



**Termoplam Ltd.
Testing laboratory**

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TEST REPORT №133/11.01.2020

on the compliance of boilers series (range) COMBO: COMBO 25, COMBO 40 and COMBO 60 with the requirements of COMMISSION REGULATION (EU) 2015/1189 of 28 April 2015.

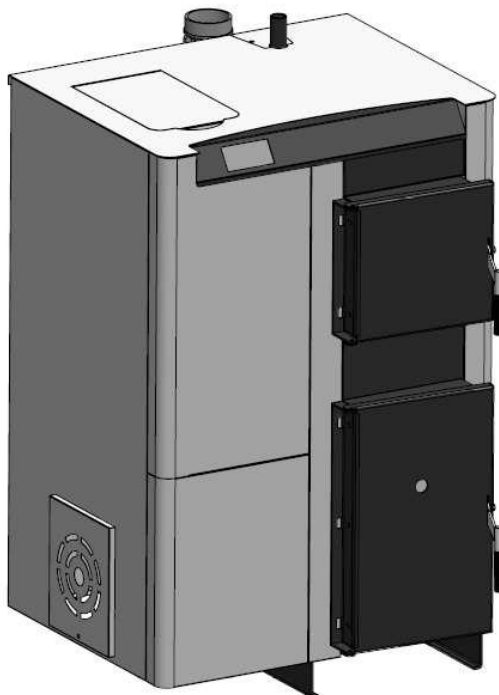
I. NAME AND SIGNATURE OF THE TESTED SAMPLE:

Production series (range) COMBO: COMBO 25, COMBO 40 and COMBO 60.

II. NAME AND DESCRIPTION OF THE TESTED SAMPLE:

Boiler models COMBO 25, COMBO 40 and COMBO 60 made of steel sheet metal by welding.

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



Picture of boilers

Scheme (drawing of the boilers)

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 № 91/16.05.2016 of Laboratory Termoplam, Sofia and Test protocol Nr. 155000024/314 dated 18 January 2016, issued by accredited test laboratory TSU PIESTANY, š.p. Slovak Republic.

IX. RESULTS FROM AND OBSERVATIONS :

- 9.1. Seasonal space heating emissions:

Table 1

Results E _s	Model boiler			In accordance REGULATION (EU) 2015/1189 [mg/Nm ³]
	COMBO 25	COMBO 40	COMBO 60	
Dust [mg/Nm ³]	20	33	36	[PM] ¹ ≤ 40
CO [mg/Nm ³]	451	378	390	[CO] ² ≤ 500
OGC [mg/Nm ³]	8	17	18	[OGC] ³ ≤ 20
NO _x [mg/Nm ³]	63	148	154	[NO _x] ⁴ ≤ 200

Dust content of exhaust gases [PM] ¹ ≤ 40 mg/Nm³ for 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 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:

Table 2

Model boiler	Results η_s %	In accordance REGULATION (EU) 2015/1189. [%]
COMBO 25	79	$[\eta_s]^1 \geq 77$
COMBO 40	82	$[\eta_s]^1 \geq 77$
COMBO 60	82	$[\eta_s]^1 \geq 77$

Where:

- η_s % - the seasonal space heating energy efficiency:

$[\eta_s]^1 \geq 77$ % 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 COMBO 25, COMBO 40 and COMBO 60 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.



11.01.2020

MANAGER:
(eng. Pl. Iliev)

NOTE:

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