

Task No.: 93000025/3

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T E S T R E P O R T

OF FUNCTIONAL AND OPERATIONAL PROPERTIES

Product Name – Type: **Roomheaters fired by solid fuel “SVEA FLAM serien”
Fireplaces stoves “SVEA FLAME AROUND”**

Manufacturer: **TRIAB doo
Volarsko pole bb
223 00 Stara Pazova
Serbia**

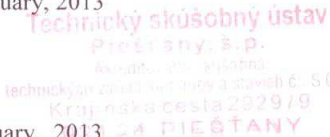
Applicant: **TISA KONSTRUKTION HB
Lustigkullevägen 12 A
591 46 Motala
Sweden**

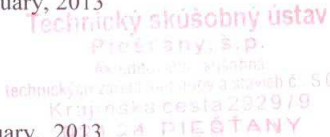
Sample data : submitted by manufacturer on August, 2009

Number of samples: 1 piece Fireplaces stoves “SVEA FLAME AROUND”

Test method, process data,
Standard Number : according to applicant's requirements and according to EN 303-5:1999,
cl.5.2 – gravimetric method in compliance with EN 13284-1:2001

Date of test performance: 4th. December 2012

Test report made by: 21st. January, 2013

Ing. Peter Pollák

Responsible and approval person: 21st. January, 2013

Peter Summer
The Head of Testing Lab. TZBaS

Note: English text of this report is a translation of the Slovak text. In case of doubt only the Slovak text of this report is valid.

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T-10-61/1.0		
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TEST REPORT OF FUNCTIONAL AND OPERATIONAL PROPERTIES		

The test of dust emission concentration was performed on the basis of personal agreement dated 12. November 2012 with representatives of company **TRIAB, Volarsko pole bb, 22300 Stara Pazova, Serbia.**

The test subject was the measurement of dust emission concentration for fireplaces stoves "SVEA FLAME AROUND", delivered by applicant of test.

PROCESS AND RESULTS OF TESTS, MEASURING AND FINDING:

Used test method : according to applicant's requirements according to EN 303-5:1999, cl.5.2 – gravimetric method in compliance with EN 13284-1:2001

The fireplaces stoves type "SVEA FLAME AROUND" was submitted by applicant to test. The fireplaces stoves was delivered in assembled stage with complete accessories. The measurement of dust emission concentration was performed under the nominal heating output on 4th. December 2012.

Test results:

The dust emission concentration calculated to volume 13% of Oxygen (O₂) and standard conditions (t=0°C, p=101,325 kPa):

50,8 mg/m³

The dust measurement data are listed in Annex 1.

Furthermore test data of burning process:

	Measured value	Unit
Test duration	1	hour
Fuel	beech wood	-
Fuel efficiency	16850	kJ/kg
Fuel humidity	9,44	%
Fuel consumption	1,846	kg/hour
Dust concentration calculated to standard conditions	51,2	mg/m ³
Average concentration of Oxygen (O ₂)	15,50	%
Average combustion gas temperature during the test	283,7	°C
Average ambient temperature during the test	19,7	°C
Average flue draught during the test	1,9	Pa

Used testing equipment and measures:

- weight Metler Toledo, type ID plus 0÷1500 kg
- universal measuring device ALMEMO 2590 with kit of thermometers NiCr-Ni
- sensor of differential pressure KIMO, type CP 302 +/- 100Pa
- combustion gas analyser HORIBA
- weight/moisture analyser KERN type MLB50-3
- dust measuring equipment TECORA ISOSTACK BASIC



Peter Summer
The Head of Testing Lab. TZBaS

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PROTOCOL FROM DUST MEASURING

Applicant:	TISA KONSTRUKTION HB	Appliance	stove Svea Flame Around
Date of measuring:	04.12.2012	Measuring place:	laboratory of TSU Pobedim
Start time:	13:50	Measuring equipment:	TECORA ISOSTACK BASIC
End time:	14:20	Measuring procedure:	EN 303-5 cl.5.2- gravimetric method in compliance with EN 13284-1

Mean values :

Mean velocity in the pipe/chimney	5,1000	m.s ⁻¹
Mean flue gas flow volume in the pipe/chimney	137,3628	m ³ .h ⁻¹
Meandust mass concentration	51,1873	mg.m ⁻³
Mean dust mass concentration (O ₂ reference)	50,8039	mg.m ⁻³
Mean dust mass flow concentration	0,0070	kg.h ⁻¹
Mean flue gas temperature in the pipe/chimney	303,2800	°C
Mean oxygen concentration in flue gas	12,9400	obj. %
Total time of gas sampling	30,0000	min

Flue gas data :

Barometric pressure	98,4600	kPa	Pipe design	kruh
Mean flue gas absolute pressure in the pipe	98,2980	kPa	Internal diameter (m)	0,1500
Water vapour concentration in flue gas	7,8572	%	Side A (m)	-
Absolute humidity of flue gas	0,0686	kg.m ⁻³	Side B (m)	-
Density of dry gas	1,3218	kg.m ⁻³	Hydraulic diameter (m)	0,1500
Maximal flow velocity in the the pipe	5,1000	m.s ⁻¹	Area of pipe/chimney (m ²)	0,0177
Minimal flow velocity in the pipe	5,1000	m.s ⁻¹	Lenght of pipe straight segment	1,1600
Maximal and minimal flow velocity ratio	1,0000	-	Hydr. diameters on pipe segment	7,7333

Measuring point data :

Sampling data:

Number of measuring points in cross-section	1,0000	-
Sampling time in the point	30,0000	min
Number of measuring axis	1,0000	-
Isokinetic deviation (from 100%)	2,7900	%
Reference oxygen content	13,0000	obj. %
Diameter of measuring nozzle	8,0000	mm

Leak test data:

Nominal sample flow (l.min ⁻¹)	15,8110
Leak test flow (l.min ⁻¹)	0,0500
Leak criterium 2% (l.min ⁻¹)	0,3162
Leak test result	MEET

Assessment data :

Measuring number	Number of filter	Filter mass [g]		Difference inc. laxage [g]	Saple volume [m ³]	Dust concentration [mg.m ⁻³]	
		after	before			C	C ^r
1	11/15	0,0727	0,0824	0,0097	0,1895	51,1873	50,8039
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-

Particular measurement data :

Measuring number	Temperature [°C]	Velocity [m.s ⁻¹]	Pressure kPa	Q'Va gas [m ³ .h ⁻¹]	HT [kg.h ⁻¹]
1	303,2800	5,1000	98,2980	137,3628	0,0070
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-

Technický skúšobný ústav
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 s r. o.
 technická zručnosť a kvalita
 Krajinská cesta 1, 921 24
 921 24 PRIEŠŤAVA

C - concentration calculated to standard conditions (101,325 kPa a 0°C) in dry gas

C^r - concentration calculated to standard conditions in dry gas and to reference oxygen

Polák

Elaborated by : Ing Peter Polák