



TEST REPORT

No. 30-10802/T

Product: Hot-water boiler burning wood pellets
(with automatic fuel supply)

Type designation: ORLIGNO 500

Customer: EKO-VIMAR ORLAŃSKI Sp. Z o.o.
ul. Nyska 17b
48-385 Otmuchów
Poland

Manufacturer: EKO-VIMAR ORLAŃSKI Sp. Z o.o.
ul. Nyska 17b
48-385 Otmuchów
Poland

**Employee responsible
for inspection and
evaluation:** Ing. Stanislav Buchta

Report issue date: 2010-07-26

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

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The results of tests and assessment only apply to the products tested.

(**) The parts of the Report marked with a double asterisk comprise findings verified otherwise than by tests according to

ČSN EN ISO/IEC 17025



This Report was processed pursuant to Order B-37348 of 2010-05-06, Contract B-37348/30 of 2010-05-17 and Contract Supplement 1. The Report reproduces the results of tests specified in Report No. 30-7271/T of 2008-04-10 and 30-7001/T of 2007-05-31.

I. Product description, intended use and application

The ORLIGNO 500 hot-water boiler with a rated capacity of 25 kW is designed for the central heating of small buildings. Wood pellets with the diameter of 6-8 mm and a length of 10-50 mm are the required fuel.

The boiler consists of a boiler body, a burner and a hopper with a capacity allowing for a long-term operation of the boiler without a need for human intervention. Fuel is supplied to the burner by two screw conveyors connected to the burner body. Combustion air is supplied by a blower. The boiler body is made of metal-sheets in the form of a weldment. The boiler is regulated by a control unit situated on the front side of the boiler.

The boiler body is thermally insulated from the outside with mineral felt inserted under the metal-sheet covers of the external cladding of the boiler.

The electronic regulation includes a JUMO temperature limiter, type 602031/80 (CE 0036).

Basic technical specifications:

Size	Rated capacity [kW]	Water volume [l]	Max. operating temperature [°C]	Max. operating pressure [bar]	Weight [kg]
ORLIGNO 500	25	60	90	2.5	300

II. Sample tested

Visual inspection, tests, and evaluation were conducted on a sample identified as follows:
ORLIGNO 500, prototype, EKV No 0211.10.13633.000

The visual inspection, testing, verification and evaluation were conducted at the Boiler and Industrial Heating Equipment Test Station of the Engineering Test Institute in Brno, in 05/2010 - 07/2010, by Milan Holomek, test engineer.

III. Measuring and testing equipment

No.	Description	Inventory number	Calibration valid until	Precision
1.	Recorder, Therm 3280-8M	02-2153	05/2011	see Calibration Sheet 080120
2.	Humidity meter, thermometer	11-6258	11/2012	see Calibration Sheet 7630F/09
3.	Barometer	11-2541	11/2013	see Calibration Sheet 613-KL-K011-08
4.	Chronometer	18-2507	02/2011	see Calibration Sheet 0248E-06



IV. Results of tests and assessment

1.**	Accompanying technical documentation	ČSN EN 303-5:2000, Art. 8, 8.1, 8.2 ČSN 06 1008:1997, Art. 12.2	Page 4 ÷ 6		+
2.**	Product data, marking	ČSN EN 303-5:2000, Art. 7, 7.1, 7.2	Page 7		+
3.**	Construction and design	ČSN EN 303-5:2000, Art. 4.1.1, 4.1.3.4, 4.1.5.1 ÷ 4.1.5.8, 4.1.5.11, 4.1.5.11.1, 4.1.5.11.2, 4.1.5.12, 4.1.5.13, 4.1.5.14.2, 4.1.5.15	Page 8÷11		+
4.**	Material, surface finish	ČSN EN 303-5:2000, Art. 4.1.1, 4.1.2.1, 4.1.3.3	Page 12		+
5.	Test of strength and tightness of pressurized components	ČSN EN 303-5:2000, Art. 5.4.1, 5.4.2	Page 13	+	
6.	Test of surface temperatures	ČSN EN 303-5:2000, Art. 4.2.7	Page 14 ÷ 16	+	
7.	Test of heat capacity, input and efficiency; Test of combustion product temperature	ČSN EN 303-5:2000 Art. 4.2, 4.2.1 ÷ 4.2.5, 5.8.2	Page 17÷20	+	
		ČSN EN 303-5:2000, Annex A, Deviation A.1.1	Page 21	+	
8.	Combustion efficiency test - emissions	ČSN EN 303-5:2000, Art. 4.2.6	Page 22	+	
		ČSN EN 303-5:2000 Annex A (deviations A.1.2, A.2 and A.5)	A.1.2 Page 23	0	
			A. 2 Page 24	0	
		A. 5 Page 25	0		
9.	Test of tightness of combustion product ducts	ČSN EN 303-5:2000 Art. 4.1.5.10		0	
10.	Test of control, regulation and security elements	ČSN EN 303-5:2000 Art. 5.13	Page 26	+	

Note:

No.:

(**) Not a test.

Evaluation:

+ Requirement fulfilled.
- Requirement not fulfilled.
x Not assessed.
0 Not applicable.



Requirement	Requirement specification	Evaluation	Note
In addition, it is necessary to provide reference to standards and regulations in the documentation, which must be considered during the safety equipment installation.		+	
<i>Content of accompanying technical documentation</i>			
<p>Instructions for operation</p> <p>The operating instructions must contain information concerning:</p> <ul style="list-style-type: none"> - Risk-free operation of the boiler, fuel supply method and door opening method - Cleaning and intervals between the individual cleaning operations including the necessary cleaning equipment - Measures that must be taken in the event of a failure - Reasons for regular servicing interventions performed by authorized staff and intervals between the individual servicing interventions - Type of fuel, including water content and size of fuel - Maximum fuel filling height in the fuel duct - Burning time for the individual fuel types at the rated heat capacity <p>Other printed materials (brochures, etc.) must not contain information contrary to the operating instructions.</p>	<p>ČSN EN 303-5:2000, Art. 8.2</p>	<p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p>	
<p>Each heating equipment must be supplied with technical documentation in Czech, including the following:</p> <p>a) Characteristics of the environment where the heating appliance may be located</p> <p>b) Installation and operating instructions indicating the following:</p> <ol style="list-style-type: none"> 1) Installation guideline 2) Operation and servicing guideline <p>The installation guidelines shall indicate the following data:</p> <ul style="list-style-type: none"> - Use of protective equipment (protective curtains, protective and insulation mats) - Safe installation and use of the combustion product exhaust system (flues, chimneys) and the warning that the installation must comply with the applicable regulations and technical standards, such as ČSN 73 4201 - Manner of attachment of the heating equipment - Safe distances from the surfaces of the materials of individual combustibility grades and information regarding the combustibility grade of standard constructions materials - Safe installation and operation of the in-built appliance <p>The operation and maintenance guideline must contain:</p> <ul style="list-style-type: none"> - Prescribed fuel (for liquid and gas fuels their rated supply pressure or maximum admissible pressure at which the corresponding heating appliance may be operated) - For electric power, its rated supply voltage or range of the rated supply voltage, type of current - direct, alternating current, and/or frequency and total installed power input in kW or kVA of the heating appliance concerned - Instructions for commissioning and use of the heating appliance, with warnings on the necessity to contact professional servicing personnel whenever necessary and required. 	<p>ČSN 06 1008:1997, Art. 12.2</p>	<p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">0</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">0</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">0</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p> <p style="margin-bottom: 10px;">+</p>	



Requirement	Requirement specification	Evaluation	Note
<p>The operation and maintenance guideline must contain: Electrical equipment to be used by individuals without electrical engineering qualification is subject to the safety regulations, including requirements for the accompanying technical documentation in accordance with ČSN 33 1310.</p> <ul style="list-style-type: none"> - Method for in-operation heating equipment supervision (not applicable to heating equipment which is designed to be operated without supervision) - Instructions for regular intervals in which surfaces and surrounding of the equipment shall be cleaned, if the equipment is designed to work in fire- or explosion-hazardous environment - Warning that no combustible objects shall be placed or located on the equipment or within a distance lower than the safety distance - Measures to adopt prior to starting the work which might change or cause a change to the environment in which the heating equipment is installed (e.g. equipment shut-down during painting works, gluing, etc.) - Information about the intervals for regular maintenance and specification of the person allowed to carry out such maintenance - Measures to adopt with the heating equipment installed in the vehicles/cars before and after relocation of the vehicle (operation interruption, fuel supply closure, securing the equipment in position, etc.) - Warnings concerning improper use of the heating appliance concerned (e.g. overload prohibited, etc.) - Warning of safety removal of ash at the appliances fired by solid fuels - Data necessary for safe refuelling of appliances burning liquid fuels - Data for use of cylinders with liquid hydrocarbon gas in appliances with in-built gas fuel cylinders - Warning of other regulations, guidelines and/or standards which shall be followed with respect to fire safety 	<p>ČSN 06 1008:1997, Art. 12.2</p>	+	
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Note:

- + Compliant.
- Non-compliant.
- 0 Not applicable.
- x Not assessed.

Evaluation drafted by: Milan Holomek

Date: 2010-07-26

Signed: 

Person responsible for evaluation:

Ing. Stanislav Buchta

Date: 2010-07-26

Signed: 



Requirement assessed: **Product data, marking**

Requirement specification: ČSN EN 303-5:2000, Art. 7, 7.1, 7.2

Sample assessed: ORLIGNO 500

Evaluation results: see the table below

Requirement	Requirement specification	Evaluation	Note
Marking – boiler name plate			
- Marking of the boiler with a label, accessibility, country of destination	ČSN EN 303-5:2000, Art. 7	+	
Data on the name plate			
- Manufacturer's name and address, its brand name	ČSN EN 303-5:2000, Art. 7.1	+	
- Registered trademark, type		+	
- Serial number and year of manufacture (or code)		+	
- Rated heat capacity or regulating range of heat capacity (kW)		+	
- Boiler class		+	
- Permissible operating pressure (bar)		+	
- Permissible operating temperature (°C)		+	
- Water capacity (litres)		+	
- Power connection (V, Hz, A) and wattage (W)		+	
Requirements regarding the name plate			
- Durability, readability, resistance to wear	ČSN EN 303-5:2000, Art. 7.2	+	

Note: + Compliant.
- Non-compliant.
0 Not applicable.
x Not assessed.

Evaluation drafted by: Milan Holomek

Date: 2010-07-26

Signed: 

Person responsible for evaluation:

Ing. Stanislav Buchta

Date: 2010-07-26

Signed: 