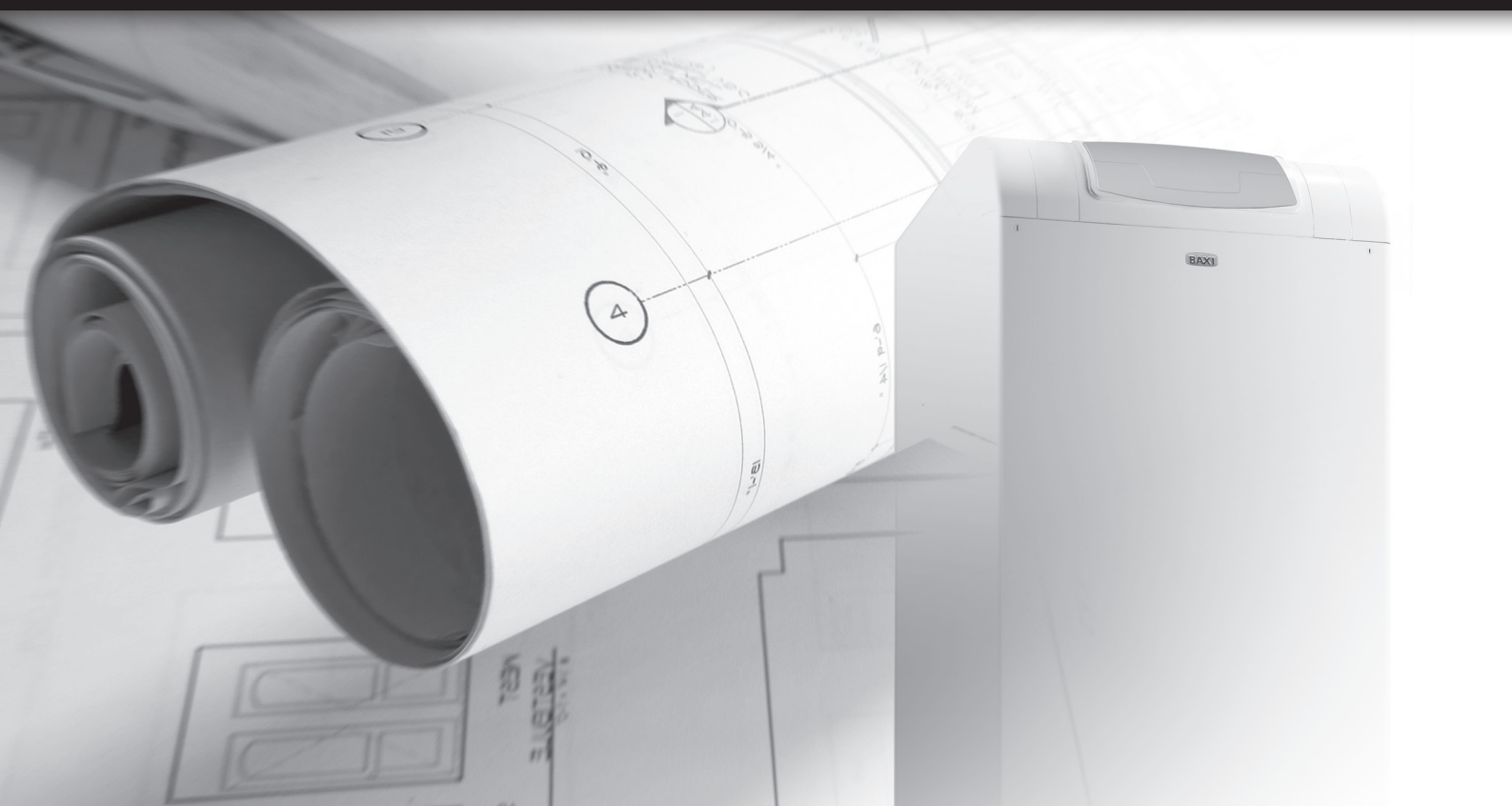


# BAXI

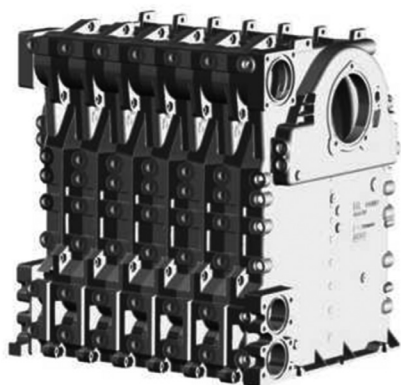
## Power HT-A



## Power-A HT 1.135÷1.650



The ranges of high output floor standing boilers POWER HT and POWER HT-A consist of condensing heat generators for heating only, with output between 121 and 651 kW (50/30°C).



The range is made of ten models and the main features are:

- nominal **efficiency** 50/30°C up to **109,7%**;
- modulation ration **1:6 Power HT-A up to 320 kW** and **1:5 Power HT-A 430-650 kW**;
- **high efficiency Aluminium-Silicon exchanger**, developed using the latest simulation techniques to optimise flows of the gas flue and water in the primary circuit. The special shape of the exchanger distributes the heat evenly by irradiation in the upper part of the exchanger. In the central part heat is transmitted by convection. The distance and shape of the grid of cylinders produces uniform and efficient heat transmission.  
The gas flue is condensed in the lower part of the exchanger. Here the flue gas, depending on the modulation, is cooled almost to the temperature of the return water of the primary circuit. This way the thermal energy is used up, apart from the 1-2% of inevitable physical loss.
- **over-sizing** of the **water circuit** so that hydraulic pressure drops are reduced as are the dangers resulting from scale obstructions;
- relatively low water content inside the exchanger that means very limited thermal inertia and therefore a rapid response to the variations in thermal energy required by the system;
- heat **insulation in glass wool** minimises heat dispersion outwards;
- **cylindric burner** made from steel fibre with length depending on the output of the boiler. This results in resistance to high temperatures, a very short flame edge for optimal irradiation of the heat and to minimise the formation of NO<sub>x</sub>, and a uniform distribution of the air/gas mixture along the entire modulation range length depending on the boiler output);
- **premixing air-gas unit** ensuring that the burner constantly has an optimal air/gas ratio independently from the number of fan revs, keeping consumption to a minimum and always guaranteeing correct combustion and consequently a reduction in polluting emissions;
- functioning independently of the environment air (the air-flue duct is fully separated from the installation room);

- **check valve on the air-flue circuit** that enables installation in cascade without having to apply an external flue shutter;
- **digital PCB with latest generation double microprocessor**;
- control panel with large back-lit LCD;
- built-in climatic regulation (outdoor sensor included)
- **electronics that allows great flexibility** in highly diversified contexts. With specific accessories that can also be installed inside the boiler, it is possible to control mixing zones, daily and weekly programming of heating and sanitary functions, cascade, recirculation and other functions;
- 0-10 V control available as optional;
- operation with **natural gas** or **LPG** (135-320 kW);
- easiness of use and installation.

Power HT-A 135-320 kW

EXCHANGER



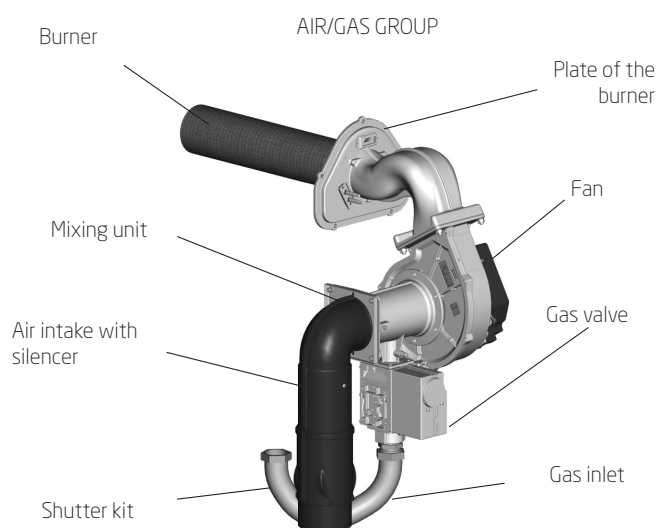
Middle section  
of the exchanger



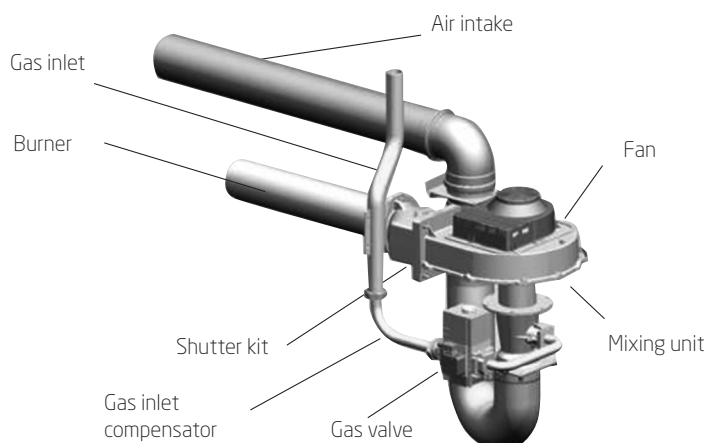
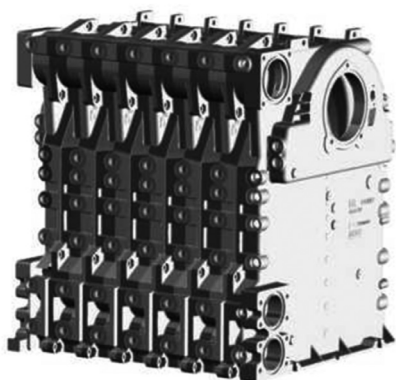
Water side



Flue side

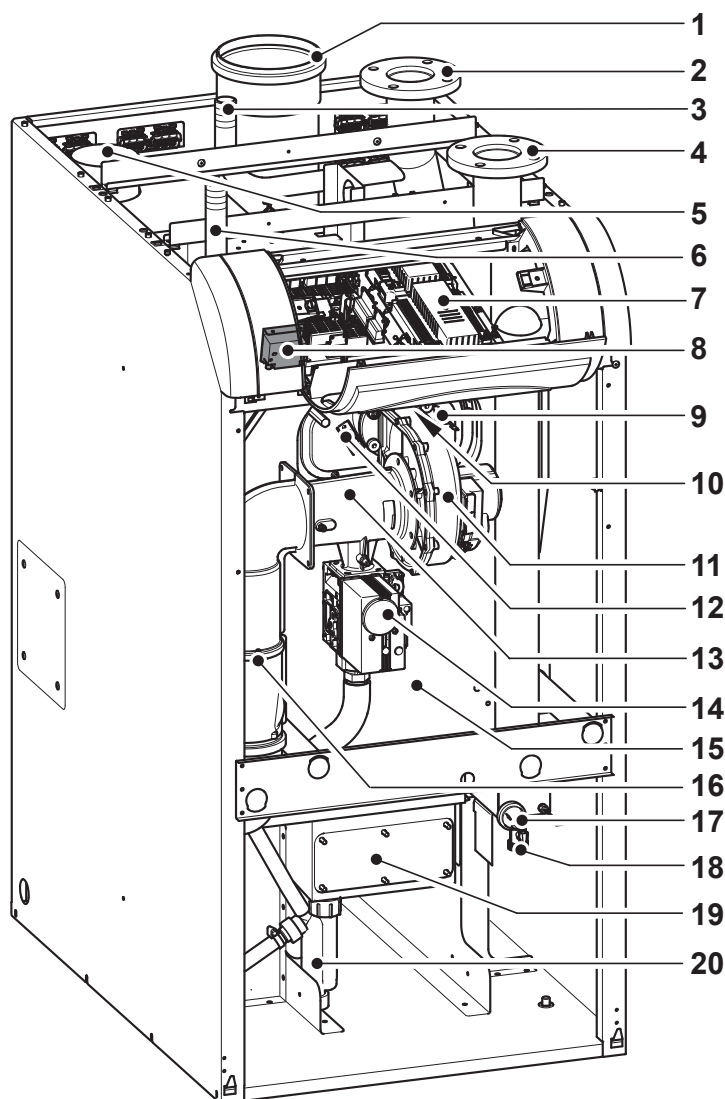


Power HT-A 430-650 kW



## Elements of the boiler

Power HT-A 1.135÷1.320



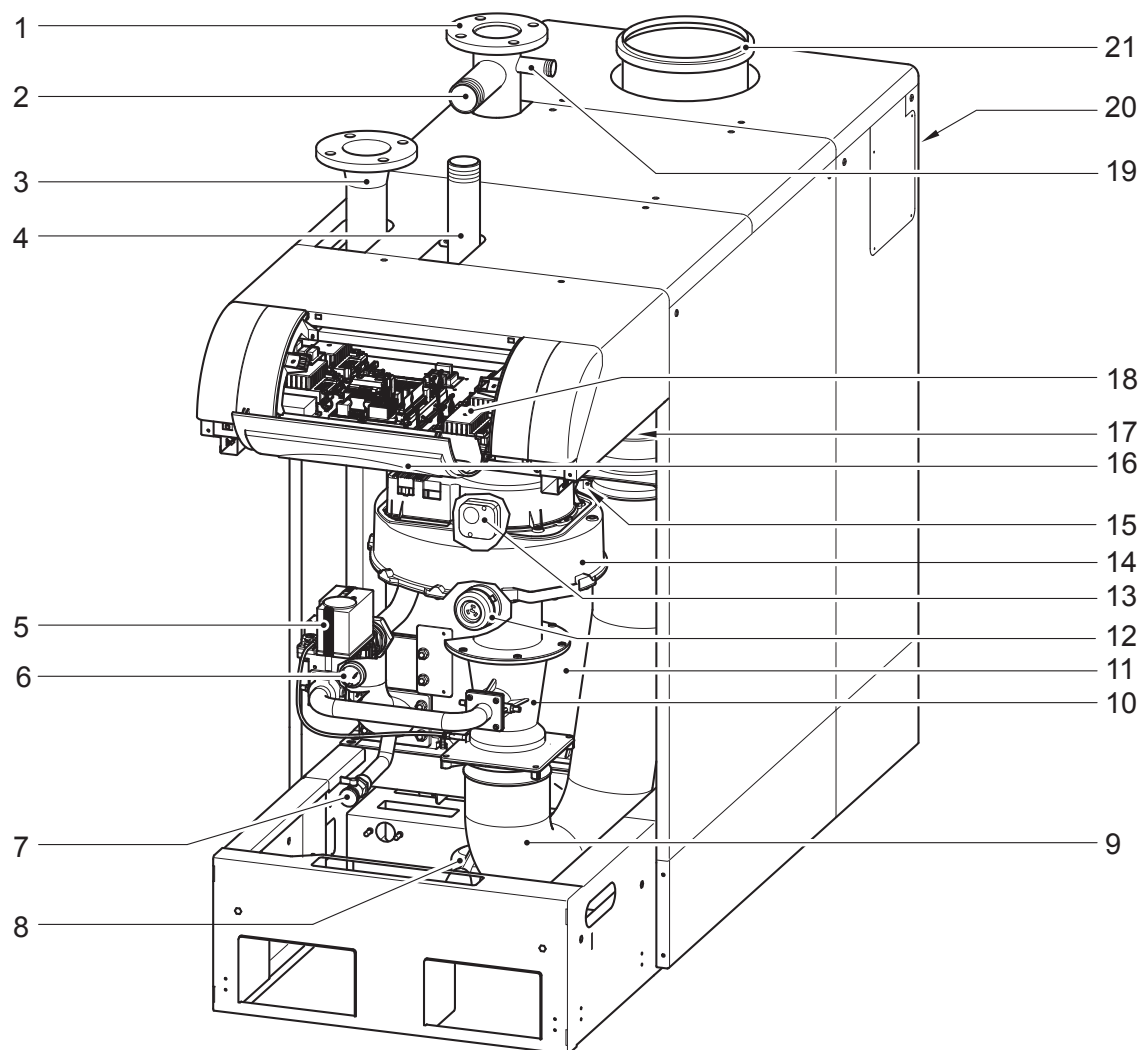
- 1 Flue gas connection
- 2 Heating flow
- 3 Safety group connection
- 4 Heating return
- 5 Air supply
- 6 Gas inlet
- 7 PCB controller LMS
- 8 Ignition transformer

- 9 Ionisation electrode
- 10 Flame inspection window
- 11 Fan
- 12 Ignition electrode
- 13 Venturi
- 14 Gas valve
- 15 Primary heat exchanger
- 16 Air supply silencer

- 17 Water pressure sensor
- 18 Filling/discharge valve
- 19 Checking panel
- 20 Siphon

## Elements of the boiler

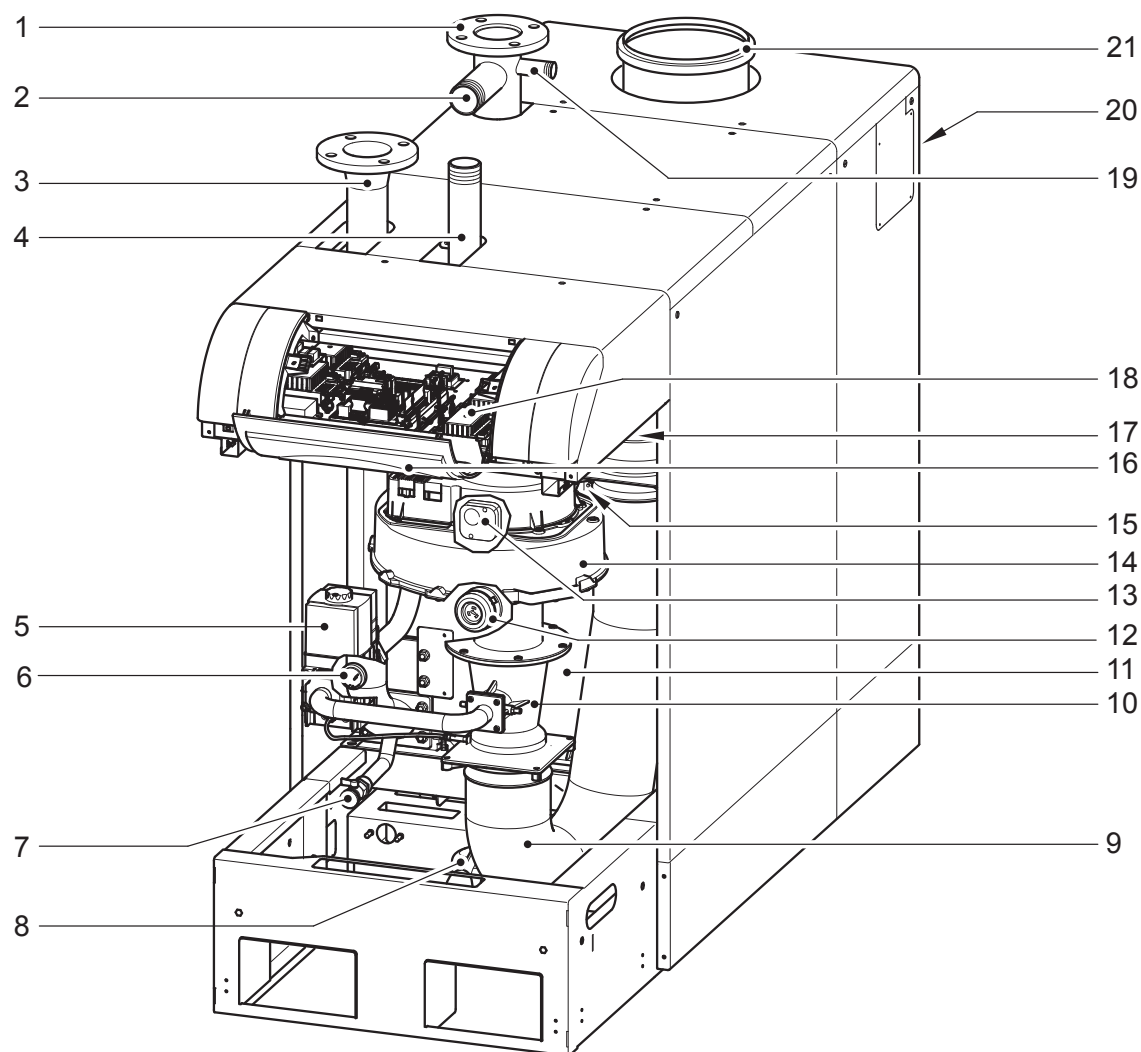
Power HT-A 1.430÷1.500



- |                                     |  |                            |
|-------------------------------------|--|----------------------------|
| 1 Heating flow                      | 10 Venturi   | 17 Ignition transformer    |
| 2 Safety valve connection           | 11 Heat exchanger  | 18 PCB controller LMS      |
| 3 Heating return                    | 12 Differential air pressure switch                            | 19 Safety group connection |
| 4 Gas inlet                         | 13 Air pressure switch   | 20 Air supply              |
| 5 Gas valve (Honeywell)             | 14 Fan   | 21 Flue gas connection     |
| 6 Water pressure sensor (on return) | 15 Ignition and ionisation electrodes, flame inspection window |                            |
| 7 Filling/discharge                 | 16 Control panel   |                            |
| 8 Siphon                            |  |                            |
| 9 Air intake flexible pipe          |  |                            |

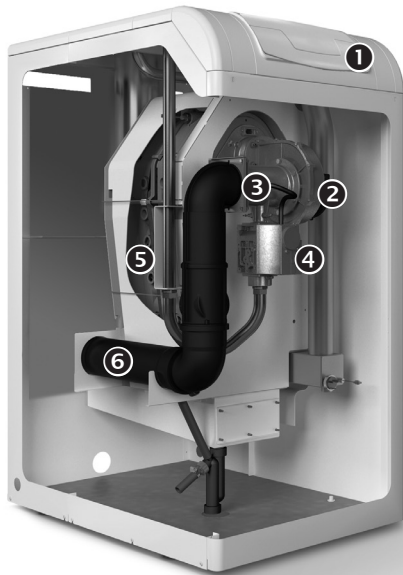
## Elements of the boiler

### Power HT-A 1.650



- |                                     |  |                            |
|-------------------------------------|--|----------------------------|
| 1 Heating flow                      | 10 Venturi   | 17 Ignition transformer    |
| 2 Safety valve connection           | 11 Heat exchanger  | 18 PCB controller LMS      |
| 3 Heating return                    | 12 Differential air pressure switch                            | 19 Safety group connection |
| 4 Gas inlet                         | 13 Air pressure switch   | 20 Air supply              |
| 5 Gas valve (Dungs)                 | 14 Fan   | 21 Flue gas connection     |
| 6 Water pressure sensor (on return) | 15 Ignition and ionisation electrodes, flame inspection window |                            |
| 7 Filling/discharge                 | 16 Control panel   |                            |
| 8 Siphon                            |  |                            |
| 9 Air intake flexible pipe          |  |                            |

## Power HT-A 135-320 kW



- 1- Frontal panel
- 2- Fan group
- 3- Mixer
- 4- Gas valve
- 5- Exchanger
- 6- Air inlet

## Power HT-A 430-650 kW



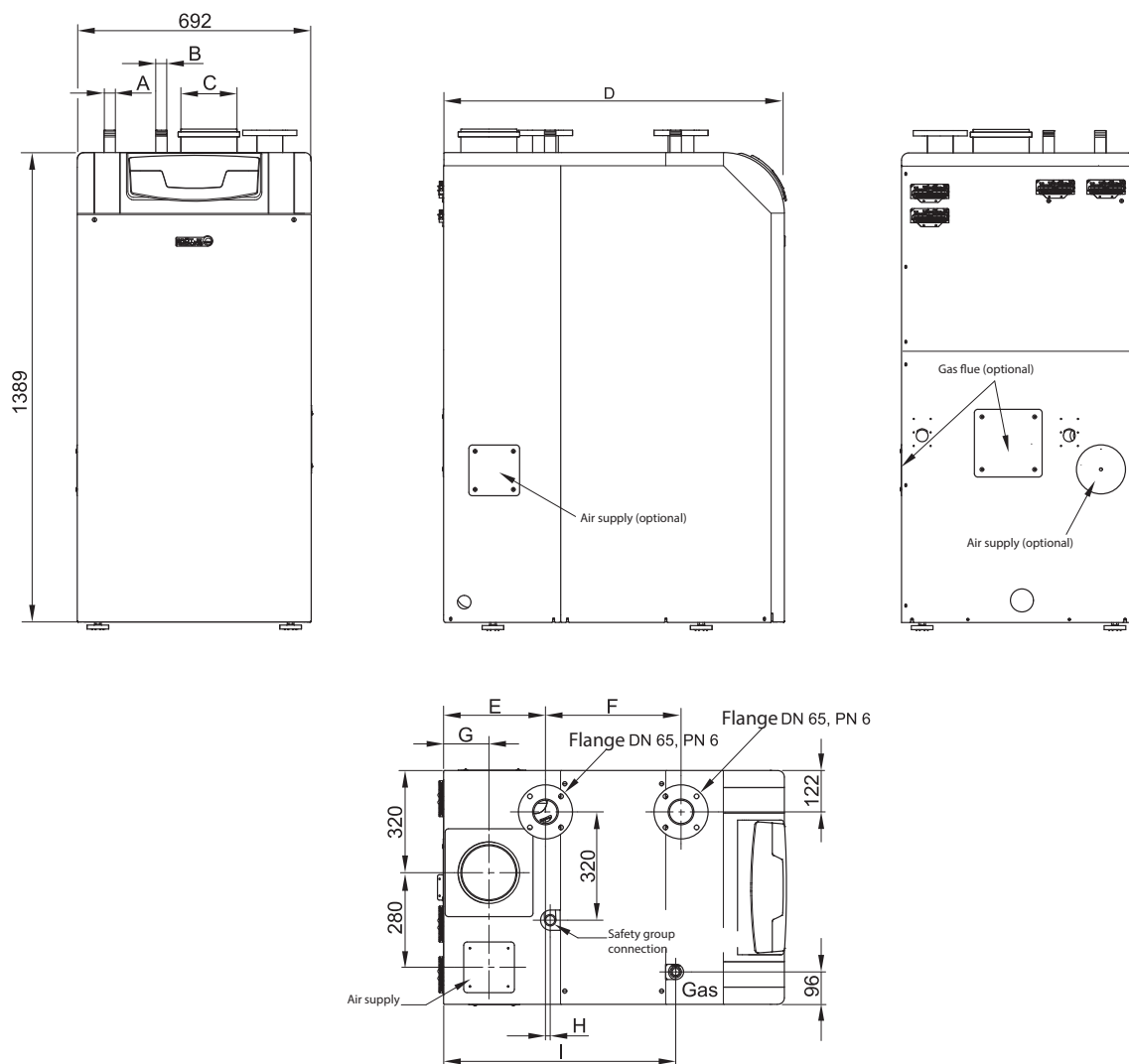
- 1- Frontal panel
- 2- Fan group
- 3- Mixer
- 4- Gas valve
- 5- Exchanger
- 6- Air inlet

Power HT-A		1.135	1.180	1.230	1.280	1.320	1.430	1.500	1.650
Maximum heat input (heating)	kW	125	170	215	260	300	300	469	610
Minimum heat output	kW	20	28	35	42	48	48	95	122
Rated heat output (80/60°C) <i>Prated</i>	kW	121,6	165,8	210,1	254,5	294,3	294,3	459	595,7
Minimum heat output (80/60°C)	kW	19,2	26,8	33,5	40,2	47,1	47,1	93	119,2
Maximum heat output (50/30°C)	kW	133,1	181,3	229,6	278,1	322,1	322,1	496,6	644,8
Minimum heat output (50/30°C)	kW	21,3	29,8	51,2	62	63,2	63,2	102,8	131,5
Useful heat output at 30% of rated heat output and low temperature regime** $P_1$	kW	40,8	55,5	69,7	84,4	97,3	97,3	-	-
Efficiency $\eta_n$ (lower calorific value) - Average temperature 70°C	%	97,3	97,5	97,9	98	98	98,2	98,3	98,5
Efficiency at 30% (lower calorific value) - Return temperature 30°C	%	108,8	108,8	105,4	105,6	105,7	105,9	105,8	105,7
Useful efficiency at rated heat output and high temperature regime* $\eta_4$	%	87,7	87,9	88	88,2	88,3	88,3	-	-
Useful efficiency at 30% of rated heat output and low temperature regime** $\eta_1$	%	98	98	97,4	97,5	97,4	97,5	-	-
Seasonal space heating energy efficiency $\eta_{gs}$	%	93	93	93	93	93	93	93	93
NOx emissions	mg/kWh	38	38	39	39	39	36	< 56	< 56
Maximum pressure heating circuit	bar	6	6	6	6	6	6	6	6
Maximum inlet temperature heating circuit	°C	90	90	90	90	90	90	90	90
Heating temperature range	°C	25-80	25-80	25-80	25-80	25-80	25-80	25-80	25-80
Water content	l	29	34	38	45	53	72	84	106
Dual flue system	mm	160	160	200	200	200	250	250	250
Maximum flue mass flow rate	kg/s	0,057	0,077	0,097	0,118	0,136	0,189	0,22	0,286
Minimum flue mass flow rate	kg/s	0,009	0,013	0,016	0,019	0,022	0,039	0,046	0,059
Maximum flue temperature	°C	61	61	60	61	60	64	61	64
Dimensions (h x wd)	mm	1455x692x1008	1455x692x1171	1455x692x1264	1455x692x1357	1526x762x1882	1526x762x2192		
Net weight	kg	205	340	285	314	344	540	598	674
Gas type	Natural gas/LPG								
Power consumption	W	170	200	330	350	410	463	583	750
Auxiliary electrical power consumption - Full load $el_{max}$	W	170	200	330	350	410	463	583	750
Auxiliary electrical power - Partial load $el_{min}$	W	31	34	40	46	51	60	-	-



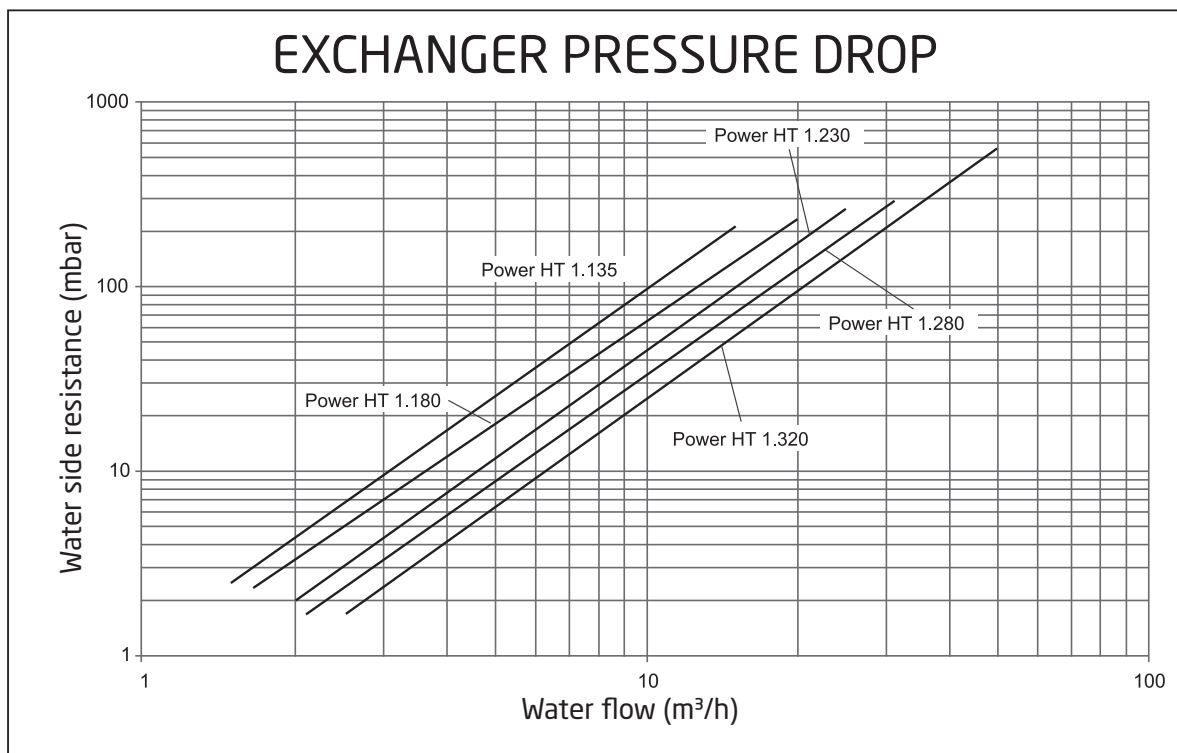
# Dimensions

## Power HT-A 1.135÷1.320



Model		Power HT-A 1.135	Power HT-A 1.180	Power HT-A 1.230	Power HT-A 1.280	Power HT-A 1.320
A		R 1"	R 1½"	R 1½"	R 1½"	R 1½"
B		R 1"	R 1"	R 1¼"	R 1¼"	R 1¼"
C	mm	160	160	200	200	200
D	mm	1008	1008	1171	1264	1357
E	mm	301	301	351	351	351
F	mm	401	401	514	607	700
G	mm	134	134	163	163	163
H	mm	14	14	14	14	14
I	mm	687	687	851	944	1037

## Exchanger pressure drop

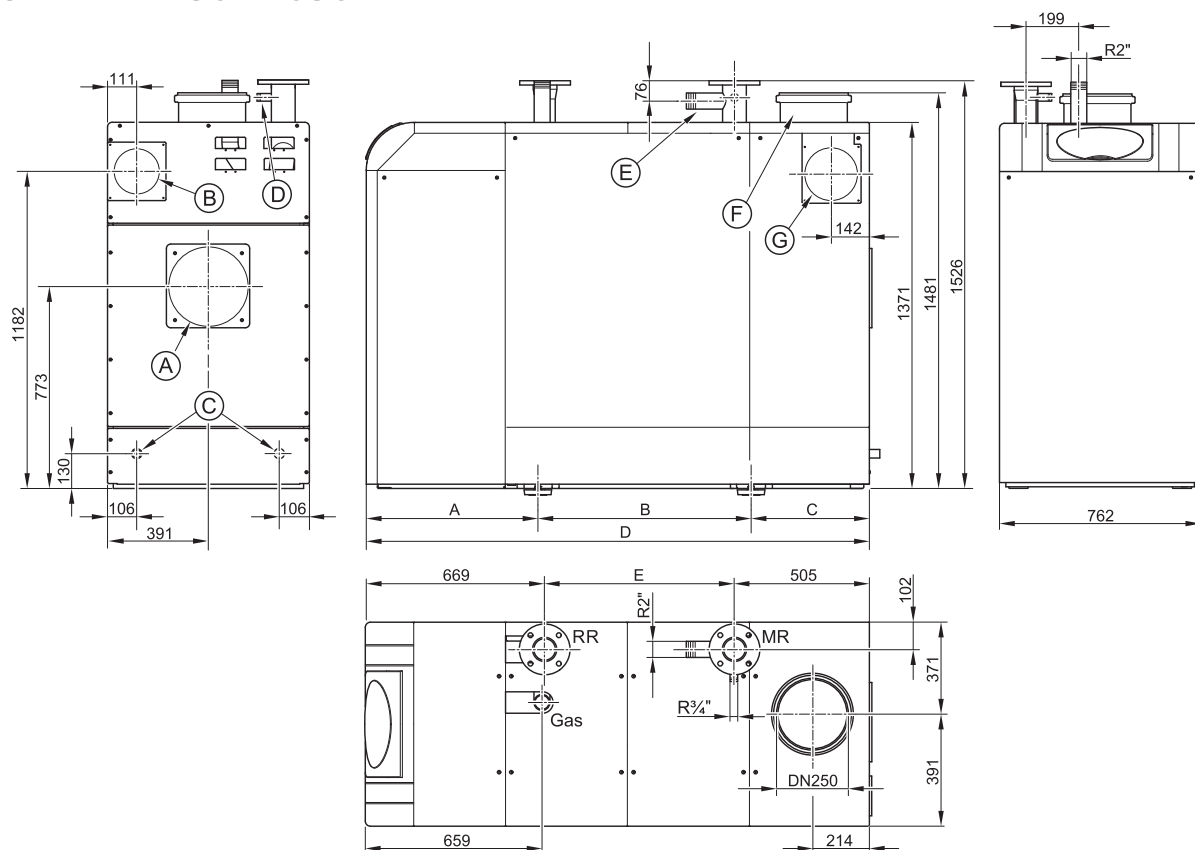


Model	Suggested pump
Power HT-A 1.135	Magna 3 40-80
Power HT-A 1.180	Magna 3 40-80
Power HT-A 1.230	Magna 3 40-80
Power HT-A 1.280	Magna 3 50-60
Power HT-A 1.320	Magna 3 50-60

In case of Grundfos Magna modulating pump installation, a signal converter (230V / 0-10V KPM) must be ordered. The converter changes the PWM signal into a 0-10V signal able to modulate the pump according to the power output of the boiler.

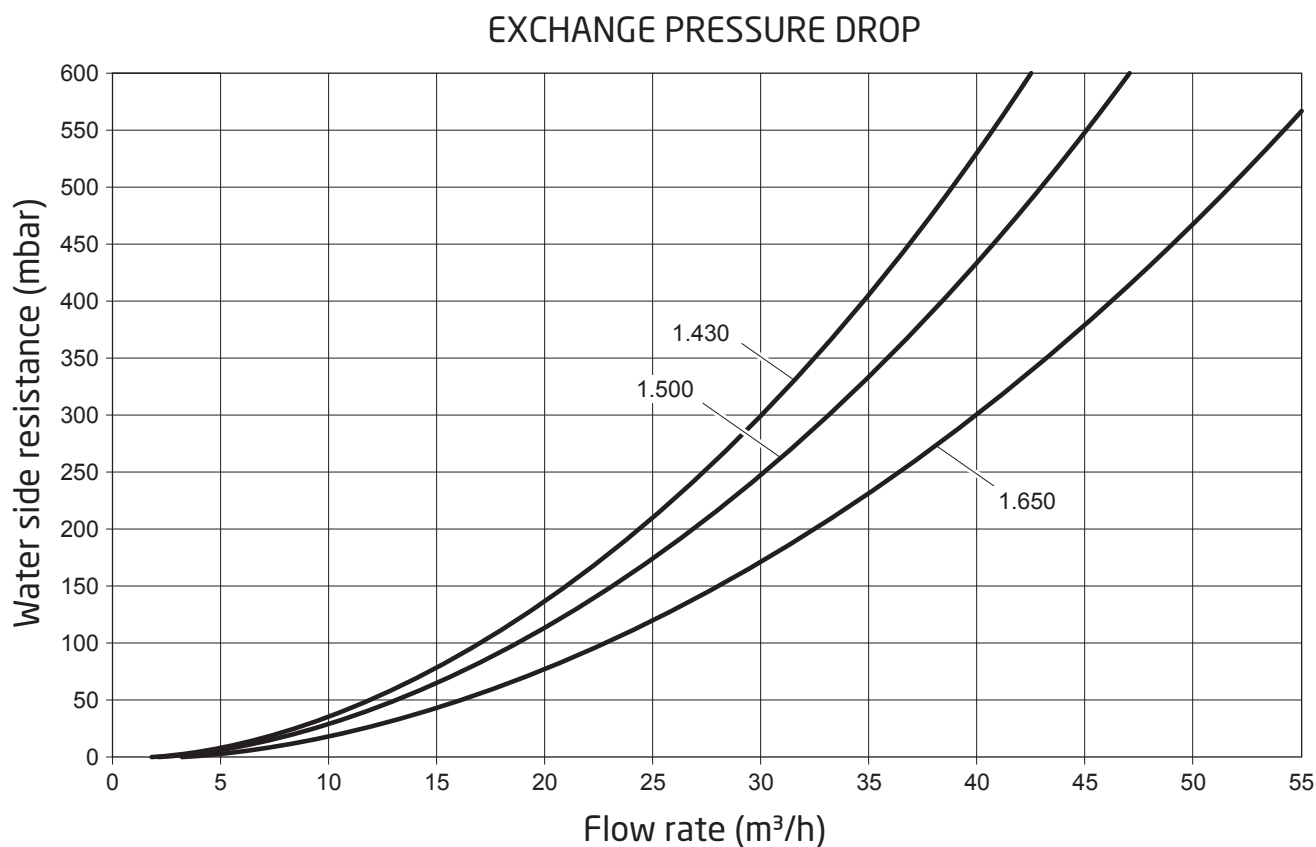
# Dimensions

## Power HT-A 1.430÷1.650



Model			Power HT-A 1.430	Power HT-A 1.500	Power HT-A 1.650
A		mm	642	642	642
B		mm	798	1009	1009
C		mm	442	540	540
D		mm	1882	2192	2192
E		mm	709	1018	1018
MR	Heating system flow		Flange DN 80 PN 6		
RR	Heating system return		Flange DN 80 PN 6		
Gas	Gas inlet		R2" outer thread		
Ⓐ	Rear flue outlet (optional)		DN 250		
Ⓑ	Rear supply air connection		Ø 160		
Ⓒ	Condensate drain (on the right/on the left)		DN 32		
Ⓓ	Safety group connection		R¾" outer thread		
Ⓔ	Safety valve connection		R2" outer thread		
Ⓕ	Flue outlet		DN 250		
Ⓖ	Side supply air connection (optional)		Ø 160		

## Exchanger pressure drop

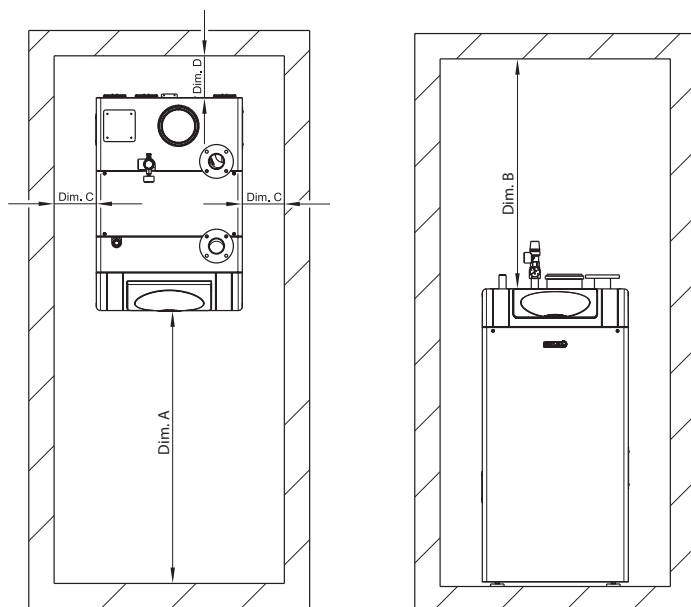


Model	Suggested pump
Power HT-A 1.430	Magna 3 65-100
Power HT-A 1.500	Magna 3 65-120
Power HT-A 1.650	Magna 3 80-100

In case of Grundfos Magna modulating pump installation, a signal converter (230V / 0-10V KPM) must be ordered. The converter changes the PWM signal into a 0-10V signal able to modulate the pump according to the power output of the boiler.

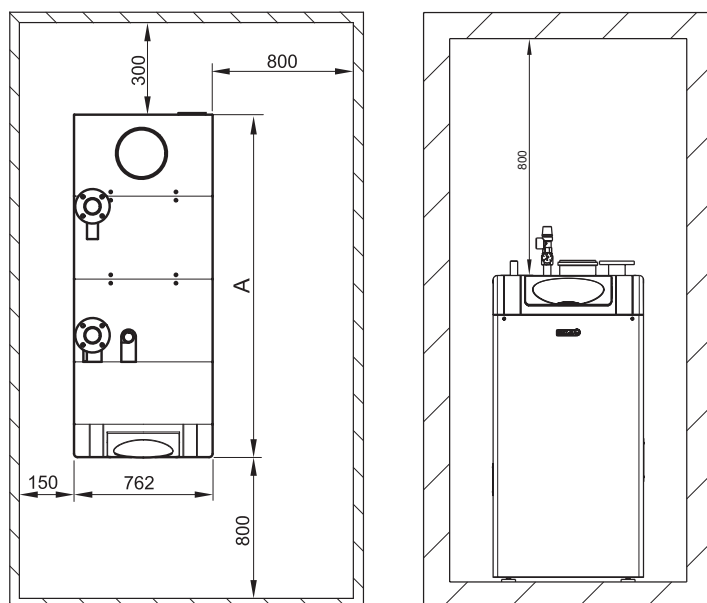
## Clearance dimensions

### Power HT-A 1.135÷1.320



Model		A	B	C	D
Power HT-A 1.135	mm	600	500	500	100
Power HT-A 1.180	mm	700	500	500	100
Power HT-A 1.230	mm	800	500	500	100
Power HT-A 1.280	mm	900	500	500	100
Power HT-A 1.320	mm	1000	500	500	100

### Power HT-A 1.430÷1.650

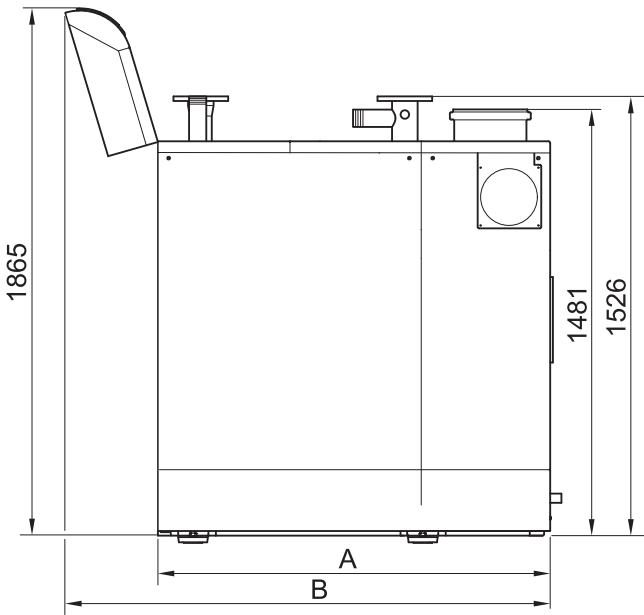


Model		A
Power HT-A 1.430	mm	1882
Power HT-A 1.500	mm	2192
Power HT-A 1.650	mm	2192

# Installation in small rooms

## Power HT-A 1.430÷1.650

To allow an easy transportation of the boiler and to enter small rooms, it is possible to remove the fontal panel, the fan, the Venturi group and the gas valve. The table below shows the minimum dimensions of the boiler.



Model		Power HT- A 1.430	Power HT- A 1.500	Power HT- A 1.650
A	mm	1360	1670	1670
B	mm	1680	1990	1990
Weight	kg	540	598	674

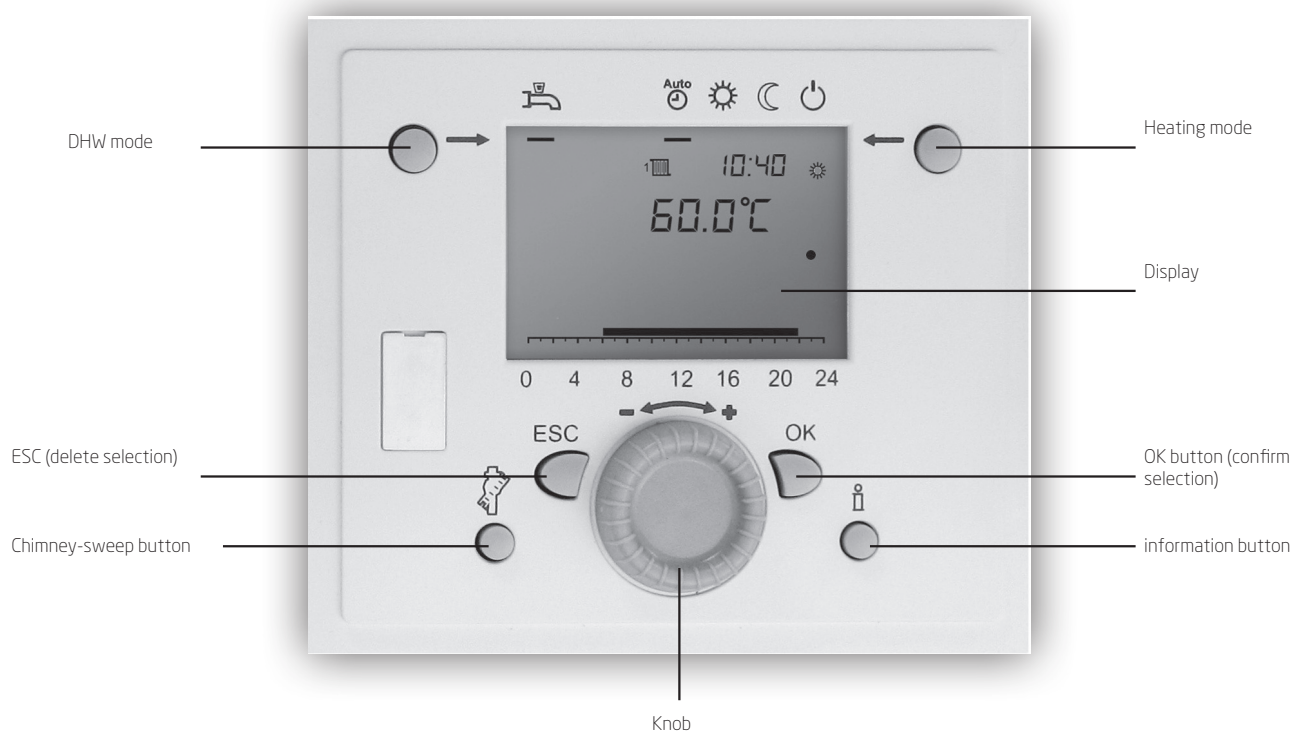
## Single installation electronics

All the control, management and communications software (meaning the whole intelligent part of a heating system) resides in the boiler PCB.

Main features:

- Double microprocessor: latest generation software for control of the generator, or also of a complete heating system
- Management of primary circuit pump modulation by PWM controller
- Daily heating programme and generation of domestic hot water
- Electronic thermometer
- Automatic troubleshooting: signalling and description of possible anomalies
- Built-in climatic regulation (outdoor sensor included)
- Automatic summer/winter changeover with outdoor sensor connected
- Preset for installation in cascade with control software included in the PCB
- Preset for installation in mixing systems

LCD control panel is supplied as standard



## Programming, setting and digital control

	Model	Description	Code
A small, rectangular electronic module with multiple pins and a label.	Programmable internal module THINK (AVS75)	A heating system with max 16 boilers in cascade can be run, with separate storage for hot sanitary water where required. This accessory, connected to one of the boilers, can directly control the circuit components up to a max of 3 independent relay outlets, 2 inlet temperature sensors, 1 connector for limit thermostat in HV and one control inlet (for example TA). Up to 2 modules installed inside the boiler, for third mixing zone order Programmable external module THINK (AVS75) cod. 7105037	7213872
A small electronic module with a ribbon cable attached.	Interface kit for boilers in cascade THINK (OCI345)	Interface kit for boilers in cascade is an electronic device that permits communication via bus (two cables) between boilers connected in cascade or between one boiler (or the boilers in cascade) and a mixing zone controller.	7104408
A rectangular electronic module with a label and connection points.	Heating controller for mixing zones THINK (RVS46)	Heat regulation control unit to control a mixing zone (usually low temperature). It can run a mixing valve, a pump and the flow sensor of the controlled zone. It can also exchange data with the boiler board by means of the connection bus. It includes a flow/return sensor THINK.	7105199
A coiled cable with a sensor probe at the end.	Hot water temperature sensor	This is the sensor that detects the DHW tank temperature - length: 6 meters.	LSX 71000002
A coiled cable with a sensor probe at the end.	Sensor for solar controller	Sensor connected to the electronic platform THINK that detects the temperature of the solar collectors.	LNC 71000004
A small, square electronic module.	Heating flow/return sensor THINK (QAD36)	This sensor is necessary to detect the flow temperature of the mixing zones in the heating plant. It have to be connected to the AVS75 or RVS46.	KHG 71407891



## Flue accessories

	Description	Code
	PP 90° bend Ø 160 For Power HT-A (135-180 kW)	KHW 71409781
	PP pipe Ø 160 L=1000 mm For Power HT-A (135-180 kW)	KHW 71409771
	90° bend Ø 200 For Power HT-A (230-320 kW)	LX0 00068872
	45° bend Ø 200 For Power HT-A (230-320 kW)	LX0 00097195
	90° bend with checking profile Ø 200 For Power HT-A (230-320 kW)	LX0 00097190
	Pipe with checking profile For Power HT-A (230-320 kW)	LX0 00097189
	Pipe extension Ø 200 L=500 mm For Power HT-A (230-320 kW)	LX0 00097191
	Pipe extension Ø 200 L=1000 mm For Power HT-A (230-320 kW)	LX0 00097192
	Pipe extension Ø 200 L=2000 mm For Power HT-A (230-320 kW)	LX0 00097193
	Flue manifold for 2 boilers in cascade 250 mm For Power HT-A (135-180 kW)	LX0 00069143
	Flue manifold for 2 boilers in cascade 250 mm For Power HT-A (230-320 kW)	LX0 00069144

## Plates exchangers

Picture	Description	Code
	Brazed exchanger SPS250 – 30 plates	7215320
	Brazed exchanger SPS250 – 40 plates	7215321
	Brazed exchanger SPS250 – 50 plates	7215322
	Inspectable exchanger SPI3- 13 plates	7215323
	Inspectable exchanger SPI3- 21 plates	7215324
	Inspectable exchanger SPI3- 27 plates	7111961
	Inspectable exchanger SPI3- 33 plates	7111962
	Inspectable exchanger SPI3- 41 plates	7111964
	Inspectable exchanger SPI3- 45 plates	7215325
	Inspectable exchanger SPI3- 57 plates	7215326
	Inspectable exchanger SPI3- 67 plates	7215327

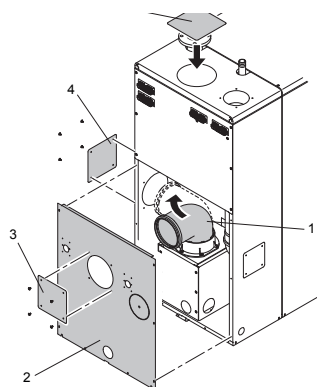
## Other accessories

	Description	Code
	Neutralizer kit for boilers up to 350 kW For Power HT-A (135-320)	KHG 71412571
	Recharge for neutralizer kit for boilers up to 350 kW For Power HT-A (135-320)	KHG 71413541
	Neutralizer kit for boilers For Power HT-A (430-650)	LX0 00082302
	Recharge for neutralizer kit For Power HT-A (430-650)	LX0 00057868

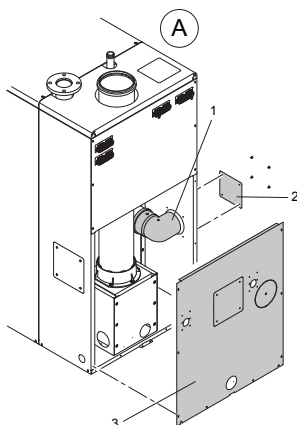
## Flue system - single installation

Flexible and easy installation of the boiler is possible using the accessories provided. The air/flue pipe is fully isolated from the installation room. The flue connection is positioned at the top of the boiler, while the air intake is on the bottom, at the back. In any case, both the positions of the flue discharge and of the air intake can be easily modified as shown in the diagram below. Specifically, the flue discharge can be moved to the lower back or lower side of the boiler using a 90° bend, while the air intake can be moved to the side at the bottom.

### Power HT-A 1.135÷1.320

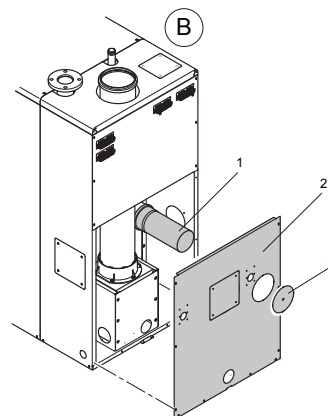


1. Remove lower rear wall (2) of the Power HT-A
2. Remove the gas connection leading upward and insert a 90° bend (1)
3. Turn 90° bend (1) in the desired position (side or towards the rear)
4. Remove either the rear cover plate (3) or the side cover plate (4)
5. Mount lower rear wall (2)



#### Side supply air connection (A)

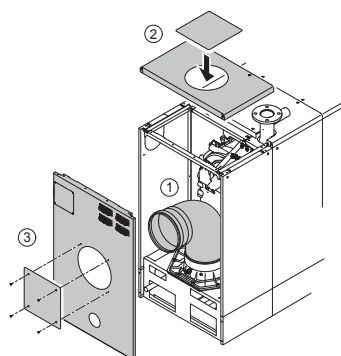
1. Remove lower rear wall (3)
2. Remove the covering panel (2)
3. Mount the bend of the intake pipe (1)
4. Turn intake pipe elbow into the side position (1)
5. Mount lower rear wall (3)



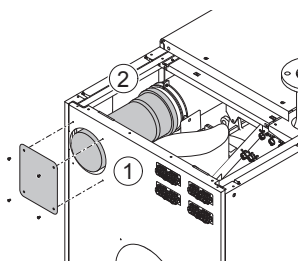
#### Rear supply air connection (B)

1. Remove lower rear wall (2)
2. Take out cover plate (3)
3. Mount straight intake pipe
4. Mount lower rear wall (2)

### Power HT-A 1.430÷1.650

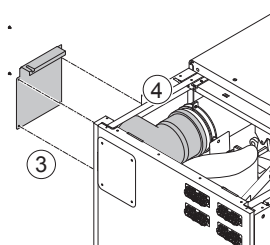


1. Remove upper and lower rear panel of the Power HT-A
2. Remove the flue connection leading upward (2) and insert a 90° bend (1)
3. Mount the cover plate (2)
4. Remove the back cover (3)
5. Mount upper and lower rear panel of the Power HT-A



#### Rear supply air connection (A)

1. Remove the upper panel
2. Take out cover plate (1)
3. Mount straight intake pipe (2)
4. Mount the upper panel



#### Side supply air connection (B)

1. Remove the upper panel
2. Remove the side covering panel (3)
3. Mount the bend of the intake pipe (4)
4. Mount the upper panel

The boiler can be easily installed thanks to the flue accessories provided by BAXI, which offer a great flexibility of use. The product is certified for the following flue types:

B<sub>23</sub> – C<sub>13</sub> – C<sub>33</sub> – C<sub>43</sub> – C<sub>53</sub> – C<sub>63</sub> – C<sub>83</sub>–C<sub>93</sub>

**C<sub>63</sub>** The maximum pressure drop in the pipes  $\Delta P$  not provided by BAXI must not exceed the values given in the table below.

Flue type	C <sub>63</sub>	
	Fan pressure drop [Pa]	Flue pipe Ø [mm]
Power HT-A 1.135	100	160
Power HT-A 1.180		
Power HT-A 1.230	100	200
Power HT-A 1.280		
Power HT-A 1.320		
Power HT - A 1.430	180	250
Power HT - A 1.500		
Power HT - A 1.650		

In case of installation of flue pipe not provided by BAXI, the pipes must be certified for this type of use and for a temperature higher than 120°C.

**C<sub>53</sub>** The maximum length of the dual inlet/outlet pipes provided by BAXI are shown in the table below.

Flue type	C <sub>53</sub>	
	Flue Ø [mm]	Maximum length L[m]
Power HT 1.135	160	60
Power HT 1.180		
Power HT 1.230	200	60
Power HT 1.280		
Power HT 1.320		
Power HT - A 1.430	250	50
Power HT - A 1.500		
Power HT - A 1.650		

For flue pipes provided by BAXI (flue type C53):

- the insertion of a 90° bend reduces the total length of the pipe by 5 meters.
- the insertion of a 45° bend reduces the total length of the pipe by 2 meters.
- the insertion of a 15° bend reduces the total length of the pipe by 1 meter

Note: the minimum slope of the flue pipe toward the boiler must be 5,5 cm every meter of length.

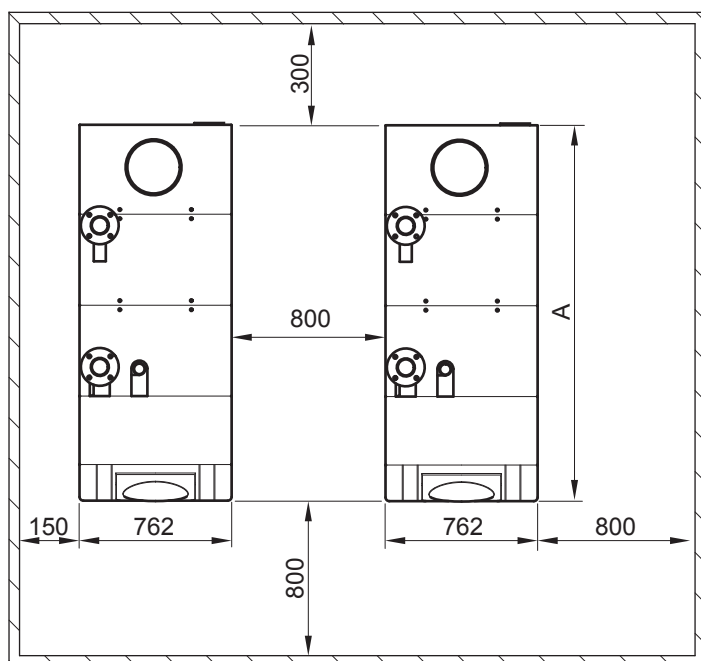
**Pipes maximum lengths are subjected to technical evaluation and must meet the requirements of the prevailing installation standards in the country.**

## Cascade installation

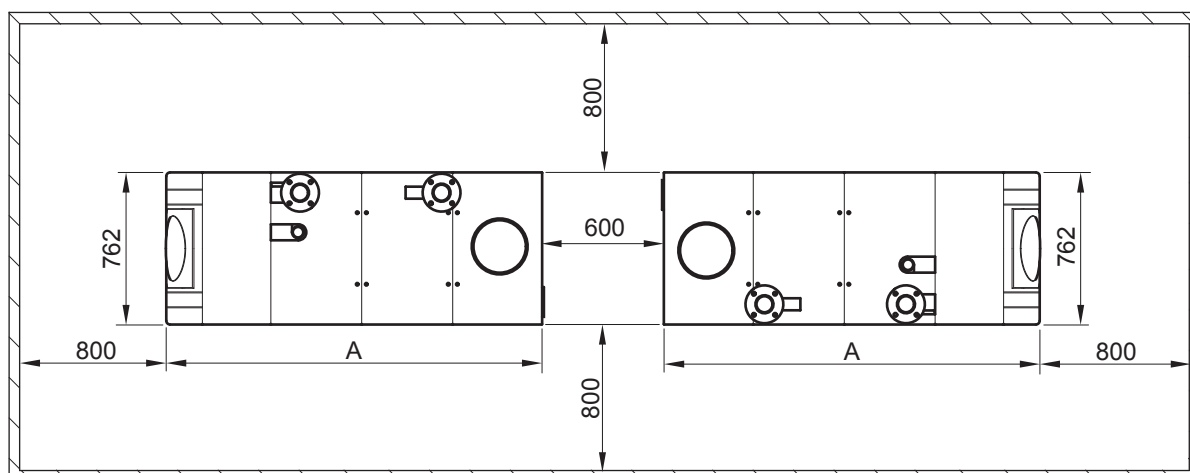
High output condensing boilers Power HT-A can be installed in cascade, up to 16 boilers controlled with the same electronics.

### Clearance dimensions

#### Power HT-A 1.430÷1.650



Model		A
Power HT-A 1.430	mm	1882
Power HT-A 1.500	mm	2192
Power HT-A 1.650	mm	2192



## Flue system - cascade installation

The table below shows the maximum diameters and lengths of the flue pipes for various configurations of boilers in cascade. Every boiler is equipped with a check valve on the air-flue circuit that enables installation in cascade without having to apply an external flue shutter kit.

Model	N° boilers in cascade	Flue maximum length [m]	Diameter [mm]	Fan speed [m/sec]
Power HT 1.135	2	40	180	< 5
	2	60	200	< 5
	3	30	200	< 5
	3	60	250	< 5
Power HT 1.180	2	40	200	< 5
	2	60	250	< 5
	3	60	250	< 5
Power HT 1.230	2	20	200	< 5
	2	60	250	< 5
	3	20	250	< 5
	3	60	300	< 5
Power HT 1.280	2	50	250	< 5
	3	60	300	< 5
Power HT 1.320	2	50	250	< 5
	3	60	300	< 5
Power HT-A 1.430	2	30	250	< 6
	2	40	300	< 5
	3	30	300	< 6,5
	3	40	350	< 5
Power HT-A 1.500	2	17	250	< 7
	2	40	300	< 5
	3	40	350	< 5,5
	3	40	400	< 5
Power HT-A 1.650	2	30	300	< 6,5
	2	40	350	< 5
	3	40	400	< 5,5
	3	40	450	< 5

Pipes maximum lengths are subjected to technical evaluation and must meet the requirements of the prevailing installation standards in the country.



## Quality Environment Safety

are Baxi strategic aims and  
the awarded certifications  
ensure compliance with the  
specific regulations

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