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Test report no. H-A 1190-08/16
supplementary to test report no. H-A 1190-05/14 dated 2014-12-01

Test laboratory TÜV SÜD Industrie Service GmbH
Feuerungs- und Wärmetechnik
Prüfbereich Wärmetechnik

Date: 2016-10-20

Our reference:
IS-TAF-MUC/td

Subject of test Heating boiler for solid fuels

Report No. H-A 1190-08/16
Order no. 2625563

Type: BioWIN
Sizes/ BioWIN 350
Models: BioWIN 450
 BioWIN 600

Document:
HA11900816_Erg_BioWIN_35
0_450_600_eng.doc

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This document includes
2 pages and 1 enclosure

Fuel: compressed wood C1

Customer Windhager Zentralheizung Technik GmbH
Anton-Windhager-Strasse 20
5201 SEEKIRCHEN, ÖSTEREICH

Basis of test EN 303-5:2012

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Period of test Oktober 2016

The test results refer exclusively
to the units under test.

**Designation of interpolated values of not on performance requirements
tested intermediate size BioWIN 450**

The heating boiler BioWIN 450 is a not on boiler performance tested intermediate size according to EN 303-5, clause 5.1.4. The manufacturer determined interpolated values on efficiency and emissions which are documented in enclosure A of this test report together with the values of the tested heating boilers.

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

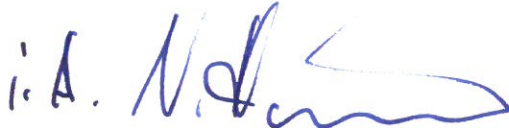
In this test report a comma is used as a decimal separator.



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 1190-05/14 dated 2014-12-01. 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



Johannes Steiglechner
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The expert



Thomas Dambor

Heating boiler range, type: BioWIN

Heating boiler	Fuel ¹⁾	Nominal Heat output	Necessary flue gas draught	Flue gas temperature	Boiler class	Efficiency	Emission values ²⁾			
							CO	NO _x	C _x H _y	Dust
Models/Sizes		kW	Pa	°C		%	mg/m ³	mg/m ³	mg/m ³	mg/m ³
350	C1	35,0	10	141	5	91,2	39	162	2	17
		10,0		89		88,8	92	129	2	14
450 ³⁾	C1	45,0	10	147	5	90,7	41	164	2	17
		13,5		93		89,3	113	136	2	15
600	C1	60,0	10	156	5	90,1	43	167	1	16
		18,0		97		90,0	141	145	2	17

Heating boiler	Nominal Heat output	Emission values ⁴⁾				
		CO	NO _x	OGC	Dust	Particles ⁵⁾ (PPBT)
Models/Sizes	kW	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³
350	35,0	28	118	2	12	13
	10,0	67	94	2	10	11
450 ³⁾	45,0	29	119	2	12	13
	13,5	83	99	2	11	12
600	60,0	31	121	1	12	12
	18,0	103	105	1	12	12

- 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