



**Termoplam Ltd.
Testing laboratory**

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

OPINION

on the compliance of fireplaces "BERNA" and "BERNA LUX" with the requirements of
COMMISSION REGULATION (EU) 2015/1185 of 24 April 2015
and Decreto del Ministero dell'Ambiente 7 novembre 2017, n.186.

I. NAME AND SIGNATURE OF THE TESTED SAMPLE:

Family of Room heaters fired by solid fuel: wood and wood briquettes "BERNA" which include the following specimens: "BERNA" and "BERNA LUX" with type representative: "BERNA" with total heat output 5.3 kW.

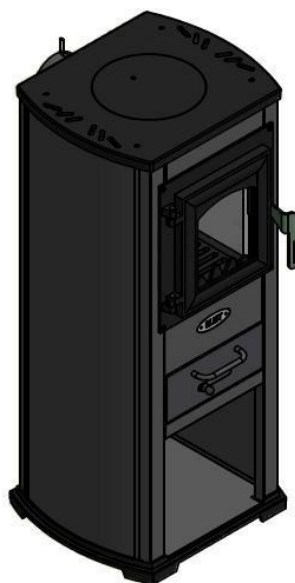
II. NAME AND DESCRIPTION OF THE TESTED SAMPLE:

Fireplace models "BERNA" and "BERNA LUX" made of (steel sheet metal by welding)

III. LEGAL DOCUMENT: COMMISSION REGULATION (EU) 2015/1185 of April 2015 and Decreto del Ministero dell'Ambiente 7 novembre 2017, n.186



Picture of fireplace "BERNA"



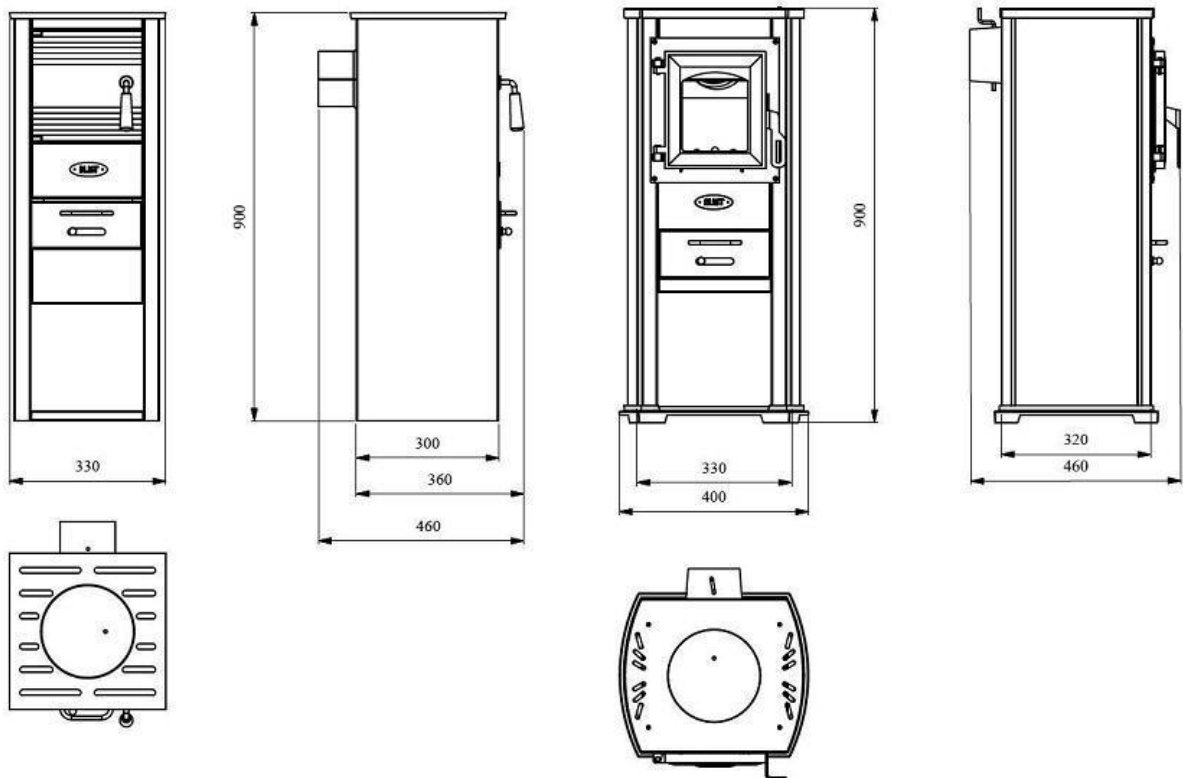
Picture of fireplace "BERNA LUX"

IV. QUANTITY OF THE TESTED SAMPLES: The Room heater device "BERNA" representative of the family with models "BERNA" and "BERNA LUX" is arbitrarily selected unit of regular production, 1 piece.

V. CUSTOMER: BLIST d.o.o. Belosevac bb, 14000 Valjevo, Serbia.

VI. PURPOSE AND OBJECT OF THE TASK: Evaluation the compliance of "BERNA" and "BERNA LUX" with the requirements of COMMISSION REGULATION (EU) 2015/1185 of 24 April 2015 and Decreto del Ministero dell'Ambiente 7 novembre 2017,n.186

VII. TECHNICAL FEATURES:



Scheme of fireplace "BERNA"

Scheme of fireplace "BERNA LUX"

VIII. TEST CONDITIONS:

- 8.1. Working condition of the combustion device - according to the requirements for tests at nominal output according to EN 13240:2001/A2:2004/AC:2007.
- 8.2. Processing of results – calculate according to normal physical conditions and at 13% O₂.
- 8.3 Used results from additional measurements from Laboratory Termoplam, Sofia.
- 8.4. Used results from the Test Report № 141/10.02.2021 of Laboratory Termoplam, Sofia.

IX. RESULTS FROM AND OBSERVATIONS :

9.1. Emissions:

9.1.1 Dust content of exhaust gases: $PM^* = 23 \text{ mg/Nm}^3 \leq [PM] = 40 \text{ mg/Nm}^3$;
[PM] = 40 mg/Nm³ in accordance with point 2 (a) (ii), of Annex II of the REGULATION (EU) 2015/1185.

- [PM] ≤ 30 mg/Nm³ in accordance to Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle.

9.1.2 CO of exhaust gases: $CO^{**} = 1114 \text{ mg/Nm}^3 \leq [CO] = 1500 \text{ mg/Nm}^3$;

- [CO] = 1500 mg/Nm³ in accordance with point 2 (c) (ii), of Annex II of the REGULATION (EU) 2015/1185.
- [CO] ≤ 1250 mg/Nm³ in accordance to Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle

9.1.3 OGC of exhaust gases: $OGC^* = 51 \text{ mg/Nm}^3 \leq [OGC] = 120 \text{ mg/Nm}^3$;

- [OGC] = 120 mg/Nm³ in accordance with point 2 (b) (i), of Annex II of the REGULATION (EU) 2015/1185.
- [OGC] ≤ 70 mg/Nm³ in accordance to Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle

9.1.4 NO_x of exhaust gases: $NO_x^* = 142 \text{ mg/Nm}^3 \leq [NO_x] = 200 \text{ mg/Nm}^3$.

- [NO_x] = 200 mg/Nm³ in accordance with point 2 (d) (i), of Annex II of the REGULATION (EU) 2015/1185.
- [NO_x] ≤ 160 mg/Nm³ in accordance to Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle.

* Results from additional measurements from Laboratory Termoplam, Sofia

** Results from the Test Report № 141/10.02.2021 of Laboratory Termoplam, Sofia

9.5. Seasonal space heating energy efficiency:

$$\eta_s = 68,1 \% > [\eta_s] = 65 \%$$

Where:

- $\eta_s = 68,1 \%$ - the seasonal space heating energy efficiency in active mode is calculated as $\eta_{th,nom}$.
 - $\eta_{th,nom} = 77,1 \%$ is the useful efficiency at nominal heat output, based on NCV. Result from the Test Report № 141/10.02.2021 of Laboratory Termoplam, Sofia.
 - $[\eta_s] \geq 65 \%$ in accordance with point 1 (a) (ii), of Annex II of the REGULATION (EU) 2015/1185.
- $[\eta_{th,nom}] \geq 77 \%$ in accordance to Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle.

X. CONCLUSION:

Roomheater devices "BERNA" and "BERNA LUX" are satisfying and fulfilling the requirements of REGULATION (EU) 2015/1185 and Decreto del Ministero dell'Ambiente 7 novembre 2017, n. 186 per la classe 4 stelle.

XI. ENCLOSURES:

- 10.1. Pictures of fireplace "BERNA" and "BERNA LUX";
- 10.2. Assembly drawing of the sample: 2.



MANAGER:

(eng. Pl. Iliev)

10.02.2021.

NOTE:

The test results and conclusions relate only to the tested samples.
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This document is only informative.