



**Termoplam Ltd.
Testing laboratory**

**Page number: 1
Number of pages: 4**

Republic of Bulgaria, Sofia,
www.termoplam.eu , e-mail: termoplam2011@abv.bg, GSM 0885 449 216

TEST REPORT №121/30.09.2019

on the compliance of boilers TOBY B14, TOBY B19 and TOBY B23 with the requirements of COMMISSION REGULATION (EU) 2015/1189 of 28 April 2015.

I. NAME AND SIGNATURE OF THE TESTED SAMPLE:

Boiler fired by solid fuel - wood pellets models TOBY B14, TOBY B19 and TOBY B23 with total heat output respectively 14, 19 and 23 kW.

II. NAME AND DESCRIPTION OF THE TESTED SAMPLE:

Boiler models TOBY B14, TOBY B19 and TOBY B23 made of steel sheet metal by welding.

III. LEGAL DOCUMENT: COMMISSION REGULATION (EU) 2015/1189 of April 2015.



Picture of boiler

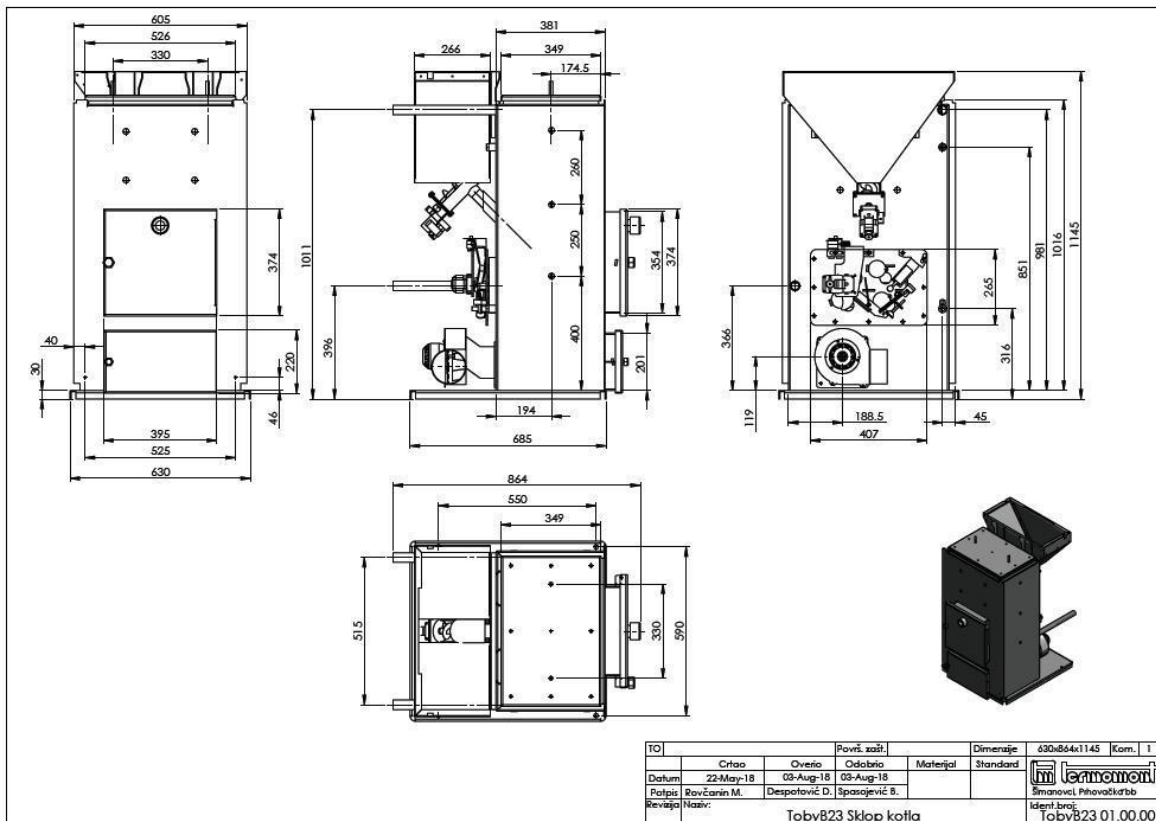
IV. QUANTITY OF THE TESTED SAMPLES: Boilers TOBY B14, TOBY B19 and TOBY B23 are randomly selected units of regular production of 1 each.

V. CUSTOMER:

“TERMOMONT” d.o.o , Serbia; City: Prhovacka bb, 22310 Simanovci.

VI. PURPOSE AND OBJECT OF THE TASK: Conformity assessment of the boilers TOBY B14, TOBY B19 and TOBY B23 with the requirements of COMMISSION REGULATION (EU) 2015/1189 of 28 April 2015.

VII. TECHNICAL FEATURES:



Scheme (drawing of the boiler)

VIII. TEST CONDITIONS:

- 8.1. Working condition of the combustion device - according to the requirements for tests at nominal output according to EN 303-5:2012.
- 8.2. Processing of results – calculate according to normal physical conditions and at 10 % O₂.
- 8.3. Used results from the Test Report № 113-2/20.08.2018 of Laboratory Termoplam, Sofia.

IX. RESULTS FROM AND OBSERVATIONS :

9.1. Emissions:

| Results from the Test Report № .../.....2019. | Model boiler | | | In accordance REGULATION (EU) 2015/1189. [mg/Nm ³] |
|---|--------------|----------|----------|--|
| | TOBY B14 | TOBY B19 | TOBY B23 | |
| Dust [mg/Nm ³] | 22.6 | 23.2 | 24.2 | [PM] ¹ ≤ 40 |
| CO [mg/Nm ³] | 413.8 | 425.5 | 448.7 | [CO] ² ≤ 500 |
| OGC [mg/Nm ³] | 14.1 | 14.5 | 15.2 | [OGC] ³ ≤ 20 |
| NO _x [mg/Nm ³] | 145.2 | 148.9 | 157.1 | [NO _x] ⁴ ≤ 200 |

Dust content of exhaust gases [PM] ¹ ≤ 40 mg/Nm³ for automatically stoked boilers in accordance with point 1 (c), of Annex II of the REGULATION (EU) 2015/1189.

CO of exhaust gases [CO] ² ≤ 500 mg/Nm³ for automatically stoked boilers in accordance with point 1 (e), of Annex II of the REGULATION (EU) 2015/1189.

OGC of exhaust gases [OGC] ³ ≤ 20 mg/Nm³ for automatically stoked boilers in accordance with point 1 (d), of Annex II of the REGULATION (EU) 2015/1189.

NO_x of exhaust gases [NO_x] ⁴ ≤ 200 mg/Nm³ for biomass boilers in accordance with point 1 (f), of Annex II of the REGULATION (EU) 2015/1189.

9.2. Seasonal space heating energy efficiency:

| Model boiler | Results η_s % | In accordance REGULATION (EU) 2015/1189. [%] |
|--------------|--------------------------|--|
| TOBY B14 | 87 | $[\eta_s]^1 \geq 75$ |
| TOBY B19 | 88 | $[\eta_s]^1 \geq 75$ |
| TOBY B23 | 88 | $[\eta_s]^2 \geq 77$ |

Where:

- η_s % - the seasonal space heating energy efficiency:

$[\eta_s]^1 \geq 75$ % for boilers with a rated heat output less of 20 kW in accordance with point 1 (a), of Annex II of the REGULATION (EU) 2015/1189.

$[\eta_s]^2 \geq 77$ % for boilers with a rated heat output of more than 20 kW in accordance with point 1 (b), of Annex II of the REGULATION (EU) 2015/1189.

X. CONCLUSION:

Boiler models TOBY B14, TOBY B19 and TOBY B23 is satisfying and fulfilling the requirements of REGULATION (EU) 2015/1189.

XI. ENCLOSURES:

- 10.1. Picture of boiler;
- 10.2. Assembly drawing of the sample.



MANAGER:

(eng. Pl. Iliev)

30.09.2019.

NOTE:

The test results and conclusions relate only to the tested samples.
Extracts from the test report can't be reproduced without written agreement of the testing laboratory.
This document is only informative.