



TEST REPORT

30-15781/T

Product: Hot-water condensing boiler

Type designation: ONGAS NOVA 10, ONGAS NOVA 13

Customer: ÖNMETAL DÖKÜM SAN. A.Ş.
Ikitelli OSB Mah. 25. Cad. No:10 Başakşehir
34306 İstanbul
TURKEY

Manufacturer: ÖNMETAL DÖKÜM SAN. A.Ş.
Ikitelli OSB Mah. 25. Cad. No:10 Başakşehir
34306 İstanbul
TURKEY

Manufacturing plant: ÖNMETAL DÖKÜM SAN. A.Ş.
Edirne OSB 4. Cad. No:3-5
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TURKEY

Responsible employee: Ing. Bohdan Brázda

Report issue date: 2022-04-20

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

The tests were performed based on these documents:

- Order No. B-74799 of 2021-11-03
- Contract No. B-74799/30
- Amendment 1 to Contract B-74799/30 of 2022-02-25

I. Description of product tested

The boilers ONGAS NOVA 10 and ONGAS NOVA 13 are floor-standing gas fired condensing hot water boilers. The boilers are designed for the heating of the water in central heating systems. The boilers are equipped with premix burner burning natural gas (G20). According to the combustion products exhaust, the boilers are of B₂₃ type. Gas category of these boilers is I_{2H} and I_{2E}.

Technical data of the appliance:

Model	Heat input [kW]	Heat output [kW]		Maximum water temperature for central heating [°C]	Dimensions (W x H x L) [mm]
		at 80/60 °C	at 50/30 °C		
ONGAS NOVA 10	150,0 – 1080,0	145,0 – 1038,0	162,0 – 1112,0	80	1013x1590x2500
ONGAS NOVA 13	200,0 – 1360,0	193,6 – 1316,0	215,0 – 1400,0	80	1013x1590x3100

These condensing hot water boilers are equipped with following components:

a) Boiler ONGAS NOVA 10

Component	Manufacturer	Specification	Remarks
Burner control	Siemens	LMS 14.191	EC type examination certificate No.: CE-0085CP0169 of 2018-01-31 EU Declaration of Conformity No.: 2018/13 of 2018-04-23
Display card	Siemens	AVS 37.295	EU Declaration of Conformity No.: CE1T2357xx3_V3 of 2019-04-15
Blower	EBM-Papst	G3G250 MW50-01	EU-Declaration of Conformity of 2020-05-04
Blower (alternative)	Fasco - Regal Beloit	GPM 10H	EC Declaration of Conformity of 2020-02-27
Gas valve	Dungs	MBC 700 N	EU-Declaration of conformity of 2018-04-21 EU-Type Examination Certificate No.: C5A 18 04 22629 022 of 2018-04-11
Mixer	Dungs	N/N 2 MW	
Premix burner (Ø170mm)	Bekaert-Polidoro	L=925 mm	
Water inlet temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Water outlet temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Flue gas temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Limit thermostat	Zettler	KDS301	Certificate No.: R 50308437 of 2015-05-27 Certificate of Conformity No.: AN 50308438 0001 of 2015-05-27
Ignition transformer	Anstoss	ZAG2 Var	EC Declaration of Conformity of 2020-05-19
Ignition electrode	BERU	ZE 10-72-74 B	
Water pressure sensor	GTE	TCEAA00	Attestation of Conformity no. 3507070.01_AoC_EMC of 2020-05-29
Heat exchanger	Onmetal	ONGAS NOVA 10 HEX	
Siphon	Almeva	Long John	

b) Boiler ONGAS NOVA 13

Component	Manufacturer	Specification	Remarks
Burner control	Siemens	LMS 14.191	EC type examination certificate No.: CE-0085CP0169 of 2018-01-31 EU Declaration of Conformity No.: 2018/13 of 2018-04-23
Display card	Siemens	AVS 37.295	EU Declaration of Conformity No.: CE1T2357xx3_V3 of 2019-04-15
Blower	EBM-Papst	G3G315	EU Declaration of Conformity of 2017-08-01
Blower (alternative)	Fasco - Regal Beloit	GPM12	
Gas valve	Dungs	MBC 1200	EU-Declaration of conformity of 2018-04-21 EU-Type Examination Certificate No.: C5A 18 04 22629 022 of 2018-04-11
Mixer	Dungs	N/N 2 MW	
Premix burner (Ø170mm)	Bekaert-Polidoro	L=1225 mm	
Water inlet temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Water outlet temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Flue gas temperature sensor	Enpi	STD 1310K00KE	EC Declaration of Conformity of 2020-05-14
Limit thermostat	Zettler	KDS301	Certificate No.: R 50308437 of 2015-05-27 Certificate of Conformity No.: AN 50308438 0001 of 2015-05-27
Ignition transformer	Anstoss	ZAG2 Var	EC Declaration of Conformity of 2020-05-19
Ignition electrode	BERU	ZE 10-72-74 B	
Water pressure sensor	GTE	TCEAA00	Attestation of Conformity no. 3507070.01_AoC_EMC of 2020-05-29
Heat exchanger	Onmetal	ONGAS NOVA 13 HEX	
Siphon	Almeva	Long John	

II. Sample tested

The visual inspection, tests and verifications were carried out on the sample indicated in table below:

Reg. No. SZÚ	Product	Date of submission
0212.21.35681.001	ONGAS NOVA 10	2021-11-08
0212.21.35682.001	ONGAS NOVA 13	2021-11-08

The visual inspection, tests and verification were carried out by technicians Milan Holomek and Ondřej Ptáček at the test station of SZU since 2021-11-20 till 2021-11-24.

The tests were performed using measuring and testing equipment with valid calibration.

III. Measuring and testing equipment

No.	Name	Inventory No. (Serial number)
1.	Barometer	022434/P3
2.	Water meter DN80 Optiflux 5300	022434/V2
3.	Gas meter RABO G65	MaR17/F1
4.	Humidity meter and thermometer	022434/H1
5.	Elektrometer ZE310.DU.11E301-10	022434-E1
6.	Set for measuring of temperatures	022434/T1
7.	Differential pressure gauge	MaR01_TI
8.	Manometer (gas pressure at gas meter)	022389-C/10
9.	Manometer (gas pressure before the boiler)	022389-C/11
10.	Chronometer	990760
11.	Combustion product analyser Horiba	022392
12.	Thermometer electronic	022320/6
13.	Manometer Testo 510	ME 546
14.	Soudness meter WOHLER DP 600	022388
15.	Pressure pump	ME 529

Note: *) Calibration prior to each measurement using certified reference material

IV. Test results

No.	Name and specification	Technical standard / regulation applied	Source materials	Evaluation
1.	Soundness of the gas circuit	ČSN EN 15502-1+A1:2017, Art. 8.2, 8.2.1	Page 6	+
2.	Soundness of the combustion circuit	ČSN EN 15502-2-1+A1:2017, Art. 8.2.2, 8.2.2.101, 8.2.2.103, 8.2.2.103.1, 8.2.2.103.2	Page 7 - 10	+
3.	Soundness of the water circuit	ČSN EN 15502-1+A1:2017, Art. 8.2.3, 8.2.3.1, 8.2.3.4, 8.2.3.4.2, 8.2.3.4.2.1, 8.2.3.4.2.2	Page 11 - 12	+
4.	Hydraulic resistance	ČSN EN 15502-1+A1:2017, Art. 8.3	Page 13 - 14	+
5.	Heat input, heat output and useful efficiency	ČSN EN 15502-1+A1:2017, Art. 8.4, 8.4.1, 8.4.4, 8.4.5, 9, 9.1, 9.1.1, 9.2, 9.2.1, 9.2.2, 9.3, 9.3.1, 9.3.2, 9.3.2.1, 9.3.2.2	Page 15 - 22	+
6.	Limiting temperatures	ČSN EN 15502-1+A1:2017, Art. 8.5, 8.5.1, 8.5.2, 8.5.3, 8.5.4 ČSN EN 15502-2-1+A1:2017, Art. 8.5.101	Page 23 - 25	+
7.	Ignition, flame cross-lighting and stability	ČSN EN 15502-1+A1:2017, Art. 8.6, 8.6.1, 8.6.2 ČSN EN 15502-2-1+A1:2017, Art. 8.6.3.101, 8.6.3.111	Page 26 – 29	+
8.	Adjusting, control and safety devices	ČSN EN 15502-1+A1:2017, Art. 7.3.3, 7.3.3.1, 7.3.3.2, 7.3.3.3, 7.3.3.3.2, 8.7, 8.9, 8.11, 8.11.1, 8.11.4, 8.11.4.1, 8.11.4.2, 8.11.5, 8.11.5.2, 8.11.5.2.1, 8.11.5.2.2, 8.11.6, 8.11.6.2, 8.11.6.2.1, 8.11.6.2.2, 8.11.6.2.4, 8.11.6.2.5, 8.11.7, 8.11.8, 8.11.8.1, 8.11.8.2, 8.11.8.2.1, 8.11.8.2.3 ČSN EN 15502-2-1+A1:2017, Art. 8.9.101, 8.11.101, 8.11.101.1, 8.11.101.3, 8.11.101.3.2, 8.11.101.3.3	Page 30 - 42	+
9.	Combustion efficiency	ČSN EN 15502-1+A1:2017, Art. 8.12, 8.12.1, 8.12.3, 8.12.3.1, 8.12.3.2, 8.12.3.3, 8.12.5, 8.13, 8.13.1, 8.13.2.1, 8.13.2.6 ČSN EN 15502-2-1+A1:2017, Art. 8.12.2, 8.12.2.101, 8.12.2.102, 8.12.3.1, 8.12.3.101, 8.12.3.101.10	Page 43 – 48	+
10.	Formation of condensate	ČSN EN 15502-1+A1:2017, Art. 8.15	Page 49	+
11.	Temperature of combustion products	ČSN EN 15502-2-1+A1:2017, Art. 8.16, 8.16.101, 8.16.102, 8.16.102.1, 8.16.102.2	Page 50 – 51	+
12.	Electric auxiliary energy	ČSN EN 15502-1+A1:2017, Art. 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.6.1, 10.6.2, 10.6.3, 10.6.4, 10.6.5	Page 52 – 54	+

Evaluation: Note: + Requirement fulfilled x Not assessed
- Requirement not fulfilled 0 Not applicable

The following expanded measurement uncertainties have been calculated as the coefficient of measurement uncertainty and the expanded coefficient $k = 2$, which corresponds to a coverage probability of 95% for normal distribution.

If a statement of conformity is given, the decision rule pursuant to ILAC-G8:09/2019 art. 4.2.1 – binary statement for the simple acceptance rule shall be used.

Test objective:	Soundness of the gas circuit
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 8.2.1
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-23

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Soundness	ČSN EN 15502-1+A1:2017, Art. 8.2		
Soundness of the gas circuit The gas circuit shall be sound. Internal soundness requirements for the controls are given in Clause 7. The external soundness of the gas circuit in the boiler is verified before and after all the tests of this standard. External soundness is assured if, under the test conditions below, the leakage of air does not exceed 0,14 dm ³ /h.	ČSN EN 15502-1+A1:2017, Art. 8.2.1	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-23	t _{amb} = 23,0 °C	rel. humidity = 28,3 %	p _a = 996,3 mbar
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Testing pressure (mbar)	Medium leakage (dm ³ /hour)	Medium leakage limit (dm ³ /hour)
150	0,045	0,14

Test evaluation: The gas circuit is sound.

Test objective:	Soundness of the combustion circuit
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-2-1+A1:2017, Art. 8.2.2.101, 8.2.2.103.2
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-24

Test results:

Requirement	Specification of requirement	Test evaluation	Note																								
Soundness of the combustion circuit	ČSN EN 15502-2-1+A1:2017, Art. 8.2.2																										
<p>General Boilers and/or their ducts shall be sound in accordance with 8.2.2.102 or 8.2.2.103. Ducts that are part of the boiler shall be sound in accordance with 8.2.2.102.3, 8.2.2.102.4 and 8.2.2.102.5. Soundness is verified before and after all the tests of this standard, except the tests specified in the mechanical tests. All the joints identified in the installation instructions shall be checked, for example between: a) the boiler and its ducts; b) interconnecting ducts; c) the ducts and any bends and; d) the ducts and any fitting piece or terminal. In the case where leakage can also occur along the length of the ducts, the tests are also carried out with the maximum length of ducts as specified by the manufacturer in the installation instructions. In accordance with the installation instructions, the wall connections, the joint with the terminal or the joint with the fitting piece with another system of combustion products evacuation may be made sound.</p>	ČSN EN 15502-2-1+A1: 2017, Art. 8.2.2.101	+																									
Soundness of the air supply and combustion product circuit type C boilers	ČSN EN 15502-2-1+A1:2017, Art. 8.2.2.102																										
<p>Air supply and combustion product circuit Requirements Soundness with respect to the room where the boiler is installed is ensured if, under the specified test conditions, the leakage rates do not exceed the values in Table 102.</p> <p>Table 102: Maximum admissible leakage rate</p> <table border="1"> <thead> <tr> <th rowspan="2">Test object</th> <th rowspan="2">Surrounding of the combustion products circuit by the combustion air circuit</th> <th colspan="2">Maximum leakage rate (m³/h)</th> </tr> <tr> <th>Q_n≤40kW</th> <th>Q_n≥40kW</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Boiler with its air supply and combustion products evacuation ducts and all their joints</td> <td>completely</td> <td>5</td> <td>5 Q_n/40</td> </tr> <tr> <td>not completely</td> <td>1</td> <td>Q_n/40</td> </tr> <tr> <td rowspan="2">Boiler and the joint to the air supply and combustion products evacuation duct</td> <td>completely</td> <td>3</td> <td>3 Q_n/40</td> </tr> <tr> <td>not completely</td> <td>0,6</td> <td>0,6 Q_n/40</td> </tr> <tr> <td colspan="2">Combustion products evacuation ducts, not completely surrounded by combustion air, with all its joints excluding the joint tested above</td> <td>0,4</td> <td>0,4 Q_n/40</td> </tr> </tbody> </table>	Test object	Surrounding of the combustion products circuit by the combustion air circuit	Maximum leakage rate (m ³ /h)		Q _n ≤40kW	Q _n ≥40kW	Boiler with its air supply and combustion products evacuation ducts and all their joints	completely	5	5 Q _n /40	not completely	1	Q _n /40	Boiler and the joint to the air supply and combustion products evacuation duct	completely	3	3 Q _n /40	not completely	0,6	0,6 Q _n /40	Combustion products evacuation ducts, not completely surrounded by combustion air, with all its joints excluding the joint tested above		0,4	0,4 Q _n /40	ČSN EN 15502-2-1: 2017, Art. 8.2.2.102.1		
Test object			Surrounding of the combustion products circuit by the combustion air circuit	Maximum leakage rate (m ³ /h)																							
	Q _n ≤40kW	Q _n ≥40kW																									
Boiler with its air supply and combustion products evacuation ducts and all their joints	completely	5	5 Q _n /40																								
	not completely	1	Q _n /40																								
Boiler and the joint to the air supply and combustion products evacuation duct	completely	3	3 Q _n /40																								
	not completely	0,6	0,6 Q _n /40																								
Combustion products evacuation ducts, not completely surrounded by combustion air, with all its joints excluding the joint tested above		0,4	0,4 Q _n /40																								
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Requirement	Specification of requirement	Test evaluation	Note
Air supply duct with all its joint excluding the joint tested above	2	2 Q _n /40	0
Requirements for combustion products evacuation duct for appliances with indirect air proving <u>Requirements</u> The soundness of the combustion products evacuation duct for installation both inside and outside the room where the boiler is installed, permitted for alternative control systems, is ensured if, under the test conditions, the leakage rate per surface area of the duct does not exceed 0,006 dm ³ /s·m ² .	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.102.2	0	
Requirements for separate combustion products evacuation duct <u>Requirements</u> The soundness of a separate combustion products evacuation duct with respect to areas other than the room where the boiler is installed is ensured if under the test conditions the leakage rate per surface area of the duct does not exceed 0,006 dm ³ /(s·m ²).	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.102.3	0	
Requirements for the air supply circuit <u>Requirements</u> The soundness of the air supply circuit with respect to all areas other than the room where the boiler is installed, is ensured if under the test conditions of the leakage rate per surface area of the duct does not exceed 0,5 dm ³ /(s·m ²).	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.102.4	0	
Requirements for leakage of combustion products for type C₇ boilers <u>Requirements</u> Under the test conditions combustion products shall only escape from the secondary flue outlet.	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.102.5	0	
Soundness of the combustion product circuit of type B boilers	ČSN EN 15502-2-1+A1:2017, Art. 8.2.2.103		
General requirements Boilers shall comply with 8.2.2.103.2 or 8.2.2.103.3. Ducts of type B ₅ boilers shall comply with 8.2.2.103.4. Soundness shall be verified before and after all the tests.	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.103.1	+	
Type B₂ and B₅ boilers <u>Requirements</u> The combustion products circuit of a boiler incorporating a fan shall be sound with respect to the room where the boiler is installed. This soundness is ensured if, under the following test conditions, combustion products only escape from the flue outlet. Additionally the ducts of type B ₅ boilers should also meet the requirements of 8.2.2.103.4.	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.103.2	+	
Type B₃ boilers <u>Requirements</u> Soundness is ensured if one of the following requirements is met a) The leakage rate of the combustion products circuit does not exceed: 1) 3,0 m ³ /h for boilers with a nominal heat input until 40 kW or 2) 3 Q _n /40 m ³ /h for boilers above 40 kW; b) The leakage rate of the combustion circuit (with all the ducts and joints) does not exceed: 1) 5,0 m ³ /h for boilers with a nominal heat input until 40 kW or 2) 5 Q _n /40 m ³ /h for boilers above 40 kW.	ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.103.3	0	

Requirement	Specification of requirement	Test evaluation	Note
<p>Combustion products evacuation ducts of type B₅ boilers</p> <p>B₅ boilers include all the components necessary to exhaust the combustion products to the outside of the building.</p> <p><u>Requirements</u></p> <p>If the installation instructions specify that parts of its combustion products evacuation circuit could pass through areas other than the area where the boiler is installed, the soundness of a combustion products evacuation circuit to those other areas should be ensured. This soundness is assured if:</p> <p>a) The combustion products evacuation circuit is completely surrounded by combustion air circuit or</p> <p>b) Under the following test conditions the leakage rate per square metre surface of the duct does not exceed 0,006 dm³/(s·m²).</p> <p><u>Test conditions</u></p> <p>The test checks all the joints specified in the installation instructions, including the connections between:</p> <p>c) the boiler and its ducts;</p> <p>d) interconnecting ducts;</p> <p>e) the ducts and any bends and</p> <p>f) the ducts and any fitting piece or terminal.</p> <p>To guard against the possibility of leakage along the length of its ducts, the tests are also carried out with the maximum length of duct as specified in the installation instructions. The boiler's wall connections, its joint with the terminal or its joint with the fitting piece with another system of its combustion products evacuation circuit must be made sound in accordance with the installation instruction.</p> <p>The flue duct and its joint to the boiler shall be connected to a pressure source on one side and blocked on the other side with a pressure corresponding to the maximum pressure measured in 8.2.2.103.2.</p> <p>It is checked that the above requirement is met.</p>	<p>ČSN EN 15502-2-1+A1 2017, Art. 8.2.2.103.4</p>	<p>0</p>	

Note: + Requirement fulfilled x Not assessed
- Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-24	t _{amb} = 23,0 °C	rel. humidity = 33,8 %	p _a = 994,5 mbar
Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.2.2.102.1				
Test object	Surrounding of the combustion products circuit by the combustion air circuit	Measured leakage rate (m ³ /h)	Maximum leakage rate (m ³ /h)	
		ONGAS NOVA 13	Q _n ≤ 40kW	Q _n ≥ 40kW
Boiler with its air supply and combustion products evacuation ducts and all their joints	completely	-	5	5 Q _n /40
	not completely	-	1	Q _n /40
Boiler and the joint to the air supply and combustion products evacuation duct	completely	-	3	3 Q _n /40
	not completely	-	0,6	0,6 Q _n /40
Combustion products evacuation ducts, not completely surrounded by combustion air, with all its joints excluding the joint tested above		-	0,4	0,4 Q _n /40
Air supply duct with all its joint excluding the joint tested above		-	2	2 Q _n /40

Test according to ČSN EN 15502-2-1+A1:2017, Art.	Measured leakage rate (m ³ /hour, dm ³ /s.m ²)	Max. leakage rate (m ³ /hour, dm ³ /s.m ²)
Requirements for combustion products evacuation duct for appliances with indirect air proving		
8.2.2.102.2	-	0,006 dm ³ /s.m ²
Requirements for separate combustion products evacuation duct		
8.2.2.102.3	-	0,006 dm ³ /s.m ²
Requirements for the air supply circuit		
8.2.2.102.4	-	0,5 dm ³ /s.m ²
Requirements for leakage of combustion products for type C₇ boilers		
8.2.2.102.5	-	

Test according to ČSN EN 15502-2-1+A1:2017, Art.	Test result	Note
	ONGAS NOVA 13	
Type B₂ and B₅ boilers		
8.2.2.103.2	No leakage was found out. Combustion products escaped only from the flue outlet.	

Test according to ČSN EN 15502-2-1+A1:2017, Art.	Measured leakage rate (m ³ /hour, dm ³ /s.m ²)	Max. leakage rate (m ³ /hour, dm ³ /s.m ²)
Type B₃ boilers		
8.2.2.103.3 test a)	-	3 m ³ /h (Q _n ≤40kW)
	-	3 Q _n /40 m ³ /h (Q _n ≥40kW)
8.2.2.103.3 test b)	-	5 m ³ /h (Q _n ≤40kW)
	-	5 Q _n /40 m ³ /h (Q _n ≥40kW)
Combustion products evacuation ducts of type B₅ boilers		
8.2.2.103.4	-	0,006 dm ³ /s.m ²

Test objective:	Soundness of the water circuit
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-2-1+A1:2017, Art. 8.2.3.4.2.1, 8.2.3.4.2.2
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-24

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Soundness of the water circuit	ČSN EN 15502-1+A1:2017, Art. 8.2.3		
General <u>Requirements:</u> The boilers and/or their sections shall withstand a hydraulic test according to their classification as stated in 4.3. <u>Test conditions:</u> The tests are carried out with the water at ambient temperature and at the test pressures stated in 8.2.3.2, 8.2.3.3 or 8.2.3.4. The test pressure is maintained for at least 10 min.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.1	+	
Boilers of pressure class 1 <u>Requirements:</u> Under the test conditions below, there shall be neither leakage during the test nor permanent visible distortion at the end of the test. <u>Test conditions:</u> The test pressure is 1,5 bar for boilers < 70 kW, and 2 x PMS for boilers > 70 kW. It is checked that the above requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.2	0	
Boilers of pressure class 2 <u>Requirements:</u> Under the test conditions below, there shall be neither leakage during the test nor permanent visible distortion at the end of the test. <u>Test conditions:</u> The test pressure is 4,5 bar for boilers < 70 kW, and 2 x PMS for boilers > 70 kW. It is checked that the above requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.3	0	
Boilers of pressure class 3	ČSN EN 15502-1+A1:2017, Art. 8.2.3.4		
Boilers of sheet steel or non-ferrous metals <u>Requirements:</u> Under the test conditions below, there shall be neither leakage during the test, nor permanent visible distortion, at the end of the test. <u>Test conditions:</u> The test pressure is (2 × PMS) bar. It is checked that the above requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.1	0	

Requirement	Specification of requirement	Test evaluation	Note
Boilers of cast iron and cast materials		ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2	
Boiler body <u>Requirements:</u> At a test pressure of $2 \times \text{PMS}$, with a minimum of 8 bar, there shall be neither leakage nor permanent visible distortion at the end of the test. <u>Test conditions:</u> It is checked that the above requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.1	+	
Resistance to bursting <u>Requirements:</u> Under the test conditions below, the sections shall remain sound at a pressure of $4 \times \text{PMS} + 2$ bar. <u>Test conditions:</u> Three samples of each type of section are subjected to the pressure. It is checked that the above requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.2	+	
Tie bars <u>Requirements:</u> The tie bars shall withstand a pressure of $4 \times \text{PMS}$. <u>Verification method</u> It is checked by either calculation or testing that these requirements are met.	ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.3	0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-24	$t_{\text{amb}} = 23,0$ °C	rel. humidity = 33,8 %	$p_a = 994,5$ mbar
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Test conditions	Maximum working pressure [bar]	Test pressure [bar]	Test duration [min]	Test evaluation	Note
ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.1	6,0	12,0	10	There is no leakage and no permanent visible distortion.	
ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.2 *) Tested part: front section	6,0	26	10	There is no leakage.	Result is taken from test report of manufacturer of the heat exchanger. Minimum bursting pressure was 30 bar.
ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.2 *) Tested part: middle section	6,0	26	10	There is no leakage.	Result is taken from test report of manufacturer of the heat exchanger. Minimum bursting pressure was 30 bar.
ČSN EN 15502-1+A1:2017, Art. 8.2.3.4.2.2 *) Tested part: back section	6,0	26	10	There is no leakage.	Result is taken from test report of manufacturer of the heat exchanger. Minimum bursting pressure was 32 bar.

Notice: *) this test was performed out of scope of accreditation

Test objective:	Hydraulic resistance
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-2-1+A1:2017, Art. 8.3
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-25

Test results:

Requirement	Specification of requirement	Test evaluation	Note
<p>Hydraulic resistance</p> <p><u>Requirements:</u> Under the test conditions below, the values of the hydraulic resistance or available pressure shall comply with the values given by the manufacturer in the technical instructions for the installer.</p> <p><u>Test conditions:</u> The hydraulic resistance of a boiler (measured in mbar) has to be determined for the water rate corresponding to operation of the boiler at the nominal heat input with a water flow temperature of 80 °C and a temperature difference between the flow and the return water of 20 K generally, or that stated by the manufacturer.</p> <p>The test is carried out with the water at ambient temperature. The test rig is specified in Figure 5. Before or after the test itself, the two test pipes are connected directly to each other in order to determine their own resistance for different flow rates.</p> <p>Under the same test conditions, the curve of available pressures supplied by the manufacturer for boilers with integral pumps is checked.</p>	ČSN EN 15502-1+A1:2017, Art. 8.3	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-25	$t_{amb} = 22,9$	°C	rel. humidity = 33,8	%	$p_a = 978,1$	mbar
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Test conditions	Water flow [m ³ /h]	Hydraulic resistance [kPa]	Test evaluation:
ČSN EN 15502-1+A1:2017, Art. 8.3	8,543	0,346	The measured hydraulic resistance comply with the value given by the manufacturer in manual.
	12,250	0,709	
	18,321	1,599	
	23,717	2,699	
	27,551	3,657	
	31,388	4,763	
	35,173	6,010	
	38,963	7,393	
	42,759	8,914	
	46,531	10,592	
	50,283	12,367	
	54,039	14,332	
	57,760	16,377	
	61,475	18,570	
	65,291	21,000	
68,824	23,342		

Test objective:	Heat input, heat output and useful efficiency
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-2-1+A1:2017, Art. 8.4.1, 8.4.5, 9.2.2, 9.3.2
Sample tested:	ONGAS NOVA 10, ONGAS NOVA 13
Measuring equipment used:	see Chapter III

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Heat inputs and heat output	ČSN EN 15502-1+A1:2017, Art. 8.4		
Determination of the nominal heat input or the maximum and minimum heat input <u>Requirements:</u> The corrected heat input obtained under the test conditions below shall not differ by more than 5 % from: <ol style="list-style-type: none"> the nominal heat input, for boilers without a range rating device, or, the maximum and minimum heat input for boilers with a range rating device. If this 5 % is less than 500 W, a tolerance of 500 W is acceptable.	ČSN EN 15502-1+A1:2017, Art. 8.4.1	+	
Adjustment of the heat input by the downstream gas pressure <u>Requirements:</u> When the manufacturer's instructions specify the value of the downstream pressure that enables the nominal heat input to be obtained, the heat input obtained under the test conditions below shall not differ by more than 5 % from the nominal heat input. If this 5 % is less than 500 W, a tolerance of 500 W is acceptable.	ČSN EN 15502-1+A1:2017, Art. 8.4.2	0	
Ignition rate <u>Requirements:</u> For boilers, which may be ignited at a heat input less than the nominal heat input under the test conditions below, the ignition rate of the boiler shall not exceed the ignition rate declared by the manufacturer.	ČSN EN 15502-1+A1:2017, Art. 8.4.3	0	
Nominal output <u>Requirements:</u> The product of the efficiency determined under test condition 9.2 and the nominal heat input shall be no less than the nominal output.	ČSN EN 15502-1+A1:2017, Art. 8.4.4	+	
Verification of the nominal condensing output <u>Requirements</u> If the manufacturer states the nominal condensing output it is verified under the following test conditions.	ČSN EN 15502-1+A1:2017, Art. 8.4.5	+	
Nominal domestic hot water heat input <u>Requirement</u> Under the test conditions below, the nominal domestic hot water heat input shall be obtained or may be adjusted to within $\pm 5\%$.	ČSN EN 15502-1+A1:2017, Art. 8.4.6	0	

Requirement	Specification of requirement	Test evaluation	Note
<p>Water pressure to obtain the nominal heat input for instantaneous combination boilers <u>Requirements</u> Under the test conditions below, the heat input obtained shall be at least 95 % of the heat input obtained in 8.4.6.</p>	ČSN EN 15502-1+A1:2017, Art. 8.4.7	0	
<p>Obtaining the domestic hot water temperature for instantaneous combination boilers <u>Requirements</u> Under the conditions below, it shall be possible to achieve or adjust to, a water rate that corresponds to a temperature of between 50 °C and 80 °C for boilers with a thermostatic control or a temperature rise at the boiler outlet of between 45 K and 65 K for boilers with proportioning control.</p>	ČSN EN 15502-1+A1:2017, Art. 8.4.8	0	
<p>Heating-up time of the domestic hot water <u>Requirement</u> Under the test conditions below, the heating-up time shall not exceed 2 min.</p>	ČSN EN 15502-1+A1:2017, Art. 8.4.9	0	
Useful efficiencies	ČSN EN 15502-1+A1:2017, Art. 9		
General	ČSN EN 15502-1+A1:2017, Art. 9.1		
<p>Use of correction formula If the actual test conditions differ from the reference conditions (20 °C, 70 % relative humidity, 1 013,25 mbar) and/or the return water temperature differs from the specified value, the correction formulae given in Annex T are used to correct the determined useful efficiency for tests executed following the requirements of 9.1 and 9.2.</p>	ČSN EN 15502-1+A1:2017, Art. 9.1.1	+	
Useful efficiency at the nominal heat input	ČSN EN 15502-1+A1:2017, Art. 9.2		
<p>Requirements Under the test conditions of 9.2.2, the useful efficiency at the nominal heat input, or the maximum heat input for range rated boilers, expressed in percent, shall be at least: $84 + 2 \log_{10} P_n$ $87,5 + 1,5 \log_{10} P_n$ for low temperature boilers; $91 + \log_{10} P_n$ for condensing boilers. where P_n is the nominal output (maximum output for range rated boilers), expressed in kilowatts (kW). Where the nominal heat output P_n is > 400 kW, the value of efficiency is calculated using 400 kW as the maximum nominal output. In addition, for range rated boilers, the efficiency at a rate, corresponding to the arithmetic mean of the maximum and minimum heat input, expressed in percent, shall be at least: $84 + 2 \log_{10} P_{a,i}$ $87,5 + 1,5 \log_{10} P_a$ for low temperature boilers; $91 + \log_{10} P_a$ for condensing boilers. where P_a is the arithmetic mean of the maximum and minimum useful heat output as stated by the manufacturer, expressed in kilowatts (kW). Where P_a is > 400 kW, the value of efficiency is calculated using 400 kW as the maximum nominal output. If the minimum useful heat output is also > 400 kW, then the efficiency will be calculated using 400 kW as P_a.</p>	ČSN EN 15502-1+A1:2017, Art. 9.2.1	0 0 +	

Requirement	Specification of requirement	Test evaluation	Note
Useful efficiency at part load	ČSN EN 15502-1+A1:2017, Art. 9.3		
<p>Requirements Under the test conditions of 9.3.2, the useful efficiency for a load corresponding to 30 % of the nominal heat input or for range rated boilers to 30 % of the arithmetic mean of the maximum and minimum heat input, expressed in percent, shall be at least:</p> <p style="margin-left: 40px;">80 + 3 log₁₀ P_i; 87,5 + 1,5 log₁₀ P_i for low temperature boilers 97 + log₁₀ P_i for condensing boilers</p> <p>where P_i is the nominal output P_n, or the arithmetic mean P_a of the maximum and minimum useful output as stated by the manufacturer for range rated boilers.</p> <p>Where P_i is > 400 kW, the value of efficiency is calculated using 400 kW as the maximum nominal output. If the minimum useful heat output is also > 400 kW, then the efficiency will be calculated using 400 kW as P_i.</p>	ČSN EN 15502-1+A1:2017, Art. 9.3.1	0 0 +	
Compliance with the eco-design regulation for efficiency	ČSN EN 15502-1+A1:2017, Art. 9.5		
Requirements for seasonal space heating energy efficiency	ČSN EN 15502-1+A1:2017, Art. 9.5.1		
<p>Type B1 boilers with rated heat output ≤ 10kW and Type B1 Combination boilers with rated heat output ≤ 30kW As from 26 September 2015 the seasonal space heating efficiency calculated according to 9.5.2 shall be at least 75 %.</p>	ČSN EN 15502-1+A1:2017, Art. 9.5.1.1	0	
<p>Boilers and combination boilers with rated heat output ≤ 70 kW, with the exception of type B1 boilers with rated heat output ≤ 10 kW and type B1 combination boilers with rated heat output ≤ 30 kW As from 26 September 2015 the seasonal space heating efficiency calculated according to 9.5.2 shall be at least 86 %.</p>	ČSN EN 15502-1+A1:2017, Art. 9.5.1.2	0	
<p>Useful efficiency for nominal heat output > 70kW and ≤ 400kW Requirement: The full load useful efficiency η₄ shall be at least 86 % and the useful efficiency at 30 % of the rated heat output η₁ shall be at least 94%.</p>	ČSN EN 15502-1+A1:2017, Art. 9.5.3	0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

a) Sample tested: ONGAS NOVA 10

Test according to ČSN EN 15502-1+A1:2017, Art. 8.4.1			
Type of fuel:		G20	
Sample tested:		ONGAS NOVA 10	
Date:		2021-11-22	2021-11-22
Fuel flow:		Maximum	Minimum
Stated heat input corrected *) (expressed in terms of NCV)	(kW)	1080,0	150,0
Fuel pressure before the boiler	(mbar)	19,9	22,3
Fuel pressure at the measuring gauge	(mbar)	186,6	187,8
Ambient temperature	(°C)	22,8	22,5
Relative air humidity	(%)	54,5	35,9
Barometric pressure	(mbar)	986,7	990,9
Fuel temperature	(°C)	20,2	22,9
Fuel consumption, measured	(m ³ .h ⁻¹)	94,396	13,240
Fuel consumption, corrected	(m ³ .h ⁻¹)	113,193	15,813
Heat input (corrected) (expressed in terms of NCV)	(kW)	1093,3	152,7
Uncertainty of heat input	(kW)	6,94	0,97
Deviation	(%)	1,23	1,82
Permitted deviation	(%)	± 5	± 5

Note: *) ... heat input specified by the manufacturer

Measurement results:

Test according to ČSN EN 15502-1+A1:2017, Art. 8.4.4, 8.4.5							
Type of fuel:		G20					
Sample tested:		ONGAS NOVA 10					
Date:		2021-11-22	2021-11-23	2021-11-22	2021-11-23	2021-11-22	2021-11-23
Heat output:		Nominal	Arithm. mean	Minimum	Nominal condensing	Minimum	Partial
Temperature gradient	(°C)	80/60	80/60	80/60	50/30	50/30	37/30
ENTERED VALUES AND AVERAGE VALUES MEASURED:							
Heat input ^{*)} (expressed in terms of NCV)	(kW)	1080,0	-	150,0	1080,0	150,0	-
Heat output ^{*)}	(kW)	1038,0	-	145,0	1112,0	162,0	-
Barometric pressure	(mbar)	986,7	995,8	990,9	996,4	989,7	995,0
Ambient temperature	(°C)	22,8	25,0	22,5	21,8	21,9	24,3
Relative air humidity	(%)	54,5	28,4	35,9	39,6	42,4	25,7
Fuel pressure at the gas gauge	(mbar)	186,6	184,5	187,8	184,1	187,7	185,7
Fuel pressure before the appliance	(mbar)	19,9	23,1	22,3	19,7	22,4	22,3
Fuel temperature	(°C)	20,2	23,5	22,9	20,8	22,0	25,3
Fuel net calorific value (NCV) at 15°C and 1013.25 mbar	(MJ.m ⁻³)	34,77	34,77	34,77	34,77	34,77	34,77
Fuel gross calorific value (GCV) at 15°C and 1013.25 mbar	(MJ.m ⁻³)	38,59	38,59	38,59	38,59	38,59	38,59
Fuel consumption, measured	(m ³ .h ⁻¹)	94,40	53,18	13,24	89,17	13,73	16,08
Fuel consumption, converted	(m ³ .h ⁻¹)	107,35	60,16	14,99	101,83	15,58	18,09
Circulating water flow	(m ³ .h ⁻¹)	44,038	25,101	6,117	43,831	7,141	25,003
Average outlet water temperature	(°C)	80,2	79,8	80,3	49,6	49,8	36,6
Average inlet water temperature	(°C)	60,4	60,1	60,3	29,6	30,1	30,0
Average temperature of combustion products	(°C)	85,2	68,2	58,4	48,6	30,7	30,5
CALCULATED VALUES:							
Heat input (expressed in terms of NCV)	(kW)	1036,81	581,05	144,77	983,52	150,44	174,72
Heat output	(kW)	997,05	565,39	139,90	1011,26	162,30	189,20
Uncertainty of heat output	(kW)	7,03	4,00	0,98	7,08	1,15	3,77
Heat output / rated heat output x 100	(%)	96,05	54,47	13,48	90,94	14,60	17,01
Calorific efficiency (expressed in terms of NCV)	(%)	96,17	97,31	96,63	103,05	108,13	108,70
Uncertainty of calorific efficiency (expressed in terms of NCV)	(%)	0,93	0,95	0,94	1,00	1,05	1,98
Required boiler calorific efficiency (expressed in terms of NCV) according to ČSN EN 15502-1+A1:2017 Art. 9.2.1, 9.3.1 (must be ≥ than)	(%)	93,6	93,4	-	-	-	99,4
Calorific efficiency (expressed in terms of GCV)	(%)	86,65	87,67	87,06	92,85	97,42	97,94
Calculated boiler heat output according to ČSN EN 15502-1+A1:2017, Art. 8.4.4.	(kW)	1038,59	-	-	1112,98	-	-

Note:*)... Values declared by the manufacturer

Measurement results:

b) Sample tested: ONGAS NOVA 13

Test according to ČSN EN 15502-1+A1:2017, Art. 8.4.1			
Type of fuel:		G20	
Sample tested:		ONGAS NOVA 13	
Date:		2021-11-26	2021-11-23
Fuel flow:		Maximum	Minimum
Stated heat input corrected *) (expressed in terms of NCV)	(kW)	1360,0	200,0
Fuel pressure before the boiler	(mbar)	21,0	22,4
Fuel pressure at the measuring gauge	(mbar)	460,5	188,1
Ambient temperature	(°C)	21,6	23,4
Relative air humidity	(%)	55,0	28,3
Barometric pressure	(mbar)	969,8	996,3
Fuel temperature	(°C)	21,4	23,5
Fuel consumption, measured	(m ³ .h ⁻¹)	92,071	18,087
Fuel consumption, corrected	(m ³ .h ⁻¹)	135,065	21,619
Heat input (corrected) (expressed in terms of NCV)	(kW)	1304,5	208,8
Uncertainty of heat input	(kW)	8,22	1,33
Deviation	(%)	-4,08	4,40
Permitted deviation	(%)	± 5	± 5

Note: *) ... heat input specified by the manufacturer

Measurement results:

Test according to ČSN EN 15502-1+A1:2017, Art. 8.4.4, 8.4.5							
Type of fuel:		G20					
Sample tested:		ONGAS NOVA 13					
Date:		2021-11-26	2021-11-24	2021-11-23	2021-11-26	2021-11-23	2021-11-24
Heat output:		Nominal	Arithm. mean	Minimum	Nominal condensing	Minimum	Partial
Temperature gradient	(°C)	80/60	80/60	80/60	50/30	50/30	36/30
ENTERED VALUES AND AVERAGE VALUES MEASURED:							
Heat input ^{*)} (expressed in terms of NCV)	(kW)	1360,0	-	200,0	1360,0	200,0	-
Heat output ^{*)}	(kW)	1316,0	-	193,0	1400,0	215,0	-
Barometric pressure	(mbar)	969,8	994,2	996,3	970,5	995,7	993,5
Ambient temperature	(°C)	21,6	24,0	23,4	21,9	22,0	23,4
Relative air humidity	(%)	55,0	33,8	28,3	61,1	31,5	34,0
Fuel pressure at the gas gauge	(mbar)	460,5	184,8	188,1	461,0	187,9	186,1
Fuel pressure before the appliance	(mbar)	21,0	20,1	22,4	21,1	22,5	23,0
Fuel temperature	(°C)	21,4	22,8	23,5	20,5	23,2	24,7
Fuel net calorific value (NCV) at 15°C and 1013.25 mbar	(MJ.m ⁻³)	34,77	34,77	34,77	34,77	34,77	34,77
Fuel gross calorific value (GCV) at 15°C and 1013.25 mbar	(MJ.m ⁻³)	38,59	38,59	38,59	38,59	38,59	38,59
Fuel consumption, measured	(m ³ .h ⁻¹)	92,07	68,67	18,09	93,05	18,02	20,50
Fuel consumption, converted	(m ³ .h ⁻¹)	127,13	77,80	20,54	128,98	20,46	23,08
Circulating water flow	(m ³ .h ⁻¹)	53,141	32,335	8,153	55,450	9,090	32,020
Average outlet water temperature	(°C)	79,7	79,9	80,4	50,42	50,30	36,3
Average inlet water temperature	(°C)	60,1	60,2	59,8	30,37	30,06	29,8
Average temperature of combustion products	(°C)	77,8	66,4	58,1	56,14	30,76	30,1
CALCULATED VALUES:							
Heat input (expressed in terms of NCV)	(kW)	1227,87	751,42	198,36	1245,76	197,65	222,94
Heat output	(kW)	1188,39	729,83	192,10	1283,41	212,42	241,08
Uncertainty of heat output	(kW)	8,47	5,16	1,31	8,96	1,47	4,83
Heat output / rated heat output x 100	(%)	90,30	55,46	14,60	91,67	15,17	17,22
Calorific efficiency (expressed in terms of NCV)	(%)	96,78	97,13	96,84	103,03	107,86	108,41
Uncertainty of calorific efficiency (expressed in terms of NCV)	(%)	0,95	0,95	0,93	1,00	1,03	1,94
Required boiler calorific efficiency (expressed in terms of NCV) according to ČSN EN 15502-1+A1:2017 Art. 9.2.1, 9.3.1 (must be ≥ than)	(%)	93,6	93,5	-	-	-	99,5
Calorific efficiency (expressed in terms of GCV)	(%)	87,20	87,51	87,26	92,83	97,18	97,68
Calculated boiler heat output according to ČSN EN 15502-1+A1:2017, Art. 8.4.4.	(kW)	1316,27	-	-	1401,24	-	-

Note:*)... Values declared by the manufacturer

Required properties	Test result	Note
Obtaining the domestic hot water temperature for instantaneous combination boilers		
ČSN EN 15502-1+A1:2017, Art. 8.4.8	0	
Heating-up time of the domestic hot water		
ČSN EN 15502-1+A1:2017, Art. 8.4.9	0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Test objective:	Limiting temperatures
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 8.5, 8.5.1, 8.5.2, 8.5.3, 8.5.4 ČSN EN 15502-2-1+A1:2017, Art. 8.5.101
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-26

Test results:

Requirement	Specification of requirement	Test evaluation	Note
<p>General The boiler is installed as stated in 8.1.2, supplied with one of the reference gases, or an actually distributed gas distribute, at the nominal heat input and an adjustable thermostat or adjustable control temperature set point is set to the position or value giving the highest temperature. The limiting temperatures are measured when thermal equilibrium is reached.</p>	ČSN EN 15502-1+A1:2017, Art. 8.5.1	+	
<p>Limiting temperatures of the adjusting, control and safety devices <u>Requirements:</u> Under the test conditions below, the temperature of the adjusting, control and safety devices shall not exceed the value stated by the manufacturer and their operation shall remain satisfactory. The surface temperatures of the control knobs and of all the parts that have to be touched during normal use of the boiler, measured only in the zones intended to be gripped, and under the conditions stated below, shall not exceed the ambient temperature by more than: 35 K for metals; 45 K for porcelain; 60 K for plastics. Nevertheless, parts of the case within 5 cm of the edge of the lighting hole or sight glass, if any, and within 15 cm of the flue duct are exempt from this requirement.</p>	ČSN EN 15502-1+A1:2017, Art. 8.5.2	+	
<p>Limiting temperatures of the side walls, the front and the top <u>Requirements:</u> The temperature of the side walls, front and top of the boiler shall not exceed the ambient temperature by more than 80 K, when measured under the test conditions below. Nevertheless, parts of the case within 5 cm of the edge of the lighting hole or sight glass, and within 15 cm of the flue duct are exempt from this requirement.</p>	ČSN EN 15502-1+A1:2017, Art. 8.5.3	+	
<p>Limiting temperatures of the test panels and the floor <u>Requirements:</u> The temperature of the floor on which the boiler is placed, where appropriate, and that of the panels placed at the side of and behind the boiler shall not, at any point, exceed the ambient temperature by more than 80 K under the test conditions below.</p>	ČSN EN 15502-1+A1:2017, Art. 8.5.4	+	
		0	

Requirement	Specification of requirement	Test evaluation	Note
When this temperature rise is between 60 K and 80 K, the manufacturer shall state in the technical instructions for the installer the nature of the protection, which has to be applied between the boiler and the floor or walls when these latter are made of inflammable materials. This protection shall be supplied to the test laboratory which shall check that, with the boiler fitted with it, the floor and panel temperatures measured under the test conditions below do not exceed the ambient temperature by more than 60 K.	ČSN EN 15502-1+A1:2017, Art. 8.5.4	0	
External temperature of the ducts where the ducts are in contact with and or passing through a wall <u>Requirements</u> The temperature of the ducts in contact with or passing through the walls of a dwelling shall not exceed the ambient temperature by more than 60 K under the test conditions below. However, when this temperature rise exceeds 60 K, the installation instructions shall state the nature of the protection which has to be applied between the ducts and the walls in case they are constructed from inflammable materials. This protection shall be supplied to the test laboratory which shall check that, with the boiler fitted with it, the external surface temperature in contact with the wall measured under the following test conditions does not exceed the ambient temperature by more than 60 K.	ČSN EN 15502-2-1: 2013, Art. 8.5.101	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-26	t _{amb} = 24,5 °C	rel. humidity = 34,5 %	p _a = 969,8 mbar
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Test according to ČSN EN 15502-1+A1:2017, Art. 8.5.2			
Point measured	Contact material	Temperature rise (K)	
		Value measured	Max. permitted value
Button "AUTO, winter trafic, night trafic, OFF"	plastic	1	60
Button "RESET"	plastic	1	60
Button "OK"	plastic	1	60
Button "ESC"	plastic	1	60
Button "i"	plastic	1	60
Button "tap"	plastic	1	60
Button "HAND"	plastic	1	60
Button "settings"	plastic	1	60
Rotary knob "plus-minus"	plastic	1	60

Test according to ČSN EN 15502-1+A1:2017, Art. 8.5.3		
Measured point (grid method)	Temperature rise (K)	
	Value measured	Max. permitted value
Front wall of the boiler	1,0	80
Left wall of the boiler	10,5	80
Right wall of the boiler	9,5	80
Bottom wall of the boiler	2,0	80
Top wall of the boiler	14,0	80
Rear wall of the boiler	15,0	80

Test according to ČSN EN 15502-1+A1:2017, Art. 8.5.4		
Measured point (grid method)	Temperature rise (K)	
	Value measured	Max. permitted value
Left wall of the corner	7,5	60
Back wall of the corner	8,0	60

Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.5.101		
Measured point (grid method)	Temperature rise (K)	
	Value measured	Max. permitted value
Flue ducts DN 315 mm	40	60

Test objective:	Ignition – Cross lighting – Flame stability
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 8.6.2 ČSN EN 15502-2-1+A1:2017, Art. 8.6.3.111
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-25

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Ignition, cross lighting, flame stability	ČSN EN 15502-1 +A1:2017, Art. 8.6		
General The tests are carried out twice, with the boiler at ambient temperature and at thermal equilibrium.	ČSN EN 15502-1 +A1:2017, Art. 8.6.1	+	
Limit conditions Requirements: Under the test conditions specified below and in still air, ignition and cross lighting shall be capable of being effected correctly, rapidly and quietly. The flames shall be stable. A slight tendency to lift at the moment of ignition is permissible, but the flames shall be stable thereafter. Ignition of the burner shall occur at all gas rates, which can be given by the controls as stated by the manufacturer and there shall be neither light-back nor prolonged flame lift. However, brief light-back during ignition or extinction of the burner is accepted if this does not affect correct operation. A permanent ignition burner shall not be extinguished during ignition or extinction of the burner; while the boiler is operating, the ignition burner flame shall not change to such an extent that it can no longer fulfil its function (ignition of the burner, operation of the flame supervision device). When the ignition burner has been alight for a sufficient time for normal and regular operation of the boiler to be obtained, it shall always be ready to operate without fail, even if the gas supply to the burner is turned off and on by several quick and successive adjustments of the thermostat or electronic temperature control system. For boilers fitted with a range rating-device, these requirements are checked both at the maximum heat input and minimum heat input stated by the manufacturer. In addition, to test flame stability for boilers, which have an indirect means of indicating the presence of the flame, the carbon monoxide concentration, at thermal equilibrium, of the dry, air-free combustion products using flame lift limit gas shall not be more than 1000 ppm. NOTE 1 ppm = 1 cm ³ /m ³ The above requirements shall also be fulfilled where spark restoration or recycling is provided.	ČSN EN 15502-1 +A1:2017, Art. 8.6.2	+	
		+	
		0	
		0	
		+	
		0	
		+	

Requirement	Specification of requirement	Test evaluation	Note
Additional requirements for type C₍₁₀₎ and C₍₁₁₎ boilers	ČSN EN 15502-2-1+A1:2017, Art. 8.6.2.101		
Maximum pressure Requirements Shall be according to EN 15502-1+A1:2017, Art. 8.6.2 Requirements.	ČSN EN 15502-2-1+A1:2017, Art. 8.6.2.101.1	0	
Special flue conditions	ČSN EN 15502-2-1+A1:2017, Art. 8.6.3		
General Requirements Under the following test conditions for ignition of the ignition burner; ignition of the main burner by the ignition burner; or direct ignition of the main burner, complete cross lighting of the main burner and also stability of the ignition burner when it alone is alight, or of the ignition burner and main burner operating simultaneously, shall be assured. Slight flame disturbance is permitted but there shall be no flame extinction.	ČSN EN 15502-2-1+A1:2017, Art. 8.6.3.101	+	
Reduction of the gas rate of the ignition burner Requirements: Under the test conditions below and when the gas rate of the ignition burner is reduced to the minimum required to keep open the gas valve of the flame supervision device, ignition of the main burner shall be assured without damage to the boiler. Ignition of the main burner shall be assured without flame roll-out outside the case.	ČSN EN 15502-1+A1:2017, Art. 8.6.4	0	
Resistance to draught for type B boilers Requirements The flames shall be stable under the following test conditions.	ČSN EN 15502-2-1+A1:2017, Art. 8.6.101	0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-25	t _{amb} = 22,5 °C	rel. humidity = 35,5 %	p _a = 991,2 mbar
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Operating conditions	Heat input	Fuel supply pressure (mbar)	Test gas	Results	Note
Limit conditions					
Limit conditions according to Test No. 1 of ČSN EN 15502-1+A1, Art. 8.6.2	Q _n	14	G20	+	
	Q _m			+	
	Q _n	17,5	G20	+	
	Q _m			+	
Limit conditions according to Test No. 2 of ČSN EN 15502-1+A1, Art. 8.6.2 and annex U.2	Q _n - 9%	17	G20	+	
	Q _m - 9%			+	

Operating conditions	Heat input	Fuel supply pressure (mbar)	Test gas	Results	Note
	$Q_n - 9\%$	18	G20	+	
	$Q_m - 9\%$			+	
Limit conditions according to Test No. 3 of ČSN EN 15502-1+A1, Art. 8.6.2 and annex U.2	$Q_n + 9\%$	17	G20	+	
	$Q_m + 9\%$			+	
	$Q_n + 9\%$	18	G20	+	
	$Q_m + 9\%$			+	
Limit conditions according to Test No. 4 of ČSN EN 15502-1+A1, Art. 8.6.2 and annex U.2	$Q_n + 9\%$	25	G20	+	
	$Q_n + 9\%$	33	G20	+	
Limit conditions according to Test No. 5 of ČSN EN 15502-1+A1, Art. 8.6.2 and annex U.2	$Q_n + 9\%$	20	G20	+	
	$Q_n + 9\%$	25	G20	+	
Special conditions					
C₁, C₃ and C₉ design boilers					
Special con. according to 1 st series of tests (ČSN EN 15502-2-1, Art. 8.6.3.102)	Q_n	20	G 20	0	
	Q_m			0	
Special con. according to 2 nd series of tests (ČSN EN 15502-2-1, Art. 8.6.3.102)	Q_n	20	G 20	0	
	Q_m			0	
Special con. according to 3 rd series of tests (ČSN EN 15502-2-1, Art. 8.6.3.102)	Q_n	20	G 20	0	
	Q_m			0	
C₂ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.103, test a)	Q_n	20	G 20	0	
	Q_m			0	
Test according to ČSN EN 15502-2-1, Art. 8.6.3.103, test b)	Q_n	20	G 20	0	
	Q_m			0	
C₄ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.104	Q_n	20	G 20	0	
	Q_m			0	
C₅ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.105	Q_n	20	G 20	0	
	Q_m			0	
C₆ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.106	Q_n	20	G 20	0	
	Q_m			0	
C₇ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.107	Q_n	20	G 20	0	
	Q_m			0	
C₈ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.108	Q_n	20	G 20	0	
	Q_m			0	

Operating conditions	Heat input	Fuel supply pressure (mbar)	Test gas	Results	Note
C₍₁₀₎ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.109	Q _n	20	G 20	0	
	Q _m			0	
C₍₁₁₎ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.110	Q _n	20	G 20	0	
	Q _m			0	
B₂, B₃ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.111, test 1)	Q _n	20	G 20	+	
	Q _m			+	
Test according to ČSN EN 15502-2-1, Art. 8.6.3.111, test 2)	Q _n	20	G 20	+	
	Q _m			+	
B₅ design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.3.112	Q _n	20	G 20	0	
	Q _m			0	
Reduction of the gas rate of the ignition burner					
Test according to ČSN EN 15502-1, Art. 8.6.4	Q _n	18,5	G 20	0	
	Q _m			0	
Resistance to draught, B design boilers					
Test according to ČSN EN 15502-2-1, Art. 8.6.101	Q _n	20	G 20	0	
	Q _m			0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Test objective:	Adjusting, control and safety devices
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 7.3.3.1, 7.3.3.2, 7.3.3.3.2, 8.7, 8.9, 8.11.4.1, 8.11.4.2, 8.11.5.2.2, 8.11.6.2.1, 8.11.6.2.2, 8.11.6.2.4, 8.11.6.2.5, 8.11.7, 8.11.8.1, 8.11.8.2.1, 8.11.8.2.3 ČSN EN 15502-2-1+A1:2017, Art. 8.9.101, 8.9.103, 8.11.101.3, 8.11.101.3.2, 8.11.101.3.3, 8.11.101.4
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-24

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Performance	ČSN EN 15502-1 +A1:2017, Art. 7.3.3		
General Requirements: Under the test conditions as mentioned below, the opening and closing temperatures of the thermostats shall not differ from those stated by the manufacturer by more than 6 K. For adjustable thermostats, this requirement applies at the minimum and maximum temperatures of the control range.	ČSN EN 15502-1 +A1:2017, Art. 7.3.3.1	+	
Control thermostat – Endurance Requirements: Thermostats shall withstand an endurance test of 250 000 cycles under the test conditions as specified. At the end of the tests, their operation shall comply with the following requirements: — the switch point of a fixed setting thermostat shall be within ± 10 K of the temperature stated by the manufacturer; — for an adjustable thermostat, it shall be possible to select the switch point, to within ± 10 K of a temperature in the range as stated by the manufacturer.	ČSN EN 15502-1 +A1:2017, Art. 7.3.3.2	+ 0 +	
Water temperature limiting devices – Endurance	ČSN EN 15502-1+A1:2017, Art. 7.3.3.3		
Temperature limiters Requirements: Temperature limiters shall withstand an endurance test of 10 000 cycles under the test conditions as specified. At the end of the tests, their operation shall comply with the requirements of 7.3.3.1.	ČSN EN 15502-1 +A1:2017, Art. 7.3.3.3.1	0	
Overheat cut-out devices Requirements: The devices shall withstand an endurance test of 4 500 thermal cycles without activation and 500 cycles of locking and resetting, under the test conditions as specified. At the end of the tests, their operation shall comply with the requirements of 7.3.3.1. Under the test conditions, an interruption of the link between the sensor and the device responding to its signal shall result in at least safety shut-down.	ČSN EN 15502-1 +A1:2017, Art. 7.3.3.3.2	+ + +	

Requirement	Specification of requirement	Test evaluation	Note
Reduction of the gas pressure <u>Requirements:</u> Under the test conditions below, there shall be no dangerous situation for the user or damage to the boiler.	ČSN EN 15502-1+A1:2017, Art. 8.7	+	
Defective closure of the gas valve immediately upstream of the main burner <u>Requirements:</u> Where the gas line is designed such that the gas supply to the ignition burner is taken from between the two main burner gas valves, it is checked under the test conditions below that no dangerous situation can arise in the event of defective closure of the gas valve immediately upstream of the main burner when the ignition burner is ignited.	ČSN EN 15502-1+A1:2017, Art. 8.8	0	
Pre-purge	ČSN EN 15502-1+A1:2017, Art. 8.9		
General Requirements For fan-assisted boilers, pre-purge is mandatory before each ignition of the main burner (a single ignition attempt or several consecutive automatic ignition attempts) unless one of the following conditions is fulfilled: a) boilers with a permanent or alternating ignition burner; b) boilers in which the main burner gas line is fitted with a leakage control device; c) boilers above 0.25 kW and up to 150 kW, fitted with two Class C valves or a Class B and a Class J valve, which close simultaneously; d) boilers above 150 kW and up to 300kW, fitted with two Class B valves; e) boilers above 300 kW, fitted with two Class A valves; f) boilers below 70 kW satisfying 8.9.102 (Verification of the protected nature of a combustion chamber); g) boilers below 70 kW satisfying 8.9.103. (Verification of normal ignition in a combustible air/gas mixture for type C boilers incorporating a fan) This condition is only applicable for type C ₁₂ and C ₁₃ boilers. Pre-purge is always necessary after a safety shutdown or a lock out situation unless, when tested in accordance with the test sequence as described below, no hazard or damage occurs. The boiler is installed as indicated in 8.1.2. The boiler is supplied successively with each of the reference gases of the boiler category, at normal pressure. A series of tests is carried out with gas admitted to the boiler or module boiler at the maximum nominal heat input ($Q_{n,max}$) of the boiler or boiler module in the hot condition. The ignition sequence is deactivated. The first test is carried out by supplying gas for a period of 1 s after which the ignition sequence, including any delay times within the sequence, is activated. Subsequent tests are carried out by increasing the time up to the end of the time given by the sum of the TSE and the valve(s) closing time declared in the installation instructions. At the end of each period of time, the ignition sequence, including any delay times within the sequence, is activated. It is checked that the requirement for pre-purge under safety of operation is met. The pre-purge shall correspond to the values listed in the text below or as illustrated in table 103:	ČSN EN 15502-2-1+A1:2017, Art. 8.9.101	+ 0 0 0 0 + 0 0 + + + + +	

Requirement	Specification of requirement	Test evaluation	Note
<p>h) For boilers or boiler modules with a nominal heat input (Q_n) not exceeding 70 kW. Under the following test conditions, the volume or the duration of the pre-purge shall be:</p> <p>1) for boilers where the pre-purge air is induced over the whole cross section of the combustion chamber inlet: at least the volume of the combustion chamber or at least 5s at the air rate corresponding to the nominal heat input,</p> <p>2) for other boilers: at least three times the volume of the combustion chamber or at least 15s at the air rate at the nominal heat input (Q_n).</p> <p>i) For boilers or boiler modules with a nominal heat input (Q_n) exceeding 70 kW: The pre-purge shall correspond to either:</p> <p>1) a volume of at least three times the volume of the combustion chamber at an air rate of at least 40% of the air rate at the nominal heat input (Q_n), or</p> <p>2) a time of:</p> <p>i) at least 30s at an air rate equal to at least the air rate at the nominal heat input (Q_n), or</p> <p>ii) a proportionally longer time when the air rate is between 40% of the air rate at nominal heat input and 100% of the air rate at nominal heat input (Q_n).</p> <p>For modular boilers, in which the products of combustion from each module vent into a common chamber before entering the flue system, the pre-purge at the time of each initial startup shall be at least three times the volume of the complete assembly of modules.</p> <p>When at least one module is already operating, the pre-purge for the startup of any other modules shall be that provided for the individual module.</p> <p>For modular boilers in which the products of combustion from each module vent directly into the flue system, the pre-purge shall be that provided for the individual module.</p>	<p>ČSN EN 15502-2-1+A1:2017, Art. 8.9.101</p>	<p>0</p> <p>0</p> <p>0</p> <p>+</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p>	
<p>Verification of the protected nature of a combustion chamber <u>Requirements</u> If the protected nature of a combustion chamber is claimed, then under the following test conditions it is checked that an ignition within the combustion chamber does not ignite a combustible mixture of air and gas outside the combustion chamber.</p>	<p>ČSN EN 15502-2-1+A1:2017 Art. 8.9.102</p>	<p>0</p>	
<p>Verification of normal ignition in a combustible air/gas mixture for type C boilers incorporating a fan If normal ignition in a combustible gas/air mixture for type C boilers incorporating a fan is claimed then under the following test conditions it is checked that ignition occurs correctly without deterioration of the boiler when the combustion chamber is first filled with a combustible air/gas mixture.</p>	<p>ČSN EN 15502-2-1+A1:2017 Art. 8.9.103</p>	<p>0</p>	
<p>Functioning of a permanent ignition burner when the fan stops during the standby time <u>Requirements:</u> Under the test conditions below, the flame stability of the ignition burner shall be correct.</p>	<p>ČSN EN 15502-1+A1:2017, Art. 8.10</p>	<p>0</p>	

Requirement	Specification of requirement	Test evaluation	Note
— The boiler is installed in accordance with the conditions of 8.1.2. The ignition burner is adjusted using the reference gases at the normal pressure in accordance with the manufacturer's instructions.	ČSN EN 15502-1 +A1:2017, Art. 8.10		
Adjustment, control and safety devices	ČSN EN 15502-1+A1:2017, Art. 8.11		
General Except where otherwise stated, the tests are carried out at ambient temperature and at the maximum temperature. The maximum temperature is that to which the device is subjected in the boiler, adjusted to the nominal heat input with the reference gas when thermal equilibrium is reached, with an adjustable thermostat or electronic temperature control system set to the position corresponding the maximum water temperature.	ČSN EN 15502-1 +A1:2017, Art. 8.11.1	+	
Boilers intended to be installed in a partially protected place For boilers intended to be installed in a partially protected place, the devices shall operate correctly at the temperatures to which they are subjected on the basis of: a) the "minimum declared installation temperature for boilers in partially protected places" (see definition); b) eventually the maximum ambient temperature declared by the manufacturer.	ČSN EN 15502-1 +A1:2017, Art. 8.11.2	0	
Safety of the domestic hot water circuit	ČSN EN 15502-1+A1:2017, Art. 8.11.3.1		
Instantaneous and storage types	ČSN EN 15502-1+A1:2017, Art. 8.11.3.1.1		
Soundness of parts containing domestic water <u>Requirements</u> Under the following test conditions, the parts containing domestic water shall withstand the test pressure without permanent distortion or soundness defects, with respect to the outside or the heating circuit.	ČSN EN 15502-1 +A1:2017, Art. 8.11.3.1.1.1	0	
Overheating of the domestic hot water by the heating circuit <u>Requirements</u> Under the following test conditions, the domestic hot water temperature shall not exceed 95 °C.	ČSN EN 15502-1 +A1:2017, Art. 8.11.3.1.1.2	0	
Failure of the domestic hot water temperature control device <u>Requirements</u> For boilers in which the sanitary water circuit is not in contact with the combustion products, with normal control out of operation and according to the option chosen, at least the requirement relating to the temperature limiter (see 8.11.8.2.2 Test no.1) or the overheat cut-out device (see 8.11.8.2.3 Test no.1 or nr.2 – depending of the used option) shall be met. For boilers in which the sanitary water circuit does come into total or partial contact with the combustion products, the temperature limiter shall at least cause safety shutdown before the tap water reaches a temperature of 100 °C.	ČSN EN 15502-1 +A1:2017, Art. 8.11.3.1.1.3	0	
Instantaneous type	ČSN EN 15502-1+A1:2017, Art. 8.11.3.1.2		
Maximum temperature of the domestic hot water <u>Requirements</u> Under the test conditions below, the domestic hot water temperature shall not exceed 95 °C.	ČSN EN15502-1 +A1:2017, Art. 8.11.3.1.2.1	0	

Requirement	Specification of requirement	Test evaluation	Note
Overheating of the domestic hot water Requirements Under the test below conditions, the domestic hot water temperature shall not exceed 95 °C.	ČSN EN15502-1 +A1:2017, Art. 8.11.3.1.2.2	0	
Control devices	ČSN EN 15502-1+A1:2017, Art. 8.11.4		
Rotary knob Requirements: Under the test conditions below, the operating torque of a knob shall not exceed 0,6 N.m or 0,017 N.m/mm of knob diameter.	ČSN EN 15502-1 +A1:2017, Art. 8.11.4.1	+	
Push-button Requirements: Under the below test conditions the force required to open and/or to keep open the closure element shall not exceed 45 N or 0,5 N/mm ² of the area of the button.	ČSN EN 15502-1 +A1:2017, Art. 8.11.4.2	+	
Ignition devices	ČSN EN 15502-1+A1:2017, Art. 8.11.5		
Manual ignition device for the ignition burner Requirements: Under the test conditions below, at least half the manual ignition attempts shall result in correct ignition of the ignition burner. The effectiveness of the ignition device shall be independent of the operating speed and sequence. The operation of manually operated electrical ignition devices shall remain satisfactory at the maximum temperature to which they are subjected in the boiler and when the voltage is varied between 0,85 times and 1,1 times the nominal voltage and under any combination of these conditions. The supply of gas to the main burner shall only be permitted after detection of the ignition burner flame.	ČSN EN 15502-1 +A1:2017, Art. 8.11.5.1	0	
Automatic ignition system for the ignition burner and main burner	ČSN EN 15502-1+A1:2017, Art. 8.11.5.2		
General Ignition shall be effected within a maximum of 5 automatic ignition attempts. Each ignition attempt starts with the opening of the valve(s) and ends either by detecting flame or by closing of the gas valve(s).	ČSN EN 15502-1 +A1:2017, Art. 8.11.5.2.1	+	
Ignition Requirements: Under the test conditions below, ignition devices shall ensure safe ignition. The ignition system shall be activated at the latest at the same time as the signal to open the valve(s). The ignition shall continue at least to the moment flame is sensed but not exceeding the end of the T_{SA} . If flame sensing can be influenced by ignition, interruption of ignition is allowed to check availability of flame signal.	ČSN EN 15502-1 +A1:2017, Art. 8.11.5.2.2	+ + + 0	
Ignition burner Requirements: Under the test conditions below, the heat input of any ignition burner that remains alight when the main burner is extinguished shall not exceed 0,250 kW. The signal to open the gas supply to the main burner shall only be given after the ignition burner flame has been detected.	ČSN EN 15502-1 +A1:2017, Art. 8.11.5.3	0	

Requirement	Specification of requirement	Test evaluation	Note
Flame supervision device	ČSN EN 15502-1+A1:2017, Art. 8.11.6		
Thermoelectric device	ČSN EN 15502-1+A1:2017, Art. 8.11.6.1		
Ignition opening time (T_{1A}) <u>Requirements:</u> Under the test conditions below, the T_{1A} of a permanent ignition burner shall not exceed 30 s. This time can be raised to 60 s if no manual intervention is required during it.	ČSN EN 15502-1+A1:2017, Art. 8.11.6.1.1	0	
Extinction delay time (T_{1E}) <u>Requirements:</u> Under the test conditions below, the extinction delay time of a thermoelectric flame supervision device shall not exceed: a) 60 s if $Q_n \leq 35$ kW; b) 45 s if $Q_n > 35$ kW. When a safety device acts on the thermoelectric flame supervision device, closure shall occur without delay.	ČSN EN 15502-1+A1:2017, Art. 8.11.6.1.2	0	
Automatic burner control system	ČSN EN 15502-1+A1:2017, Art. 8.11.6.2		
Ignition safety time (T_{SA}) <u>Requirements:</u> The T_{SA} is stated by the manufacturer. If the heat input of the ignition burner does not exceed 0,250 kW, there is no requirement in respect of the T_{SA} . Where the heat input of the ignition burner is between 0,250 kW and 1 kW, there is no requirement in respect of T_{SA} if suitable evidence is given by the manufacturer that no dangerous situation for the user or damage to the boiler occurs. In all other cases, the T_{SA} is chosen by the manufacturer in accordance with 8.11.6.2.5 (Delayed ignition) However, a delayed ignition test is not necessary if the T_{SA} , determined under the test conditions below, complies with the following requirement: for $Q_n \leq 150$ kW: $T_{SA} \leq 5 \cdot \frac{Q_n}{Q_{ign}}$ seconds but without exceeding 10 s; for $Q_n > 150$ kW: $T_{SA} \leq \frac{5 \times 150}{Q_{ign}}$ seconds but without exceeding 10 s where Q_n is the nominal input in kW; Q_{ign} is the ignition rate in kW. Where several automatic ignition attempts are made without being followed by a purge corresponding to 8.9, the sum of the duration of the ignition attempts shall comply with the above requirement for T_{SA} . Where several automatic ignition attempts are made followed by a purge corresponding to 8.9 the ignition safety time shall be less than T_{SA} for each attempt. For B_{11} and B_{11BS} boilers with several automatic ignition attempts, a waiting time of at least 30 s between the attempts is required. When these boilers burn gases with relative densities greater than 1,0, the maximum number of ignition attempts is 2. When these boilers burn gases with relative densities less than 1,0, the maximum number of ignition attempts is 5.	ČSN EN 15502-1+A1:2017, Art. 8.11.6.2.1	+ 0 0 + 0 + 0 + 0	

Requirement	Specification of requirement	Test evaluation	Note
<p>Extinction safety time (T_{SE}) <u>Requirements:</u> Under the test conditions below, unless spark restoration occurs, the extinction safety time of the ignition burner and main burner shall not exceed, for heat inputs: a) ≤ 70 kW 5 s b) > 70 kW 3 s</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.6.2.2</p>	<p>0 +</p>	
<p>Spark restoration <u>Requirements:</u> If spark restoration takes place, under the test conditions below, the ignition device shall be re-energised within a maximum time of 1 s after the disappearance of the flame signal. In this case the T_{SA} is the same as is used for ignition and it starts when the ignition device is energised.</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.6.2.3</p>	<p>0</p>	
<p>Recycling <u>Requirements:</u> If recycling takes place, under the test conditions below, this shall be preceded by an interruption of the gas supply; the ignition sequence shall restart from the beginning. In this case, the T_{SA} is the same as is used for ignition and starts when the ignition device is energised.</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.6.2.4</p>	<p>+</p>	
<p>Delayed ignition <u>Requirements:</u> Under the test conditions below, there shall be no deterioration of the boiler, no hazard to the user. The test as stated below is repeated with the delay starting at one second and increased by one second each time up to a maximum of T_{SA}.</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.6.2.5</p>	<p>+</p>	
<p>Gas pressure regulator <u>Requirements:</u> Under the test conditions below, the gas rate of boilers fitted with a regulator shall not differ from the gas rate obtained at normal pressure by more than: a) 7,5 % and - 10 % for first family gases; b) + 5 % and - 7,5 % for second family gases without a pressure couple; c) ± 5 % for second and third family gases with a pressure couple; d) ± 5 % for third family gases without a pressure couple. In the case where boilers, using gases of the second and third family without a pressure couple, do not meet the requirements between p_n and p_{min}, these boilers shall meet the requirements for a boiler without a Gas pressure regulator, for this pressure range.</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.7</p>	<p>0 0 + 0 0</p>	
<p>Thermostats and water temperature limiting devices</p>	<p>ČSN EN 15502-1+A1:2017, Art. 8.11.8</p>		
<p>Water control thermostats For electronic temperature control systems, the terms: a) fixed setting thermostat should be read as fixed control temperature setpoint; b) adjustable thermostat should be read as adjustable control temperature setpoint. <u>Requirements:</u> Under the test conditions below,</p>	<p>ČSN EN 15502-1 +A1:2017, Art. 8.11.8.1</p>		

Requirement	Specification of requirement	Test evaluation	Note
<p>a) the maximum water temperature of boilers fitted with a fixed setting thermostat shall be within ± 10 K of the temperature stated by the manufacturer;</p> <p>b) for boilers fitted with an adjustable thermostat, it shall be possible to select, to within ± 10 K, the water flow temperatures stated by the manufacturer;</p> <p>c) the flow temperature shall not exceed the maximum temperature declared by the manufacturer; however, when the control thermostat is located on the return, this requirement may be met by action of the temperature limiter located on the water flow.</p>		0 + +	
Water temperature limiting devices	ČSN EN 15502-1+A1:2017, Art. 8.11.8.2		
<p>Inadequate water circulation <u>Requirements:</u> No deterioration of the boiler shall occur under the test conditions below. This requirement does not apply to boilers intended exclusively for a central heating system with an open expansion vessel.</p>	ČSN EN 15502-1+A1:2017, Art. 8.11.8.2.1	+	
<p>Overheating of boilers of pressure classes 1 and 2 For electronic temperature control systems, the terms: a) control thermostat should be read as control temperature set point; b) temperature limiter should be read as temperature limit set point; c) overheat cut-out device should be read as overheat cut-out set point. <u>Requirements:</u> Under the test conditions below (Test no 1) the temperature limiter shall cause safety shutdown before the water flow temperature exceeds the preset value (See 5.7.8.3). Under the test conditions of below (Test no 2) the overheat cut-out device shall cause non-volatile lockout of the boiler before a situation occurs that is dangerous to the user or capable of damaging the boiler.</p>	ČSN EN 15502-1+A1:2017, Art. 8.11.8.2.2	0	
<p>Overheating of boilers of pressure class 3 For electronic temperature control systems, the terms: a) control thermostat should be read as control temperature set point; b) temperature limiter should be read as temperature limit set point; c) overheat cut-out device should be read as overheat cut-out set point. Test no 1 <u>Requirements for Test no 1:</u> Under the test conditions below (Test no 1) the temperature limiter shall cause safety shutdown before the water flow temperature exceeds the preset value. Test no 2 <u>Requirements for Test no 2:</u> Under the test conditions of below (Test no 2) the overheat cut-out device shall cause non-volatile lockout of the boiler before a situation occurs that is dangerous to the user or capable of damaging the boiler or if the temperature exceeds 110 °C. Test no 3 <u>Requirements for Test no 3:</u> Under the test conditions of below (Test no 3) the overheat cut-out device shall cause non-volatile lockout of the</p>	ČSN EN 15502-1+A1:2017, Art. 8.11.8.2.3	+ + +	

Requirement	Specification of requirement	Test evaluation	Note
boiler before the temperature exceeds 110 °C.			
Air proving device	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101		
<p>General Depending on the principle of air proving, the applicable requirements are described in the clauses below. The boiler is installed as stated in 8.1.2.1. The boiler is supplied with one of the reference gases for the category to which it belongs. The boiler is fitted with the longest combustion air supply and combustion products evacuation ducts stated in the installation instructions. The tests may be carried out without the terminal or fitting piece. The CO concentration is determined as stated in 8.12.1.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.1	+	
<p>Supervision of the combustion air rate or the combustion products rate <u>Requirements</u> At a reduced flow rate the CO concentration (dry, air-free) may not exceed a specific value. The following methods of flow reduction are to be examined: a) Progressive blockage of the air inlet; b) Progressive blockage of the combustion products evacuation ducts; c) Progressive reduction of the fan speed, for example by reduction of the fan voltage. There are two alternative supervision strategies for the air proving; a start up supervision or a continuous supervision. Based on the supervision strategy the boiler shall at a reduced flow rate meet one of the following two requirements: d) Continuous supervision: Shutdown before the CO concentration exceeds 0,2 %, or e) Start up supervision: Not start if the CO concentration exceeds 0,1 %.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.2	0	
Gas/air ratio controls	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.3		
<p>Leakage of control tubes <u>Requirements</u> When control tubes are not made of metal or of other materials with at least equivalent properties, their disconnection, breakage or leakage shall not lead to an unsafe situation. This implies either locking out or safe operation with no leakage of gas outside the boiler.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.3.1	0	
<p>Supervision of the combustion air rate or the combustion products rate <u>Requirements</u> At a reduced flow rate the CO concentration may not exceed a specific value. The following methods of flow reduction are to be examined: a) Progressive blockage of the air inlet; b) Progressive blockage of the combustion products evacuation ducts; c) If internal recirculation can occur then an additional test must be carried out by progressive reduction of the fan speed, for example by reduction of the fan voltage. There are two alternative supervision strategies for the air proving; a start up supervision or a continuous supervision.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.3.2	<p>+</p> <p>+</p> <p>+</p> <p>0</p>	

Requirement	Specification of requirement	Test evaluation	Note
<p>Based on the supervision strategy the boiler shall at a reduced flow rate meet one of the following two requirements:</p> <p>d) Continuous supervision: Shutdown before the CO concentration (dry, air free) exceeds:</p> <p>1) 0,20 % over the range of modulation specified in the installation instructions), or</p> <p>2) $CO_{mes} \times Q / Q_{KB} \leq 0,20\%$ below the minimum rate of the modulation range. where:</p> <p>— Q is the instantaneous heat input, in kW;</p> <p>— Q_{KB} is the heat input at the minimum rate, in kW;</p> <p>— CO_{mes} is the measured CO concentration (dry, air free).</p> <p>e) Start up supervision: Not start if the CO concentration (dry, air free) exceeds 0,1 %.</p>		+ 0 0	
<p>Adjustment of the gas/air ratio <u>Requirements</u> The installation instructions shall declare (see 12.2.1.2.d) values which give rise to minimum and maximum CO₂ levels between which no adjustment action is required. If the gas/air ratio is adjustable for CO₂ the test of 8.11.101.3.2 shall be repeated at the test conditions below.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.3.3	+ +	
<p>Functioning of the fan of a type C₄ boiler <u>Requirements</u> For type C₄₂ and C₄₃ boilers, when controlled shutdown or safety shutdown occurs, the fan shall stop after any post-purge. If the boiler is fitted with a permanent or alternating ignition burner, it is permissible for the fan to function at the lowest speed corresponding to the flow which is necessary for the ignition burner.</p>	ČSN EN 15502-2-1+A1:2017, Art. 8.11.101.4	0 0	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing: 2021-11-24	t _{amb} = 23,1 °C	rel. humidity = 33,5 %	p _a = 993,2 mbar
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Required properties	Test result	Note
Performance ČSN EN 15502-1+A1:2017, Art. 7.3.3		
General		
ČSN EN 15502-1+A1, Art. 7.3.3.1	+	EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS
Control thermostat – Endurance		
ČSN EN 15502-1+A1, Art. 7.3.3.2	+	EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS

Required properties	Test result	Note
Water temperature limiting devices – Endurance		
Temperature limiters		
ČSN EN 15502-1+A1, Art. 7.3.3.3.1	0	
Overheat cut-out devices		
ČSN EN 15502-1+A1, Art. 7.3.3.3.2	+	EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy, LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS

Operating conditions	Heat input	Fuel supply pressure (mbar)	Test gas	Results	Note
Fuel pressure reduction					
Test according to ČSN EN 15502-1+A1, Art. 8.7	Q_n	14, 13 ... 0	G 20	+	
Defective closure of the gas valve immediately upstream of the main burner					
Test according to ČSN EN 15502-1+A1, Art. 8.8	Q_n	20	G 20	0	

Note: + Requirement fulfilled x Not assessed Q_n rated heat input, Q_m minimum heat input
 - Requirement not fulfilled 0 Not applicable

Required properties	Test result	Note
General		
Test according to ČSN EN 15502-2-1, Art. 8.9.101 paragraph i) point 1)	0	
Test according to ČSN EN 15502-2-1, Art. 8.9.101 paragraph i) point 2)i)	+	Measured pre-purge time was 30 seconds at the air rate at the nominal heat input (Q_n). Together are performed three consecutive automatic ignition attempts.
Verification of protected combustion chamber		
ČSN EN 15502-2-1, Art. 8.9.102	0	
Verification of normal ignition in a combustible air/gas mixture for type C boilers incorporating a fan		
ČSN EN 15502-2-1, Art. 8.9.103	0	
Functioning of a permanent ignition burner when the fan stops during the standby time		
Test according to ČSN EN 15502-1+A1, Art. 8.10	0	
Soundness of parts containing domestic water		
ČSN EN 15502-1+A1, Art. 8.11.3.1.1.1	0	
Overheating of the domestic hot water by the heating circuit		
ČSN EN 15502-1+A1, Art. 8.11.3.1.1.2	0	
Failure of the domestic hot water temperature control device		
ČSN EN 15502-1+A1, Art. 8.11.3.1.1.3	0	
Maximum temperature of the domestic hot water		
ČSN EN 15502-1+A1, Art. 8.11.3.1.2.1	0	
Overheating of the domestic hot water		
ČSN EN 15502-1+A1, Art. 8.11.3.1.2.2	0	
Control devices		

Required properties	Test result	Note
Test according to ČSN EN 15502-1+A1, Art. 8.11.4.1	+	The operating torque of the manual rotary knobs didn't exceed 0.6 N.m or 0,017N.m per 1 mm of the knob diameter.
Test according to ČSN EN 15502-1+A1, Art. 8.11.4.2	+	The force required to open and/or to keep open the closure element didn't exceed 45 N or 0,5 N per 1 mm ² of the area of the button.
Ignition devices		
Manual ignition device for the ignition burner		
ČSN EN 15502-1+A1, Art. 8.11.5.1	0	
Automatic ignition system for the ignition burner and main burner		
General		
ČSN EN 15502-1+A1, Art. 8.11.5.2.1	+	EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS
Ignition		
ČSN EN 15502-1+A1, Art. 8.11.5.2.2	+	Ignition devices ensures safe ignition. EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS
ČSN EN 15502-1+A1, Art. 8.11.5.3	0	
Flame supervision device		
Thermoelectric device		
Ignition opening time (T_{IA})		
ČSN EN 15502-1+A1, Art. 8.11.6.1.1	0	
Extinction delay time (T_{IE})		
ČSN EN 15502-1+A1, Art. 8.11.6.1.2	0	
Automatic burner control system		
Ignition safety time (T_{SA})		
ČSN EN 15502-1+A1, Art. 8.11.6.2.1	+	Measured value of ignition safety time (T_{SA}) was 4,9 s.
Extinction safety time (T_{SE})		
ČSN EN 15502-1+A1, Art. 8.11.6.2.2	+	Measured value of extinction safety time (T_{SE}) was 1,0 s.
Spark restoration		
ČSN EN 15502-1+A1, Art. 8.11.6.2.3	0	
Recycling		
ČSN EN 15502-1+A1, Art. 8.11.6.2.4	+	Recycling is preceded by an interruption of the gas supply; the ignition sequence restarts from the beginning. The ignition safety time T_{SA} is the same as is used for ignition. EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy, LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS
Delayed ignition		
ČSN EN 15502-1+A1, Art. 8.11.6.2.5	+	There was no deterioration of the boiler, no hazard to the user. EU Declaration of Conformity No. 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxx.B1yy,

Required properties	Test result	Note
		LMS14.xxx.B2yy LMS14.xxx.B3yy, LMS14.xxx.C3yy made by Siemens AG, BT CPS
Gas governor		
ČSN EN 15502-1+A1, Art. 8.11.7	+	The gas rate of boiler didn't differ from the gas rate obtained at normal pressure by more than fixed limits.
Thermostats and water temperature limiting devices		
Water control thermostats		
ČSN EN 15502-1+A1, Art. 8.11.8.1	+	It is possible to select, to within ± 10 K, the water flow temperatures stated by the manufacturer. The maximum adjustable boiler flow temperature is 76 °C. The maximum measured boiler flow temperature at this adjustment was 82,1 °C. After the flow temperature had reached this value, the boiler was turned off through the control thermostat.
Water temperature limiting devices		
Inadequate water circulation		
ČSN EN 15502-1+A1, Art. 8.11.8.2.1	0	
Overheating of boilers of pressure classes 1 and 2		
ČSN EN 15502-1+A1, Art. 8.11.8.2.2	0	
Overheating of Boilers of pressure class 3		
ČSN EN 15502-1+A1, Art. 8.11.8.2.3	+	The overheat cut-out device caused non-volatile lockout of the boiler. The situation wasn't dangerous to the user and wasn't capable of damaging the boiler. The electrical safety device causes the boiler shut-down at 87,2 °C. Boiler was permanently blocked. For unblocking it is necessary press button "RESET". Limiting thermostat is set up to 80 °C. The mechanical safety device causes the boiler shut-down at 109,8 °C. Boiler was permanently blocked. For unblocking it is necessary press button "RESET". Limiting thermostat is set up to 105 °C.
Air proving device		
General		
ČSN EN 15502-2-1, Art. 8.11.101.1	+	
Supervision of the combustion air rate or the combustion products rate		
ČSN EN 15502-2-1, Art. 8.11.101.2	0	
Gas/air ratio controls		
Supervision of the combustion air rate or the combustion products rate		
ČSN EN 15502-2-1, Art. 8.11.101.3.2	+	The fuel supply will close before the concentration of CO exceeds 0,20%. a) The maximum concentration of CO was reached by blockage 50% of the air inlet. The maximum value of CO was 0,0094 % (at n=1). b) The maximum concentration of CO was reached by blockage 50% of the flue gas discharge. The maximum of CO was 0,0218 %.
Adjustment of the gas/air ratio		
ČSN EN 15502-2-1, Art. 8.11.101.3.3	+	The fuel supply will close before the concentration of CO exceeds 0,20%.
Functioning of the fan of a type C₄ boiler		
ČSN EN 15502-2-1, Art. 8.11.101.4	0	

Note: + Requirement fulfilled x Not assessed
- Requirement not fulfilled 0 Not applicable

Test objective:	Combustion efficiency
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 8.12, 8.12.1, 8.12.3.1, 8.12.3.2, 8.12.3.3, 8.12.5, 8.13.2 ČSN EN 15502-2-1+A1:2017, Art. 8.12.2, 8.12.2.101, 8.12.2.102, 8.12.3.101.10
Sample tested:	ONGAS NOVA 10, ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-23 - 2021-11-26

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Carbon monoxide	ČSN EN 15502-1+A1:2017, Art. 8.12		
General Requirements: The CO concentration in the dry, air-free, products of combustion shall not exceed the values stated in 8.12.2 and 8.12.3.	ČSN EN 15502-1+A1:2017, Art. 8.12.1	+	
Limit conditions	ČSN EN 15502-2-1+A1:2017, Art. 8.12.2		
Requirements: Under the test conditions below, the CO concentration shall not exceed 0,10 %.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.2.101	+	
Boilers using Gas/air Ratio Controls Appliances using gas/air ratio control systems are subjected to the following tests. The CO and CO ₂ concentrations are measured: a) The gas/air ratio control is adjusted in accordance with the technical instructions (or left as factory set if the control is not adjustable). The boiler or boiler module is operated at both maximum and minimum heat input allowed by the controls; b) Simulate reasonable maladjustment of any adjustable "throttle" setting by adjusting the CO ₂ at maximum rate to be 0.5% higher than the maximum value to which the gas/air ratio control should be set. For gas/air ratio controls that are adjustable then the maximum value shall include the maximum extent of the setting tolerance. For non - adjustable gas/air ratio controls the maximum value shall include the maximum extent of the factory setting tolerance. Following this adjustment, the boiler or boiler module is operated at both maximum and minimum heat input allowed by the controls; c) Simulate reasonable maladjustment of any adjustable "offset" setting by measuring the gas/air ratio control differential pressure (with the boiler operating at minimum rate) and adjusting the offset screw sufficiently to increase the differential pressure by 5 Pa. Following this adjustment, the appliance is again operated at both maximum and minimum heat input allowed by the control system. The tests are repeated by adjusting the offset screw sufficiently to decrease the differential pressure by 5 Pa. For each test condition it is checked that the requirement of 8.12.2.101 is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.2.102	+	

Requirement	Specification of requirement	Test evaluation	Note
Special conditions	ČSN EN 15502-1+A1:2017, Art. 8.12.3		
Incomplete combustion <u>Requirements:</u> Under the test conditions below, the CO concentration shall not exceed 0,20 %.	ČSN EN 15502-1+A1:2017, Art. 8.12.3.1	+	
Supplementary test for fan assisted boilers <u>Requirements:</u> Under the test conditions below, the CO concentration shall not exceed 0,20 %.	ČSN EN 15502-1+A1:2017, Art. 8.12.3.2	+	
Flame lift <u>Requirements:</u> Under the test conditions below, the CO concentration shall not exceed 0,20 %.	ČSN EN 15502-1+A1:2017, Art. 8.12.3.3	+	
Special flue conditions	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101		
Type C₁, C₃ and C₉ boilers The test is carried out as stated in the first and third test series in 8.6.3.102, as appropriate. For each of the test series, the value of the arithmetic mean of the CO concentrations determined at the nine combinations of wind speed and angle of incidence that produce the highest CO concentration in the combustion products is calculated. It is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.1	0	
Type C₂ boilers Under the test conditions of 8.6.3.103 it is checked that the above requirements are met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.2	0	
Type C₄ boilers Under the test conditions of 8.6.3.104 it is checked that the above requirements are met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.3	0	
Type C₅ boilers Under the test conditions of 8.6.3.105 it is checked that the above requirements are met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.4	0	
Type C₆ boilers In accordance with CEN/TR 1749 these boilers are intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of the combustion products. Type C ₆ boilers are fitted with a restriction to simulate the minimum pressure loss stated in the installation instructions. The air supply is fitted with a mixing device which permits adjustment of the recirculation of the products of combustion. The mixing device is adjusted such that 10 % of the combustion products are recirculated to the air supply. It is checked that the above requirement is met. A supplementary test is carried out by adjusting the restriction such that the air proving device just fails to operate. If the boiler is fitted with an air proving device that does not interrupt the gas rate before the CO concentration exceeds 0,20 %, the test is done with a blockage that generates a CO concentration of 0,10 % at equilibrium. For appliances with gas/air ratio controls the supplementary test is done at the minimum adjustable heat input. Under the test conditions of 8.6.3.106, it is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.5	0	

Requirement	Specification of requirement	Test evaluation	Note
Type C₇ boilers Under the test conditions of 8.6.3.107 it is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.6	0	
Type C₈ boilers Under the test conditions of 8.6.3.108 it is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.7	0	
Type C₍₁₀₎ boilers The air supply is fitted with a mixing device which permits adjustment of the recirculation of the products of combustion. The mixing device is adjusted such that 10 % of the combustion products are recirculated to the air supply. A supplementary test is carried out by adjusting the restriction such that the air proving device just fails to operate. If the boiler is fitted with an air proving device that does not interrupt the gas rate before the CO concentration exceeds 0,20 %, the test is done with a blockage that generates a CO concentration of 0,10 % at equilibrium. For boilers with gas/air ratio controls the supplementary test is done at the minimum adjustable heat input. Minimal safety pressure difference at maximum heat input: Under the test conditions of 8.6.3.109 at maximum heat input it is checked that the above requirement is met. Maximum safety pressure difference at minimum heat input: Requirements Under the following test conditions at minimum heat input allowed by the controls it is checked that the above requirements are met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.8	0	
Type C₍₁₁₎ boilers A recirculation as specified in the design documentation (see 8.105.2) is applied to the combustion air inlet duct. Minimal safety pressure difference at maximum heat input: Under the test conditions of 8.6.3.110 at maximum heat input it is checked that the above requirement is met. Maximum safety pressure difference at minimum heat input: Requirements Under the following test conditions at minimum heat input allowed by the controls it is checked that the above requirements are met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.9	0	
Type B₂ and B₃ boilers Under the test conditions of 8.6.3.109 it is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10	+	
Type B₅ boilers Under the test conditions of 8.6.3.110 it is checked that the above requirement is met.	ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.11	0	
Sooting Requirements: Under the test conditions below, no soot deposition shall be observed although yellow tipping is acceptable.	ČSN EN 15502-1+A1:2017, Art. 8.12.4	0	
Supplementary test for low temperature boilers and condensing boilers Requirements: The formation of condensate shall not impair the correct operation of the boiler.	ČSN EN 15502-1+A1:2017, Art. 8.12.5	+	

b) Sample tested: ONGAS NOVA 13

Date of testing:	2021-11-26	$t_{amb} = 21,6$	°C	rel. humidity = 55,0	%	$p_a = 969,8$	mbar
Date of testing:	2021-11-24	$t_{amb} = 24,1$	°C	rel. humidity = 33,1	%	$p_a = 993,9$	mbar

Type of gas	Operating conditions	Gas pressure before the appliance (mbar)	O ₂ (%vol.)	CO ₂ (% vol.)	CO		CO limit at n=1 (% vol.)
					Meas. (ppm)	At n=1 (% vol.)	
Limit conditions							
G20	Test according to ČSN EN 15502-2-1+A1:2017 Art. 8.12.2.102, paragraph a) (Q_n)	20	3,5	9,8	84	0,0101	0,10
	Test according to ČSN EN 15502-2-1+A1:2017 Art. 8.12.2.102, paragraph a) (Q_m)		5,6	8,6	9	0,0001	
G20	Test according to ČSN EN 15502-2-1+A1:2017 Art. 8.12.2.102, paragraph b) (Q_n)	20	2,6	10,3	135	0,0154	0,10
	Test according to ČSN EN 15502-2-1+A1:2017 Art. 8.12.2.102, paragraph b) (Q_m)		4,7	9,1	15	0,0019	
Special conditions							
Incomplete combustion							
G21	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.1 (Q_n)	Not applicable.					
	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.1 (Q_m)						
Supplemental test of boilers incorporating fan							
G20	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.2 (Q_n , 85 % of nominal voltage)	20	3,8	9,6	82	0,0100	0,20
	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.2 (Q_m , 85 % of nominal voltage)		5,6	8,6	10	0,0014	
	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.2 (Q_n , 110 % of nominal voltage)		3,7	9,7	84	0,0102	
	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.2 (Q_m , 110 % of nominal voltage)		5,6	8,6	9	0,0012	
Test of combustion level with the use of limit test gas for flame lift							
G20	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.3.3 and annex U.2 ($Q_m + 9\%$)	20	5,2	8,8	14	0,0018	0,20
Special draught conditions							
Boiler types C₁, C₃ and C₉							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.1	Not applicable.					
Boilers type C₂							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.2 (2 m.s ⁻¹ , CO ₂ 1,6 %)	Not applicable.					
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.2 (3 m.s ⁻¹ , CO ₂ 0,75 %)						
Boilers type C₄							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.3 (0,5 mbar)	Not applicable.					
Boilers type C₅							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.4 (2,0 mbar)	Not applicable.					
Boilers type C₆							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.5 (10 % of combustion products)	Not applicable.					
Boilers type C₇							
G20	Test according to ČSN EN 15502-2-1+A1:2017 Art. 8.12.3.101.6 (up to 3 m.s ⁻¹)	Not applicable.					
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.6 (blocked flue)						

Type of gas	Operating conditions	Gas pressure before the appliance (mbar)	O ₂ (%vol.)	CO ₂ (% vol.)	CO		CO limit at n=1 (% vol.)
					Meas. (ppm)	At n=1 (% vol.)	
Boilers type C₈							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.7 (2,0 mbar)						Not applicable.
Boilers type C₍₁₀₎							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.8 (Q _m)						Not applicable.
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.8 (Q _n)						Not applicable.
Boilers type C₍₁₁₎							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.9 (Q _m)						Not applicable.
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.9 (Q _n)						Not applicable.
Boilers type B₂₃							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10 test No.1 (underpressure 0,5 mbar); (Q _m)	20	5,2	8,8	12	0,0016	0,20
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10 test No.1 (underpressure 0,5 mbar); (Q _n)	20	4,5	9,2	72	0,0092	0,20
Boilers type B₂₃							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10 No.2 (pressure 50 Pa); (Q _m)	20	5,4	8,7	11	0,0015	0,20
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10 No.2 (pressure 50 Pa); (Q _n)	20	4,6	9,2	60	0,0077	0,20
Boilers type B_{23P}							
G20	Test according to ČSN EN 15502-2-1+A1:2017, Art. 8.12.3.101.10 (pressure 200 Pa); (Q _n)						Not applicable.
Sooting							
G21	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.4 (Q _n)						Not applicable.
Supplementary test for low temperature boilers and condensing boilers							
G20	Test according to ČSN EN 15502-1+A1:2017, Art. 8.12.5 (condensate evacuation pipe blockage)	20	4,6	9,2	79	0,0101	0,20
NO_x							
Gas type	Operating conditions	Gas pressure before the appliance (mbar)	O ₂ (% of vol.)	NO _x			
				Measured (ppm)	at O ₂ =0 % [mg/kWh] (based on NCV)	at O ₂ =0 % [mg/kWh] (based on GCV)	
Combustion level tests according to ČSN EN 15502-1+A1:2017, art. 8.13.1							
G20	70 % Q _a	20	5,1	21,2	44	39	
	60 % Q _a		5,3	20,3	42	38	
	40 % Q _a		5,3	18,1	38	34	
	25 % Q _a		5,8	15,1	33	29	
Limit concentration of NO _{x,0} at O ₂ = 0 %: 38 mg/kWh (based on NCV)							
Limit concentration of NO _{x,0} at O ₂ = 0 %: 34 mg/kWh (based on GCV) NO _x class: 6							

Test objective:	Formation of condensate
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-1+A1:2017, Art. 8.15
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-25

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Formation of condensate <u>Requirements</u> When the boiler is installed in accordance with the test conditions for efficiency measurement under 9.3.2 and at the maximum flue length specified by the manufacturer, under the conditions specified the condensate shall only form at the points intended for this purpose and shall be readily drained. Condensate shall not find its way to parts of the boiler which are not intended for formation, collection and discharge of condensate, nor may the condensate cause any nuisance to the operation the boiler and the surroundings.	ČSN EN15502-1+A1:2017, Art. 8.15	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-25	$t_{amb} = 22,5$ °C	rel. humidity = 35,5 %	$p_a = 991,2$ mbar
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Test conditions	Time of the test (h)	Test result	Note
ČSN EN 15502-1+A1:2017, Art. 8.15	4	+	The condensate is drained properly. Condensate didn't find its way to parts of the boiler which are not intended for formation, collection and discharge of condensate. The condensate didn't cause any nuisance to the operation the boiler and the surroundings.

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Test objective:	Temperature of combustion products
Exact name of the test procedure:	T 001 Tests of tightness, pressure resistance, thermal technical parameters, combustion efficiency, safety functions
Test method:	ČSN EN 15502-2-1+A1:2017, Art. 8.16.101, 8.16.102.1, 8.16.102.2
Sample tested:	ONGAS NOVA 13
Measuring equipment used:	see Chapter III
Date of test:	2021-11-25

Test results:

Requirement	Specification of requirement	Test evaluation	Note
Temperature of combustion products	ČSN EN 15502-2-1+A1:2017, Art. 8.16		
General Requirements The temperature of the combustion products shall not exceed the maximum allowable working temperature for the materials of the combustion circuit and/or the flue materials, specified in the installation instructions (see 12.2.1.4 g). If the boiler incorporates a device to limit the maximum temperature of combustion products the operation of the device shall cause non-volatile lock-out of the boiler.	ČSN EN ČSN EN 15502-2-1+A1:2017, Art. 8.16.101	+	
Designation and measurement of reference temperatures of flue systems	ČSN EN 15502-2-1+A1:2017, Art. 8.16.102		
Nominal working combustion products temperature Requirements If the nominal working combustion products temperature is specified in the technical instructions, see (12.2.1.4), the specified value should be higher or equal to the temperatures recorded in the test below .	ČSN EN ČSN EN 15502-2-1+A1:2017, Art. 8.16.102.1	+	
Overheat combustion products temperature Requirements If the overheat combustion products temperature is specified in the technical instructions, see (12.2.1.4), the specified value should be higher or equal to the temperatures recorded in the test below.	ČSN EN ČSN EN 15502-2-1+A1:2017, Art. 8.16.102.2	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

Date of testing:	2021-11-25	$t_{amb} = 22,5$	°C	rel. humidity = 35,5	%	$p_a = 991,2$	mbar
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Required properties	Test result	Note
Temperature of combustion products		
General		
ČSN EN 15502-2-1+A1:2017 Art. 8.16.101	+	Maximum working temperature of combustion products declared in manual is higher than maximum temperature of combustion products measured during the test.
Designation and measurement of reference temperatures of flue systems		
Nominal working combustion products temperature		
ČSN EN 15502-2-1+A1:2017 Art. 8.16.102.1	+	Maximum working temperature of combustion products declared in manual is higher than maximum temperature of combustion products measured during the test.
Overheat combustion products temperature		
ČSN EN 15502-2-1+A1:2017 Art. 8.16.102.2	+	Overheat combustion products temperature declared in manual is higher than maximum temperature of combustion products measured during the test.

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Test objective:	Electric auxiliary energy
Exact name of the test procedure:	T 071
Test method:	ČSN EN 15502-1+A1:2017, Art. 10.3, 10.4, 10.5, 10.6.3, 10.6.4, 10.6.5
Sample tested:	ONGAS NOVA 10, ONGAS NOVA 13
Measuring equipment used:	see Chapter III

Test results:

Requirement	Requirement specification	Evaluation	Note
General If the manufacturer declares the auxiliary energy consumption then it has to be determined according to this clause. Boilers without a pump can be assessed according to EN 15456.	ČSN EN 15502-1+A1:2017, Art. 10.1	+	
System boundaries The system boundary contains all electrical components between the manual shut-off device (for water and fuel) and the flue outlet of the combustion circuit, including the circulation pump. At the outlet, the pressure for the correct boiler operation has to be set. The following components shall also be covered by measurement provided they are considered to be a component of the heating boiler required for the design operation: a) Shut-off valves in the fuel supply; b) Supply of combustion air (air fan) respectively flue gas removal (flue exhauster); c) Control and monitoring devices (programming units, monitoring device/detector, etc.), if they are mandatory for the operation of the boiler; d) Circulation pump.	ČSN EN 15502-1+A1:2017, Art. 10.2	+	
Auxiliary energy at nominal heat output Under the test conditions of 9.2.2, the electrical auxiliary energy consumption per hour expressed in kilowatt (kW) shall be recorded and the average shall be determined.	ČSN EN 15502-1+A1:2017, Art. 10.3	+	
Auxiliary energy at part load Under the test conditions of 9.3.2 the demand of auxiliary energy per hour expressed in kilowatt (kW) for a load corresponding to 30 % of the nominal heat input, shall be recorded and the average consumption determined.	ČSN EN 15502-1+A1:2017, Art. 10.4	+	
Auxiliary energy at stand-by During the measurement in stand-by the demand of auxiliary energy per hour, expressed in kilowatt (kW), shall be recorded.	ČSN EN 15502-1+A1:2017, Art. 10.5	+	
Auxiliary electricity consumption measurements required for eco-design and labelling regulations	ČSN EN 15502-1+A1:2017 Art. 10.6		
General The auxiliary energy consumption values declared in the technical documentation shall be determined according to 10.6.2 to 10.6.5.	ČSN EN 15502-1+A1:2017, Art. 10.6.1	+	
System boundaries The system boundary contains all electrical components between the manual shut-off device (for water and fuel) and the flue outlet of the combustion circuit, excluding the circulation pump.	ČSN EN 15502-1+A1:2017, Art. 10.6.2	+	

Requirement	Requirement specification	Evaluation	Note
Energy consumption for all types of temperature control devices as defined in DD.2 of Annex DD are excluded. The following components shall also be covered by measurement provided they are considered to be a component of the heating boiler required for the design operation: a) Shut-off valves in the fuel supply; b) Mechanical supply of combustion air or flue gas removal respectively; c) Control and monitoring devices (programming units, monitoring device/detector, etc.), if they are mandatory for the operation of the boiler		+ + +	
Auxiliary electricity consumption [kW] at nominal heat input <u>Requirement:</u> The auxiliary electricity consumption [kW] ($e_{l_{max}}$), shall be recorded and the average shall be determined.	ČSN EN 15502-1 +A1:2017, Art. 10.6.3	+	
Auxiliary electricity consumption at part load [kW] <u>Requirements:</u> The auxiliary electricity consumption [kW] ($e_{l_{min}}$) for a load corresponding to 30 % of the nominal heat input, shall be recorded and the average shall be determined.	ČSN EN 15502-1 +A1:2017, Art. 10.6.4	+	
Auxiliary electricity consumption at stand by [kW] <u>Requirement:</u> During the measurement in stand-by the auxiliary electricity consumption [kW] (P_{SB}), shall be recorded and the average shall be determined.	ČSN EN 15502-1 +A1:2017, Art. 10.6.5	+	

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

Measurement results:

a) Sample tested: ONGAS NOVA 10

Date of testing:	2021-11-22	$t_{amb} = 22,8$ °C	rel. humidity = 54,5 %	$p_a = 986,7$ mbar
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Test methods	Measurement result	Note
Auxiliary energy at nominal heat output		
ČSN EN 15502-1+A1:2017, Art. 10.3	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 10 at the nominal heat input by burning natural gas G20 is 2,350 kW . (This value was calculated, because boiler is delivered without circulation pump).
Auxiliary energy at part load		
ČSN EN 15502-1+A1:2017, Art. 10.4	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 10 at the part load by burning natural gas G20 is 0,357 kW . (This value was calculated, because boiler is delivered without circulation pump).
Auxiliary energy at stand-by		
ČSN EN 15502-1+A1:2017, Art. 10.5	+	The consumption of auxiliary energy of the boiler ONGAS NOVA 10 in stand-by mode is 0,005 kW .
Auxiliary electricity consumption [kW] at nominal heat input		
ČSN EN 15502-1+A1:2017, Art. 10.6.3	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 10 without circulation pump at the nominal heat input by burning natural gas G20 is 1,650 kW .

Test methods	Measurement result	Note
Auxiliary electricity consumption at part load [kW]		
ČSN EN 15502-1+A1:2017, Art. 10.6.4	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 10 without circulation pump at the part load by burning natural gas G20 is 0,056 kW .
Auxiliary electricity consumption at stand by [kW]		
ČSN EN 15502-1+A1:2017, Art. 10.6.5	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 10 in stand-by mode is 0,005 kW .

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable

b) Sample tested: ONGAS NOVA 13

Date of testing: 2021-11-26	t _{amb} = 21,6 °C	rel. humidity = 55,0 %	p _a = 969,8 mbar
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Test methods	Measurement result	Note
Auxiliary energy at nominal heat output		
ČSN EN 15502-1+A1:2017, Art. 10.3	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 13 at the nominal heat input by burning natural gas G20 is 2,899 kW . (This value was calculated, because boiler is delivered without circulation pump).
Auxiliary energy at part load		
ČSN EN 15502-1+A1:2017, Art. 10.4	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 13 at the part load by burning natural gas G20 is 0,520 kW . (This value was calculated, because boiler is delivered without circulation pump).
Auxiliary energy at stand-by		
ČSN EN 15502-1+A1:2017, Art. 10.5	+	The consumption of auxiliary energy of the boiler ONGAS NOVA 13 in stand-by mode is 0,005 kW .
Auxiliary electricity consumption [kW] at nominal heat input		
ČSN EN 15502-1+A1:2017, Art. 10.6.3	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 13 without circulation pump at the nominal heat input by burning natural gas G20 is 2,030 kW .
Auxiliary electricity consumption at part load [kW]		
ČSN EN 15502-1+A1:2017, Art. 10.6.4	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 13 without circulation pump at the part load by burning natural gas G20 is 0,103 kW .
Auxiliary electricity consumption at stand by [kW]		
ČSN EN 15502-1+A1:2017, Art. 10.6.5	+	The average consumption of auxiliary energy of the boiler ONGAS NOVA 13 in stand-by mode is 0,005 kW .

Note: + Requirement fulfilled x Not assessed
 - Requirement not fulfilled 0 Not applicable



Photo of the front of the boiler with cover and display



Photo of heat exchanger

Tested by: Milan Holomek
Reviewed and approved by: Milan Holomek

Date: 2022-04-20

Date: 2022-04-20

Signed:

Signed:

A handwritten signature in blue ink, consisting of several loops and strokes, positioned over the signature lines.

V. List of referenced documents

- Order No. B-74799 of 2021-11-03
- Contract No. B-74799/30
- Amendment 1 to Contract B-74799/30 of 2022-02-25
- ČSN EN 15502-1+A1:2017 – Gas-fired heating boilers – Part 1: General requirements and tests
- ČSN EN 15502-2-1+A1:2017 – Gas-fired central heating boilers – Part 2-1: Specific standard for type C appliances and type B₂, B₃ and B₅ appliances of a nominal heat input not exceeding 1 000 kW
- ČSN EN 437:2021 – Test gases - Test pressures - Appliance categories
- Burst test of 2022-04-12 for heat exchanger ONGAS NOVA HEX back section, issued by manufacturer ONMETAL DOKUM SANAYI AS
- Burst test of 2022-04-12 for heat exchanger ONGAS NOVA HEX middle section, issued by manufacturer ONMETAL DOKUM SANAYI AS
- Burst test of 2022-04-12 for heat exchanger ONGAS NOVA HEX front section, issued by manufacturer ONMETAL DOKUM SANAYI AS
- Installation manual
- Draft of nametlates
- Manufacturer's declaration of 2021-12-02

- Drawing documentation:
 - general drawing of boiler ONGAS NOVA 10, no. OG NV SP-000-10;
 - general drawing of boiler ONGAS NOVA 13, no. OG NV SP-000-13;
 - drawing of exploded view of boiler, no. OG NV-SP 0000;
 - drawing of front section of heat exchanger, no. OG NV-SP 0001;
 - drawing of middle section of heat exchanger, no. OG NV-SP 0002;
 - drawing of back section of heat exchanger, no. OG NV-SP 0003;
 - drawing of burner for ONGAS NOVA 10, no. 109.2191.00;
 - drawing of burner for ONGAS NOVA 13, no. 109.2192.00;
 - drawing of ignition device ZAG2, no. 07000089/01;
 - drawing of ignition electrode ZE 10-72-74 B, no. 0009.500.056.00.00;
 - drawing of the ignition electrode, no. OG 600P-SP.045001;
 - drawing of the ionisation electrode, no. OG 600P-SP.047001;
 - drawing of blower G3G250-MW50-01 without number;
 - drawing of blower G3G315-M3G150FF, no. 5560007000_Z10;
 - drawing of blower Fasco, no. CS70530136;
 - drawing of venturi Dungs G250-Ø20 HC, no. OGNV-SP 0060-1;
 - drawing of venturi Dungs N/N 2 MW, no. OGNV-SP 0060-2;
 - drawing of transducer GTE-TCBAA00 without number;
 - drawing of limit thermostat KDS301 without number;
 - drawing of sifon Long john, no. ZULJ32;
 - drawing of cleaning cap, no. OGNV-SP 0007;
 - drawing of flue outlet adaptor DN250, no. OGNV-SP 0035-1;
 - drawing of flue outlet adaptor DN315, no. OGNV-SP 0035-2;
 - drawing of flue outlet collector, no. NV-SP 0031;

- EU-Declaration of conformity of 2018-04-21 for GasMultiBloc type MBC...SE/N made by Karl Dungs GmbH & Co. KG
- EU-Type Examination Certificate No.: C5A 18 04 22629 022 of 2018-04-11 for Fittings (Gas) Multifunctional control, models: Series MBC-300, Series MBC-700, Series MBC-1200 made by Karl Dungs GmbH & Co. KG, issued by TÜV SÜD Product Service GmbH
- Certificate No.: Z-IS-TAF-MUC-13-05-112765-026-Rev.01 of 2016-10-19 issued by TÜV SÜD Industrie Service GmbH
- EU-Declaration of Conformity of 2020-05-04 for Radial blower with EC-motor type 55600.06010/G3G250-MW50-01 made by ebm-papst Slovenija proizvodnja elektromotorjev d.o.o.
- EU Declaration of Conformiy of 2017-08-01 for Radial blower with EC-motor type 55600.07000 G3G315-M3G150FF-191 made by ebm-papst Slovenija proizvodnja elektromotorjev d.o.o.

- EC Declaration of Conformity of 2020-02-24 for Electrically commutated motor (ECM) GPM10 made by FASCO
- EC Declaration of Conformity of 2020-02-27 for Electrically commutated motor (ECM) GPM10H made by FASCO
- EU Declaration of Conformity No.: CE1T2357xx3_V3 of 2019-04-15 for operator units AVS37.294/xxx, AVS37.295/xxx, AVS37.394/xxx, AVS37.396/xxx, AVS.398/xxx made by Siemens AG
- EC type examination certificate No.: CE-0085CP0169 of 2018-01-31, valid from 2018-04-21 for burner control for intermittent operation for gas appliances with premix burners, models LMS14...B...; LMS14...C...; LMS15...A... made by Siemens AG, BT CPS, issued by DVGW CERT GmbH
- EU Declaration of Conformity No.: 2018/13 of 2018-04-23 for boiler management systems types LMS14.xxxB1yy, LMS14.xxxB2yy, LMS14.xxxB3yy, LMS14.xxxC3yy made by Siemens AG BT CPS
- Certificate of Conformity No.: AN 50308438 0001 of 2015-05-27 for Temperature control (Thermostat) KSD301A-A made by Zettler Controls (Ningbo) Co., Ltd., issued by TÜV Rheinland LGA Product GmbH
- Certificate No.: R 50308437 of 2015-05-27 for Temperature control (Thermostat) KSD301A-A made by Zettler Controls (Ningbo) Co., Ltd., issued by TÜV Rheinland LGA Product GmbH
- EC Declaration of Conformity of 2020-05-19 for ignition device for gas appliances type designation ZAG 2 Variante: 10 Hz, ZAG 2 Variante: 50 Hz made by Anstoss Regelgerate GmbH
- Attestation of Conformity no. 3507070.01_AoC_EMC of 2020-05-29 for Hall effect transducer TCBA00 made by GTE Elletromeccanica s.r.l.
- EC Declaration of Conformity of 2020-05-14 for temperature sensors made by Enpi elektronik
- A set of required technical documentation according to standards ČSN EN 15502-1+A1:2017 and ČSN EN 15502-2-1+A1:2017, materials archived within the task: No. 30-15781

Test Report compiled by: Ing. Ondřej Ptáček

Person responsible for correctness of the Report: Ing. Bohdan Brázda



Milan Holomek
Head of Heating and Ecological
Equipment Testing Laboratory



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