



Rhein-Ruhr Feuerstätten Prüfstelle

Rhein-Ruhr Feuerstätten Prüfstelle • Im Lipperfeld 34 b • 46047 Oberhausen

- ❖ State recognized testing laboratory, registered No. NRW 15 in accordance with construction supervision directives
- ❖ Recognized testing laboratory in construction supervision licensing procedures
- ❖ Recognized DIN CERTCO testing laboratory, registered No. PL 139
- ❖ European Commission recognized testing laboratory, notified body number: 1625

Test report No. RRF – 40 07 1389 - 1

Testing method:	Test according to DIN EN 13240:2001/AC:2006 and DIN EN 13240:2001/A2:2004/AC:2007 and its amendment according to Art. 15a B-VG of the Republic of Austria
Fulfilled requirements:	BStV of the City of Munich and the City of Regensburg, 1. and 2. level of 1. BImSchV of Germany and LRV of Switzerland
Manufacturer:	H. A. Wanders Metaalproducten b.v., Amtweg 4, NL-7077 Netterden
Tested product:	Roomheater Diamant (intermittent burning)
Nominal heat output:	8,0 kW

Test result: The CO content of the flue gases emitted by the above-mentioned fireplace – at nominal heating capacity and under the testing conditions stipulated by the DIN EN 13240, using wood logs as fuel – is 0,08 Vol.-%, referring to 13 % O₂ (equal to 1000 mg/m³).

The dust-like emissions in the flue gas – under the conditions described above – are 39 mg/m³, the NO_x-content is 147 mg/m³, the C_nH_m-content is 64 mg/m³, for wood logs referring to 13 % O₂.

Under the conditions described above, the level of efficiency is 78,0 %.

This certificate is the translation of the original German certificate.

In case of doubts, the German version is valid.

Head of Testing Laboratory

Dr. Lücker

Oberhausen, 09.07.2013

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Attachment a

Test report No. RRF - 40 07 1389 - 1

**Test results and "Wertetripel" for calculating the flue
according to DIN EN 13384-1 and 13384-2 „Chimneys – Thermal and fluid dynamic calculation
methods – Part 1 and Part 2: Chimneys serving one or more than one appliance”
for the roomheater Diamant
of the company H. A. Wanders Metaalproducten b.v., Amtweg 4, NL-7077 Netterden**

<u>Result of test 1 to 3 according to nominal heat output with combustible materials consisting of</u>		Beech logs
Nominal heating output according to manufacturer	kW	8,0
Total heating output	kW	8,3
Space heating output	kW	8,3
Water heating output	kW	---
Efficiency	%	78,0
Flue gas temperature ta-tr	K	220
Mean CO-content of the flue gases based on 13 % O ₂	%	0,08
Mean CO-content of the flue gases based on 13 % O ₂	mg/Nm ³	1000
Dust based on 13% O ₂	mg/Nm ³	39
Mean NO _x -content of the flue gases based on 13 % O ₂	mg/Nm ³	147
Mean C _n H _m -content of the flue gases based on 13 % O ₂	mg/Nm ³	64
<u>Operation with closed combustion chamber</u>		
Flue gas mass flow according to nominal heat output	\dot{m} (g/s)	9,5
Flue gas temperature measured on flue spigot	t (°C)	280
Mean manometric pressure according to nominal heat output	p (Pa)	12
<u>Operation with open combustion chamber</u>		
Flue gas mass flow according to nominal heat output	\dot{m} (g/s)	14,5
Flue gas temperature measured on flue spigot	t (°C)	250
Mean manometric pressure according to nominal heat output	p (Pa)	10
<u>Distance to combustible components</u>		
On the test base	cm	---
On the rear test wall	cm	5
On the side test wall	cm	5
In range of the inspection window	cm	80

Comment: The roomheater is suitable for installation in a shared flue system.
The values were transferred from our test report no. RRF – 40 07 1389 dated on 18.12.07.
This test results and Wertetripel is the translation of the original German test report. In case of doubts,
the German version is valid.



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**Test report on a fireplace in accordance with DIN EN 13240:2001/AC:2006 and DIN EN 13240:2001/A2:2004/AC:2007**

<u>Testing station</u> Name, Address	RRF Rhein-Ruhr Feuerstätten Prüfstelle GmbH Im Lipperfeld 34 b D-46047 Oberhausen Phone: +49(0)208-607041 - 0, Fax: +49(0)208-607041 - 28
Reference No.	RRF - 40 07 1389 - 1
<u>Initiator</u> Name, Address	H. A. Wanders b.v. Amtweg 4, NL – 7077 Netterden
<u>Appliance</u> Type, Serial number	Roomheater (intermittent burning) Diamant
Total heating output	8,3 kW
Space heating output	8,3 kW
Water heating output	---
Description	Roomheater of sheet steel with primary and secondary air and inspection window in the optionally self-closing firedoor.
Manufacturer	Initiator
Date of delivery	14.05.07
Means of acquisition	Delivered by initiator (serial model)

Brief summary by testing laboratory:

The roomheater Diamant, in a test burning combustible materials consisting of size 4 x 6 cm profile wood and beech logs fulfilled all requirements according to this standard.

This test report has been drawn up without prejudice to the rights of third parties in respect of private trademark rights of the initiator or manufacturer and may not be published in extracts.

The test report consisting of pages 1 to 13 and the appended test documentation a to I contains the results of the testing relating to this standard.

This test report is the translation of the original German test report. In case of doubts, the German version is valid.



Oberhausen, 09.07.2007

(Place and date)

A blue ink signature of Dr. Lücker, consisting of a stylized 'L' followed by a horizontal line.

(Dr. Lücker)

(stamp and signature of Head of Testing Laboratory)

Testing the raw materials, design and construction according to section 4

	Requirement according to	Requirement fulfilled
<u>Documentation of construction</u> Plans, drawings Specification of the materials used Thermal rating(s) with reference to fuel(s) Declarations for water-bearing components: Declaration of welding technique used maximum allowed operating temperature in °C maximum allowed operating pressure in bar. Type control pressure in bar. Water heating capacity in kW	4.1	yes yes yes n/a
<u>Construction</u> <u>General construction</u> Use of non-combustible materials no dangerous materials Grate and ash box provided Replaceability of individual components	4.2 4.2.1	yes yes n/a yes
<u>Water-carrying components</u> Only cast iron in line with Table 4 in use or types of steel in line with Table 3 homogeneous materials	4.2.2	n/a
<u>Weld seams and welding materials</u> Suitable for welding Raw materials in line with Table 3	4.2.2.1.1	n/a
<u>Standard minimum thickness of steel</u> Standard minimum steel thickness in line with Table 2 Tolerances according to EN 10029:1991	4.2.2.1.2	n/a
<u>Properties of components exposed to water pressure</u> Mechanical properties according to Table 4	4.2.2.2.1	n/a
<u>Cast iron: standard minimum thicknesses</u> Thickness in line with Table 5	4.2.2.2.2	n/a
<u>Outlet pipes in the walls</u> Outlet pipe threads in line with Table 6 Fulfilling of the ISO requirements: of taper threads of cylindrical threads State of the flow pipe outlets Minimum depth of outlet pipe and length of thread in line with Table 7 Bleeder nozzle > ½" and construction in line with ISO 7 or ISO 228	4.2.2.3	n/a



	Requirement according to	Requirement fulfilled
<u>Water courses in the body of the furnace</u> Prevention of deposits Cleaning apertures ≥ 70 mm x 40 mm $\varnothing \geq 70$ mm Seal and protective cap are present	4.2.2.4.1	n/a
<u>Indirect water systems</u> Minimum dimensions ≥ 20 mm Minimum dimensions ≥ 15 mm	4.2.2.4.2	n/a
<u>Direct water systems</u> Minimum dimensions ≥ 25 mm	4.2.2.4.3	n/a
<u>Bleeding</u> Water compartments bleedable no disruptive boiling noises	4.2.2.4.4	n/a
<u>Water tightness</u> Securing elements extend into water-filled compartments	4.2.2.4.5	n/a
<u>Cleaning the heating surfaces</u> Accessibility of the surfaces Cleaning with brushes and/or special tool from the manufacturer	4.2.3	yes yes n/a
<u>Exhaust gas outlet pipe</u> Safe, tight connection push-on length: ≥ 25 mm for vertical connection ≥ 40 mm for horizontal connection ≥ 6 mm penetration depth	4.2.4	yes yes yes n/a n/a
<u>Heating gas flues and cleaning tools</u> Minimum width: bituminous coals and peat ≥ 30 mm other combustible fuels ≥ 15 mm easy cleaning with standard tools Tool, brush from manufacturer	4.2.5	n/a yes yes n/a
<u>Ash box</u> Ash can be removed Capacity is sufficient no obstruction of the combustion air supply flue	4.2.6	yes yes yes
<u>Combustion chamber bottom - grate</u> When replacing the correct installation is guaranteed effective ash removal	4.2.7	yes yes



	Requirement according to	Requirement fulfilled
<u>Combustion air supply</u> manual or automatic regulation device setting is easily visible, indicated at all times Correlation: setting → combustible fuel is possible no obstruction of combustible air intake	4.2.8.1	yes yes n/a yes
<u>Setting of the exhaust gas regulation</u> Throttle device is present easy to operate Safety profile $\geq 20 \text{ cm}^2$ and/or $\geq 3 \%$ of the profile surface the setting is visible pendulum air flap: easy to clean	4.2.9	n/a
<u>Fire doors, charging doors</u> Charging with commercially-available fuel is possible inadvertent opening avoidable easy to close tightly	4.2.10	yes yes yes
<u>Ignition device</u> Easily set open and closed setting	4.2.11	n/a
<u>Upright grid/Upright tray</u> Fuel/ash is held back correct insertion guaranteed inadvertent detaching from the fixing can be avoided	4.2.12	yes yes yes
<u>Fireplaces for solid mineral fuels and peat briquettes</u> Combustion chamber grate and ash box present	4.2.13	n/a

Test of the safety requirements in accordance with section 5

	Requirement according to	Requirement fulfilled
<u>Safety test with natural manometric pressure</u> Manometric pressure ≥ 3 Pa CO volume ≤ 250 dm ³ /10 h	5.1	n/a
<u>Operation with open combustion chamber doors</u> No heating gas emission no fall-out of embers	5.2	yes
<u>Solidity, leak tightness of the walls of water-bearing components</u> After the test: no leaks, no permanent distortion	5.3	n/a
<u>Temperature in the fuel storage compartment</u> Contact temperature ≤ 65 K	5.4	n/a
<u>Operating tools</u> Tools supplied Contact surfaces without tool Temperatures ≤ 35 K ≤ 45 K ≤ 60 K Test results page 7	5.5	yes n/a n/a n/a n/a
<u>Temperatures on adjacent combustible components</u> Temperatures ≤ 65 K (see installation and operating instructions for information about safety intervals and heat insulation)	5.6	yes
<u>Thermal outflow safety device</u> Outflow safety device as an integral part of the fireplace Opening of the outflow safety device according to instructions of the manufacturer at < 105 °C at ≤ 105 °C	5.7	n/a



Specifications of the test combustible fuels used according to Table B.1

Analysis and calorific values of the test combustible fuels							
Test fuels	W % i.an	A % i.an	Non- permanent ingredients % i.waf	H % i.an	C % i.an	S % i.an	Hu kJ/kg i.an
Profile wood	9,6	0,2	86,12	5,5	45,8	---	33 874
Wood logs	11	0,65	85,29	5,53	43	---	15 539

Analyses of samples have been carried out by RAG Ruhranalytik Laboratorium für Kohle und Umwelt GmbH, Wilhelmstr. 98, 44649 Herne (accredited testing laboratory to DIN EN ISO/IEC 17025:2005).

Testing the light load, the ember retaining and re-raising of the temperature according to section A.4.8 *)

	Requirement according to	Light load	Ember retention	Requirement fulfilled
long-term / temporary-fireplace *)		---	---	
Day of test, date		---	---	
Test fuel	Tab. B.1	---	---	n/a
Basic ember mass test started, ended	kg A.4.8.3	---	---	n/a
<u>Setting of the control mechanisms for:</u> - Primary air - Secondary air - Tertiary air		---	---	
Flue draught	Pa 6.4	---	---	n/a
Duration of burning	h 6.6	---	---	n/a
Recovery	min 6.5	---	---	n/a
Water-carrying components Flow/return temperature Water flow rate	°C kg/h A.4.8.3	---	---	n/a
Comments: *) delete non-applicable expression				



Testing the temperature of the controls according to section A.4.7

	Requirement according to	Test result 1	Test result 2	Test result 3	Requirement fulfilled
Day of test, date		---	---	---	
Test fuel	Table B.1	---	---	---	n/a
Amount mass kg	A.4.2	---	---	---	n/a
Number of amounts		---	---	---	
<u>Setting of the control mechanisms for</u>					
- Primary air		---	---	---	
- Secondary air		---	---	---	
- Tertiary air		---	---	---	
Medium manometric pressure Pa	6.1	---	---	---	n/a
Thermal rating P kW		---	---	---	
Operating tools	available / not available				
<u>Maximum surface temperature of the controls</u>	5.3 target	Actual	Actual	Actual	Requirement fulfilled
1) on K					
off					
2) on K		---	---	---	n/a
off					
3) on K		---	---	---	n/a
off					
4) on K		---	---	---	n/a
off					
5) on K		---	---	---	n/a
off					
Comment: protective glove enclosed					

Testing the standard thermal rating, the degree of efficiency and the duration of burning according to section, A.4.7 *)

		Requirement according to	Average value from 1 to 3	Requirement fulfilled
Day of test, date			31.07.07	
Test fuel		Tab. B1	Beech logs	yes
Mass of test fuel per charge	kg	A.4.2	5,18	yes
Number of test amounts			3	
<u>Setting of the controls for</u>				
- Primary air			---	
- Secondary air			max.	
- Tertiary air			---	
Flue draught	Pa	6.4	12	yes
Mean flue gas temperature ta-tr	K		220	
Mean CO ₂ -content	%		7,5	
Mean CO-content	%		0,08	
Mean CO-content of the flue gases based on 13 % O ₂	%	6.2	0,08	yes
Mean C _n H _m -content of the flue gases based on 13 % O ₂	mg/ Nm ³		64	
Mean OGC-content of the flue gases in line with SP-Method 2342 based on 13 % O ₂	mg/ Nm ³		67	
Test duration	h	6.6	2,02	yes
Appliance	h		intermittend burning	
Variance to target	%	A.5	< 10	yes
Thermal heat loss	%		20,8	
Chemical heat loss	%		0,7	
Loss of combustible fuel by drop through grate and ranking	%		0,5	
Efficiency	%	6.3	78,0	yes
Space heating output	kW	6.7	8,3	yes
Total heating output	kW	A.5	8,3	yes
Nominal heating output according to manufacturer	kW		8,0	
Water carrying components *)				
Flow/return temperature	°C	A.4.7.3	---	n/a
Water flow rate	kg/h	A.4.7.3	---	n/a
Water heating output	kW	A.4.5	---	n/a
System leak tightness		5.3	---	n/a
Stability of components		5.3	---	n/a
Comments: n/a				



Testing the fire safety with open combustion chamber according to A.4.9.1

		Requirement according to	Test result	Requirement fulfilled
Day of test, date			---	
Test fuel		Table B.1	---	n/a
Test amount	kg	A.4.2	---	n/a
<u>Setting the controls for:</u>				
- Primary air			---	
- Secondary air			---	
- Tertiary air			---	
Mean manometric pressure	Pa	6.4	---	n/a
Duration of test	h	A.4.9.1	---	n/a
Re-raising the temperature		6.5	---	n/a
Drop-through of embers		5.2	---	n/a
Flue gas emission		5.2	---	n/a



Testing the fire safety according to sections A.4.9.2 and/or A.4.7

	Requirement according to	Test result	Requirement according to	Test result	Requirement fulfilled
Day of test, date		01.08.07		---	
Test fuel	A.4.9.2.2.1	Profile wood	A.4.7	---	yes
Combustion chamber open / closed		closed		---	
Test amount (total) incl. ignition process kg	A.4.9.2.2.1	14,1	A.4.2	---	yes
Number of test amounts		9		---	
<u>Setting of the controls for</u>					
- Primary air		open		---	
- Secondary air		open		---	
- Tertiary air		---		---	
Mean manometric pressure Pa	6.4	15	6.4	---	yes
<u>Max. surface temperature</u>					
On the test base K	5.6	---	5.6	---	n/a
On the rear test wall K	5.6	46	5.6	---	yes
<i>Distance</i> cm		*)		---	
On the side test wall K	5.6	29	5.6	---	yes
<i>Distance</i> cm		10 **)		---	
<i>Distance in range of the inspection window</i> cm		80		---	
On the roof K	5.6	---	5.6	---	n/a
In fuel storage compartment K	5.4	16	5.4	---	yes
Drop-through of embers	5.2	no	5.2	---	yes
Flue gas emission	5.2	no	5.2	---	yes
Damage to the fireplace caused by the test: None discernible					
Comments: *) flush to the wall					



Safety testing with natural manometric pressure according to section A.4.9.3

	Requirement according to	Test result 1	Test result 2 *)	Requirement fulfilled
Day of test		---	---	
Test fuel	A.4.7	---	---	n/a
Test amount	kg	A.4.8.3	---	n/a
Setting of fuel selector		---	---	
Setting of primary air		---	---	
Setting of secondary air		---	---	
Pre-testing with (33 ± 5) % of the combustion material	A.4.9.3.2	---	---	n/a
(25 ± 5) % of the combustion material		---	---	n/a
Manometric pressure ≥ 3 Pa	5.1	---	---	n/a
Within 10 h from falling below 3 Pa manometric pressure	5.1	---	---	n/a
Combustion material A	kg	---	---	
Mean CO ₂ content	%	---	---	
Mean CO content	%	---	---	
CO amount	dm ³ _n	5.1	---	n/a
Water-carrying components				
Flow/return temperature	Water °C	A.2.5	---	n/a
flow rate	kg/h	A.4.5	---	n/a
Comments:				
*) only fill in if more than one test with the same test fuel necessary				



Pressure testing for the water-carrying components according to section A.4.9.4

	Requirement according to	Test result	Requirement fulfilled
Day of test		---	
Operating pressure according to information of the manufacturers	bar	---	
Test pressure	bar	A.4.9.4	n/a
Duration of test	min	A.4.9.4	n/a
System leak tightness	5.3	---	n/a
Stability of the components	5.3	---	n/a

Testing the thermal flow safety device according to section A.4.9.5

	Requirement according to	Test result	Test result	Requirement fulfilled
Day of test		---	---	
Test according to A.4.7	A.4.9.5.1			n/a
Test fuel according to A.4.7		---	---	
Cold water temperature 10 – 15 °C	A.4.9.5.1	---	---	n/a
Cold water pressure (2 ± 0,1) bar	A.4.9.5.1	---	---	n/a
Controls set to maximum thermal rating	A.4.9.5.3	---	---	n/a
Thermostat inoperable	A.4.9.5.3	---	---	n/a
Thermal flow safety device opened to ≤ 105 °C	5.7	---	---	n/a
or according to information of the manufacturer °C	5.7	---	---	n/a
Thermal flow safety device will not open	5.7	---	---	n/a



Requirements for the operating instructions according to section 7

Operating instructions	Requirement according to	Requirement fulfilled
in the language of the country	7.1	yes
not in contradiction to the test results	7.1	yes
Requirements of all "m-dash" listed items	7.2	yes
Requirements of all "m-dash" listed items	7.3	yes
Comments: n/a		

Requirement for identification according to section 8

	Requirement according to	Requirement fulfilled
Designation permanent readable	8	yes
Labels permanent	8	yes
Damage by testing	8	yes
Details on rating plate are complete	8	yes
Comments: n/a		

