INITIAL TYPE TEST REPORT

TINY 3

COMMISSIONED BY:

AGNON LTD.

INITIAL TYPE TEST REPORT

TINY 3

EZKA/2022-06/00020-1

NOVEMBER 10, 2022

Laboratory

SGS NEDERLAND BV

NOTIFIED BODY 0608

Customer

Agnon LTD.

Han Kubrat 4

Hisarya

Bulgaria

Approved by

J. 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 23, 2022 June 29, 2022
Manufacturer	Agnon LTD. Han Kubrat 4 Hisarya Bulgaria
Appliance	Tiny 3
Test category	Initial type test

Abstract of the test results

Essential characteristic	Performance
Test fuel	Beech
Fire safety	Pass
Emission of combustion products, related to 13% O_2	CO: 0.02 vol% NO_x: 121 mg/m_0^3 C_xH_y: 10 mgC/m_0^3 Dust: 13 mg/m_0^3
Surface temperature	Pass
Thermal output - Total	 7.1 kW
Energy efficiency	75.4 %
Release of dangerous substances	Pass

Room heater **Tiny 3** is an intermittent burning appliance. The appliance is not suitable for installation on a shared flue gas system.

This initial type test report consists of pages 1 until 14 and the annexes 1 until 3.

TABLE OF CONTENTS

LIST OF APPENDICES

1. Version history		
Version	Date	Changes
0	November 10, 2022	Issued as final version
1		
2		
3		

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

Project Description

General information

Company name	Agnon LTD.
Address	Han Kubrat 4, Hisarya, Bulgaria
Internet address	www.gamera.eu
Client reference number	-
SGS reference number	EZKA/2022-06/00020-1

Appliance

Appliance name	Tiny 3
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 2022
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 carried out an initial type test of room heater **Tiny 3**. The appliance is made by Agnon LTD..

This report contains the test results of a room heater fired by solid fuels in accordance with NEN-EN 13240: 2001 + A2:2004. 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, the manufacturer and the laboratory are given.

3.1 SPECIFICATION OF THE APPLIANCE

Freestanding appliance made of sheet metal equipped with a window door. The combustion chamber is insulated with vermiculite. The air supply is regulated with one controller on the front side of the appliance.

The flue gas outlet is located at the back of the appliance.

Table 1 Information of the manufacturer

Description	
Manufacturer	Agnon LTD. Postbus 1021 6920 BA Duiven The Netherlands
Principal	Agnon LTD.
Appliance	Tiny 3

3.2 SPECIFICATION OF THE LABORATORY

Table 2 Information of the test laboratory

Description	
Laboratory Name, address	SGS Nederland BV Leemansweg 51 6827 BX Arnhem The Netherlands
Notified under EC number	0608
Date of test	June 23, 2022 June 29, 2022
Test category	Initial type test
Standard	NEN-EN 13240: 2001 + A2:2004

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

	Clause	Approved
Production documentation (not reviewed by SGS) Documentation and/or drawings contain: - Specification of used materials - Nominal heat output using recommended fuels 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	4.1	-
Construction (4.2.1) **The conformity to clauses 4.2.1– 4.2.2 is based on the declaration of the manufacturer.**		
General construction requirements	4.2.1	
No asbestos		yes
No hard solder, containing cadmium		yes
Thermal insulation materials: non-combustible, no health risk		yes
Design of spare parts ensures correct fitting		yes
Seals made of fire cement supported by adjacent metal surfaces		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. * verified by SGS.		yes*
Integral boiler (4.2.2)		n/a
Flue spigot or socket	4.2.4	
Fitting overlap is:		
≥ 25 mm for vertical connection		n/a
≥ 40 mm for horizontal connection		yes
≥ 6 mm for inset appliances with insulating mortar infill		n/a
Flue ways and cleaning tools	4.2.5	
Minimum size:		
- bituminous coal > 30 mm		n/a
- no bituminous coals > 15 mm		yes
- easy cleaning with commercially available tools or brushes		yes
- cleaning tools provided by the manufacturer		n/a
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
** no ash pan but enough volume to retain the ash of two full charges of fuel.*		

	Clause	Approved
Bottom grate When removable – correct assembly is ensured Capable of de-ashing without undue effort	4.2.7	 n/a yes
Combustion air supply* Primary air inlet control: - manual or thermostatic control - adjusting control clearly visible and permanently marked - correct setting for each fuel type is identifiable - no obstruction of the air inlet control by ash or unburnt fuel Secondary air (air wash) and tertiary air inlet control*: - Passage of air is not restricted by fuel ** Only one controller present.*	4.2.8	 yes yes n/a yes yes
Control of flue gas 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	4.2.9	n/a
Fire doors and charging doors Large enough to fill appliance with commercially available fuels Accidental opening is prevented Positive closure	4.2.10	 yes yes yes
Flue bypass device Easy operable Position easily identifiable	4.2.11	n/a
Front fire bars – deepening plate Correct assembly is ensured No accidental dislodging	4.2.12	 n/a yes
Solid mineral fuel and peat briquettes burning appliances Bottom grate and ash pan present	4.2.13	 n/a

4.2 SAFETY REQUIREMENTS

Table 4 Results of assessment of conformity with chapter 5 of EN 13240:2001 and EN 13240 A2:2004

	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 5 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 6 Results of assessment of conformity with chapter 8 of EN 13240:2001 and EN 13240 A2:2004.

	Clause	Approved
Permanently and legibly marked Readable	8 8	- -
Durable and abrasion proof No discoloration or detachment	8 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. The test laboratory of SGS is notified under EC number 0608. The following test methods are covered.

Table 7 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 A2:2004. 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.
-- The appliance was not placed on the test rig but on the floor. Because the appliance must be placed on a non-combustible floor this deviation to the standard has no significant 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 8 Test fuel specification

Test fuel	Moisture %	Ash %	Volatile matter %	H %	C %	S %	Hu kJ/kg	Size, length
Pellets	5.7	0.37	86.2	5.9	47.8	0.01	18,237	3 - 5 cm

5.4 PERFORMANCE TEST AT NOMINAL HEAT OUTPUT (PELLETS)

The 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 9 Test results nominal heat output

		Clause	Test 1	Test 2	Test 3	Mean of 3 tests	Approved
Date (dd-mm-yy)			23-06-22	23-06-22	23-06-22		
Test fuel			Beech	Beech	Beech	**Beech**	
Total mass	kg		1.58	1.39	1.20	**1.39**	
Setting of air controller							
- Combustion air			**100%**				
Mean flue draught	Pa	6.4	12.7	13.0	12.9	**12.9**	yes
Mean flue gas temperature	K#		222	239	239	**233**	
Mean CO_2 concentration	%		7.24	6.75	6.51	**6.83**	
Mean CO concentration	%		0.02	0.02	0.01	**0.02**	
Mean CO concentration at 13% O_2	vol%	6.2	0.02	0.02	0.02	**0.02**	yes
Mean CO concentration at 13% O_2	mg/m_0^3		277	212	190	**226**	
Mean CO_2 concentration during dust measurement	vol%		7.12	6.61	6.66	**6.80**	
Dust concentration	mg/m_0^3		15	10	9	**11**	
Dust concentration at 13% O_2	mg/m_0^3		16	11	10	**13**	
NO_x concentration	mg/m_0^3		113	107	104	**108**	
NO_x concentration at 13% O_2	mg/m_0^3		119	121	122	**121**	
C_xH_y concentration	mgC/m_0^3		14	8	6	**9**	
C_xH_y concentration at 13% O_2	mgC/m_0^3		15	9	8	**10**	
Combustion time	h	6.6	0.75	0.75	0.75	**0.75**	yes
Dev. from required comb. time	%		0	0	0	**0**	
Thermal heat losses	%		21.5	24.8	25.6	**23.9**	
Chemical heat losses	%		0.2	0.1	0.1	**0.1**	
Heat losses in the residue	%		0.5	0.5	0.5	**0.5**	
Efficiency	%	6.3	77.8	74.6	73.8	**75.4**	
Mean nominal heat output	kW	6.7	8.3	7.0	6.0	**7.1**	yes
Flue gas mass flow	g/s		9.7	9.2	8.2	**9.1**	

above ament: room temperature during tests: 31 ˚C

5.5 TEMPERATURE SAFETY TEST

Table 10 contains the test results in accordance with A.4.9.2.2 of NEN-EN 13240:2001 and NEN-EN 13240 A2:2004.

Table 10 Results safety test

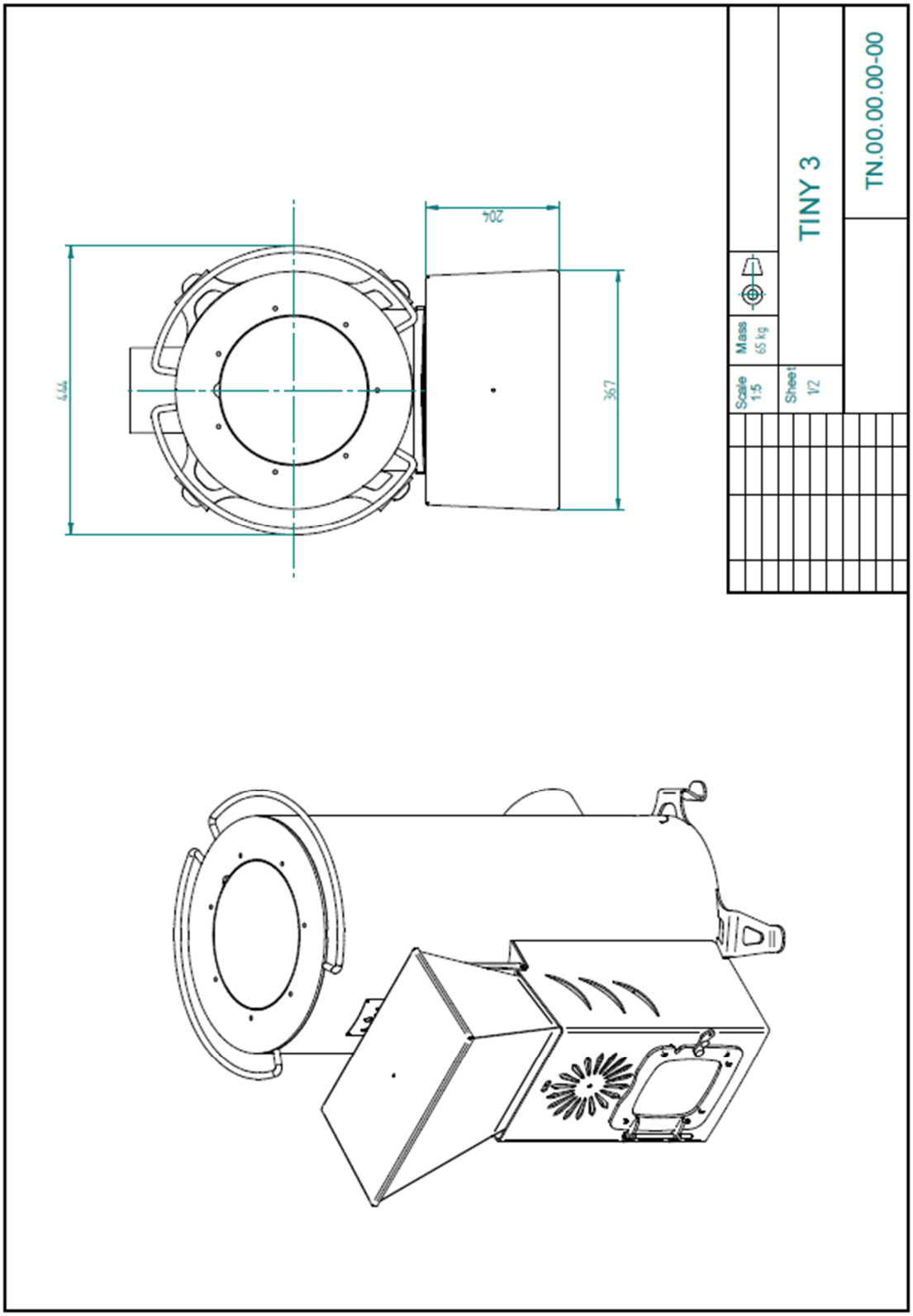
		§	Test	Approved
Date (dd-mm-yy)			**29-06-22**	
Test fuel			**pellets**	
Total load	kg		**12**	
Setting of air controller				
- Combustion air			**100%**	
Mean flue draught	Pa	6.4	**16.3**	yes
Ambient temperature	℃		**27.5**	
Maximum flue gas temperature	℃		**354**	
Max. surface temperature (above ambient)				
Floor below appliance*	K	5.6	**-**	n/a*
Floor in front of appliance **(distance 20 cm)**	K	5.6	**11**	yes
Side and back wall **(distance 40 cm)**	K	5.6	**24**	yes
Front **(distance 60 cm)**	K	5.6	**13**	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

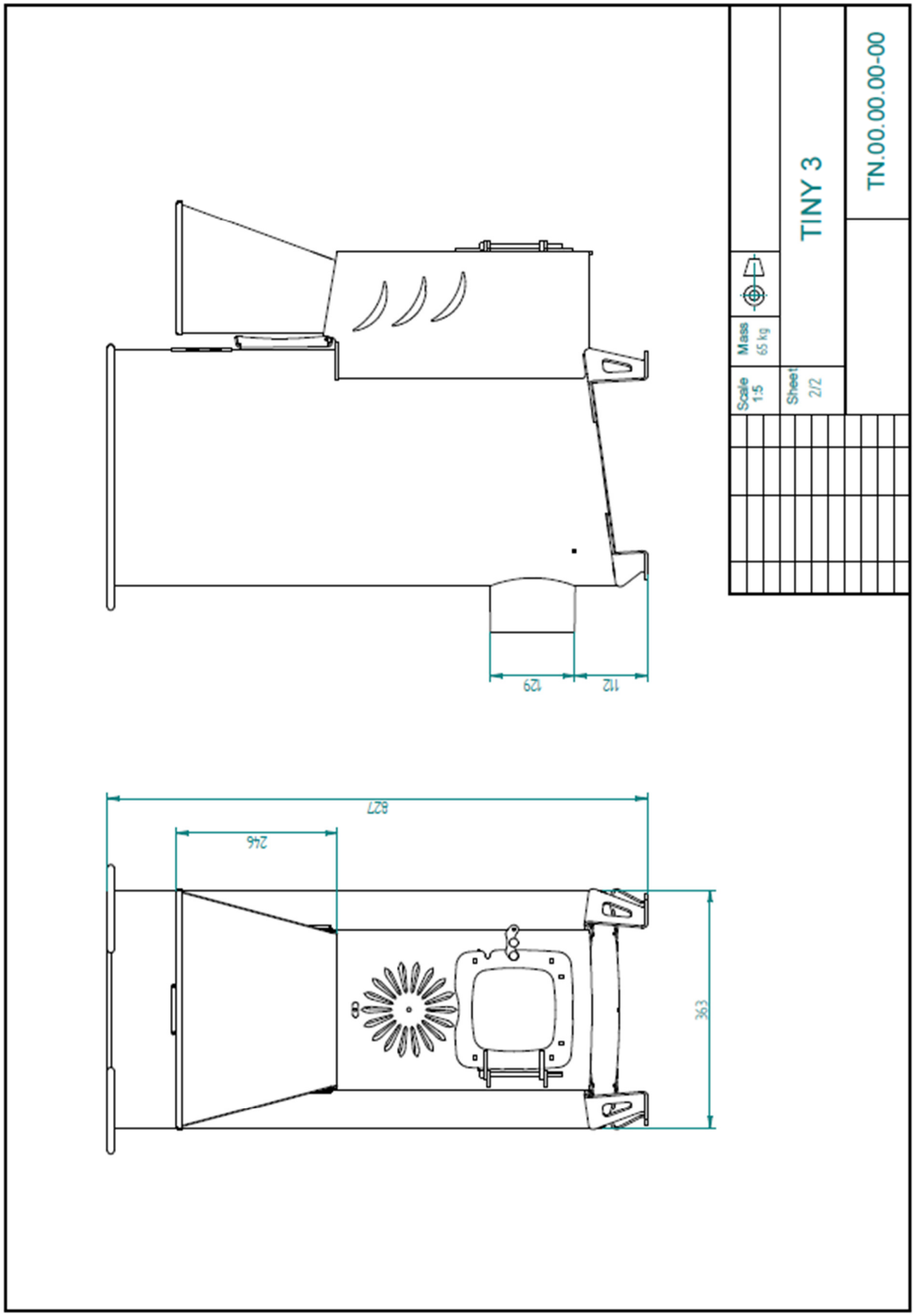
* Appliance must be placed on a non-combustible floor.

APPENDICES

APPENDIX 1: PICTURE OF THE APPLIANCE

APPENDIX 2: DRAWINGS OF THE APPLIANCE

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Scale 1:5
Sheet 2/2
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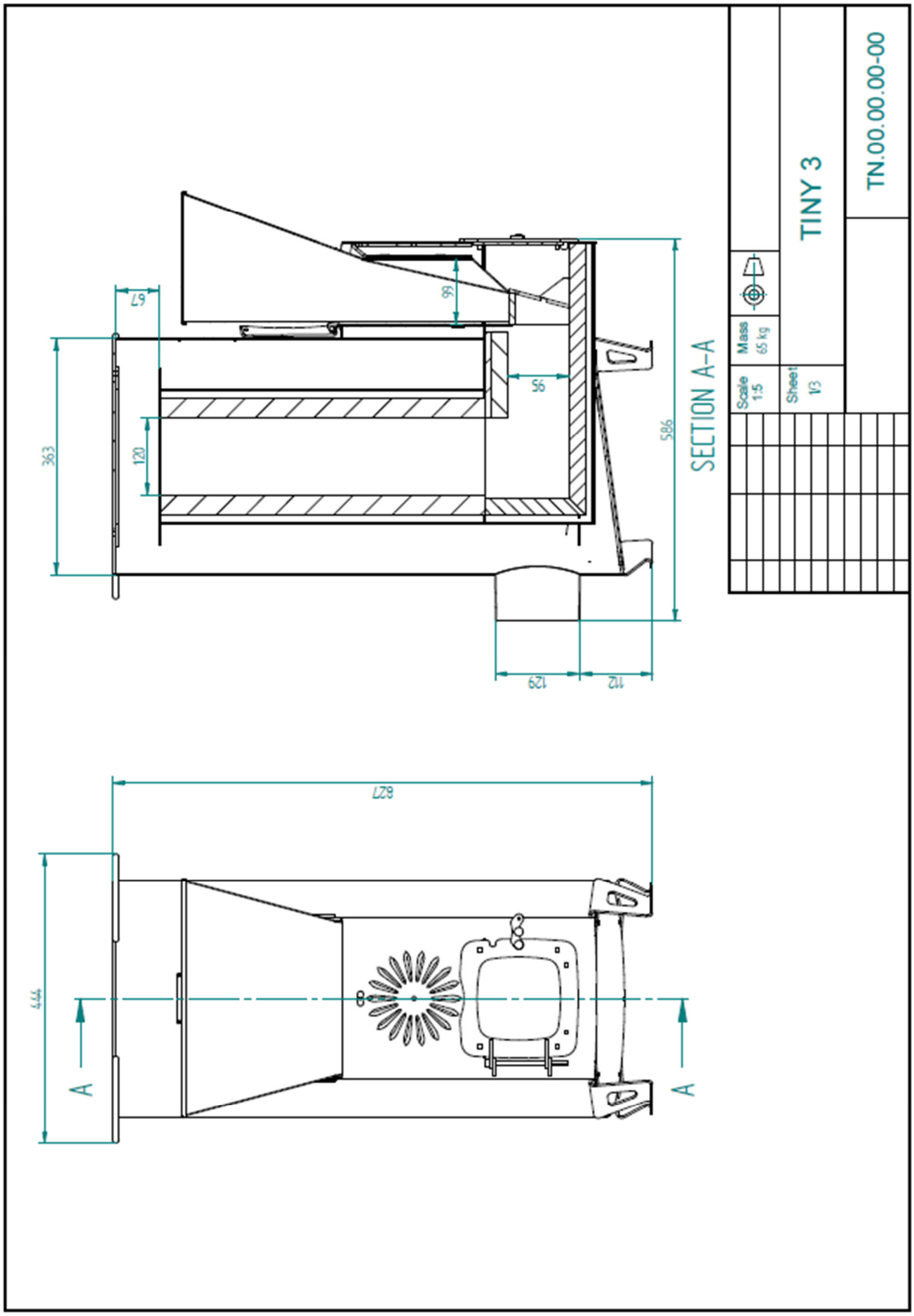
112
827
246
363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99
56
586
363
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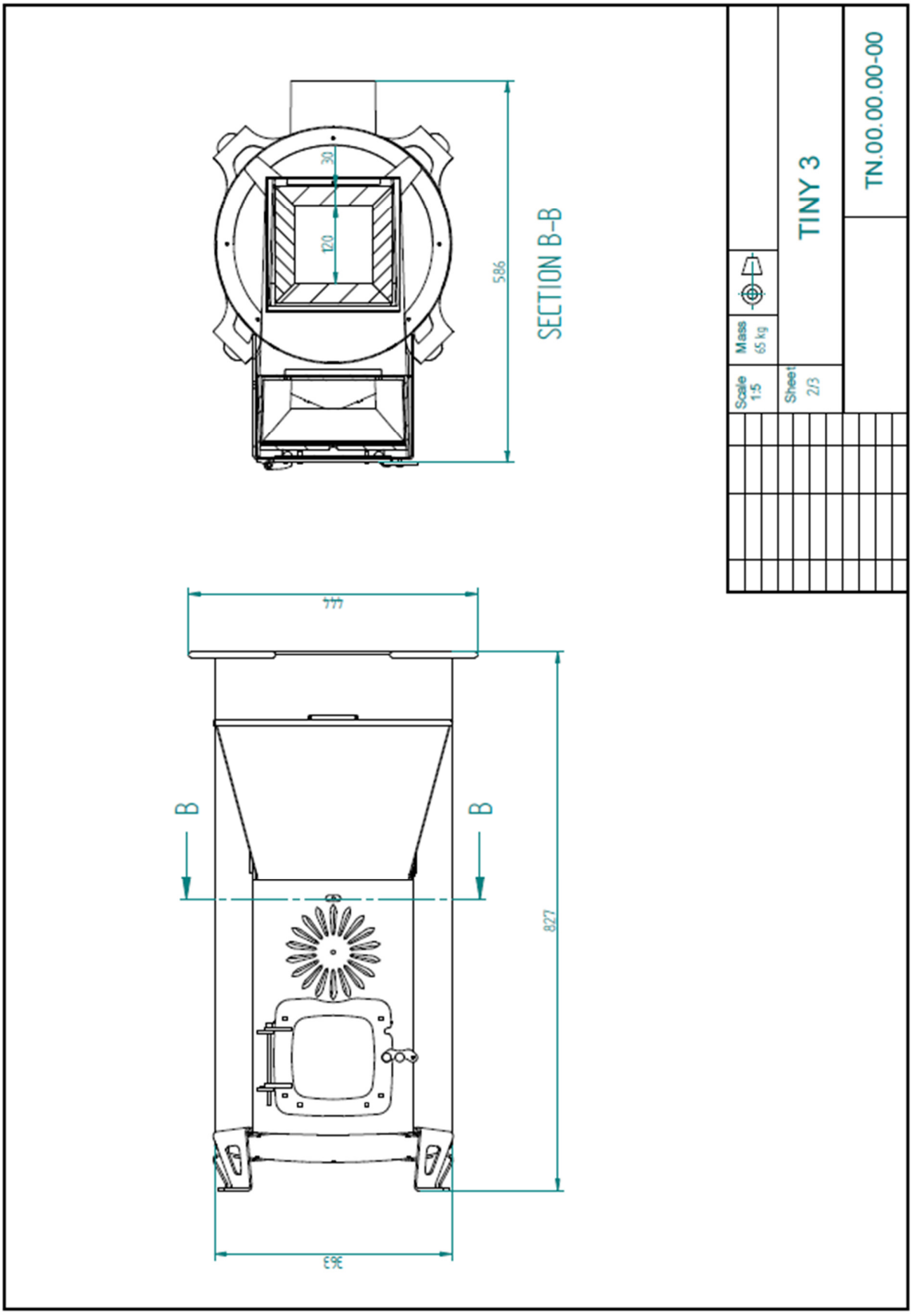
129
12
827
444
A
A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TINY 3
Mass
65 kg
Scale
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2/3
SECTION B-B
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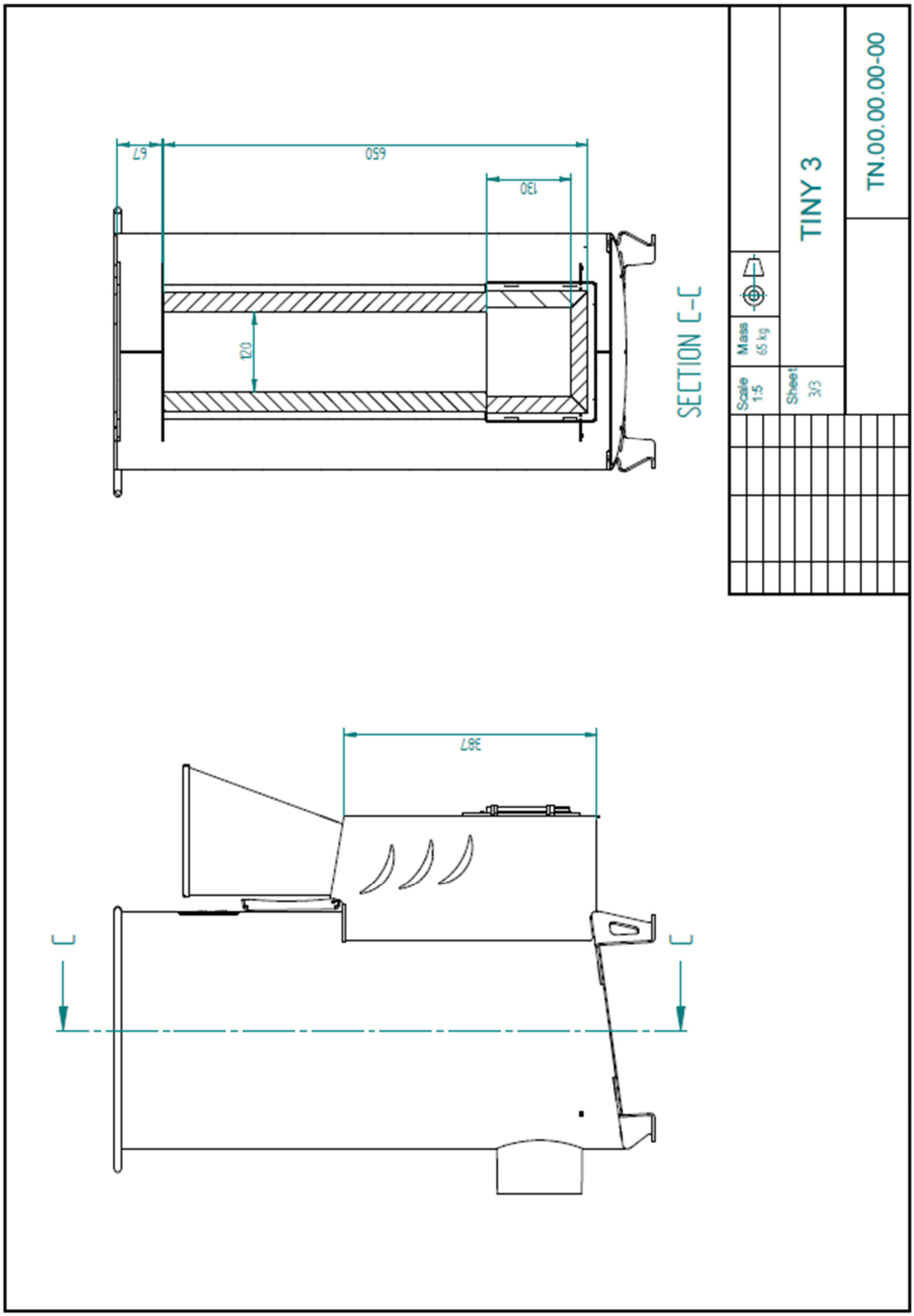
827
363
B
B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650
130
120
SECTION C-C
TINY 3
TN.00.00.00-00
Mass
65 kg
Scale
1:5
Sheet
3/3
387
C
C

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.