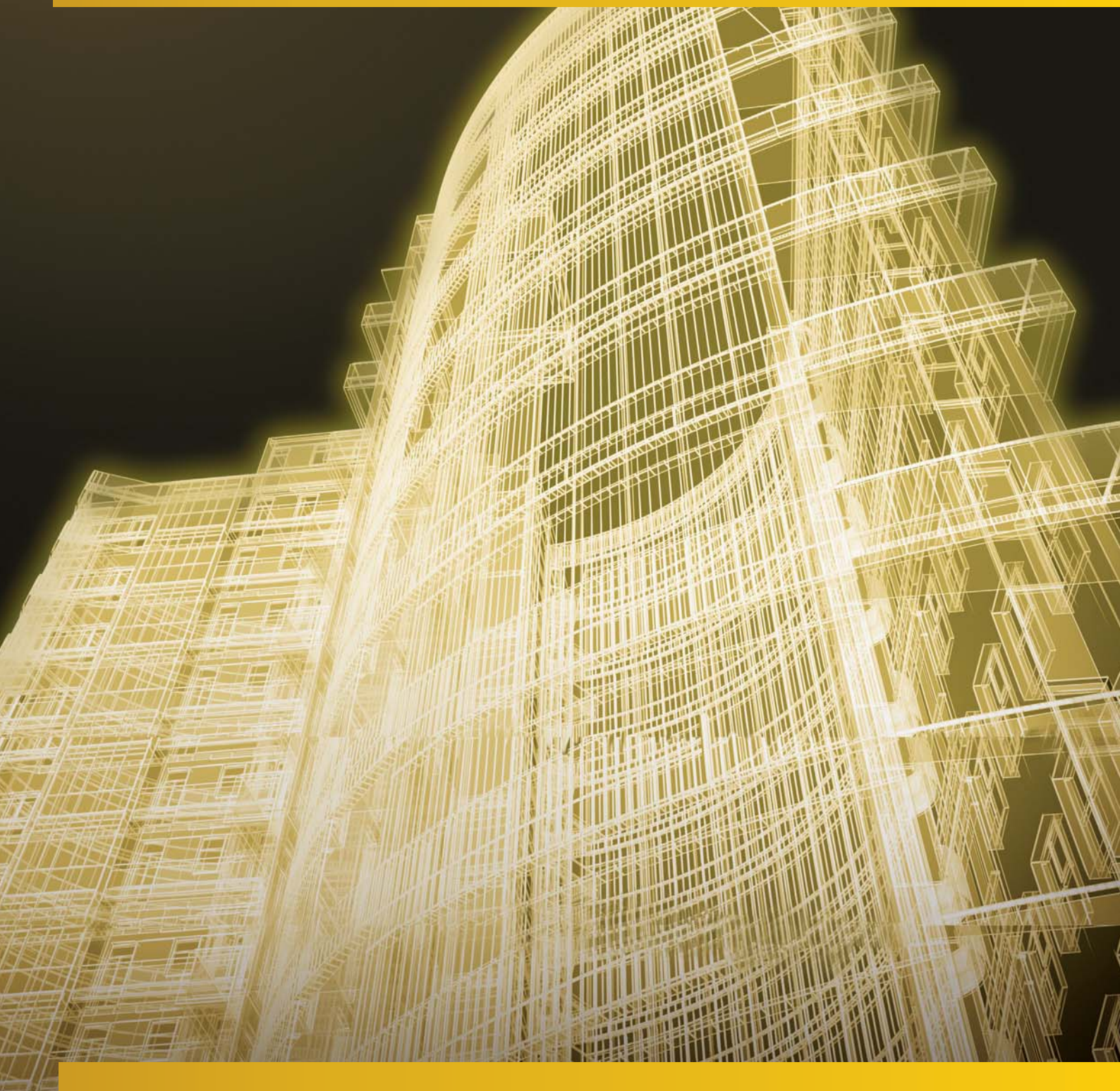


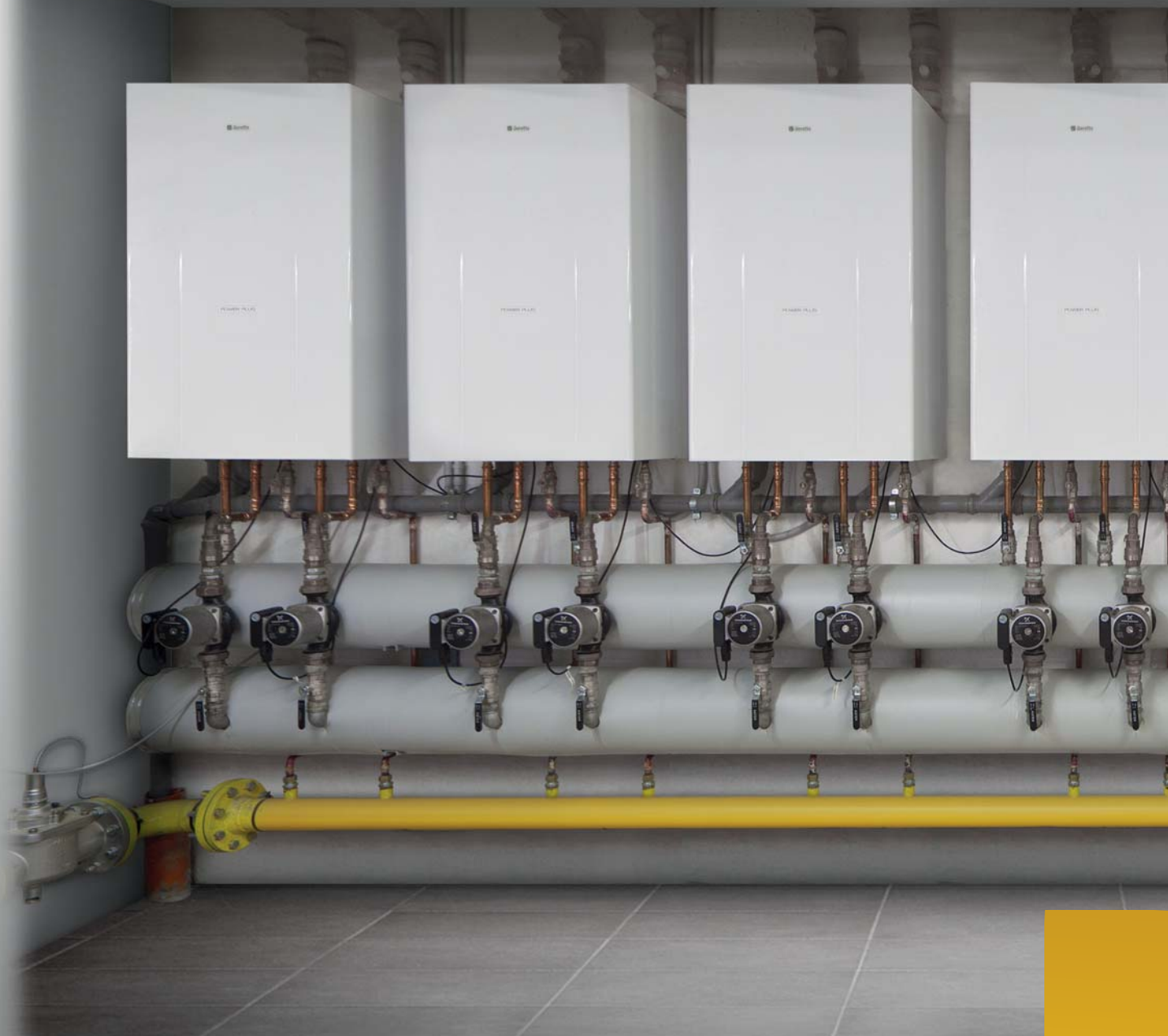
# Power Plus Power Plus Box

Stand alone, cascade and box applications  
for commercial heating solutions

Systems







## Beretta, the professional of the Plant Room

Thanks to “Power Plus” systems, Beretta has become the professional of your plant room. The high reliability of products, the availability of a comprehensive line of specific accessories, the ease of mounting and the maximum flexibility, make of Beretta “Power Plus” systems the best solution both for large domestic properties and commercial buildings, like hotels, schools, office-buildings, factories, sports centers, etc. They are suitable both for new buildings and as a replacement of old floor-standing boilers and offer the highest efficiency at any time combined with the maximum peace of mind, thanks to their modularity.

The availability of two different combustions of 50 kW (Hs) and 128 kW (Hs) in different combinations, make possible from single-unit to cascade installations and pre-assembled boxes, thus covering any possible need of configuration.



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## 500-series

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Focus on Technology

# Power Plus

## The range

### Power Plus 50 M

Master model, output from 15 (Hi) to 50 kW (Hs), consists of one boiler unit and can work both as stand alone and in cascade applications with Slave models.

### Power Plus 100 M

Master model, output from 15 (Hi) to 100 kW (Hs), consists of two boiler units and can work both as stand alone and in cascade applications with Slave models.

### Power Plus 100 S

Slave model, output from 15 (Hi) to 100 kW (Hs), consists of two boiler units and can work only in cascade applications managed by a Master model.

## The structure of Power Plus

Power Plus, according to the output, consists of one (50 kW) or two (100 kW) boiler units, connected to the water and gas system in parallel. Each unit consists of the following main components:

Pre-mix combustion group, consisting in a modulating gas valve integrated with a high total head fan.

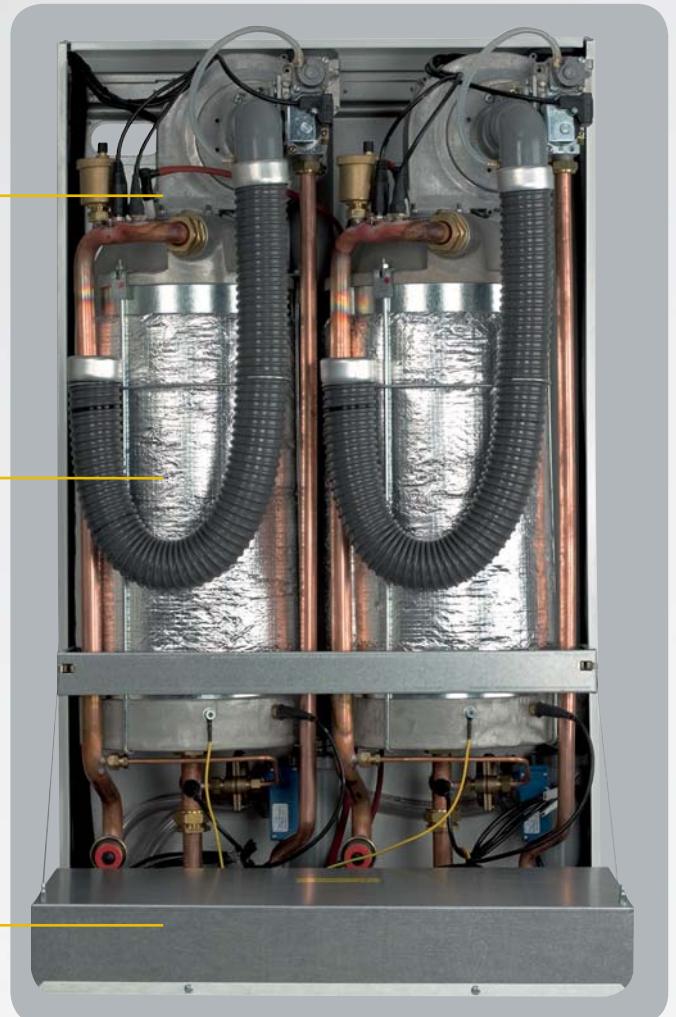
This system guarantees a constant calibrated gas and air mix, ensuring the highest efficiency under any running conditions.

High-efficiency 50 kW heat-exchanger consisting in a continuous bi-metal corrugated helical tube (copper on water side and AISI 316 stainless steel on flue sides) inside a cover. The micro-flame burner is located in the upper part of the heat exchanger with single spark ignition.

The Master / Slave control system is located behind the front panel. It is made of a Master board that manages one or more Slave boards (according to the number of Slave boilers of the installation).

The Master board, beside allowing the cascade installation of more Slave boilers, can manage:

- a high temperature circuit;
- a low temperature circuit;
- a DHW tank, the temperature control function and the remote control panel.





## The technology: heat exchanger

The Power Plus condensing heat exchanger has a high exchange surface and an excellent corrosion resistance. It has a cylindrical shape and it is made of the following components:

- micro-flame burner;
- stainless steel covering AISI 316L;
- continuous bi-metallic corrugated helical tube (copper alloy on the water side and stainless steel on the flue side), which is coiled up inside the cover;
- refractory brick, which keeps the heat inside the combustion chamber and forces the flue gases over the heat exchanger surfaces, optimising the thermal heat exchange performance.
- plastic header on the flue outlet with a probe for the continuous control of the flues temperature.

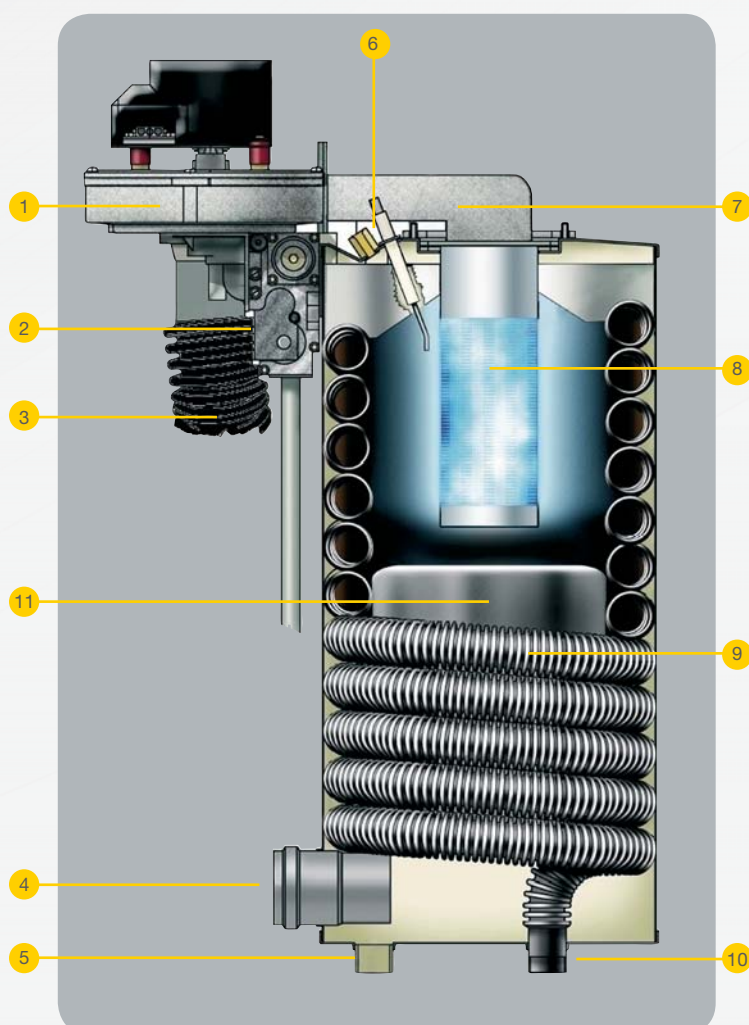
Condensing heat-exchanger

★★★★ EFFICIENCY,

According To European Directive EEC 92/42.

Key:

- ① Fan
- ② Gas valve
- ③ Air inlet pipe
- ④ Flue discharge pipe
- ⑤ Condensate discharge pipe
- ⑥ Single spark ignition and flame control electrode
- ⑦ Flow pipe
- ⑧ Burner
- ⑨ Heat-exchanger
- ⑩ Return pipe
- ⑪ Refractory brick

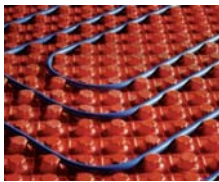


## Condensing boilers and radiator plants... the Power Plus strenght!

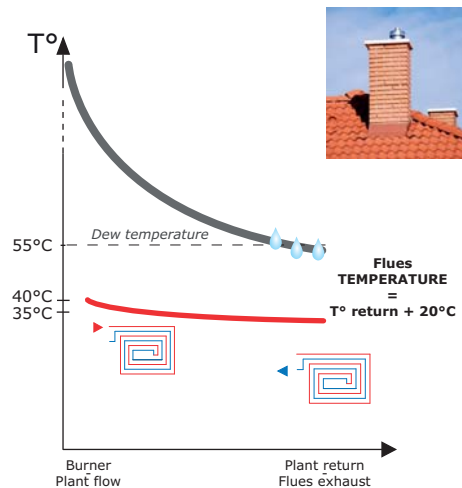
During the years, the diffused thought is that condensing boilers allow to save on fuel only if installed with low temperature heating plants (floor-standing); effectively this is true for most condensing boilers on the market... BUT NOT FOR POWER PLUS! **The distinctive element of our condensing boiler**

**is the low “ $\Delta T$  water-flues”, that is, the capacity to exhaust flues at a temperature of only 3°C higher than the heating plant water returning to the boiler; other condensing boilers have a  $\Delta T$  water-flues of even 25°C.**

Floor-standing plants

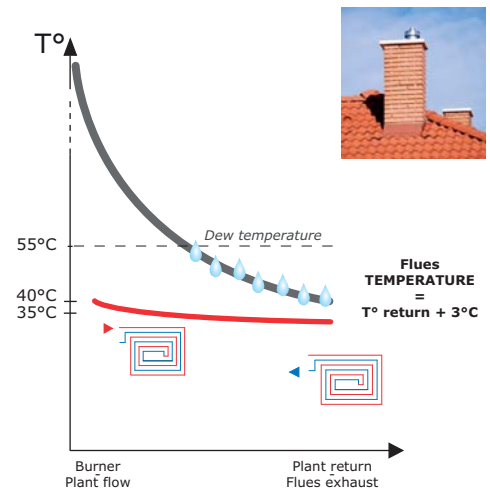


Condensing boilers



In low temperature plants (ex. 40°C/35°C), the other condensing boilers also manage to evacuate flues at a temperature sufficiently low (approx. 50°C - 55°C) to be able to work in condensing conditions with high efficiency.

Power Plus condensing boilers

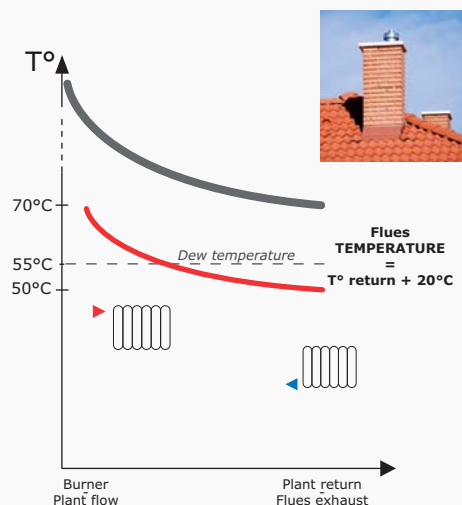


In low temperature plants (ex. 40°C/35°C), the Power Plus condensing boilers manage to evacuate flues at a temperature of only 3°C higher than the return (approx. 38°C) and work in full condensing conditions with very high efficiency.

Radiator plants

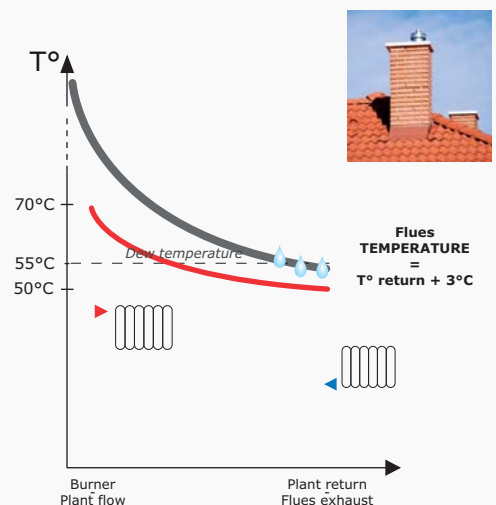


Condensing boilers



In high temperature plants (ex. 70°C/50°C), most condensing boilers on the market evacuate flues at a temperature higher than that of the nat gas flues dew, in fact working as traditional boilers and therefore with low efficiency. The cause is the high water-flues  $\Delta T^\circ$  (even up to 25°C).

Power Plus condensing boilers



In high temperature plants (ex. 70°C/50°C), the Power Plus condensing boilers evacuate flues at a an even lower temperature than that of the nat gas flues dew, still working as condensing boilers with high efficiency. The point of strength is in the low water-flues delta  $T^\circ$  (3°C) which brings us to evacuate the flues at 53°C, with a return of 50°C!



# Technical specifications

KEY:

- M** Master model  
**S** Slave model

SPECIFICATIONS			Power Plus 50 M	Power Plus 100 M	Power Plus 100 S
Fuel			G20 - G25 - G2.350 - G27 - G30 - G31		
Appliance category			II2ELwLs3B/P - II2H3+ - I2E(S)B		
Type of appliance			B23 - B53 - C13x - C33x - C43x - C53x - C63 - C63x - C83		
Heat input ref. Hi (min - max)	G20	kW	16,3 - 50	16,3 - 100	16,3 - 100
Heat input ref. Hs (min - max)	G20	kW	15 - 45	15 - 90	15 - 90
Useful heat output (80°/60°C) (min - max)		kW	14,8 - 44,2	14,8 - 88,3	14,8 - 88,3
Useful heat output (50°/30°C) (min - max)		kW	16,3 - 48,5	16,3 - 96,8	16,3 - 96,8
Useful efficiency ref. Hs (80°C/60°C)		%	98,2	98,2	98,2
Useful efficiency ref. Hs (50°C/30°C)		%	107,7	107,7	107,7
Useful efficiency at 30% ref. Hs (80°C/60°C)		%	98,7		
Useful efficiency at 30% ref. Hs (50°C/30°C)		%	108,7		
Losses through the chimney with the burner operating		%	1,3		
Losses through the chimney with the burner off		%	0,1		
Losses through the casing (Tm=70°C)		%	0,5		
Flue gas temperature		°C	Return temp. 3 ÷ 5°C		
CO <sub>2</sub> at minimum - maximum	G20	%	9,0 - 9,0		
CO <sub>2</sub> at minimum - maximum	G30 - G31	%	10,4 - 10,4		
CO without air at minimum - maximum less than		mg/kWh	11 - 91		
NOx class			5		
Air flow rate	G20	Nm <sup>3</sup> /h	58,78	117,56	117,56
Air flow rate	G30 - G31	Nm <sup>3</sup> /h	58,59	117,18	117,18
Flue gas flow rate	G20	Nm <sup>3</sup> /h	71,04	142,08	142,08
Flue gas flow rate	G30 - G31	Nm <sup>3</sup> /h	71,76	143,52	143,52
Flue gas mass flow rate (max-min)	G20	gr/s	20,57 - 6,60	41,14 - 6,60	41,14 - 6,60
Flue gas mass flow rate (max-min)	G30 - G31	gr/s	20,52 - 6,85	41,04 - 6,85	41,04 - 6,85
Residual head of boiler fan without pipes	at min. heat output	Pa	50	50	50
	at max. heat output	Pa	560	560	560
Residual head of boiler fan downstream from choke (*)	at min. heat output	Pa	40	40	40
	at max. heat output	Pa	490	490	490
Minimum operating pressure, central heating		bar	0,5		
Maximum operating pressure, central heating		bar	6		
Maximum admissible temperature		°C	90		
Range of boiler water temperature settings (± 3 °C)		°C	20 - 80		
Water content		l	5	10	10
Power supply		V-Hz	230 - 50		
Electrical Power		W	80	160	160
Index of protection		IP	X0D		
Quantity of condensate		kg/h	7,2	14,4	14,4
Noise level at max / min heat output (**)		dBA	57,1/48,2	58,9/49,0	58,9/49,0
Gas capacity (min-max) G20		Sm <sup>3</sup> /h	1,52 - 4,76	1,52 - 9,52	1,52 - 9,52
Gas capacity (min-max) G30		kg/h	1,16 - 3,64	1,16 - 7,28	1,16 - 7,28
Gas capacity (min-max) G31		kg/h	1,14 - 3,57	1,14 - 7,14	1,14 - 7,14

(\*) Measurements obtained using the clapet with which the boiler was homologated.

(\*\*) Measurements taken at 1 m from the appliance, at a height of 1,5 m with background noise of 36,5 dBA.



Thanks to the flexibility of the Power Plus and Power Plus Box offer, it is possible to integrate the boilers with solar systems and heat pumps.

Refer to the layout proposals and to the products and solutions on the Beretta Systems catalogue.



## 500-series

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## CASCADE Systems

# Power Plus

The efficiency of our condensing technology





Beretta **Power Plus** is a condensing pre-mixed air blown modulating wall-hung boiler, designed for cascade and stand-alone installation.

It is available in three versions:

- 50 M and 100 M (Master models, of 50 and 100 kW respectively), working both as stand-alone boilers or in cascade applications with Slave units;
- 100 S (Slave model, of 100 kW), especially designed to work in cascade applications (up to 400 kW) managed by a Master unit.

Power Plus range achieved an Efficiency ★★★★★, according to European Directive EEC 92/42.

Gas Directive EEC 90/396.

Low voltage Directive EEC 89/336.

Electromagnetic compatibility Directive EEC 73/23.

### Characteristics and advantages at a glance

- Possibility to combine Power Plus boilers in pre-set cascade systems up to 400 kW, making them suitable for a wide variety of installations, from office buildings and sports centres to schools and hotels.
- Maximum flexible and space-saving cascade installation, allowing the system to be tailored to meet the space requirements of the customer, who can choose among wall hung, linear free-standing and back-to-back free-standing configurations.
- Excellent performance combined with low running costs, thanks to Beretta condensing technology with pre-mix combustion.
- These heating units boast latest generation electronic control, modularity and versatility, thus ensuring the installer a quick connection to any type of heating and hot water storage system as it simultaneously controls three different circuits, each operating at a different temperature.
- Power Plus units are designed to provide water to 3 different circuits at different temperatures either supplied as direct take off's or via a header system utilizing controls as required. With this in mind suggested usage are DHW, High Temperature (heating) and Low Temperature (under-floor heating). It is possible to add up to further 8 zones with the use of specific accessories.
- Modulating and modular power regulation.
- Minimum polluting emissions, thanks to the controlled pre-mix burner and the micro-flame burner combination, allowing Power Plus to achieve Class 5 of the UNI EN 677 standard (best European category in ecological terms).
- Water drain built-in as standard in the boiler for each heating unit.
- Built-in temperature control and external probe as standard.
- Automatic burner ignition sequence reversal.
- Anti-legionnaires' disease function (only available with room-control kit).
- Frost-protection system.

## Ten reasons why a Power Plus cascade system is the logical choice

Beretta Power Plus has been specifically designed for cascade applications. Thanks to its modularity and specific features, it can be considered the best solution for light commercial applications, both in the new buildings and as replacement of old floor standing boilers.

### Maximum efficiency at any time

The efficiency of a Power Plus cascade system is significantly higher than a traditional single boiler installation with the same output. In fact, by controlling automatically the number of boilers in operation, the system can optimise the heat supply according to demand at any particular time. For instance in spring and autumn, when the heat request is lower, or in buildings like hotels and restaurants, where the heat request is not constant, the system can switch on and off the individual boilers, ensuring the maximum efficiency.

### Maximum peace of mind

Power Plus cascade system is more reliable than a traditional individual boiler installation. As each boiler of the cascade can be individually serviced and maintained, in the event of a fault or maintenance on one boiler, the other boilers of the cascade are still able to operate without loss of heating.

### Maximum savings

High efficiency of the cascade system and top condensing technology of the boilers allow you to save so much energy in daily use that the costs of the heating system are recovered in a few years. In addition, reduced installation time and quick servicing result in precious savings for the end user.

### Maximum ease of servicing

Power Plus range is designed so that all components can be easily serviced and maintained from the front. Moreover, each boiler of the cascade can be individually serviced and maintained, while the other boilers of the cascade are still able to operate.

### Maximum commitment to the environment

Power Plus range achieved Class 5 of the UNI EN 677 standard (best European category in ecological terms), thanks to condensing combustion with controlled pre-mix burner and micro-flame burner combination. A Power Plus cascade system can also control automatically the number of boilers in operation according to heat demand, saving energy and reducing polluting emissions.

### Maximum use of space

The cascade system of Power Plus range is designed to provide a space-saving and versatile solution for large

domestic properties or light commercial buildings. The compact dimensions of Power Plus (1000x600x380 mm) enable for instance a 400 kW free standing back-to-back cascade to fit in less than 1,30 m<sup>2</sup>!

### Maximum flexibility

Power Plus cascade installation can be tailored to meet the space requirements of the customer, as there are three different possibilities of composing the cascade: wall hung installation, free-standing side-by-side installation and free-standing back-to-back installation. Moreover, thanks to the modularity of the system, the total output can be accurately sized to meet the space and energy requirements of the building.

### Maximum ease of installation

Power Plus cascade design allows an extremely easy installation. Each single boiler can be transported separately and its compact dimensions fit through most doorways. The cascade can be mounted directly in the boiler room, so that the system represents the right choice also in case of renovation of older boiler rooms. The installer simply has to set up the framework and connect boiler and all other parts together and the system is finished in an easy and quick way.

### Maximum reliability

Beretta has carefully selected an extensive range of high quality components and accessories to configure Power Plus cascades up to 400 kW, as per the detailed configuration proposals contained in this guide. By choosing Beretta complete Power Plus systems, you ensure that all the components of your cascade work in harmony with one another, flow volumes are balanced and hydraulic performance is optimized, so that you obtain maximum reliability and saving from your heating system.

### Maximum range of modulation

Power Plus M (master model) contains a board that can manage up to 60 slaves in battery till 3 MW of power, with a modulation down to only 16 kW. To configure multi-boiler cascades over 450 kW, all components of the cascade must be accurately sized and selected with the help of a specialised design engineer.

## One frame, three different installation solutions

Beretta has developed a clever frame for the cascade (or stand-alone) installation of Power Plus.

According to the space requirements of the customer, the same frame allows three different possibilities of installation:

- wall-hung,
- linear free-standing,
- back-to-back free-standing installation.

Trouble-free installation, compact design and competitive price make this frame the most clever solution to install your Power Plus with or without the need of a wall.

The robustness of the frame (made in painted, zinc-coated steel) completes the profile of this versatile product.



linear  
wall-hung or free-standing installation



back-to-back  
free-standing installation

## Beretta ready-made configurations

Beretta offers you in the following pages a wide choice of configurations of Power Plus series, among which you can choose the one that best meets your requirements.

According to the preferred installation solution and the power you need, Beretta suggests :

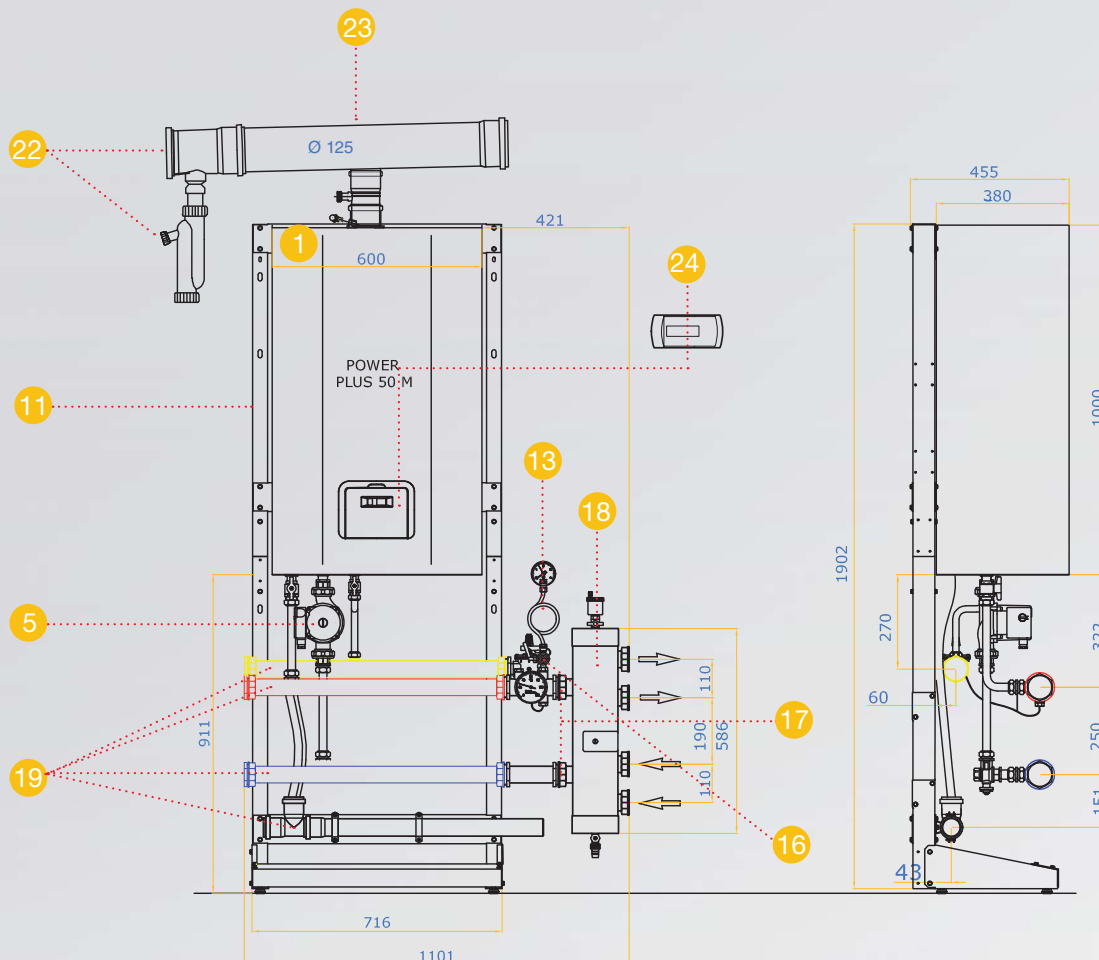
- **8 linear wall-hung or free-standing configurations (from 50 to 400 kW);**
- **6 back-to-back free-standing cascade configurations (from 150 to 400 kW).**

Every configuration is described by a diagram, with a key related to the different components of the configuration, in order to facilitate the comprehension.



# Power Plus

## Stand-alone configuration - 50 kW (wall-hung or free-standing)

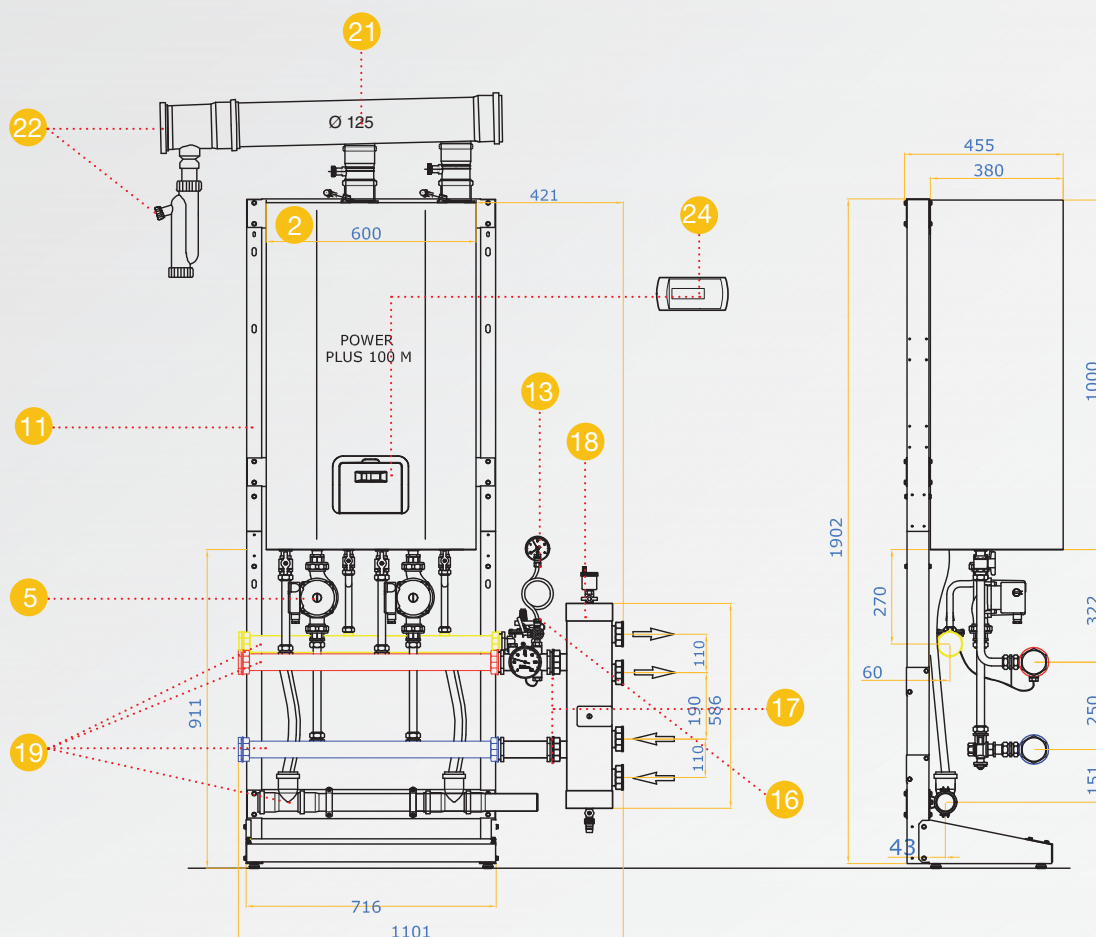


This scheme has only an indication purpose

diagram ref.	code	description	qty	diagram ref.	code	description	qty
<b>BOILERS</b>				17	20017270	Connection pipes kit to hydraulic header/separator - 100 kW	1
1	20019155	Power Plus 50 M	1	13	20009475*	ISPESL safety kit (400 kW max.)	1
<b>USER INTERFACE</b>				16	20009486*	Gas safety cut-off valve (100 kW max.)	1
24	1102379*	Remote control	1	<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>				11	20009472	Power Plus rig (front mounting)	1
19	20017226	Hydraulic manifold kit 100 kW for Power Plus rig with blank end-flange	1	<b>FLUES</b>			
5a	20009442	Pump kit (front) for Power Plus rig	1	23	4030311	Flues collector kit Ø 125 for 50 kW	1
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		1	22	20062337	Condensate drain kit Ø 125 with tap	1
18	20017271	Hydraulic header/separator – 100 kW	1				

\* OPTIONAL component

## Stand-alone configuration - 100 kW (wall-hung or free-standing)



This scheme has only an indication purpose

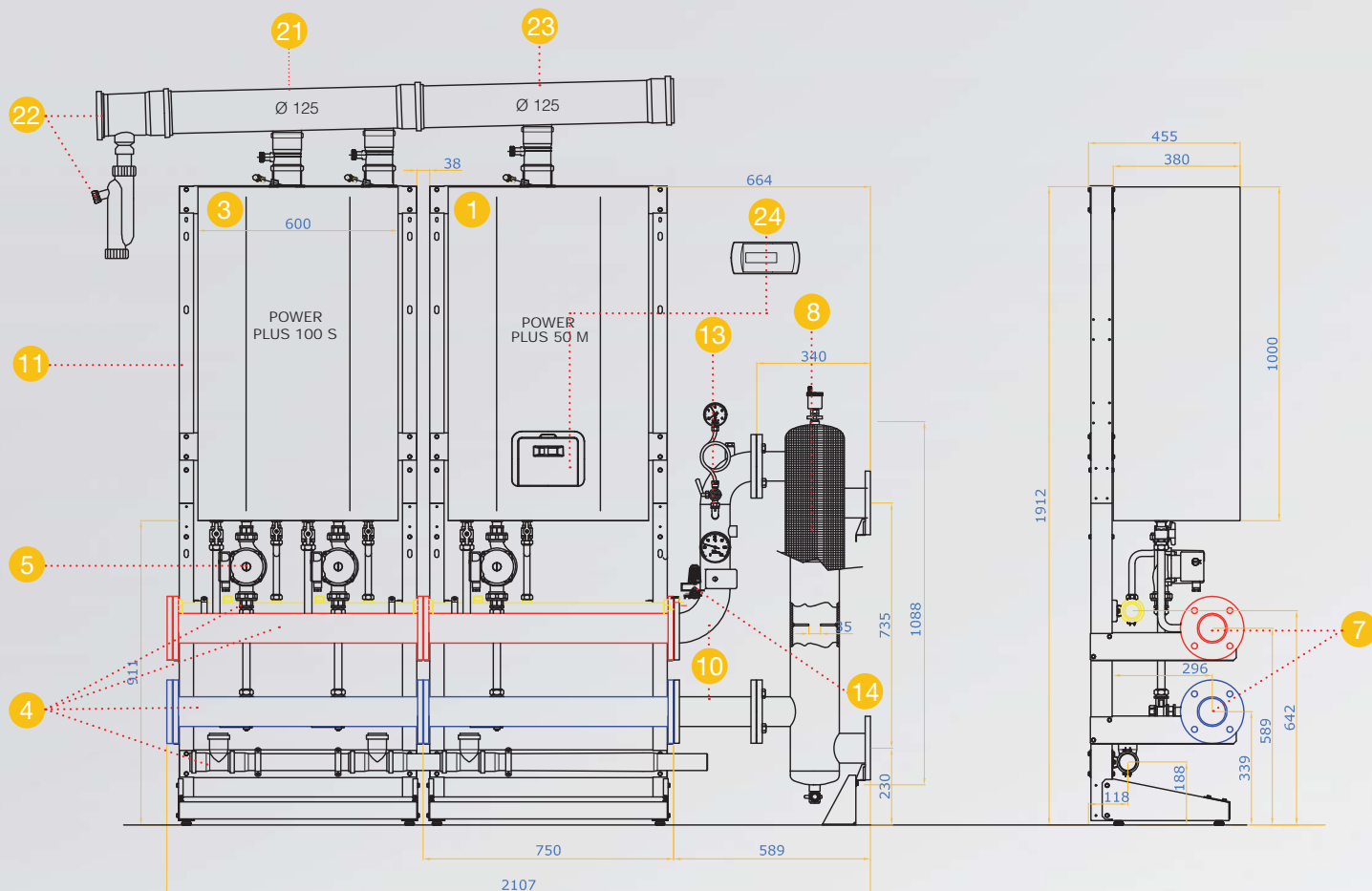
diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
19	20017226	Hydraulic manifold kit 100 kW for Power Plus rig with blank -flange	1
5a	20009442	Pump kit (front) for Power Plus rig	2
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		2
18	20017271	Hydraulic header/seperator – 100 kW	1

\* OPTIONAL component

diagram ref.	code	description	qty
17	20017270	Connection pipes kit to hydraulic header/seperator - 100 kW	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
16	20009486*	Gas safety cut-off valve (100 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	1
<b>FLUES</b>			
21	4030312	Flues collector kit Ø 125 for 100 kW	1
22	20062337	Condensate drain kit Ø 125 with tap	1

# Power Plus

## Linear cascade configuration - 150 kW (wall-hung or free-standing)



This scheme has only an indication purpose

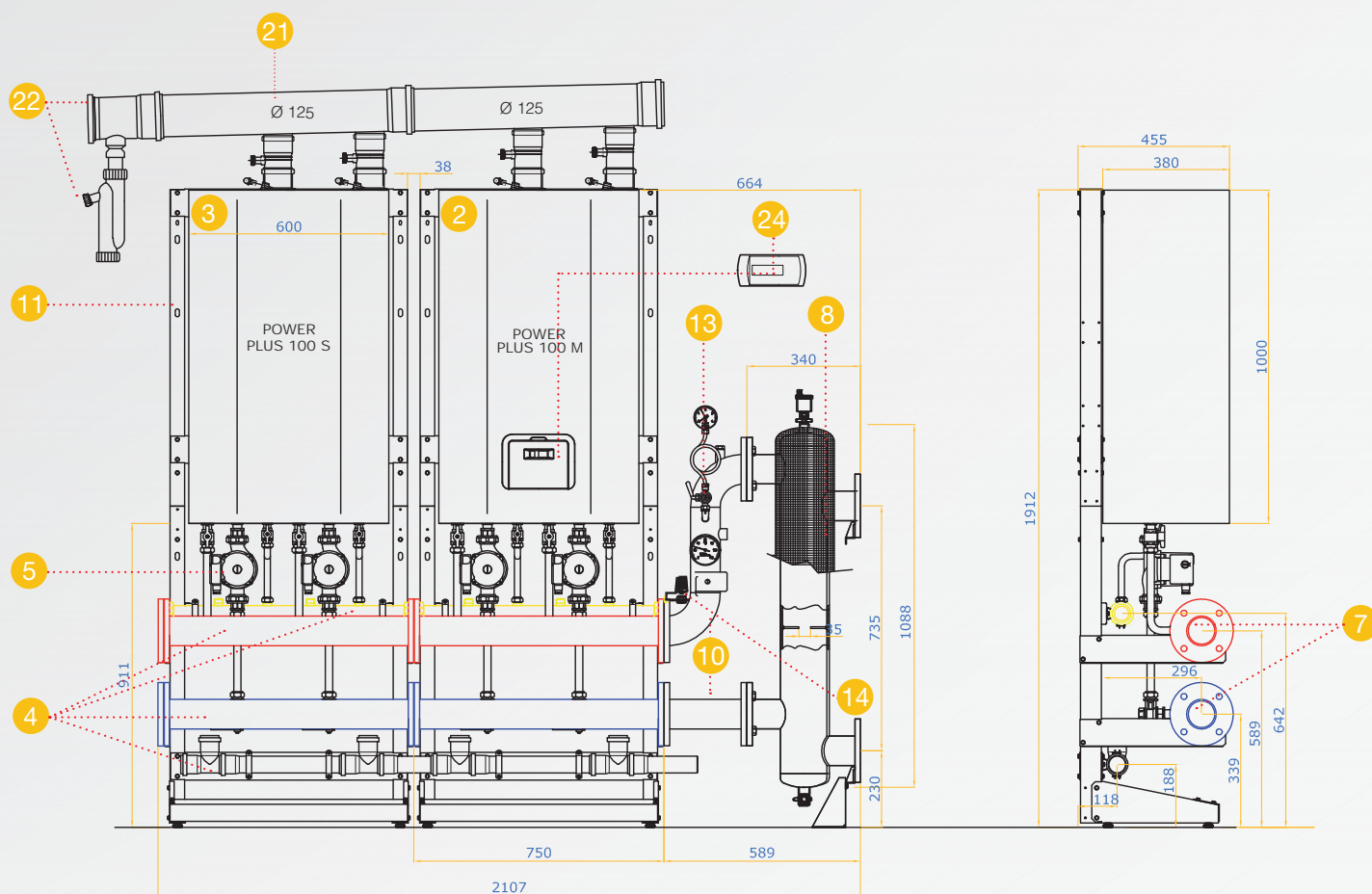
diagram ref.	code	description	qty
<b>BOILERS</b>			
1	20019155	Power Plus 50 M	1
3	20019309	Power Plus 100 S	1
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	3
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		3

\* OPTIONAL component

diagram ref.	code	description	qty
8	20009466	Hydraulic header/separator – 150-200 kW	1
10	20009471	ISPEL hydraulic manifold	1
13	20009475*	ISPEL safety kit (400 kW max.)	1
14	20009482*	Gas safety cut-off valve (200 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	1
22	20062337	Condensate drain kit Ø 125 with tap	1



## Linear cascade configuration - 200 kW (wall-hung or free-standing)



This scheme has only an indication purpose

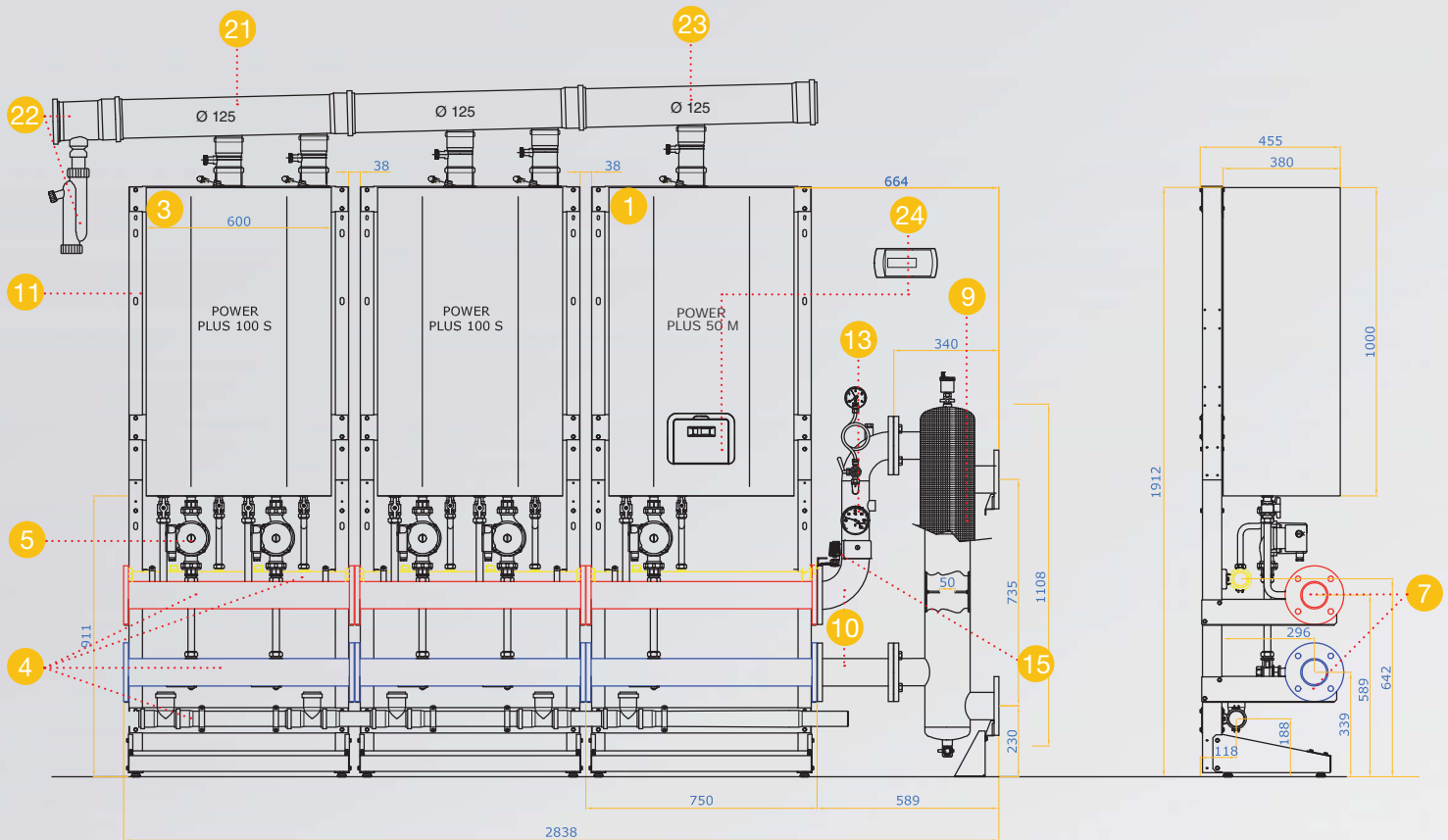
diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
3	20019309	Power Plus 100 S	1
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	4
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		4

diagram ref.	code	description	qty
8	20009466	Hydraulic header/separator – 150-200 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
14	20009482*	Gas safety cut-off valve (200 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
<b>FLUES</b>			
21	4030312	Flues collector kit Ø 125 for 100 kW	2
22	20062337	Condensate drain kit Ø 125 with tap	1

\* OPTIONAL component

# Power Plus

## Linear cascade configuration - 250 kW (wall-hung or free-standing)



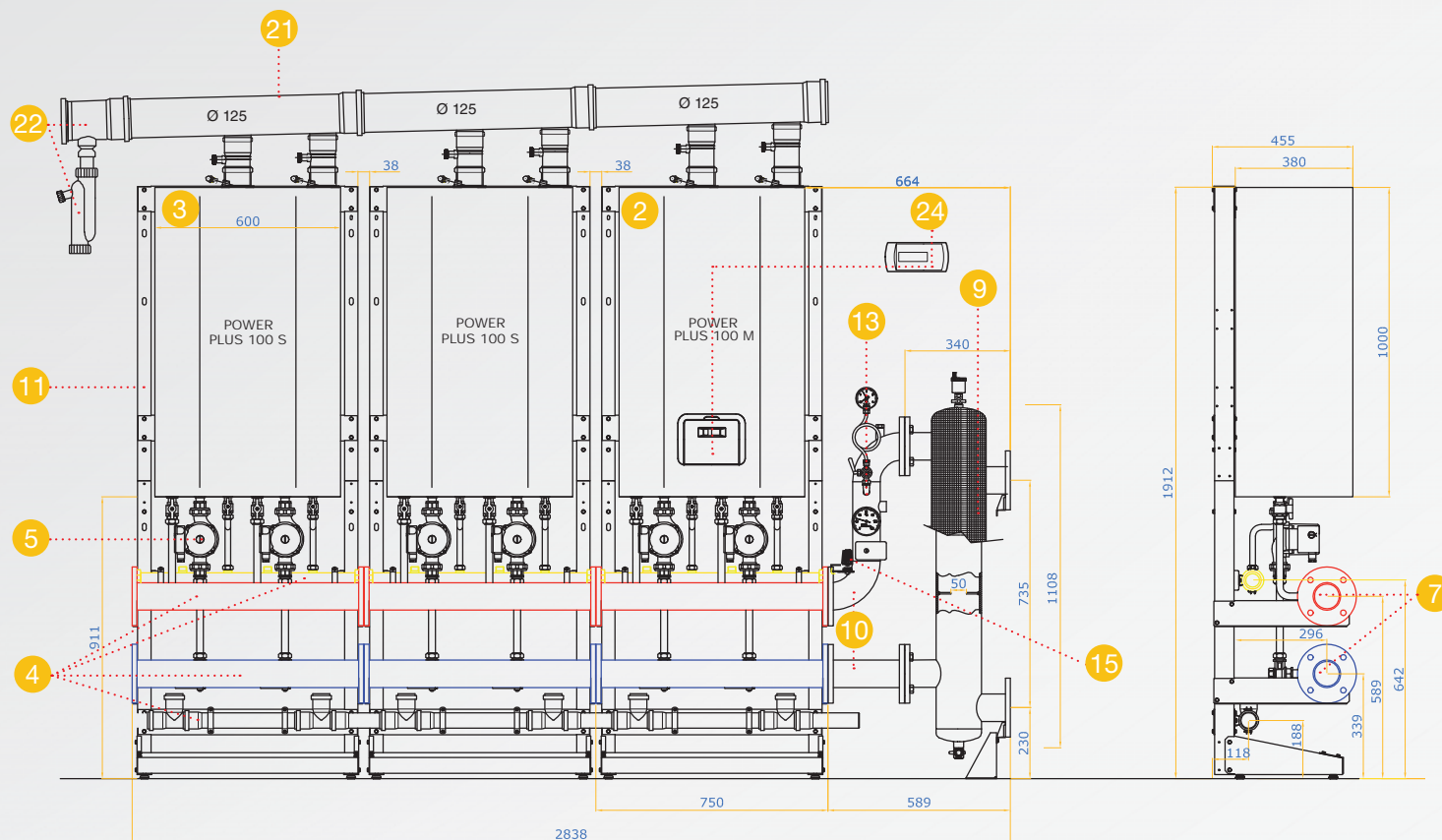
This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
1	20019155	Power Plus 50 M	1
3	20019309	Power Plus 100 S	2
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	3
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	5
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		5

diagram ref.	code	description	qty
9	20009467	Hydraulic header/seperator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	3
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	2
22	20062337	Condensate drain kit Ø 125 with tap	1

\* OPTIONAL component

## Linear cascade configuration - 300 kW (wall-hung or free-standing)



This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
3	20019309	Power Plus 100 S	2
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	3
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	6
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		6

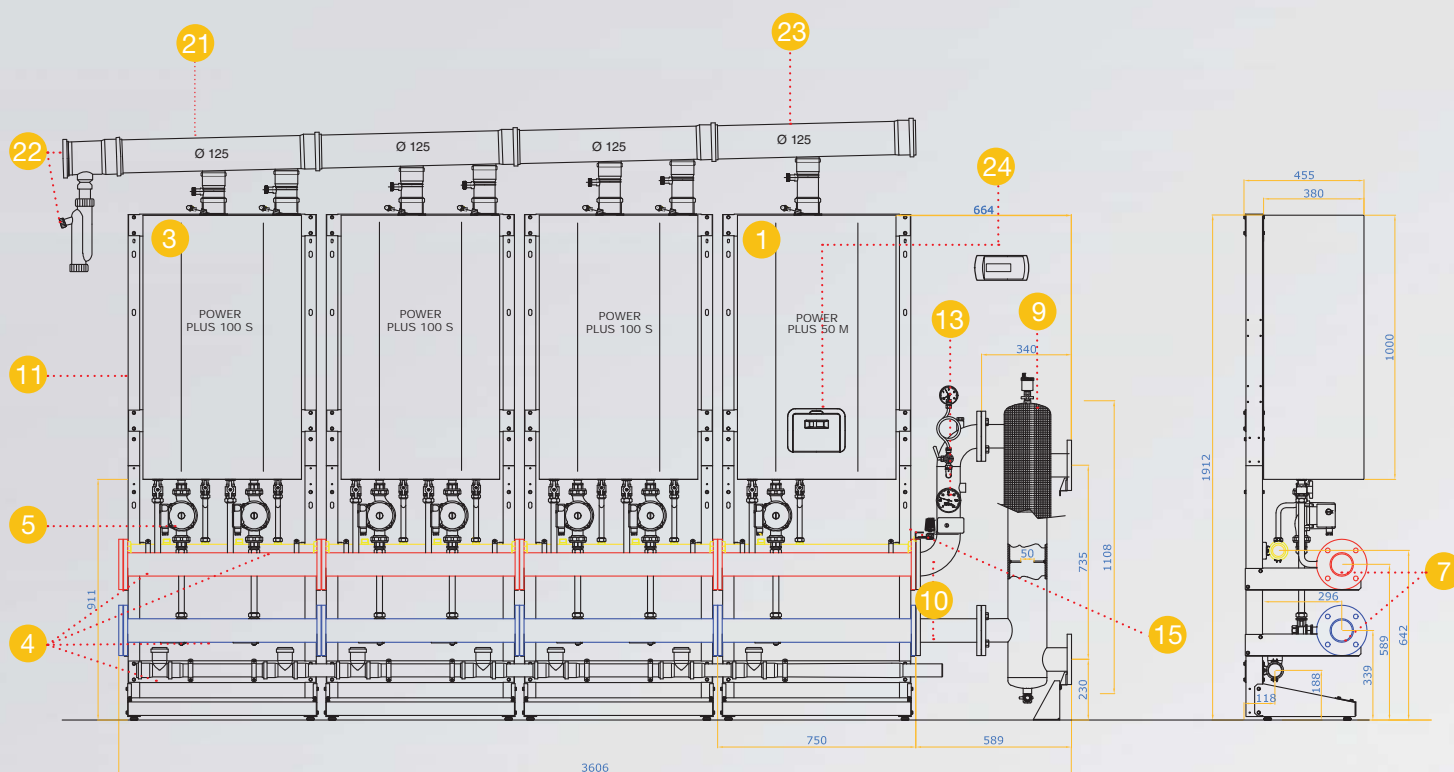
diagram ref.	code	description	qty
9	20009467	Hydraulic header/separator - 250-400 kW	1
10	20009471	ISPEL hydraulic manifold	1
13	20009475*	ISPEL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	3
<b>FLUES</b>			
21	4030312	Flues collector kit Ø 125 for 100 kW	3
22	20062337	Condensate drain kit Ø 125 with tap	1

\* OPTIONAL component



# Power Plus

## Linear cascade configuration - 350 kW (wall-hung or free-standing)



This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
1	20019155	Power Plus 50 M	1
3	20019309	Power Plus 100 S	3
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	4
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	7
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		7

diagram ref.	code	description	qty
9	20009467	Hydraulic header/separator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1
<b>SUPPORTS for LINEAR WALL-HUNG or FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	4
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	3
22	20062337	Condensate drain kit Ø 125 with tap	1

\* OPTIONAL component



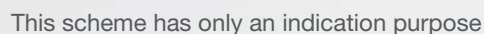
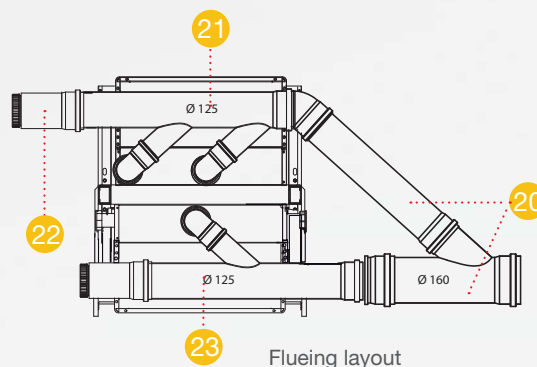


diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	1
12	20009474	Rear mounting kit for Power Plus free-standing rig	1
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	1
20	20017306	Flues collector kit for frontal/rear installation	1
22	20062337	Condensate drain kit Ø 125 whit tap	2



## Back-to-back free-standing cascade configuration - 200 kW

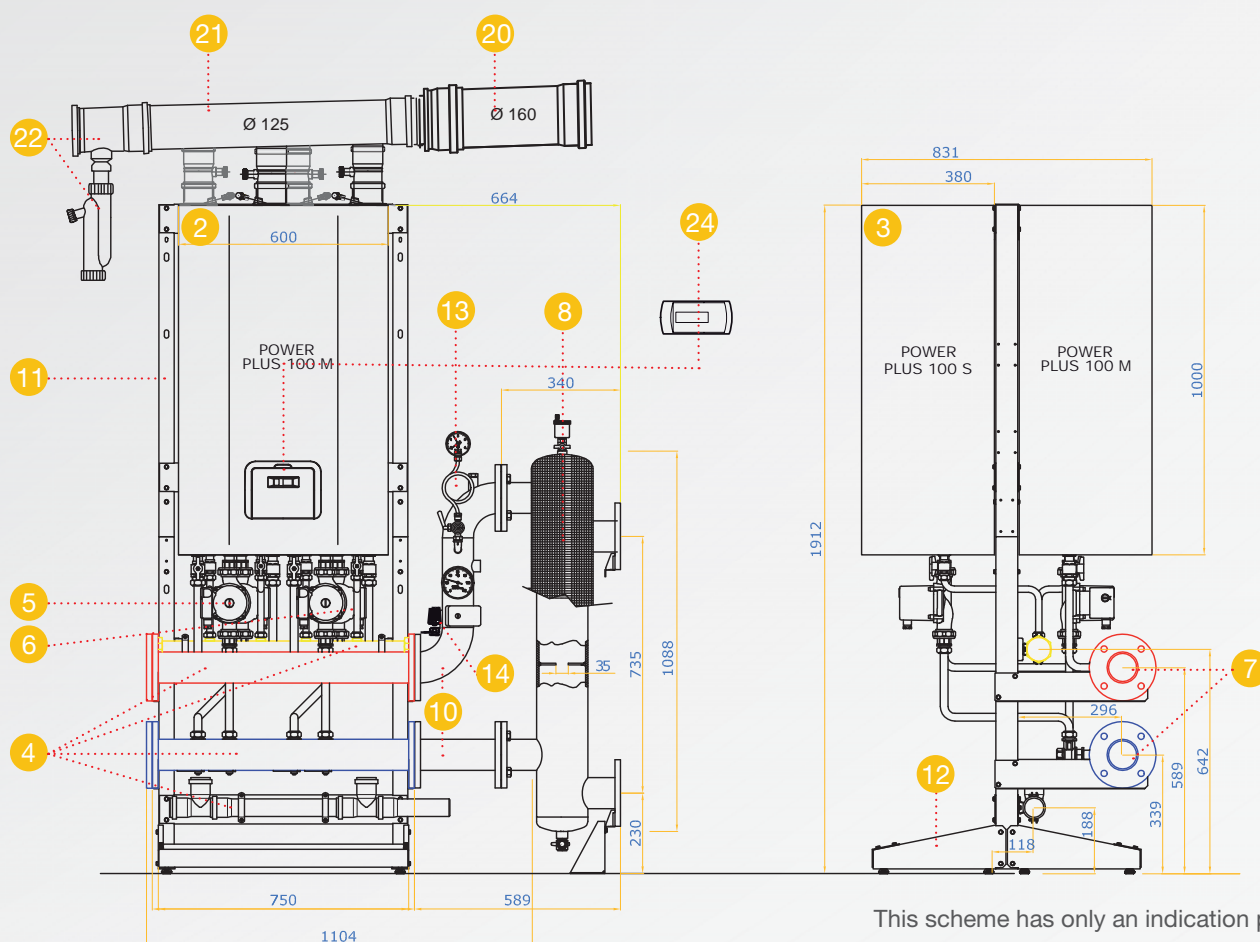
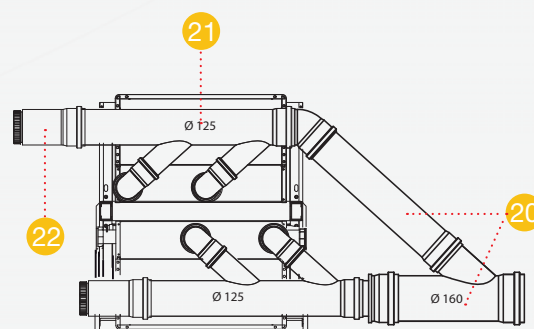


diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
3	20019309	Power Plus 100 S	1
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	1
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	2
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		2
6a	20009443	Pump kit (rear) for Power Plus rig	2
6b	or LOW ENERGY pump kit (rear) for Power Plus rig (see page 74)		2
8	20009466	Hydraulic header/separator - 150-200 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
14	20009482*	Gas safety cut-off valve (200 kW max.)	1

diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	1
12	20009474	Rear mounting kit for Power Plus free-standing rig	1
<b>FLUES</b>			
21	4030312	Flues collector kit Ø 125 for 100 kW	2
20	20017306	Flues collector kit for frontal/rear installation	1
22	20062337	Condensate drain kit Ø 125 whit tap	2

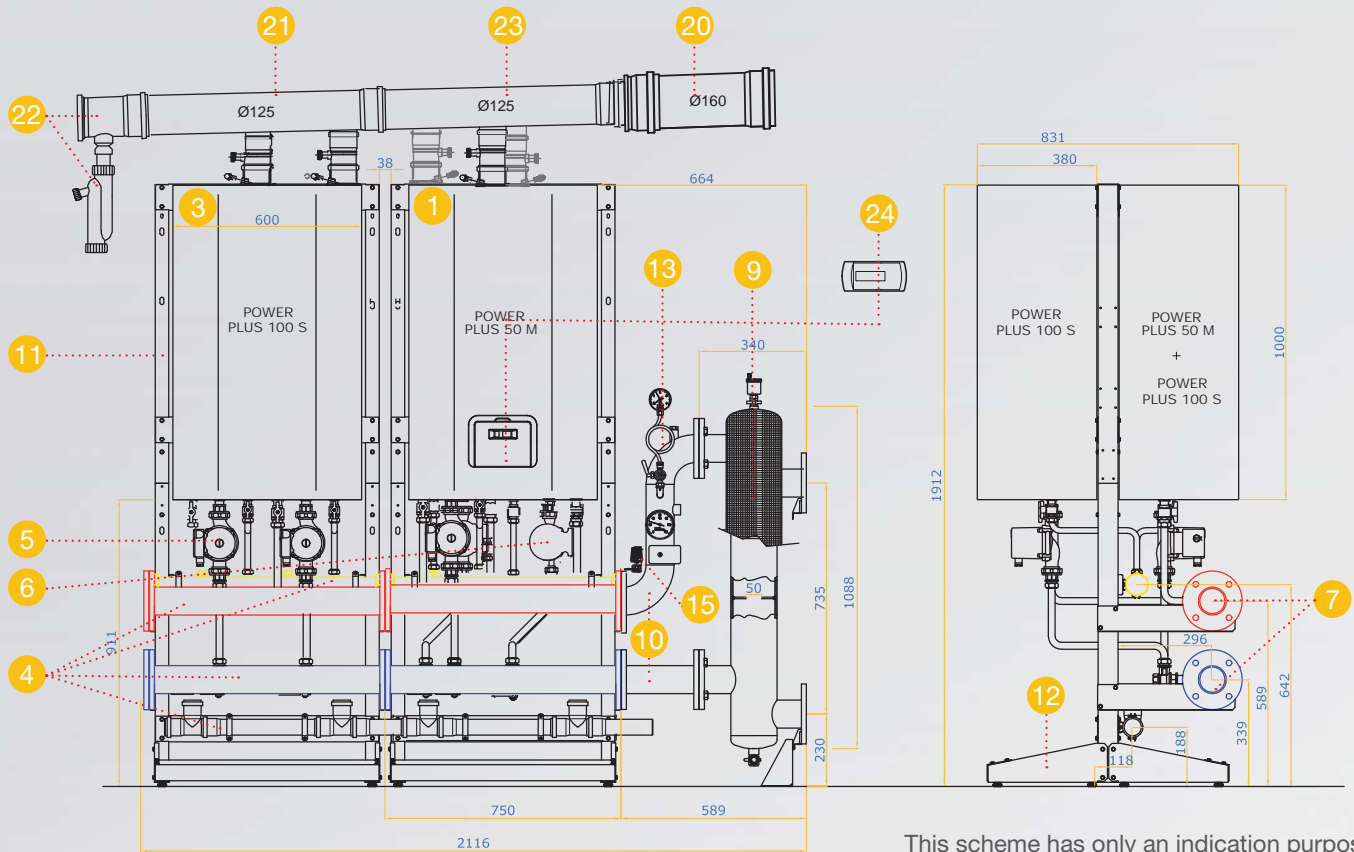


Flueing layout

\* OPTIONAL component



## Back-to-back free-standing cascade configuration - 250 kW

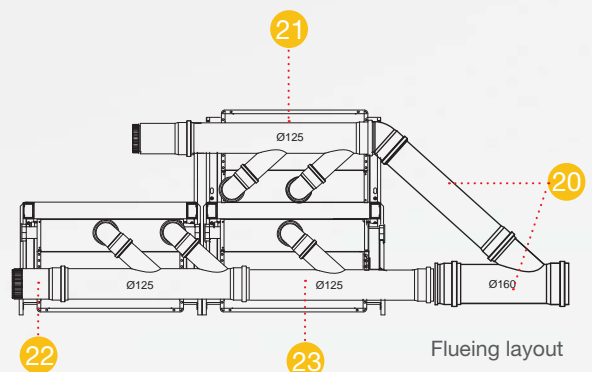


This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
1	20019155	Power Plus 50 M	1
3	20019309	Power Plus 100 S	2
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	3
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		3
6a	20009443	Pump kit (rear) for Power Plus rig	2
6b	or LOW ENERGY pump kit (rear) for Power Plus rig (see page 74)		2
9	20009467	Hydraulic header/separator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1

\* OPTIONAL component

diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
12	20009474	Rear mounting kit for Power Plus free-standing rig	2
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	2
20	20017306	Flues collector kit for frontal/rear installation	1
22	20062337	Condensate drain kit Ø 125 whit tap	2



Flueing layout

## Back-to-back free-standing cascade configuration - 300 kW

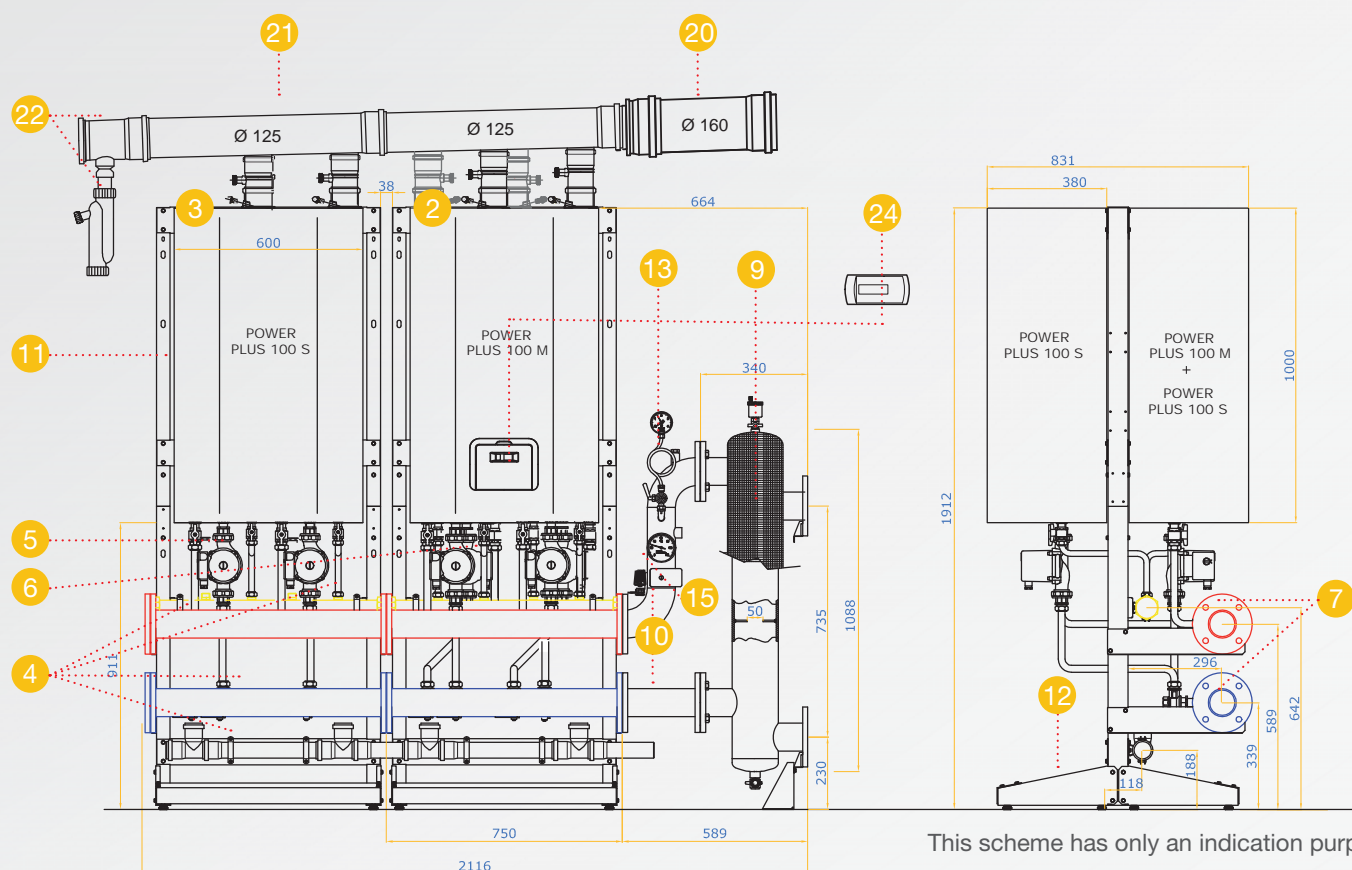
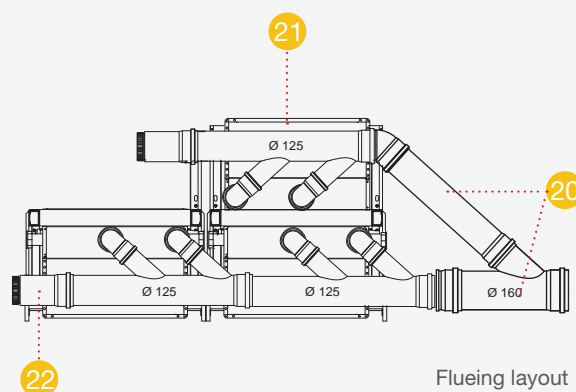


diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
3	20019309	Power Plus 100 S	2
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	4
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		4
6a	20009443	Pump kit (rear) for Power Plus rig	2
6b	or LOW ENERGY pump kit (rear) for Power Plus rig (see page 74)		2
9	20009467	Hydraulic header/separator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1

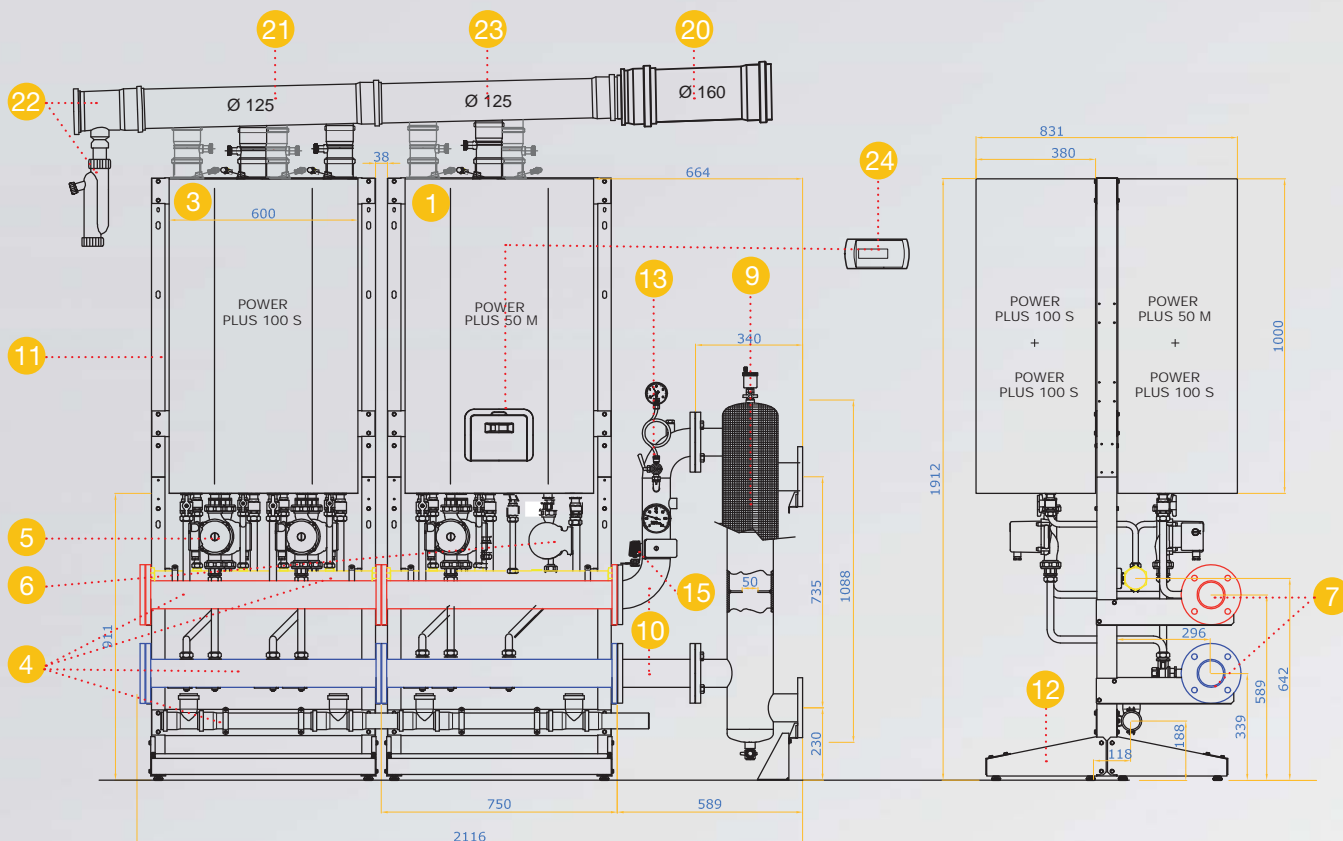
\* OPTIONAL component

diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
12	20009474	Rear mounting kit for Power Plus free-standing rig	2
<b>FLUES</b>			
20	20017306	Flues collector kit for frontal/rear installation	1
21	4030312	Flues collector kit Ø 125 for 100 kW	3
22	20062337	Condensate drain kit Ø 125 whit tap	2



Flueing layout

## Back-to-back free-standing cascade configuration - 350 kW

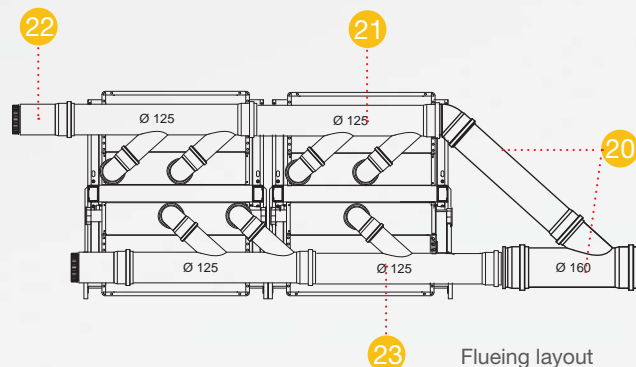


This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
1	20019155	Power Plus 50 M	1
3	20019309	Power Plus 100 S	3
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	3
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		3
6a	20009443	Pump kit (rear) for Power Plus rig	4
6b	or LOW ENERGY pump kit (rear) for Power Plus rig (see page 74)		4
9	20009467	Hydraulic header/separator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1

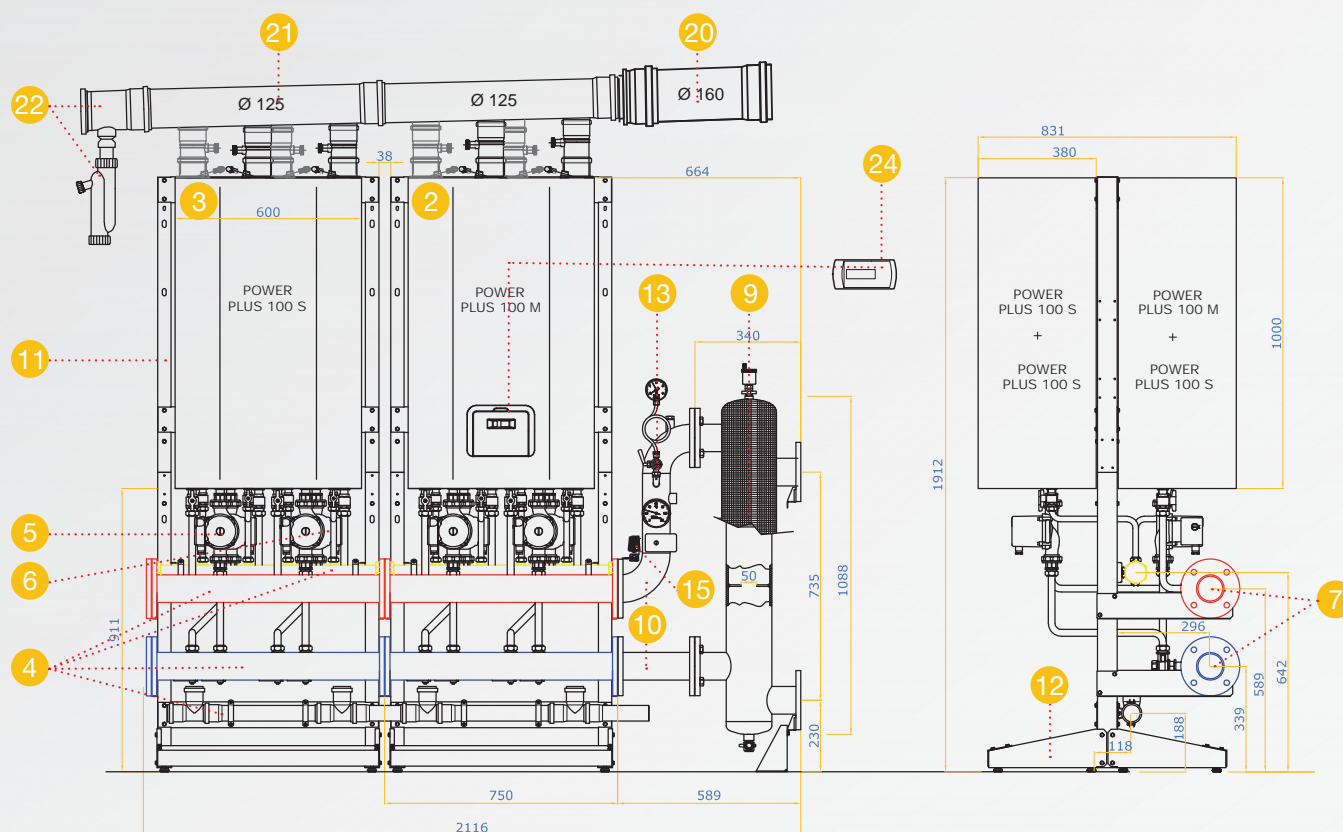
\* OPTIONAL component

diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
12	20009474	Rear mounting kit for Power Plus free-standing rig	2
<b>FLUES</b>			
23	4030311	Flues collector kit Ø 125 for 50 kW	1
21	4030312	Flues collector kit Ø 125 for 100 kW	3
20	20017306	Flues collector kit for frontal/rear installation	1
22	20062337	Condensate drain kit Ø 125 whit tap	2



Flueing layout

## Back-to-back free-standing cascade configuration - 400 kW

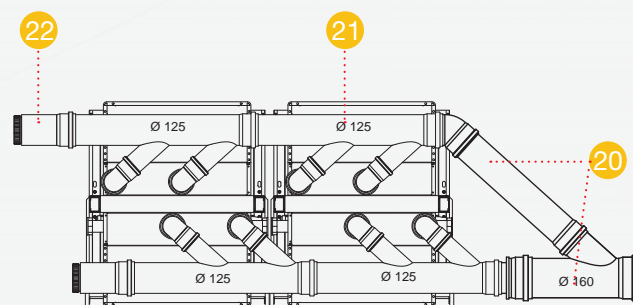


This scheme has only an indication purpose

diagram ref.	code	description	qty
<b>BOILERS</b>			
2	20019200	Power Plus 100 M	1
3	20019309	Power Plus 100 S	3
<b>USER INTERFACE</b>			
24	1102379*	Remote control	1
<b>HYDRAULIC COMPONENTS and SAFETY DEVICES</b>			
4	20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	2
7	20009444	Blank end-flange kit for hydraulic manifold	1
5a	20009442	Pump kit (front) for Power Plus rig	4
5b	or LOW ENERGY pump kit (front) for Power Plus rig (see page 74)		4
6a	20009443	Pump kit (rear) for Power Plus rig	4
6b	or LOW ENERGY pump kit (rear) for Power Plus rig (see page 74)		4
9	20009467	Hydraulic header/seperator - 250-400 kW	1
10	20009471	ISPESL hydraulic manifold	1
13	20009475*	ISPESL safety kit (400 kW max.)	1
15	20009483*	Gas safety cut-off valve (400 kW max.)	1

\* OPTIONAL component

diagram ref.	code	description	qty
<b>SUPPORTS for BACK-TO-BACK FREE-STANDING MOUNTING</b>			
11	20009472	Power Plus rig (front mounting)	2
12	20009474	Rear mounting kit for Power Plus free-standing rig	2
<b>FLUES</b>			
21	4030312	Flues collector kit Ø 125 for 100 kW	4
20	20017306	Flues collector kit for frontal/rear installation	1
22	20062337	Condensate drain kit Ø 125 whit tap	2

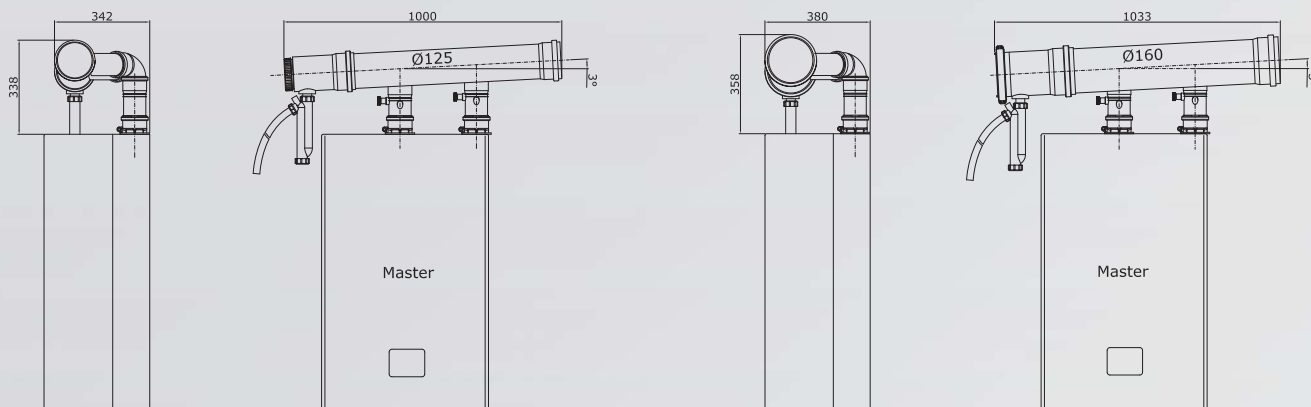


Flueing layout

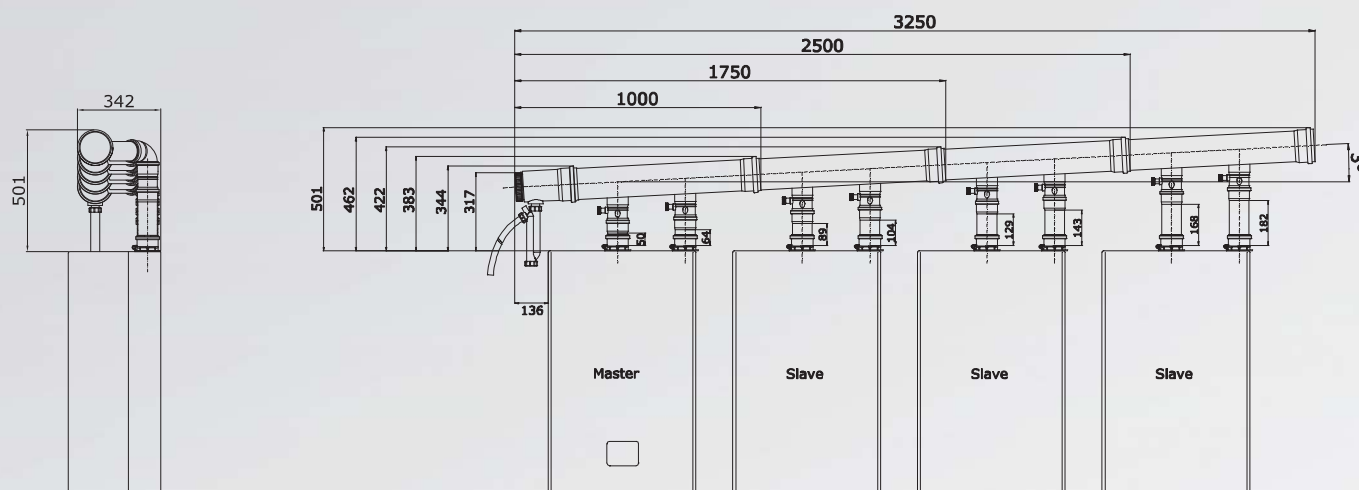


# Flue guidance: dimensions inside the plant room

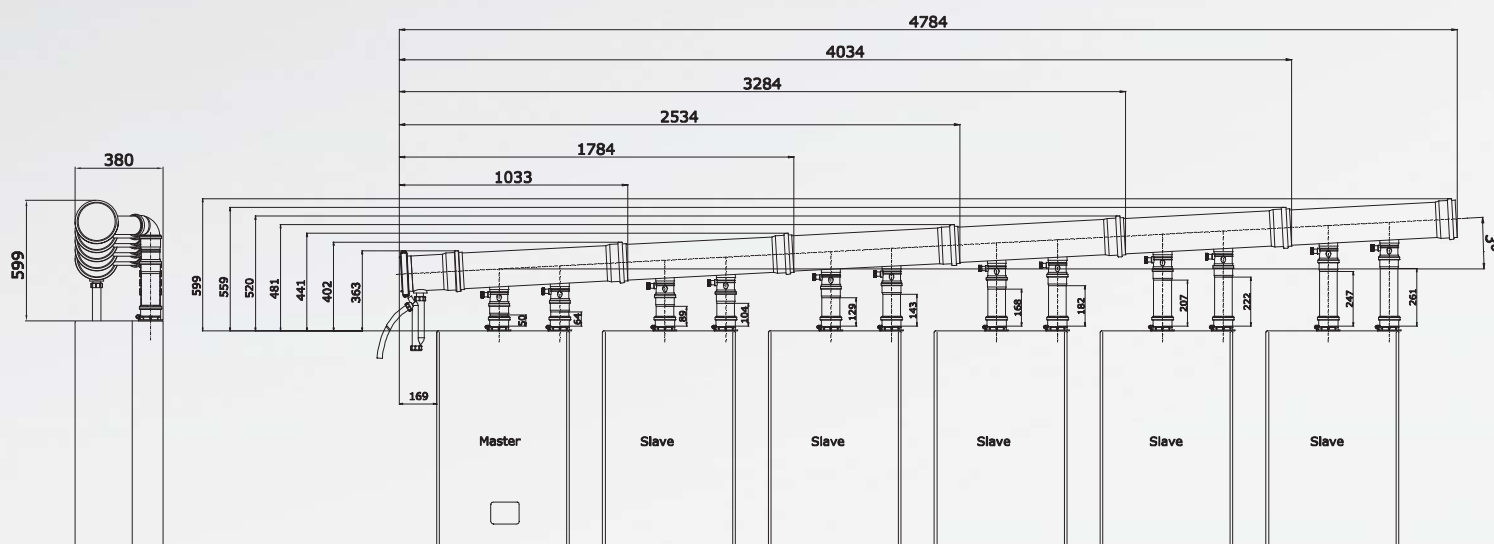
## Ø125 and Ø160, Stand-alone configuration



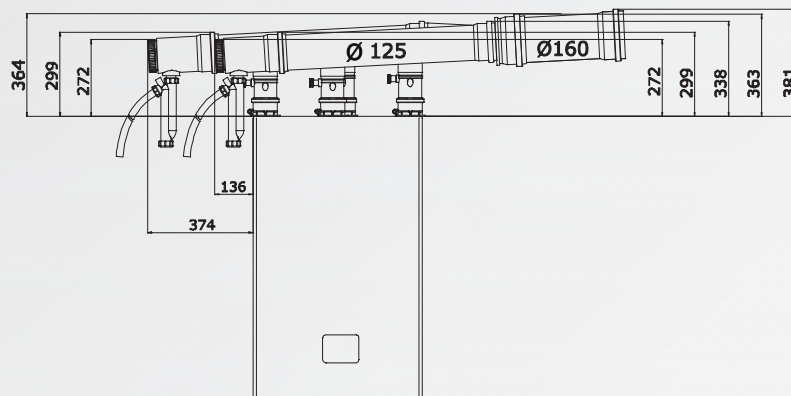
## Ø125 Linear, wall hung and free standing configuration



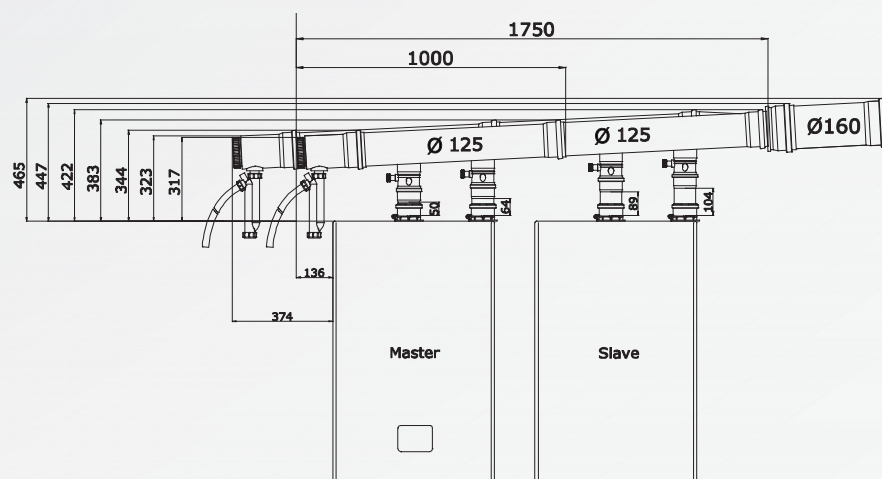
## Ø160 Linear, wall hung and free standing configuration



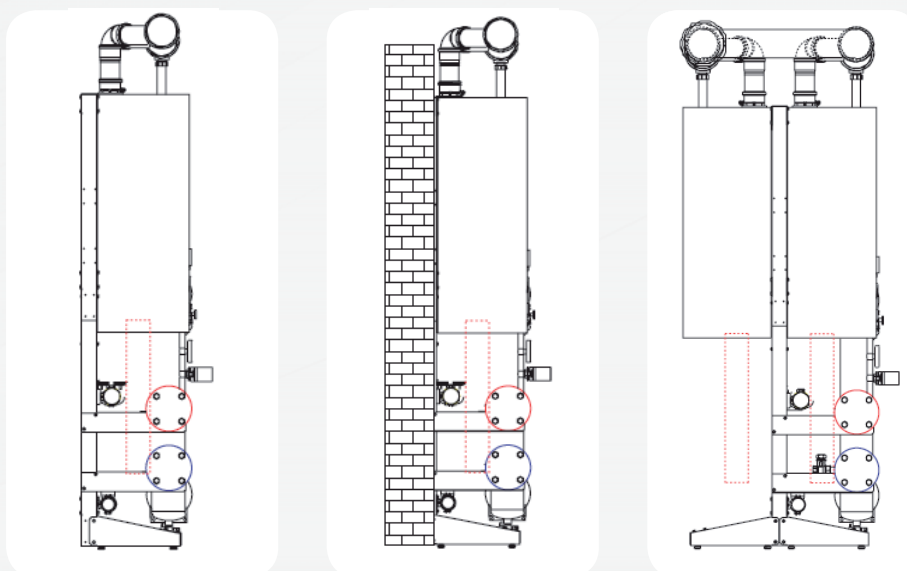
## Ø125 Back to back up to 200 kW configuration



## Ø125 Back to back up to 400 kW configuration



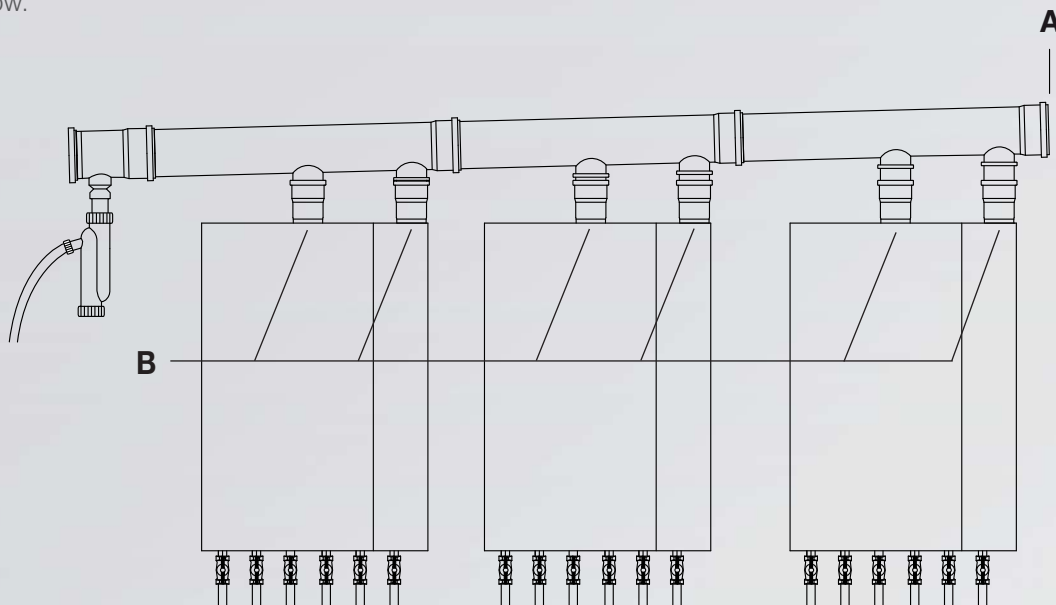
## Lateral views



# Flue guidance: flue gas outlet and combustion air intake

## Air intake and vent pipe sizes

The high-head fan of Power Plus gives a residual head of 560 Pa in the point “B”, that becomes 380 Pa in the point “A”. This allows to reach considerable flue pipes lengths using reduced ducts diameters, as detailed in the table below.



⚠ Measurements obtained using the pipes with which the boiler was homologated, downstream from the flue gas manifold (from point “A” on).

Maximum length of pipe (m)

TOTAL installed power (kW)	with Ø 50 mm *	with Ø 125 mm	with Ø 160 mm	with Ø 200 mm
50	30	55	60	100
100	-	55	60	100
150	-	55	60	100
200	-	55	60	100
250	-	35	55	100
300	-	30	50	100
350	-	25	50	100
400	-	20	50	80
450	-	-	40	60
500	-	-	30	50
550	-	-	30	40
600	-	-	25	35
650	-	-	-	30
700	-	-	-	30
750	-	-	-	30
800	-	-	-	30


Equivalent length for other elements of pipe (m)


Type of element	with Ø 50 mm *	with Ø 125 mm	with Ø 160 mm	with Ø 200 mm
45° bend	1	1,2	1,7	1,7
87° bend	3	5	7,5	7,5
T joint	3	4	7,5	7,5

\* The same measures apply to Ø 80 mm pipe

# Preparing the condensate drain

The condensate produced by the boiler during normal operation must be drained at atmospheric pressure and must conform to any current standards and law applicable.

 Install a neutraliser where required by law.

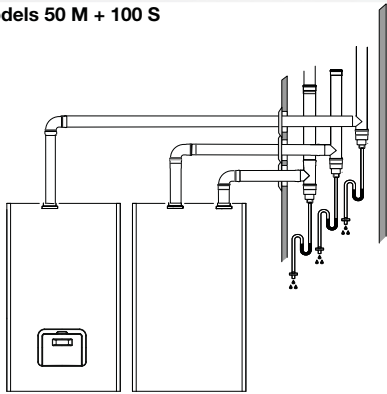
 Specific pipes for condensing boilers must be used. For installation, follow the instructions provided with the kit.

Drain trap along the drain pipe:

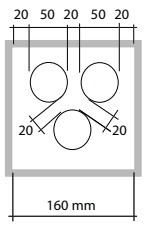
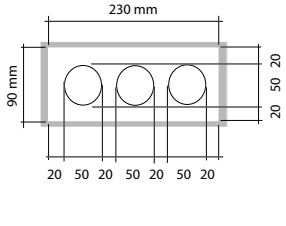
If the vertical or horizontal section of the drain pipe needs to be extended by more than 4 metres, a drain trap must be installed at the foot of the pipe. The useful height of the drain trap must be at least 300 mm. The discharge of the drain trap must then be connected to the sewerage system.

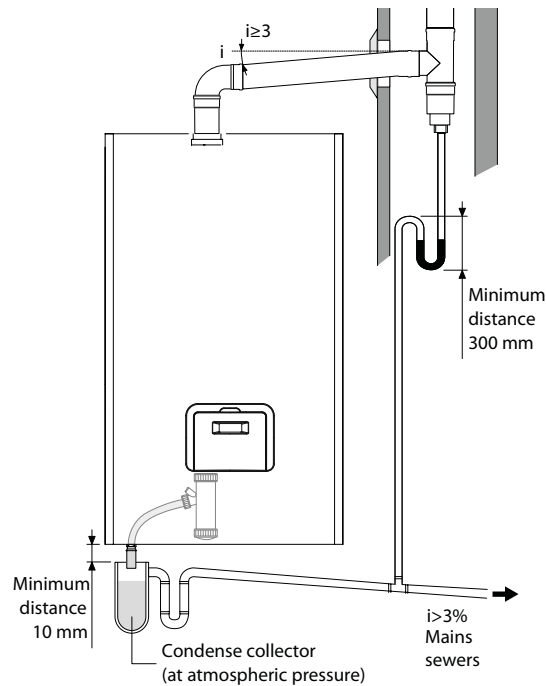
## Example of Hs 150 kW with 3x Ø 50 mm

Models 50 M + 100 S



Minimum dimensions of the compartment for the passage of three flues, diameter 50 mm

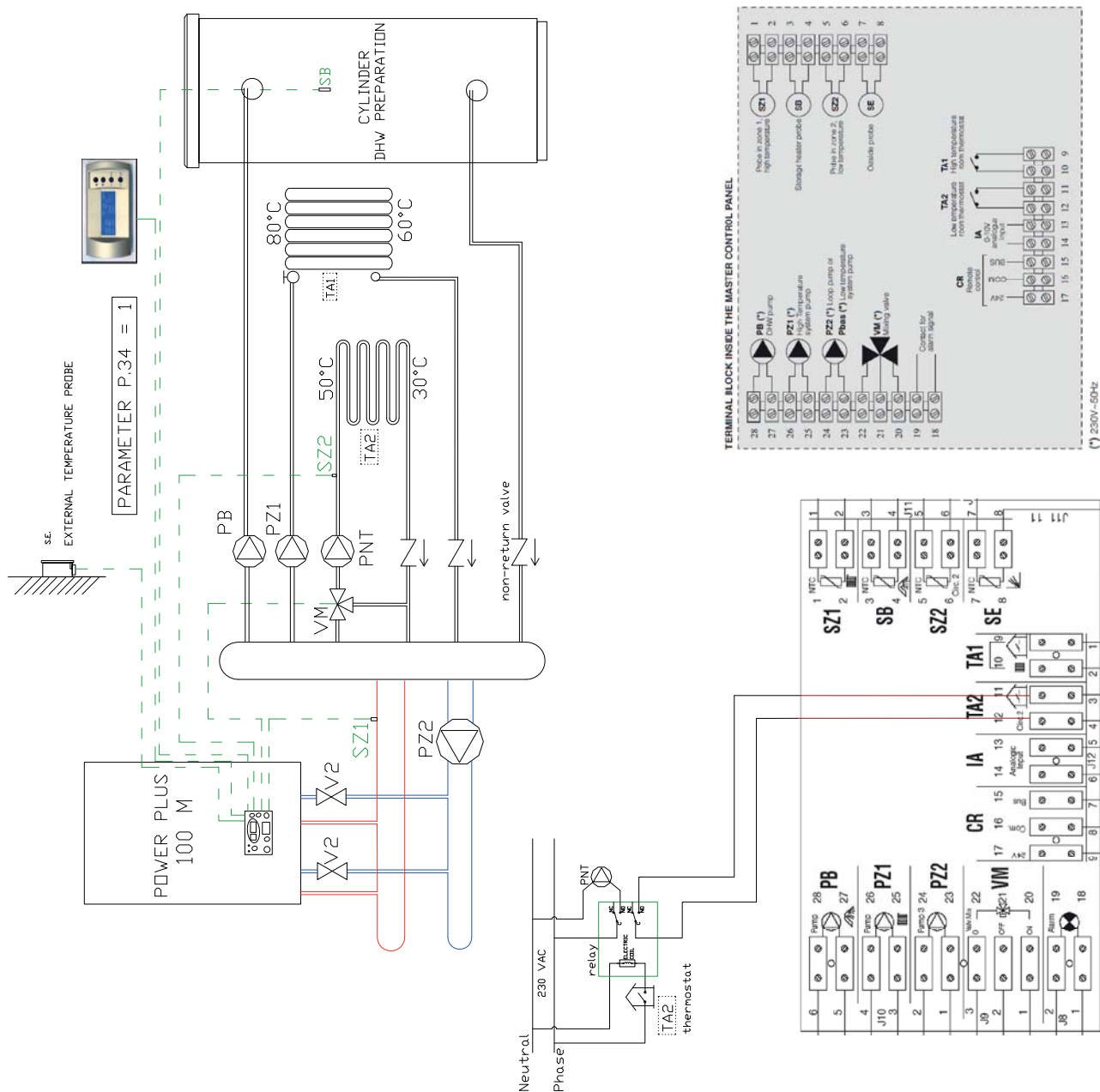
Square compartment	Rectangular compartment
	



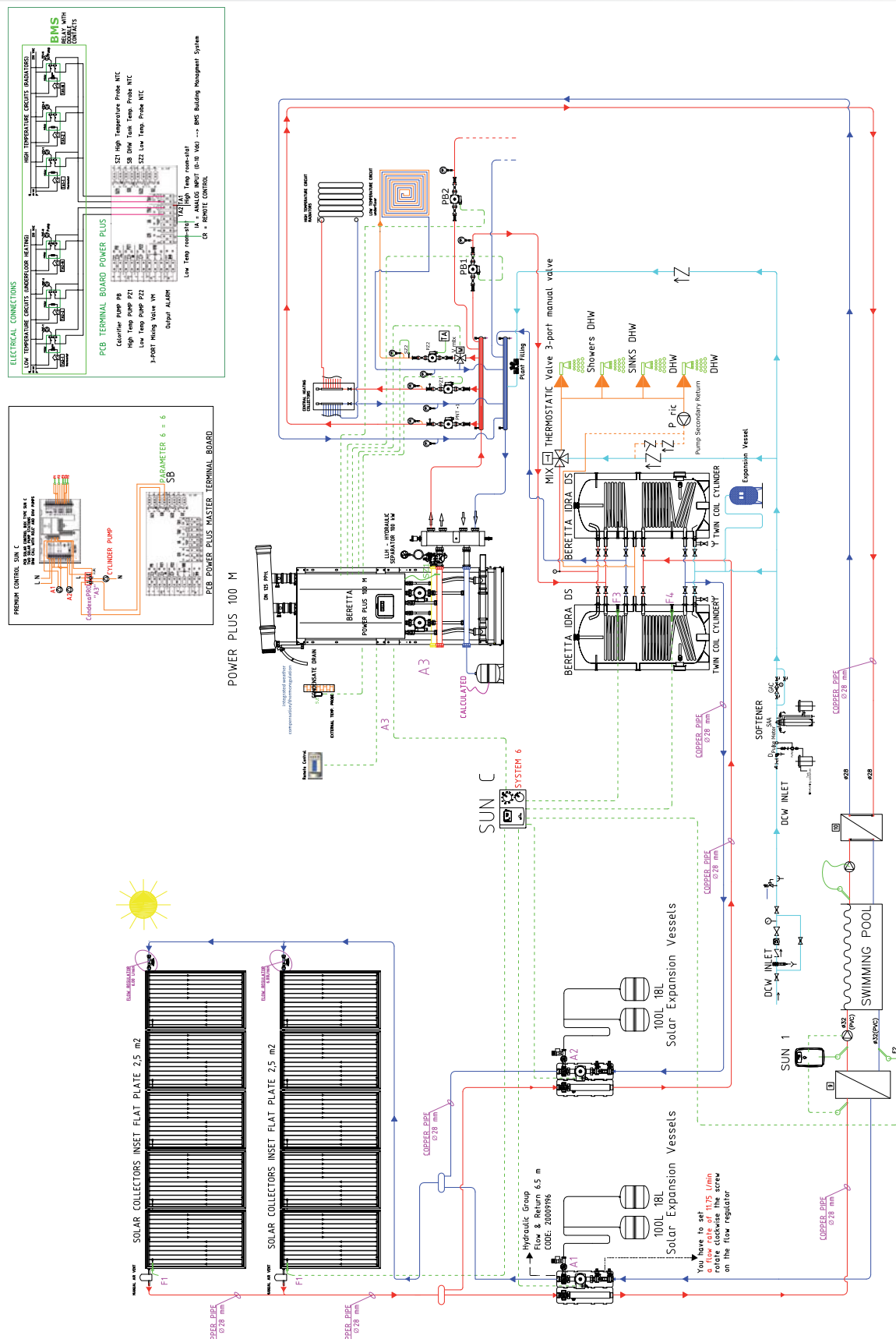


# Power Plus - Examples of installations

## Configuration with loop pump and valves on the heating units

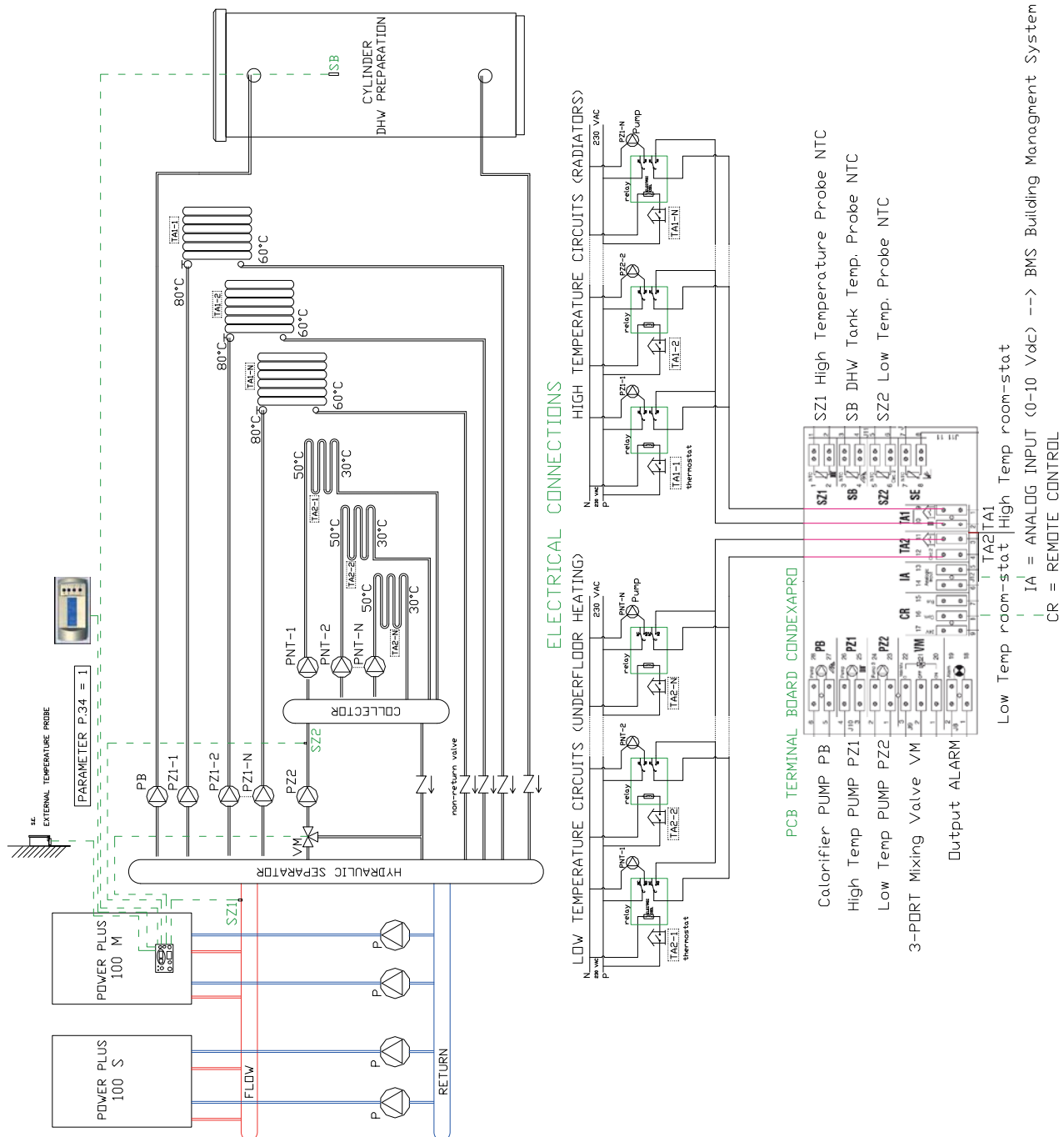


Multiple C.H. zones, solar integration for D.H.W. production and swimming pool

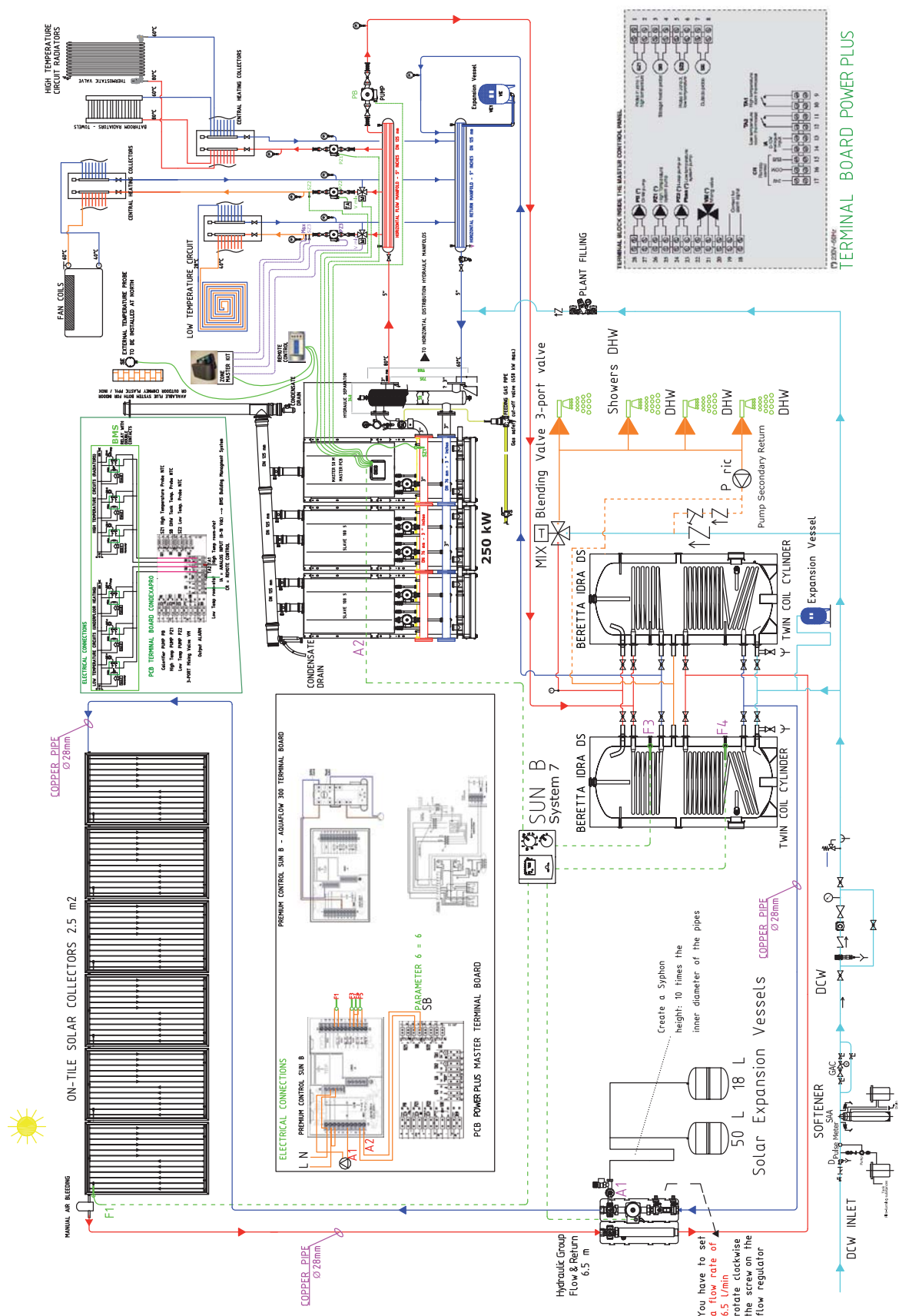


## Power Plus cascade - Examples of installations

## Multiple C.H. zones with individual pumps and D.H.W. tank



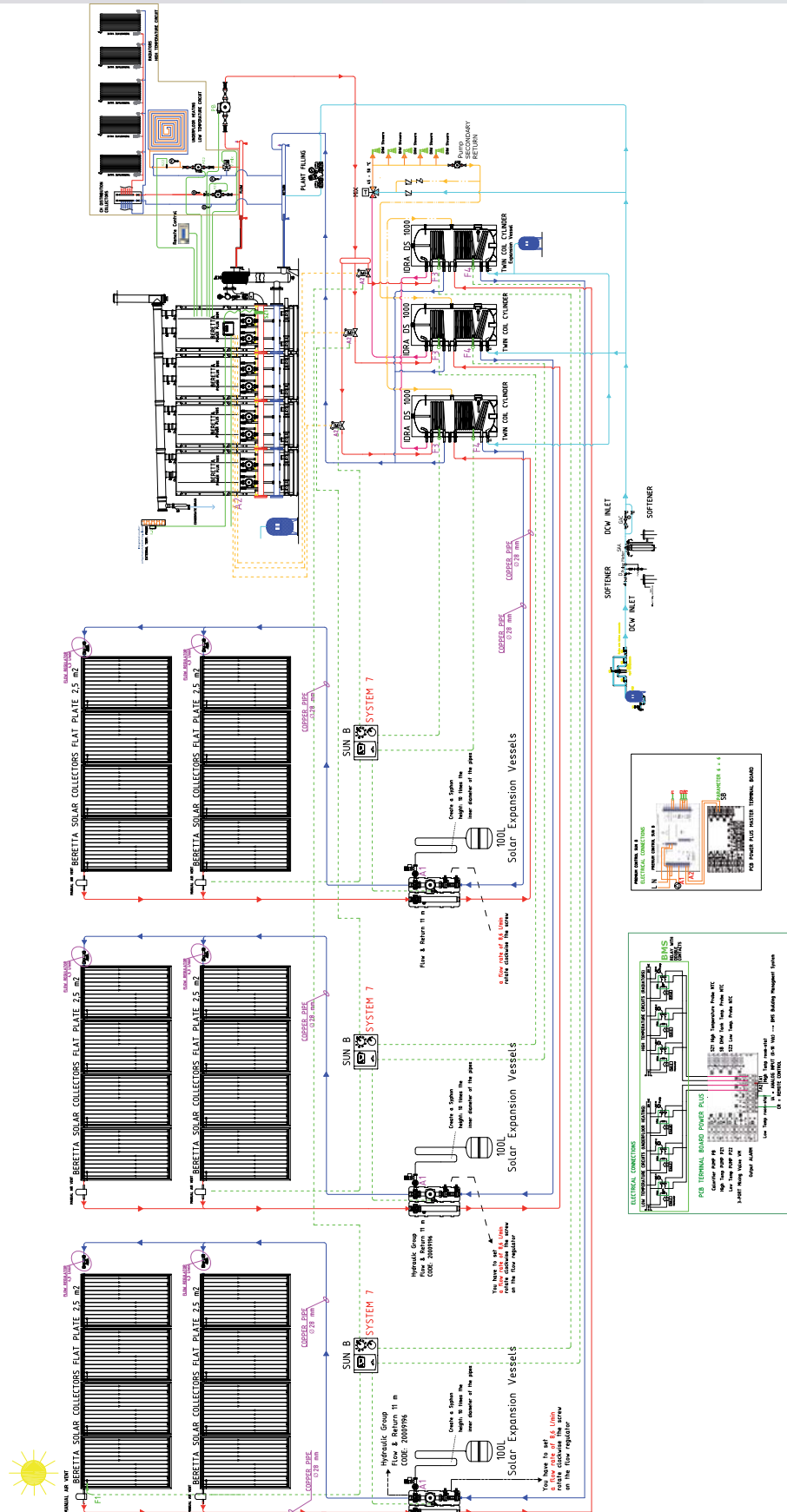
## Multiple C.H. zones, solar integration for D.H.W. production





# Power Plus cascade - Examples of installations

Multiple C.H. zones, solar integration for D.H.W. production



## 500-series

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### Pre-Assembled BOXES

# Power Plus Box (500-series)

The efficiency of our condensing technology



Beretta **Power Plus Box** is a pre-assembled box based on the 500-series thermal group: condensing, pre-mixed, air blown, modulating combustion.

Available for INDOOR and OUTDOOR installations.

Power Plus Box range achieved an Efficiency ★★★★★  
according to European Directive EEC 92/42.

Gas Directive EEC 90/396

Low voltage Directive EEC 89/336

Electromagnetic compatibility Directive EEC 73/23

### Characteristics and advantages at a glance

- Possibility to combine Power Plus Box (500-series) in cascade to reach up to 3 MW of total power.
- All the boxes are already assembled and tested in our factories.
- In-line and back-to-back cascade installation of multiple boxes is possible.
- Compact in-line solution.
- All the boxes have, already fitted and connected: water and gas manifolds, flue exhaust duct (with anti-return clapet on each unit) and condensate evacuation line.
- These units boast latest generation electronic control, modularity and versatility, thus ensuring the installer a quick connection to any type of heating and hot water storage

system as it simultaneously controls three different circuits, each operating at a different temperature.

- Power Plus Box units are designed to provide water to 3 different circuits at different temperatures either supplied as direct take off's or via a header system utilizing controls as required. With this in mind suggested usage are DHW, High Temperature (heating) and Low Temperature (under-floor heating). It is possible to add up to further 8 zones with the use of specific accessories.

- Modulating and modular power regulation.

- Minimum polluting emissions, thanks to the controlled pre-mix burner and the micro-flame burner

combination, allowing Power Plus to achieve Class 5 of the UNI EN 677 standard (best European category in ecological terms).

- Water drain built-in as standard in the boiler for each heating unit.

- Built-in temperature control and external probe as standard.

- Can work with water-glycole mixture up to 50%.

- Automatic burner ignition sequence reversal.

- Anti-legionnaires' disease function (only available with room-control kit).

- Frost-protection system.



# Power Plus Box

## Ten reasons why a Power Plus Box system is the logical choice

Beretta Power Plus Box, thanks to its modularity and specific features, can be considered the best solution for light commercial applications, both in the new buildings and as replacement of old floor standing boilers. More than one box can be connected in cascade (except SIS models) so to obtain extremely high powers.

### Maximum efficiency at any time

The efficiency of a Power Plus Box is significantly higher than a traditional single boiler installation with the same output. In fact, by controlling automatically the number of boilers in operation, the system can optimise the heat supply according to demand at any particular time. For instance in spring and autumn, when the heat request is lower, or in buildings like hotels and restaurants, where the heat request is not constant, the system can switch on and off the individual boilers, ensuring the maximum efficiency.

### Maximum peace of mind

Power Plus Box is more reliable than a traditional individual boiler installation. As each combustion unit of the Box can be individually serviced and maintained, in the event of a fault or maintenance on one combustion unit, the other boilers of the cascade are still able to operate without loss of heating.

### Maximum savings

High efficiency of the in-Box cascade and top condensing technology of the boilers allow you to save so much energy in daily use that the costs of the heating system are recovered in a few years. In addition, reduced installation time and quick servicing result in precious savings for the end user.

### Maximum ease of servicing

Power Plus range is designed so that all components can be easily serviced and maintained from the front. Moreover, each boiler of the cascade can be individually serviced and maintained, while the other boilers of the cascade are still able to operate.

### Maximum commitment to the environment

Power Plus range achieved Class 5 of the UNI EN 677 standard (best European category in ecological terms), thanks to condensing combustion with controlled pre-mix burner and micro-flame burner combination.

A Power Plus Box can also control automatically the number of boilers in operation according to heat demand, saving energy and reducing polluting emissions.

### Maximum use of space

The in-Box cascade system of Power Plus range is designed to provide a space-saving and versatile solution for large domestic properties or light commercial buildings.

### Maximum flexibility

Power Plus Box allow installation indoor and outdoor choosing the models with the standard painted- or stainless steel- case.

Moreover there are different models according to the connections of each thermal unit with shunt-pump or two-ways valve. This last case being suitable for those applications with a single primary circulation pump.

### Maximum ease of installation

The combustion groups come already assembled in the box, together with the water, gas, condense and flue manifolds. Everything is already tested in the factory, so to give the maximum peace of mind to the installer. The SIS models have also the hydraulic separator fitted and connected in the same box of the combustion groups. The integrated flue pipe contributes to keep the total height of the cascade to compact values.

### Maximum reliability

All the components are assembled and tested in our factories, thus granting the maximum levels of quality.

The multi-combustion configuration of most of the Power Plus Box guarantees that the end user benefits of continuity of service at any time.

The extensive range of accessories carefully selected by Beretta helps the designer/installer, covering the needs of most of the installations.

### Maximum range of modulation

Up to 60 combustion units can be cascaded, so as to reach up to 3 MW of power, with a modulation down to only 16 kW.

## Power Plus Box flue exhaust

Please find hereafter some notes on the combustion flues evacuation, concerning the Beretta Power Plus Box 500-series (except SIS models).

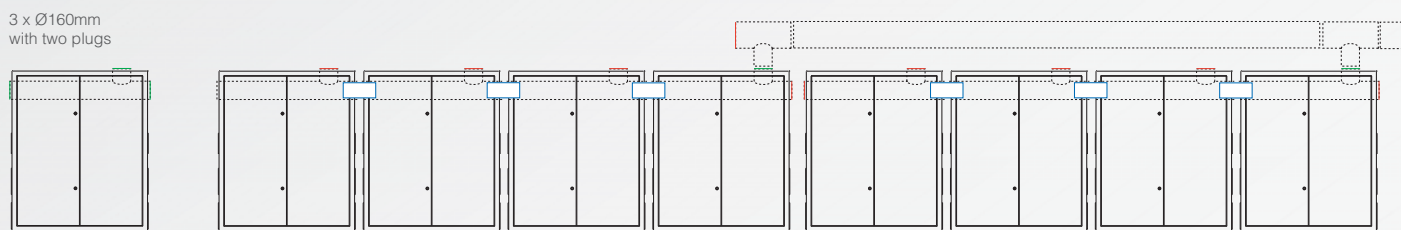
Please also refer to any applicable local regulation for further indication.

### Flue drain for INDOOR machines

The Beretta Power Plus Box for indoor applications are pre-assembled with the Ø160mm flue pipe (in PP), inside the box. In the zinc-coated and painted box are three female Ø160mm outlets, on top and on each side, through which it is possible to discharge the flues directly, or connecting to other generators of the

cascade. As a general rule, it is recommended not to go over (flue side) 800 kW Hs. Over this value it is suggested to use the top exhaust and get into a larger diameter duct (e.g. Ø200mm). The necessary connections (flue + condense) are provided in a specific kit (see relevant section).

3 x Ø160mm  
with two plugs

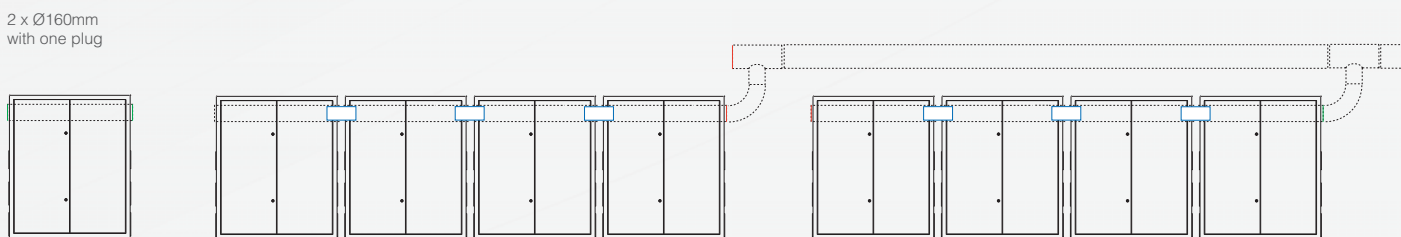


### Flue drain for OUTDOOR machines

The Beretta Power Plus Box for outdoor applications are pre-assembled with the Ø160 mm flue pipe (in PP), inside the box. In the stainless steel box are two female Ø160 mm connections, one on each side, through which it is possible to discharge the flues directly, or connecting to other generators of the cascade. As a

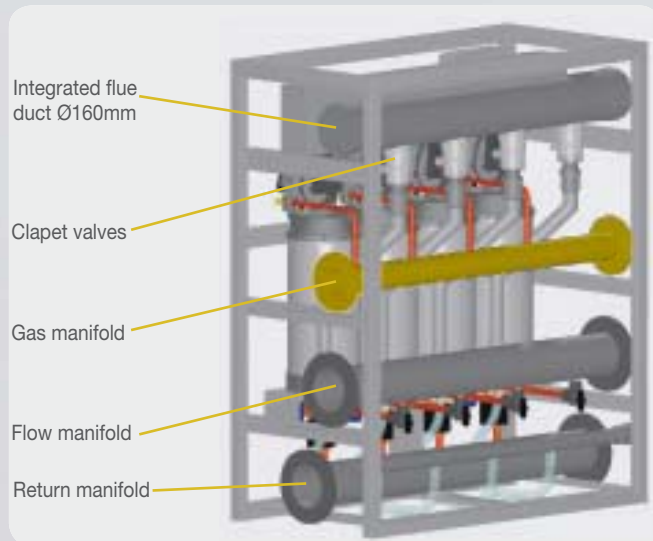
general rule, it is recommended not to go over (flue side) 800 kW Hs. Over this value it is suggested to get into a larger diameter duct (es. Ø200 mm). The necessary connections (flue + condense) are provided in a specific kit (see relevant section).

2 x Ø160mm  
with one plug



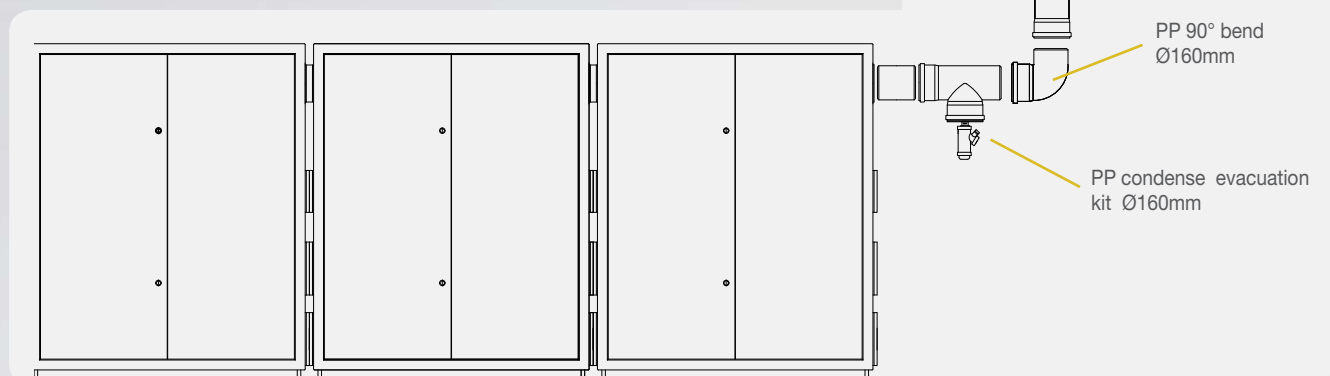
# Flue and installation guidance

## BOX structure

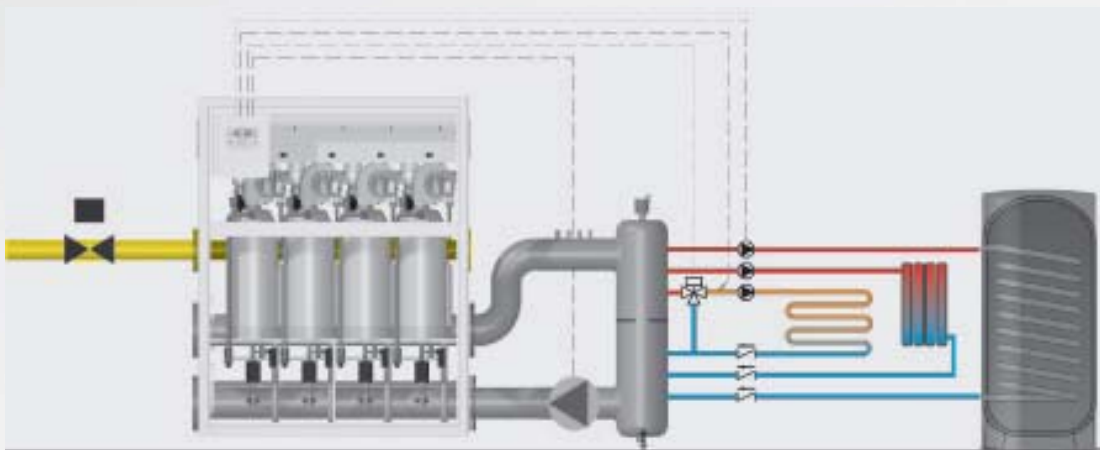


Given the extremely low flue temperatures, it is possible to use plastic (PP) flue ducts. Power Plus Box integrates not only the Ø160mm flues duct, but also the clapet valves necessary to prevent the back-flow of the combustion products in those thermal groups that are off.

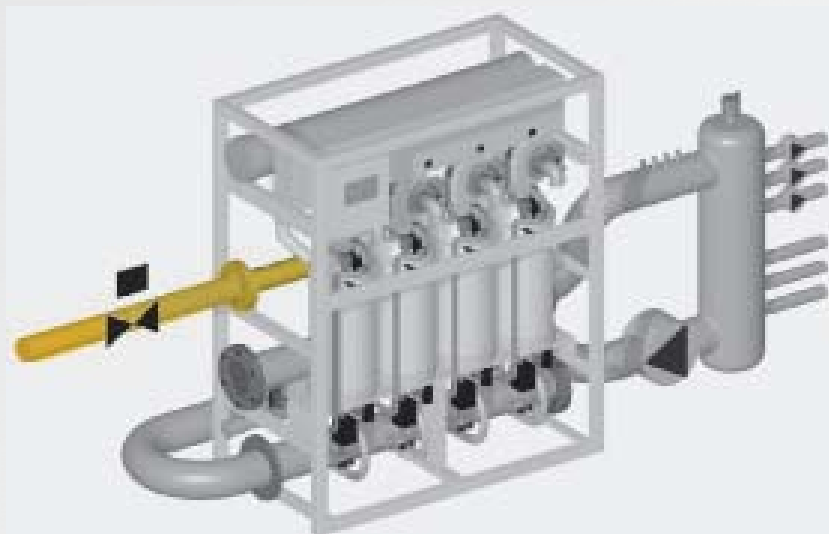
## Installation tips



Example of a cascade application with the first traits of the flue drain duct. The condense drain kit is compulsory whenever the vertical pipe length is over 4 m.



Example of a 200 kW single-box application, for indoor installation with the direct management of three circuits. Please refer to the relevant section of this document for a complete overview of all the available accessories.



Example of a single-box 200 kW installation with direct return.



Example of a cascade installation of a total of 600 kW with inverse return.

## Remote control



Each cascade can be monitored and fully controlled from remote, thanks to several devices (remote control, MOD BUS, etc.). The remote control allows a maximum distance of 100 m and it gives the possibility of setting the timings for the ON/OFF, the weekly programming of the circuit and the anti-legionnaires disease preventing function.



# Power Plus Box - stand alone

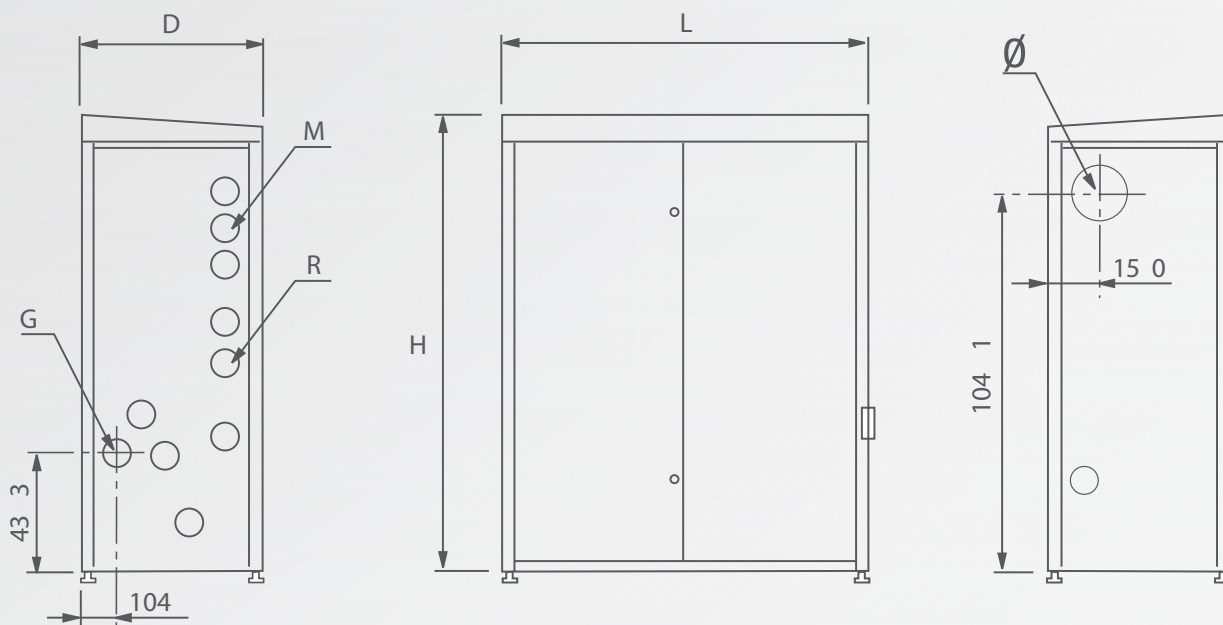


- Floor-standing, modular condensing boilers complete with hydraulic collectors and hydraulic header/separator, gas collectors, flues collectors in plastic with clapet and condensate drain kit.
- **Suitable only for stand-alone application.**
- Stainless steel BOX with IPx4D protection and insulation, specifically designed for OUTDOOR installation.
- It can be installed INDOOR as well.
- Efficiency ★★★★★ according to European Directive EEC 92/42.
- Minimum polluting emissions: class 5 (UNI EN 677).
- Thermoregulation onboard.
- Flue temperature of only max 3°C above the return water temperature.
- Maximum ease of installation.
- All models are provided with a shunt pump for each module.
- Possibility to integrate the secondary pumps (as optional accessory) inside the BOX.

## BOX for OUTDOOR or INDOOR installation

Efficiency ★★★★★ Dir. 92/42/EEC

code	gas	model	dimensions HxLxD (mm)	Input (kW) Hs	Input (kW) Hi
WITH SHUNT PUMPS					
KID112602	NG	Power Plus Box SIS 85 M EXT	1530X1250X650	85	77
KIA112602	NG	Power Plus Box SIS 128 M EXT	1530X1250X650	128	115



## SPECIFICATIONS

## Power Plus Box 150 SIS 85 M Ext

## Power Plus Box SIS 128 M P Exp Ext

Heat input (Hs)	kW	85,2	127,8
Heat input (Hi)	kW	76,7	115
Nominal heat output (80°-60°C)	kW	75,3	112,9
Nominal heat output (50°-30°C)	kW	82,5	123,8
Minimum heat input (Hs)	kW	16	16
Minimum heat input (Hi)	kW	14,4	14,4
Efficiency according European Directive EEC 92/42		★★★★★	
Efficiency at nominal output (80°-60°C) (Hi)	%	98,2	
Efficiency at nominal output (50°-30°C) (Hi)	%	107,7	
Efficiency at partial load 30% (80°-60°C) (Hi)	%	98,7	
Efficiency at partial load 30% (50°-30°C) (Hi)	%	108,7	
Emissions			
NOx class		5	
CO d.a.f. min-max less than	mg/kWh	10/80	
flue gas temperature	°C	T return + MAX 2,5 °C	
Central heating			
Maximum pressure	bar	6	
Adjustable CH water temperature range	°C	20/80	
Max condense production 10% Pn	l/h	11,1	16,6
Electrical			
Power supply	V-Hz	230-50	
Maximum power consumption	W	285	425
Dimensions, weight, gas			
Boiler dimensions (H x W x D)	mm	1530 x 1250 x 650	
Net weight (empty)	kg	180	220
Water content	l	19,4	24,3
Available gas versions		NG/LPG	
G/G1	Ø	2" / --	
M/R	Ø	2" / 2"	
Cond	mm	50	
Ø	mm	125	

# Power Plus Box



- Floor-standing, modular condensing boilers complete with hydraulic collectors, gas collectors, flues collectors in plastic with clapet and condensate drain kit.
- Stainless steel BOX with IPx4D protection and insulation, specifically designed for outdoor installation.
- Efficiency ★★★★★ according to European Directive EEC 92/42.
- Minimum polluting emissions: class 5 (UNI EN 677).
- Thermoregulation onboard.
- **Possibility to cascade more than one appliance to reach up to 3.000 kW.**
- Electronic cascade control onboard.
- Flue temperature of only max 3°C above the return water temperature.
- Power Plus Box is available in two versions: with 2-ways valve or with shunt pump.
- **The 250 and 300 models are compositions that come with a specific hydraulic separator already fitted. Therefore they should not be used for cascades.**

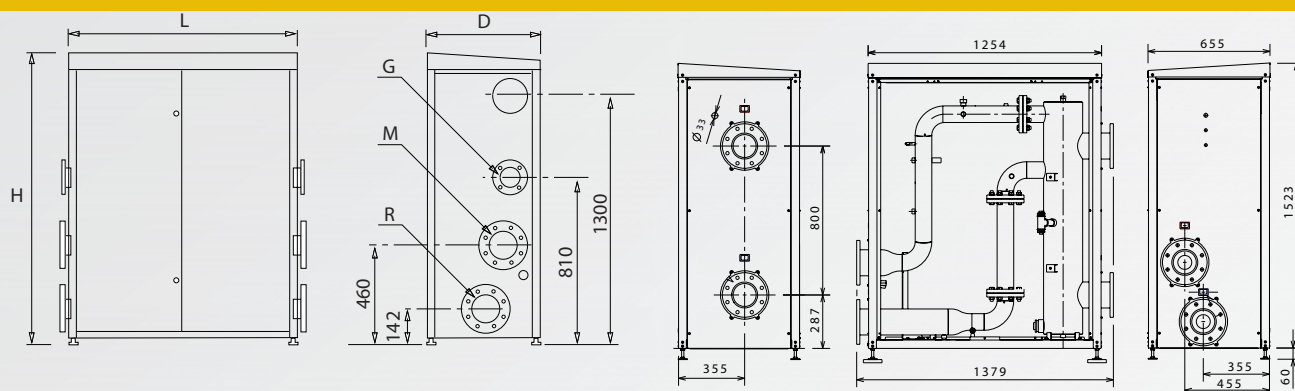
## BOX for OUTDOOR installation

Efficiency ★★★★★ Dir. 92/42/EEC

code	gas	model	dimensions HxLxD (mm)	Input (kW) Hs	Input (kW) Hi
WITH SHUNT PUMPS					
KIB112002	NG	Power Plus Box 150 M P EXT	1530X1250X650	150	135
KIC112002	NG	Power Plus Box 200 M P EXT	1530X1250X650	200	180
WITH 2-WAYS VALVES					
KIB122002	NG	Power Plus Box 150 M V EXT	1530X1250X650	150	135
KIC122002	NG	Power Plus Box 200 M V EXT	1530X1250X650	200	180
EXPANSION MODULAR UNIT WITH SHUNT PUMPS					
KIE112602	NG	Power Plus Box 100 M P EXP EXT	1530X1250X650	100	90

The 250 and 300 models, listed below, are compositions that come with a specific hydraulic separator already fitted. Therefore they should not be used for cascades (see technical drawings on page 49).

code	gas	model	dimensions HxLxD (mm)	Input (kW) Hs	Input (kW) Hi
WITH SHUNT PUMPS AND BOX WITH HYDRAULIC SEPARATOR					
KIF112602	NG	Power Plus Box 250 M P EXT	1530X2500X650	250	225
KIG112602	NG	Power Plus Box 300 M P EXT	1530X2500X650	300	270

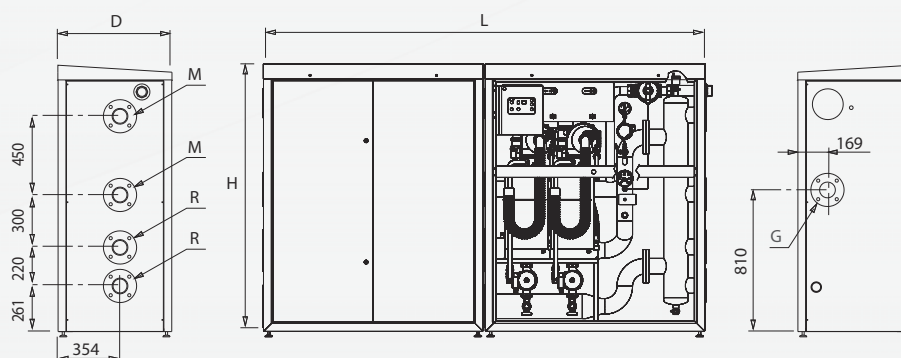


SPECIFICATIONS		Power Plus Box 150 M P/V Ext	Power Plus Box 200 M P/V Ext	Power Plus Box 250 M P Ext	Power Plus Box 300 M P Ext	Power Plus Box 100 M P Exp Ext
Heat input (Hs)	kW	150	200	250	300	100
Heat input (Hi)	kW	135	188	225	270	89,9
Nominal heat output (80°-60°C)	kW	132,5	176,6	220,75	264,9	88,3
Nominal heat output (50°-30°C)	kW	145,3	193,6	242	290,6	96,8
Minimum heat input (Hs)	kW	16	16	16	16	16
Minimum heat input (Hi)	kW	14,4	14,4	14,4	14,4	14,4
Efficiency according European Directive EEC 92/42		★★★★				
Efficiency at nominal output (80°-60°C) (HI)	%	98,2				
Efficiency at nominal output (50°-30°C) (HI)	%	107,7	107,7	107,7	107,7	108,3
Efficiency at partial load 30% (80°-60°C) (HI)	%	98,7	98,7	98,7	98,7	99,4
Efficiency at partial load 30% (50°-30°C) (HI)	%	108,7				
Emissions						
NOx class		5				
CO d.a.f. min-max less than	mg/kWh	10/80				
flue gas temperature	°C	T return + MAX 2,5 °C				
Central heating						
Maximum pressure	bar	6				
Adjustable CH water temperature range	°C	20/80				
Max condense production 10% Pn	l/h	20,7	27,6	34,6	41,5	13,8
Electrical						
Power supply	V-Hz	230-50				
Maximum power consumption*	W	648/255	912/340	1140	1368	456
Dimensions, weight, gas						
Boiler dimensions (H x W x D)	mm	1530 x 1250 x 650		1530 x 2500 x 650		1530 x 1250 x 650
Net weight (empty)	kg	290	320	470	500	180
Water content	l	50	55	60	65	15
Available gas versions		NG/LPG				
G/G1	Ø	3" / --		3" / 2"		3" / 2"
M/R	Ø	5" / 5"		3" / 3"		5" / 5" - 3" / 3"
Cond	mm	50				
Ø	mm	160				

\* The double value refers to the versions with pump / with 2-way valve

Power Plus Box  
250 MP EXT

Power Plus Box  
300 MP EXT





# Power Plus Box

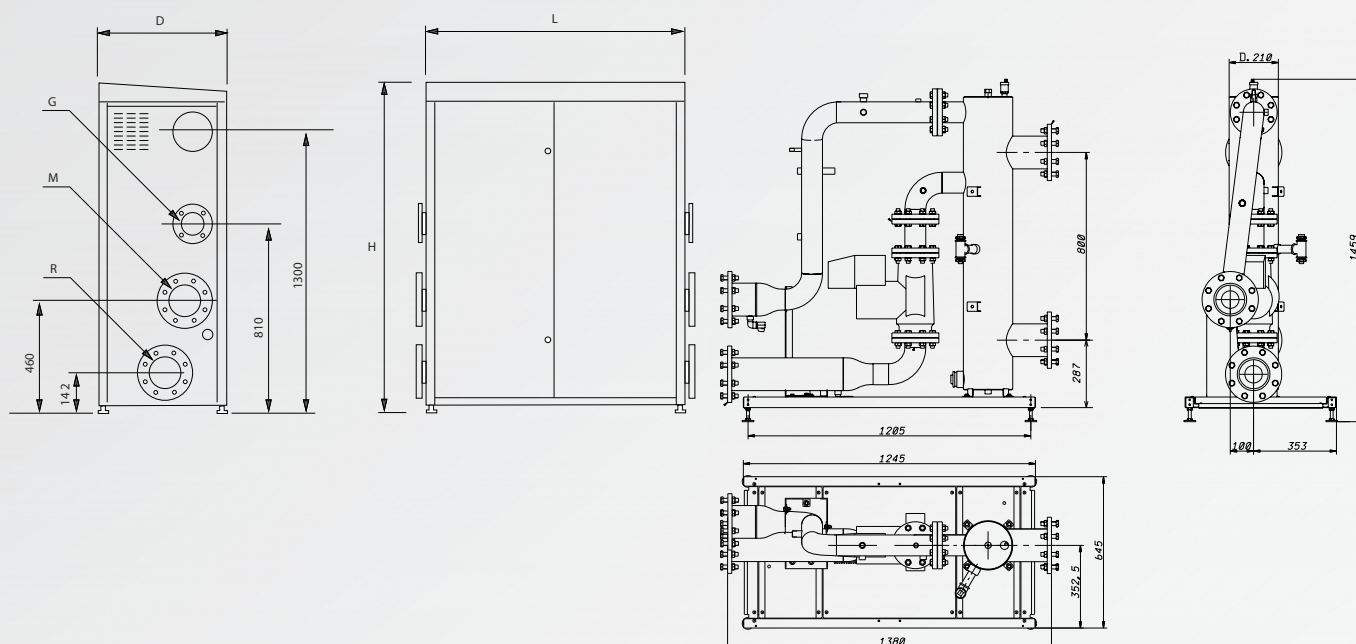


- Floor-standing, modular condensing boilers complete with hydraulic collectors, gas collectors, flues collectors in plastic with clapet and condensate drain kit.
- Painted steel BOX for INDOOR installations with ventilation air intake.
- Efficiency ★★★★★ according to European Directive EEC 92/42.
- Minimum polluting emissions: class 5 (UNI EN 677).
- Thermoregulation onboard.
- **Possibility to cascade more than one appliance to reach up to 3.000 kW.**
- Electronic cascade control onboard.
- Flue temperature of only max 3°C above the return water temperature.
- Power Plus Box is available in two versions: with 2-ways valve or with shunt pump.

## BOX for INDOOR installation

Efficiency ★★★★★ Dir. 92/42/EEC

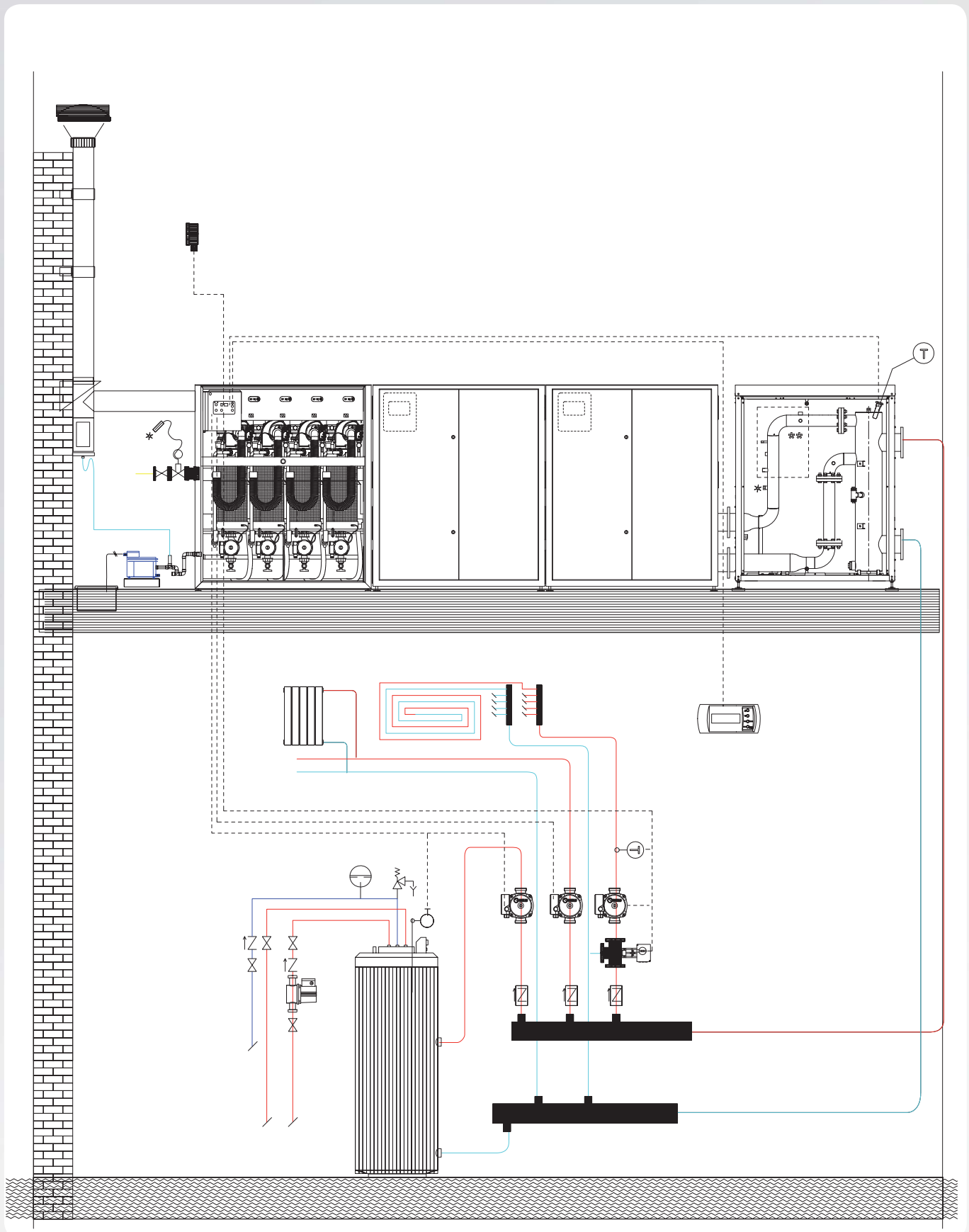
code	gas	model	dimensions HxLxD (mm)	Input (kW) Hs	Input (kW) Hi
WITH SHUNT PUMPS					
KIB111002	NG	Power Plus Box 150 M P INT	1480X1250X650	150	135
KIC111002	NG	Power Plus Box 200 M P INT	1480X1250X650	200	180
WITH 2-WAYS VALVES					
KIB121002	NG	Power Plus Box 150 M V INT	1480X1250X650	150	135
KIC121002	NG	Power Plus Box 200 M V INT	1480X1250X650	200	180



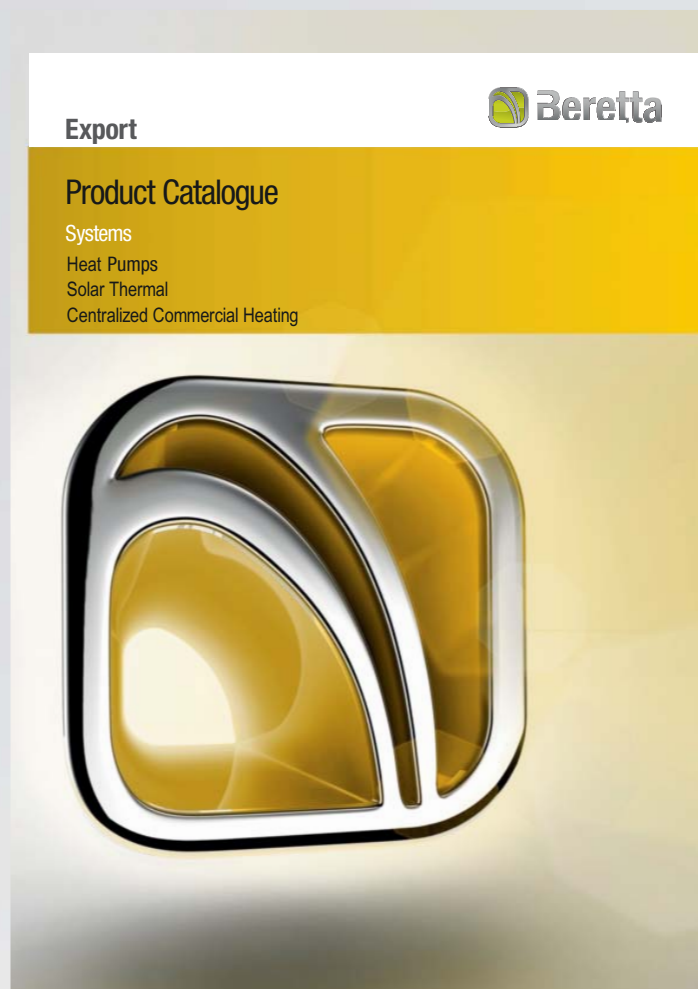
SPECIFICATIONS		Power Plus Box 150 M P/V INT	Power Plus Box 200 M P/V INT
Heat input (Hs)	kW	150	200
Heat input (Hi)	kW	135	188
Nominal heat output (80°-60°C)	kW	132,5	176,6
Nominal heat output (50°-30°C)	kW	145,3	193,6
Minimum heat input (Hs)	kW	16	16
Minimum heat input (Hi)	kW	14,4	14,4
<b>Efficiency according European Directive EEC 92/42</b>		★★★★★	
Efficiency at nominal output (80°-60°C) (Hi)	%	98,2	
Efficiency at nominal output (50°-30°C) (Hi)	%	107,7	
Efficiency at partial load 30% (80°-60°C) (Hi)	%	98,7	
Efficiency at partial load 30% (50°-30°C) (Hi)	%	108,7	
<b>Emissions</b>			
NOx class		5	
CO d.a.f. min-max less than	mg/kWh	10/80	
Flue gas temperature	°C	T return + MAX 2,5 °C	
<b>Central heating</b>			
Maximum pressure	bar	6	
Adjustable CH water temperature range	°C	20/80	
Max condense production 10% Pn	l/h	20,7	27,6
<b>Electrical</b>			
Power supply	V-Hz	230-50	
Maximum power consumption	W	648/255	912/340
<b>Dimensions, weight, gas</b>			
Boiler dimensions (H x W x D)	mm	1480 x 1250 x 650	
Net weight (empty)	kg	290	320
Water content	l	50	55
Available gas versions		NG/LPG	
G/G1	Ø	3" / --	
M/R	Ø	5" / 5"	
Cond	mm	50	
Ø	mm	160	

# Power Plus Box - Example of OUTDOOR installation

Multiple C.H. zones with individual pumps and D.H.W. tank







Thanks to the flexibility of the Power Plus and Power Plus Box offer, it is possible to integrate the boilers with solar systems and heat pumps.

Refer to the layout proposals and to the products and solutions on the Beretta Systems catalogue.



## 1000-series

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Focus on Technology

# Power Plus Box

## The structure of the 1000-series

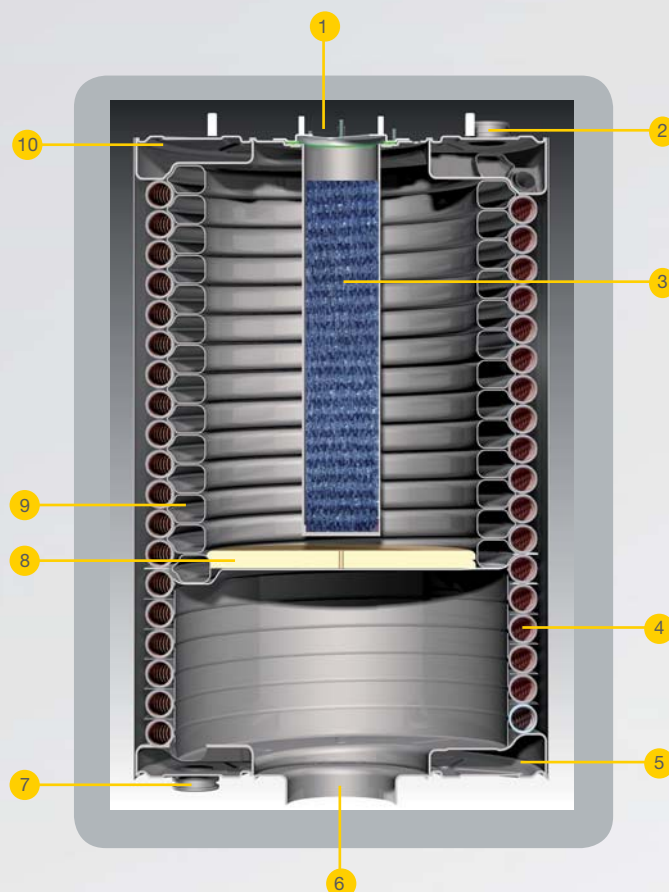
The aim of the 1000-series is that to bring to a new step the combustion of Power Plus, increasing the “Power density”, i.e. the power for each square centimeter occupied by the combustion and, as a consequence, by the machine. This is obtained coupling the patented Cuprosteel corrugated helical tube with a more traditional pipe.

## The technology: heat exchanger

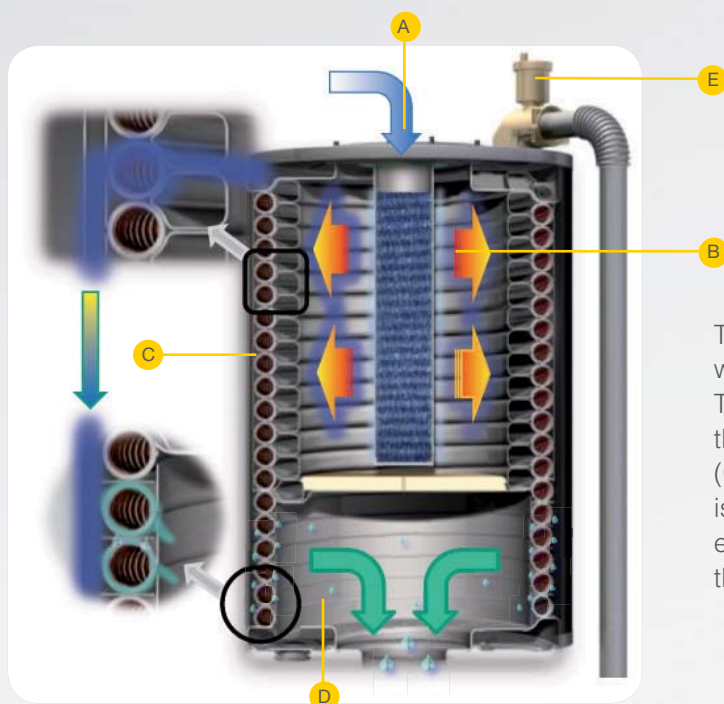
The Power Plus 1000-series heat exchanger features an innovative coupling of two-orders of heat exchanger, and as a result these are the technical features of each combustion group:

Key:

- ① Fan connection (air/gas mixture inlet)
- ② Flow pipe
- ③ Burner
- ④ Heat exchanger (bi-metallic corrugated pipe)
- ⑤ Lower heat exchanger header
- ⑥ Flue and condensate discharge pipe
- ⑦ Return pipe
- ⑧ Refractory brick
- ⑨ Heat exchanger (pentagonal pipe)
- ⑩ Upper heat exchanger header

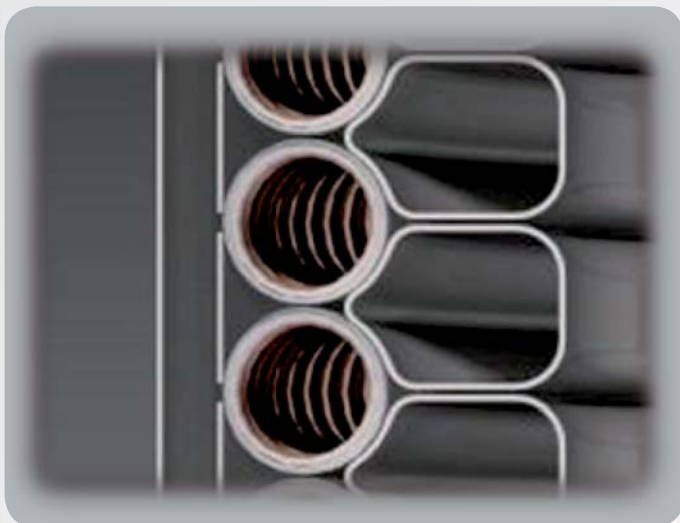


## Heat exchanger operation



The air and gas mixture is pushed (A) through the burner, where the low-NOx combustion process happens (B). The flues so produced flow through the double-coil of the exchanger, where they heat the circulating water (C). In the course of the heat exchanger, condense is produced (D) and drained out of the combustion engine. An automatic air vent purges the air that is in the circulating water (E).

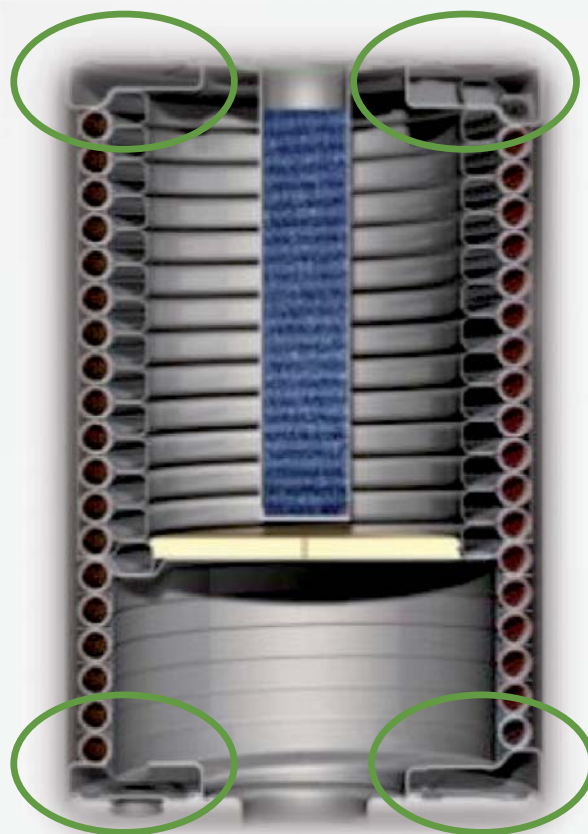
## The structure of the 1000-series



While the 500-series heat exchanger is a single coil of the well-known Cuprosteel, the 1000-series one has two pipes working in parallel, in the section before the refractory brick.

The outer pipe is the corrugated Cuprosteel, the inner one is pentagonal and smooth.

The two pipes are hydraulically connected by means of the upper and lower caps of the heat exchanger assembly, that thus work as a real hydraulic manifold.



## Technical features

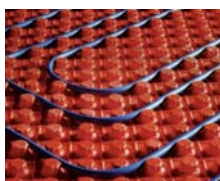
- Power of 128 kW on Hs (115kW on Hi).
- Modulation from 26 to 128 kW with a flat curve of CO<sub>2</sub> (9%).
- Efficiency: 108,6% at full load, 109% at 0,3Pn (water temperatures 50°C-30°C).
- Temperature difference between flue and return water: less than 10°C.
- CO level at Pn: less than 130 mg/kWh. At minimum: less than 23 mg/kWh.
- NOx class: 5.
- Ebm fan NRG137 low energy series with integrated venturi and high residual head.
- Heat exchanger with "wet head": flow manifold, air vent, working sensors (flow + return), max temperature sensor.
- Includes the gas valve and the differential pressure switch.

## Condensing boilers and radiator plants... the Power Plus strenght!

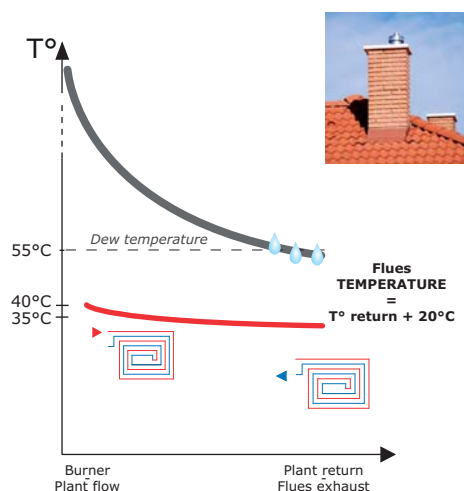
During the years, the diffused thought is that condensing boilers allow to save on fuel only if installed with low temperature heating plants (floor-standing); effectively this is true for most condensing boilers on the market... BUT NOT FOR POWER PLUS BOX! **The distinctive**

**element of our condensing boiler is the low “ $\Delta T$  water-flues”, that is the capacity to exhaust flues at a temperature of only few degrees higher than the heating plant water returning to the boiler; other condensing boilers have a  $\Delta T$  water-flues of even 25°C.**

Floor-standing plants

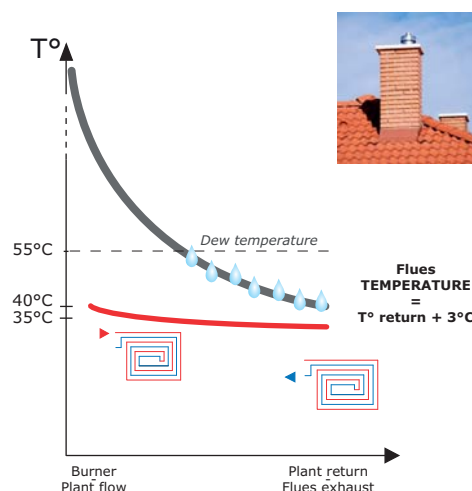


Condensing boilers



In low temperature plants (ex. 40°C/35°C), the other condensing boilers also manage to evacuate flues at a temperature sufficiently low (approx. 50°C - 55°C) to be able to work in condensing conditions with high efficiency.

Power Plus condensing boilers

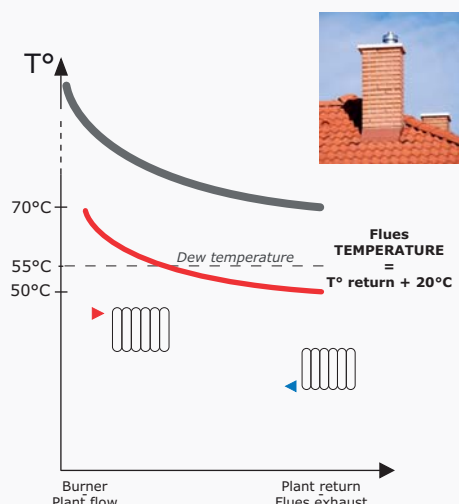


In low temperature plants (ex. 40°C/35°C), the Power Plus condensing boilers manage to evacuate flues at a temperature of approx. 38-42°C and work in full condensing conditions with very high efficiency.

Radiator plants

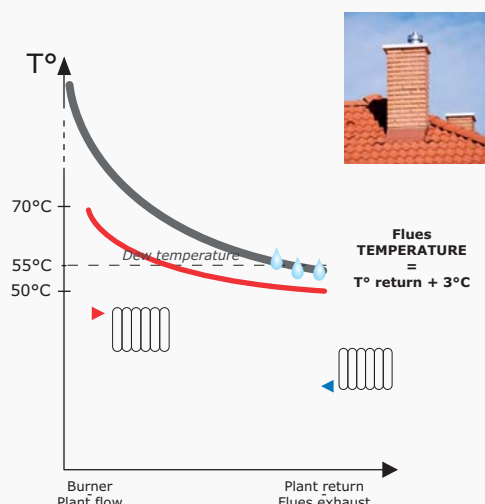


Condensing boilers



In high temperature plants (ex. 70°C/50°C), most condensing boilers on the market evacuate flues at a temperature higher than that of the nat gas flues dew, in fact working as traditional boilers and therefore with low efficiency. The cause is the high water-flues  $\Delta T^\circ$  (even up to 25°C).

Power Plus condensing boilers



In high temperature plants (ex. 70°C/50°C), the Power Plus condensing boilers evacuate flues at a an even lower temperature than that of the nat gas flues dew, still working as condensing boilers with high efficiencies. The point of strength is in the low  $\Delta T^\circ$  water-flues which brings us to evacuate the flues at 53-58°C, with a return of 50°C!

## 1000-series

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### Pre-Assembled BOXES



# Power Plus Box (1000-series)

The efficiency of our condensing technology



Beretta **Power Plus Box** is a pre-assembled box based on the 1000-series thermal group: condensing, pre-mixed, air blown, modulating combustion.

Available for INDOOR installations.

Power Plus Box range achieved an Efficiency ★★★★★  
according to European Directive EEC 92/42.

Gas Directive EEC 90/396

Low voltage Directive EEC 89/336

Electromagnetic compatibility Directive EEC 73/23

### Characteristics and advantages at a glance

- Possibility to combine Power Plus Box (1000-series) in cascade to reach up to 6,9 MW (Hi) of total power.
- All the boxes are already assembled and tested in our factories.
- High power in compact dimensions
- In-line and back-to-back cascade installation of multiple boxes is possible.
- Compact in-line solution.
- All the boxes have, already fitted and connected: water and gas manifolds, flue exhaust connections Ø 110 mm and condense evacuation line.
- These units boast latest generation electronic control, modularity and versatility, thus ensuring the installer

a quick connection to any type of heating and hot water storage system as it simultaneously controls three different circuits, each operating at different temperatures.

- Power Plus Box units are designed to provide water to 3 different circuits at different temperatures either supplied as direct take off's or via a header system utilizing controls as required. With this in mind suggested usage are DHW, High Temperature (heating) and Low Temperature (under-floor heating). It is possible to add up to further 8 zones with the use of specific accessories.

- Modulating and modular power regulation.
- Minimum polluting emissions,

thanks to the controlled pre-mix burner and the micro-flame burner combination, allowing Power Plus to achieve Class 5 of the UNI EN 677 standard (best European category in ecological terms).

- Water drain built-in as standard in the boiler for each heating unit.
- Can work with water-glycole mixture up to 50%.
- Automatic burner ignition sequence reversal.
- Anti-legionnaires' disease function (only available with room-control kit).
- Frost-protection system.

# Power Plus Box

## Ten reasons why a Power Plus Box system is the logical choice

Beretta Power Plus Box, thanks to its modularity and specific features, can be considered the best solution for any commercial application from the smallest to the largest, both in the new buildings and as replacement of old floor standing boilers. More than one box can be connected in cascade so to obtain extremely high power.

### Maximum efficiency at any time

The efficiency of a Power Plus Box is significantly higher than a traditional single boiler installation with the same output. In fact, by controlling automatically the number of boilers in operation, the system can optimise the heat supply according to demand at any particular time. For instance in spring and autumn, when the heat request is lower, or in buildings like hotels and restaurants, where the heat request is not constant, the system can switch on and off the individual boilers, ensuring the maximum efficiency.

### Maximum peace of mind

Power Plus Box is more reliable than a traditional individual boiler installation. As each combustion unit of the box can be individually serviced and maintained, in the event of a fault or maintenance on one combustion unit, the other boilers of the cascade are still able to operate without loss of heating.

### Maximum savings

High efficiency of the in-Box cascade and top condensing technology of the boilers allow you to save so much energy in daily use that the costs of the heating system are recovered in a few years. In addition, reduced installation time and quick servicing result in precious savings for the end user.

### Maximum ease of servicing

Power Plus range is designed so that all components can be easily serviced and maintained from the front. Moreover, each boiler of the cascade can be individually serviced and maintained, while the other boilers of the cascade are still able to operate.

### Maximum commitment to the environment

Power Plus range achieved Class 5 of the UNI EN 677 standard (best European category in ecological terms), thanks to condensing combustion with controlled pre-

mix burner and micro-flame burner combination. A Power Plus Box can also control automatically the number of boilers in operation according to heat demand, saving energy and reducing polluting emissions.

### Maximum use of space

The in-Box cascade system of Power Plus range is designed to provide a space-saving and versatile solution for large domestic properties or commercial buildings.

### Maximum flexibility

Power Plus Box allow installation INDOOR and OUTDOOR, choosing the model with the standard painted- or stainless- steel case.

### Maximum ease of installation

The combustion groups come already assembled in the box, together with the water, gas, condense and flue manifolds. Everything is already tested in the factory, so to give the maximum peace of mind to the installer. The integrated flue pipe contributes to keep the total height of the cascade to compact values.

### Maximum reliability

All the components are assembled and tested in our factories, thus granting the maximum levels of quality. The multi-combustion configuration of the Power Plus Box guarantees that the end user is ensured continuity of service at any time. The extensive range of accessories carefully selected by Beretta helps the designer/installer, covering the needs of most of the installations.

### Maximum range of modulation

Up to 60 combustion units can be cascaded, so as to reach up to 6,9 MW of power (Hi), with a modulation down to only 23 kW.

## Power Plus Box flue exhaust

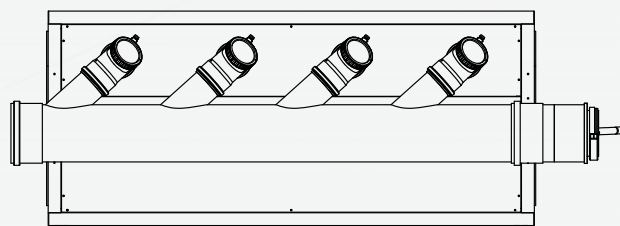
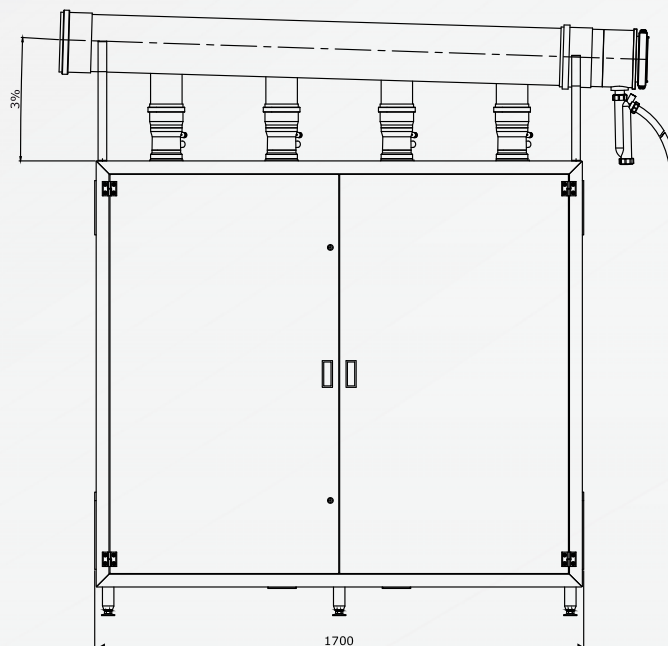
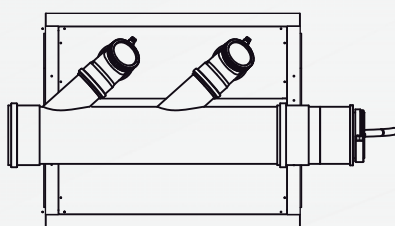
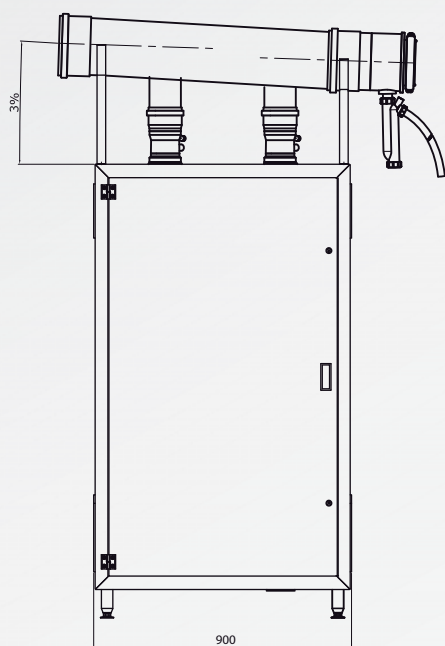
Please find hereafter some notes about the combustion flues evacuation, concerning the Beretta Power Plus Box 1000-series.

Please also refer to any applicable local regulation for further indication.

### Flue drain for INDOOR machines

The Boxes of 1000-series do not contain any manifold to collect the flues. Each combustion engine has instead an individual outlet  $\varnothing$  110 mm, to which is possible to connect the collector (in plastic, with clapet),  $\varnothing$  200 mm

provided as an accessory (refer to the relevant section). Please note that for the two-engines box, it is necessary to purchase two single-inlet collectors.



# Flue and installation guidance

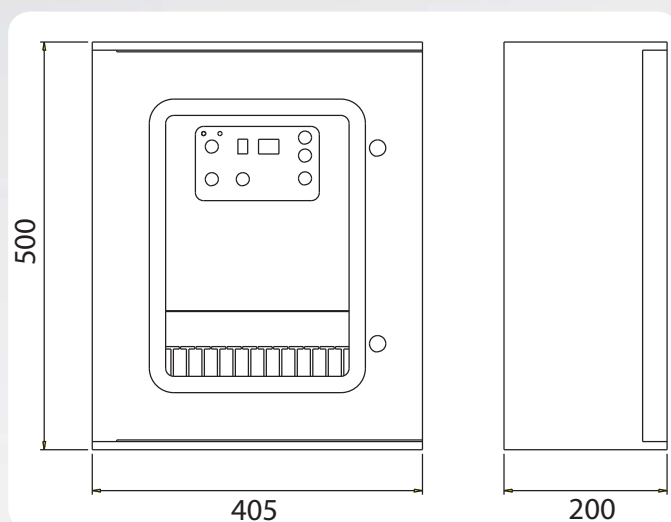


## Remote control

Each cascade can be monitored and fully controlled from remote, thanks to several devices (remote control, MOD BUS, etc.). The remote control allows a maximum distance of 100 m and it gives the possibility of setting the timings for the ON/OFF, the weekly programming of the circuit and the anti-legionnaires disease preventing function.

## Compact in-line solution

The installation as a whole results extremely compact and, as said, with a very high density. In the example, an installation with eight engines, for a total of around 1MW (Hs).

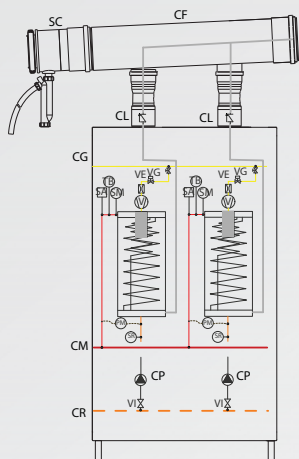


## Master PCB

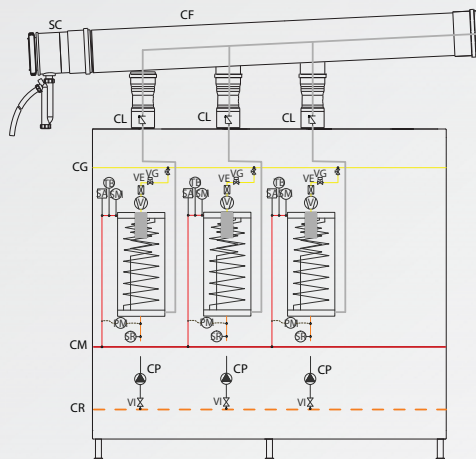
The master PCB (to be purchased separately) manages all the combustion groups and it is the core of the net of intelligent devices that can be added (additional zones PCB, remote control, etc...). It is delivered together with a set of blind flanges and the outdoor sensor to complete the installation.



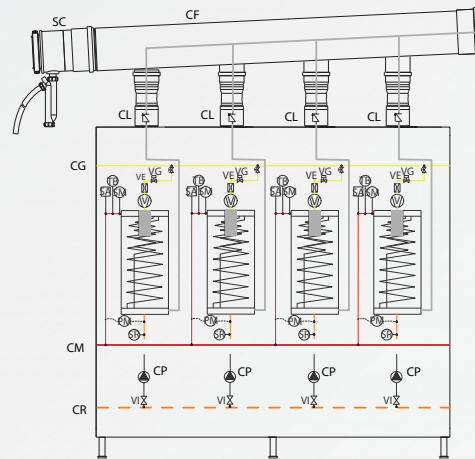
## Hydraulic circuit



Power Plus Box 1002 P INT



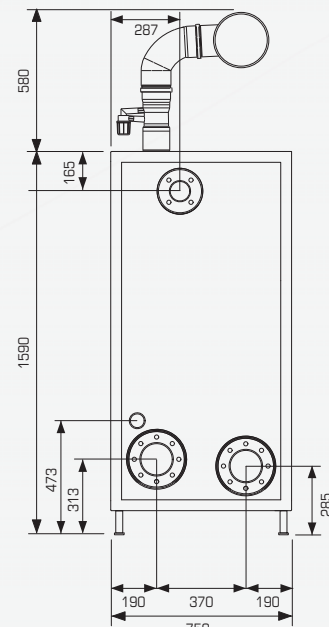
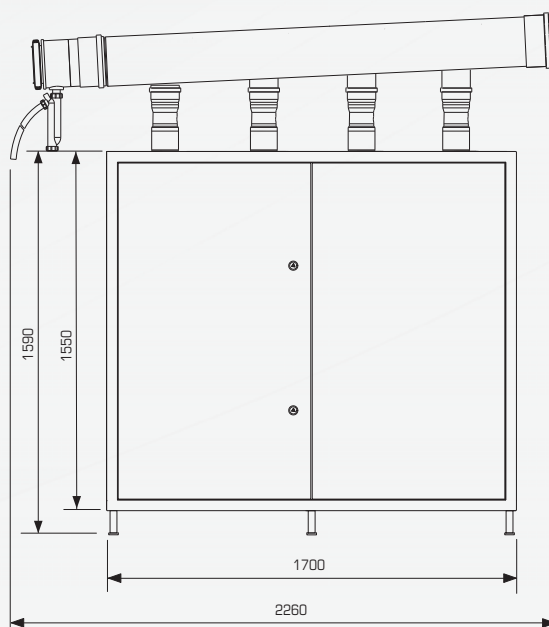
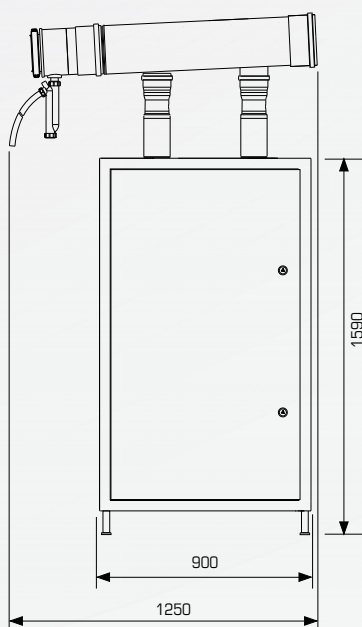
Power Plus Box 1003 P INT



Power Plus Box 1004 P INT

Key		Features
CF	Flue collector	Optional and external to the thermal condensing unit Ø 200mm in PP
CL	Clapet no-return flues valve	Optional and external to the thermal unit Ø 110mm - > Ø 110mm in PP
VG	Motorized gas valve	
VE	Venturi pre-mixing device	Allows the total pre-mixing
V	Fan	Max power 80 W - modulating 1200-3600 rpm
SM	Flow NTC probe	NTC type, 10 kOhm
TB	Lockout thermostat	Max T° lockout: 90°C +/- 5°C Max T° manual reset: 80°C +/- 5°C
SA	Air vent	Jolly type, 3/8" connection

Key		Features
SC	Condensate drain kit	
PM	Minimum pressure switch (differential)	
SR	Return NTC probe	NTC type, 10 kOhm
CP	Pump for single thermal unit	Included in the thermal unit - fixed low 5000 l/h and 4,5 mH2O for single unit, ref. ΔT 21°C
VI	Stop valve	Ø 3/4" included as standard
CG	Gas pipe	Ø 3" flanged pipe PN6, included as standard
CM	Flow collector	Ø 5" flanged pipe PN6, included as standard
CR	Return collector	Ø 5" flanged pipe PN6, included as standard



# Power Plus Box



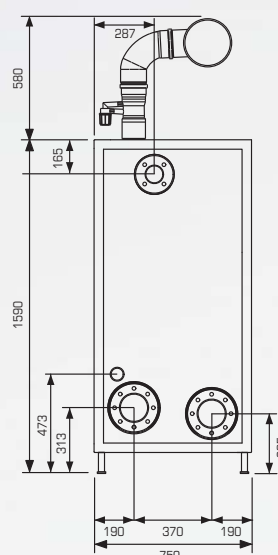
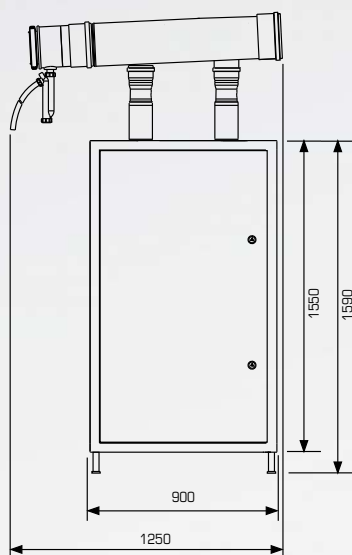
- Floor-standing, modular condensing boilers complete with 5" hydraulic collectors, 3" gas collector, flue outlets Ø 110mm and condensate drain kit.
- Painted steel BOX for indoor installations with ventilation air intake.
- Efficiency ★★★★★ according to European Directive EEC 92/42.
- Minimum polluting emissions: class 5 (UNI EN 677).
- Thermoregulation available with Master Control (accessory).
- **Possibility to cascade up to 60 combustion units.**
- Electronic cascade control managed by Master Control (accessory).
- Flue temperature of only around 3°C above the return water temperature.
- Power Plus Box is available with shunt pumps.

## BOX for INDOOR installation

Efficiency ★★★★★ Dir. 92/42/EEC

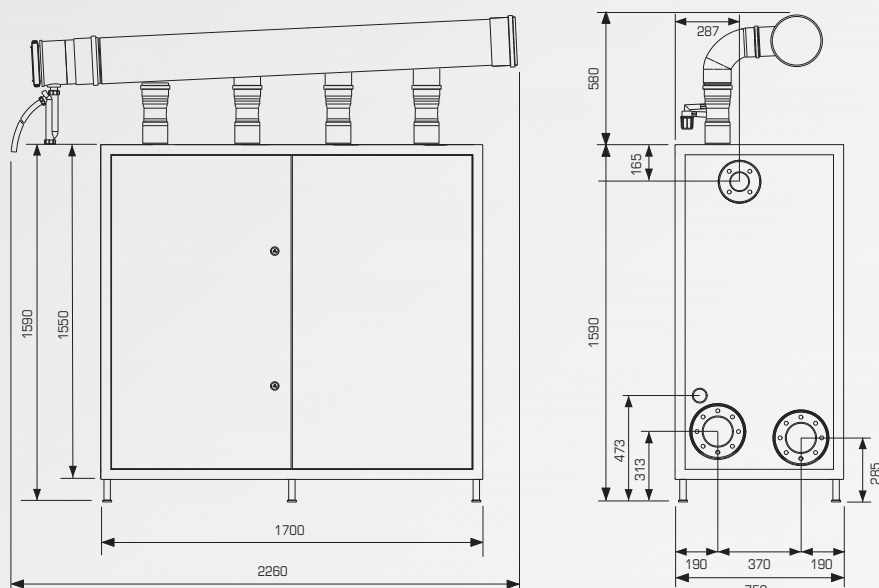
code	gas	model	dimensions HxLxD (mm)	Input (kW) Hs	Input (kW) Hi
WITH SHUNT PUMPS					
KIP111401	NG	Power Plus Box 1002 P INT	1550x900x750	256	230
KIQ111401	NG	Power Plus Box 1003 P INT	1550x1700x750	384	345
KIR111401	NG	Power Plus Box 1004 P INT	1550x1700x750	511	460

Power Plus Box 1002



Power Plus Box 1003

Power Plus Box 1004



## SPECIFICATIONS

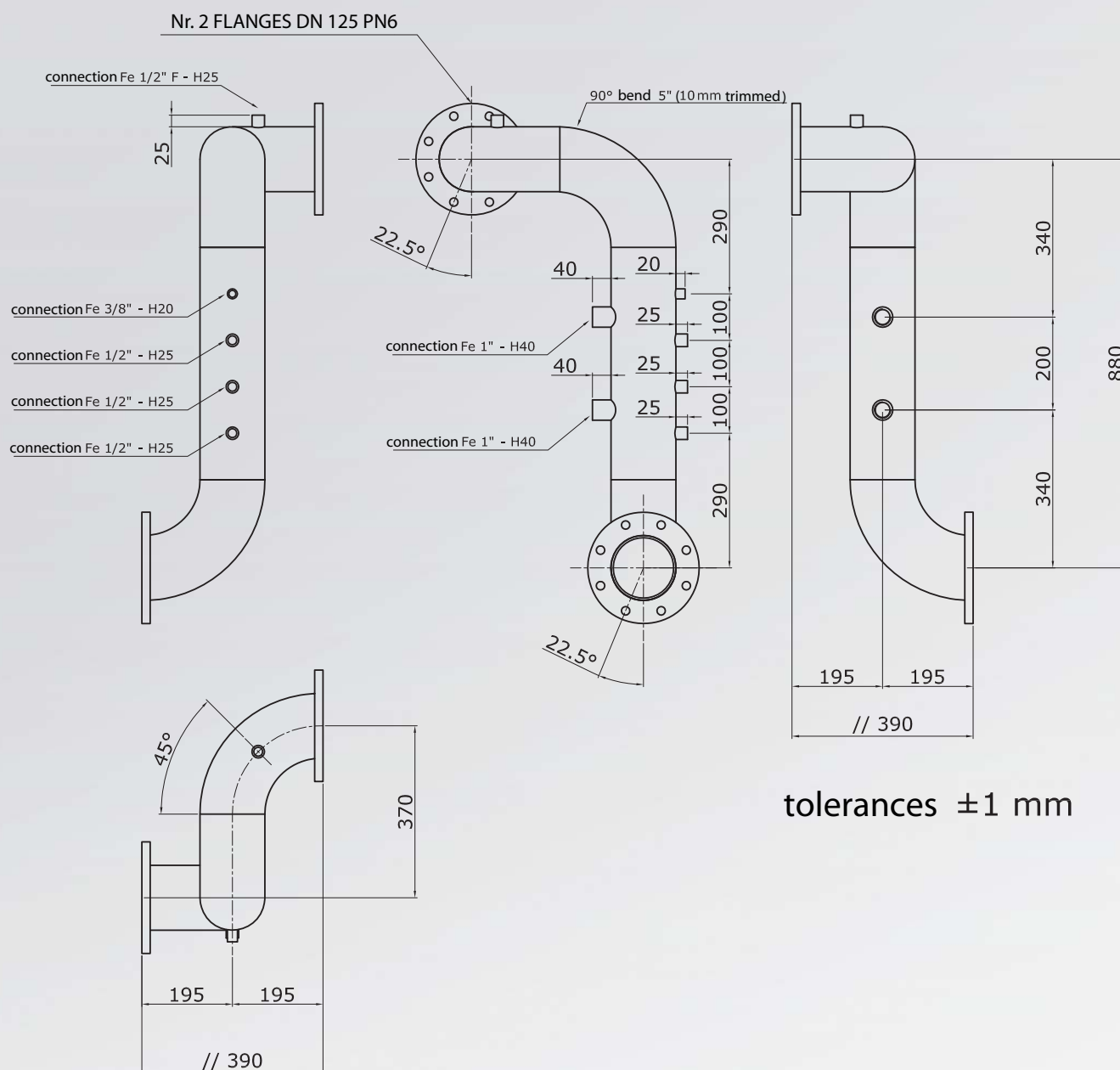
Power Plus  
Box 1002 P INTPower Plus  
Box 1003 P INTPower Plus  
Box 1004 P INT

Boiler type (EN 297)		B23, B53, B53P, C13, C33, C53, C63		
CE Homologation Number		0085CL0333		
Number of burners		2 (x128 kW)	3 (x128 kW)	4 (x128 kW)
Dimension and Connections				
HxLxD	mm	1550x900x750	1550x1700x750	
Empty weight	kg	270	380	450
Content of water	l	70	112	132
Water manifold	in	5"		
Gas manifold	in	3"		
Flue manifold	mm	110		
Condensate drain	mm	50		
Power and Efficiency				
Heat input ref. HHV (min - max)	kW	25,5 - 255,6	25,5 - 383,4	25,5 - 511,2
Heat input ref. NHV (min - max)	kW	23 - 230	23 - 345	23 - 460
Useful heat output (80°/60°C)	kW	226,8	340,2	453,6
Useful heat output (50°/30°C)	kW	249,8	374,7	499,6
Useful heat output (60°/40°C)	kW	239,6	359,4	479,2
Condensate production per hour 100% (50 - 30°C) - gas G20	kg/h	34,4	51,6	68,8
Useful efficiency ref. NHV (80°C/60°C)	%	98,6	98,6	98,6
Useful efficiency ref. NHV (50°C/30°C)	%	108,6	108,6	108,6
Useful efficiency ref. NHV Tm=50°C (60/40°C)	%	104,2	104,2	104,2
Useful efficiency at 30% ref. NHV (80°C/60°C)	%	99,2	99,2	99,2
Useful efficiency at 30% ref. NHV (50°C/30°C)	%	109	109	109
Useful efficiency at 30% ref. NHV Tm=50°C (60 – 40°C)	%	105	105	105
Losses through the casing (Tm=70°)	%	0,1	0,1	0,1
Efficiency Class 92/42 CEE		★★★★		
Consumption and electrical power				
Gas Category		II2H3+		
Consumption Methane (G20)	m³/h	2,43 / 24,3	2,43 / 36,5	2,43 / 48,7
Power supply		230V - 50Hz		
Maximum electrical power	kW	0,6	0,9	1,2
Combustion data				
Max exhaust residual manometric head for each unit	Pa	500		
Carbon monoxide CO (0% di O₂) (min÷max)	mg/kWh	23 ÷130		
Nitrogen oxides NOx (ref. UNI-EN 297)		5		
Heating circuit				
Heating temperature regulation (min / max)	°C	20 / 80		
Water operating pressure max/min	bar (kPa)	6 / 0,5 (600/50)		
Max manometric head at nominal flow of 5'500 l/h	Pa [m c.a.]	1500 [1,5]		

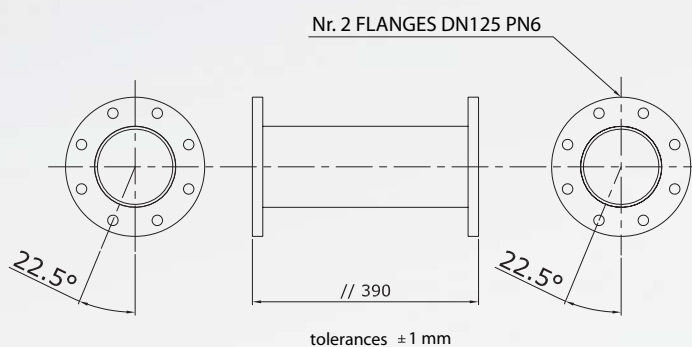
# Hydraulic separator details

## Hydraulic separator connections

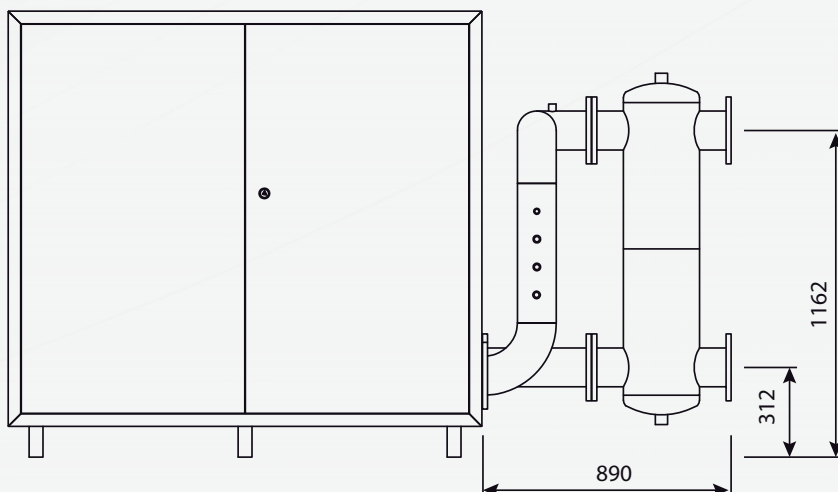
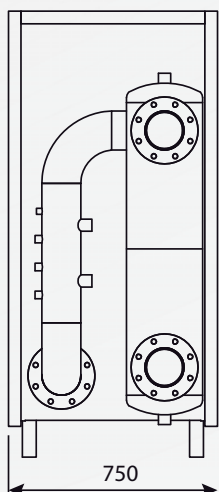
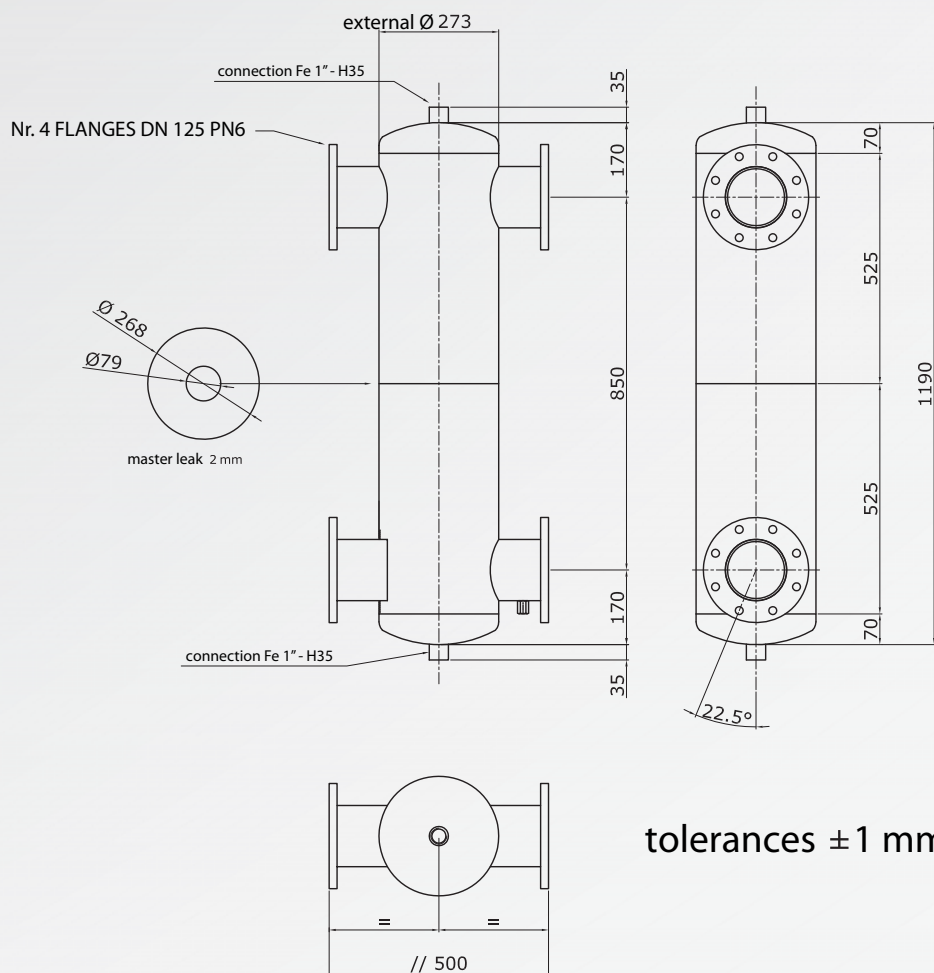
FLOW 5"



RETURN 5"



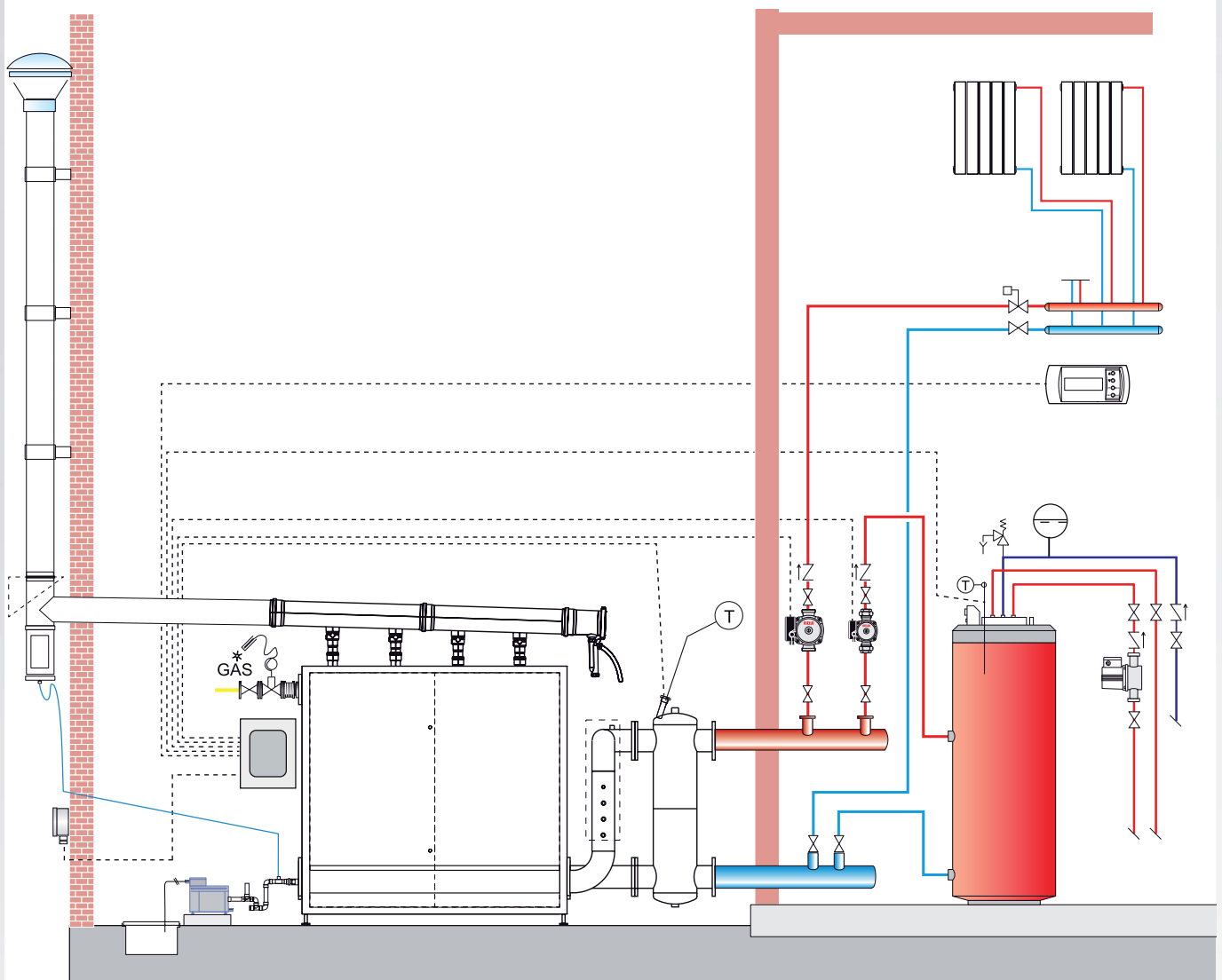
# Hydraulic separator



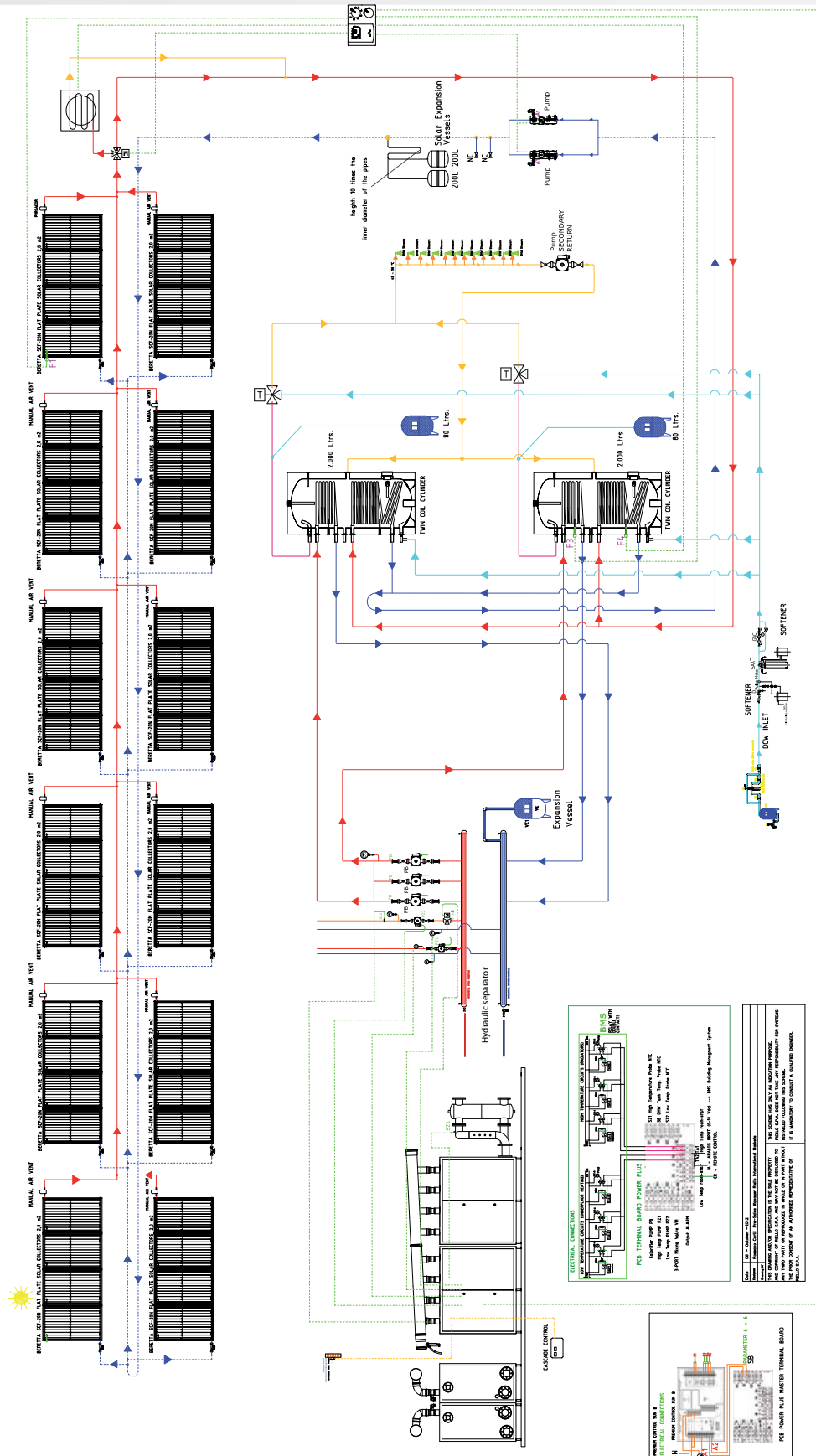


# Power Plus Box - Example of INDOOR installation

Typical plant room with multi temperature zones

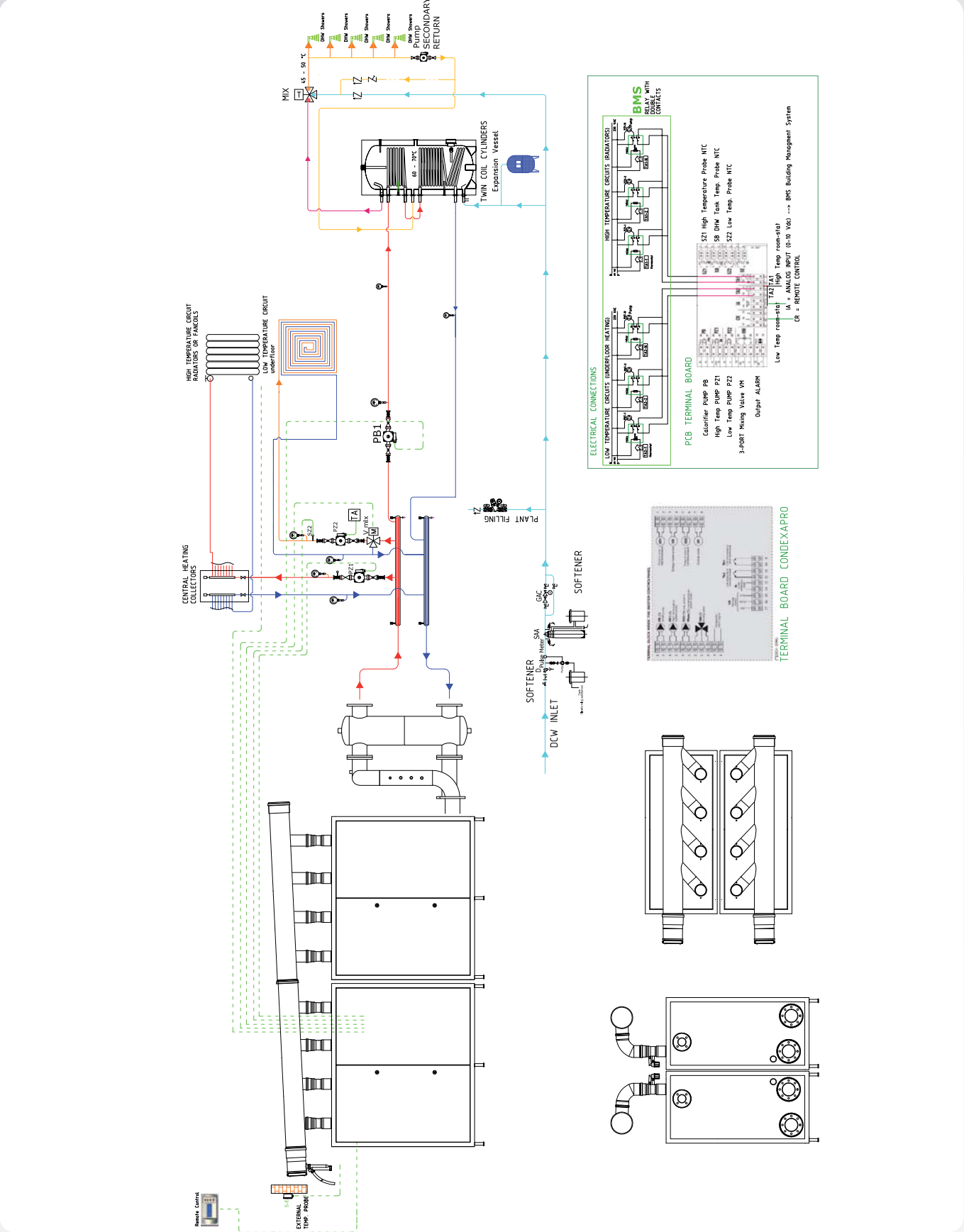


## Multiple C.H. zones, solar integration for D.H.W. production



# Power Plus Box - Example of INDOOR installation

Multiple C.H. zones with individual pumps and D.H.W. tank



## Accessories

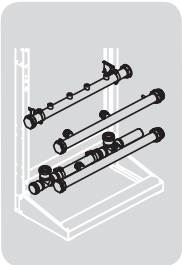
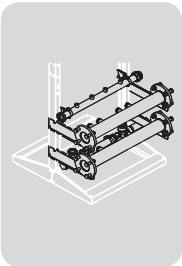
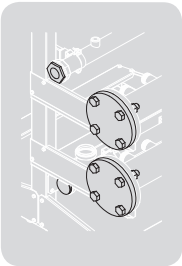
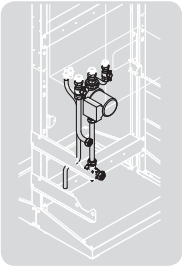
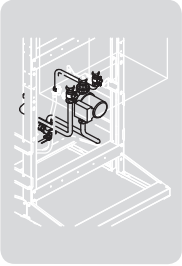
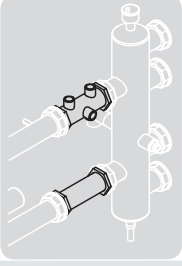
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### Beretta components and accessories for tailor-made installation solutions

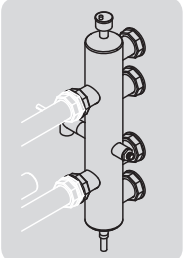
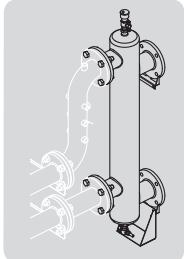
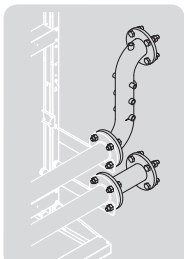
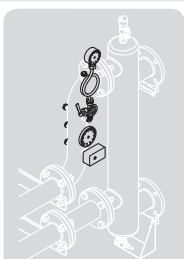
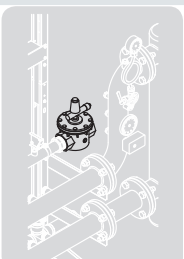
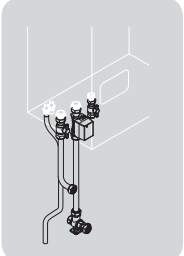
The complete line of components and accessories developed by Beretta, hereafter listed and shown, in addition to the configurations proposed in this guide, allow you to compose also tailor-made Power Plus and Power Plus Box applications.

By choosing all Beretta components, that harmonize perfectly with each other, your Power Plus system will assure you the maximum comfort and savings that are provided only by a unique specialized supplier.

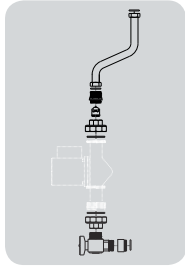
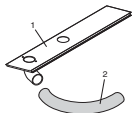
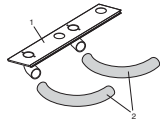
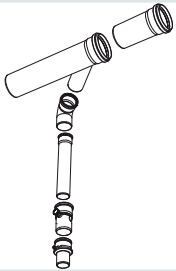
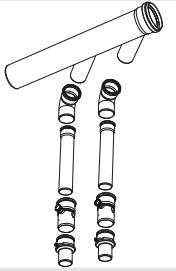
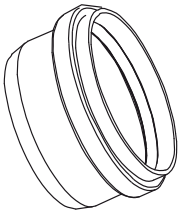
# Specific for 500-series CASCADE

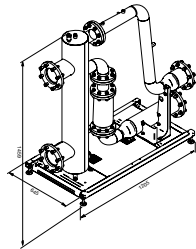
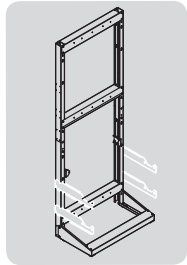
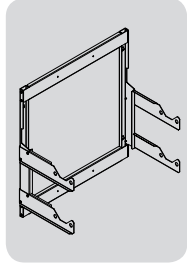
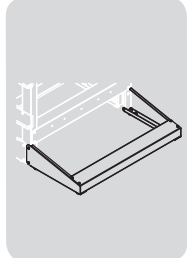
code	description	
HYDRAULIC COMPONENTS and SAFETY DEVICES		
20017226	Hydraulic manifold kit 100 kW for Power Plus rig with blank end flange	
20009439	Hydraulic manifold kit up to 400 kW for Power Plus rig	
20009444	Blank end-flange kit for hydraulic manifold (400 kW)	
20009442	Pump kit (front) for Power Plus rig	
20046988	LOW ENERGY pump kit (front) for Power Plus rig	
20009443	Pump kit (rear) for Power Plus rig	
20047022	LOW ENERGY pump kit (rear) for Power Plus rig	
20017270	Connection pipes kit to hydraulic header/separator - 100 kW	



code	description	
HYDRAULIC COMPONENTS and SAFETY DEVICES		
20017271	Hydraulic header/separator – 100 kW	
20009466	Hydraulic header/separator – 150-200 kW	
20009467	Hydraulic header/separator – 250-400 kW	
20009471	ISPESL hydraulic manifold	
20009475	ISPESL safety kit (400 kW max.)	
20009486	Gas safety cut-off valve (100 kW max.)	
20009482	Gas safety cut-off valve (200 kW max.)	
20009483	Gas safety cut-off valve (400 kW max.)	
20041367	Two-ways valve kit (only front mounting)	

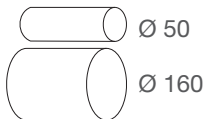
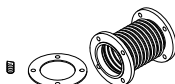
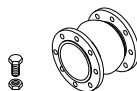
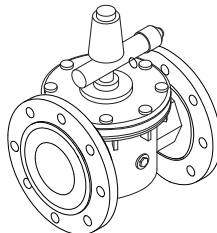
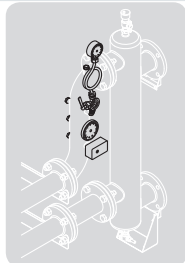
# Specific for 500-series CASCADE

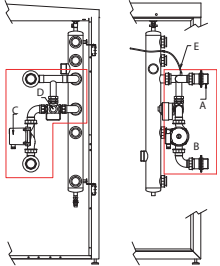
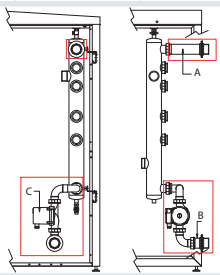
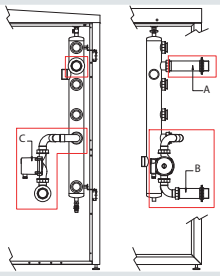
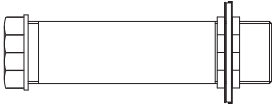
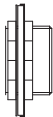
code	description	
HYDRAULIC COMPONENTS and SAFETY DEVICES		
10029891	Connections kit for injection pump	
ROOM-SEALED KITS		
1102439	Air connection kit to Power Plus 50 kW	
1102449	Air connection kit to Power Plus 100 kW	
FLUE HEADERS		
4030311	Flues collector kit Ø 125 for 50 kW	
4030019	Flues collector kit Ø 160 for 50 kW	
20062323	Flues collector kit Ø 200 for 50 kW	
4030312	Flues collector kit Ø 125 for 100 kW	
4030037	Flues collector kit Ø 160 for 100 kW	
20062312	Flues collector kit Ø 200 for 100 kW	
20062332	End cap Ø 125	
20062333	End cap Ø 160	
20062335	End cap Ø 200	

code	description	
SPECIFIC ACCESSORIES FOR SPECIAL CASCADE SYSTEMS		
20010996	Hydraulic header/separator (LLH) up to 720 kW for indoor installation	
20021898	Primary loop pump <270 kW (with connections and electronic injection pump type RMDE 50-90)	-
20021900	Primary loop pump <450 kW (with connections and electronic injection pump type RMDE 80-50)	-
SUPPORTS for LINEAR WALL-HUNG or FREE STANDING MOUNTING		
20009472	Power Plus rig (front mounting)	
20018456	Supports hydraulic manifold kit (without rig) from 150 kW	
SUPPORT for BACK-TO-BACK MOUNTING		
20009474*	Rear mounting kit for Power Plus free-standing rig	

\* This component is recommended also for linear free-standing cascade installations to provide extra stability where needed

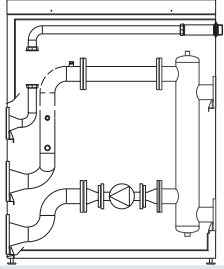
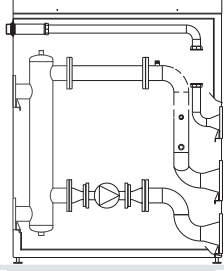
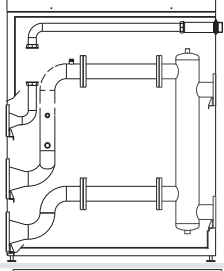
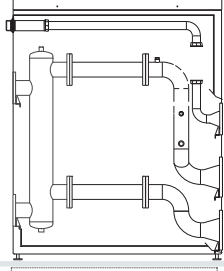
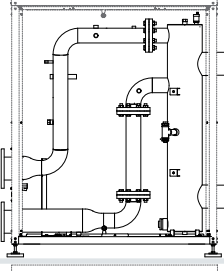
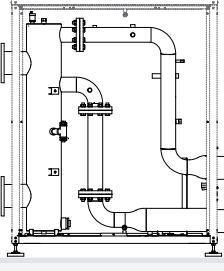
# Specific for 500-series BOXES

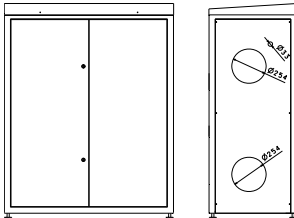
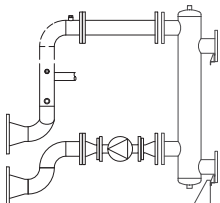
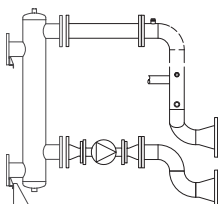
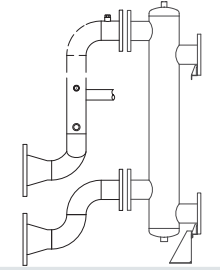
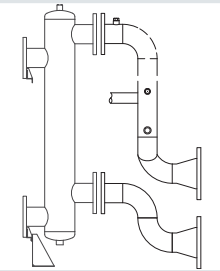
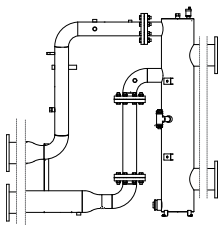
code	description	
COMMON ACCESSORIES FOR POWER PLUS BOX (all versions except SIS)		
XKIT1100	Power Plus junction Kit for Cascade (common to all the Boxes, except SIS)	
20011004	Gas anti-vibration kit (1 pcs)	
20011003	Water anti-vibration kit (2 pcs)	
20011165	Gas shutting valve (VIC) 1"1/4" with flange up to 300 kW	
20011167	Gas shutting valve (VIC) 1"1/2" with flange up to 540 kW	
20011169	Gas shutting valve (VIC) 2" with flange up to 720 kW	
20021898	Primary loop pump <270 kW (with connections and electronic injection pump type RMDE 50-90)	-
20021900	Primary loop pump <450 kW (with connections and electronic injection pump type RMDE 80-50)	-
20009475	ISPESL safety Kit (400 kW max)	

code	description	
SPECIFIC ACCESSORIES FOR SIS MODELS		
20011173	Low temperature kit SIS	
20011172	High temperature kit SIS	
20011174	Tank kit SIS	
20011175	System connections kit (2 pcs)	
XKIT0425	Plugs kit (2 pcs)	

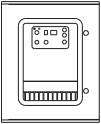
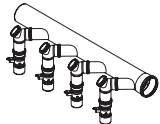
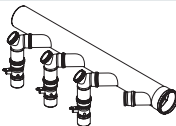


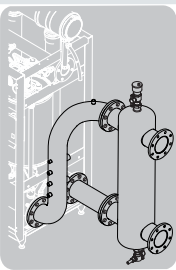
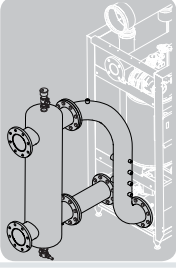

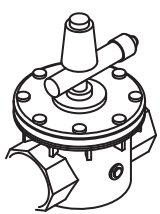


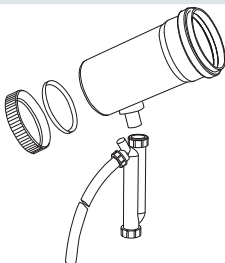
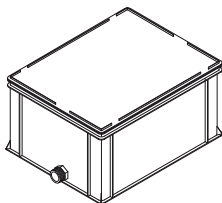
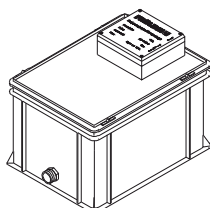



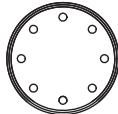
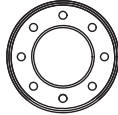
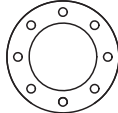
# Specific for 500-series BOXES

code	description	
SPECIFIC ACCESSORIES FOR OUTDOOR BOXES (all versions except SIS)		
XKIT0527N	Hydraulic separator for BOX EXT MAX 200KW - right CIRC.	
XKIT0528N	Hydraulic separator for BOX EXT MAX 200KW - left CIRC.	
XKIT0525N	Hydraulic separator for BOX EXT MAX 200KW with fitting pipes (right)	
XKIT0516N	Hydraulic separator for BOX EXT MAX 400KW with fitting pipes (right)	
XKIT0526N	Hydraulic separator for BOX EXT MAX 200KW with fitting pipes (left)	
XKIT0517N	Hydraulic separator for BOX EXT MAX 400KW with fitting pipes (left)	
20010062	Hydraulic separator for BOX EXT MAX 720KW with fitting pipes (right)	
20010065	Hydraulic separator for BOX EXT MAX 720KW with fitting pipes (left)	

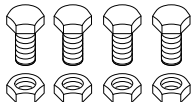





code	description	
SPECIFIC ACCESSORIES FOR OUTDOOR BOXES (all versions except SIS)		
20010998	Stainless steel BOX - empty	
SPECIFIC ACCESSORIES FOR INDOOR BOXES (all versions except SIS)		
XKIT0522N	Hydraulic separator for BOX INT MAX 200KW - right CIRC.	
XKIT0523N	Hydraulic separator for BOX INT MAX 200KW - left CIRC.	
XKIT0520N	Hydraulic separator for BOX INT MAX 200KW with fitting pipes (right)	
XKIT0518N	Hydraulic separator for BOX INT MAX 400KW with fitting pipes (right)	
XKIT0521N	Hydraulic separator for BOX INT MAX 200KW with fitting pipes (left)	
XKIT0519N	Hydraulic separator for BOX INT MAX 400KW with fitting pipes (left)	
20010996	Hydraulic separator for BOX INT MAX 720KW with fitting pipes (right)	

# Specific for 1000-series BOXES

code	description	
SPECIFIC FOR 1000-SERIES BOXES		
20058810	Master Board (incl. blind flanges)	
20058889	Flues collector 4x110 - 1x200	
20058892	Flues collector 3x110 - 1x200	
20058893	Flues collector 1x110 - 1x200 (for 2-engines box purchase 2)	
20062340	Condensate drain kit Ø 200 with tap	
20058895	Hydraulic separator in MAX 640KW (right)	
20058898	Hydraulic separator in MAX 1024KW (right) (suitable up to 10 engines)	
20058897	Hydraulic separator in MAX 640KW (left)	
20058899	Hydraulic separator in MAX 1024KW (left) (suitable up to 10 engines)	
20061644	ISPESL Safety kit	
20061638	Valve kit up to 580 kW	
20061640	Valve kit up to 1150 kW	

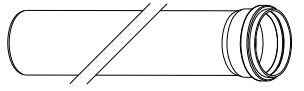
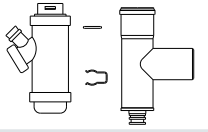

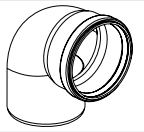


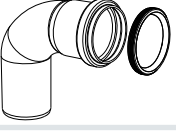
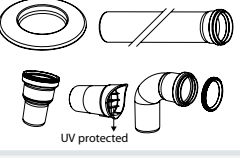
code	description	
FLUE CONDENSATE DRAIN KITS		
20062337	Condensate drain kit Ø 125 with tap	
20062338	Condensate drain kit Ø 160 with tap	
20062340	Condensate drain kit Ø 200 with tap	
COMPLEMENTARY ITEMS		
20011126	Condensate neutralizer N2 - up to 320 kW	
20011132	Condensate neutralizer N3 - up to 720 kW	
20011135	Condensate neutralizer HN2 (with pump) - up to 320 kW	
20011162	Condensate neutralizer HN3 (with pump) - up to 720 kW	
1102579	Blind flange 3" UNI 60/91 PN6 DN80	
1102589	Flange 3" UNI 2276-67 PN6 DN80	
20063062	Hydraulic gasket 3" DN80	
20063060	Blind flange 5" UNI 60/91 PN6 DN125	
20063061	Flange 5" UNI 2276-67 PN6 DN125	
20063063	Hydraulic gasket 5" DN125	

# Common to all configurations

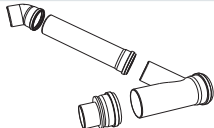






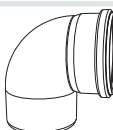
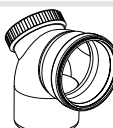

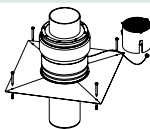
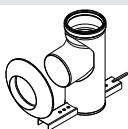
code	description	
COMPLEMENTARY ITEMS		
20063064	Bolt and nut (4 pcs)	
1102379	Remote control kit Power Plus	
27005733*	Interface kit for PC	
1102869	Low temperature kit	
20016110	Zone master kit	
1103059	Probe kit for DHW tank	


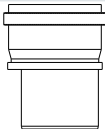

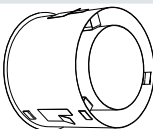
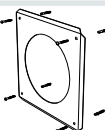


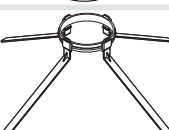
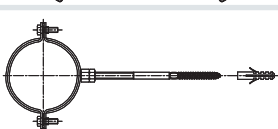
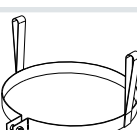

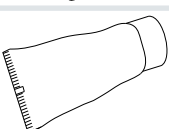
\* This code must be ordered through Beretta Service Catalogue



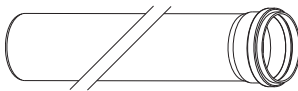




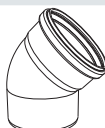
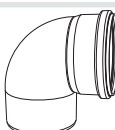
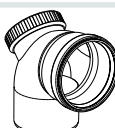

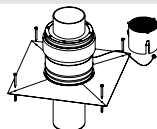

code	description	
<b>FLUE SYSTEMS Ø 50 (only for 500 series)</b>		
20021607	Extension Ø 50, 250 mm (white PPS)	
20021608	Extension Ø 50, 500 mm (white PPS)	
20021609	Extension Ø 50, 1000 mm (white PPS)	
20031842	Condensate drain kit Ø 50 (white PPS)	
20031841	45° bend Ø 50 (white PPS)	
20031840	90° bend Ø 50 (white PPS)	
20027815	Non-return flue valve kit Ø 50/80 (PPtI)	
<b>FLUE SYSTEMS Ø 60 (only for 500 series)</b>		
20046016	Extension Ø 60, 640 mm (black PPS)	
20046015	87° Bend Ø 60 (black PPS)	
20046028	Air intake/flue drain kit Ø 60 (black PPS)	 UV protected

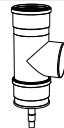
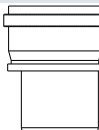


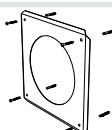

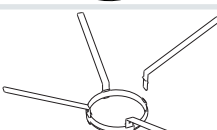

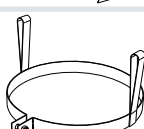
# Indoor flue options

code	description	
FLUE SYSTEMS Ø 125 (only for 500 series)		
20017306	Flues collector kit for frontal/rear installation (plastic, for cascade back-to-back)	
20037413	Extension Ø 125, 500 mm (plastic)	
20037415	Extension Ø 125, 1000 mm (plastic)	
20037416	Extension Ø 125, 2000 mm (plastic)	
20037424	Inspection extension Ø 125 (PPtI)	
20062337	Condensate drain kit Ø 125 with tap	
20062371	Condensate drain pipe Ø 125	
20062357	30° bend kit Ø 125 (plastic)	
20037396	45° bend kit Ø 125 (plastic)	
20037405	90° bend kit Ø 125 (plastic)	
20062362	Inspection bend Ø 125	
20027816	Chimney kit Ø 125	
20037431	Chimney cover Ø 125 (plastic & stainless steel)	
20037429	Chimney support Ø 125 (plastic)	

code	description	
FLUE SYSTEMS Ø 125 (only for 500 series)		
20062376	T-connection Ø 125 with condensate trap	
20062409	Eccentric adapter Ø 125/110	
20062411	Concentric adapter Ø 125/110	
20062381	Wall feeder Ø 125/185 (stainless steel)	
20062419	Wall cover Ø 125 (stainless steel)	
20062420	Wall cover Ø 125 (white EPDM)	
20062439	Grid Ø 125 (stainless steel)	
20037426	Pipe spacers kit Ø 125 (plastic), 5 pcs.	
20062440	Spacers Ø 125 (met white)	
20062398	Tool Ø 125	
20062443	Siphon Long John (PPtI)	
20062441	Assembly lubricant	

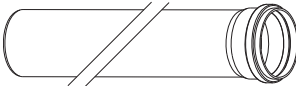

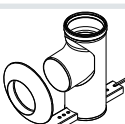
# Indoor flue options

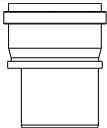

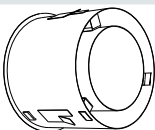
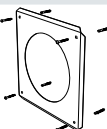


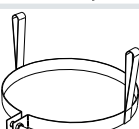
code	description	
FLUE SYSTEMS Ø 160 (only for 500 series)		
20060940	Extension Ø 160, 500 mm (PPtI)	
20060941	Extension Ø 160, 1000 mm (PPtI)	
20060942	Extension Ø 160, 2000 mm (PPtI)	
20060945	Inspection extension Ø 160 (PPtI)	
20062338	Condensate drain kit Ø 160 with tap	
20062447	Condensate drain pipe Ø 160	
20062445	30° bend kit Ø 160 (PPtI)	
20032646	45° bend kit Ø 160 (PPtI)	
20032644	90° bend kit Ø 160 (PPtI)	
20062446	Inspection bend Ø 160	
20032653	Chimney kit Ø 160	
20060953	Chimney cover Ø 160 (stainless steel)	
20062703	Chimney support kit Ø 160	

code	description	
FLUE SYSTEMS Ø 160 (only for 500 series)		
20062448	T-connection Ø 160 with condensate trap	
20062511	Eccentric adapter Ø 160-125	
20060950	Concentric adapter Ø 160-125	
20062449	Wall feeder Ø 160/225 (stainless steel)	
20062512	Wall cover Ø 160 (stainless steel)	
20062513	Grid Ø 160 (stainless steel)	
20060948	Pipe spacers kit Ø 160 (plastic), 5 pcs.	
20062444	Pipe spacers kit Ø 160 (stainless steel)	
20062510	Tool Ø 160	

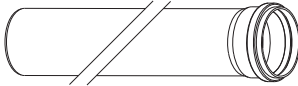




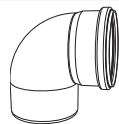

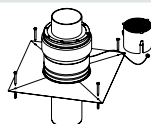
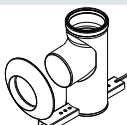
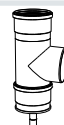
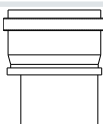




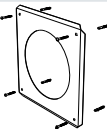


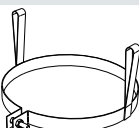
# Indoor flue options

code	description	
FLUE SYSTEMS Ø 200		
20062527	Extension Ø 200, 500 mm	
20062530	Extension Ø 200, 1000 mm	
20062532	Extension Ø 200, 2000 mm	
20062534	Inspection extension Ø 200	
20062340	Condensate drain kit Ø 200 with tap	
20062537	Condensate drain pipe Ø 200	
20062539	30° bend kit Ø 200	
20062542	45° bend kit Ø 200	
20062543	87° bend kit Ø 200	
20062545	Inspection bend Ø 200	
20062547	Chimney cover Ø 200 (stainless steel)	
20062548	Chimney support kit Ø 200	
20062550	T-connection Ø 200 with condensate trap	

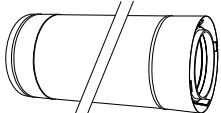
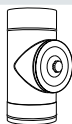

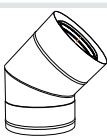
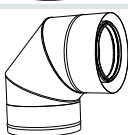
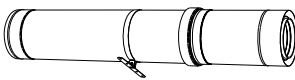
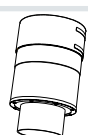
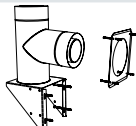
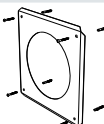
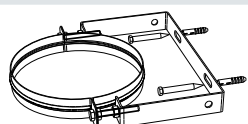
code	description	
FLUE SYSTEMS Ø 200		
20062566	Eccentric adapter Ø 200-160	
20062567	Concentric adapter Ø 200-160	
20062556	Wall feeder Ø 200 (stainless steel)	
20062574	Wall cover Ø 200 (stainless steel)	
20062575	Grid Ø 200 (stainless steel)	
20062564	Pipe spacers Ø 200 (stainless steel)	
20062563	Tool Ø 200	

# Indoor flue options


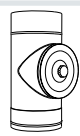

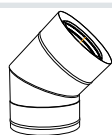
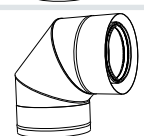
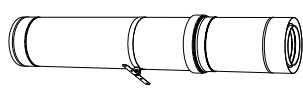
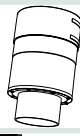
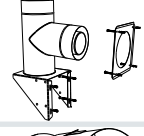
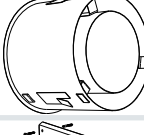
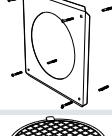
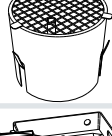

code	description	
FLUE SYSTEMS Ø 250		
20062576	Extension Ø 250, 500 mm	
20062577	Extension Ø 250, 1000 mm	
20062578	Extension Ø 250, 2000 mm	
20062591	Inspection pipe Ø 250	
20062592	Condensate drain pipe Ø 250	
20062593	30° bend kit Ø 250	
20062594	45° bend kit Ø 250	
20062595	87° bend kit Ø 250	
20062598	Inspection bend Ø 250	
20062599	Chimney cover Ø 250 (stainless steel)	
20062600	Chimney support kit Ø 250	
20062601	T-connection Ø 250 with condensate trap	
20062606	Eccentric adapter Ø 250-160	

code	description	
FLUE SYSTEMS Ø 250		
20062607	Concentric adapter Ø 250-200	
20062602	Wall feeder Ø 250 (stainless steel)	
20062635	Wall cover Ø 250 (stainless steel)	
20062636	Grid Ø 250 (stainless steel)	
20062605	Pipe spacers Ø 250 (stainless steel)	
20062604	Tool Ø 250	

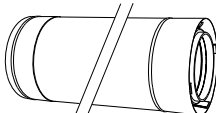
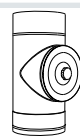

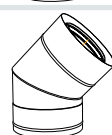
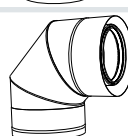
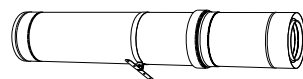

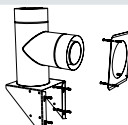
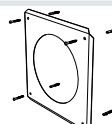
# Outdoor flue options

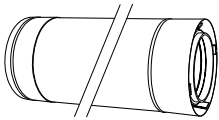
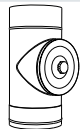

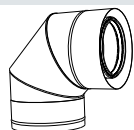
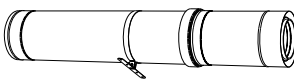
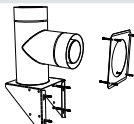
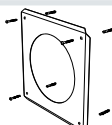
code	description	
FLUE SYSTEMS Ø 125 (PP) - Ø 185 (stainless steel)		
20062637	Extension Ø 125-185, 250 mm (stainless steel)	
20062638	Extension Ø 125-185, 500 mm (stainless steel)	
20062639	Extension Ø 125-185, 1000 mm (stainless steel)	
20062641	Inspection pipe Ø 125-185 (PP-stainless steel)	
20062644	30° bend kit Ø 125-185 (PP-stainless steel)	
20062646	45° bend kit Ø 125-185 (PP-stainless steel)	
20062648	90° bend kit Ø 125-185 (PP-stainless steel)	
20062650	Ø 125-185 pipe for terminal (PP-stainless steel)	
20062651	Ø 125-185 terminal (PP-stainless steel)	
20062649	Chimney support kit Ø 125-185 (PP-stainless steel)	
20062654	Wall cover Ø 185 (stainless steel)	
20062653	External chimney spacers Ø 185 (stainless steel)	



code	description	
FLUE SYSTEMS Ø 160 (PP) - Ø 225 (stainless steel)		
20062655	Extension Ø 160-225, 500 mm (PP-stainless steel)	
20062656	Extension Ø 160-225, 1000 mm (PP-stainless steel)	
20062657	Inspection pipe Ø 160-225 (PP-stainless steel)	
20062658	30° bend kit Ø 160-225 (PP-stainless steel)	
20062659	45° bend kit Ø 160-225 (PP-stainless steel)	
20062660	87° bend kit Ø 160-225 (PP-stainless steel)	
20062662	Ø 160-225 pipe for terminal (PP-stainless steel)	
20062663	Ø 160-225 terminal (PP-stainless steel)	
20062661	Chimney support kit Ø 160-225 (PP-stainless steel)	
20062449	Wall feeder Ø 160-225 (stainless steel)	
20062665	Wall cover Ø 225 (stainless steel)	
20062513	Grid Ø 160 (stainless steel)	
20062664	External chimney spacers Ø 225 (stainless steel)	

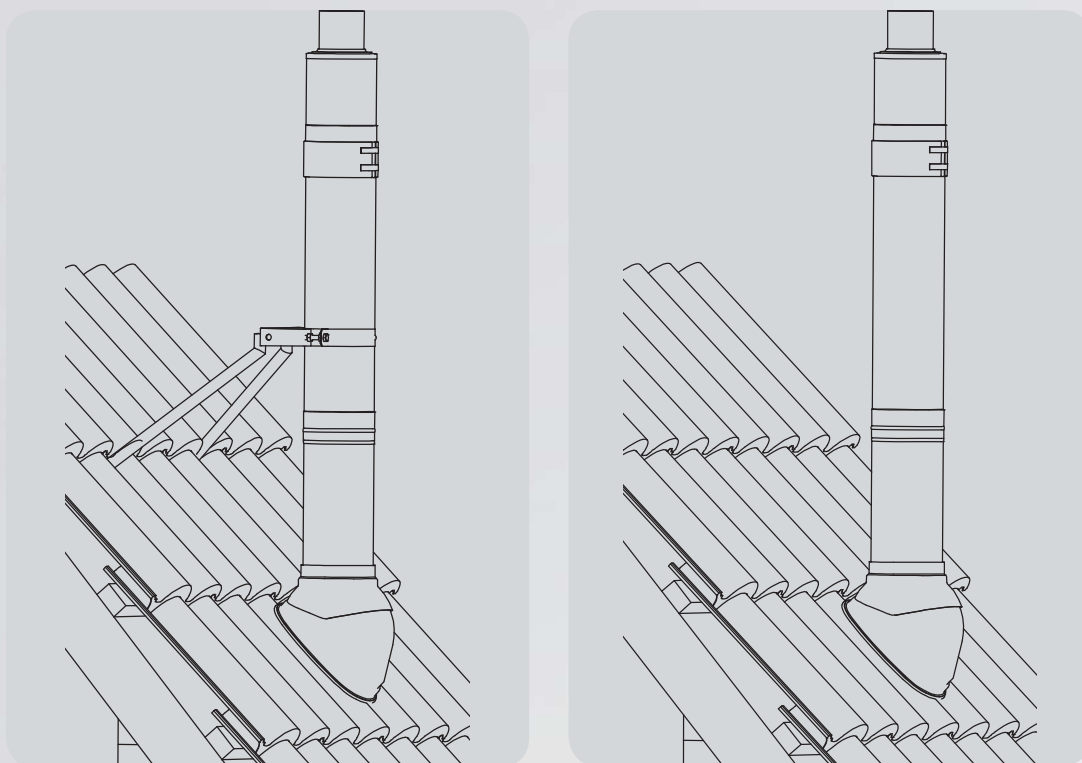
# Outdoor flue options

code	description	
FLUE SYSTEMS Ø 200 (PP) - Ø 300 (stainless steel)		
20062666	Extension Ø 200-300, 500 mm (PP-stainless steel)	
20062667	Extension Ø 200-300, 1000 mm (PP-stainless steel)	
20062668	Inspection pipe Ø 200-300 (PP-stainless steel)	
20062669	30° bend kit Ø 200-300 (PP-stainless steel)	
20062670	45° bend kit Ø 200-300 (PP-stainless steel)	
20062671	87° bend kit Ø 200-300 (PP-stainless steel)	
20062673	Ø 200-300 pipe for terminal (PP-stainless steel)	
20062674	Ø 200-300 terminal (PP-stainless steel)	
20062672	Chimney support kit Ø 200-300 (PP-stainless steel)	
20062675	Wall cover Ø 300 (stainless steel)	

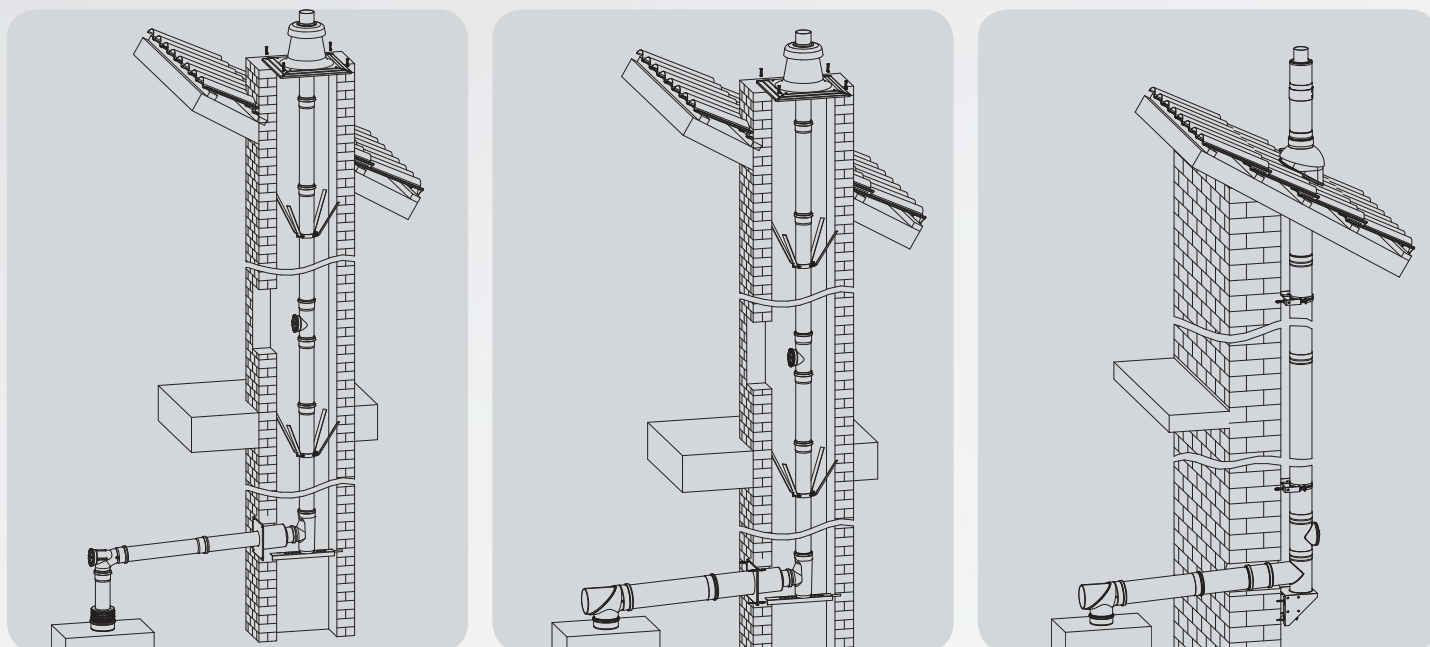
code	description	
FLUE SYSTEMS Ø 250 (PP) - Ø 350 (stainless steel)		
20062676	Extension Ø 250-350, 500 mm (PP-stainless steel)	
20062677	Extension Ø 250-350, 1000 mm (PP-stainless steel)	
20062688	Inspection pipe Ø 250-350 (PP-stainless steel)	
20062689	45° bend kit Ø 250-350 (PP-stainless steel)	
-	87° bend kit Ø 250-350 (PP-stainless steel) (to be done by means of 2x45° bends code 20062689)	
20062691	Ø 250-350 pipe for terminal (PP-stainless steel)	
20062692	Ø 250-350 terminal (stainless steel)	
20062690	Chimney support kit Ø 250-350 (PP-stainless steel)	
20062693	Wall cover Ø 350 (stainless steel)	

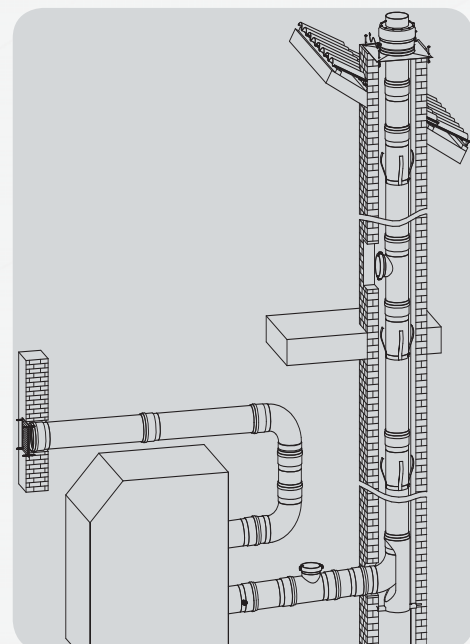
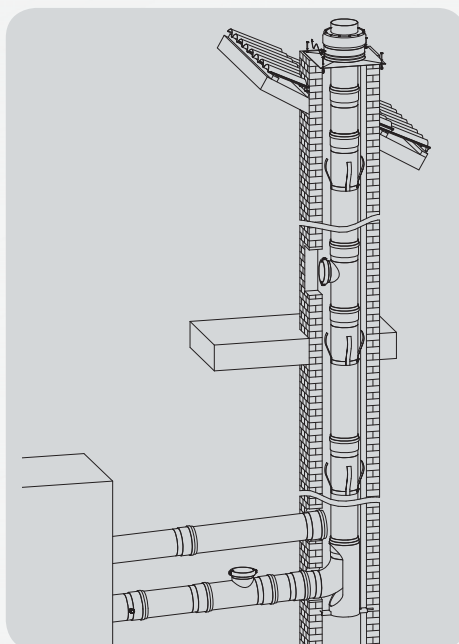
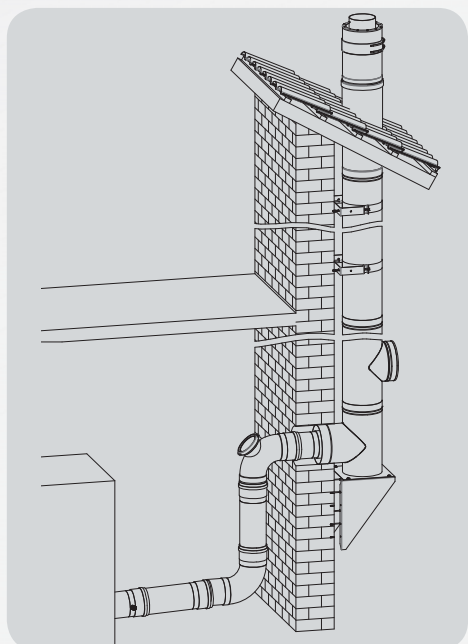
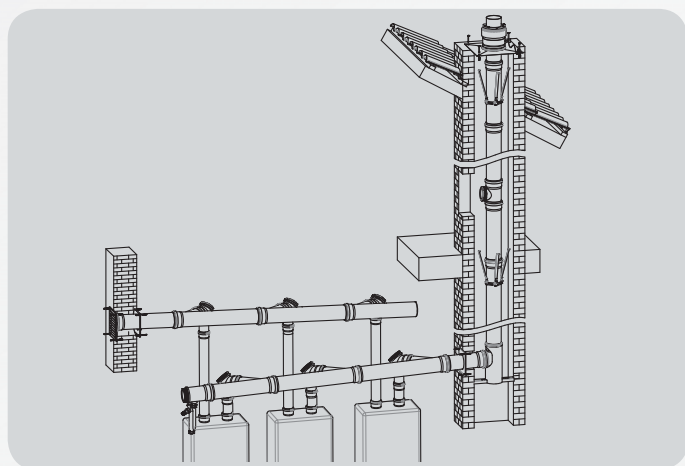
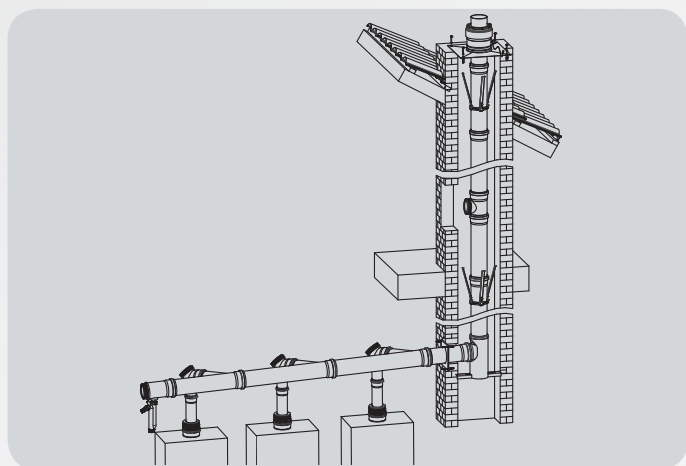
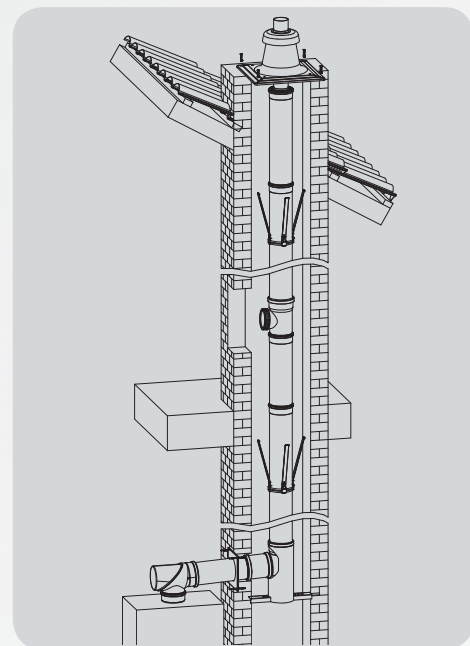
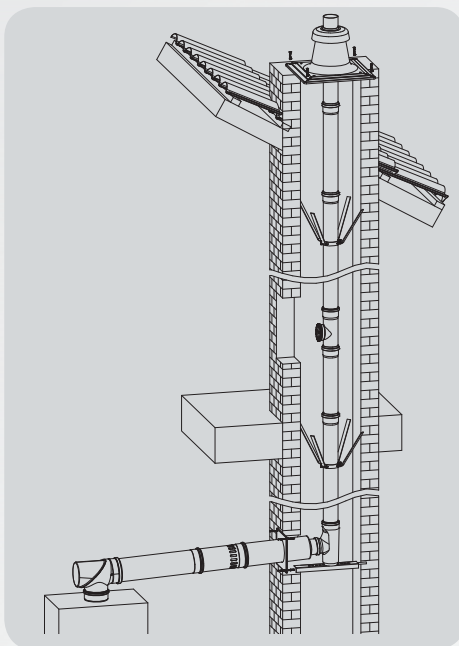
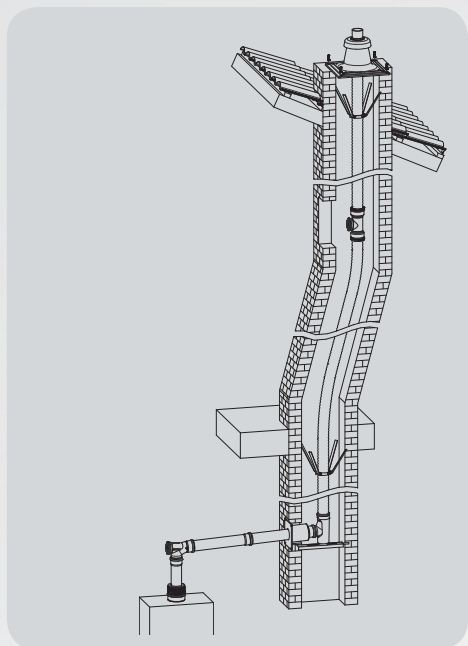
# System chimney

## Roof chimney terminal parts



## Typical installation variants with Beretta indoor and outdoor flue systems





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