Pellet boiler HDG K35-60

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

A+

The HDG K35-60 pellet boiler is a latest-generation automatic pellet-burning system distinguished by its especially compact design. In addition to innovative combustion technology the series offers a high level of reliability and comfort. The modern design underscores the innovative character of this series.

The automatic ignition system fitted as standard, the integrated combustion and output regulation, the automatic heat exchanger cleaning system and the patented combustion tray ash removal with the sliding grate that moves in the opposite direction mean that these units fulfil all prerequisites for ecological and economical operation

The large fuel container that is integrated at the side allows it to be easily combined with the HDG fuel auger systems. This means that the optimum pellet storage room in the building can always be used.

Equipment features and specifications supplied
Automatically fed central heating boiler for A1 pellets (DIN EN ISO 17225-2), incl. suction system

- Split model – simple transport and installation of the components
- Extremely small footprint due to compact size and operation from the front
- Pellet suction system with external, maintenance-free vacuum fan
- Exact fuel dosage with timed stoker auger from the large pellet container that holds approx. 135 kg of pellets
- Combustion tray made of high-quality stainless steel with automatic ash removal and integrated primary and secondary air supply for best possible emission levels
- Fully automatic ignition with 2 heating rods with the highest levels of reliability
- Exact air control with speed.controlled flue gas fan
- Automatic cleaning of heat surfaces and ash removal to a wheeled ash container for long cleaning intervals
- Back burn protection with rotary feeder
- Intuitive 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 accumulator management supplementary package or the supplementary package for at least one heating circuit and the relevant expansion modules. If operating without accumulator, return temperature control is not required but the preconditions for operation must nevertheless be observed. The control system can be expanded with extension modules. Combination with the pellet tube converter, the pellet mole, the fabric pellet silo or the PSS or FRA-PSS pellet flexi blade delivery system possible.

Boiler type (incl. pellet suction system)	Item no.	EURO	PG
HDG K35 pellet boiler	13005035		5
HDG K35 pellet boiler with sound-insulated suction turbine	13005036		5
HDG K45 pellet boiler	13005045		5
HDG K45 pellet boiler with sound-insulated suction turbine	13005046		5
HDG K60 pellet boiler	13005060		5
HDG K60 pellet boiler with sound-insulated suction turbine	13005061		5
Intermediate sheet cladding to reduce the minimum distance for multi-boiler plants	13005066		5

Delivery systems for pellets	Item no.	EURO	PG
HDG pellet tube converter with 8 suction probes (HDG hose set not included)	13000057		7
Pellet tube converter package with fuel store accessories consisting of: HDG pellet tube converter with 8 suction probes, fastening clamps (2x pack of 6), injection nozzle set (2 straight nozzles), pellet shatter-protection mat, one pair door rails (900 mm), standard hose set (25 m)	16095136		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 K35-60 included as standard		Inc.	
	HDG Control XL 7" touch-screen display for HDG K35-60 with integrated web visualisation Extra charge	16005010		7

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 (s. Section E for more details)	Inputs and outputs required: Sensor	Pump	Mixing v.	Max. per display	Item no.	EURO	PG
Accumulator management[1] (1 accumulator) incl. return temperature control, 3 immersion sensors for top, middle and bottom of accumulator, 1 contact sensor for return temperature control (1)	4	1	1	1	16005051		7
Accumulator management (2 accumulators) 3 immersion sensors for top, middle and bottom of accumulator	3			1	16005052		7
External heat source[1], (e.g oil / gas boiler) 1 immersion sensor	1[2]	1[2]	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 v.	Max. per display	Item no.	EURO	PG
EM4, extension module for installation in boiler (4)	4	2	1	1[2]	16005021		7
EM8, external extension module in wall unit (5)	8	3	2	3[2]	16005023		7
EM8+4, external extension module in wall unit	12	5	3		16005025		7

[1] The HDG Control accumulator management supplementary package or at least one weather-compensated heating circuit incl. extension module is required for operation of the HDG K35-60.
[2] Depending on plumbing configuration.
[3] Sensor input is reserved for room control unit light/room control sensor.
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 DN 32 with energy-efficient pump for HDG K35-60** (6) Return temperature control set DN 32 with insulation Three-way mixing valve DN 32, actuator SM 4.6, 2 ball valves DN 32 int. thread, side connection DN 25 for boiler safety set, energy efficient circulation pump Wilo 30/1-7.5 without display, 180 mm, ext. thread DN 50, including insulation, angle piece, screw connection/seal	16002081		7
	**HDG return temperature control A with energy-efficient pump for HDG K35-60** 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
Thermal safety device, DN 20 int. thread, immersion sleeve, 142 mm with DN 15 ext. thread (7)		15110009		7
Boiler safety set DN 25, up to 50 kW, safety valve 3 bar DN 15, pressure gauge, automatic vent valve, insulation (8)		15110030		7
Boiler safety set DN 25, up to 100 kW, safety valve 3 bar DN 20, pressure gauge, automatic vent valve, insulation (9)		15110031		7

HDG system accumulators and accessories can be found in Section F

HDG starter packages for HDG K35-60 for standard hydraulic systems	Consisting of:	Suitable for boiler type:	Item no.	EURO	PG
Accumulator charging only	(1) (4) (6) (7) (8)	HDG K35-45	16095125		99
	(1) (4) (6) (7) (9)	HDG K60	16095127		99
Accumulator charging, 1 heating circuit, domestic hot water	(1) (2) (3) (5) (6) (7) (8)	HDG K35-45	16095126		99
	(1) (2) (3) (5) (6) (7) (9)	HDG K60	16095128		99
Accumulator charging, 2 heating circuits, domestic hot water	(1) (2) (2) (3) (4) (5) (6) (7) (8)	HDG K35-45	16095131		99
	(1) (2) (2) (3) (4) (5) (6) (7) (9)	HDG K60	16095132		99

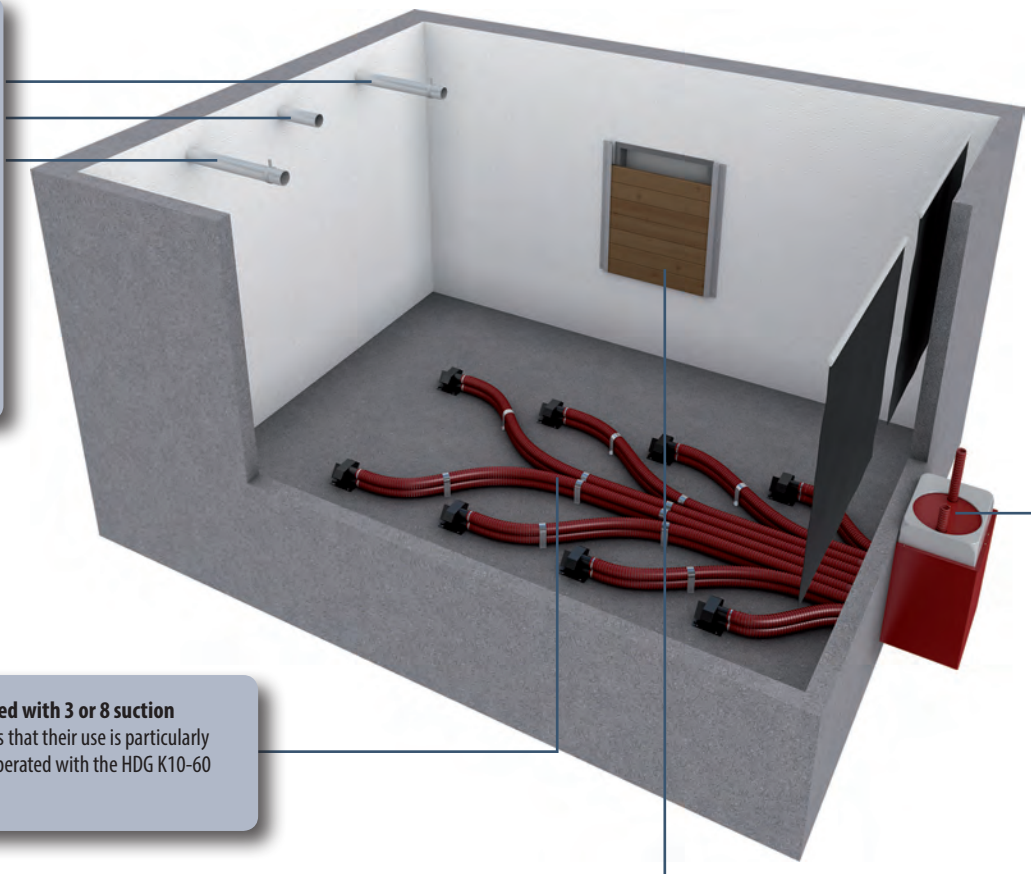
Pellet boiler HDG K35-60 operating principle with HDG pellet suction system

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 fuel storage room 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 pellet suction system you require the HDG hose set (see Section D).

The **HDG pellet mole** is a fuel store extraction system for pellet boilers with suction system. 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 pellet suction 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 K35-60 operating principle with HDG pellet suction system

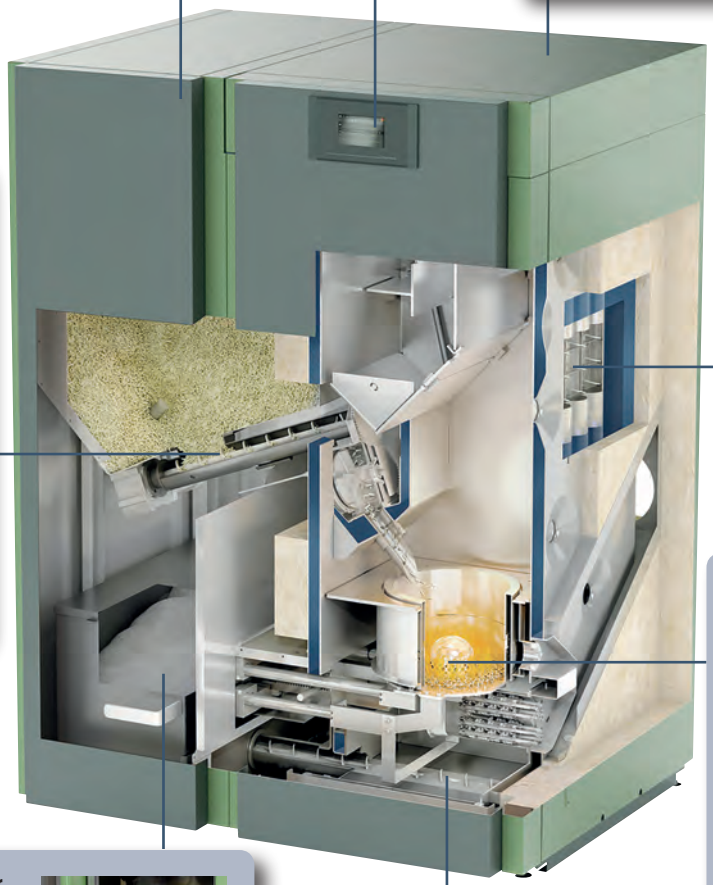
The **DN 50 vacuum hoses** are connected to the delivery system by means of the hose clips supplied. The integrated copper braid wire is attached to the earth clips. The distance from the pellet boiler can be up to 20 m horizontally. The vacuum hoses have to be attached to the wall/ceiling by means of hose brackets provided on site. In addition, they are attached to the HDG suction system using hose clips and likewise earthed.

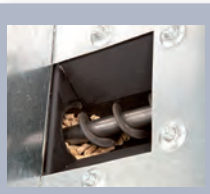
Roughly 2/3 of the total storeroom volume can be used for storing pellets. Ideally, the total storeroom volume should be 0.9 m^3 per kW of boiler output. Please also take account of the relevant combustion boiler regulations for your country (according to the official recommendations for Germany, pellet storerooms with a capacity of 10,000 l or more (approx. 6.6 t) should correspond to F90).

The **HDG Control** boiler controller acts as the brains for the entire combustion process and controls all electronic processes on the HDG K35-60 pellet boiler. The required quantity of pellets and the associated flue gas 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 **HDG pellet suction system** consists of an external, maintenance-free vacuum fan and the fuel container that is directly attached to the boiler^. The pellets are pumped on demand, taking account of the configurable lock-out times, into the main hopper, which has a capacity of approx. 135 kg.

The infinitely adjustable **flue gas fan** keeps the system operating in the optimum power range. The integrated function monitoring feature provides for optimum operational safety and reliability.





The pellets are fed into the burner bowl via a timer-controlled **fuel metering auger** and subsequent sloping down pipe. The integrated rotary feeder provides for maximum operational safety and reliability.

The **fully automatic combustion** frees the upright heat exchanger surfaces efficiently of combustion residue. The falling ash is carried away to the external ash container 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 values.

The external **ash container** can take the combustion and flue ash from up to 8 t of pellets. The ash container hooks onto the boiler and can be sealed with a cover for transportation.

The **fully automatic ash removal system** for the combustion and flue ash provides for long service intervals.

Pellet boiler HDG K35-60
Technical data

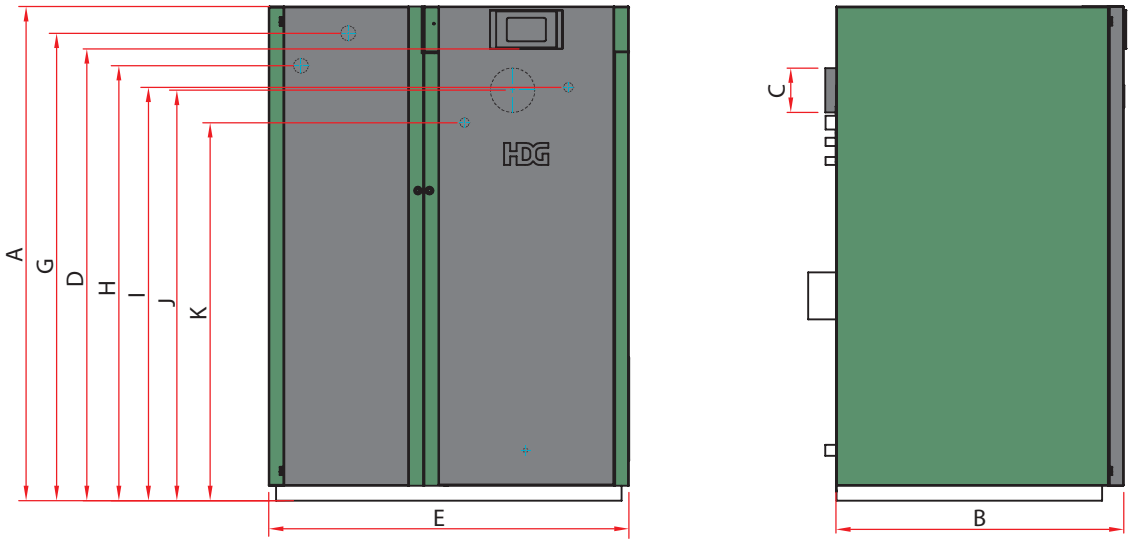
Boiler type	Unit	HDG K35	HDG K45	HDG K60
Performance data (measured according to DIN EN 303-5)				
Nominal thermal power	kW	35.0	45.0	60.0
Minimum thermal power	kW	10.0	13.5	18.0
Boiler efficiency at nominal thermal power [1]	%	91.2	90.0	90.1
Required auxiliary energy at nominal thermal power [1]	W	103	122	156
Electrical power supply: Voltage/frequency	V/Hz	230/50	230/50	230/50
Electrical power supply: Back-up fuse	A	10	10	10
General boiler data				
Boiler class		5	5	5
Maximum permissible operating pressure	bar	3	3	3
Maximum supply temperature [2]	°C	85	85	85
Minimum return temperature	°C	60	60	60
Water capacity	l	120	120	120
Weight	kg	695	700	720
Dimensioning data for flue calculation (DIN EN 13384-1)				
Flue gas temperature (Tw) at nominal thermal power	°C	161	167	176
Flue gas temperature (Tw) at lowest thermal power	°C	104	108	112
Flue gas mass flow at nominal load [1]	kg/s	0.0240	0.0305	0.0401
Flue gas mass flow at lowest thermal power [1]	kg/s	0.0099	0.0132	0.0172
Required flue draught (Pw)	Pa	5	5	5
Diameter of flue pipe connection	mm	150	150	150
Height to centre of flue gas connecting pipe	mm	1390	1390	1390
CO_2content at nominal thermal power [1]	%	11.8	12.0	12.3
CO_2 content at lowest thermal power [1]	%	8.1	8.2	8.3
Water-side connections				
Flow and return connections, int. thread	DN	32	32	32
Recommended minimum pipe dimensions	DN	32	32	32
Water-side resistance at nominal thermal power, 10K [1]	Pa	2470	3950	6750
Water-side resistance at nominal thermal power, 20K [1]	Pa	680	1080	1850
Other information				
Sound pressure level	dB(A)	< 70	< 70	< 70
Min. Air inlet cross section [3]	cm^2	150	150	150
Label Boiler		A+	A+	A+
Label Boiler + Controller		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.

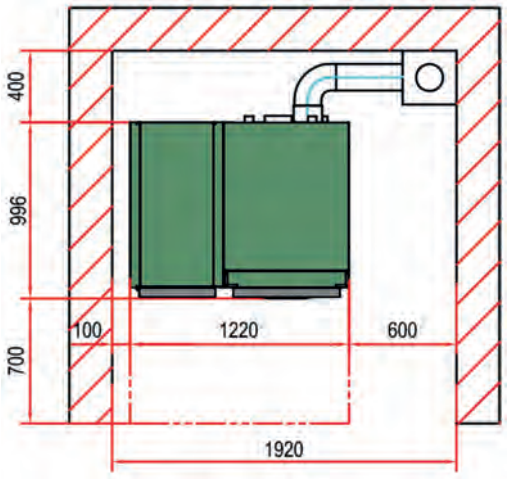
[3] Observe country-specific guidelines

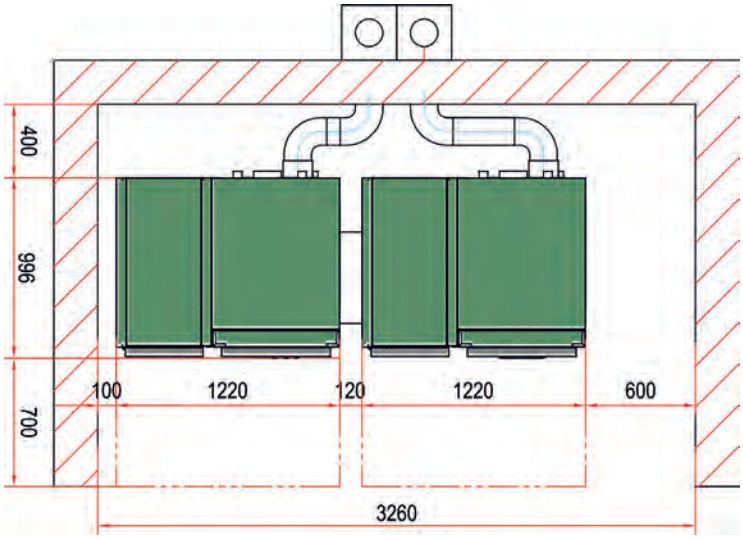
Pellet boiler HDG K35-60
Technical drawings, minimum clearances



Dimension (in mm)	Description	HDG K35-60
A	Height of boiler	1673
B	Boiler depth excluding flue gas connecting pipe	975
C	Flue pipe diameter	150
D	Height of display	1530
E	Overall width of boiler	1220
G	Height to centre of connection for pellet feed vacuum fan	1583
H	Height to centre of connection for return air vacuum fan	1473
I	Height to centre of boiler flow connection	1400
J	Height to centre of flue gas connecting pipe	1390
K	Height to centre of boiler return connection	1280

Minimum clearances



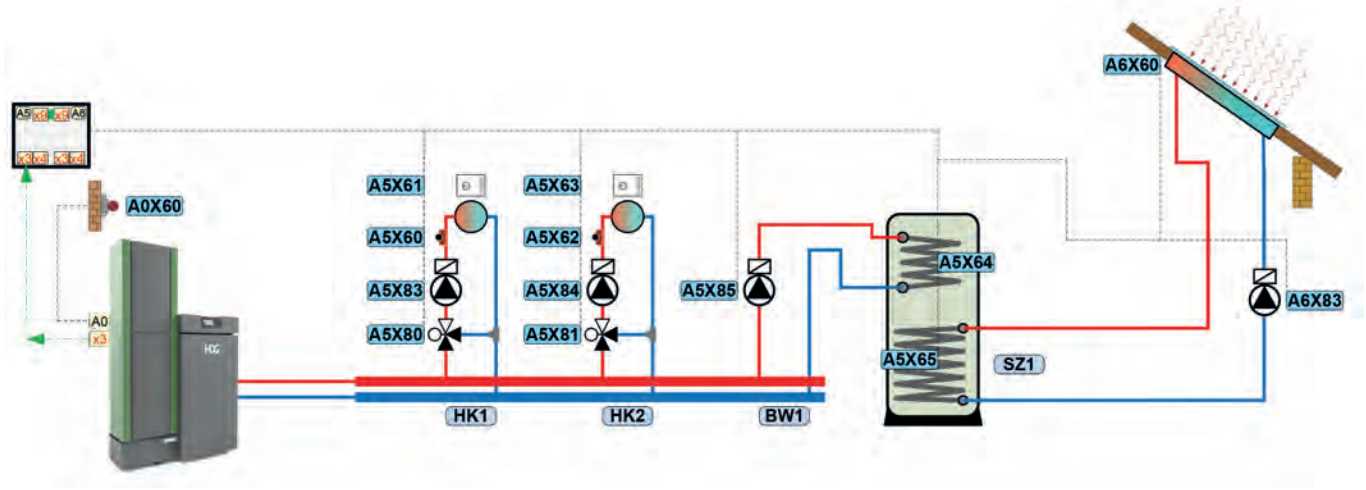


The HDG K35-60 is delivered disassembled and assembled on delivery.

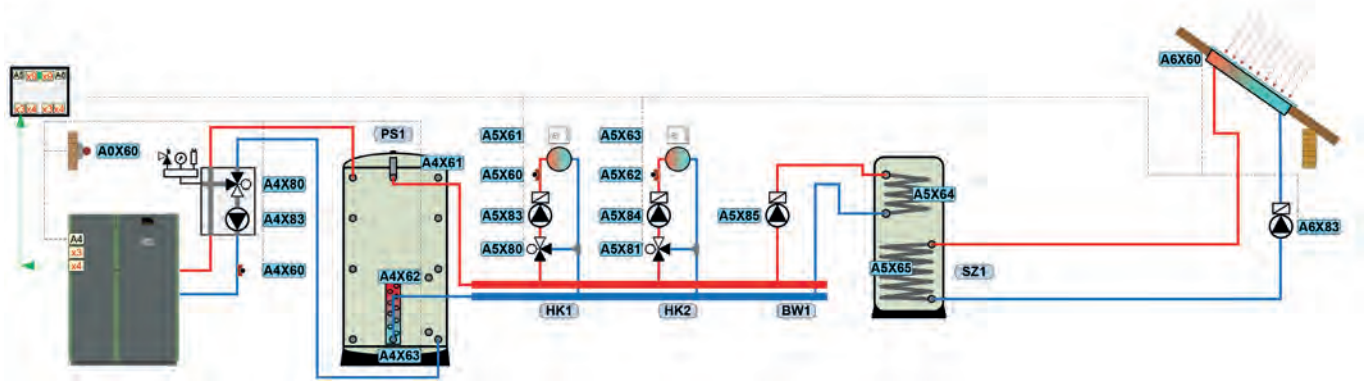
Minimum access clearance WxHxD: 780x975x1790 mm
Minimum ceiling height: 1900 mm

For multi-boiler systems, the optional intermediate plate can be used to reduce the minimum distance between the boilers to 120 mm.

Example 1: For a house without an accumulator, two mixed heating circuits, domestic hot water (DHW), solar energy use. Check technical feasibility for operation without accumulator. Ask the HDG representative responsible for your area.



Example 2: For a house with accumulator, two mixed heating circuits and domestic hot water tank, solar thermal system on domestic hot water tank



Example 3: For a house with accumulator, two mixed heating circuits, fresh water, dual circuit solar power system