Pellet boiler
HDG K10-33 V2

Central heating boiler for DIN plus pellets, EN plus, A1

A++

The HDG K10-33 pellet boiler is a latest-generation automatic pellet-burning system distinguished by its especially compact design. It can be installed practically flush with the wall on three sides of the boiler. As the boiler is supplied in parts it can easily be installed in existing buildings.

The large integrated fuel hopper on the side of the boiler is available in three sizes – as a one-day or seven-day hopper for manual filling or with an automatic pellet vacuum-feeder system. With the automatic version, the boiler can easily be combined with the HDG fuel auger systems.

Equipment features and specifications supplied

Automatically fed central heating boiler for A1 pellets (DIN EN ISO 17225-2)

- Straightforward carriage to installation site due to delivery in parts and assembly on site.
- Extremely small footprint inc. minimum clearances of only 1.5m² (2m² with 7-day fuel hopper), front access
- Precise fuel metering by means of timer-controlled stoker auger
- Version 1: Manual-fill pellet hopper with safety grille and cover, filling capacity approx. 107kg
- Version 2: Pellet hopper inc. pellet vacuum-fill system, filling capacity approx. 71kg
- Version 3: Seven-day manual-fill pellet hopper with safety grille and cover, filling capacity approx. 200kg
- Burner bowl made of high-quality stainless steel with automatic ash removal and integrated primary and secondary air ducting for best possible emission and dust levels
- Fully automatic, maintenance-free ignition with 2 igniter rods
- Precise air control by controlled-speed flue draught fan (top or rear connection possible)
- Automatic cleaning of heat exchange surfaces and ash removal to a wheeled ash bin for long cleaning intervals of up to 2 years
- Burn-back prevention by integrated extinguishing water tank and chute in combustion chamber
- Intuitive-to-use heating and system controller with user-friendly 4.3" touch-screen display, combustion and output regulation by means of combustion chamber and flue gas temperature sensor. Outside temperature sensor included

Design-type approved to DIN EN 303-5
Essential for operation is the Control thermal store management supplementary package or the supplementary package for at least one heating circuit and the relevant expansion modules. If operating without thermal store, return temperature control is not required but the preconditions for operation must nevertheless be observed. The control system can be extended by expansion modules. When operating with a pellet vacuum-feeder system, combination with the pellet feeder auger, the pellet hose junction, the pellet mole or the pellet fabric hopper is possible.

Boiler type		Item no.	EURO	PG
	**Pellet boiler HDG K10 V2** manual filling	13005110		5
	Pellet boiler HDG K15 V2 manual filling	13005115		5
	Pellet boiler HDG K21 V2 manual filling	13005121		5
	Pellet boiler HDG K26 V2 manual filling	13005126		5
	Pellet boiler HDG K33 V2 manual filling	13005133		5
	**Pellet boiler HDG K10 V2** manual fill with seven-day hopper	13005112		5
	Pellet boiler HDG K15 V2 manual fill with seven-day hopper	13005117		5
	Pellet boiler HDG K21 V2 manual fill with seven-day hopper	13005123		5
	Pellet boiler HDG K26 V2 manual fill with seven-day hopper	13005128		5
	Pellet boiler HDG K33 V2 manual fill with seven-day hopper	13005135		5
	**Pellet boiler HDG K10 V2** inc. pellet vacuum feeder system	13005111		5
	Pellet boiler HDG K15 V2 inc. pellet vacuum feeder system	13005116		5
	Pellet boiler HDG K21 V2 inc. pellet vacuum feeder system	13005122		5
	Pellet boiler HDG K26 V2 inc. pellet vacuum feeder system	13005127		5
	Pellet boiler HDG K33 V2 inc. pellet vacuum feeder system	13005134		5

Delivery systems for pellets	Item no.	EURO	PG
HDG pellet hose junction with 3 vacuum extractor probes (HDG hose set not included)	13000052		7
Pellet hose junction package with fuel store accessories consisting of: HDG pellet hose junction with 3 vacuum extractor probes, pressure-filling pipe set (2 straight pipes), pellet blast guard mat, one pair door rails (900 mm), standard hose set (25 m)	16095135		99

A detailed description and other delivery systems for pellets and accessories can be found in chapter D

HDG Control Touch control panel		Item no.	EURO	PG
	**HDG Control** 4.3" touch-screen display for HDG K10-33 included as standard		Inc.	
	HDG Control XL 7" touch-screen display for HDG K10-33 with integrated web visualisation Extra charge	16005010		2

The HDG Control can also control various plumbing system functions as well as the boiler and various fuel auger systems. If the maximum number of the particular functions is exceeded, additional HDG Control touch-screen displays can be integrated in the system.

Control of the various plumbing system functions requires the appropriate inputs and outputs, e.g. for sensors, pumps and mixer valves. The requirements must be compared with the available inputs and outputs and expansion modules added if necessary. Expansion modules with displays are listed in Section E.

HDG Control sensor packages for controlling the following plumbing system functions (see Section E for details)	Inputs and outputs required: Sensor	Pump	Mixing valve	Max per display	Item no.	EURO	PG
Thermal store management[1] **(1 thermal store) inc. return temp. control**, 3 immersion sensors for top, middle and bottom of thermal store, 1 contact sensor for return temperature control (1)	4	1	1	1	16005051		7
Thermal store management (2 thermal stores) 3 immersion sensors for top, middle and bottom of thermal store	3			1	16005052		7
External heat source (e.g. oil/gas boiler) 1 immersion sensor	1[2]	12	1[2]	1	16005055		7
Weather-compensated heating circuit, 1 heating circuit contact sensor (2)	2[3]	1	1	6	16005005		7
Grid pump (for district heating grids) 1 contact sensor	1[2]	1	1[2]	2	16005056		7
Domestic water management, 1 immersion sensor (3)	1	1		2	16005006		7
Solar charge on buffer tank, 1 collector sensor	1[2]	1	0-2[2]	1	16005008		7
Solar charge on water and possibly buffer, 1 collector sensor, 1 immersion sensor	2[2]	1	0-2[2]		16005015		7
Control hardware expansion: control of the packages requires the appropriate control hardware. The hardware can be selectively expanded	Available inputs and outputs: Sensor	Pump	Mixing valve	Max per display	Item no.	EURO	PG
EM4, expansion module for installation in boiler (4)	4	2	1	1[2]	16005021		7
EM8, expansion module for installation in boiler (5)	8	3	2	1[2]	16005036		7
EM8, external expansion module in wall unit	8	3	2	3[2]	16005023		7
EM8+4, external expansion module in wall unit	12	5	3		16005025		7

[1] The HDG Control thermal store management supplementary package or at least one weather-compensated heating circuit inc. expansion module is required for operation of the HDG K10-33.
[2] Depending on plumbing configuration.
[3] Sensor input is reserved for room programmer lite/indoor thermostat unit
Function guaranteed only if installed according to HDG plumbing configuration diagrams and using HDG system components and correctly installed and commissioned by HDG-trained staff.

System and hydraulic components		Item no.	EURO	PG
	**HDG return temperature control set A with energy-efficient pump for HDG K10-33** (6) Return temperature control set DN 25 with insulation Three-way mixing valve DN 25, actuator SM 4.6, 2 ball valves DN 25 int. thread, side connection DN 25 for boiler safety set, energy efficient circulation pump Wilo 25/1-6 without display, 180 mm, ext. thread DN 40, including insulation, elbow, union/seal	16002062		7
	**HDG return temperature control set A with energy-efficient pump for HDG K10-33** Energy-efficient circulation pump Wilo 25/1-6 without display, 180 mm, ext. thread DN 40, inc. insulation, three-way mixing valve DN 25, DN 25 int. thread, DN 40 ext. thread, actuator SM 4.6, running time 150 seconds, 230 V, union and seal	16002058		7
	Boiler safety set DN 25, up to 50 kW, safety valve 3 bar DN 15, pressure gauge, automatic vent valve, insulation (7)	15110030		7

HDG system thermal stores and accessories can be found in Section F

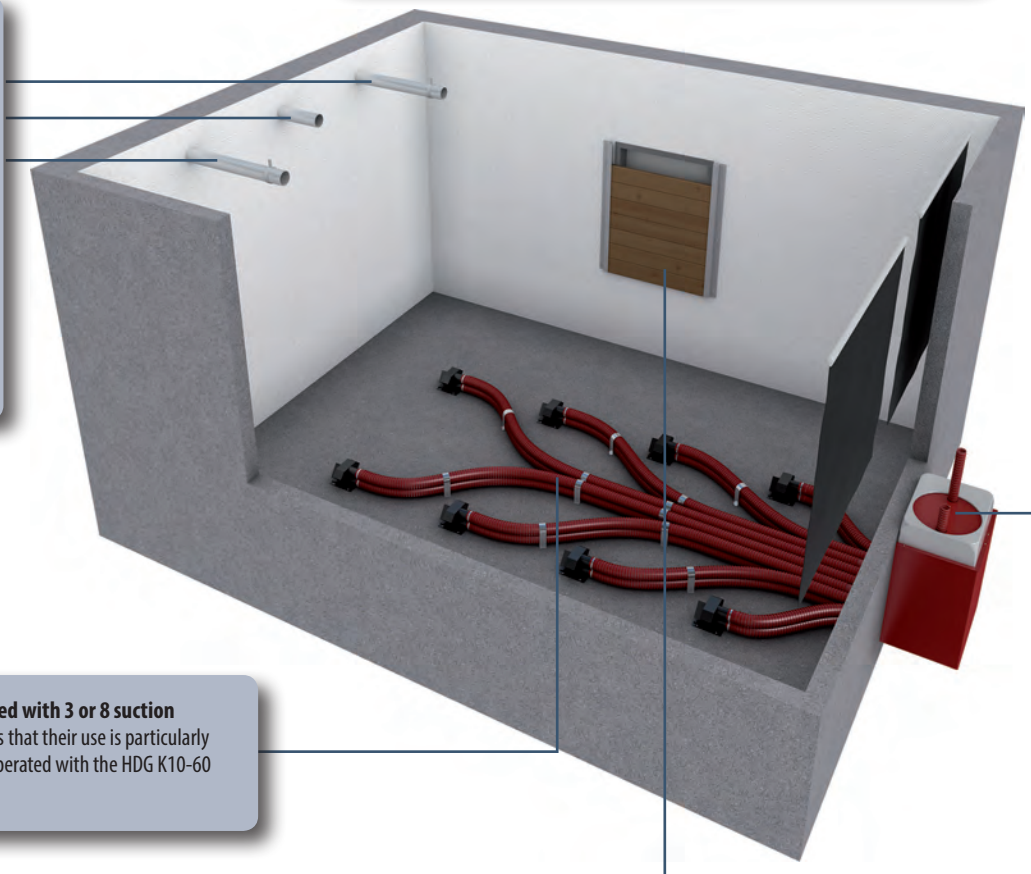
HDG starter packages for HDG K10-33 for standard hydraulic systems	Consisting of:	Suitable for boiler type:	Item no.	EURO	PG
Accumulator charging only	(1) (4) (6) (7)	HDG K10-33 V2	16095138		99
Accumulator charging, 1 heating circuit, domestic hot water	(1) (2) (3) (5) (6) (7)	HDG K10-33 V2	16095123		99
Accumulator charging, 2 heating circuits, domestic hot water	(1) (2) (2) (3) (4) (5) (6) (7)	HDG K10-33 V2	16095124		99
1 heating circuit, domestic hot water	(2) (3) (4) (7)	HDG K10-33 V2	16095133		99
2 heating circuits, domestic hot water	(2) (2) (3) (5) (7)	HDG K10-33 V2	16095134		99

The **HDG fabric pellet hopper** offers you an innovative fuel storage system. It allows you to create an optimised pellet storeroom with major construction work. The anti-static polyester fabric hopper is dust-tight and breathable – making it the ideal storeroom for moisture-sensitive pellets. You can find a selection of popular hopper sizes in Section D. The fabric pellet hopper is filled via a pressure-filling pipe; it does not require an air extraction pipe.

For connection to the HDG vacuum feeder system you require the HDG hose set (see Section D).

The **HDG pellet mole** is a fuel store extraction system for pellet boilers with vacuum fuel feed. It is suitable for use in combination with the HDG K10-60 pellet boiler. For the use of the HDG pellet mole, the fuel storeroom should ideally be square with a max. floor area of 2.5 x 2.5 m. The room height should be no less than 1.8 m and no more than 2.5 m. A certain remaining amount of fuel that cannot be extracted is inherent in the design and may vary according to the type of installation, the control parameters of the boiler or the pellet quality. For connection to the HDG vacuum feeder system you require the HDG hose set (see Section D).

If an existing, dry storeroom is used as the pellet store, the fuel storage room is pressure-filled via an earthed **pressure-filling pipe**. The **pellet blast guard mat** placed opposite the pressure-filling pipe and approx. 30 cm from the wall protects both the pellets and the wall. The required **air extraction pipe** is for connecting the supplier's air extraction fan (230 V outlet socket required). The filling and air extraction pipes can be adapted to the required length by means of the extensions. The pellet boiler has to be switched off 30 minutes before the filling process is started.



The **HDG pellet tube converter** can be **operated with 3 or 8 suction probes**. The free positioning of the probes means that their use is particularly versatile. The HDG pellet tube converter can be operated with the HDG K10-60 pellet boiler.

The **access hatch** must be a dust-tight design. The slot-in boards for the hatch must be provided on site. The boards can be slotted in via the HDG door rails.

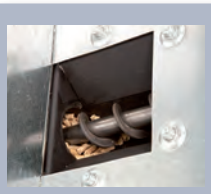
Pellet boiler HDG K10-33 V2 operating principle with HDG pellet vacuum feeder system

Connected to the transfer station are the **DN 50 vacuum hoses**, which are attached by means of the hose clips supplied. The integrated copper braid wire is attached to the earth clips. The distance from the pellet boiler can be up to 20 m horizontally. The vacuum hoses have to be attached to the wall/ceiling by means of hose brackets provided on site. In addition, they are attached to the HDG vacuum feeder system using hose clips and likewise earthed. The HDG pellet vacuum feeder system with fuel auger makes optimum emptying of the **pellet storeroom** possible. Alternatively, the HDG hose junction with 3 vacuum extractor probes or the HDG pellet mole can also be used. In general, roughly 2/3 of the total storeroom volume can be used for storing pellets. Ideally, the total storeroom volume should be 0.9 m^3 per kW of boiler output. Please also take account of the relevant combustion boiler regulations for your country (according to the official recommendations for Germany, pellet storerooms with a capacity of 10,000 l or more (approx. 6.6 t) should be rated F90).

The **HDG pellet vacuum feeder system** consists of a zero-maintenance vacuum fan by which the pellets are pumped into a sealed intermediate hopper. Only when the vacuum fan is switched off do the pellets dropped down into the main fuel hopper. An integrated limit switch monitors the closed position of the intermediate hopper and simultaneously detects when the main hopper is full. The pellets are pumped on demand, taking account of the configurable lock-out times, into the main hopper, which has a capacity of approx. 71 kg.

The **HDG Control** boiler controller acts as the brains for the entire combustion process and controls all electronic processes on the HDG K10-33 pellet boiler. The required quantity of pellets and the associated flue draught fan speed are determined with the aid of the combustion chamber temperature sensor. By adding HDG Control expansion modules heating circuits can be conveniently controlled.

The infinitely adjustable **flue draught fan** keeps the system operating in the optimum output range. The integrated function monitoring feature provides for optimum operational safety and reliability. The flue exit can be at the top or rear.

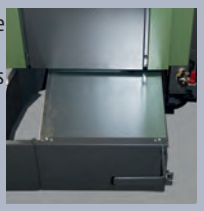


The pellets are fed into the burner bowl via a timer-controlled **fuel metering auger** and subsequent sloping fuel chute. The attached temperature monitor with integrated water reservoir provides for maximum operational safety and reliability.

The **fully automatic cleaning system** efficiently removes combustion residues from the upright rectangular heat exchanger surfaces. The falling ash is carried away to the external ash bin by the fully automatic ash extraction system.

The **stainless steel burner bowl** with fully automatic de-ashing function ensures a high level of operational safety and reliability combined with economical pellet consumption. Automatic ignition by means of ceramic heating elements enables fast and efficient boiler start-up. The integrated secondary air ducting with optimum air preheating ensures the lowest possible emission levels.

The external **ash bin** can take the combustion and fly-ash from up to 4 t of pellets. The ash bin hooks onto the boiler and can be sealed with a cover for transportation.



The **fully automatic ash removal system** for the combustion and fly-ash provides for long service intervals. Control of the de-ashing system is linked to the cleaning of the upright heat exchanger surfaces.

Pellet boiler HDG K10-33 V2
Technical data

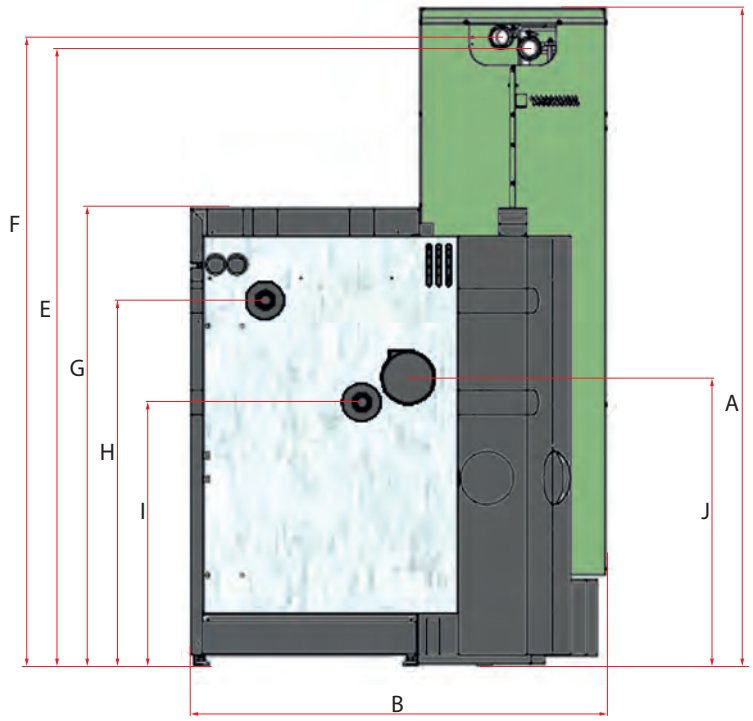
Boiler type	Unit	Pellet boiler HDG K10 V2	Pellet boiler HDG K15 V2	Pellet boiler HDG K21 V2	Pellet boiler HDG K26 V2	Pellet boiler HDG K33 V2
Performance data (measured according to DIN EN 303-5)						
Nominal thermal power	kW	9.9	15.0	21.0	25.9	32,5
Minimum thermal power	kW	3.0	4.3	6.3	7.6	9,8
Boiler efficiency at nominal thermal output [1]	%	94.4	93.8	93.9	93.9	94,8
Electrical power consumption at nominal thermal power	W	28	33	41	48	77
Electrical connection: Voltage/frequency	V/Hz	230/50	230/50	230/50	230/50	230/50
Electrical connection: Back-up fuse	A	16	16	16	16	13 träge
General boiler data						
Boiler class		5	5	5	5	5
Maximum permissible operating pressure	bar	3	3	3	3	3
Maximum flow temperature (if operated with thermal store)	°C	60-75 (85)	60-75 (85)	60-75 (85)	60-75 (85)	60-75 (85)
Minimum return temperature (if operated with thermal store)	°C	60	60	60	60	60
Water capacity	l	39	39	47	47	47
Weight	kg	261	261	283	283	283
Dimensioning data for flue calculation (DIN EN 13384-1)						
Flue gas temperature (Tw) at nominal load	°C	98	119	127	134	138
Flue gas temperature (Tw) at lowest thermal power	°C	73	77	82	85	92
Flue gas mass flow at nominal load [1]	kg/s	0.0058	0.0085	0.0118	0.0146	0,0180
Flue gas mass flow at lowest thermal power [1]	kg/s	0.0025	0.0034	0.0044	0.0049	0,0060
Required flue draught (Pw)	Pa	5	5	5	5	5
Required flue draught (Pw) at rated minimum output	Pa	0	0	0	0	0
Diameter of flue pipe connection	mm	130*	130	130	130	130
CO_2content at nominal thermal power [1]	%	13.4	14.2	14.2	14.2	14,6
CO_2 content at lowest thermal power [1]	%	9.7	10.1	11.3	12.1	12,3
Water-side connections						
Flow and return connections, int. thread	DN	25	25	25	25	25 IG
Recommended minimum pipe dimensions	DN	25	25	25	25	25
Water-side resistance at nominal thermal power, 10K [1]	Pa	360	760	1430	2150	3110
Water-side resistance at nominal thermal power, 20K [1]	Pa	100	210	390	580	860
Other information						
Noise emission level (L_{PA} at distance of 1 m, without vacuum system)	dB(A)	45.7	45.7	45.7	45.7	47,6
Min. Air inlet cross section [2]	cm^2	150	150	150	150	150
Label Boiler		A+	A+	A+	A+	A+
Label Boiler + Controller		A+	A+	A++	A++	A++

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

[2] Observe country-specific guidelines

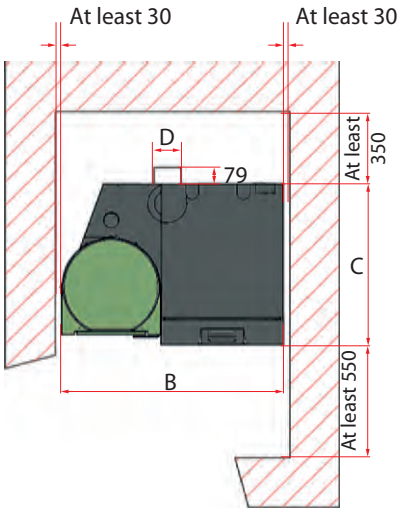
* In borderline cases the flue connecting pipe dia. may be reduced to 100mm

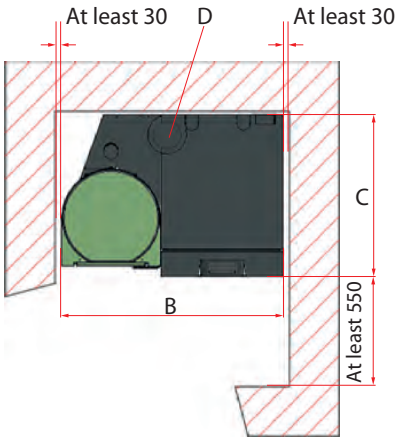
Pellet boiler HDG K10-33 V2
Technical drawings, minimum clearances



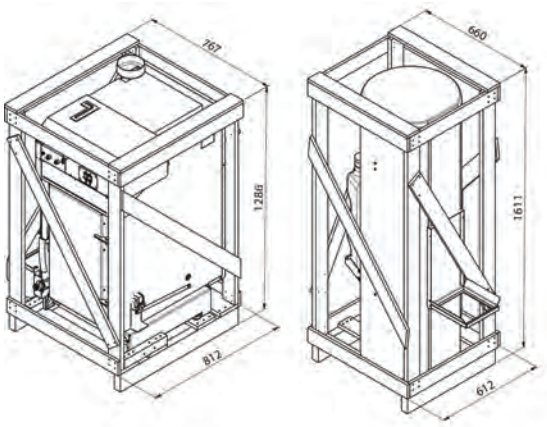
Dim. (in mm)	Description	Pellet boiler HDG K10/15 V2			Pellet boiler HDG K21/26/33 V2		
		Manual filling	Vacuum delivery system	Week container	Manual filling	Vacuum delivery system	Week container
A	Height of boiler including fuel hopper	1453	1705	1470	1453	1705	1470
B	Overall width of boiler	1075	1075	1422	1075	1075	1422
C	Boiler depth excluding flue connecting pipe		710			780	
D	Flue pipe diameter			130			
E	Height to centre connect. for return air vacuum fan	-	1602	-	-	1602	-
F	Height to centre connect. for pellet feed vacuum fan	-	1630	-	-	1630	-
G	Height of boiler control panel			1153			
H	Height to centre of boiler flow connection			946			
I	Height to centre of boiler return connection			684			
J	Height to centre of rear flue connecting pipe			747			
	Weight of boiler body inc. accessories		215			236	
	Weight of fuel hopper	42	56	107	42	56	107

Minimum clearances





Minimum required access clearance is 671 mm
Minimum boiler room height 1850 mm



Example packing unit sizes
HDG K26 with pellet vacuum feed system