HDG R15/20/25/30 with HDG Easy-Control

Gasifying wood boiler for log wood (330/500 mm) additional boiler for existing heating system

A+

Equipment features and specifications supplied

- High-quality folded fuel chamber inner cladding for long boiler service life
- Integrated flue gas extractor in fuel chamber prevents smoke escaping when fuel chamber door is opened
- Ergonomic filling due to large fuel chamber door and low door aperture bottom edge
- Separate heating door for convenient heating up and cleaning
- Multi-part nozzle brick made of fireproof concrete as a guarantee for a long life expectancy
- Adjustable primary and secondary air volume for soft and hard wood
- Modular-design high-temperature combustion chamber lined with separate firebricks for low-emission recombustion of combustion gases
- Long cleaning intervals due to generously dimensioned ash compartment and easy removal of combustion and flue ash to the front into the ash pan using the cleaning tool supplied
- Constantly high efficiency due to cleaning turbulators fitted as standard in the upright heat exchanger pipes

HDG Easy Control

- Exhaust and boiler temperature-controlled combustion and output control with speed-controlled flue gas fan
- Return temperature control and accumulator regulation system
- Potential-free contact for refuel signal
- Large display unit with self-explanatory menu navigation
- Four operating keys for setting the operating parameters
- Control unit mounted on top of the boiler
- Flue gas temperature sensor mounted on flue pipe connection
- Supply and return sensors mounted in boiler
- Accumulator sensor included

Design-type approved to DIN EN 303-5, certified to EU Pressure Equipment Directive 97/23/EC.

The HDG R15/20/25/30 is a gasifying wood boiler with downward combustion technology. The boiler can be operated with log wood of a third of a metre (HDG R15) or half a meter (HDG R20).

The HDG R15/20/25/30 is ideal for use as an additional boiler for existing oil, gas or pellet boilers. The HDG R15/20/25/30 can also be used in combination with heat pumps or solar energy systems, yielding benefits in terms of efficiency and additional reliability of supply.

HDG R boiler type (with HDG Easy-Control)	**Item no.**	**EURO**	**PG**
HDG R15	15140015		**1**
HDG R20	15140020		**1**
HDG R25	15140025		**1**
HDG R30	15140030		**1**
Left door hinge conversion set (for HDG R15/20/25/30)	15140050		**7**

HDG R15/20/25/30 with HDG Easy-Control

System and hydraulic components		Item no.	EURO	PG
	**HDG return temperature control group A DN 25 with energy-efficient pump for HDG R15** Return temperature control group DN 25 with insulation, Wilo 25/1-6 energy-efficient circulation pump without display, 180 mm, outside thread DN 40, incl. insulation, DN 25 three-way mixing valve, SM 4.6 actuator, running time 150 seconds, 230 V, 2 ball valves DN 25 inside thread, at side. DN 25 connection for boiler safety module, angle piece, screw connection/seal	16002062		7
	HDG return temperature control group A DN 32 with energy-efficient pump for HDG R20 Return temperature control group DN 32 with insulation, Wilo 30/1-7.5 energy-efficient circulation pump without display, 180 mm, outside thread DN 50, incl. insulation, DN 32 three-way mixing valve, SM 4.6 actuator, running time 150 seconds, 230 V, 2 ball valves DN 32 inside thread, at side. DN 25 connection for boiler safety module, angle piece, screw connection/seal	16002081		7
	**HDG return temperature control A with energy-efficient pump for HDG R15** Wilo 25/1-6 energy-efficient circulation pump without display, 180 mm, outside thread DN 40, incl. insulation, DN 25 three-way mixing valve, SM 4.6 actuator, running time 150 seconds, 230 V, screw connection/seal	16002058		7
	**HDG return temperature control A with energy-efficient pump for HDG R20** (2) Wilo 30/1-7.5 energy-efficient circulation pump without display, 180 mm, outside thread DN 50, incl. insulation, DN 32 three-way mixing valve, SM 4.6 actuator, running time 150 seconds, 230 V, screw connection/seal	16002080		7
Boiler safety module DN 25, up to 50 kW, safety valve 3 bar DN 15, manometer, automatic bleeder, insulation (3)		15110030		7
Thermal safety device, inside thread DN 20, immersion sleeve 142 mm, outside thread DN 15 (4)		15110009		7

HDG system accumulators and accessories can be found in Section F

Accumulator layout for HDG R

The size of the accumulator must be adapted to the boiler type, the type of wood and the building's heating requirements. According BImSchV [Federal Imissions Control Act] (valid in Germany), accumulators with at least 12 l per litre fuel chamber capacity should be used with log wood boilers and 55 l/kW should be adhered to strictly: HDG recommends at least 1000 l for the HDG R15, 2000 l for the HDG R20. Please also take account of DIN EN 303-5, VDI 2035 and the information on boiler and accumulator dimensioning.
Function guaranteed only if installed according to HDG plumbing configuration diagrams and using HDG system components and correctly commissioned by HDG-trained staff.

HDG starter packages for HDG R15/20/25/30 with HDG Easy-Control	Consisting of:	Suitable for boiler type:	Item no.	EURO	PG
HDG R15 starter package	(1) (3) (4)	HDG R15	16090011		99
HDG R20/25/30 starter package	(2) (3) (4)	HDG R20	16090010		99

HDG R15/20/25/30 – functional principle
Gasifying wood boiler with downward combustion technology

The speed-controlled **flue gas fan** supports the necessary flue vent and provides the required underpressure in the fuel chamber. This makes heating up as well as cleaning a clean and speedy affair. The speed of the flue gas fan is automatically optimised to the situation by the control.

The **cleaning lid** above allows easy access to the upright heat exchanger area. The few cleaning and maintenance tasks can be carried out easily from here. An additional cover with integrated insulation ensures low radiation losses.

The **flue gas temperature sensor** is the reference variable for the necessary primary air and also defines the output of the boiler. The controller detects when the boiler has reached the required flue gas temperature and switches it to "Heat production on".

The integrated standard **cleaning turbulators** can be easily operated from the side. The activation lever for the cleaning system can be mounted on either the right or left. The turbulators are used for cleaning the heat exchanger. They also contribute to maintaining the boiler efficiency level to an optimum level.

The secondary air duct is integrated in the nozzle brick, allowing the secondary air to be preheated. In return, the nozzle brick is protected from overheating.

The modularly structured hot **combustion chamber** is located directly under the fuel chamber according to the functional principle of downward combustion technology. Here the fuel gases produced are burned out by addition of secondary air. The combustion chamber designed specifically for the HDG R15/20/25/30 consists of individual fire-resistant concrete elements.

The openings for **primary and secondary air** are locked in place and can be adapted to the particular fuel (hardwood/softwood). The combustion air is supplied through the heating door.

HDG R15/20/25/30 – functional principle
Gasifying wood boiler with downward combustion technology

The **HDG Easy Control** is at the top of the boiler and acts as the "brain" of the modern gasifying wood boiler. The connections are easily accessible in the housing of the control element. The prefabricated cable can be easily connected with the necessary components.

When the fuel chamber door is opened, the door contact switch is tripped and the flue gas fan starts at full speed. The **flue gas extraction** in the area above the fuel chamber prevents any carbonisation gases in the fuel chamber from escaping into the heating room. The flue gases are thus directly drawn back into the flue pipe, ensuring safe and clean refuel or cleaning.

The large **fuel chamber door** and the low filling edge allow the boiler to be filled ergonomically and easily. The door hinge of the fuel chamber door is on the right as standard but can be refitted on the left with an optional conversion kit.

The HDG R15 has a **fuel chamber capacity** of 65 l, the HDG R20 has a capacity of 130 l. The fuel chamber walls are made from 5 mm quality sheet steel and is equipped with a complete fuel chamber inner-cladding made from high quality, edged profile panels. The special construction of the side panels ensures the wood slips down and protects the panels against warpage. The fuel chamber capacity is an important reference point for the design of the required accumulator capacity.

The wood goes through four different temperature zones in the **fuel chamber**. In the upper section, the firewood is "preheated". The water bound in the firewood is evaporated at temperatures around 100°C. For non-polluting combustion, the firewood must be sufficiently split and contain less than 20% water content (25% moisture). Wood is composed of approximately 85 percent volatile components by weight, which account for about 70% of the heating energy. At temperatures up to approx. 600°C, the firewood is degassed with the addition of primary air. The added primary air also cools the lower part of the rear panel. The primary air is conducted through the heating flap and rear panel into the lower fuel chamber area. The gases released in the first step are ultimately burned out with the addition of secondary air in the underlying hot combustion chamber (downward combustion technology).

The separate **heating door** allows the boiler to be fired conveniently and without smoke without it being necessary to hold the fuel chamber and combustion chamber door open. The necessary combustion air enters the boiler through openings in the heating door. The door hinge of the fuel chamber door is on the right as standard but can be refitted on the left with an optional conversion kit.

Under the combustion chamber is the large **ash compartment** for the flue ash. The ash can be easily drawn forward into the integrated ash pan. The insulated combustion chamber door with stainless steel inner cladding ensures low radiation losses. The door hinge of the combustion chamber door is on the right as standard but can be refitted on the left with an optional conversion kit.

HDG R15/20/25/30
Technical data

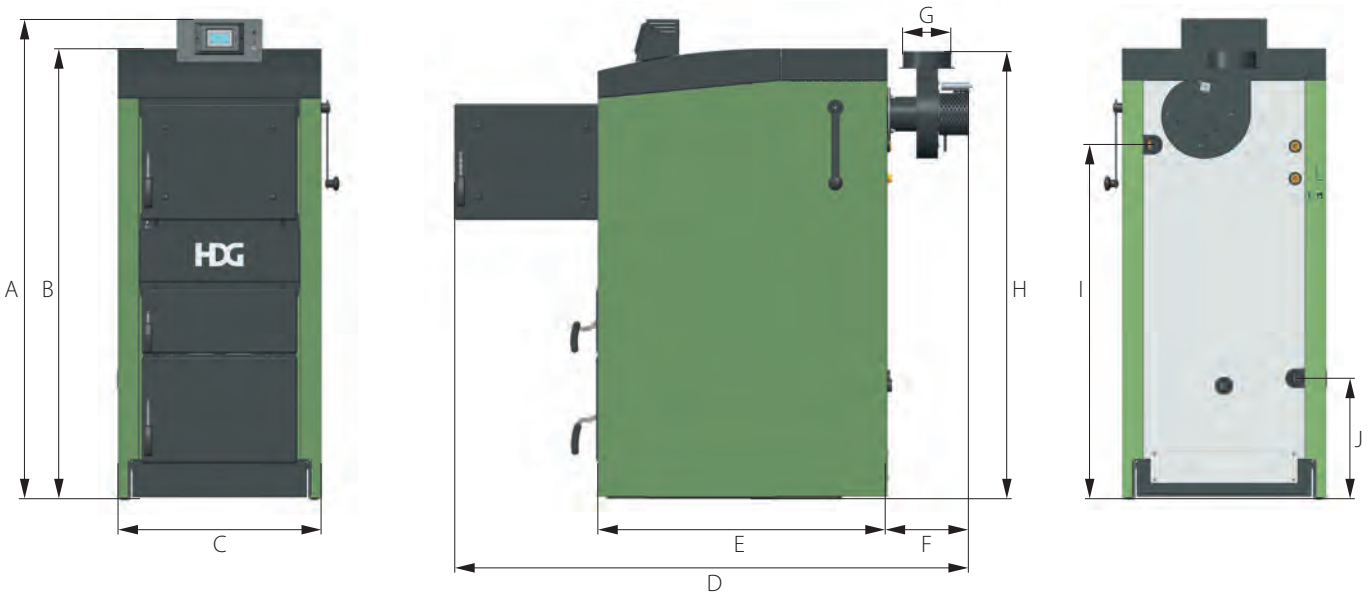
Boiler type	Unit	HDG R15	HDG R20	HDG R25	HDG R30
Performance data (measured according to DIN EN 303-5)					
Nominal thermal power	kW	15	20	25	30
Minimum thermal power	kW	15	20	20	20
Boiler efficiency at nominal thermal power [1]	%	90.2	91.3	90,8	90,2
Required auxiliary energy at nominal thermal power [1]	W	15	27	27	27
Electrical power supply: Voltage/frequency	V/Hz	230/50	230/50	230/50	230/50
Electrical power supply: Back-up fuse	A	10	10	10	10
General boiler data					
Boiler class		5	5	5	5
Maximum permissible operating pressure	bar	3	3	3	3
Maximum supply temperature [2]	°C	95	95	95	95
Minimum return temperature	°C	60	60	60	60
Water capacity	l	72	82	82	82
Fuel chamber capacity	l	65	130	130	130
Fuel chamber depth	mm	360	560	560	560
Weight	kg	480	580	580	580
Dimensioning data for flue calculation (DIN EN 13384-1)					
Flue gas temperature (Tw) at nominal thermal power	°C	110	120	140	170
Flue gas temperature (Tw) at lowest thermal power	°C	110	120	120	120
Flue gas mass flow at nominal load [1]	kg/s	0.0089	0.012	0.015	0.018
Flue gas mass flow at lowest thermal power [1]	kg/s	0.0089	0.012	0.012	0.012
CO_2content at nominal thermal power [1]	%	12	15,8	14,7	13,9
CO_2 content at lowest thermal power [1]	%	12	15,8	15,8	15,8
Required flue draught (Pw)	Pa	6	8	8	8
Diameter of flue pipe connection	mm	130	150	150	150
Height of flue pipe connection	mm	1340	1387	1387	1387
Water-side connections					
Flow and return connections (socket)	DN	25, inside thread	32, inside thread	32, inside thread	32, inside thread
Safety heat exchanger connections (socket)	DN	20, outside thread	20, outside thread	20, outside thread	20, outside thread
Drain connection (socket)	DN	25, inside thread	25, inside thread	25, inside thread	25, inside thread
Recommended minimum pipe dimensions	DN	25	32	32	32
Water-side resistance at nominal thermal power, 10K	Pa	1000	1200	1200	1200
Water-side resistance at nominal thermal power, 20K	Pa	300	350	350	350
Other information					
Burning time per fuel filling according to fuel recommendations (Beech) approx.	h	up to 4.5	up to 5	up to 4.5	up to 4
Burning time per fuel filling according to fuel recommendations (Spruce) approx.	h	up to 3.5	up to 4	up to 3.5	up to 3
Sound pressure level	dB(A)	< 70	< 70	< 70	< 70
Min. Air inlet cross section [3]	cm^2	150	150	150	150
Label Boiler		A+	A+	A+	A+
Label Boiler + Controller		A+	A+	A+	A+

[1] Figures as per type-approval test to DIN EN 303-5 by TÜV-Süd

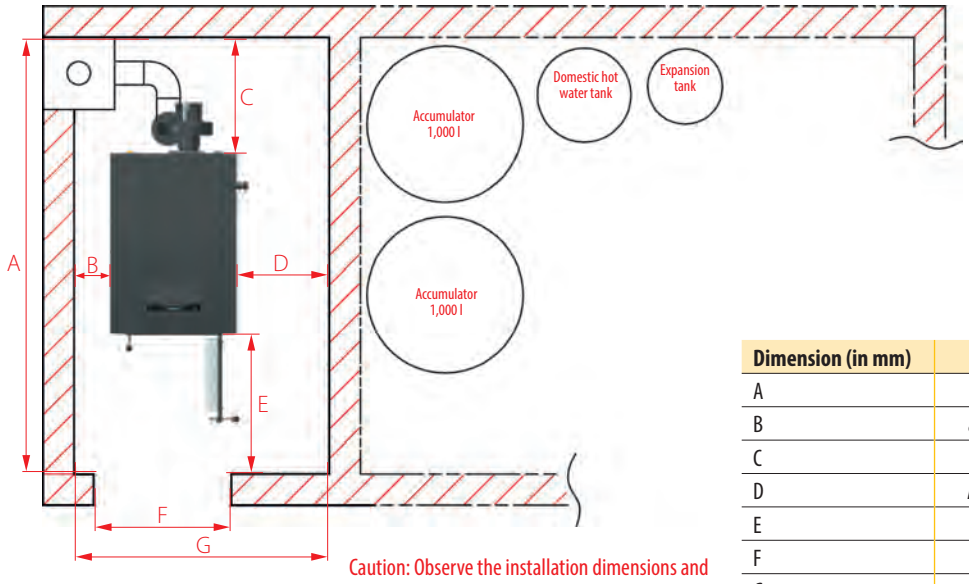
[2] Maximum operating temperatures of up to 110 °C can also briefly occur.

[3] Observe country-specific guidelines

HDG R15/20/25/30
Technical drawings, minimum distances



Dimension (in mm)	Description	HDG R15	HDG R20 / R25 / R30
A	Height of boiler with controller	1440	1490
B	Height, boiler without controller	1350	1400
C	Boiler width (without cleaning lever)	630	630
D	Total length with open fuel chamber door including flue gas fan	1400	1590
E	Length of boiler without attachments and flue pipe connection	720	900
F	Flue gas fan overhang	230	250
G	Diameter of flue pipe connection	130	150
H	Height of flue pipe connection	1340	1390
I	Height at middle of supply connection	1050	1100
J	Height at middle of return connection	375	375
	min. insertion dimensions (without cladding an add-on parts)	730 x 630 x 1310	920 x 630 x 1360



Minimum ceiling height: 1.80 m
Recommended room height: 2.25 m

Caution: Observe the installation dimensions and the tilting height of the accumulator.

Dimension (in mm)	HDG R15	HDG R20/25/30
A	At least 2000	At least 2200
B	at least 100 (or 500)	at least 100 (or 500)
C	At least 400	At least 400
D	At least 500 (or 100)	At least 500 (or 100)
E	At least 800	At least 800
F	At least 650	At least 650
G	At least 1250	At least 1250