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Test report no. H-A 1408-01/16

supplementary to test report no. H-A 1408-00/16 dated 2016-10-18

Test laboratory	TÜV SÜD Industrie Service GmbH Feuerungs- und Wärmetechnik Prüfbereich Wärmetechnik
Subject of test	Heating boiler for solid fuels
Type:	PuroWIN
Sizes/ Models:	PuroWIN (Nominal heat output 24 kW) PuroWIN (Nominal heat output 30 kW) PuroWIN (Nominal heat output 40 kW) PuroWIN (Nominal heat output 45 kW) PuroWIN (Nominal heat output 49 kW) PuroWIN (Nominal heat output 60 kW)
Fuel:	chipped wood B1 and compressed wood C1
Customer	Windhager Zentralheizung Technik GmbH Anton-Windhager-Strasse 20 5201 SEEKIRCHEN, ÖSTEREICH
Basis of test	EN 303-5:2012
Period of test	Oktober 2016

Date: 2016-10-20

Our reference:
IS-TAF-MUC/td

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The test results refer exclusively
to the units under test.

This test report is also issued in a German version. In any case of doubts the German version is binding.

In this test report a comma is used as a decimal separator.



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Industrie Service

Designation of interpolated values of not on performance requirements tested intermediate sizes PuroWIN with nominal heat outputs 40, 45 and 49 kW.

The heating boilers PuroWIN with nominal heat outputs 40, 45 and 49 kW are not on boiler performance tested intermediate sizes according to EN 303-5, clause 5.1.4. The manufacturer determined interpolated values on efficiency and emissions which are documented in enclosures A1 and A2 of this test report together with the values of the tested heating boilers.

A test on plausibility on the interpolated values was carried out on the basis of the measured values as tested and documented in report no. H-A 1408-00/16 dated 2016-10-18. The test on plausibility on the interpolated values by the manufacturer shows a positive result.

According to the Summarised Validation the heating boiler range including the different models fulfils the requirements of EN 303-5, clauses 4.1, 4.2, 4.3.1 to 4.3.8, 4.3.9.2, 4.4, 5.4, 5.16.1, 7.2, 8.2 and 8.3.

Feuerungs- und Wärmetechnik
Prüfbereich Wärmetechnik

A blue ink signature of Johannes Steiglechner, written in a cursive style.

Johannes Steiglechner
Leiter
Feuerungs- und Wärmetechnik

The expert

A blue ink signature of Thomas Dambor, written in a cursive style.

Thomas Dambor



Heating boiler range, type: PuroWIN (compressed wood C1)

Heating boiler Models/Sizes	Fuel ¹⁾	Nominal Heat output kW	Necessary flue gas draught Pa	Flue gas temperature °C	Boiler class	Efficiency η %	Emission values ²⁾			
							CO mg/m ³	NO _x mg/m ³	C _x H _y mg/m ³	Dust mg/m ³
24	C1	24,1 6,8	10	109 63	5	94,9 94,8	11	112	1	1
							29	110	3	1
30	C1	30,4 8,6	10	110 63	5	94,2 94,6	7	116	1	1
							15	102	2	2
40 ³⁾	C1	40,0 12,0	10	110 66	5	94,3 94,4	6	121	1	2
							14	99	2	5
45 ³⁾	C1	45,0 13,5	10	110 67	5	94,4 94,3	6	123	1	2
							14	97	2	6
49 ³⁾	C1	49,0 14,7	10	110 68	5	94,4 94,2	5	125	1	2
							14	96	1	7
60	C1	60,9 18,4	10	110 71	5	94,6 93,9	4	131	1	3
							13	92	1	10

Heating boiler Models/Sizes	Fuel ¹⁾	Nominal Heat output kW	Emission values ⁴⁾				
			CO mg/m ³	NO _x mg/m ³	OGC mg/m ³	Staub mg/m ³	Particles ⁵⁾ (PPBT) mg/m ³
24	C1	24,1 6,8	8	82	1	1	1
			21	80	2	1	2
30	C1	30,4 8,6	5	84	1	1	1
			11	74	1	1	1
40 ³⁾	C1	40,0 12,0	4	88	1	1	1
			10	72	1	3	3
45 ³⁾	C1	45,0 13,5	4	90	1	1	1
			10	71	1	4	4
49 ³⁾	C1	49,0 14,7	4	91	1	2	2
			10	70	1	5	5
60	C1	60,9 18,4	3	96	1	2	2
			9	67	1	7	7

1) A: Log wood B1: Chipped wood (water content 15 to 35 %) C1: Compressed wood Pellets (6 mmØ) D: Sawdust

2) related to 10 % O₂ in flue gas

3) not tested intermediate size, data given by manufacturer

4) related to 13 % O₂ in flue gas

5) CO or particles (mg/m³) = dust (mg/m³) + 0,42*OGC (mg/m³) at 13% O₂-Content in flue gas according to *DECRETO 28 dicembre 2012 - "Incentivazione della produzione di energia termica da fonti rinnovabili ed interventi di efficienza energetica di piccole dimensioni"*, table 11

Heating boiler range, type: PuroWIN (chipped wood B1)

Heating boiler Models/Sizes	Fuel ¹⁾	Nominal Heat output kW	Necessary flue gas draught Pa	Flue gas temperature °C	Boiler class	Efficiency η %	Emission values ²⁾			
							CO mg/m ³	NO _x mg/m ³	C _x H _y mg/m ³	Dust mg/m ³
24	B1	23,9 7,3	10	111 65	5	93,5 93,4	2	93	1	1
							22	71	1	1
30	B1	30,2 8,3	10	112 62	5	93,4 93,0	8	115	1	1
							21	85	2	1
40 ³⁾	B1	40,0 12,0	10	111 65	5	93,8 93,6	6	111	1	1
							16	81	2	1
45 ³⁾	B1	45,0 13,5	10	111 65	5	94,0 93,8	6	109	1	1
							14	79	1	2
49 ³⁾	B1	49,0 14,7	10	111 67	5	94,2 94,0	5	108	1	1
							12	78	1	2
60	B1	62,2 17,7	10	110 69	5	94,7 94,5	3	103	1	1
							8	74	1	2

Heating boiler Models/Sizes	Fuel ¹⁾	Nominal Heat output kW	Emission values ⁴⁾				
			CO mg/m ³	NO _x mg/m ³	OGC mg/m ³	Staub mg/m ³	Particles ⁵⁾ (PPBT) mg/m ³
24	B1	23,9 7,3	2	68	1	1	1
			16	52	1	1	1
30	B1	30,2 8,3	6	84	0	1	1
			15	62	1	1	1
40 ³⁾	B1	40,0 12,0	5	81	0	1	1
			11	59	1	1	1
45 ³⁾	B1	45,0 13,5	4	80	0	1	1
			10	58	1	2	2
49 ³⁾	B1	49,0 14,7	4	79	0	1	1
			9	57	1	2	2
60	B1	62,2 17,7	2	75	0	1	1
			6	54	1	2	2

- 1) A: Log wood B1: Chipped wood (water content 15 to 35 %) C1: Compressed wood Pellets (6 mmØ) D: Sawdust
 2) related to 10 % O₂ in flue gas
 3) not tested intermediate size, data given by manufacturer
 4) related to 13 % O₂ in flue gas
 5) CO or particels (mg/m³) = dust (mg/m³) + 0,42*OGC (mg/m³) at 13% O₂-Content in flue gas according to *DECRETO 28 dicembre 2012 - "Incentivazione della produzione di energia termica da fonti rinnovabili ed interventi di efficienza energetica di piccole dimensioni"*, table 11