Industrie Service

Choose certainty.
Add value.

# 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<br>Feuerungs- und Wärmetechnik<br>Prüfbereich Wärmetechnik | |
| Subject of test | Heating boiler for solid fuels | |
| | Type: | BioWIN |
| | Sizes/<br>Models: | BioWIN 350<br>BioWIN 450<br>BioWIN 600 |
| | Fuel: | compressed wood C1 |
| Customer | Windhager Zentralheizung Technik GmbH<br>Anton-Windhager-Strasse 20<br>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

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

Document:
HA11900816_Erg_BioWIN_350_450_600_eng.doc



This document includes
2 pagesn and 1 enclosure



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 determinded 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.

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-14153-04-00

Headquarters: Munich
Trade Register Munich HRB 96 869
VAT ID No. DE129484218
Information pursuant to § 2 [1] DL-InfoV
(Germany) at www.tuv-sud.com/imprint

Supervisory Board:
Karsten Xander (Chairman)
Board of Management:
Ferdinand Neuwieser (CEO),
Dr. Ulrich Klotz, Thomas Kainz

Phone: +49 89 5190-1027
Fax: +49 89 5190-3307
www.tuv-sud.com/is

TÜV SÜD Industrie Service GmbH
Feuerungs- und Wärmetechnik
Ridlerstrasse 65
80339 Munich
Germany

Industrie Service

A test on plausiblity 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 plausiblity 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

i. A.

Johannes Steiglechner
Leiter
Feuerungs- und Wärmetechnik

The expert

Thomas Dambor

Industrie Service

## 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] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $\eta$ | CO | $NO_X$ | $C_XH_Y$ | Dust |
| **Models/Sizes** | | kW | Pa | °C | | % | mg/m³ | mg/m³ | mg/m³ | mg/m³ |
| **350** | C1 | 35,0<br>10,0 | 10 | 141<br>89 | 5 | 91,2<br>88,8 | 39<br>92 | 162<br>129 | 2<br>2 | 17<br>14 |
| **450** [3] | C1 | 45,0<br>13,5 | 10 | 147<br>93 | 5 | 90,7<br>89,3 | 41<br>113 | 164<br>136 | 2<br>2 | 17<br>15 |
| **600** | C1 | 60,0<br>18,0 | 10 | 156<br>97 | 5 | 90,1<br>90,0 | 43<br>141 | 167<br>145 | 1<br>2 | 16<br>17 |

| Heating boiler | Nominal Heat output | Emission values[4] | | | | |
|---|---|---|---|---|---|---|
| | | CO | $NO_X$ | OGC | Dust | Particles[5] (PPBT) |
| **Models/Sizes** | kW | mg/m³ | mg/m³ | mg/m³ | mg/m³ | mg/m³ |
| **350** | 35,0<br>10,0 | 28<br>67 | 118<br>94 | 2<br>2 | 12<br>10 | 13<br>11 |
| **450** [3] | 45,0<br>13,5 | 29<br>83 | 119<br>99 | 2<br>2 | 12<br>11 | 13<br>12 |
| **600** | 60,0<br>18,0 | 31<br>103 | 121<br>105 | 1<br>1 | 12<br>12 | 12<br>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 % $O_2$ in flue gas

3) not tested intermediate size, data given by manufacturer

4) related to 13 % $O_2$ 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