



## **TEST REPORT**

### **39-10111**

**Product:** Hot-water boilers burning wood pellets  
with automatic fuel supply

**Type designation:** EG PELLET 25

**Customer:** Zakład Slusarski "GREN" sp.j  
ul. Miarki 1B,  
43-200 Pszczyna  
Poland

**Manufacturer:** Zakład Slusarski "GREN" sp.j  
ul. Miarki 1B,  
43-200 Pszczyna  
Poland

**Person responsible for re-  
view and evaluation:** Ing. Stanislav Buchta

**Report issue date:** 2014-01-21

**Distribution list:** 1 copy to the Engineering Test Institute  
1 copy to the Customer

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The results of tests and the evaluations relate only to the products tested.

(\*\*) Thus indicated parts of the Report contain findings verified otherwise than by tests within the meaning of ČSN EN ISO/IEC 17025.



The tests have been conducted based on Order B-48703 of 2014-01-08, Contract B-48703/39

## **I. Product description, intended use and mode of application**

The hot-water boiler burning wood pellets with automatic fuel supply, type EG PELLET 25, is intended for heating of residential houses and similar buildings. The boiler is designed for burning of wood pellets.

The boiler assembly comprises the boiler body, boiler burner, feed screw and the fuel chamber of various construction designs (see the enclosed technical documentation). A rotary separator is fitted between the feed screw of the burner and any of the various types of the fuel chamber. The boiler body is equipped with automatic mechanism for cleaning of combustion product passages. The boiler body is a steel-sheet weldment, cylindrical in shape. The panel with control, regulation and safety elements is in the top part of the boiler. The boiler body is thermally insulated with mineral felt.

Further detailed descriptions of individual assembly groups are provided in the enclosed technical documentation to Task 31-9391.

## **II. Sample tested**

The new measurement was realised based on new electronic settings (combustion air) for nominal heat output for boiler EG PELLET 25.

Boiler output versions that are the subject of the proceedings:

Boiler output version	EKV No.	Place of testing
EG PELLET 25	-	SZU Brno

Visual inspection, testing and evaluation were carried out by Ing. Michal Havlů, Test Engineer, at the test station of SZU in Brno, in 01/2014.

The tests were performed with the measurement and test equipment with valid calibration.



**III. Measuring and test equipment**

No.	Description	Inventory number	Calibration valid until	Accuracy
1.	Combustion product analyser, Horiba, type 680 P	92-0004	Calibration prior to each measurement	see CRM 103000237769 see CRM 103000237770
2.	Weighing machine	02-2290	10-2015	see Calibration Sheet 6051-KL-H-0651-10
3.	Water meter, NW 20	02-1575	03-2015	see Calibration Sheet AKL-P-006-2009
4.	Data collection system	02-2241	12-2016	see Calibration Sheet 110002
5.	Moisture meter, thermometer	11-6258	11-2015	see Calibration Sheet 7630F-09
6.	Barometer	11-2541	11-2016	see Calibration Sheet 613-KL-K011-08
7.	Draught gauge	11-7275	01-2016	see Calibration Sheet 0144F-11
8.	Stop watch	99-0760	10-2015	see Calibration Sheet 2850E-07
9.	Calorimeter, IKA, type C 5000	02-2236	03-2015	± 0.12 MJ-kg
10.	Elemental analyser, Perkin Elmer, type 2400 CHNS	02-2107	03-2015	± 0.2 % rel.
11.	Gravimat, SHC 501	02-2328	12-2016	see Calibration Sheet 090177 (8,9), 090180
12.	Laboratory weighing machine	02-1458	06-2015	see Calibration Sheet 6051-KL-H376-09
13.	Weighing machine, Ohaus MB 45	02-2274	06-2015	see Calibration Sheet 6051-KL-H374-09
14.	Manometer	11-1985	02-2014	see Calibration Sheet 090162
15.	Prandtl tube, 0.3 m	ME 484	11-2015	see Calibration Sheet 5012-KL-RS090-09
16.	Psychrometer H 4220	92-0005	12-2016	see Calibration Sheet 090176

Note: \* Calibrated prior to each measurement, with the use of certified reference material



**IV. Results of tests and evaluation**

No.	Requirement	Technical standard, regulation applied	Source materials	Evaluation	
				Test	Evaluation
1.	Surface temperature test (1003*)	ČSN EN 303-5:2013 Art. 5.12, 5.16.4, 4.3.6	Pages 5 - 6	+	
2.	Test of heat output, input and efficiency(1004.1*) Test of combustion product temperature (1004.2*)	ČSN EN 303-5:2013 Art. 4.4.2, 4.4.3, 5.7, 5.8, 5.10 ČSN EN 303-5:2013 Art. 4.4.3	Pages 7 - 9	+	
3.	Combustion efficiency test – emissions (1005.1*)	ČSN EN 303-5:2013 Art. 4.4.7, 5.7.3, 5.7.4, 5.9, 5.10.4	Pages 10 - 11	+	
4.	Test of heat output, input and efficiency (1004.1*)  Combustion efficiency test – emissions (1005.1*)	ČSN EN 303-5:2013 Annex C, Deviation from Austria, C.2.2, C.2.3	Pages 12 - 13	+	
		ČSN EN 303-5:2013 Annex C, C.3 Deviation from Croatia	-	0	
		ČSN EN 303-5:2013 Annex C, Deviation from Denmark , C.4.1, C.4.2	Pages 14 - 15	+	
		ČSN EN 303-5:2013 Annex C, Deviation from Germany, C.5.1, C.5.2	Pages 16 - 17	+	
		ČSN EN 303-5:2013 Annex C C.6 Deviation from Switzerland	Pages 18 - 19	+	
		ČSN EN 303-5:2013 Annex C C.8 Deviation from Italy	-	0	

Note:

No.:

(\*\*)

Not a test

Evaluation:

+ Requirement fulfilled

- Requirement not fulfilled

x Not assessed

0 Not applicable



Accredited test number: **1003\*** Test title: **Surface temperature test**

Test method: ČSN EN 303-5:2013 Art. 5.12, 5.16.4, 4.3.6

Sample tested: EG PELLET 25

Measuring equipment used: Chapter III - Measuring and test equipment

Test results:

Requirement	Requirement specification	Test evaluation	Note
<p><b>Surface temperature</b> The mean surface temperature shall be measured at nominal heat output. In order to do this, a minimum of 5 points on each boiler surface shall be measured. Under the same conditions, the critical temperatures (e.g. boiler doors, operating levers) shall be measured.</p>	<p>ČSN EN 303-5:2013 Art. 5.12</p>	+	
<p>The surface temperature on the outside of the boiler (including the bottom and doors but not including the flue gas outlet and maintenance openings of natural draft boilers) shall not exceed the room temperature by more than 60 K when tested in accordance with 5.12. The requirement for the bottom is not applicable for instances when the manufacturer declares that the boiler is to be installed on a non-combustible base. When tested in accordance with 5.12, the surface temperature of operating levers and all parts which shall be touched by hand during operation of the boiler shall not exceed the room temperature by more than the following values:</p> <ul style="list-style-type: none"> <li>- 35 K for metals and similar materials;</li> <li>- 45 K for porcelain and similar materials;</li> <li>- 60 K for plastics and similar materials.</li> </ul>	<p>ČSN EN 303-5:2013 Art. 4.3.6</p>	+	
<p><b>Resistance to thermal conductance</b> Temperature measurement shall be performed on the surface of the stoking device at the place next to the fuel line but within a maximum distance which shall be less than 1 m against the feeding direction from the inner wall of the combustion chamber. For boilers with integrated hopper, the temperature measurement shall be performed on the surface of the stoking device at the place next to the integrated hopper but within a maximum distance which shall be less than 1 m against the feeding direction from the inner wall of the combustion chamber. In addition, the highest surface temperature of the hopper shall be measured.</p>	<p>ČSN EN 303-5:2013 Art. 5.16.4</p>	+	



**Measurement results:** EG PELLET 25

Average temperatures of boiler walls, doors and covers (°C):	
Fuel type	Wood Pellets – C1
Front wall	24.4
Rear wall	23.4
Right wall	22.6
Left wall	22.0
Upper wall	23.1
Lower wall (a base was used, non-combustible material)	22.7
Temperatures of control elements (°C):	
Ash-pan door handle - metal	32
El. control panel – plastic	28
Temperature of fuel chamber and stoking elements (°C):	
Inner face of fuel chamber	31
Temperature of fuel line tube (screw feeder - flange)	52


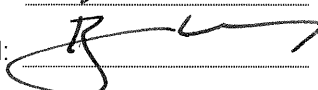
**Measurement uncertainty:** 2 °C for temperatures within the range of (0 + 250)°C

"The above-specified extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient, k=2, corresponding to the coverage certainty of 95% as regards standard classification. The uncertainties do not reflect the impact of sample taking and lack of homogeneity. The standard uncertainty was determined in accordance with Document EA 4/02."

**Test evaluation:** The specified temperature rise values have not been exceeded.

Tested by: Ing. Michal Haviř Date: 01/2014

Reviewed by: Ing. Stanislav Buchta Date: 01/2014

Signed:   
Signed: 



Accredited test number: **1004.1\*** Test title: **Test of heat output, input and efficiency**  
**1004.2\*** **Test of combustion product temperature**

Test method: ČSN EN 303-5:2013  
 Art. 4.4.2, 4.4.3, 5.7 to 5.10

Sample tested: EG PELLETT 25

Measuring equipment used: Chapter III - Measuring and test equipment

**Test results:**

***Average measured and calculated values (solid fuels):***

Test:		I.
Boiler type:		EG PELLETT 25
Output tested:		Nominal
Fuel type:		<b>Wood Pellets - C1</b>
Combustion period, (manual/automatic) stoking		Minimally 6 hours
Nominal heat output (specified by manufacturer)	[ kW ]	25
Flue gas temperature	[ °C ]	119.3
Fuel mass added	[ kg/hour]	6.07
Outlet temperature	[ °C ]	80.1
Inlet temperature	[ °C ]	61.5
Temperature of the entering cold water	[ °C ]	9.8
Cooling water flow rate	[ m3/hour ]	0.3180
Draught	[ Pa ]	25
Ambient temperature	[ °C ]	16.9
Relative air humidity	[ % ]	30.1
Barometric pressure	[ kPa]	101.2

***Fuel analysis:***

Test (period of burning) :		I.
Oxygen, O <sub>2</sub>	[ % ]	8.42
Carbon dioxide CO <sub>2</sub>	[ % ]	10.96
Carbon monoxide CO	[ppm]	220
Higher hydrocarbons THC/OGC	[ppm]	18
Nitrogen oxides NO <sub>x</sub>	[ppm]	116



**Test results:**

***Auxiliary combustion values (solid fuels):***

Test (period of burning) :		I.
Stoichiometric oxygen volume	[ m <sup>3</sup> /kg ]	0.945
Stoichiometric air volume	[ m <sup>3</sup> /kg ]	4.498
Stoichiometric volume of dry combustion products	[ m <sup>3</sup> /kg ]	4.416
Maximum content of CO <sub>2</sub>	[ % ]	19.51
Stoichiometric air multiple	[ - ]	1.66
Volume of dry combustion products, actual	[ m <sup>3</sup> /kg ]	7.849
Content of H <sub>2</sub> O in combustion air	[ m <sup>3</sup> /kg ]	0.043
Content of H <sub>2</sub> O in combustion products	[ m <sup>3</sup> /kg ]	0.827

***Calculated values - thermal overview***

Test (period of burning) :		I.
Loss of sensible heat of combustion products	[ % ]	7.0
Loss of gas underburning	[ % ]	0.2
Loss of mechanical underburning	[ % ]	1.2
Loss of heat transfer into environment	[ % ]	0.9
Total loss	[ % ]	9.3
Heat input	[ kW ]	29.3
<b>Heat output</b>	<b>[ kW ]</b>	<b>26.5</b>
Uncertainty of determining heat output	[ kW ]	1.1
<b>Efficiency – direct method</b>	<b>[ % ]</b>	<b>90.4</b>
Output / nominal output	[ % ]	106.0

At nominal heat output, when burning **wood pellets – C1**, the boiler efficiency meets the requirements applicable to **Class 5** as per ČSN EN 303-5:2013, Fig. 1.

**Test evaluation:**

The measured heat output is within the ± 8% tolerance;

Boiler Class 5;

When burning wood pellets, the period of burning is more than 6 hours;



**Fuel analysis**

Fuel type	Wood Pellets – C1			
Analytical indicator	Symbol	Unit	Value	Uncertainty
Heat of combustion	$Q_s$	[ MJ/kg ]	19.71	0.14
Caloric value	$Q_j$	[ MJ/kg ]	18.14	0.14
All water in original condition	$W_t^r$	[ % by weight ]	5.16	0.01
Ash	A	[ % by weight ]	0.46	0.02
Carbon	C	[ % by weight ]	49.07	0.25
Hydrogen	H	[ % by weight ]	6.63	0.10
Nitrogen	N	[ % by weight ]	0.16	0.10
Sulphur	S	[ % by weight ]	0.011	0.001
Chlorine	Cl	[ % by weight ]	0.015	0.002
Oxygen – calculation for 100%	O	[ % by weight ]	38.49	
Conversion factor $f_{emis}$ for emissions in [mg/m <sup>3</sup> ] to [mg/MJ]	$f_{emis}$	[ - ]	0.26077	

Note: Sample in original condition

**Measurement uncertainty:** Specified in Measurement results

"The above-specified extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient,  $k=2$ , corresponding to the coverage certainty of 95% for standard classification. The uncertainties do not reflect the impact of sample taking and lack of homogeneity. The standard uncertainty was determined in accordance with Document EA 4/02".

Tested by: Ing. Michal Havlů

Date: 01/2014

Signed: 

Reviewed by: Ing. Stanislav Buchta

Date: 01/2014

Signed: 



Accredited test number: **1005.1\*** Test title: **Combustion efficiency test - emissions**

Test method: ČSN EN 303-5:2013  
Art. 4.4.7, 5.7.3, 5.7.4, 5.9, 5.10.4

Sample tested: EG PELLET 25

Measuring equipment used: Chapter III - Measuring and test equipment

Requirement	Requirement specification	Test evaluation	Note
<b>Emission limits</b> Combustion shall be of low-emission. This requirement shall be satisfied if the emission values shown in Table 6 are not exceeded when operating at nominal heat output or, in the case of boilers with heat output range, when operating at nominal heat output and minimum heat output, in accordance with 5.7, 5.9 and 5.10.	ČSN EN 303-5:2013 Art. 4.4.7	+	

Table 6

Stoking	Fuel	Nominal heat output kW	Emission limits									
			CO			OGC/THC mg/m <sup>3</sup> at 10% O <sub>2</sub>			Dust			
			Class	Class	Class	Class	Class	Class	Class	Class	Class	
			3	4	5	3	4	5	3	4	5	
Manual	Biogenic	≤ 50	5000	1200	700	150	50	30	150	75	60	
		> 50 ≤ 150	2500			100						
		> 150 ≤ 500	1200			100						
	Fossil	≤ 50	5000			150						125
		> 50 ≤ 150	2500			100						
		> 150 ≤ 500	1200			100						
Automatic	Biogenic	≤ 50	3000	1000	500	100	30	20	150	60	40	
		> 50 ≤ 150	2500			80						
		> 150 ≤ 500	1200			80						
	Fossil	≤ 50	3000			100						125
		> 50 ≤ 150	2500			80						
		> 150 ≤ 500	1200			80						

NOTE 1: The dust values in this Table are based on the experience of the gravimetric filter method. The method used needs to be referred to in the test report. The particulate matter emission measured according to this European Standard does not include condensable organic compounds which may form additional particulate matter when the flue gas is mixed with ambient air. The values are therefore not directly comparable with values measured by dilution tunnel methods. Neither can they be directly translated into ambient air particulate concentrations.

NOTE 2: Additional test methods and emission limits which apply in some countries are given in the A-Deviations in Annex C.

<sup>a</sup> Referred to dry exit flue gas, 0 °C, 1013 mbar.

<sup>b</sup> Boilers of class 3 for type E-fuels according to 1.2.1 or e-fuels according to 1.2.3 in this Table and marked with the classification E-fuels and e-fuels do not need to fulfil the requirements for the dust emissions. The actual value shall be stated in the technical documentation and shall not exceed 200 mg/m<sup>3</sup> at 10 % O<sub>2</sub>.



**Measurement results:** EG PELLETT 25 – Wood Pellets - C1

Boiler output	Average values									
	Measured values						Converted values O <sub>2</sub> =10%			
	O <sub>2</sub> [%]	CO <sub>2</sub> [%]	CO [ppm]	OGC/THC [ppm]	NO <sub>x</sub> [ppm]	Dust [mg/m <sup>3</sup> ]	CO [mg/m <sup>3</sup> ]	OGC/THC [mg/m <sup>3</sup> ]	NO <sub>x</sub> [mg/m <sup>3</sup> ]	Dust [mg/m <sup>3</sup> ]
Nominal	8.42	10.96	220	18	116	26	241	25	208	23

**Test evaluation:**

EG PELLETT 25 (Wood Pellets - C1) meets at nominal heat output the emission requirements for **Class 5**, as per ČSN EN 303-5:2013 Table 6.

Tested by: Ing. Michal Havlů

Date: 01/2014

Signed: 

Reviewed by: Ing. Stanislav Buchta

Date: 01/2014

Signed: 



Accredited test number: **1004.1\*** Test title: **Test of heat capacity, input and efficiency**  
 1005.1\* **Combustion efficiency test - emissions**

Test method: ČSN EN 303-5:2013  
Annex C, Deviation from Austria, C.2.2, C.2.3

Sample tested: EG PELLETT 25

Measuring equipment used: Chapter III - Measuring and test equipment

**Test results:**

Requirement	Requirement specification	Test evaluation	
<b>Boiler efficiency for nominal heat output and minimum heat output</b>	ČSN EN 303-5:2013 Annex C, Deviation from Austria, C.2.2	Wood Pellets – C1	
<b>Boiler</b>			
Heating boilers for solid fuels		75 %	+
<b>a) manually loaded</b>			
up to 10 kW		79 %	
>10 to 200 kW		(71.3 + 7.7 log Pn) %	
>200 kW		89 %	
<b>a) automatically loaded</b>			
up to 10 kW		80 %	
<b>&gt;10 to 200 kW</b>		<b>(72.3 + 7.7 log Pn) %</b>	+
>200 kW	90 %		
NOTE <i>Pn is the nominal heat output (Qn in this standard)</i>			

Requirement	Requirement specification	Test evaluation			
<b>Emission limits</b>	ČSN EN 303-5:2013 Annex C, Deviation from Austria, C.2.3	Wood Pellets – C1			
Small burners used for solid fuels automatically loaded					
		Emission limits mg/MJ			
Parameter		Wooden pellets Room heaters	Wooden pellets Central heaters	Other wooden fuels	Other standardised biogenous fuels
CO		500 <sup>a</sup>	250 <sup>a</sup>	250 <sup>a</sup>	500 <sup>a</sup>
NO <sub>x</sub>		150	150	150	300
OGC/THC	30	30	30	30	
Dust	50	40	50	60	
					+

<sup>a</sup> The limit value can be exceeded by 50 % during partial load operation at 30 % of nominal heat output.



**Measurement results:** EG PELLETT 25 – Wood Pellets – C1

Boiler output	Minimum efficiency	Measured efficiency
Nominal	83.1	90.4

**Test evaluation:**

The measured efficiency of EG PELLETT 25 (Wood Pellets – C1) is **higher** than required.

**Measurement results:** EG PELLETT 25 – Wood Pellets – C1

Boiler output	Average values								
	Measured values					Converted values O <sub>2</sub> =0%			
	O <sub>2</sub> [%]	CO [ppm]	NO <sub>x</sub> [ppm]	OGC/THC [ppm]	Dust [mg/m <sup>3</sup> ]	CO [mg/MJ]	NO <sub>x</sub> [mg/MJ]	OGC/THC [mg/MJ]	Dust [mg/MJ]
Nominal	8.42	220	116	18	26	118	102	12	11

**Test evaluation:**

The measured emission values for EG PELLETT 25 (Wood Pellets – C1) **do not exceed** the specified values.

Tested by: Ing. Michal Havlů Date: 01/2014

Reviewed by: Ing. Stanislav Buchta Date: 01/2014

Signed: 

Signed: 



Accredited test number: **1004.1\*** Test title: **Test of heat output, input and efficiency**  
**1005.1\*** **Combustion efficiency test - emissions**

Test method: ČSN EN 303-5:2013  
Annex C, Deviation from Denmark, C.4.1, C.4.2

Sample tested: EG PELLETT 25

Measuring equipment used: Chapter III - Measuring and test equipment

**Test results:**

Requirement	Requirement specification	Test evaluation
<b>Boiler Efficiency</b>	ČSN EN 303-5:2013 Annex C, Deviation from Denmark , C.4.1	Wood Pellets – C1
According to the Danish Construction Code BR08, Clause 8.5.1.4, Sub-clause 7, boilers for coal, coke, bio fuel or biomass shall have an efficiency equivalent to Class 3 in EN 303-5.		
<b>Minimum efficiency</b> (67 + 6 log Qn) %		
For boilers above 300 kW, the requirement corresponding to 300 kW shall be used.		
		+

Requirement	Requirement specification	Test evaluation		
<b>Emission limits</b>	ČSN EN 303-5:2013 Annex C, Deviation from Denmark , C.4.2	Wood Pellets – C1		
According to the Danish EPA Statutory Order no. 1432 of 11/12/2007, only Class 3 (or higher) is acceptable for Denmark.				
			Emission limit values <sup>a</sup>	
				CO OGC/THC Dust
			mg/m <sup>3</sup> at 10% O <sub>2</sub>	
			Class	
			3	
<b>Stoking</b>				
<b>Manual</b>				
<b>Automatic</b>				
		+		

<sup>a</sup> Referring to dry exit flue gas, 0 °C, 1 013 mbar.



**Measurement results:** EG PELLETT 25 – Wood Pellets – C1

Boiler output	Minimum efficiency	Measured efficiency
Nominal	75.4	90.4

**Test evaluation:**

Measured efficiency for EG PELLETT 25 (Wood Pellets – C1) is **higher** than required.

**Measurement results:** EG PELLETT 25 – Wood Pellets – C1

Boiler output	Average emission values						
	Measured values				Converted values O <sub>2</sub> =10%		
	O <sub>2</sub> [ % ]	CO [ppm]	OGC/THC [ppm]	Dust [mg/m <sup>3</sup> ]	CO [mg/m <sup>3</sup> ]	OGC/THC [mg/m <sup>3</sup> ]	Dust [mg/m <sup>3</sup> ]
Nominal	8.42	220	18	26	241	25	23

**Test evaluation:**

The measured emission values for EG PELLETT 25 (Wood Pellets – C1) **do not exceed** the specified values.

Tested by: Ing. Michal Havlů

Date: 01/2014

Signed: 

Reviewed by: Ing. Stanislav Buchta

Date: 01/2014

Signed: 



Accredited test number: **1004.1\*** Test title: **Test of heat output, input and efficiency**  
**1005.1\*** **Combustion efficiency test - emissions**

Test method: ČSN EN 303-5:2013  
Annex C, Deviation from Germany, C.5.1, C.5.2

Sample tested: EG PELLETT 25

Measuring equipment used: Chapter III - Measuring and test equipment

**Test results:**

Requirement					Requirement specification	Test evaluation
<b>Emission limits</b>						
Table 7 – Emission limits						
The emission limits are regulated in Chapter 2, paragraphs 4, 5 and Annex 2 of the German Immission Control Ordinance "Erste Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (Verordnung über kleine und mittlere Feuerungsanlagen - 1. BImSchV)". Boilers operated with solid fuels shall only be installed, possess the quality and be put into operation if they fulfil the following specifications of the 1. BImSchV:						Wood Pellets – C1
	<b>Fuel acc. to §3 (1)</b>	<b>Nominal output range kW</b>	<b>Dust g/m<sup>3</sup></b>	<b>CO g/m<sup>3</sup></b>	ČSN EN 303-5:2013 Annex C, Deviation from Germany, C.5.1	
Stage 1: Appliances, which will be installed after 22.3.2010	Numbers 1 to 3a	≥ 4 ≤ 500	0.09	1.0		
		> 500	0.09	0.5		
	Numbers 4 to 5	≥ 4 ≤ 500	0.10	1.0		
		> 500	0.10	0.5		
	Number 5a	≥ 4 ≤ 500	<b>0.06</b>	<b>0.5</b>		
		> 500	0.06	0.5		
Numbers 6 to 7	≥ 30 ≤ 100	0.10	0.8			
	> 100 ≤ 500	0.10	0.5			
	> 500	0.10	0.3			
Stage 2: Appliances, which will be installed after 31.12.2014	Numbers 1 to 5a	≥ 4	0.02	0.4		
	Numbers 6 to 7	≥ 30 ≤ 500	0.02	0.4		
		> 500	0.02	0.3		
	Numbers 8 to 13	≥ 4 < 100	0.02	0.4		
NOTE Differing from sentence 1 for firing systems (appliances) which will exclusively be fired by fuels according §3 article 1 Number 4 in the form of split logs, the limits according Stage 2 apply for firing systems (appliances) if they are installed after 31.12.2016.						



**Measurement results:** EG PELLETT 25 – Pellets – C1

Boiler output	Average emission values				
	Measured values			Converted values O <sub>2</sub> =13%	
	O <sub>2</sub> [%]	CO [ppm]	Dust [mg/m <sup>3</sup> ]	CO [g/m <sup>3</sup> ]	Dust [g/m <sup>3</sup> ]
Nominal	8.42	220	26	0.175	0.016

**Test evaluation:**

The measured emission values for EG PELLETT 25 (Wood Pellets – C1) **do not exceed** the specified values.

Tested by: Ing. Michal Havlů Date: 01/2014

Reviewed by: Ing. Stanislav Buchta Date: 01/2014

Signed: 

Signed: 



Accredited test number: **1004.1\*** Test title: **Test of heat output, input and efficiency**  
 1005.1\* **Combustion efficiency test - emissions**

Test method: ČSN EN 303-5:2013  
Annex C, C.6 Deviation from Switzerland

Sample tested: EG PELLETT 25

Measuring equipment used: Chapter III - Measuring and test equipment

**Test results:**

Requirement		Requirement specification	Test evaluation	
Clause 4.4.7, Table 7 The emission limits are regulated in Annex 4 of the Swiss Ordinance on Air Pollution Control ([OAPC] SR 814.318.142.1) of 1985-12-16 (as at 2010-07-15). Boilers operated with woody biomass shall only be put on the market if they fulfil the following specifications of the OAPC: – declarations of conformity (Figure 20 OAPC); – Figures 1, 212, 23 Annex 4 OAPC; – Figures 31, 32 Annex 5 OAPC. Emissions for boilers operated with coal or wood fuels shall not exceed the following limits:		ČSN EN 303-5:2013 Annex C C.6 Deviation from Switzerland	Wood Pellets – C1	
Type of installation	<b>Particular requirements (emission limits)<sup>a</sup> for carbon monoxide (CO) and particulate matter (dust)</b>			
	CO (mg/m <sup>3</sup> )			Dust (mg/m <sup>3</sup> )
Boilers for log wood and boilers for coal, manual stoking	800			50
Boilers for chipped wood and boilers for coal, automatic stoking	400		60	
Boilers for wood pellets, automatic stoking	300	40	+	
<sup>a</sup> Referred to oxygen basis: – for boilers for natural state wood 13 % volume; – for boilers for coal 7 % volume.				



**Measurement results:** EG PELLETT 25 – Wood Pellets – C1

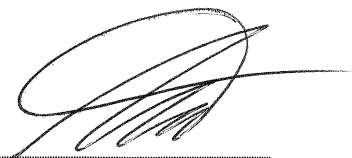
Boiler output	Average emission values				
	Measured values			Converted values O <sub>2</sub> =13%	
	O <sub>2</sub> [%]	CO [ppm]	Dust [mg/m <sup>3</sup> ]	CO [mg/m <sup>3</sup> ]	Dust [mg/m <sup>3</sup> ]
Nominal	8.42	220	26	175	16

**Test evaluation:**

The measured emission values for EG PELLETT 25 (Wood Pellets – C1) **do not exceed** the specified values.

Tested by: Ing. Michal Havlů

Date: 01/2014

Signed: 

Reviewed by: Ing. Stanislav Buchta

Date: 01/2014

Signed: 



The test methods in this Report were applied without deviations, additions or exceptions.

**V. List of source materials**

The tests were performed based on Order B-48703 of 2014-01-08, Contract B-48703/39.

- ČSN EN 303-5:2013 – Heating boilers - Part 5: Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW - Terminology, requirements, testing and marking
- Instructions for assembly, installation and operation of the boiler
- A set of required drawing documentation as per ČSN EN 303-5:2013; Boiler EG PELLET 25

The persons named below are accountable for the accuracy of the above-specified data:

**Ing. Stanislav Buchta**  
Head of Boilers and Industrial Heat  
Equipment Department



**Milan Holomek**  
Head of Heat and Environment-  
Friendly Equipment Test Station