



Termoplam Ltd.
Testing laboratory

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

Test Report

№ 291
07.07.2023

I. NAME AND SIGNATURE OF THE TESTED SAMPLE:

Production series (range) TEMY PRO: TEMY PRO 12 kW, TEMY PRO 18 kW and TEMY PRO 30kW;

II. NAME AND DESCRIPTION OF THE TESTED SAMPLE:

Series of wood heating boilers (range) TEMY PRO with a rated thermal output of 12 kW to 30 kW, one unit per test.

III. LEGAL DOCUMENT: EN 303-5:2021, EN 304:2017, EN 45001 and EN ISO/IEC 17025:2018.



Picture of the sample

IV. QUANTITY OF THE TESTED SAMPLES: The samples from the product range TEMY PRO. One boiler for each sample of the product range.

V. MANUFACTURER: "TERMOMONT" d.o.o , Serbia; City: Prhovacka bb, 22310 Simanovci.

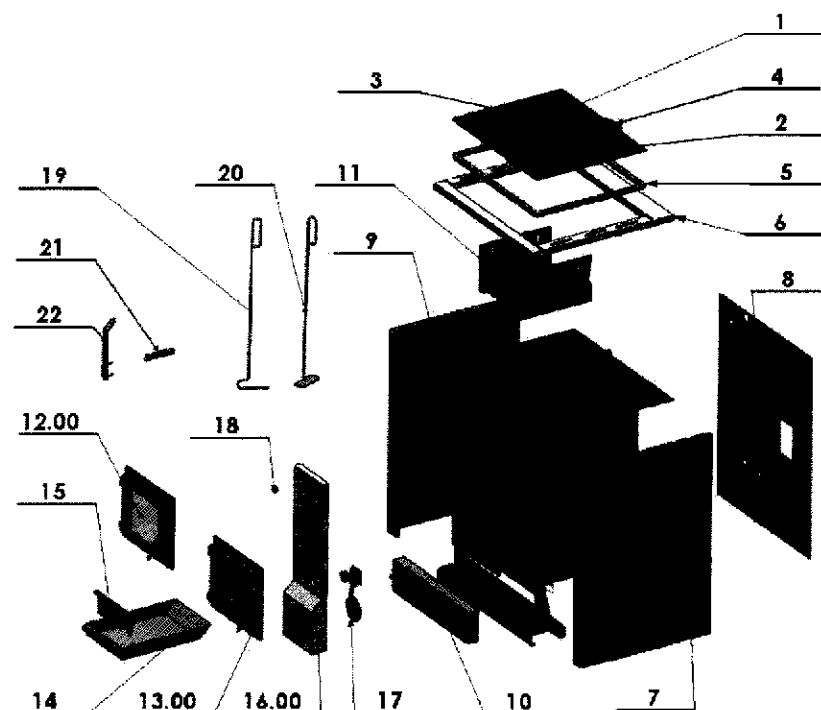
VI TEST APPLICANT: "TERMOMONT" d.o.o , Serbia; City: Prhovacka bb, 22310 Simanovci

VII. PURPOSE AND OBJECT OF THE TEST:

Heating boiler thermal test for defining of:

- 7.1. Nominal heat output;
- 7.2. Test for determining heating boiler efficiency.
- 7.3. Determining emissions from the heating boiler.
- 7.4. Pressure test of the boiler plumbing parts.
- 7.5. Calculation of the seasonal space heating emissions.
- 7.6. Calculation of the seasonal space heating energy efficiency.
- 7.7. Calculation of the energy efficiency index (EEI).

VIII. TECHNICAL FEATURES:



Scheme (drawing of the boiler)

- 8.1. Heat input Q_B - according to section 3.13 from EN 303-5:2021;
- 8.2. Thermal capacity P - according to section 3.6 from EN 303-5:2021;
- 8.3. Efficiency $\eta_k = P/Q_B$ - according to section 4.4.2 and 5.9.3 from EN 303-5:2021.
- 8.4. Boiler weight – without water/ total weight (with water content):
 - 8.4.1. TEMY PRO 12 kW - 200/ 231 kg.;
 - 8.4.2. TEMY PRO 18 kW - 210/ 250 kg.;
 - 8.4.3. TEMY PRO 30 kW - 220/ 285 kg

IX. TEST CONDITIONS:

- 9.1. Executor: Termoplam Ltd. Sofia
- 9.2. Weather conditions: Ambient temperature t_a : 19/21 °C ÷ 19/21 °C (from 15 °C to 30 °C according to section 5.6.1 or EN 303-5:2021).
- 9.3. Starting Date: 03.07.2023 y. Date of completion: 07.07.2023 y.
- 9.4. Test fuel weight:
 - 9.4.1. $B_n = 2.55 \div 6.45$ kg/h (wood at rated heating output for two semi periods of 2 hour with continuous combustion according according to 5.6.4.1 and 4.4.5 from EN 303-5:2021).
 - 9.4.2. $B_{red} = 0.85 \div 2.1$ kg/h (wood at reduced heating output for two semi periods of 2 hour with continuous combustion according according to 5.6.4.1 and 4.4.5 from EN 303-5:2021).
- 9.5. Draft (low pressure in the flue pipe) $\leq 0,15 \div 0,28$ mbar (see section 4.4.4 from EN 303-5:2021).
- 9.6. Fuel type:
 - 9.6.1. Wood with calorific value $H_u = 18350 \pm 60$ kJ/kg according to test report № 12577/16.12.2022 issued by the EUROTTEST - Control SA (see section 5.3 and table 9 from EN 303-5:2021 and specified in the maintenance book).
- 9.7. Temperature of outgoing water 80.5/84.5 °C ÷ 81.6/85.1 °C (70 °C ÷ 90 °C see section 5.7.2 from EN 303-5:2021).
- 9.8. Other conditions :
 - 9.8.1. The test is made under the conditions quoted above and observing the following additional ones:
 - 9.8.1.1. Complied with the safety measures according to EN 303-5:2021 и EN 304;

9.8.1.2. The tested sample meets the instruction for installation and operation according to EN 303-5:2021 and EN 304.

9.9. Used equipment - according to section 5.2 from EN 303-5:2021.

9.10. Recording devices:

9.10.1. Auxiliary devices: PC with software application package.

X. RESULTS FROM THE TEST:

10. Parametres.

10.1. Rated heating output of the boiler P_N according to section 3.7 from EN 303-5:2021.

10.2. Duration of the test rated heating output (two semi periods):

10.2.1. Wood duration of the test ≥ 2 h according to section 5.6.4.1 and 4.4.5 from EN 303-5:2021.

10.3. Maximum temperatures of the elements:

10.3.1 For heating boiler service:

10.3.1.1. Handle of the upper door $\leq 56,2/54,0$ °C – according to 4.3.7 from EN 303-5:2021;

10.3.1.2. Handle of the lower door $\leq 55,8/52,1$ °C – according to 4.3.7 from EN 303-5:2021.

10.4. Real values of the thickness measurement, etc. with additional certificates enclosed.

10.5. After the test of the plumbing parts at pressure $p_{outg}=2 \times PS=2 \times 3=6$ [bar] there are no leaks and visible deformations (elastic and plastic) in accordance with section 5.4.1 from EN 303-5:2021.

10.6. Testing of thermal protection at the outflow (safety) – ordering electrical valve on the unloading spiral is not installed – according to section 4.3.9 from EN 303-5:2021.

10.7. The value of water pressure losses of the boiler is between $90 \div 280$ mm H_2O according to A.10 from EN 304.

10.8. For calculation of the values of Q_B , P and η_K are used formulas from items 5.9.1, item 5.9.2 and item 5.9.3.2 from EN 303-5:2021.

* Values before the slash refer to the test at nominal power, and after it are for minimum power.

Table 1

Measurement	TEMY PRO 12		TEMY PRO 18		TEMY PRO 30		Limit
	nom	min	nom	min	nom	min	
Regime	nom	min	nom	min	nom	min	-
t_A °C	195	186	216	200	225	210	
t_L °C	≤19	≤19	≤19	≤20	≤21	≤21	15÷30
t_1 upper surface (average value)	≤55.8	≤52.3	≤57.9	≤52.5	≤58.1	≤53.6	≤60+t _L *= 79
t_2 left wall (average value)	≤53.3	≤48.5	≤52.3	≤49.7	≤54.8	≤51.6	≤60+t _L *= 79
t_3 right wall (average value)	≤54.1	≤48.9	≤53.5	≤50.1	≤54.4	≤51.7	≤60+t _L *= 79
$t_{floor\ max}$	≤38.0	≤37.3	≤38.9	≤38.1	≤38.9	≤38.5	≤ 79 *
t upper handle	≤55.6	≤52.3	≤55.8	≤52.9	≤56.2	≤54.0	≤60+t _L *= 79
t lower handle	≤52.3	≤50.0	≤53.4	≤51.7	≤55.8	≤52.1	≤60+t _L *= 79
$P_{outg. = 2xPS\ bar}$	6	6	6	6	6	6	= 6 bar
W_1 m ³ /h	920	295	750	260	1330	410	-
t_V °C	81.6	80.5	86.5	83.9	85.1	84.5	-
t_R °C	70.2	68.8	65.7	63.7	65.3	63.5	70 ÷ 90
B_n kg/h	2.55	0.85	3.8	1.29	6.45	2.1	-
P kW	12.24	4.03	18.2	6.13	30.72	10.05	
Q_B kW	13.0	4.33	19.37	6.58	32.82	10.69	
$\eta_{\kappa} = P/Q_B$ [%]	94.15	93.07	93.95	93.16	93.60	93.46	class 5
CO mg/m ³ ** at 10% O ₂	628.5	589.5	657.01	604.63	661.46	635.78	≤700
CO ₂ % vol. part.	10.73	11.5	10.15	11.21	9.96	10.92	-
OGC mg/m ³ at 10% O ₂ ***	23.6	19.6	24.6	21.1	25.3	22.7	≤ 30
Dust mg/m ³ at 10% O ₂ ****	49.6	42.2	51.9	43.6	53.4	45.3	≤60
W % ****	≤30	≤30	≤30	≤30	≤30	≤30	-
O ₂ % vol. part.	9.9	9.1	10.5	9.4	10.7	9.7	10
NOx mg/m ³ at 10% O ₂	106.5	97.5	137.3	101.8	143.7	110.2	
P_N kW	12	-	18	-	30	-	-

- * According to section 4.3.7 from EN 303-5:2021.
- ** Emission class 5 of the boiler at rated heating output ≤50 kW according to section 4.4.7 and table 7 from EN 303-5:2021.
- *** Emission class 5 of the boiler at rated heating output ≤50 kW according to section 4.4.7 and table 7 from EN 303-5:2021.
- **** Fuel – wood according to section 5.3, table 9 from EN 303-5:2021.
- ***** Emission class 5 of the boiler at rated heating output ≤50 kW according to section 4.4.7 and table 7 from EN 303-5:2021.

XI. Seasonal space heating emissions: acc. to table 8, Annex F from EN 303-5:2021, Annex II and Annex III of the REGULATION (EU) 2015/1189:

Table 2

Results	Model boiler			In accordance REGULATION (EU) 2015/1189.
	TEMY PRO 12	TEMY PRO 18	TEMY PRO 30	[mg/Nm ³]
Dust [mg/Nm ³]	43	45	46	[PM] ¹ ≤ 60
CO [mg/Nm ³]	595	612	640	[CO] ² ≤ 700
OGC [mg/Nm ³]	20	22	23	[OGC] ³ ≤ 30
NO _x [mg/Nm ³]	99	107	115	[NO _x] ⁴ ≤ 200

Dust content of exhaust gases [PM]¹ ≤ 60 mg/Nm³ for manual stoked boilers in accordance with point 1 (c), of Annex II of the REGULATION (EU) 2015/1189.

CO of exhaust gases [CO]² ≤ 700 mg/Nm³ for manual stoked boilers in accordance with point 1 (e), of Annex II of the REGULATION (EU) 2015/1189.

OGC of exhaust gases [OGC]³ ≤ 30 mg/Nm³ for manual 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.

XII. Seasonal space heating energy efficiency: acc. to Annex F from EN 303-5:2021, Annex II and Annex III of the REGULATION (EU) 2015/1189:

Table 3

Model boiler	Seasonal space heating energy efficiency η _s %	In accordance REGULATION (EU) 2015/1189 [η _s] [%]
TEMY PRO 12	82	[η _s] ¹ ≥ 75
TEMY PRO 18	82	[η _s] ¹ ≥ 75
TEMY PRO 30	82	[η _s] ² ≥ 77

Where:

- η_s % - the seasonal space heating energy efficiency:

[η_s]¹ ≥ 75 % for boilers with a rated heat output of 20 kW or less in accordance with point 1 (a), of Annex II of the REGULATION (EU) 2015/1189.

[η_s]² ≥ 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.

XIII. Energy efficiency index (EEI): acc. to table 8, Annex F from acc. to Annex II and Annex VIII of the REGULATION (EU) 2015/1187:

Table 4

Model boiler	Energy efficiency index EEI	Energy efficiency class
TEMY PRO 12	121	A+
TEMY PRO 18	121	A+
TEMY PRO 30	120	A+

The energy efficiency index is calculated according to:

- 13.1. The requirements and the formulas of ANNEX VIII of REGULATION (EU) 2015/1187;
- 13.2. The energy efficiency index is calculated on the database provided by manufacturer for boiler burning wood;
- 13.3. The energy efficiency index is set for preferred fuel: wood according section 5.6.4.1 and section 5.3 from EN 303-5:2021.
- 13.4. Energy efficiency class is determined based on the energy efficiency index EEI according to Table 1 of ANNEX II of REGULATION (EU) 2015/1187.

XIV. ENCLOSURES:

- 14.1. Prints of the results from page 5.
- 14.2. Instruction for installation and operation - Yes.
- 14.3. Assembly drawing of the sample - 1.
- 14.4. Certificates (annexs A, B, C, D, and E) – 5.

MANAGER:



NOTE:

The test results 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.

Annex A

Certificate of steel sheet with a thickness of 5 mm

HIS GROUP Serbia Iron & Steel LLC Belgrade, Bulevar Mihajla Pupina 6,
Belgrade-New Belgrade,
11000 Belgrade, Republic of Serbia



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0045-CPR-0761

INSPECTION CERTIFICATE: 3.1 EN 10204:2004

PAGE No: 1

-uverenje o ispitivanju-

(strana br):

PURCHASER: ATENIC COMMERCE D.O.O.

(kupac) CACAK

BULEVAR OSLOBODILACA CACKA 91

CERTIFICATE No 40356

(uverenje broj)

TRADING CO: ATENIC COMMERCE D.O.O.

(izvoznik) CACAK

BULEVAR OSLOBODILACA CACKA 91

PURCHASE ORDER

ITEM:

PRODUCT: HOT ROLLED COILS

(proizvod)

CONTRACT No. ATEN1042RS

DIMENSIONS: 5,000 X 1500 X

(dimenzije, mm) EN 10051/2010

(ugovor broj)

QUALITY: S235JR+AR

(kvalitet) EN 10025-2/2019

T: HR+CE

DATE OF ISSUE 07/05/2022

Net weight(kg): 47160

(dat.izdavanja)

DELIVERY CONDITIONS : AR

(STANJE ISPORUKE)

Transport: 315647715004

MECHANICAL PROPERTIES - MEH.TEH.OSOBINE														
COIL No,	Heat No	Impact test										Bend	Hardness	Melt
(kotur br.)	Šarža	Re	Rm	Re/	IA	KV2			test	(tvrdoća)	furn			
paket br)			Rm	Elo	(žilavost)									
				Ing.	Sr.Vr.	1	2	3	S		(nacin)			
		MPa	MPa								Proiz			
				%	J	T°C	J	J	J	180°	HRB HV10			
2D35025	380650	330	457	,72	31						Y			
2D35026	380650	330	457	,72	31						Y			
2D35027	380650	330	457	,72	31						Y			
2D35028	380650	330	457	,72	31						Y			
CHEMICAL COMPOSITION OF HEAT - HEMIJSKI SASTAV SARZE (%)														

Annex B

Certificate of steel sheet with a thickness of 4 mm

JIBO GROUP Serbia Iron & Steel Ltd. Belgrade, Bulevar Mihajla Pupina 6,
Belgrade-New Belgrade,
11000 Serbia, Republic of Serbia



INSPECTION CERTIFICATE: 3.1 EN 10204:2004
-uverenje o ispitivanju-

PAGE No: 1
(strana br):

PURCHASER: ATENIC COMMERCE D.O.O.
(kupac) CACAK
BULEVAR OSLOBODILACA CACKA 91

CERTIFICATE No 40857
(uverenje broj)

TRADING CO: ATENIC COMMERCE D.O.O.
(izvoznik) CACAK
(primalac) BULEVAR OSLOBODILACA CACKA 91

PURCHASE ORDER
ITEM:

PRODUCT: HOT ROLLED COILS
(proizvod)

CONTRACT No. ATEN1042RS
(ugovor broj)

DIMENSIONS: 4.000 X 1500 X
(dimenzije, mm) EN 10051/2010

QUALITY: S235JR+AR
(kvalitet) EN 10025-2/2019

T: HR+CE
DATE OF ISSUE 10/05/2022
(dat.izdavanja)

Net weight(kg): 47600

DELIVERY CONDITIONS : AR
(STANJE ISPORUKE)

Transport: 338747698672

MECHANICAL PROPERTIES - MEH.TEH.OSOBINE											
COIL No.	Heat No.							Impact test	Bend	Hardness	Melt
PACK No.	Šarža	Re	Rm	Re/	RA		KVZ	test	(tvrdoća)	furn	
(kotur br.)	(paketa br.)		Rm	El0	Ing.	Sr.Vr.	1 2 3	S		Proiz.	
		MPa	MPa	%	J	T°C	J J J	180°	HRB HV10		
2D42012	885146	301	394	.76	34					Y	
2D42013	885146	301	394	.76	34					Y	

CHEMICAL COMPOSITION OF HEAT - HEMIJSKI SASTAV ŠARŽE (%)

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Termoplam Ltd. Sofia
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Annex C
Certificate of welding electrode

voestalpine Böhler Welding Austria GmbH

voestalpine Böhler Welding Austria GmbH

Böhringerweg 1 | 1083 Kapfenberg
Austria
T. +43 3524101
welding.austria@voestalpine.com
www.austriaproduktion.com



Inspection certificate 3.1

as per : EN 10204
No. : 2022-2031016099-10-425107-014
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PQ no.	eMail15.04.2022	of	15.04.2022
Order no.	1031013381		
Delivery note/pos./split	2031018099/000000/000010	of	28.04.2022
Product	GMAW wire electrode		
Trade name	ECOspark 420		
Standard designation	EN ISO 14341 -A - G 42 5 M21 3Si1 / G 42 4 C1 3Si1 AWS A5.18: ER70S-6		
Dimension	1,0 mm		
Heat no.	425107		
Quantity	900,0 KG		

Chemical composition in % of the product

C	Si	Mn	P	S	Cr	Mo	Ni	V	Cu	Ti	Al	Zr		
0.06	0.83	1.48	0.011	0.012	0.01	0.01	0.01	0.01	0.01	< 0.01	< 0.01	< 0.01		

Mechanical properties EN 10204: 2.2

Tensile test								according to : EN ISO 6892-1/08	
Specimen preparation								according to : EN 876	
T	ReL / Rp 0.2	Rp 1.0	Rm	A (Lo = 5d)	Z	VWBH	Remarks		
	MPa	MPa	MPa	%	%	PWT			
20°C	≥ 420		500 - 640	≥ 30			M21		

Impact test							according to : EN ISO 146-1/10	
Specimen preparation							according to : EN 876 VWT 0/b	
T	Impact energy	Average	Lateral expansion	Shear fracture	VWBH	Remarks		
	KV / J	KV / J	mm	%	PWT			
-50°C	≥ 47					M21		

The product ECOspark 420 meets the requirements of the filler metal specification ASME sec II, part C, AWS A5.18: ER70S-6 when tested in accordance with that specification. Produced according to AWS A5.01, class S1

Town
Kapfenberg

Date
28.04.2022

This certificate was issued by DP-equipment and does not require signature.

Authorized representative
Gugimajer

voestalpine

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Termoplam Ltd. Sofia
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Annex D
Certificate of seal



Firewheel Industrial Corporation

Headquarters: RM2101, 21/F, Yaojiang International Plaza,
No. 258 Wusong Road, Shanghai 200682, P.R. China.
Tel: 86-21-63096460 to 82 Fax: 86-21-63096483

- ★ High temperature resistant glass fiber and ceramic fiber textiles
- ★ Sealing packing and gasket
- ★ Engineering plastic materials
- ★ Rubber sheeting and molded parts
- ★ Thermal and acoustic insulation materials
- ★ Electrical insulation materials

QUALITY CERTIFICATE

MESSRS
TEHNIKA KB

ISSUING DATE:
AUG.31,2021

SUPPLIER: FIREWHEEL INDUSTRIAL CORPORATION

DESCRIPTION	FG103T TEXTURIZED FIBERGLASS BRAIDED SQUARE PACKING	SIZE	14MM,18MM,30M M		
INVOICE.NO.	FWG21NP05	QUANTITY	SEE INVOICE		
INSPECTION DATE	AUG.24,2021	PRODUCTION DATE	AUG.27,2021		
ITEM	SPEC. ACC. TO FIREWHEEL TDS	INSPECTION RESULT	COMMENTS		
TEMP	500C	500C	GOOD		
CONCLUSION:	QUALIFIED				
APPLICABILITY OF THE GOODS	FOR THE GOODS ON STOCK - 2 YEARS, FOR THE GOODS INSTALLED ACC. INSTRUCTIONS - 1 YEAR.OR DEPENDS				
CHECKED BY	王浩然	QUALITY MANAGER	舒菲菲	DIRECTOR	甘露泉

NOTES:

1. STORAGE OF THE GOODS: KEEP IN DRY, CLEAN AND WELL-VENTILATED PLACES AND STOCKS.
2. THE GOODS SHOULD BE KEPT AWAY FROM RAIN, HUMIDITY AND ANY OTHER UNFAVORABLE CONDITIONS.
3. HANDLE, STORAGE AND TRANSPORTATION WITH CARE TO AVOID ANY DAMAGE.

菲亚实业(上海)有限公司
FIREWHEEL INDUSTRIAL CORPORATION

Annex E

Certificate for the management system according to ISO 9001:2015

CERTIFICATE



**for the management system according
to ISO 9001:2015 and ISO 14001:2015**

The proof of the conforming application with the regulation was furnished and in accordance with certification procedure it is certified for the company



TERMOMONT DOO

Prhovačka bb
SRB - 22310 Šimanovci

Scope

**Design, production and sales of thermal water boilers, burners,
boilers on pallet and biomass and solar sanitary boilers**

Certificate Registration No.: TIC 15 100 138575
TIC 15 104 131121

Valid until: 2022-07-29
Valid from: 2019-08-05

Audit Report No.: 3330 2MNN G0

This certification was conducted in accordance with the TIC auditing and certification procedures and is subject to regular surveillance audits.

TÜV Thüringen e.V.
Certification body for
systems and personnel



Jena, 2019-08-05



Originalzertifikate sind mit
einem Hologramm versehen