue gas outlet is at the rear and the top of the appliance. All tests are executed with the flue gas pipe connected to the top.
The appliance is also available with an additional compartment at the low part of the appliance (LS). This change has no major influence on the technical performance of the stove. Therefore no objections exist from the side of the test laboratory to use the data obtained with the tested room heater for the variant with the added compartment. The temperatures below and in the front (floor) of this variant will be lower as obtained with the tested appliance.

Note: the compartment cannot be used to store combustible products (like wood).

Both new models (8E & 8E LS) have a changed door design compared to the version of the initial type test. This change has no major influence on the technical performance of the stoves. Therefore no objections exist from the side of the test laboratory to use the data obtained with the tested room heater for the variants with the changed door.

3.2 SPECIFICATION OF THE LABORATORY

Table 1 Information of the test laboratory

Description	
Laboratory	SGS Nederland BV Leemansweg 51 6827 BX Arnhem The Netherlands
Notified under EC number	0608
Date of test	June 19, 2018 June 21, 2018
Test category	Initial type test
Standard	NEN-EN 13240: 2001 + A1:2004

The analysis of the fuel is subcontracted by an ISO 17025 accredited laboratory within the SGS-group.

4. RESULTS OF ASSESMENTS

This chapter contains the results of the assessments.

4.1 USED MATERIALS, DESIGN AND CONSTRUCTION

Table 2 Results of assessment of conformity with chapter 4 of EN 13240:2001 and EN 13240 A2:2004

	Clause	Approved
Production documentation	4.1	
Documentation and/or drawings contain: - Specification of used materials - Nominal heat output using recommended fuels		 yes yes
When fitted with a boiler, specification of the: - used welding process - permissible max. operating temperature, °C - permissible max. operating pressure, bar - type test pressure, bar - water heating output, kW		 n/a
Construction (4.2.1) **The conformity to clause 4.2.1 is based on the declaration of the manufacturer.**		
General construction requirements	4.2.1	
*No asbestos *No hard solder, containing cadmium *Thermal insulation materials: non-combustible, no health risk *Design of spare parts ensures correct fitting *Seals made of fire cement supported by adjacent metal surfaces		yes yes yes yes n/a
When operated in accordance with the provisions of the appropriate test and exposed to the associated mechanical, chemical and thermal stresses, the appliance shall operate reliably and safely such that during normal operation no combustion gases posing a hazard can escape into the room in which the appliance is installed nor can embers fall out.		yes
Integral boiler	4.2.2	n/a
Cleaning of heating surfaces	4.2.3	
- all heating surfaces accessible - easy cleaning with commercially available tools or brushes - cleaning tools provided by the manufacturer		yes yes n/a
Flue spigot or socket	4.2.4	
Fitting overlap is: ≥ 25 mm for vertical connection ≥ 40 mm for horizontal connection ≥ 6 mm for inset appliances with insulating mortar infill		 yes yes n/a
Flue ways and cleaning tools	4.2.5	
Minimum size: - bituminous coal > 30 mm - no bituminous coals > 15 mm - easy cleaning with commercially available tools or brushes - cleaning tools provided by the manufacturer		 n/a yes yes n/a

	Clause	Approved
Ash pan and ash removal	4.2.6	
Volume of ash pan enough for two full charges of fuel		yes
No obstruction of combustion air		yes
Bottom grate	4.2.7	
When removable – correct assembly is ensured		yes
Capable of de-ashing without undue effort		yes
Combustion air supply	4.2.8	
Primary air inlet control:		
- manual or thermostatic control		yes
- adjusting control clearly visible and permanently marked		yes
- correct setting for each fuel type is identifiable		n/a
- no obstruction of the air inlet control by ash or unburnt fuel		yes
Secondary air (air wash) and tertiary air inlet control:		
- Passage of air is not restricted by fuel		yes
Control of flue gas	4.2.9	n/a
If flue damper is fitted:		
- easily operable		
- aperture ≥ 20 cm2 or 3% of the cross-sectional area		
- position of damper can be identified		
If draught regulator is fitted:		
- easily accessible for cleaning		
Fire doors and charging doors	4.2.10	
Large enough to fill appliance with commercially available fuels		yes
Accidental opening is prevented		yes
Positive closure		yes
Flue bypass device	4.2.11	
Easy operable		n/a
Position easily identifiable		n/a
Front fire bars – deepening plate	4.2.12	
Correct assembly is ensured		yes
No accidental dislodging		yes
Solid mineral fuel and peat briquettes burning appliances	4.2.13	
Bottom grate and ash pan present		n/a

4.2 SAFETY REQUIREMENTS

Table 3 Results of assessment of conformity with chapter 5 of EN 13240:2001 and EN 13240A2:2004.

	Clause	Approved
Natural draught safety test Flue draught ≥ 3 Pa If Flue draught is < 3 Pa: - CO-volume ≤ 250 dm3/10 h	5.1	n/a
Spillage of gas, discharge of embers No escape of harmful gases Embers do not fall out	5.2	 yes yes
Strength and leak tightness of boiler shells No leakage or permanent deformation after completion of the tests	5.3	n/a
Temperature in fuel storage container (above ambient) Temperature < 65 K	5.4	n/a
Operating tools Operating tools provided Touched areas without tools Temperature: metal < 35 K (above ambient) porcelain < 45 K plastics, rubber, wood < 60 K	5.5	 yes n/a
Temperature of adjacent combustible materials Temperature ≤ 65 K (above ambient) (see installation and operating manual for information about clearing distances and insulation)	5.6	 yes
Thermal discharge control If discharge control is part of appliance: opens at water temperature > 105 °C or opens at water temperature > declared value	5.7	n/a
Electrical safety Components in compliance with EN 60335-2-102 (replacement of EN 50165)	5.8	n/a

4.3 APPLIANCE INSTRUCTIONS

Table 4 Results of assessment of conformity with chapter 7 of EN 13240:2001 and EN 13240 A2:2004.

Instructions	Clause	Approved
In the language of the country of intended destination	7.1	-
Not in contradiction to the requirements and test results	7.1	-
Contains the required information	7.2	-
Contains the required information	7.3	-
Not reviewed. The manufacturer must supply a manual that conforms to the EN13240 with every sold appliance.		

4.4 MARKING

Table 5 Results of assessment of conformity with chapter 8 of EN 13240:2001 and EN 13240 A2:2004.

	Clause	Approved
Permanently and legibly marked	8	-
Readable	8	-
Durable and abrasion proof	8	-
No discoloration or detachment	8	-
Contains the required information	8	-
Not reviewed. The manufacturer must supply a CE-plate that conforms to the EN13240 with every sold appliance.		

5. MEASUREMENTS

In this chapter the measurement methods, the deviation from the standard and the test results are given.

5.1 MEASUREMENT METHODS

The appliance was tested to the applicable methods of the standard.
In order to ensure that our services maintain the quality level required by our clients, SGS Nederland BV hold the NEN-EN-ISO/IEC 17025 (Testlab) accreditation under number L092. The test laboratory of SGS is notified under EC number 0608. The following test methods are covered.

Table 4 Used methods with accreditation

Description	Method
Performance test at nominal heat output	EN 13240:2001/ A.4.7
Temperature safety test for wood burning and multi fuel appliances	EN 13240:2001/ A.4.9.2.2

The analysis of the fuel is subcontracted by an ISO 17025 accredited laboratory within the SGS-group.

5.2 DEVIATION OF THE STANDARD

The nominal heat output tests and the safety test are done in compliance with NEN-EN 13240:2001 and NEN-EN 13240 A1:2004. The following deviations from the demands as set in the standard are made:
- The analysis of the test fuel was done according to widely accepted EN-Standards. In general the used Standards improve the accuracy and reduce the variability of the analysis. This deviation from the standard has no influence on the results of the type test.

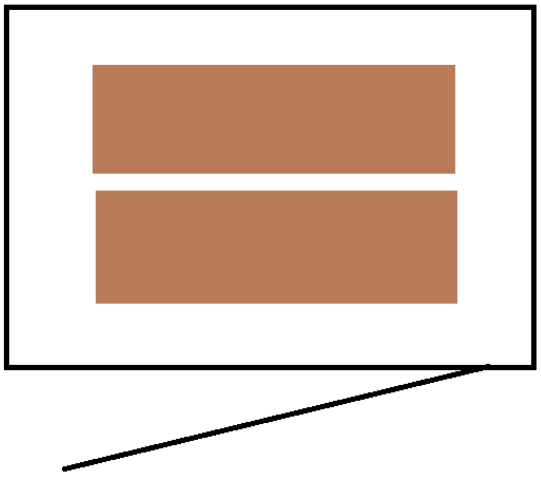
5.3 TEST FUEL SPECIFICATION

In this paragraph the results of the test fuel analysis are given.

Table 5 Test fuel specification

Test fuel	Moisture %	Ash %	Volatile matter %	H %	C %	S %	Hu kJ/kg	Size
Beech	14.5	0.62	82.9	5.2	43.0	0.02	15,982	30 x 8 cm
Fir timber	12	0.19	86.8	5.3	45.0	0.02	17,022	>30 cm

Picture 1 Positioning of the wood during the nominal tests



5.4 PERFORMANCE TEST AT NOMINAL HEAT OUTPUT (BEECH)

The following table contains following table contains the test results in accordance with A.4.7 of NEN-EN 13240:2001 and NEN-EN 13240 A2:2004. Test runs 1, 2 and 3 are executed consecutive.

Table 6 Test results nominal heat output

		Clause	Test 1	Test 2	Test 3	Mean of 3 tests	Approved
Date (dd-mm-yy)			19-06-18	19-06-18	19-06-18		
Test fuel			Beech	Beech	Beech	**Beech**	
Total mass	kg		1.55	1.68	1.70	**1.65**	
Setting of air controller							
- combustion air			75%	75%	75%	**75%**	
Mean flue draught	Pa	6.4	12.6	11.7	11.8	**12.0**	yes
Mean flue gas temperature	K#		264	263	255	**261**	
Mean CO_2 concentration	%		11.27	9.98	9.88	**10.33**	
Mean CO concentration	%		0.15	0.07	0.15	**0.12**	
Mean CO concentration at 13% O_2	vol%	6.2	0.10	0.06	0.11	**0.09**	yes
Mean CO concentration at 13% O_2	mg/m_0^3		1228	696	1401	**1113**	
Mean CO_2 concentration during dust measurement	vol%		12.02	10.52	10.60	**11.00**	
Dust concentration	mg/m_0^3		56	40	32	**42**	
Dust concentration at 13% O_2	mg/m_0^3		35	29	23	**29**	
NO_x concentration	mg/m_0^3		182	166	148	**164**	
NO_x concentration at 13% O_2	mg/m_0^3		122	125	113	**120**	
C_xH_y concentration	ppm		75	16	72	**50**	
C_xH_y concentration at 13% O_2	mg/m_0^3		75	21	97	**65**	
Combustion time	h	6.6	0.68	0.76	0.83	**0.76**	yes
Dev. from required comb. time	%		-9	1	11	**2**	
Theoretical combustion time	h		0.72	0.77	0.78	**0.76**	
Thermal heat losses	%		17.4	19.3	18.8	**18.5**	
Chemical heat losses	%		0.8	0.5	0.9	**0.7**	
Heat losses in the residue	%		0.50	0.50	0.50	**0.50**	
Efficiency	%	6.3	81.3	79.7	79.8	**80.2**	yes
Mean nominal heat to space	kW	6.7	8.4	8.1	7.5	**8.0**	yes
Theoretical heating output	kW		7.7	8.2	8.3	**8.1**	
Flue gas mass flow	g/s		6.2	6.9	6.4	**6.5**	

above ambient: room temperature during tests: 23 ˚C

5.5 TEMPERATURE SAFETY TEST

Table 8 contains the test results in accordance with A.4.9.2.2 of NEN-EN 13240:2001 and NEN-EN 13240 A2:2004.

Table 8 Results safety test

		§	Test	Approved
Date (dd-mm-yy)			**21-06-18**	
Test fuel			**Fir timber 5x5**	
Total load	kg		**15.0**	
Number of loads			**6**	
Setting of air controller				
- secondary air			**100%**	
Mean flue draught	Pa	6.4	**16.1**	yes
Ambient temperature	℃		**23.3**	
Max. surface temperature (above ambient)				
Floor below appliance *	K	5.6	**46**	yes*
Floor in front of appliance **(distance 50 cm)**	K	5.6	**58**	yes
Back wall **(distance 30 cm)**	K	5.6	**44**	yes
Side wall **(distance 50 cm)**	K	5.6	**57**	yes
Fuel storage container (-)	K	5.4	**-**	n/a**
Front **(distance 100 cm)**	K	5.6	**57**	yes
Side, front **(distance 50 cm)**	K	5.6	**50**	yes
Loss of fire bed		4.2	**no**	yes
Escape of harmful combustion gases		4.2	**no**	yes
Damage on the appliance caused by the test		4.2	**none**	yes

* Appliance must be placed on a non-combustible floor.

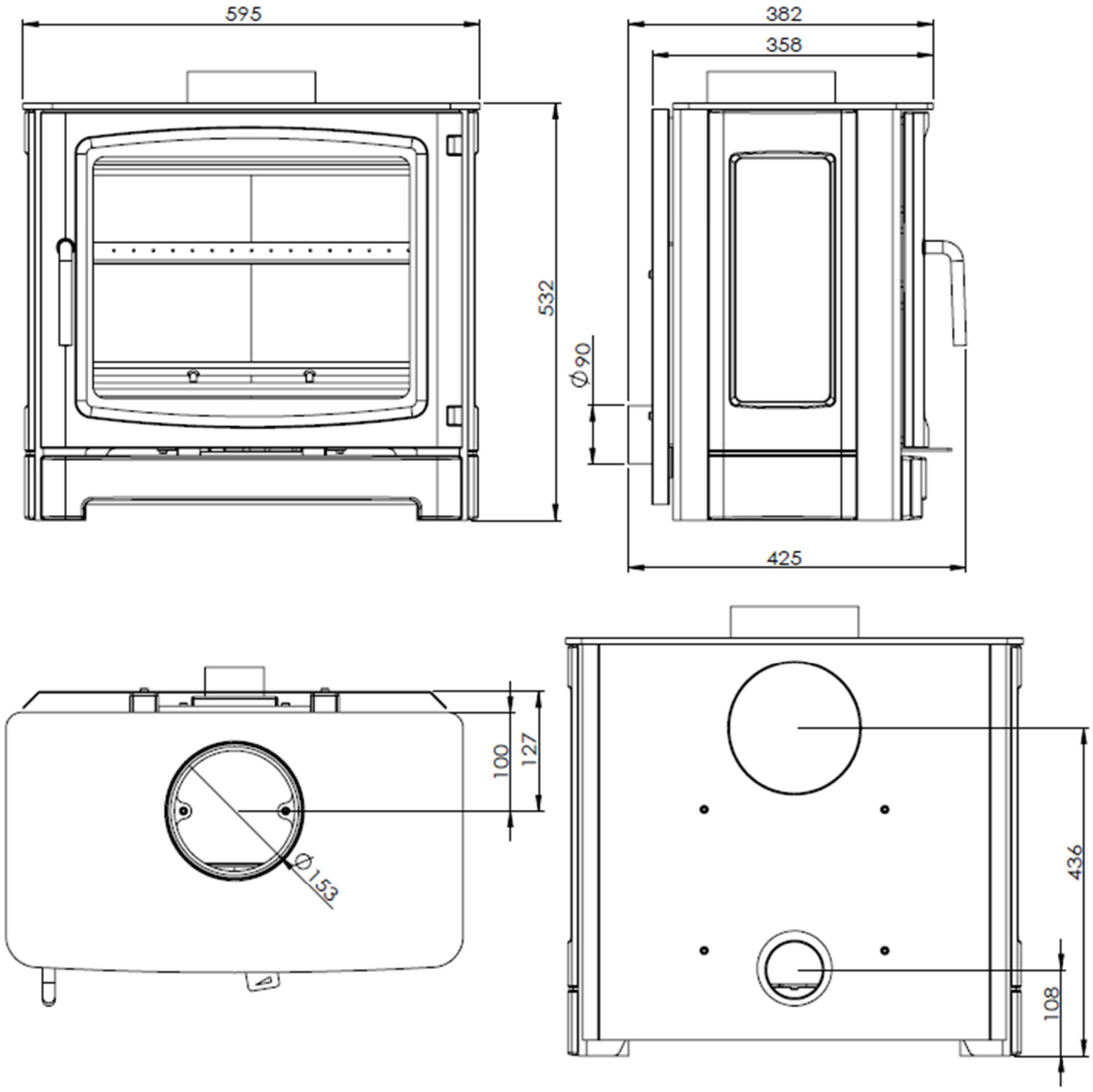
** The compartment below the fire chamber as present on the variant was not tested.

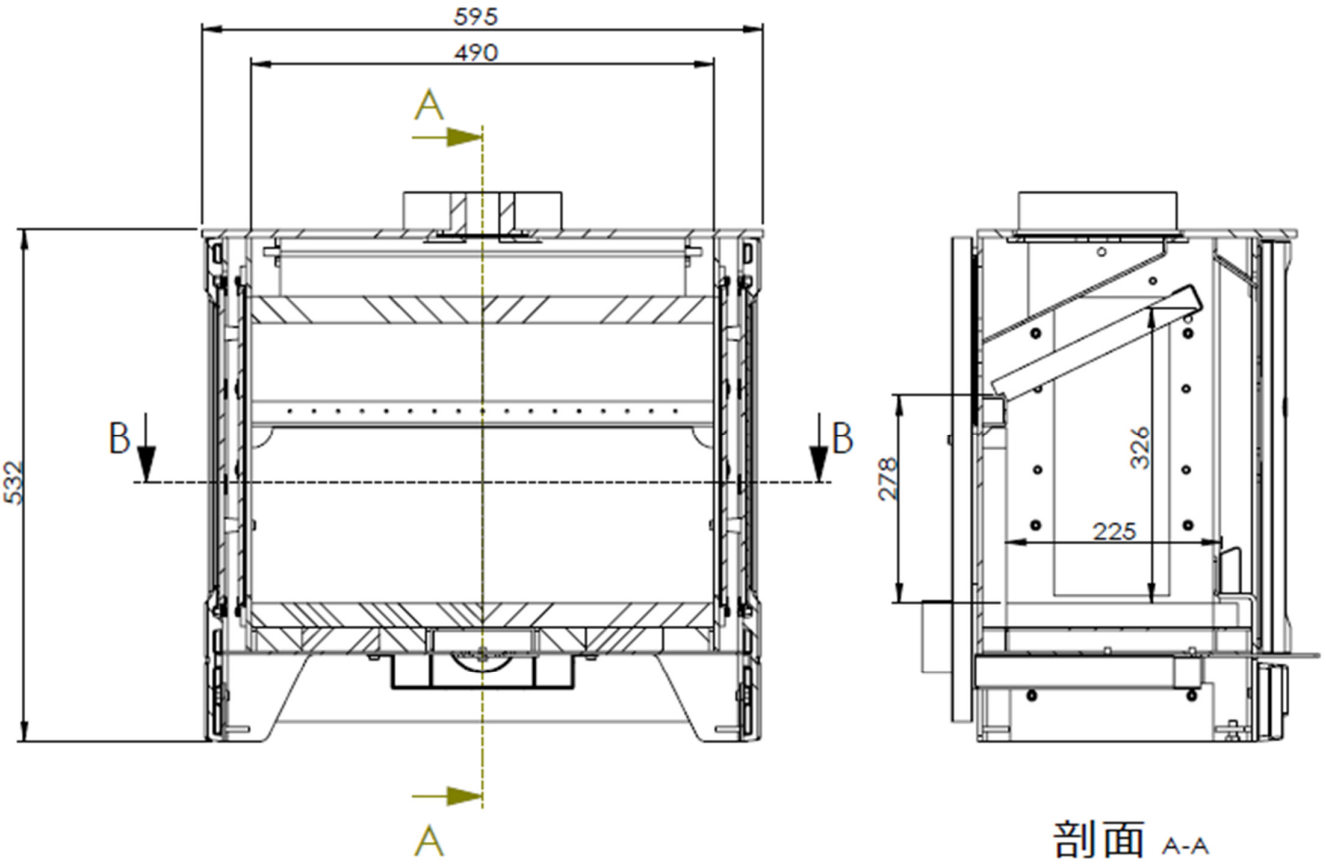
APPENDICES

APPENDIX 1: PICTURES OF THE APPLIANCE

APPENDIX 2: DRAWINGS OF THE APPLIANCES

8E





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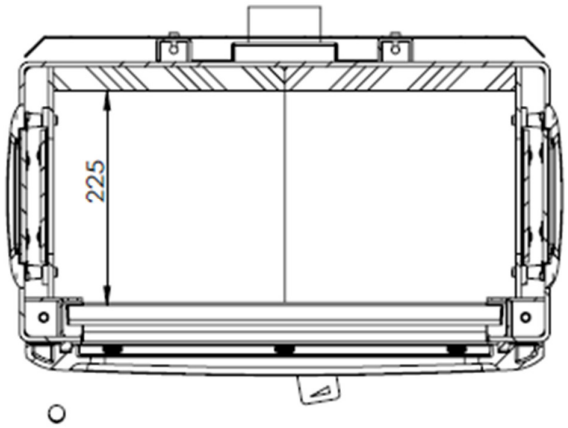
比例 1：6



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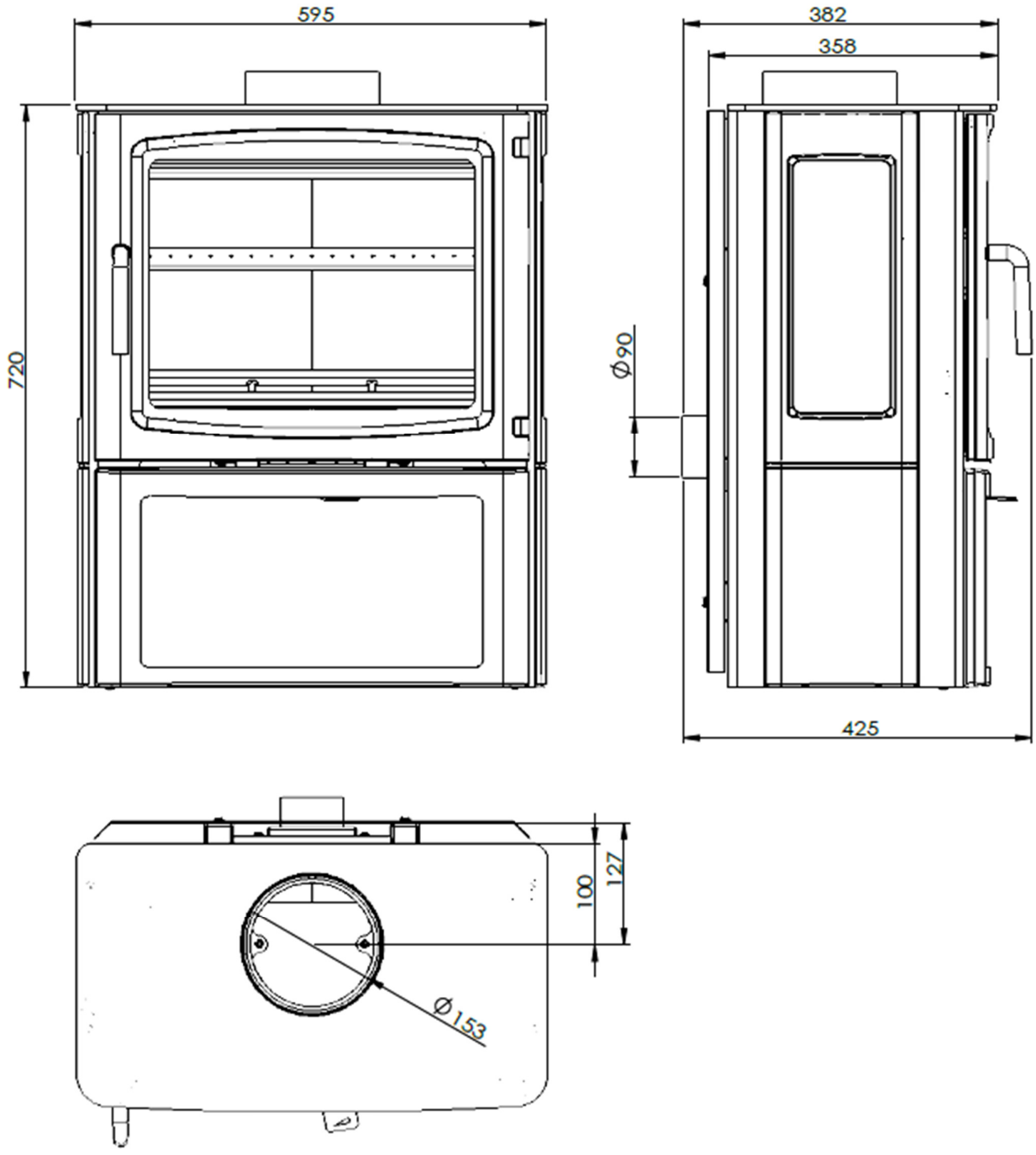
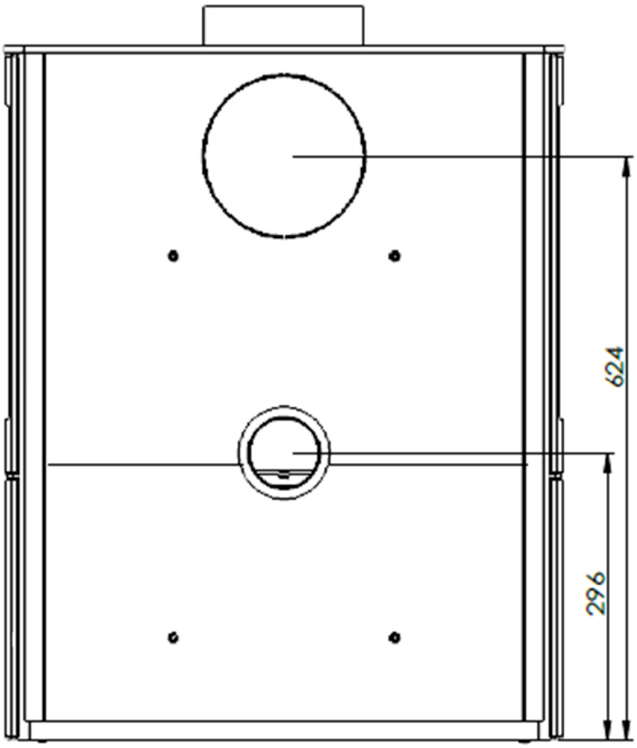
8E LS

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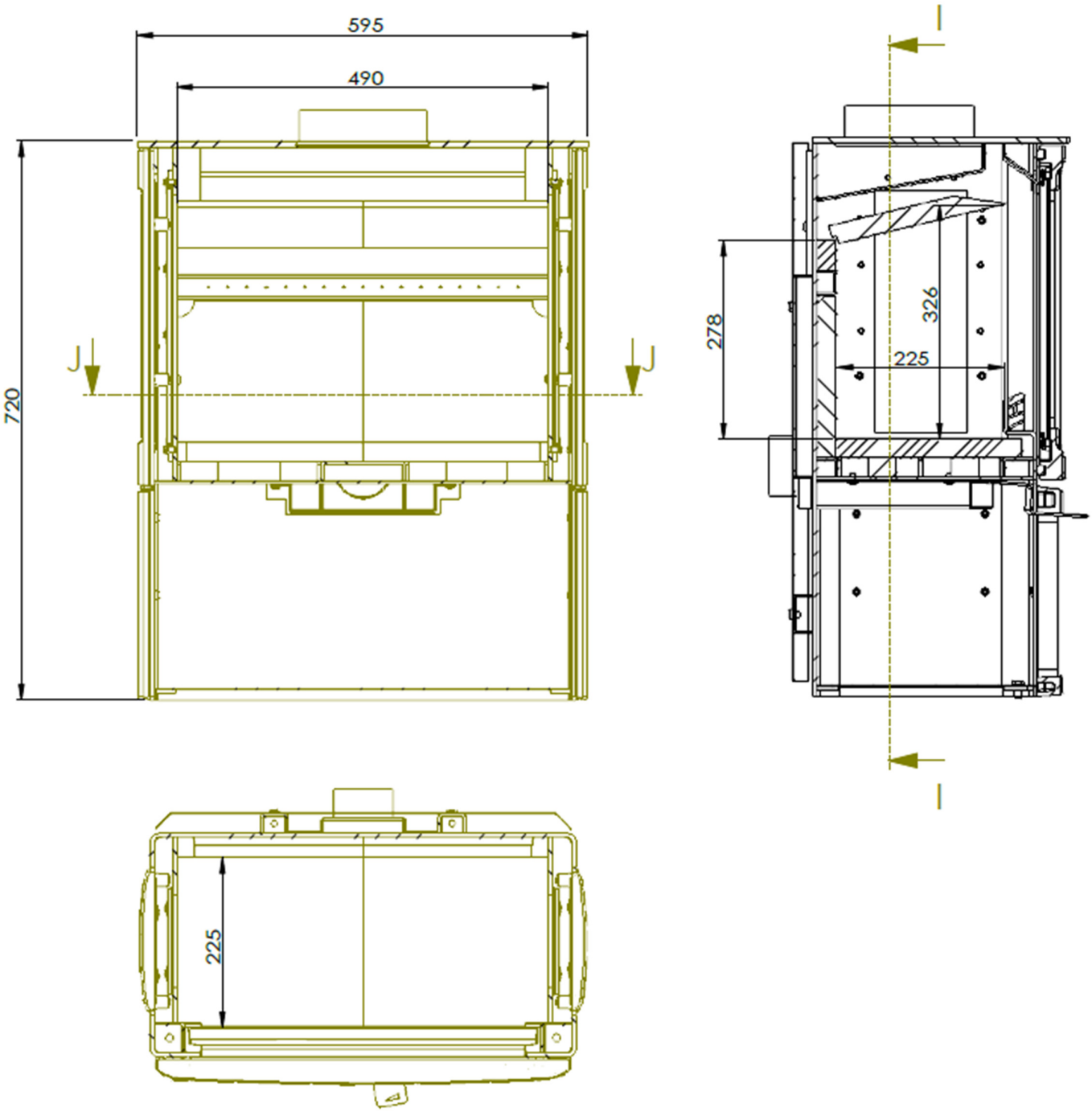
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APPENDIX 3: METHODS AND MEASUREMENTS UNCERTAINTIES

The measurements marked with an asterisk in the table below, are covered by ISO 17025 accreditation.

Description	SGS Procedure/Standard	Uncertainties [1)]
Determination of the particulate concentration (gravimetric, non-diluted)	ENVI-K-001* EN16510-1 (F2 Heated filter)	30%
Determination of the C_xH_y concentration (equivalents of C_3H_8)	ENVI-K-001* EN12619*/ EN16510-1 (FID)	20%
Determination of the NO_x concentration (equivalents of NO_2)	ENVI-K-001* EN14792*/ EN16510-1 (D.2.2 Chemiluminescense)	9%
Determination of the CO_2 concentration	ENVI-K-001* ISO12039*/ EN16510-1 (Nondispersive infrared)	9%
Determination of the CO concentration	ENVI-K-001* EN15058*/ EN16510-1 (Nondispersive infrared)	9%

1) The stated uncertainties refer to the 95% confidence interval (2 sigma). The stated percentages are related to the actual measurement results, unless indicated otherwise.

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