

Testing laboratory logo

Test report No. 783/04.07.2013

TESTING LABORATORY FOR HEAT TECHNOLOGY TESTS
to "ITEM - Consult" Ltd. 1220 Sofia, 202 Str. No 8

Translation from Bulgarian

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TEST
REPORT
No 783/04.07.2013

CERTIFICATE OF ACCREDITATION

reg. No 143 LI of 19.07.2010

valid until 31.07.2014 Issued by EA "BAS"

according to the requirements of BDS EN ISO/IEC 17025

1. Product name: Solid fuel boiler – pellets, type MAT BW A45
(product name - type, brand, kind, etc.)
2. Applicant of the test: "MAT" Ltd., Razgrad, Bulgaria, application No 783/24.06.2013
(application incoming number, name of the applicant, address)
3. Test method: BDS EN 303-5:2012, 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.
(name and number of standards or validated methodologies)
4. Date of receipt of the test samples from the laboratory
24.06.2013
5. Amount of test samples: 1 piece, factory No C45032013055
(factory No of samples, quantity of samples and their weight, invoice number of importation, date of manufacture)
6. Date of testing:
from 24.06.2013 to 03.07.2013



7. Description of the test sample:

A steel boiler for heating with a burner, burning pellets designed for heating of family houses and other similar objects. The fuel process, ignition and extinguishing, as well as fuel delivery, is controlled by a controller. The boiler is equipped with an external hopper and feeder.

8. Declared technical characteristics of the test sample:

Rated power: 45.0 kW

Minimum power: 20.0 kW

Boiler operating pressure: PS=0.3 MPa

Maximum operating temperature TS=85 °C

Volume of the water heater 117 litres

Material - carbon steel

9. Data on the used fuel specified by the manufacturer:

Diameter: 6 mm

10. Fuel used for the test

Solid fuel - pellets according to Test Report No. 1789/04.03.2013 of "EUROTEST-CONTROL" EAD, Certificate of Accreditation, reg. No. 9 LI/28.05.2012, issued by EA "BAS". Lower heating value 17.45 ± 0.06 MJ/m³



11. Test results:

By №	Name of the index	Unit of measurement	Standards/Validated Methods	Number of the sample in the testing laboratory logbook	Test results (value, uncertainty)	Value and tolerance of the index according to the test method	Test conditions
1	2	3	4	5	6	7	8
1	Temperature of the outside walls of the boiler.	-	-	-	-	-	-
1.1	Left wall temperature	°C	БДС EN 303-5 item 5.12	783	30.10±1.40	≤ (t ambient + 60K)	Tambient=(24.0±0.1) °C
1.2	Right wall temperature	°C	БДС EN 303-5 item 5.12	783	30.35±1.35	≤ (t ambient + 60K)	Tambient=(24.0±0.1) °C
1.3	Upper part temperature	°C	БДС EN 303-5 item 5.12	783	36.30±0.80	≤ (t ambient + 60K)	Tambient=(24.0±0.1) °C
1.4	Rear wall temperature	°C	БДС EN 303-5 item 5.12	783	35.95±1.87	≤ (t ambient + 60K)	Tambient=(24.0±0.1) °C
1.5	Front wall temperature	°C	БДС EN 303-5 item 5.12	783	67.85±1.95	≤ (t ambient + 60K)	Tambient=(24.0±0.1) °C

1	2	3	4	5	6	7	8
1.6	Temperature of the upper door handle	°C	БДС EN 303-5 item 5.12	783	63.80±1.43	≤ (t ambient + 35K)	T ambient=(24.0±0.1) °C
1.7	Temperature of the bottom door handle	°C	БДС EN 303-5 item 5.12	783	61.60±1.76	≤ (t ambient + 35K)	T ambient=(24.0±0.1) °C
1.8	Temperature of the controller	°C	БДС EN 303-5 item 5.12	783	26.60±1.65	≤ (t ambient + 60K)	T ambient=(24.0±0.1) °C
1.9	Temperature of the bottom wall of the boiler	°C	БДС EN 303-5 item 5.12	783	29.20±1.18	≤ (t ambient + 60K)	T ambient=(24.0±0.1) °C
2	Content of emissions in the flue gases	-	-	-	-	-	-
2.1	- at rated power	-	-	-	-	-	-
2.1.1	Content of CO in the flue gases	mg/m ³	БДС EN 303-5 item 5.9 (for class 4)	783	956.50±31.00	≤1000	T ambient=(24.0±0.1) °C
2.1.2	Content of CO ₂ in the flue gases	%	БДС EN 303-5 item 5.9	783	11.8±0.18	-	T ambient=(24.0±0.1) °C

1	2	3	4	5	6	7	8
2.1.3	Content of NO _x in the flue gases	mg/MJ	БДC EN 303-5 item 5.9	783	140.77±8.00	-	Tambient=(24.0±0.1)° C
2.2	- at minimum power	-	-	-	-	-	-
2.2.1	Content of CO in the flue gases	mg/m ³	БДC EN 303-5 item 5.9 (for class 4)	783	654.69±31.00	≤1000	Tambient=(24.0±0.1)° C
2.2.2	Content of CO ₂ in the flue gases	%	БДC EN 303-5 item 5.9	783	5.92±0.13	-	Tambient=(24.0±0.1)° C
2.2.3	Content of NO _x in the flue gases	mg/MJ	БДC EN 303-5 item 5.9	783	120.48±8.00	-	Tambient=(24.0±0.1)° C
3	Boiler efficiency	-	-	-	-	-	-
3.1	- at rated power	-	-	-	-	-	-
3.1.1	Power	kW	БДC EN 303-5 item 5.8.2	783	39.21 ±0.41	45.00	Tambient=(24.0±0.1)° C
3.1.2	Efficiency	%	БДC EN 303-5 item 5.8 and item 5.10 for class 4	783	85.28	≥83.31	Tambient=(24.0±0.1)° C



1	2	3	4	5	6	7	8
3.2	- at minimum power	-	-	-	-	-	-
3.2.1	Power	kW	БДС EN 303-5 item 5.8.3	783	13.64±0.40	20.00	Tambient=(24.0±0.1) °C
3.2.2	Efficiency	%	БДС EN 303-5 item 5.8 and item 5.10 for class 4	783	83.34	≥82.60	Tambient=(24.0±0.1) °C

NOTE:

The test results relate only to the test sample. Extracts from the test report can not be reproduced without the written permission of the testing laboratory.

The test was carried out with the following instruments:

- Unbalanced portable weighing scale with moving weight, type VNP - 100, factory № 2851
- Measuring stationary tank, factory № 3
- Digital thermohygrometer. Testo-608 H1 No30115603, Germany
- Gas analyzer "TESTO" t350 XL, factory № 01129680/509
- Thermometer infrared Testo 830-T2 №30713805/107AG DE-79583, Germany
- U-shaped pressure gauge 1-50 mbar
- Digital thermometer Testo 922, Germany
- Electronic stopwatch, model 696, No 22710, Hong Kong
- Pressure gauge № 44140 - 3, Russia, range 0-6 kgf/cm²

TESTING WAS CARRIED OUT BY: *Signature, illegible*

Eng. N. Evtimov

Rectangular seal of "ITEM - Consult" Ltd.

LABORATORY MANAGER: *Signature, illegible*
Eng. Iv. Vladimirov

I, the undersigned Petya Valchanova do hereby certify the fidelity of the translation I have done from Bulgarian into English of the document attached hereto. The translation consists of 6 pages
Translator: Petya Valchanova



Handwritten signature in blue ink.