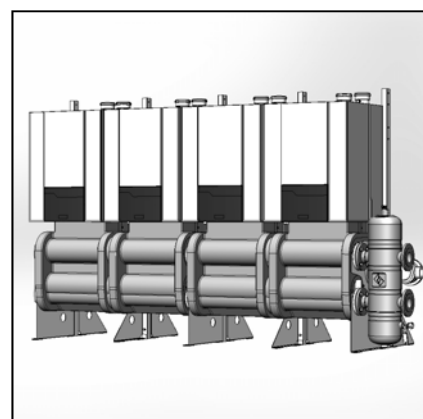
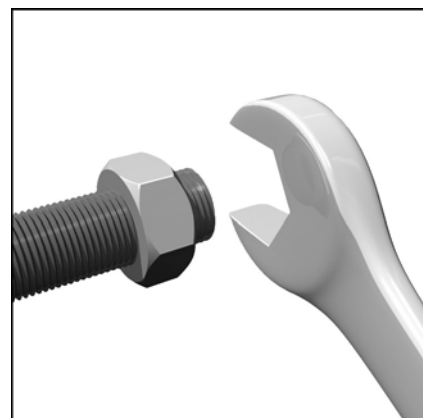


Assembly manual

for authorized technicians only

Cascade systems



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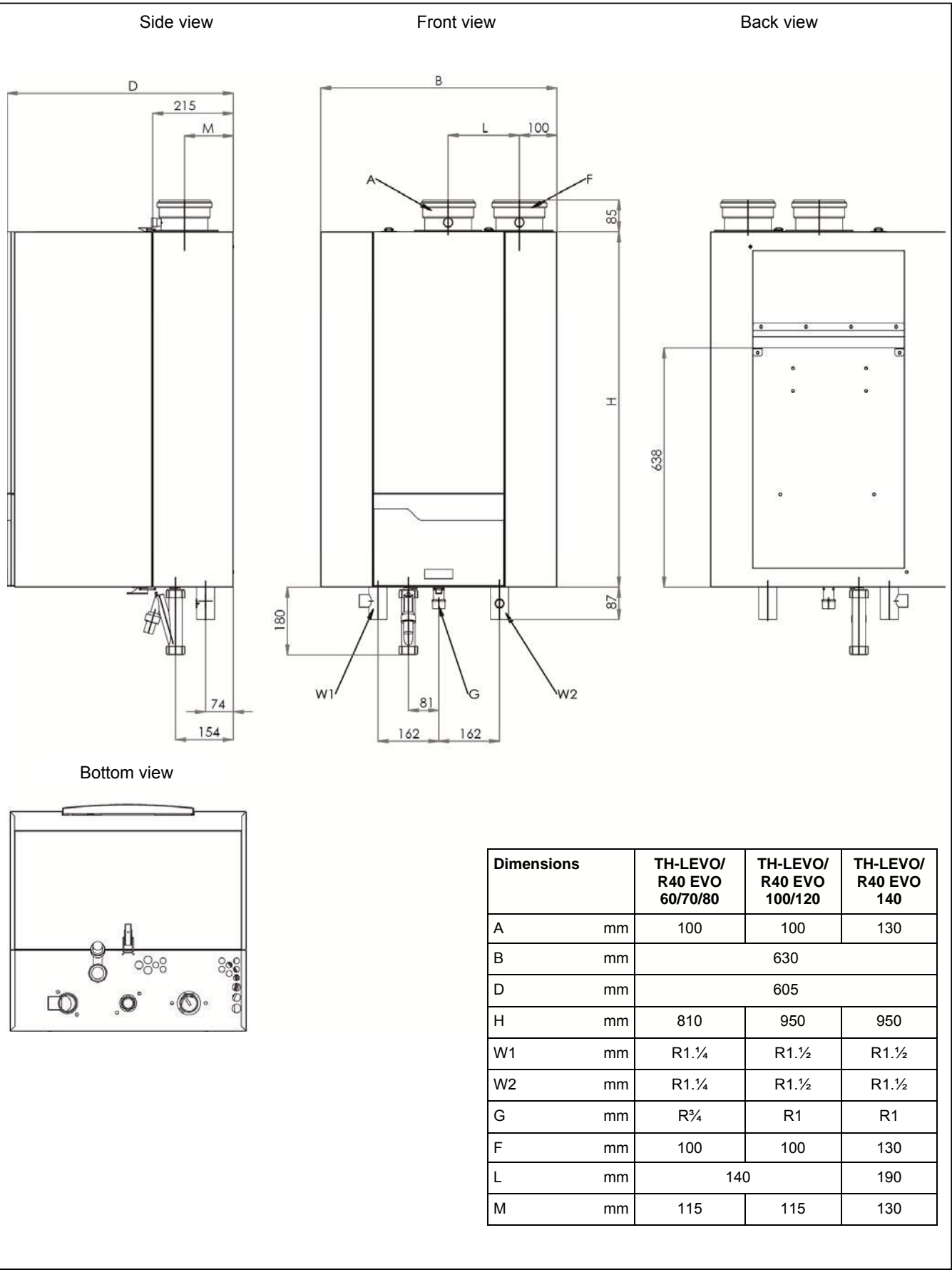
Technical data

		TH-L EVO/ R40 EVO 60	TH-L EVO/ R40 EVO 70	TH-L EVO/ R40 EVO 80	TH-L EVO/ R40 EVO 100	TH-L EVO/ R40 EVO 120	TH-L EVO/ R40 EVO 140
Nominal heat output at 80/60°C max/min	kW	56,5/15,5	65,5/15,6	75,3/19,4	92,9/18,7	111,9/22,5	130,4/26,2
Nominal heat output at 50/30°C max/min	kW	60,4/17,2	70,0/17,2	79,7/21,2	98,9/20,6	118,5/24,8	137,8/28,9
Nominal heat output at 40/30°C max/min	kW	60,5/17,3	70,0/ 17,4	79,7/21,5	98,9/20,9	118,5/25,2	137,8/29,3
Nominal heat input Hi max/min	kW	57,9/16,0	66,8/16,0	76,8/19,8	95,2/19,0	114,3/22,9	133,3/26,7
Modulation ratio	-	3,6	4,2	3,9	5	5	5
Efficiency at 80/60°C max/min	%	97,6/97,0	98,0/97,5	98,0/97,9	97,6/98,3	97,9/ 98,3	97,8/ 98,3
Efficiency at 50/30°C max/min	%	104,4/107,4	104,8/107,3	103,8/107,2	103,9/108,5	103,7/108,4	103,4/108,3
Efficiency at 40/30°C max/min	%	104,5/108,3	104,8/108,5	103,8/108,6	103,9/110,0	103,7/109,9	103,4/109,8
Efficiency at 36/30°C load 30%	%	107,2	107,2	107,1	107,8	107,9	107,6
RAL 40/30 average	%	108,7	109,1	109,4	109,4	109,1	108,7
Heat Loss (Pstby)	W	81	81	81	92,7	92,7	92,7
Max. condensate flow	l/h	3,6	4,4	4,3	5,4	6,4	7,1
Gas consumption G20 max/min (10,9 kWh/m3)	m3/h	5,3/1,5	6,1/1,5	7,0/1,8	8,7/1,7	10,5/2,1	12,2/2,4
Gas consumption G25 max/min (8,34 kWh/m3)	m3/h	6,9/1,9	8,0/1,9	9,2/2,4	11,4/2,3	13,7/2,7	16,0/3,2
Gas consumption G31 max/min (12,8 kWh/kg)	kg/h	4,5/1,3	5,2/1,3	6,0/1,5	7,4/1,5	8,9/1,8	10,4/2,1
Gas pressure G20	mbar	20					
Gas pressure G25	mbar	25					
Gas pressure G31	mbar	30/50					
Maximum gas pressure	mbar	50					
Max. temperature flue gas (high limit)	°C	90					
Flue gas temperature at 80/60°C max/min	°C	59/57	60/57	61/58	60/56	63/56	66/57
Flue gas temperature at 50/30°C max/min	°C	43/35	44/34	45/33	44/33	46/33	48/33
Flue gas temperature at 40/30°C max/min	°C	42/33	44/33	44/33	43/32	45/32	47/32
Flue gas temperature at 36/30°C load 30%		34	35	35	33	34	35
Flue gas quantity max/min	m3/h	83/22	98/22	113/27	139/27	168/33	202/38
CO level at 80/60 °C max/min	ppm	75/11	92/11	87/7	67/5	82/4	62/7
CO level at 80/60 °C max/min	mg/kWh	80/11	99/11	94/7	72/5	88/5	67/7
CO year emission EN15502	ppm	35,79	43,76	51,73	41,53	40,76	39,99
CO year emission EN15502	mg/kWh	38,44	47	55,56	44,6	43,78	42,95
CO ₂ level Max. Load G20-G25	%	8,5(+0-0,2)	8,4 (+0-0,2)	8,4 (+0-0,2)	8,4 (+0-0,2)	8,4 (+0-0,2)	8,2 (+0-0,2)
CO ₂ level Min. Load G20-G25	%	9,0 (+0-0,2)	9,0 (+0-0,2)	9,0 (+0-0,2)	8,5 (+0-0,2)	8,5 (+0-0,2)	8,5 (+0-0,2)
Restriction ΔCO ₂ max.load - min. load (G20-	%	-	-	-	-	-	<0,3
CO ₂ level Max. load	%	9,6 (0 +0,2)					
CO ₂ level Min. load	%	9,6 (0 +0,2)					
Restriction ΔCO ₂ max.load - min. load	%	CO ₂ Min. load ≤ CO ₂ Max. load					
NOx level at 80/60 °C max/min	ppm	25/10	30/11	34/16	25/11	22/15	15/15
NOx level at 80/60 °C max/min	mg/kWh	44/17	53/19	60/28	44/19	38/27	26/26
NOx emission EN15502	ppm	13,94	18,78	23,61	28,38	22,61	16,84
NOx emission Hi/Hs EN15502	mg/kWh	24,60/22,15	32,61/29,36	40,61/36,57	46,67/42,03	38,19/34,40	29,71/26,76
NOx class EN15502		6					
Max. permissible flue resistance	Pa	167	200	200	173	134	200
Water volume	l	6	6	6	9	9	9
Water pressure max/min	bar	08/01	08/01	08/01	08/01	08/01	08/01
Max. water temperature (High limit thermostat)	°C	100	100	100	100	100	100
Maximum temperature setpoint	°C	90	90	90	90	90	90
Nominal water flow at dT=20K	m3/h	2,4					
Hydraulic resistance at nominal flow rate	kPa	15	18	22	7	9	11
Electrical connection	V	230					
Frequency	Hz	50					
Mains connection fuse	A	10					

Technical data

		TH-L EVO/ R40 EVO 60	TH-L EVO/ R40 EVO 70	TH-L EVO/ R40 EVO 80	TH-L EVO/ R40 EVO 100	TH-L EVO/ R40 EVO 120	TH-L EVO/ R40 EVO 140
IP class with Appliance Type B23(P)	-	IP30					
IP class with App. Type C13, C33, C43, C53, C63, C83,	-	IPX4D					
Weight (empty)	Kg	83	83	83	96	96	96
Weight (filled with water)	Kg	89	89	89	105	105	105
Sound Power Level (LWA)	dB	55	55	56	62	57	57
Ionisation current	µA	1,15	1,15	1,15	4,2	1,15	4,2
Rpm max / min load G20-G25	rpm	6070/1770	7260/1800	7820/2060	6710/1570	4960/1150	5730/1300
Rpm max / min load G31	rpm	5810/1770	6710/1800	7190/2060	6090/1570	4690/1150	5460/1300
Rpm pre / post purge	rpm	2800/2800					
pre / post purge time	sec	10-30					
safety time	sec	5					
pH value condensate	-	3,2					
CE certification code	-	CE-0063CM3576					
Water connections	-	R1.1/2"					
Gas connection	-	R3/4"			R1"		
Flue gas connection (DN)	-	100					130
Air intake connect. (room sealed use) (DN)	mm	100					130
Condensate connection	mm	22					

Technical data



Declaration of Conformity

Declaration of Conformity

Elco BV, Hamstraat 76, 6465 AG Kerkrade (NL),
Declares that the products

THISION L EVO R40 EVO

Is in conformity with the following standards:

EN 15502-1
EN 15502-2-1
EN 55014-1 / -2
EN 61000-3-2 /-3
EN 60 335-1/ -2

And in accordance with the guidelines of directives:

92 / 42 / EEC (boiler efficiency directive)
2009 / 142 / EEC (gas appliance directive)
2006 / 95 / EEC (low voltage directive)
2004 / 108 / EEC (EMC directive)
2014 / 68 / EU PED directive, art. 4-3
2009 / 125/ CE Energy related Products
811-813 / 2013 EU regulation

This product is designated with CE number:

CE - 0063CM3576

Kerkrade, 01-03-2016



A.J.G. Schuiling
Plant Manager

Cascade assembly

General instructions

The following pages show the most convenient way to install the complete cascade system, both for line and back to back solutions.

The pictures show a cascade system with system connections to the right, but it's also possible to make the system connections to the left.

The system should be installed and commissioned by authorized personnel only.

The usage of approved sealing material is highly recommended.

After assembly, the system should be pressure tested to check if the assembly is done in a proper way and the system is not showing any leakages (hydraulics and gas!).

This manual is purely meant to assist to the installation of a complete cascade system. For technical details about the boilers or system components, please refer to the boiler manual or planner documentation.

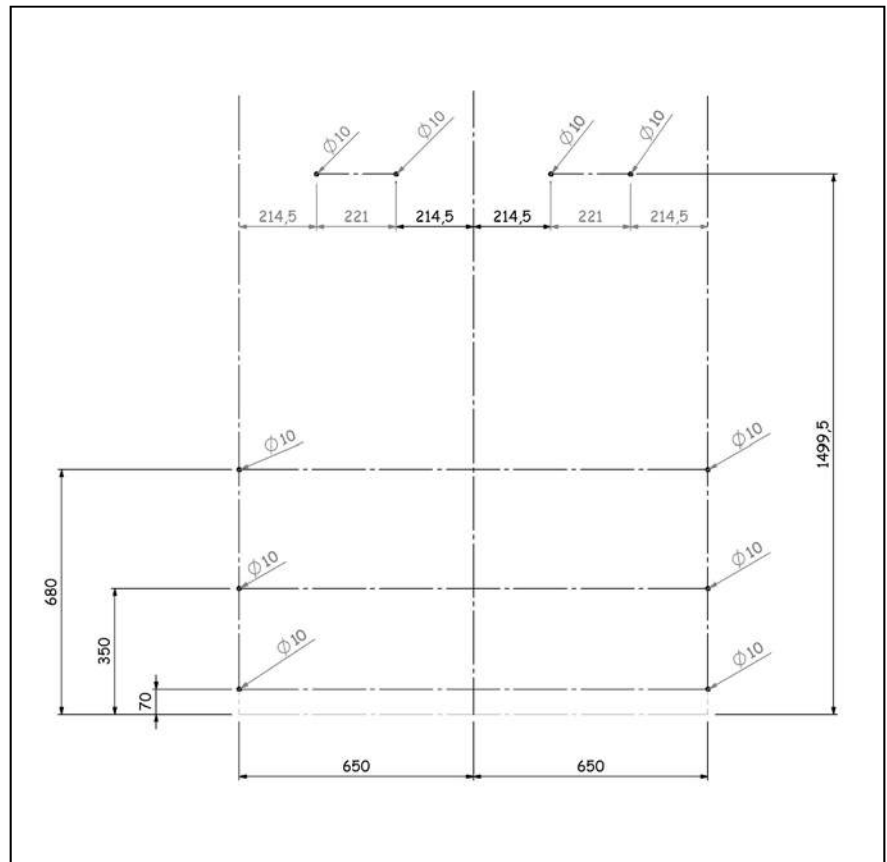
Cascade assembly

Frame - line, wall mounted

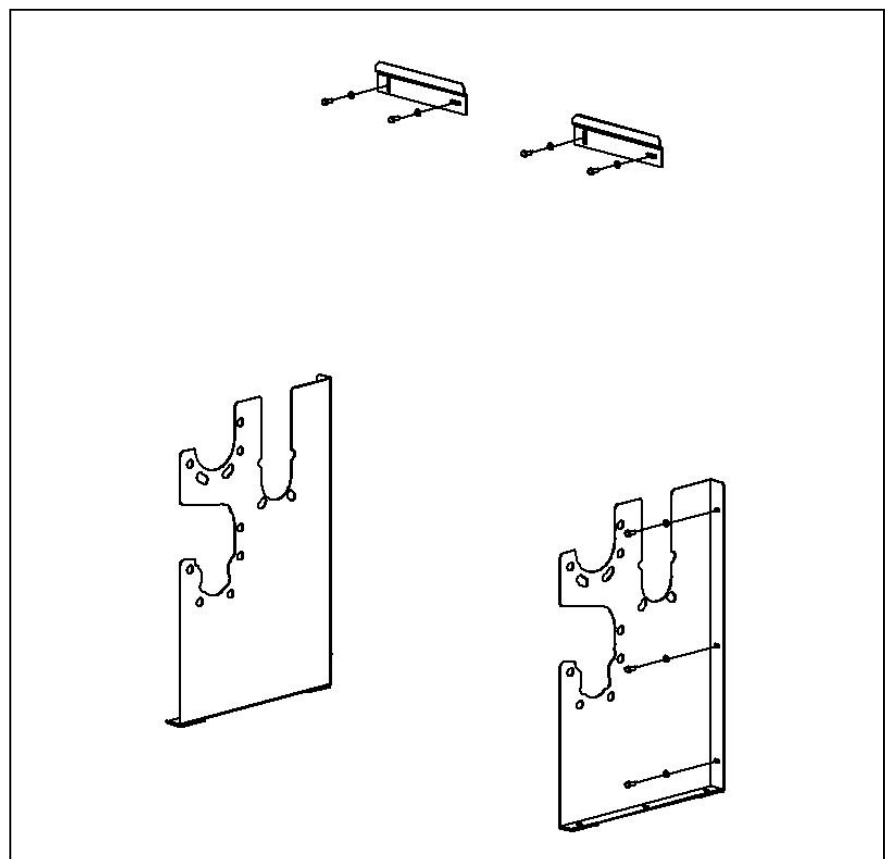
Mark the boreholes on the wall as displayed in the drawing.
Drill the holes and place the plugs.

NOTE:

Before installing the boilers on the wall, please ensure that the wall is firm enough to carry the weight of the boilers (see technical data for weight indication by boiler type).



Fix the boiler supports and collector support panels to the wall.



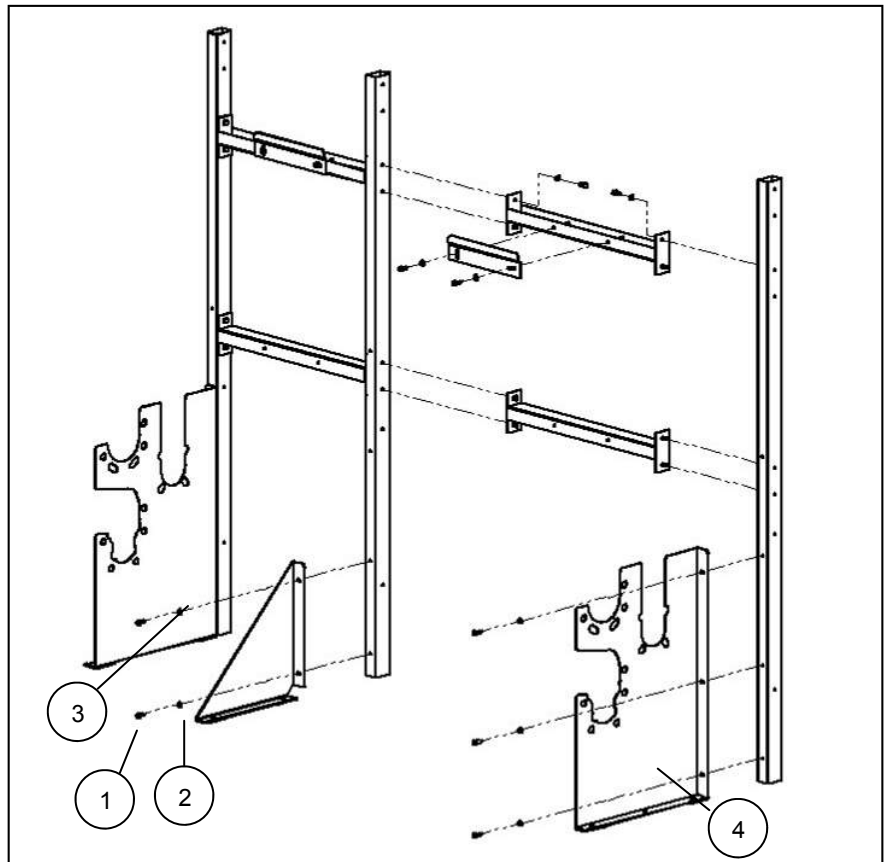
Cascade assembly

Frame - line, floor standing frame

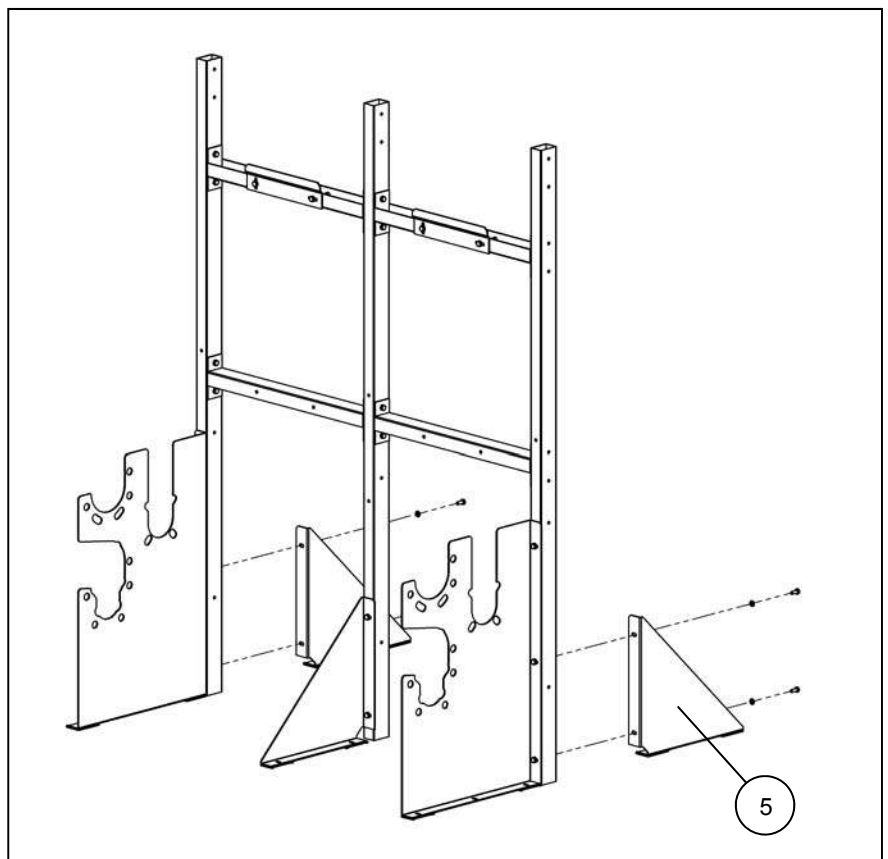
Place the frame on a clean and level surface.

All parts are assembled and fastened with M8 hexagonal bolts (1) and washers (2).

The collector supports (3) and (4) are designed for both frame support as well as support for the hydraulic and gas collector tubes.



Assemble the back feet (5) for more stability when the system is free standing in the boiler room.



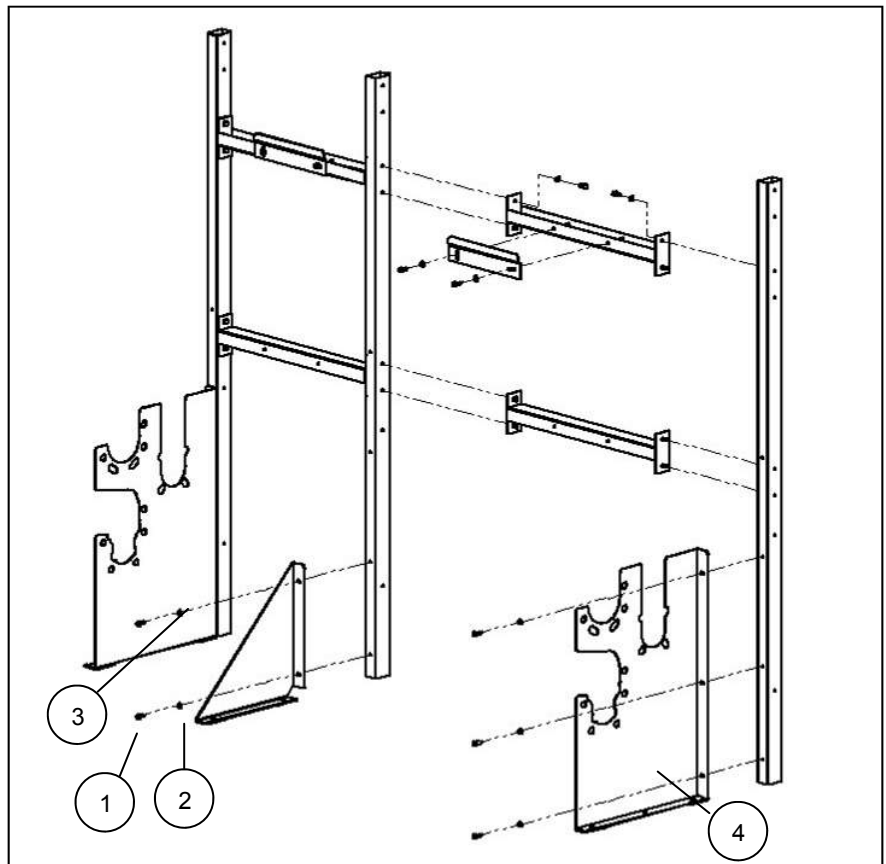
Cascade assembly

Frame - back to back, floor standing frame

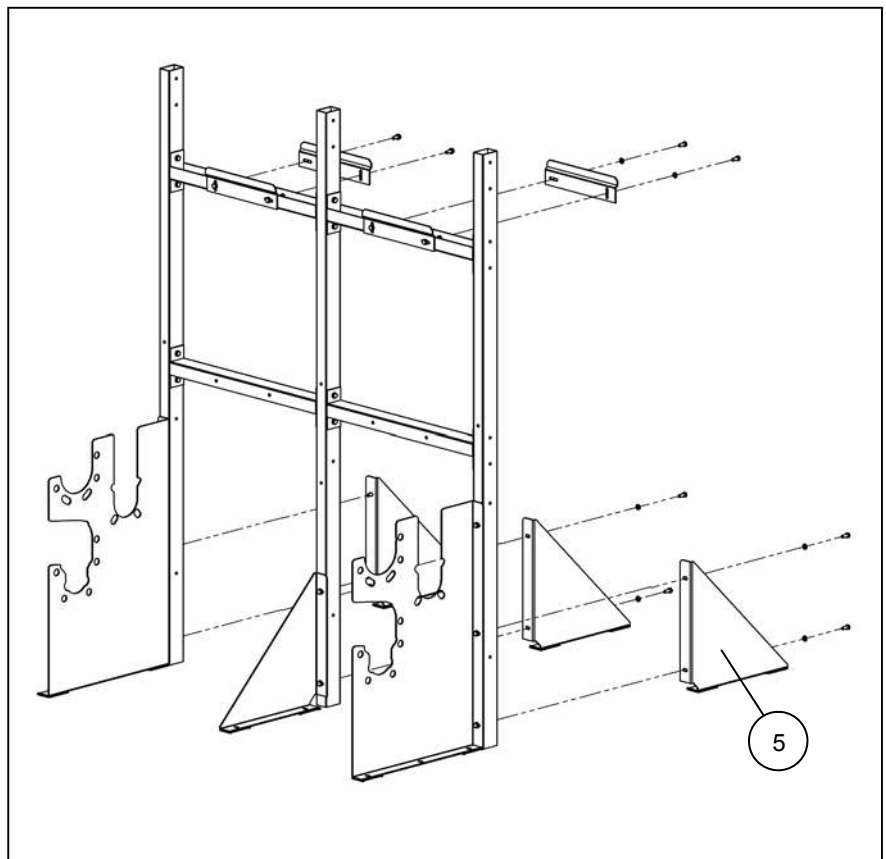
Place the frame on a clean and level surface.

All parts are assembled and fastened with M8 hexagonal bolts (1) and washers (2).

The collector supports (3) and (4) are designed for both frame support as well as support for the hydraulic and gas collector tubes.



Assemble the back feet (5).



Cascade assembly

Collector

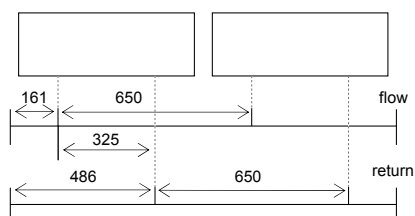
Position the flow (1) and return (2) tubes, as well as the gas tube (3) on the collector supports (4 and 5).

Place the gaskets (6) and the blind flanges (7) and assemble them with M16 bolts and nuts (8).

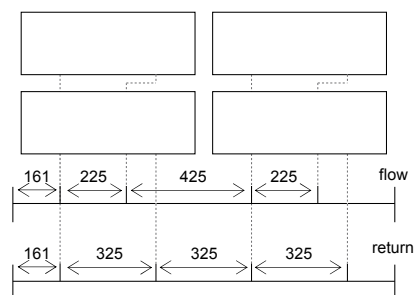
NOTE:

It's important to check whether the collector tubes are placed in the right direction, in order to avoid difficulties with assembling the boiler connection kits. Check the position of the connections as shown on the pictures below.

Line (top view)

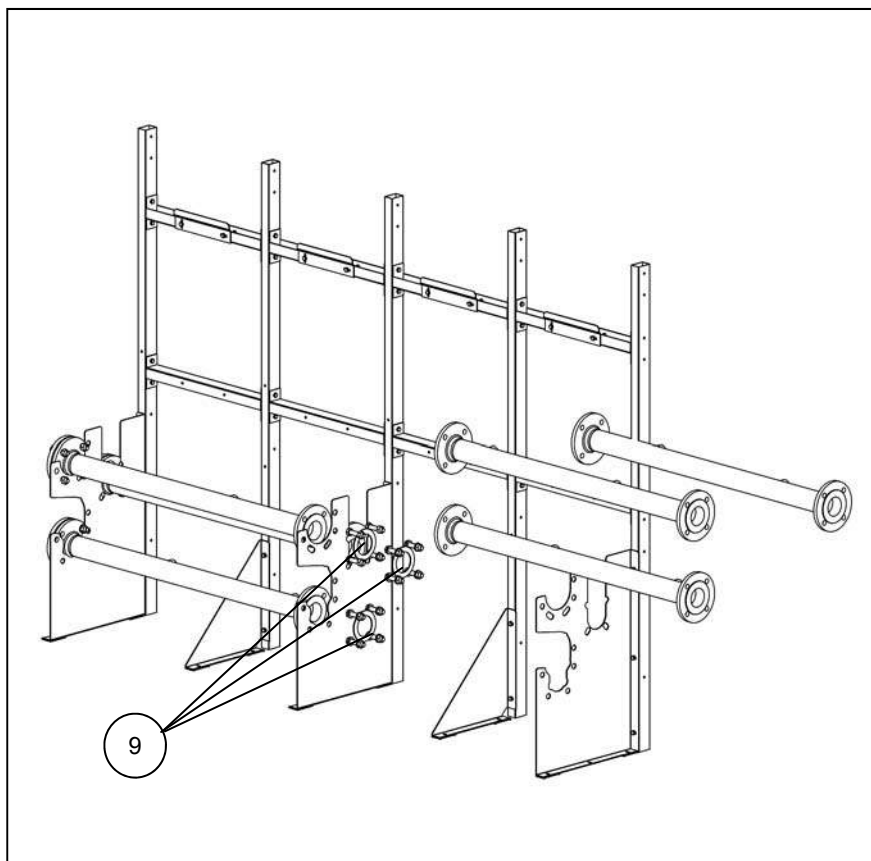
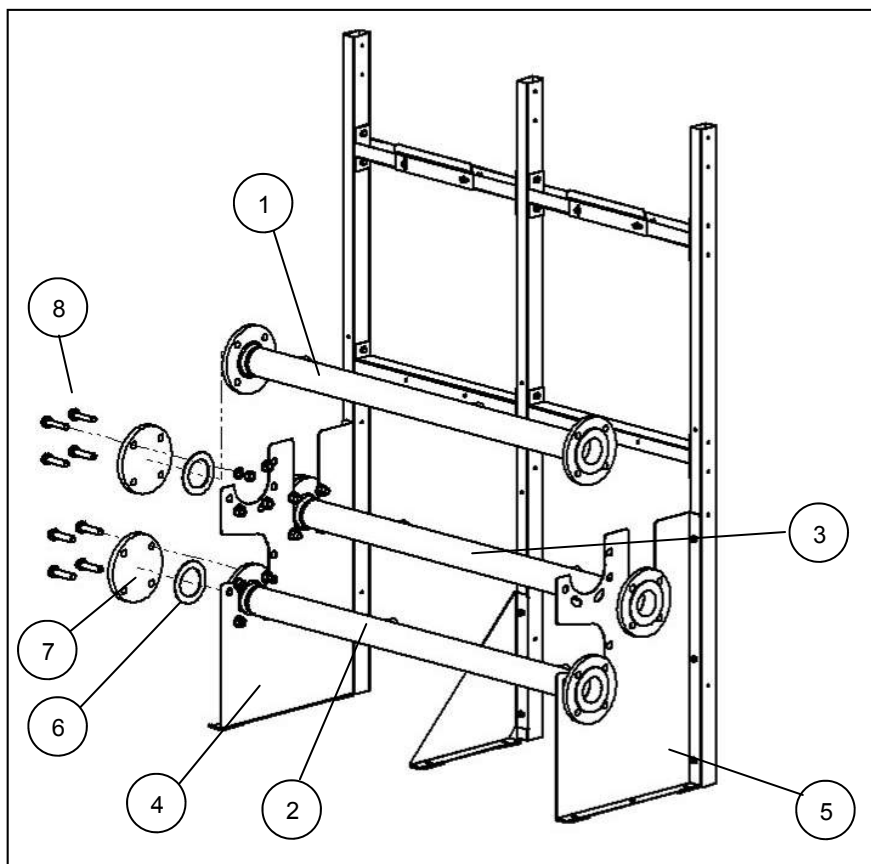


Back-to-back (top view)



For line configurations of more than 3 boilers and back to back configurations of more than 6 boilers, two collectors have to be connected.

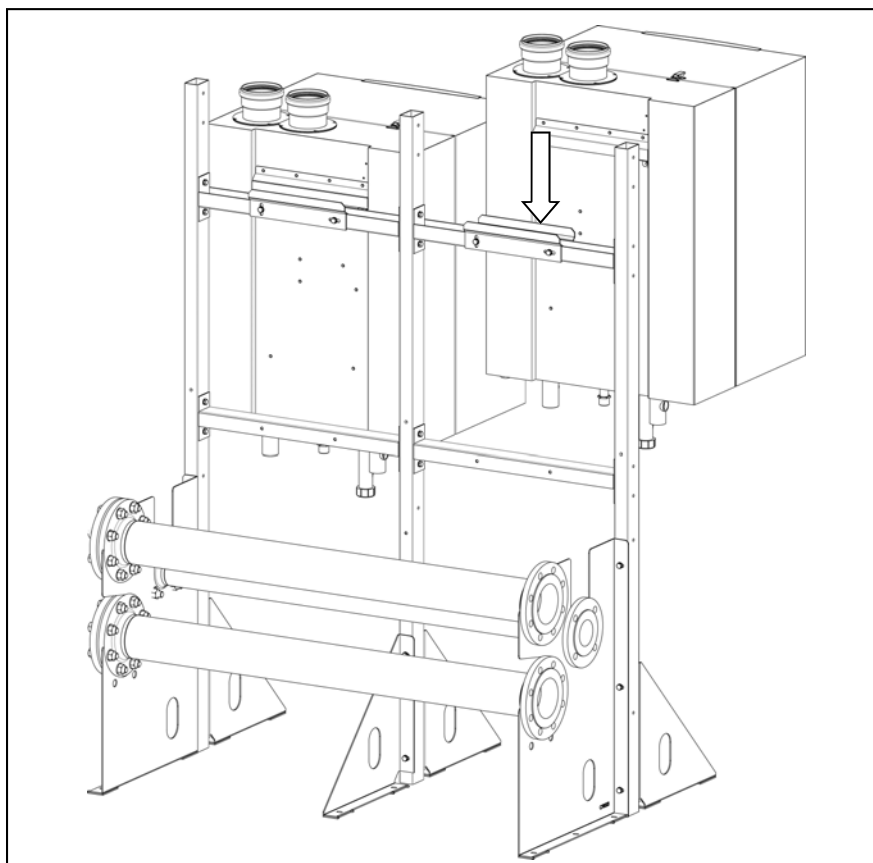
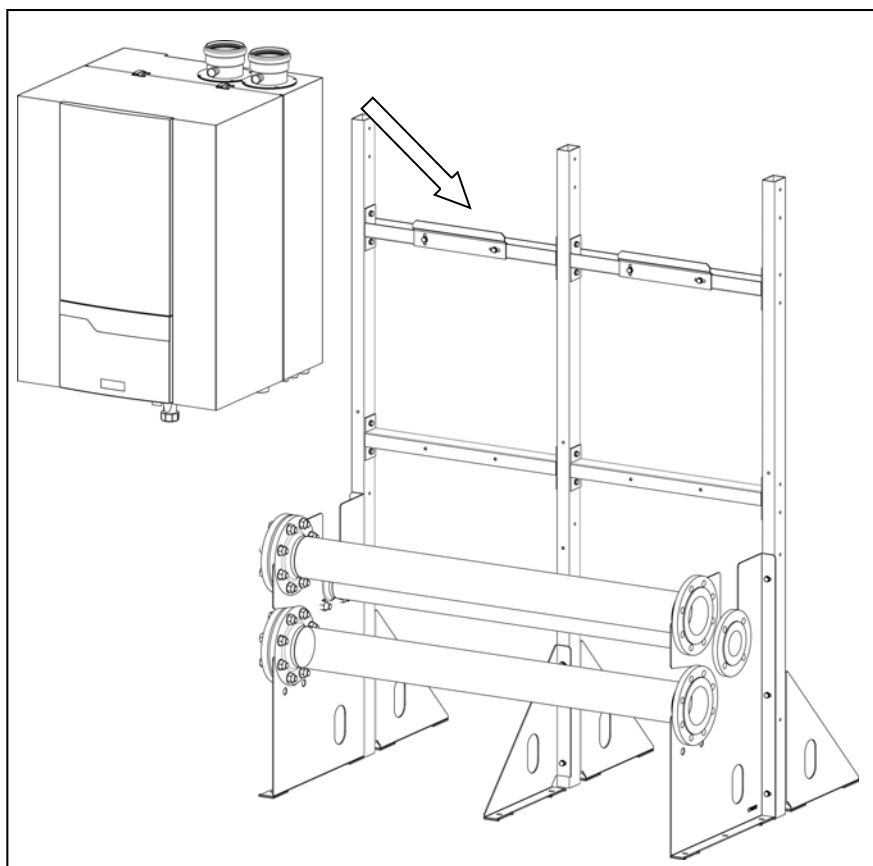
In this situation, a hydraulic connection kit (9) must be used to connect the hydraulic and gas flanges of one collector to the other. A second left-hand collector support is used as mid support.



Cascade assembly

Boilers

Place the boilers on the frame, make sure they are aligned properly.



Cascade assembly

Insulation - back panel

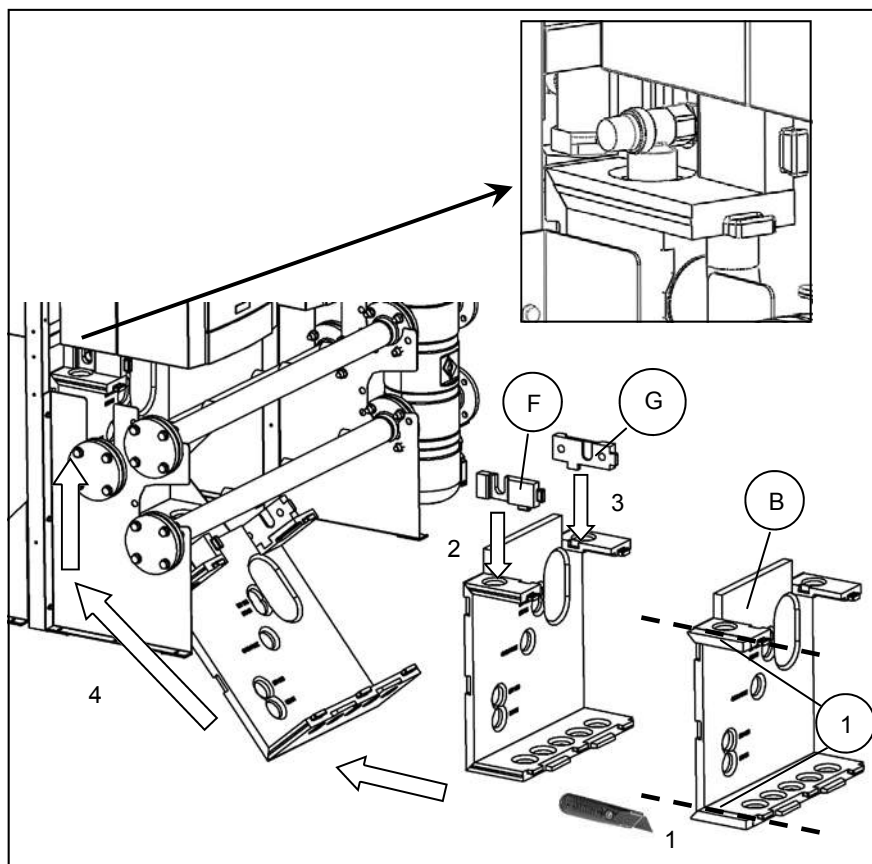
Back panel boiler 1 (left):

1. Cut off the extension pieces (1) of the back panel **B**.
2. Place part **F**.
3. Place part **G**.
4. Place the back panel **B** in the cascade system.

Back panel boiler 2 (right):

For the second boiler follow step 2-4 as described for boiler 1 (NOTE: the insulation should NOT be cut!)

For an eventual 3rd boiler repeat the activities as described for boiler 2.



Cascade assembly

ISPESL kit (Italy only)

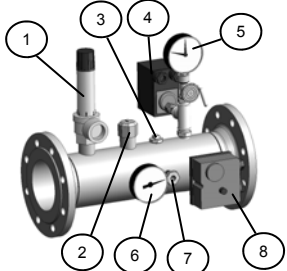
Position the ISPESL flow pipe (1) to the flow connection of the collector.

Place the gasket (2) and assemble the pipe with M16 bolts and nuts (3).

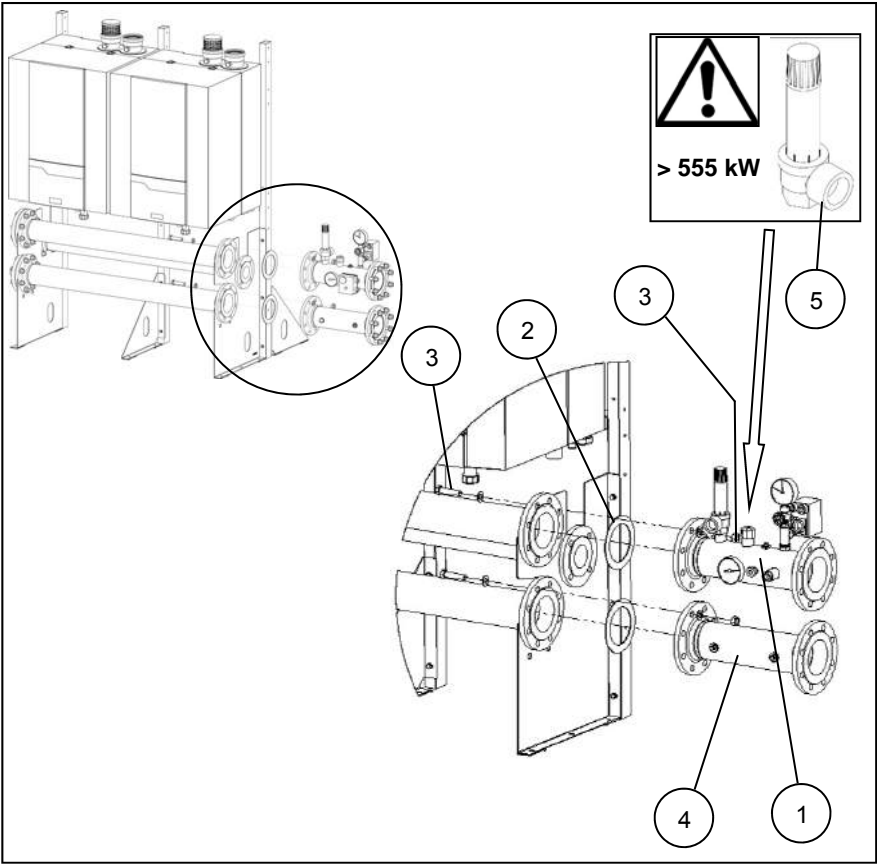
Repeat the same activities for the ISPESL return pipe (4).

NOTE:

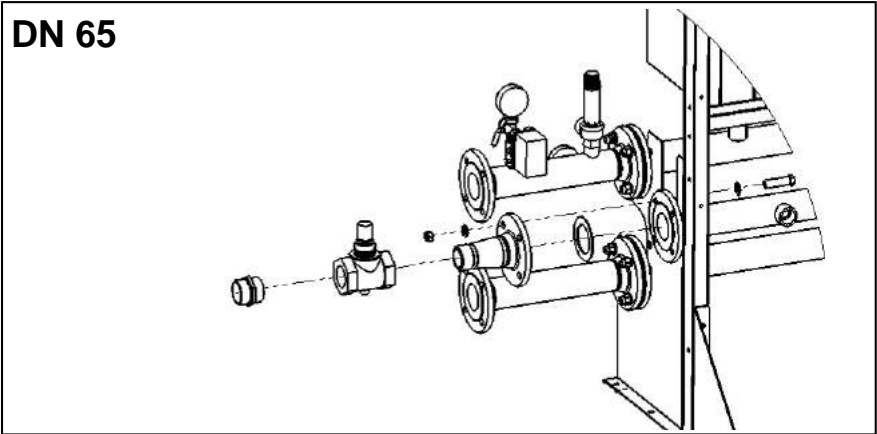
In case of DN100 cascade systems with system output > 555kW, a second safety valve (5, optional) should be connected to the free connection of the ISPESL kit.



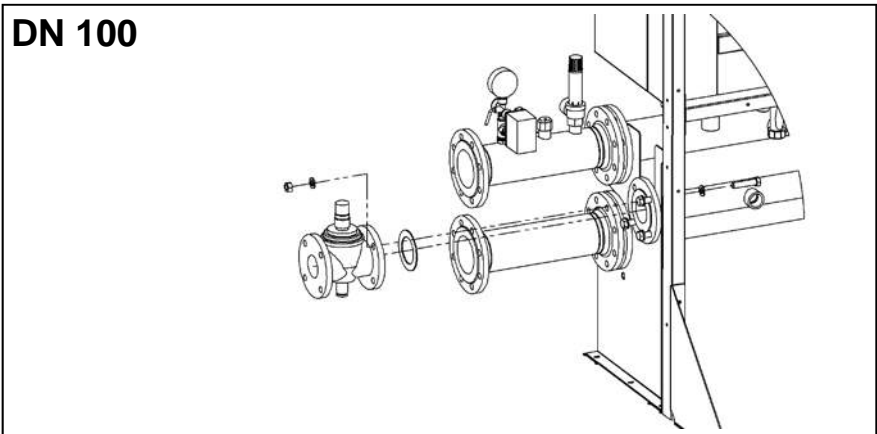
ISPESL COMPONENTS	
1	ISPESL approved safety valve
2	Connection for 2nd safety valve (systems > 555kW)
3	Connection for ISPESL gas valve
4	ISPESL approved max. water pressure switch
5	ISPESL approved manometer
6	ISPESL approved thermometer
7	Socket for thermometer
8	ISPESL approved double thermostat (control + high limit)



DN 65



DN 100



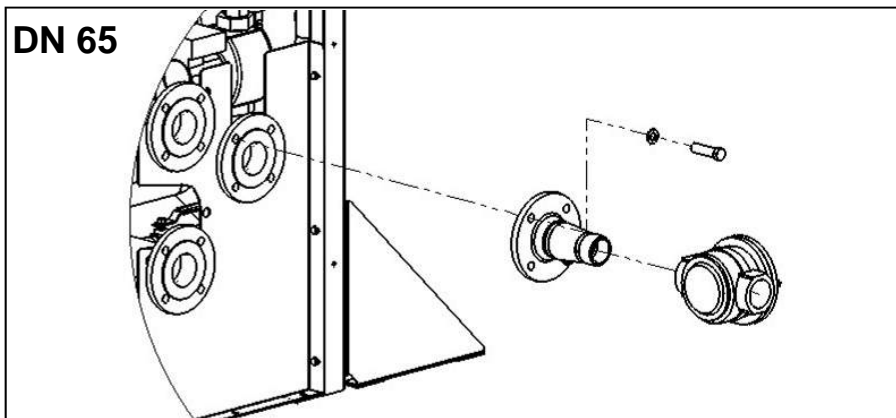
Assemble the ISPESL gas valve to the gas connection as shown on the pictures.

Cascade assembly

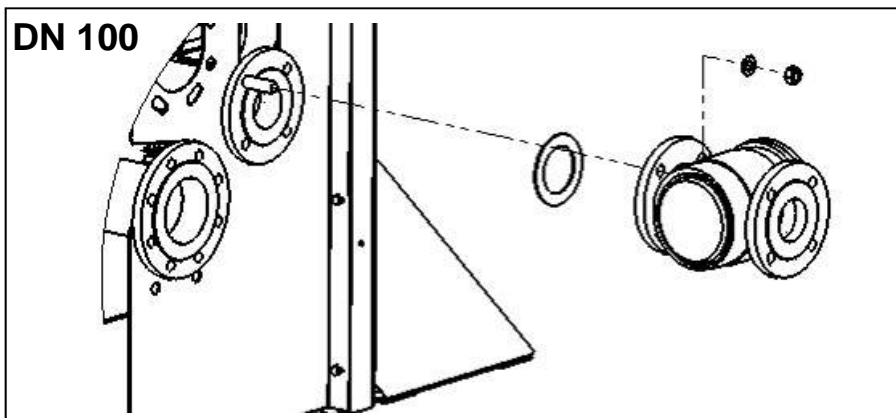
Gas filter

Assemble the gas filter to the gas connection of the cascade collector as shown on the picture.

DN 65

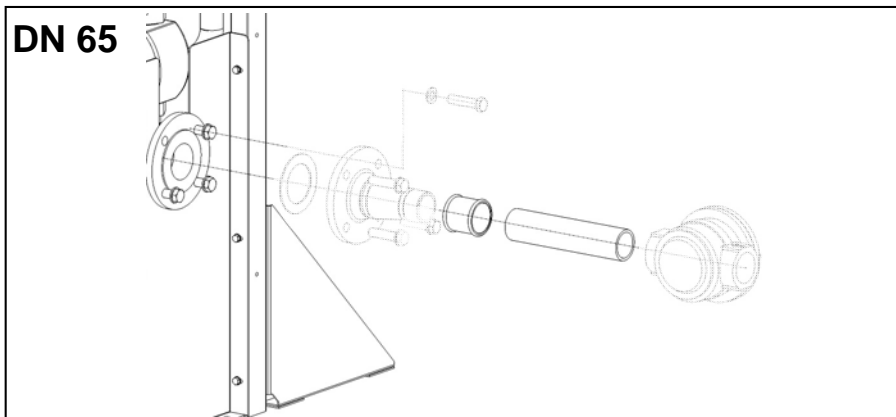


DN 100

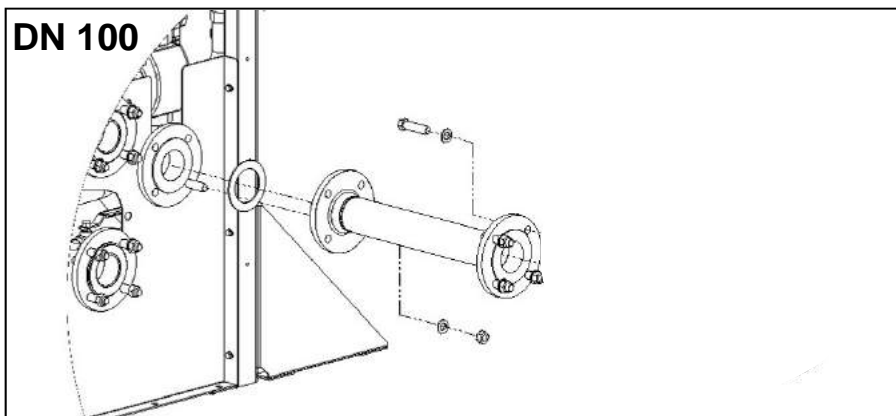


If required by the situation, an extension pipe (optional) can be used to move the location of the gas filter a bit further from the cascade system.

DN 65



DN 100



Cascade assembly

Low loss header Plate heat exchanger

Low loss header

Position the low loss header (1) to the flow and return connection of the collector.

Place the gaskets (2) and assemble the header with M16 bolts and nuts (3).

For the DN100 header (4), place the adapter kit (5) before assembling the header.

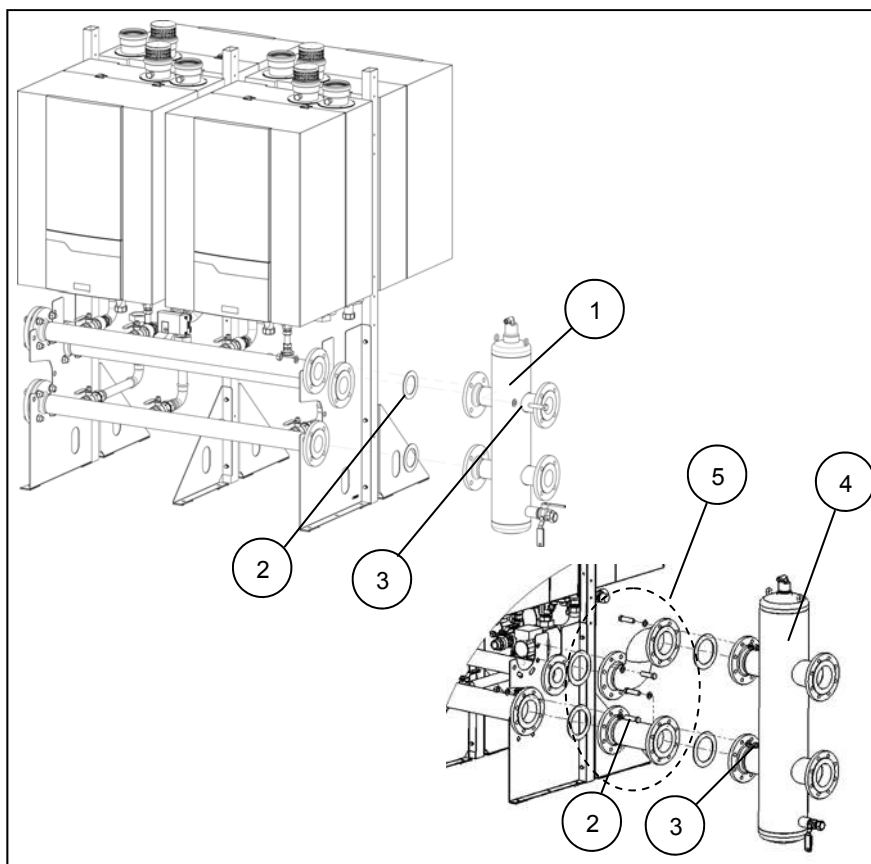


Plate heat exchanger assembly

Assemble PHE (1) and return manifold (4) with gasket (2), M16 bolts and nuts (3).

Assemble top flow manifold (5) and bottom flow manifold (6) according to left or right positioning of the system to the cascade collector with gasket (2), M16 bolts and nuts (3).

Assemble the top manifold assembly (5,6) to the PHE (1) with gasket (2), M16 bolts and nuts (3).

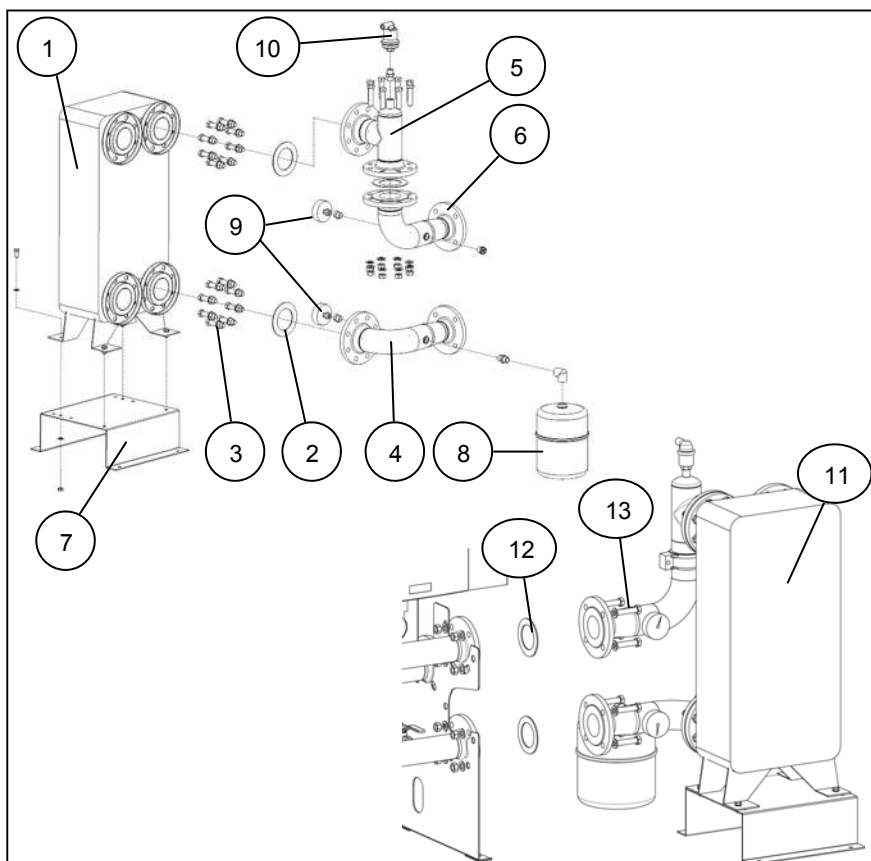
Place the PHE assembly on the base-plate (7) and fix it by using the supplied bolts and nuts.

Assemble the expansion vessel (8) (separate accessory) using the double nipple and 90° connection. Assemble the 2 mano/thermometers (9). Assemble the venting device (10).

Plate heat exchanger

Position the plate heatexchanger (11) to the flow and return connection of the collector.

Place the gaskets (12) and assemble the assembly with M16 bolts and nuts (13).



EXPANSION VESSEL TYPES		
	FLAMCO Flexcon Top 4L / 1.5 bar	FLAMCO Flexcon Top 8L / 1.5 bar
PHE kit		
CB200-30M	x	
CB200-50M		x
CB200-64M		x

Cascade assembly

Boiler connection kit - line

The 1½" x 1¼" reducers (1) should only be used for hydraulic connection to boiler types 100-140 having 1½" connections. Boiler types 60-80 are equipped with 1¼" connections and therefore don't need the reducers.

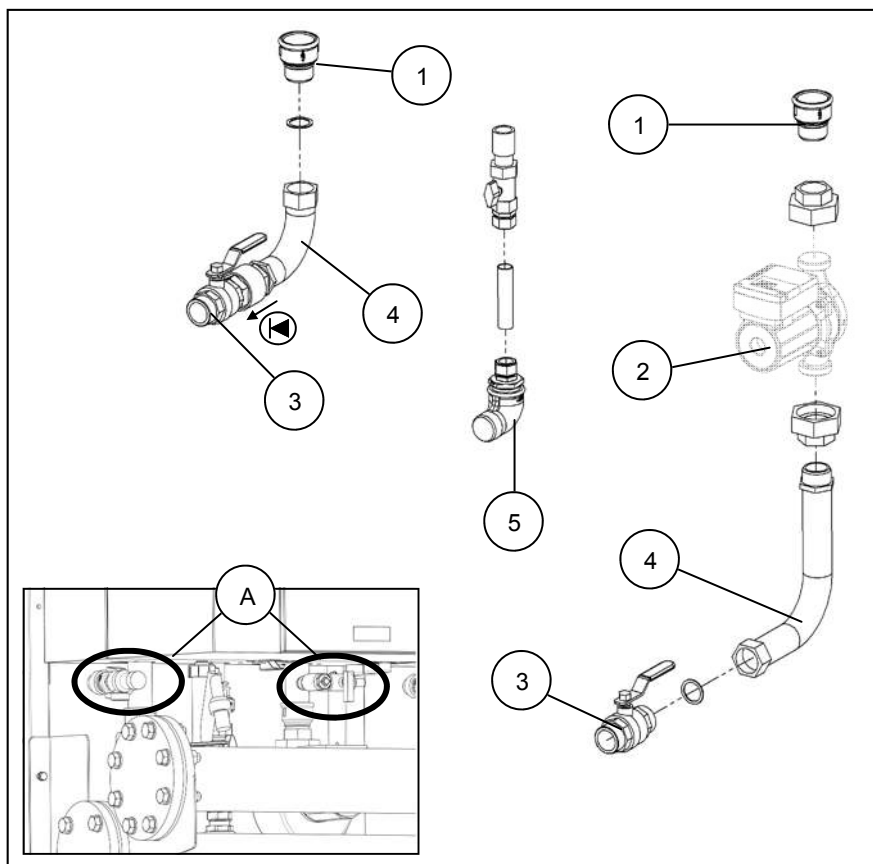
Assemble the water and gas connections for each boiler in the following order (see also pictures):

- Mount the safety valve and fill/drain valve to the boiler connections (see drawing A);
- install the pump (2) to the return connection of the boiler;
- install the ball valves (3) to the flow and return connection of the hydraulic collector;
- bend the flex pipe assembly (4) to fit the connection and assemble it between the boiler and ball valve connection;
- assemble the gas connection (5).

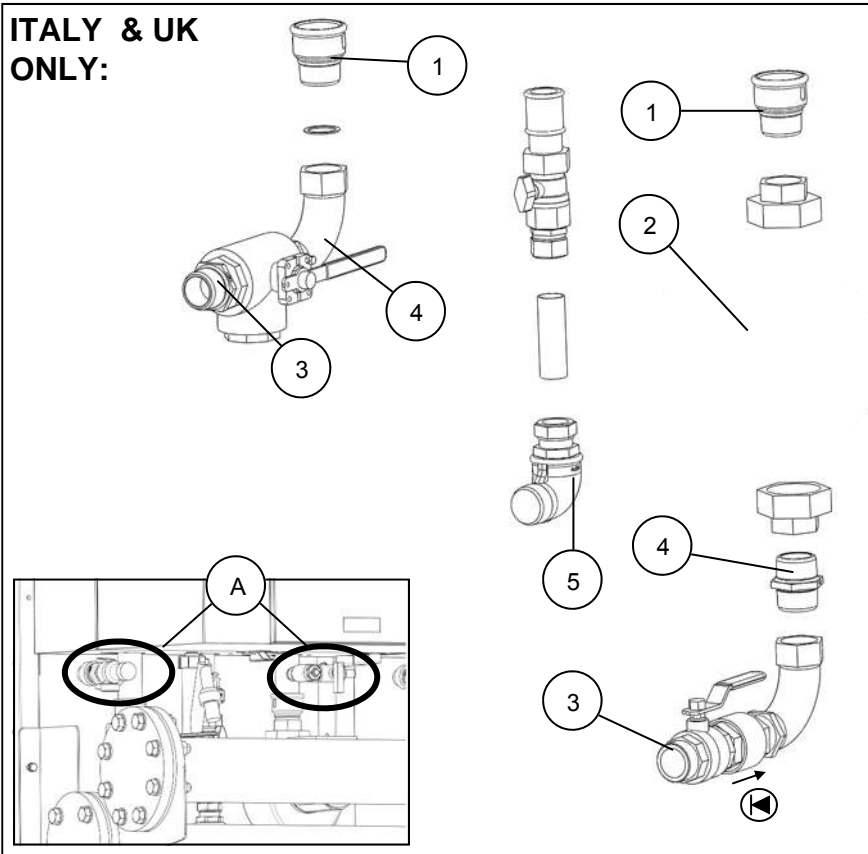
NOTE:

The pump (2) is not included in the connection kit, but available as a separate accessory code.

Optional, a thermal safety valve can be mounted in the gas line.



ITALY & UK ONLY:



Cascade assembly

Boiler connection kit - back to back

The 1½" x 1¼" reducers (1) should only be used for hydraulic connection to boiler types 100-140 having 1½" connections. Boiler types 60-80 are equipped with 1¼" connections and therefore don't need the reducers.

The assembly of the connection kits for the front boilers of a back to back cascade system is identical to the assembly of the boilers for line cascade systems, as described on the previous page. The only exception is in the gas connection:

the 90° bend at the bottom of the front boiler connection kit should be replaced by the T-piece (6) of the back boiler connection kit, in order to allow the 2nd boiler to be connected to the gas line.

Assemble the water and gas connections for each back boiler in the following order (see also pictures):

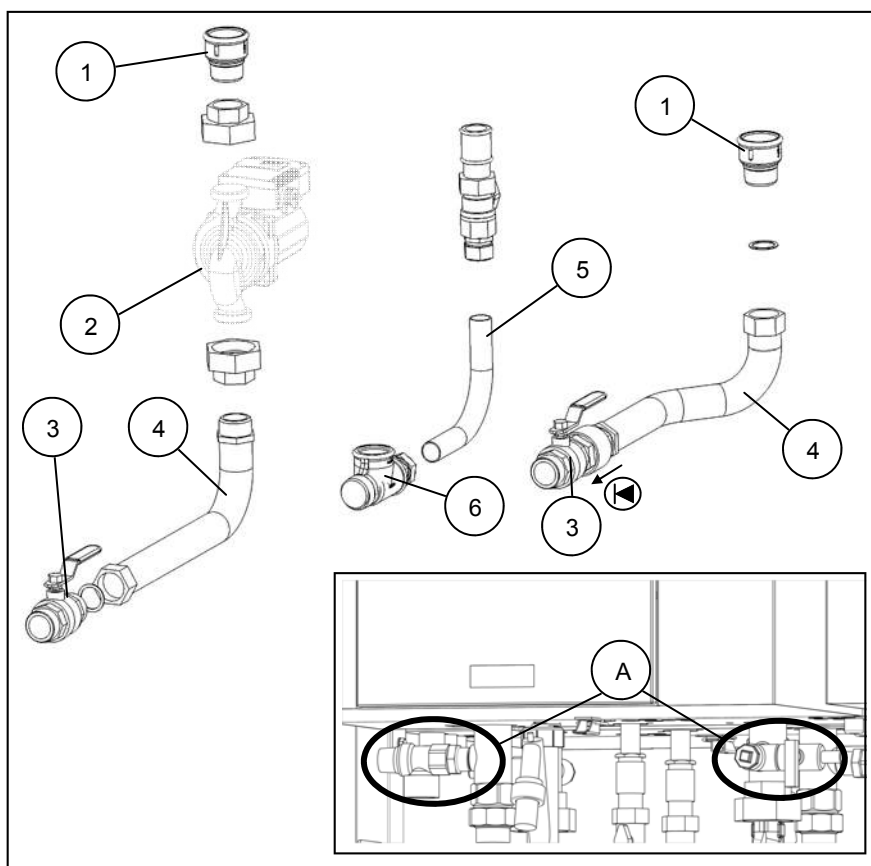
- Mount the safety valve and fill/drain valve to the boiler connections (see drawing A);
- install the pump (2) to the return connection of the boiler;
- install the ball valves (3) to the flow and return connection of the hydraulic collector;
- bend the flex pipe assembly (4) to fit the connection and assemble it between the boiler and ball valve connection;
- assemble the gas connection (5).

NOTE:

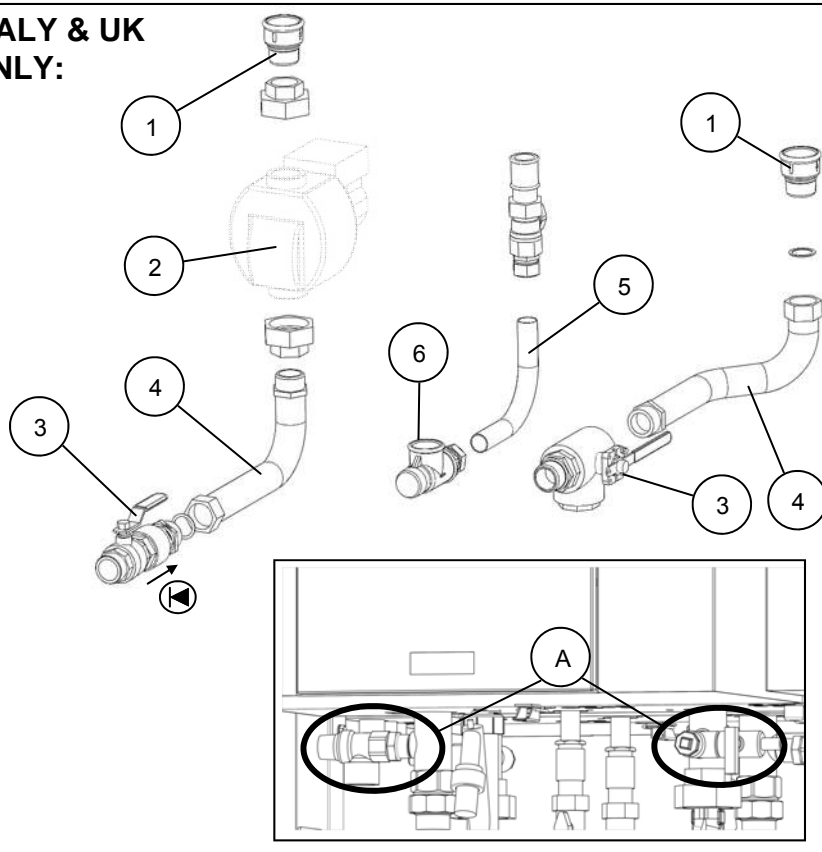
The pump (2) is not included in the connection kit, but available as a separate accessory code.

Optional, a thermal safety valve can be mounted in the gas line.

When having an odd number of boilers, the free connections on the hydraulic collector can be closed by using a blind cap kit.



ITALY & UK ONLY:



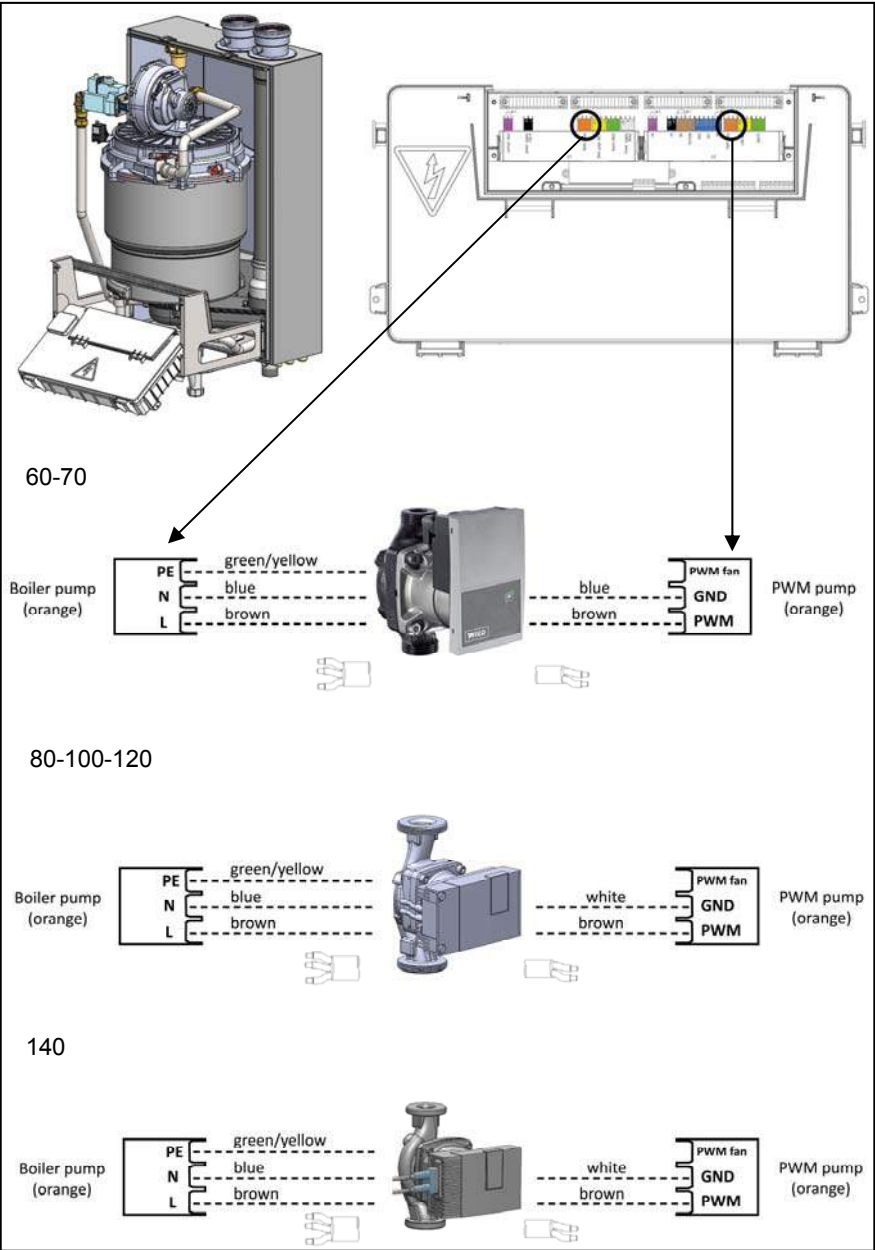
Cascade assembly




Boiler pump - high efficiency speed controlled

The mechanical assembly of the boiler pumps is included in the assembly description of the boiler connection kits, see previous pages.

The cable for electrical connection of the pump to the boiler is included in the pump delivery. Follow next steps to connect the pump to the boiler terminals:

- guide the cables into the boiler via the cable gland and lead them to the terminal rail;
- connect the terminals to the boiler as shown on the electrical diagram below.

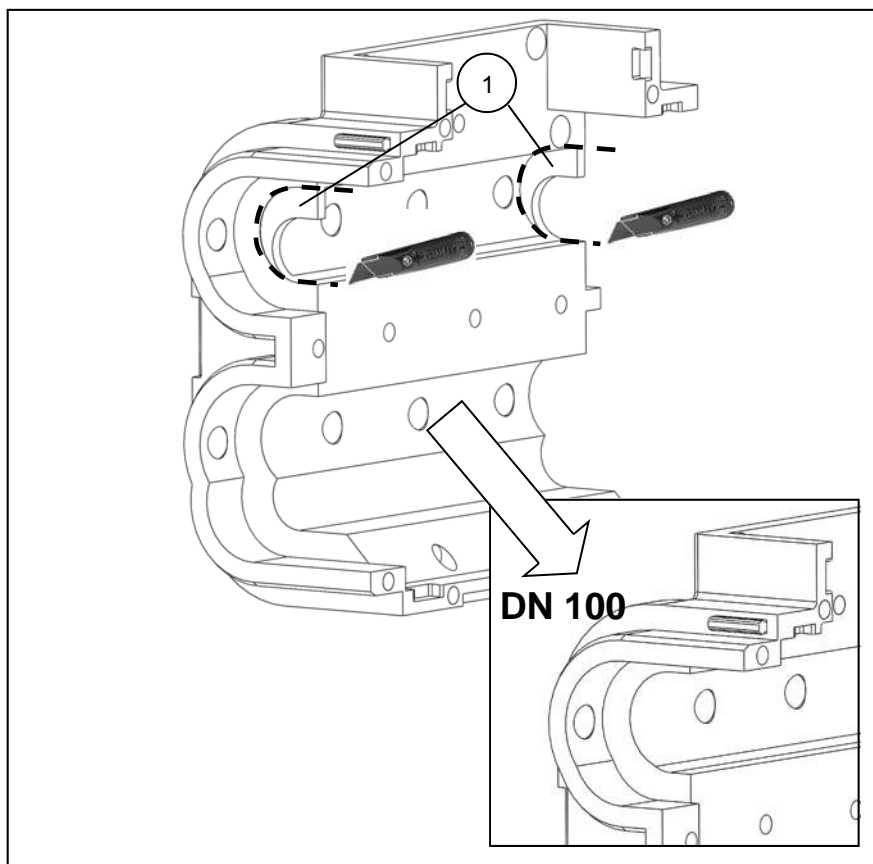


TH-L EVO R40 EVO 60-70	 Yonos PARA 30/7,5
TH-L EVO R40 EVO 80-100-120	 Stratos PARA 30/1-9
TH-L EVO R40 EVO 140	 Stratos PARA 30/1-8

Cascade assembly

Insulation - front panel

The front panel insulation is prepared for DN65 cascade systems. When using it on DN100 cascade systems, the wedges on the inside of the panel (1) should be cut before assembly.

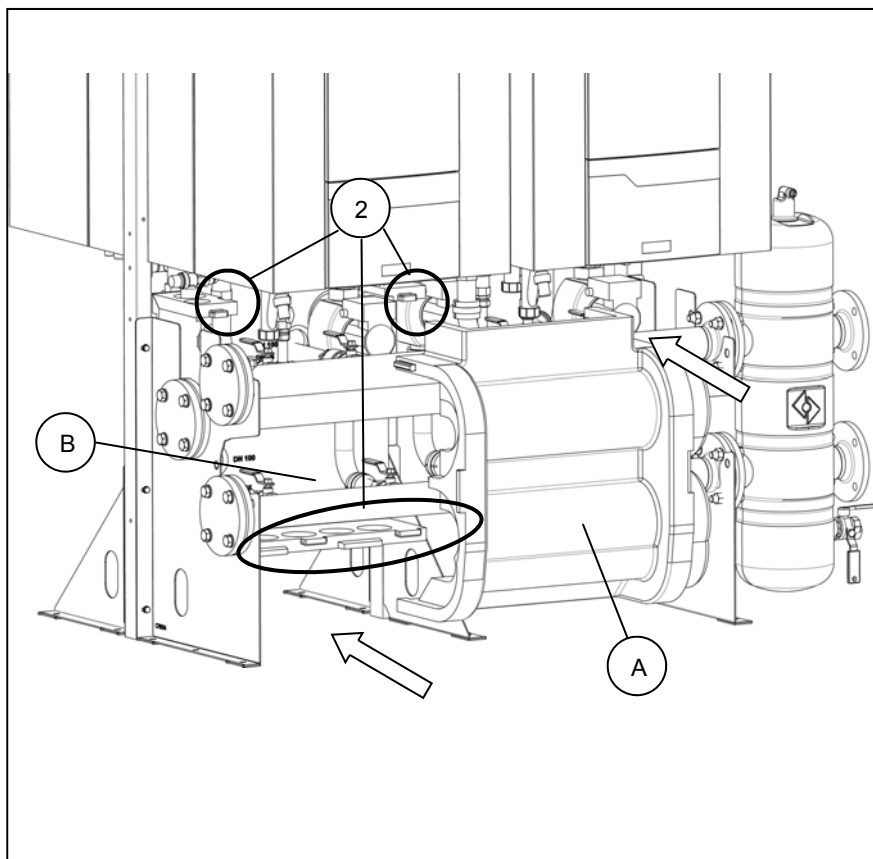


Front panel assembly boiler 1 (left):

1. Place front panel **A**.
2. Make sure that the snappers (2) of back panel **B** fit correctly in the front panel **A**, both at top and bottom connection.

In case of a 2 boiler cascade collector, proceed with the next steps for boiler 2 (right).

In case of a 3 boiler cascade collector, repeat the activities described for boiler 2, then proceed with the next steps for boiler 3.

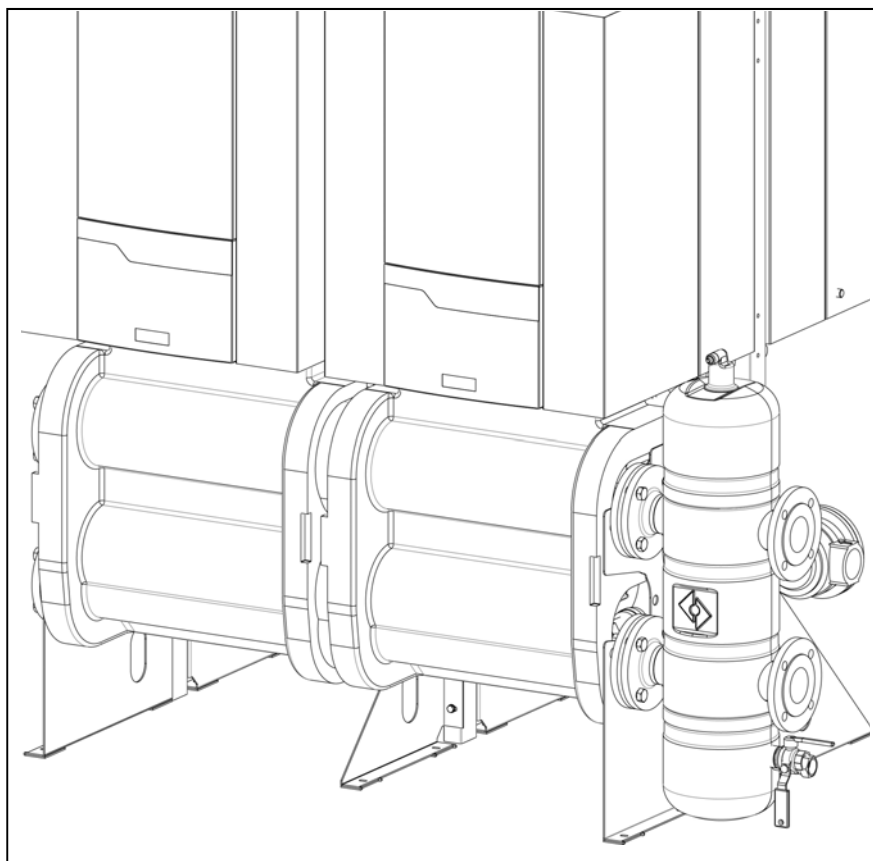
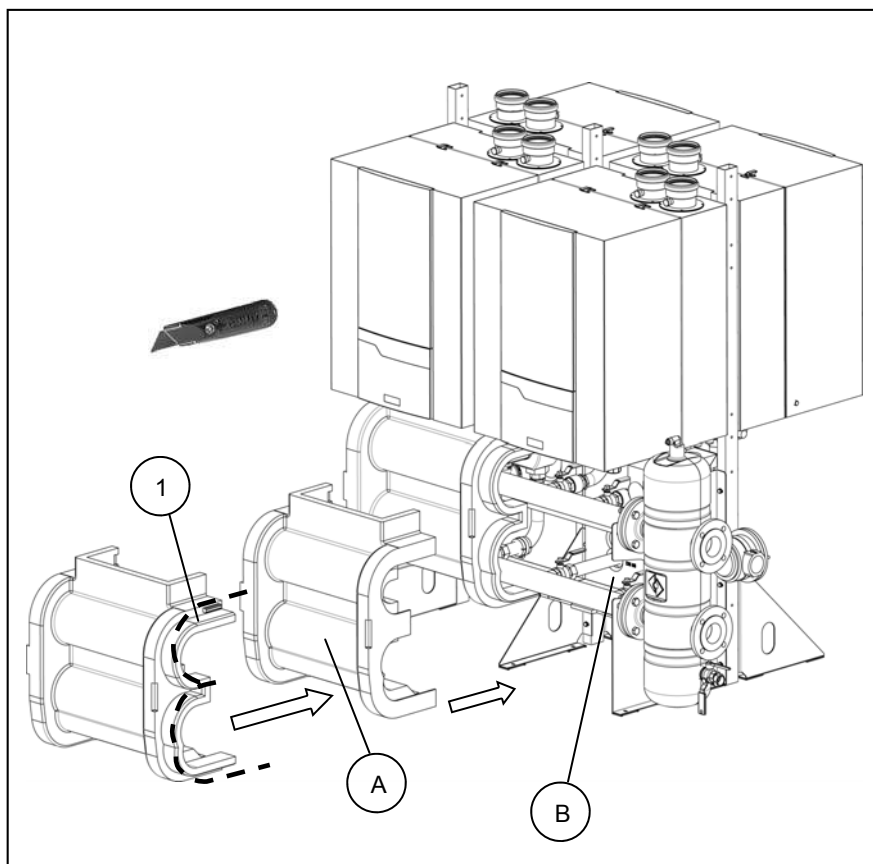


Cascade assembly

Insulation - front panel

Front panel assembly boiler 2 / 3 (right):

1. Cut off the extension piece at the right hand side of the panel
2. Place front panel **A**.
3. Make sure that the snappers of back panel **B** fit correctly in the front panel **A**, both at top and bottom connection.



Cascade assembly

Insulation - end pieces

When using the end pieces on a DN65 cascade system, the included inserts should be placed before assembly.

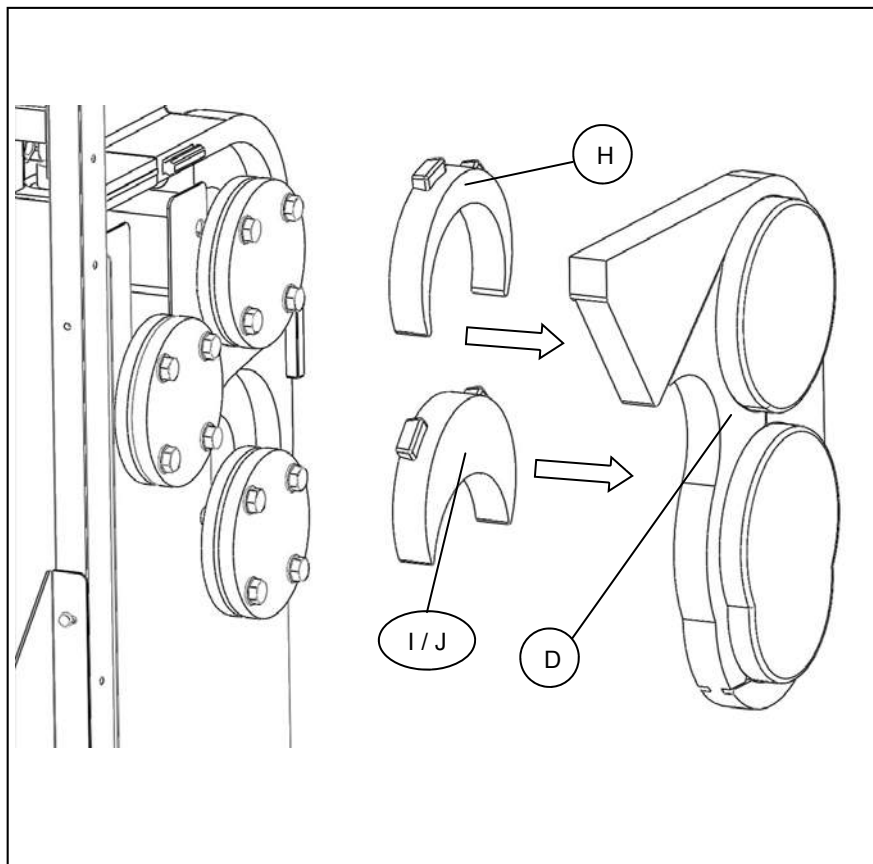
End cover for left positioning:

1. Place insert **H** into end cover **D**.
2. Place insert **I** into end cover **D**.

End cover for right positioning:

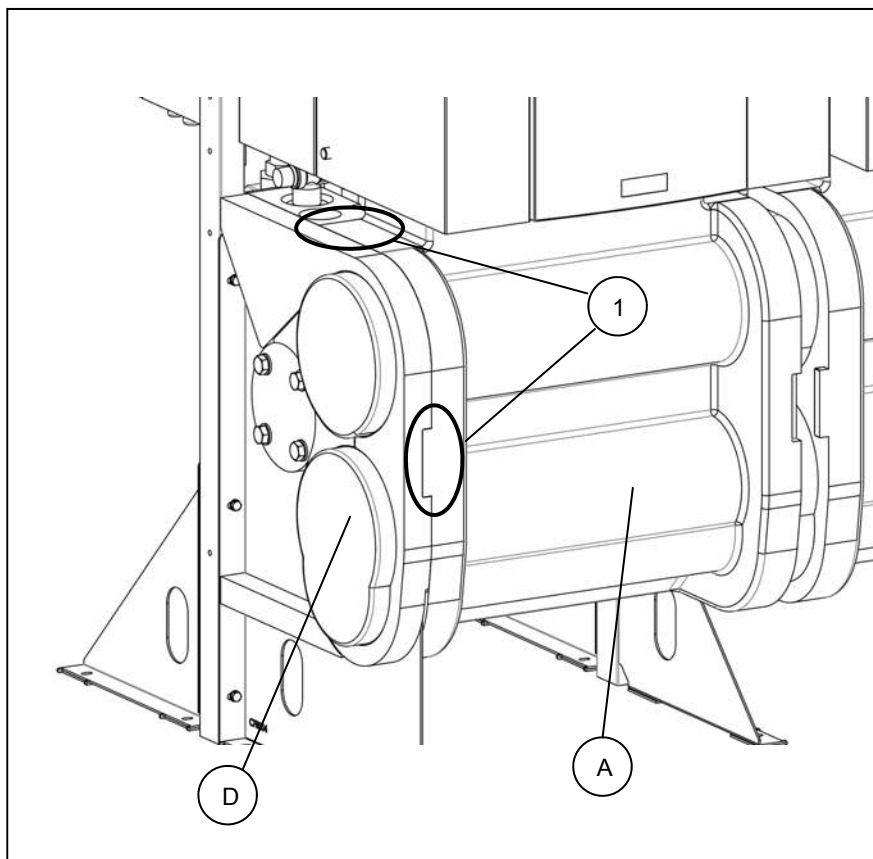
1. Place insert **H** into end cover **D**.
2. Place insert **J** into end cover **D**.

For DN100 cascade systems, the inserts should not be used.



End cover assembly:

1. Place end cover **D**.
2. Make sure that the snappers (1) of front panel **A** fit correctly in the end cover **D**.



Cascade assembly

Insulation - end pieces

When using the end pieces on a DN65 cascade system, the included inserts should be placed before assembly.

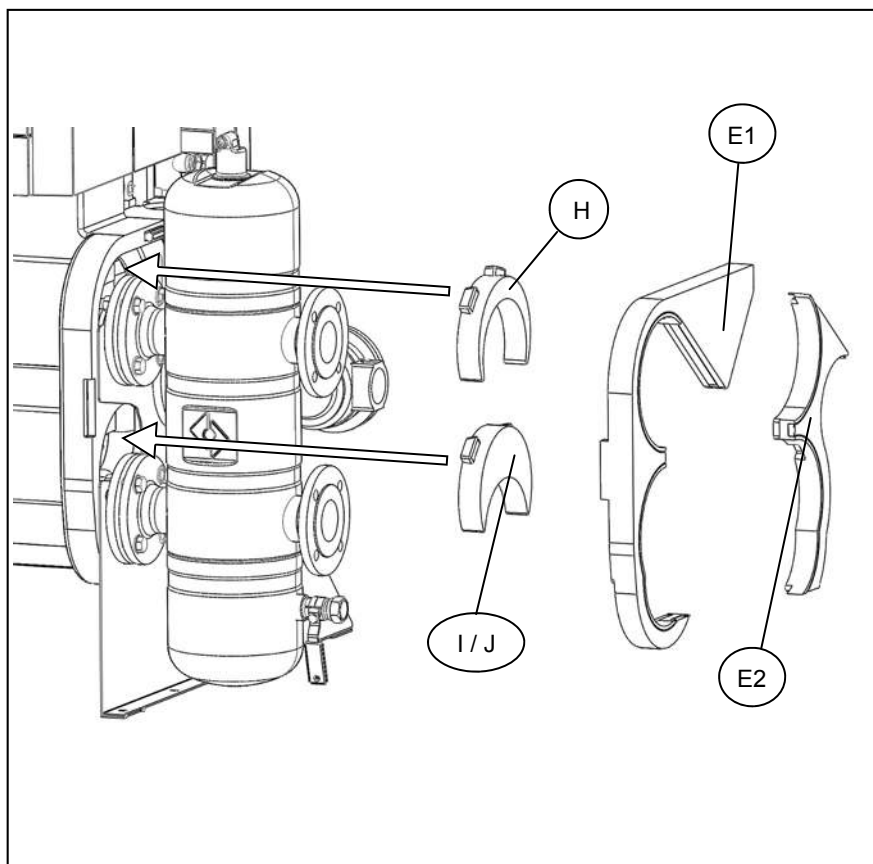
System side cover for left positioning:

1. Place insert **H** over the top flange.
2. Place insert **I** over the lower flange.

System side cover for right positioning:

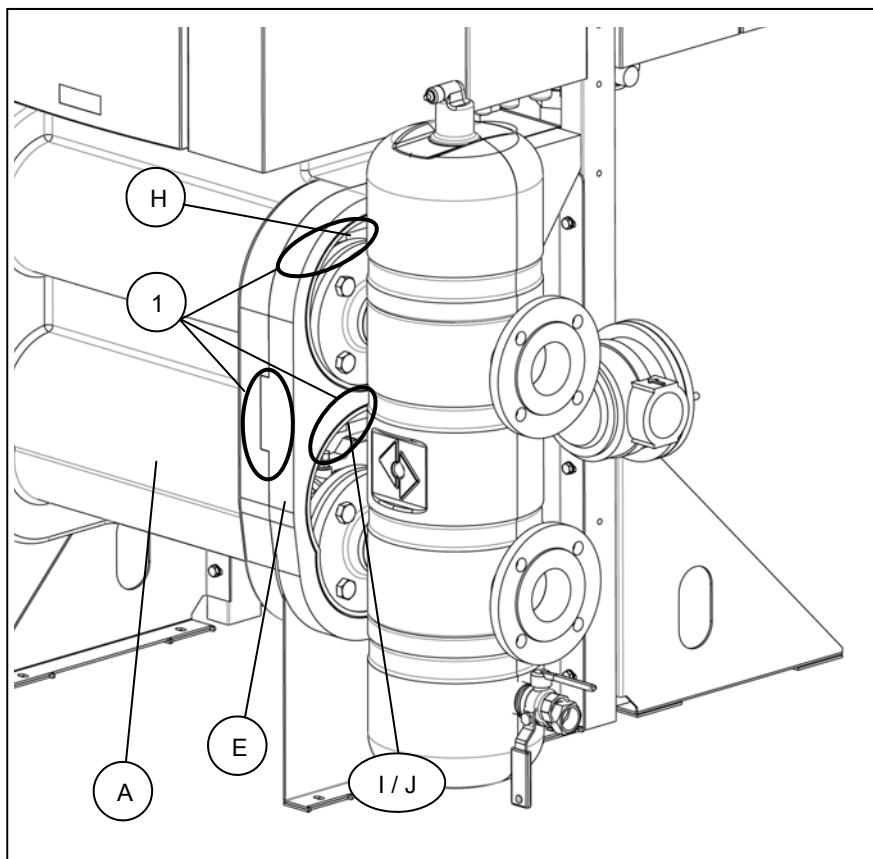
1. Place insert **H** over the top flange.
2. Place insert **J** over the lower flange.

For DN100 cascade systems, the inserts should not be used.



System side cover assembly:

1. Place the two parts of the system side cover **E1/E2** over the flanges according to the indication in the picture
2. Make sure that the snappers (1) of inserts **H** and **I/J** and front panel **A** fit correctly in the system side cover **E**.



Cascade assembly

Insulation - connection piece 2 collectors

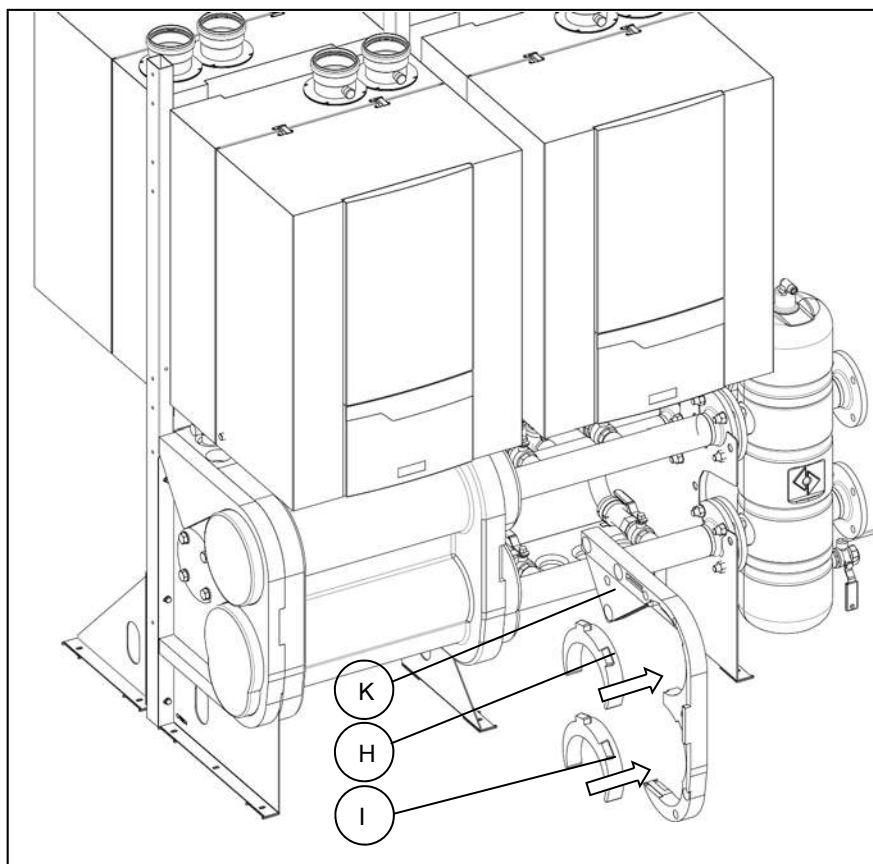
For line configurations of more than 3 boilers and back to back configurations of more than 6 boilers, two collectors have to be connected.

For fitting the insulation on such systems, a insulation connection piece **K** is required.

When using the connection piece on a DN65 cascade system, the included inserts should be placed before assembly:

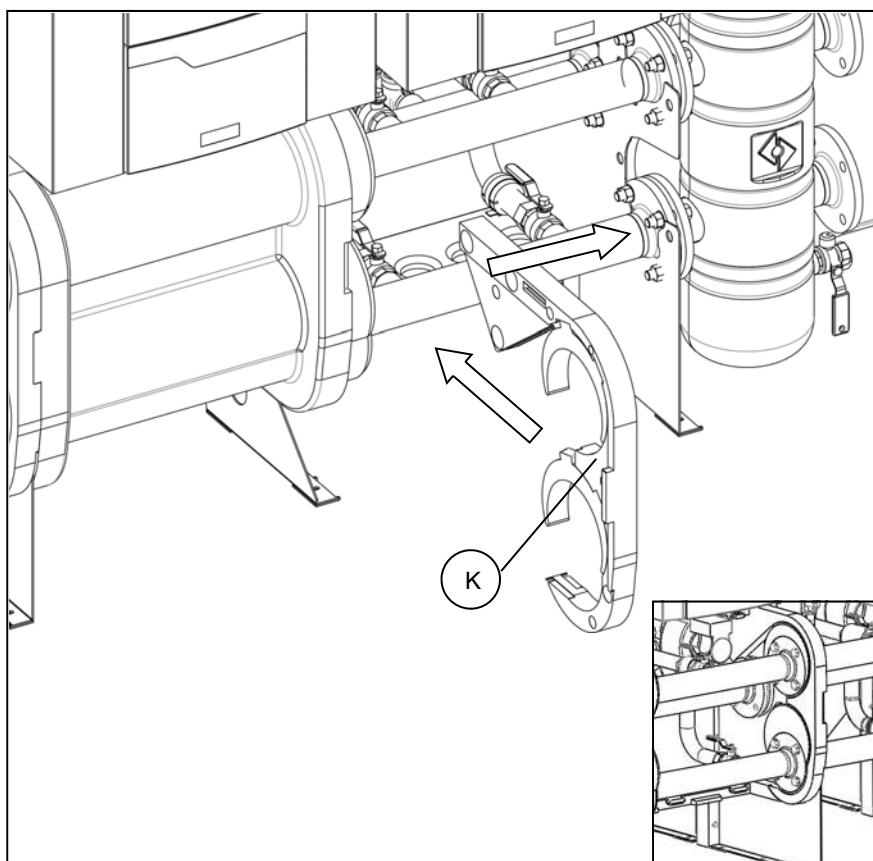
1. Place insert **H** into connection piece **K**.
2. Place insert **I** into connection piece **K**.

For DN100 cascade systems, the inserts should not be used.



Connection piece assembly:

1. Place connection piece **K** over the flanges as shown on the picture.

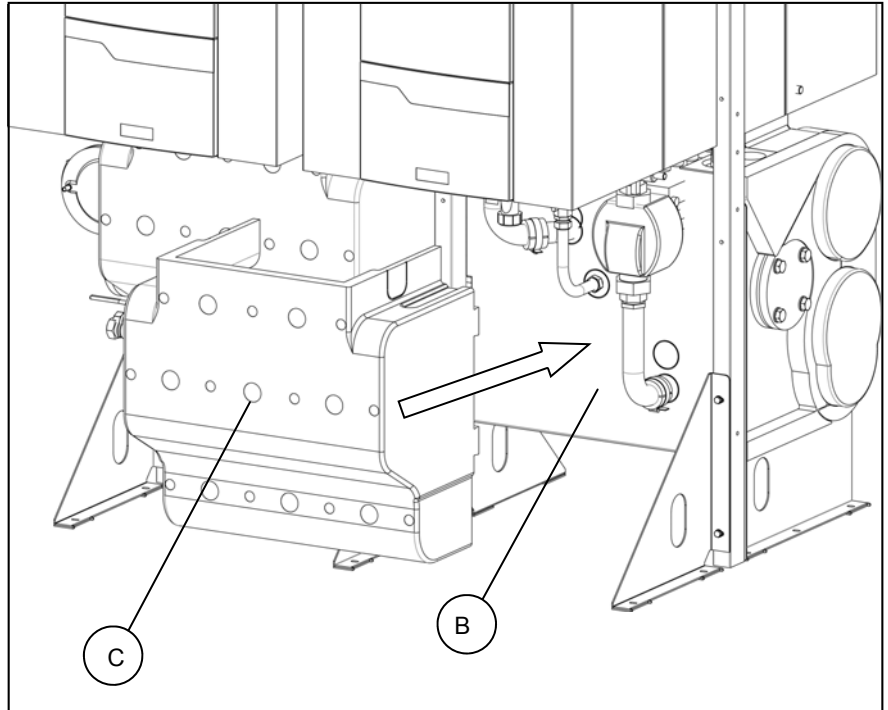


Cascade assembly

Insulation - back to back panel

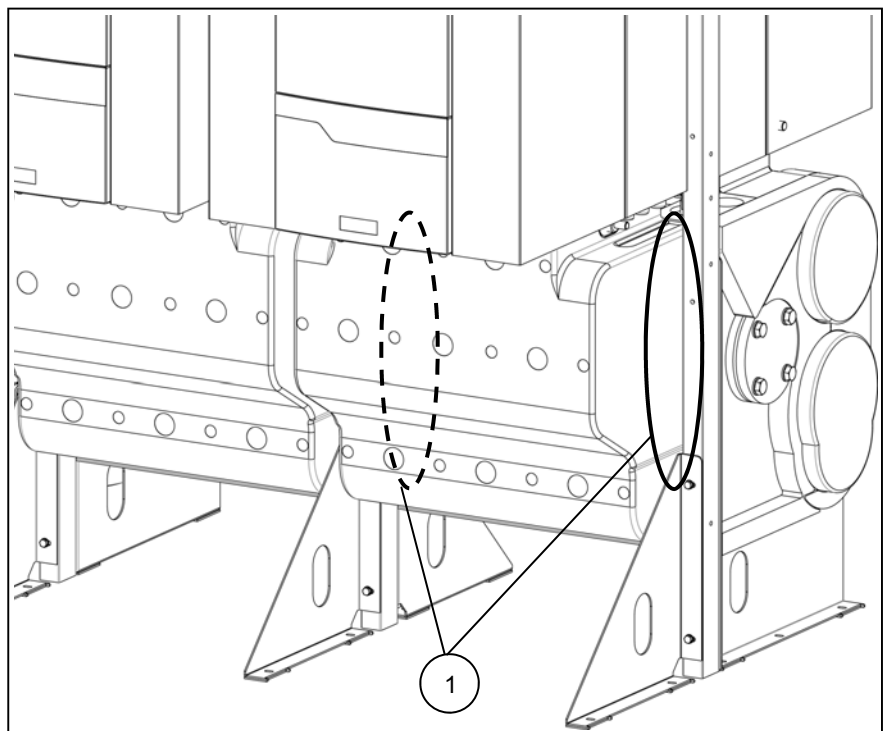
The assembly of the insulation kits for the front boilers of a back to back cascade system is identical to the assembly of the insulation for line cascade systems, as described on the previous pages.

The back boilers in a back to back cascade system can be insulated with the back to back insulation panel **C**.



Back panel assembly:

1. Place back to back panel **C**.
2. Make sure that the snappers (1) of back to back panel **C** fit correctly in the back panel **B**.

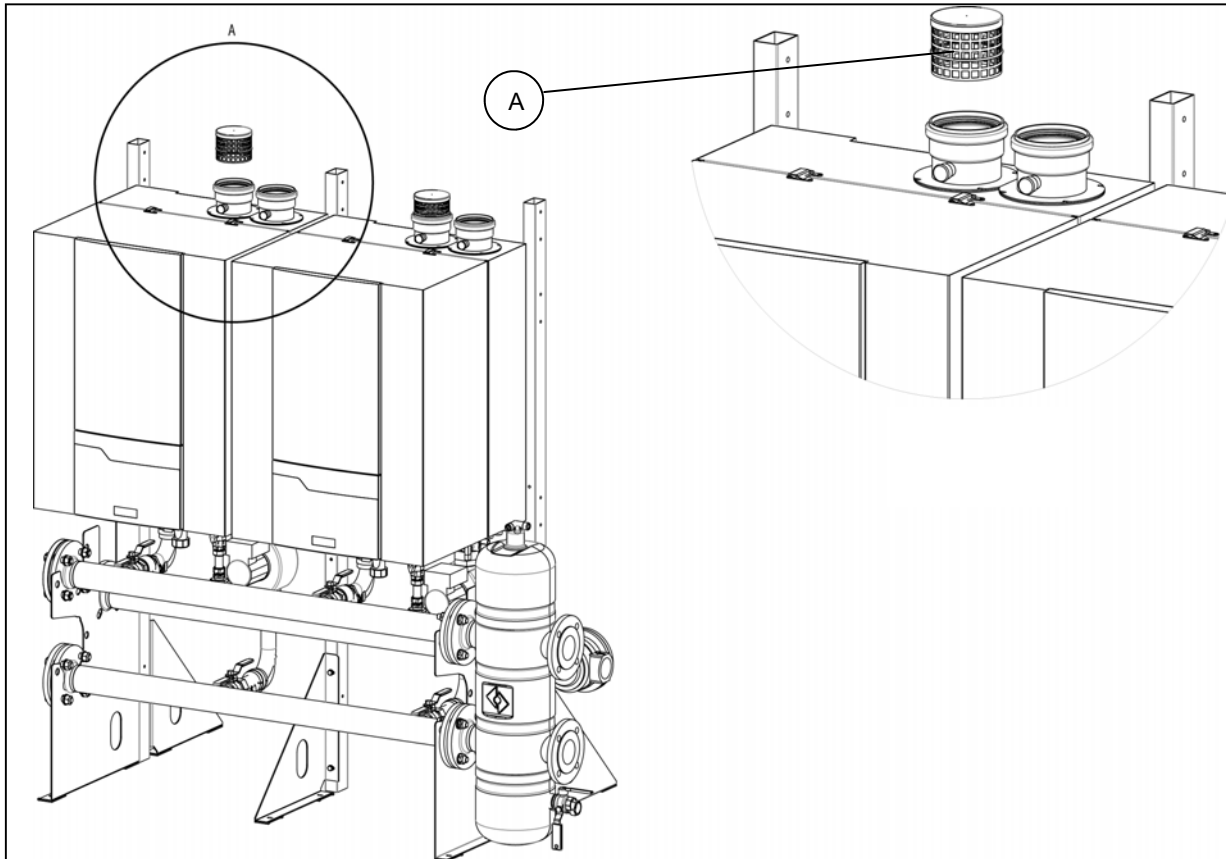


Cascade assembly

Air inlet cover

Mount the air inlet cover **A** on the air inlet connection of each boiler.

Boiler types 60-120 have a 100 mm air inlet connection, boiler type 140 has a 130 mm connection.



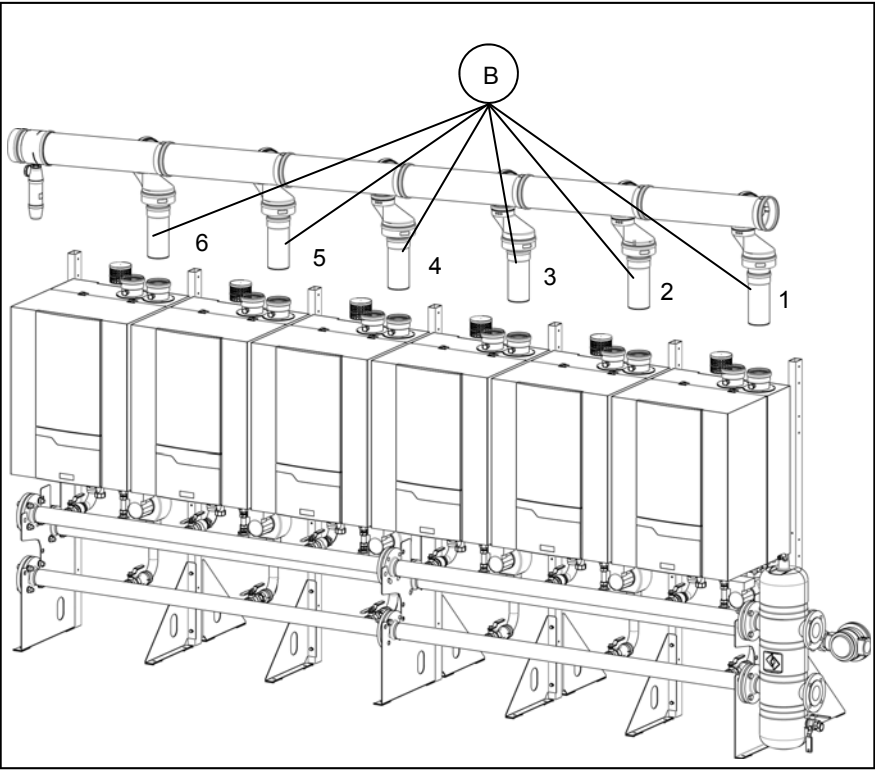
Cascade assembly

Flue system - line

The flue system should always be mounted with a light angle of minimum 3°, in order to enable a proper discharge of condensate from the flue system. To arrive to this angle, the vertical sections **B** from the boiler to the collector should be adapted to the actual boiler configuration.

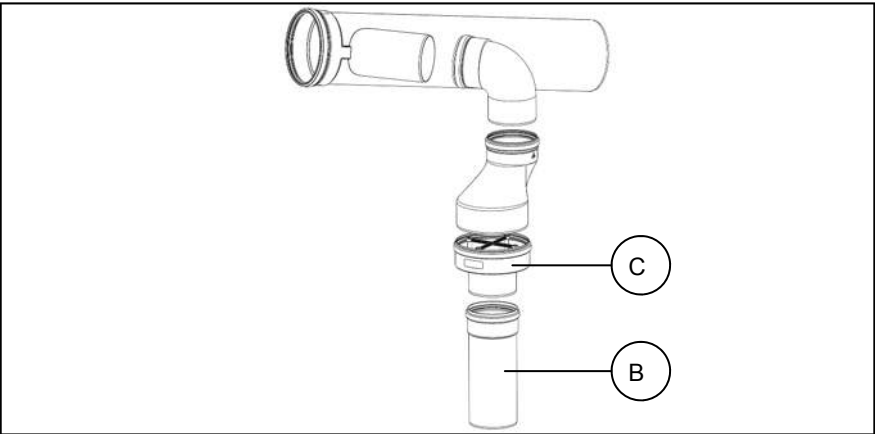
Below table gives the pipe lengths for the vertical section **B** for each boiler. The vertical section in the standard delivery has a length of 250mm and needs to be shortened accordingly.

NOTE:
For boiler type 140, an additional adapter from 130mm to 100mm is required for each boiler. This adapter replaces vertical section **B** from the flue system kit.

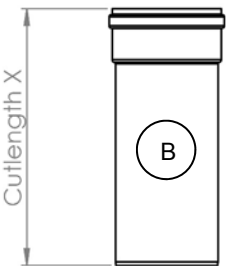


- Flue system assembly:
1. Cut the vertical section for each boiler to the correct length.
 2. Assemble the flue system as shown on the pictures

NOTE:
The mechanical non-return valve **C** should always be mounted in vertical position.



Boiler no.	Length X [mm]
1	250
2	226
3	202
4	178
5	154
6	130



Cascade assembly

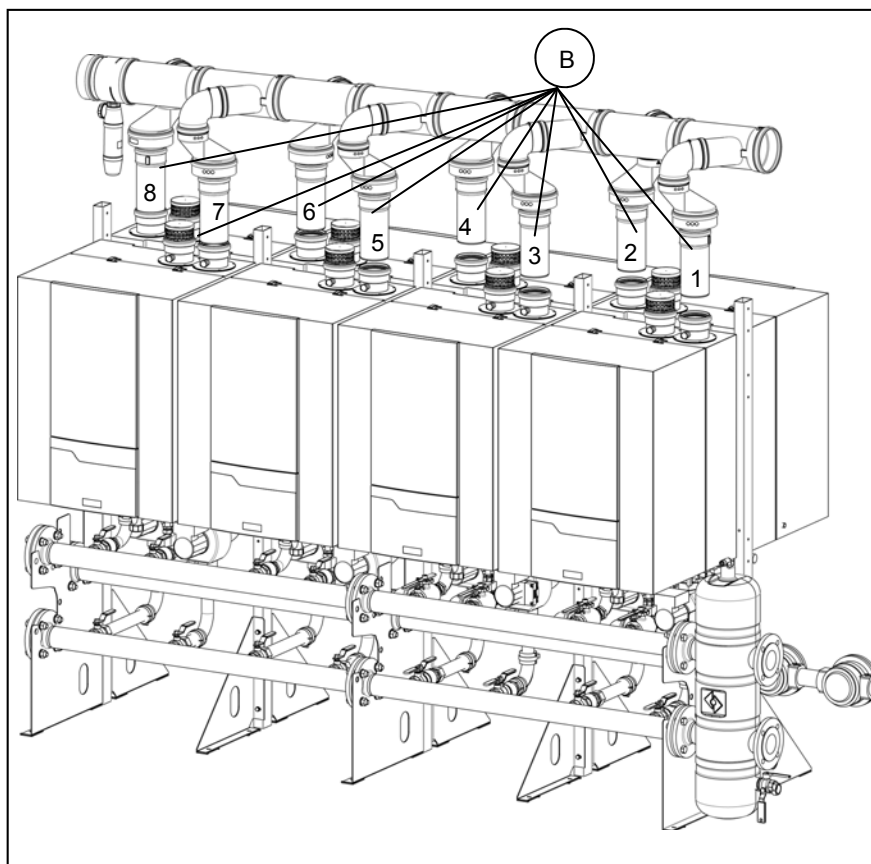
Flue system - back to back

The flue system should always be mounted with a light angle of minimum 3°, in order to enable a proper discharge of condensate from the flue system. To arrive to this angle, the vertical sections **B** from the boiler to the collector should be adapted to the actual boiler configuration.

Below table gives the pipe lengths for the vertical section **B** for each boiler. The vertical section in the standard delivery has a length of 250mm and needs to be shortened accordingly.

NOTE:

For boiler type 140, an additional adapter from 130mm to 100mm is required for each boiler. This adapter replaces vertical section **B** from the flue system kit.



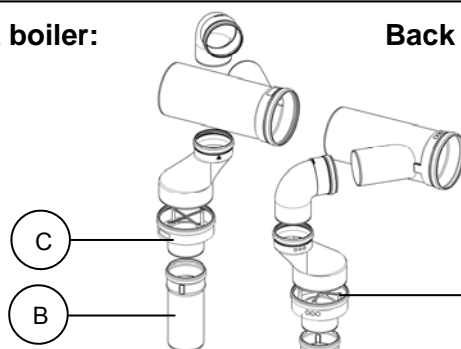
Flue system assembly:

1. Cut the vertical section for each boiler to the correct length.
2. Assemble the flue system as shown on the pictures

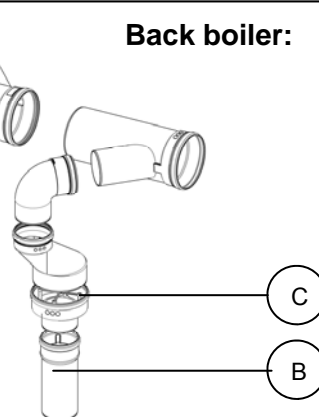
NOTE:

The mechanical non-return valve **C** should always be mounted in vertical position.

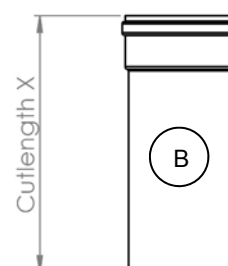
Front boiler:



Back boiler:



Boiler no.	Length X [mm]
1	200
2	248
3	165
4	214
5	131
6	180
7	97
8	146



Cascade assembly

Controls

The boilers can be managed by the integrated Master/Slave cascade management logic. To enable communication from one boiler to the other, the OCI345 communication modules should be connected.

Contents of the kits are:

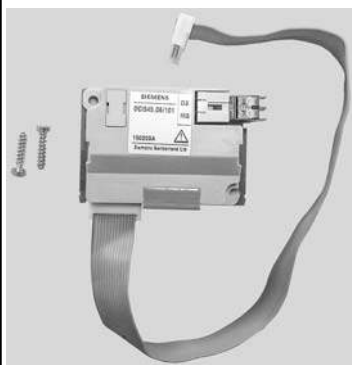
Cascade kit MASTER

1x OCI345 communication module with connection material, 1x header sensor QAZ36 with 6m cable incl. pocket (1/2"), 1x heating zone sensor QAD36 with 4m cable.

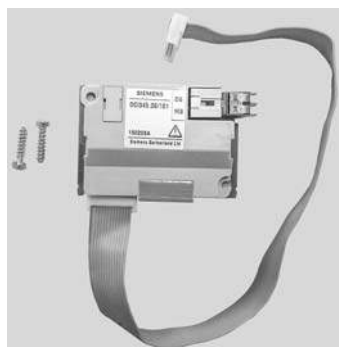
Cascade kit SLAVE

1x OCI345 communication module.

MASTER

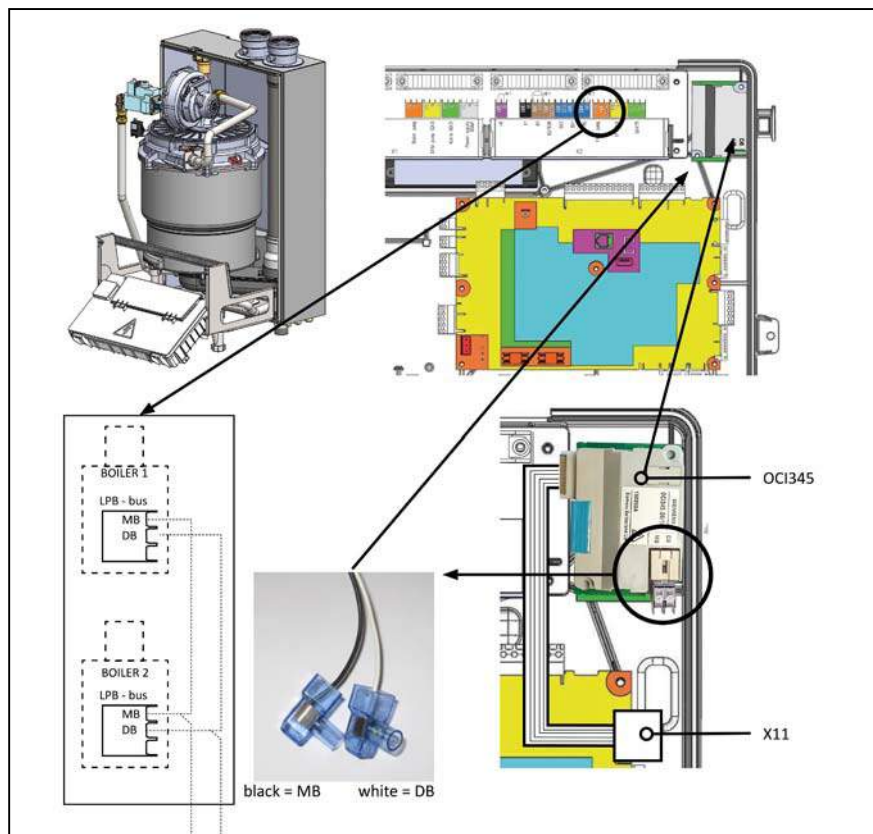


SLAVE



Controls assembly:

1. Assemble the OCI345 communication module in each boiler as shown on the pictures.
2. Connect the pre wired wires "black and white" to the OCI345 terminals MB-DB, see picture.
3. Connect the bus communication cable from the OCI345 to the boiler controller, see picture.
4. Connect each boiler to the next one via bus terminals MB-DB, see diagram.
5. Set the following parameters in each boiler controller:
 - 6600 = boiler #
(boiler 1 = 1, boiler 2 = 2,...)
 - 6601 = 0

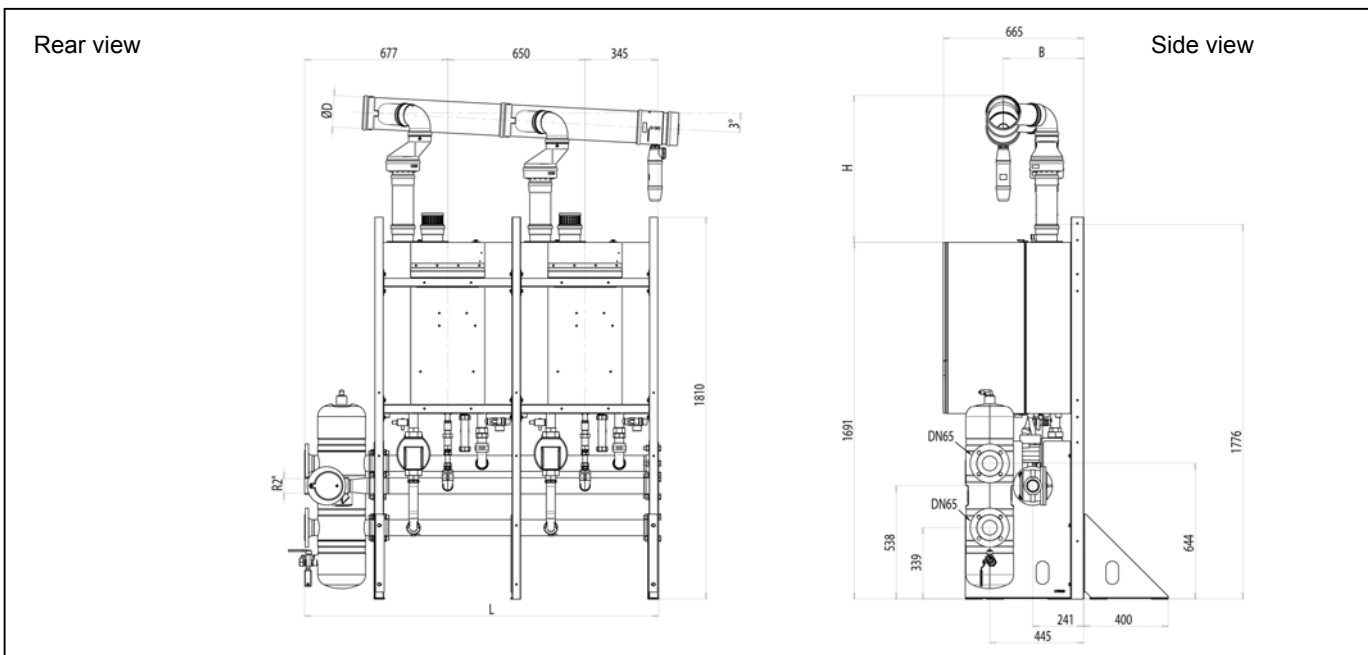


Dimensions

DN65 line + low loss header

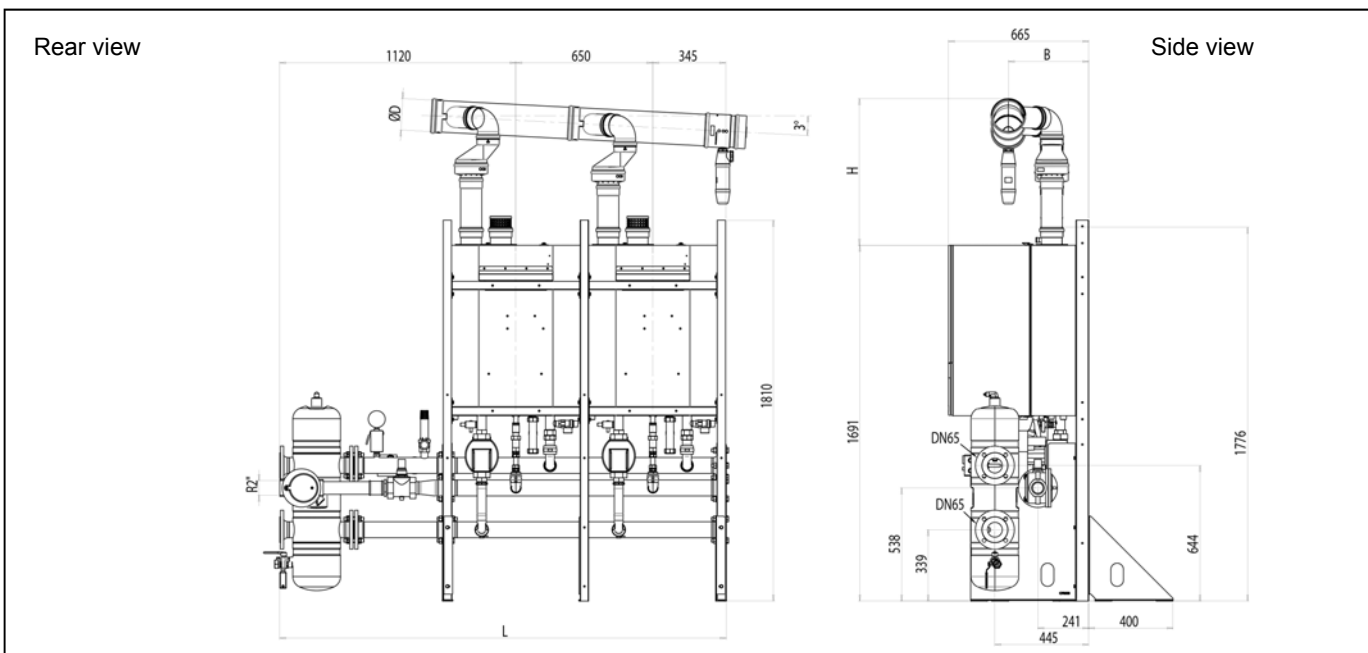
Standard

CASCADE DN 65		Number of boilers		2	3	4	5	6
Total width		L	mm	1672	2322	2972	3622	4272
ø D = 150mm	B = 400 - 450	H	mm	553	646	738	831	924
ø D = 200mm	B = 350 - 400	H	mm	616	709	801	894	987



ISPESL (Italy only)

CASCADE DN 65		Number of boilers		2	3	4	5	6
Total width		L	mm	2115	2765	3415	4065	4715
ø D = 150mm	B = 400 - 450	H	mm	553	646	738	831	924
ø D = 200mm	B = 350 - 400	H	mm	616	709	801	894	987

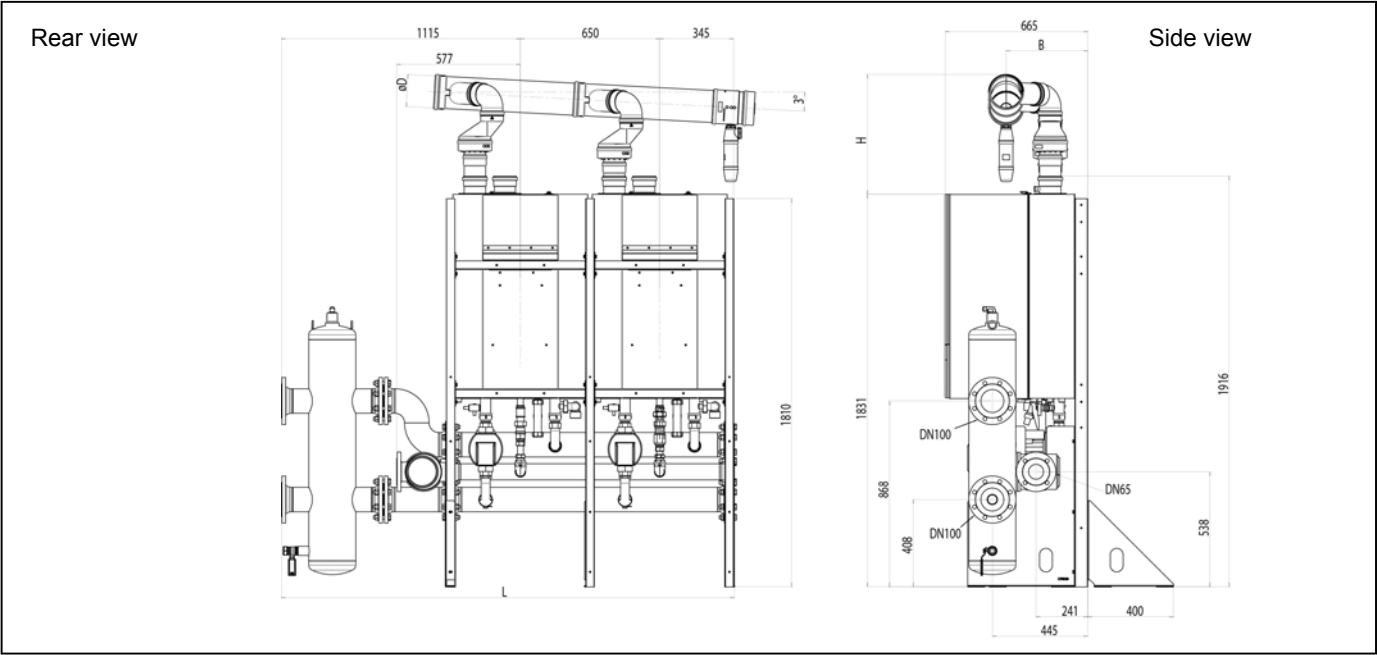


Dimensions

DN100 line + low loss header

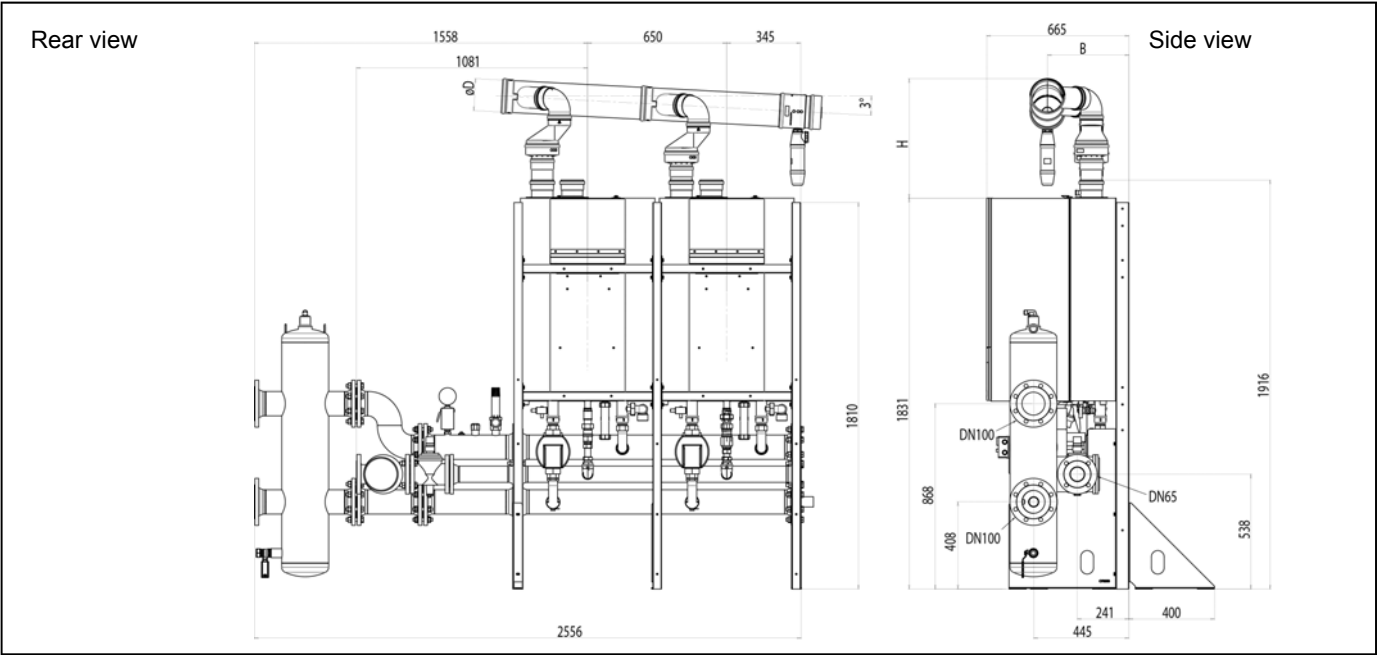
Standard

CASCADE DN 100		Number of boilers		4	5	6
Total width		L	mm	3407	4057	4707
∅ D = 150mm	B = 400 - 450	H	mm	738	831	924
∅ D = 200mm	B = 350 - 400	H	mm	801	894	987



ISPESL (Italy only)

CASCADE DN 100		Number of boilers		4	5	6
Total width		L	mm	3853	4503	5153
∅ D = 150mm	B = 400 - 450	H	mm	738	831	924
∅ D = 200mm	B = 350 - 400	H	mm	801	894	987

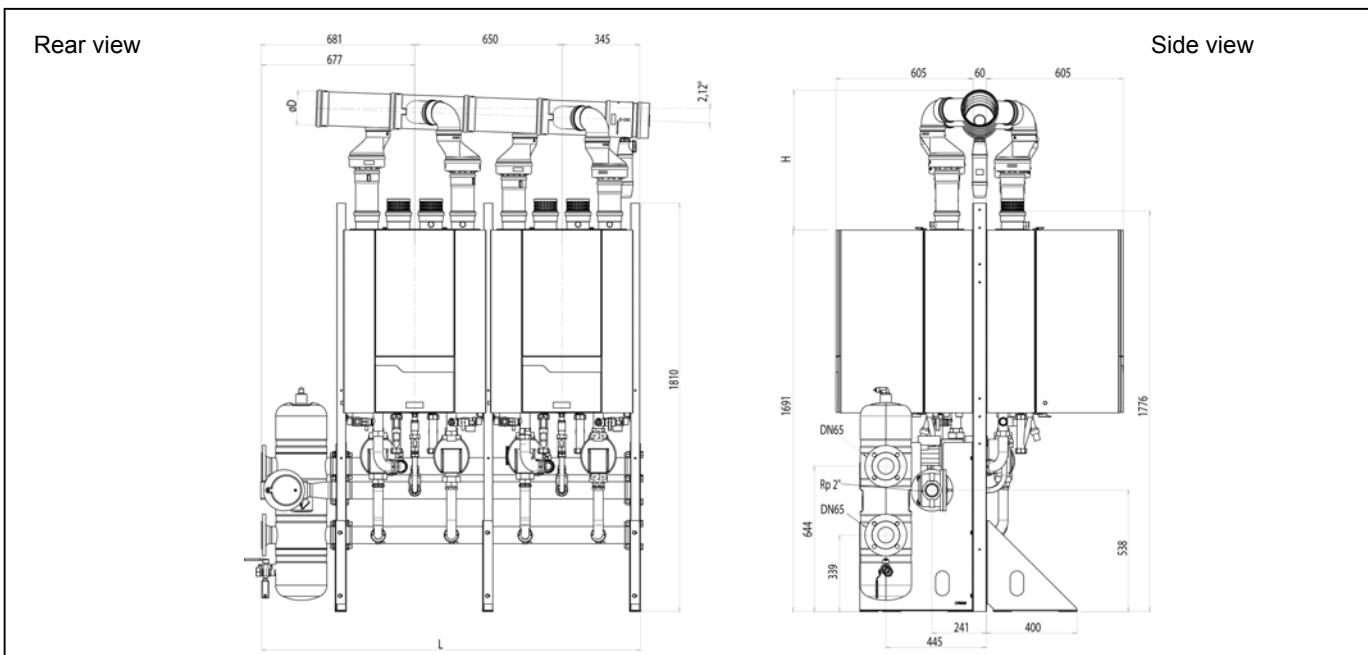


Dimensions

DN65 back to back + low loss header

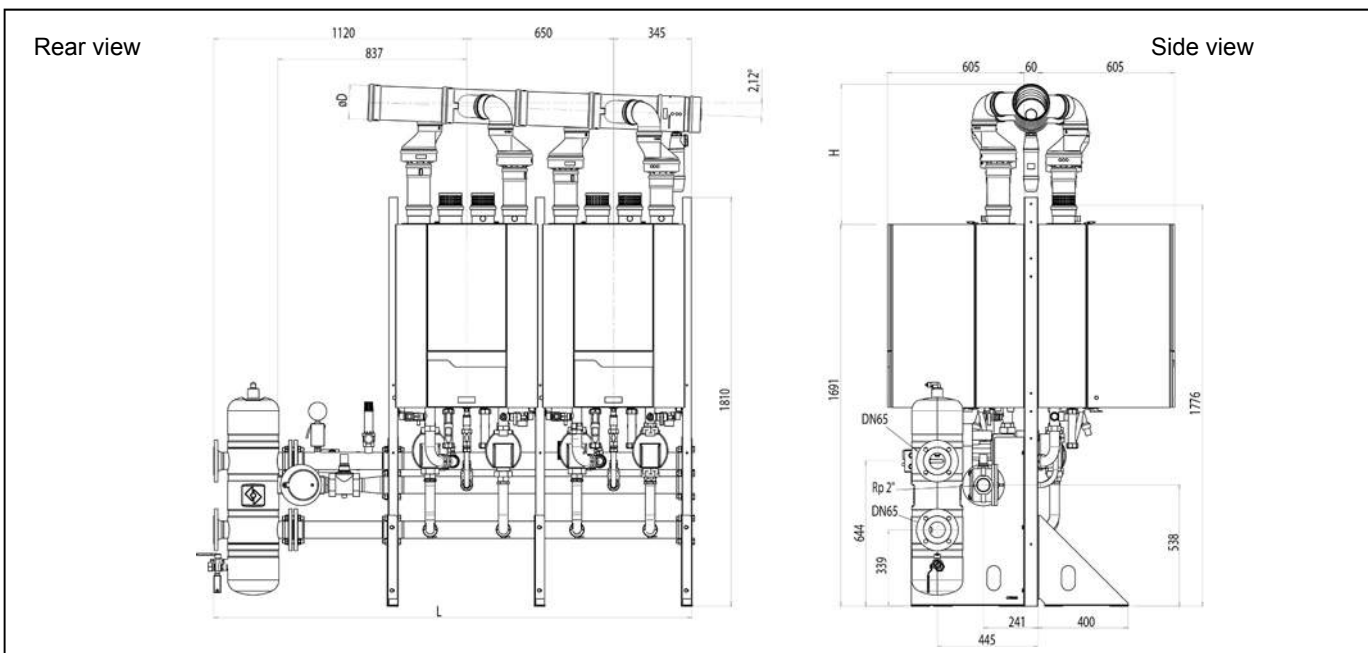
Standard

CASCADE DN 65		Number of boilers		3-4	5-6	7-8
Total width		L	mm	1672	2322	2972
ø D = 150mm	B = 400 - 450	H	mm	553	646	738
ø D = 200mm	B = 350 - 400	H	mm	616	709	801



ISPESL (Italy only)

CASCADE DN 65		Number of boilers		2	3	4
Total width		L	mm	2115	2765	3415
ø D = 150mm	B = 400 - 450	H	mm	553	646	738
ø D = 200mm	B = 350 - 400	H	mm	616	709	801

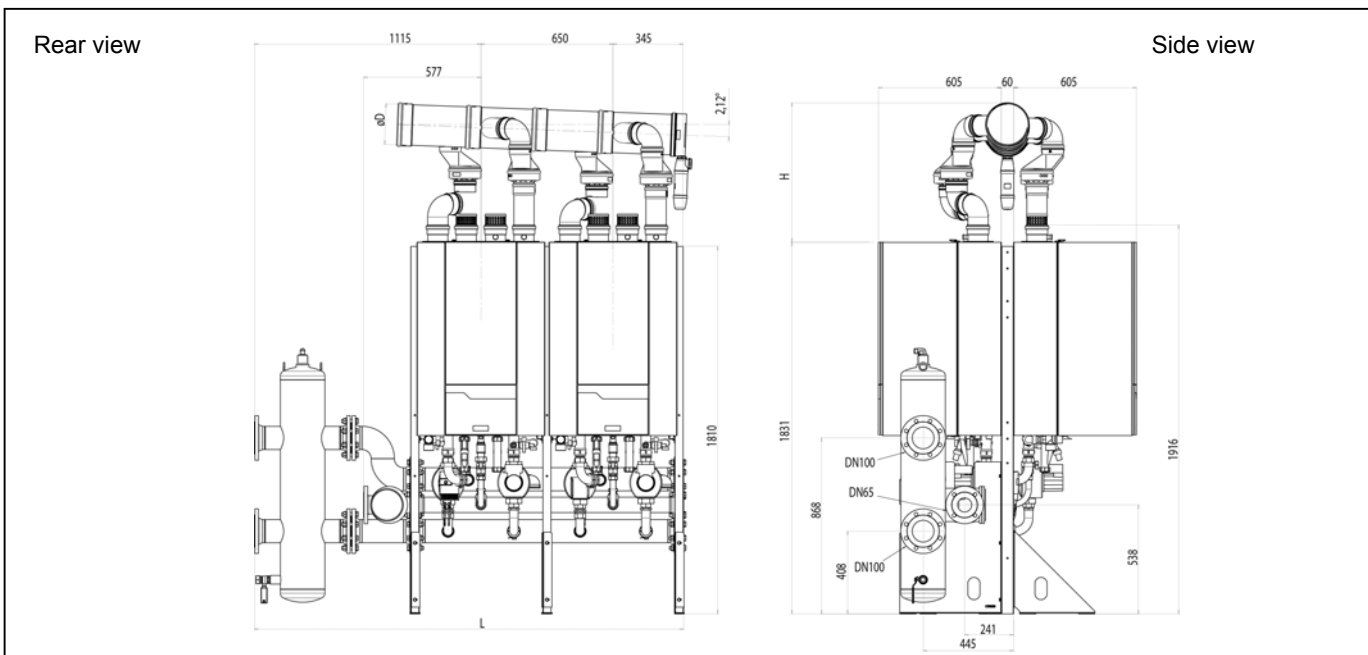


Dimensions

DN100 back to back + low loss header

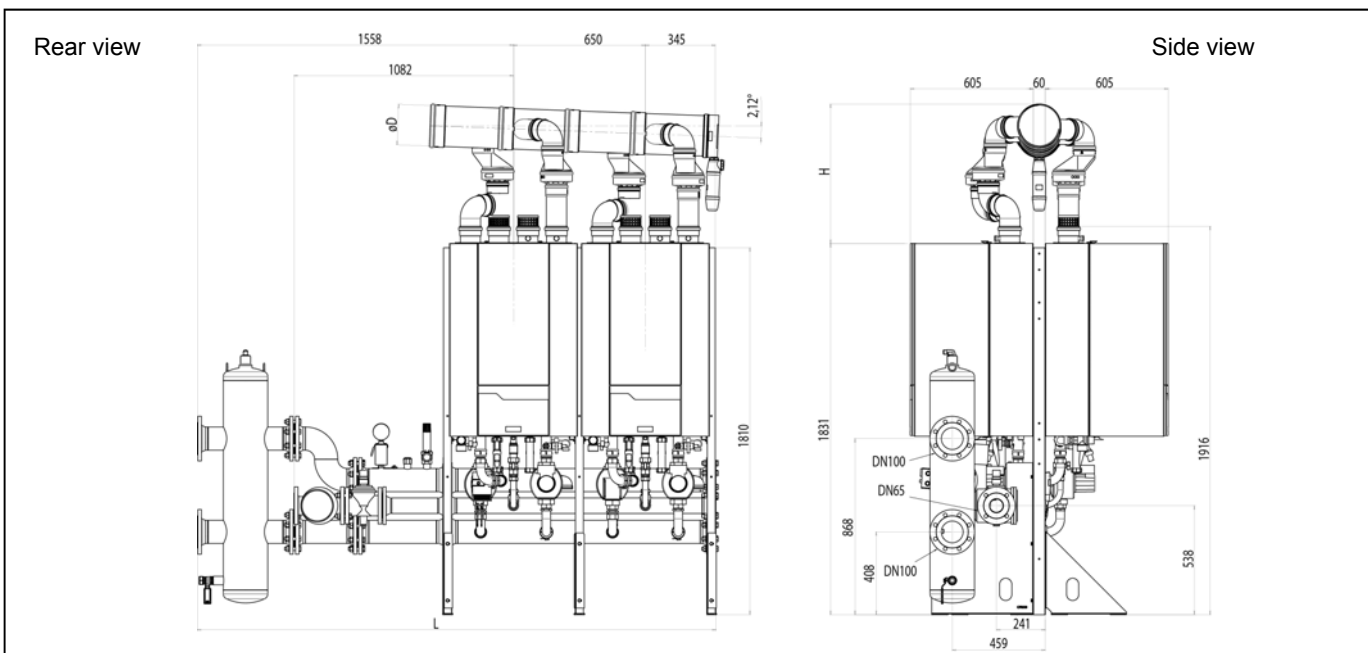
Standard

CASCADE DN 100	Number of boilers		3-4	5-6	7-8
Total width		L mm	2107	2757	3407
ø D = 150mm	B = 400 - 450	H mm	553	646	738
ø D = 200mm	B = 350 - 400	H mm	616	709	801



ISPESL (Italy only)

CASCADE DN 100	Number of boilers		3-4	5-6	7-8
Total width		L mm	2553	3203	3853
ø D = 150mm	B = 400 - 450	H mm	553	646	738
ø D = 200mm	B = 350 - 400	H mm	616	709	801

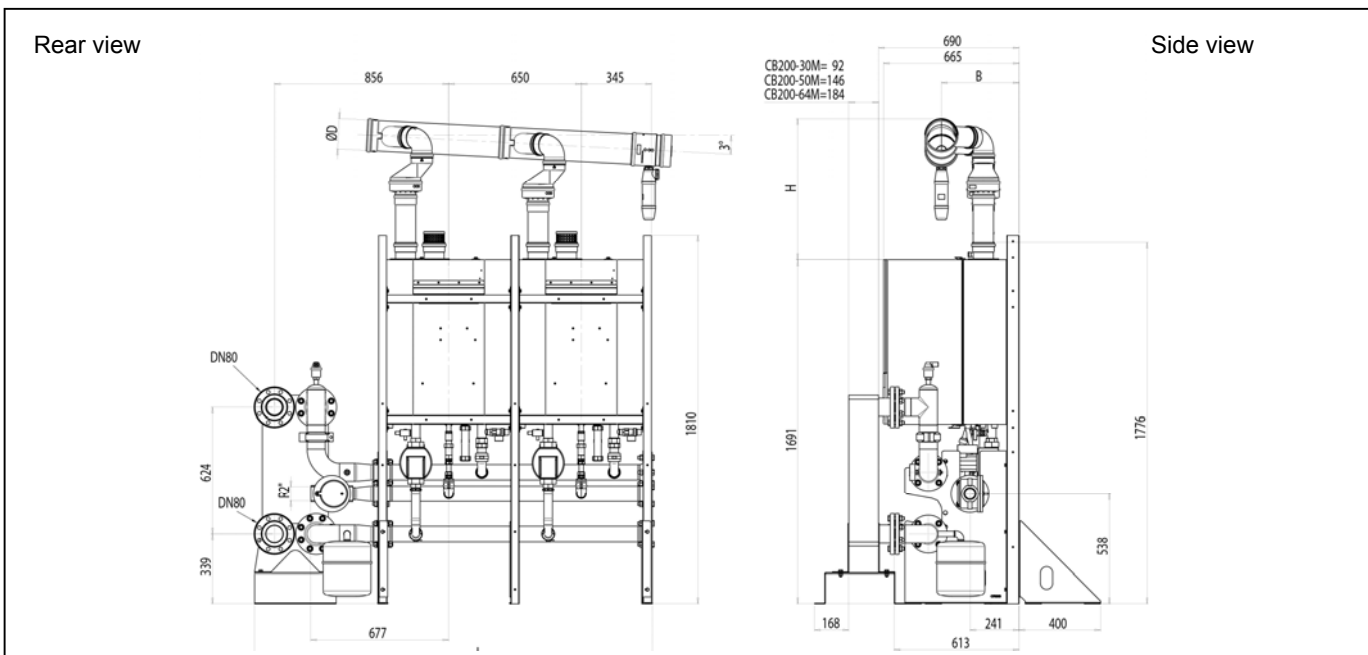


Dimensions

DN65 line + plate heat exchanger

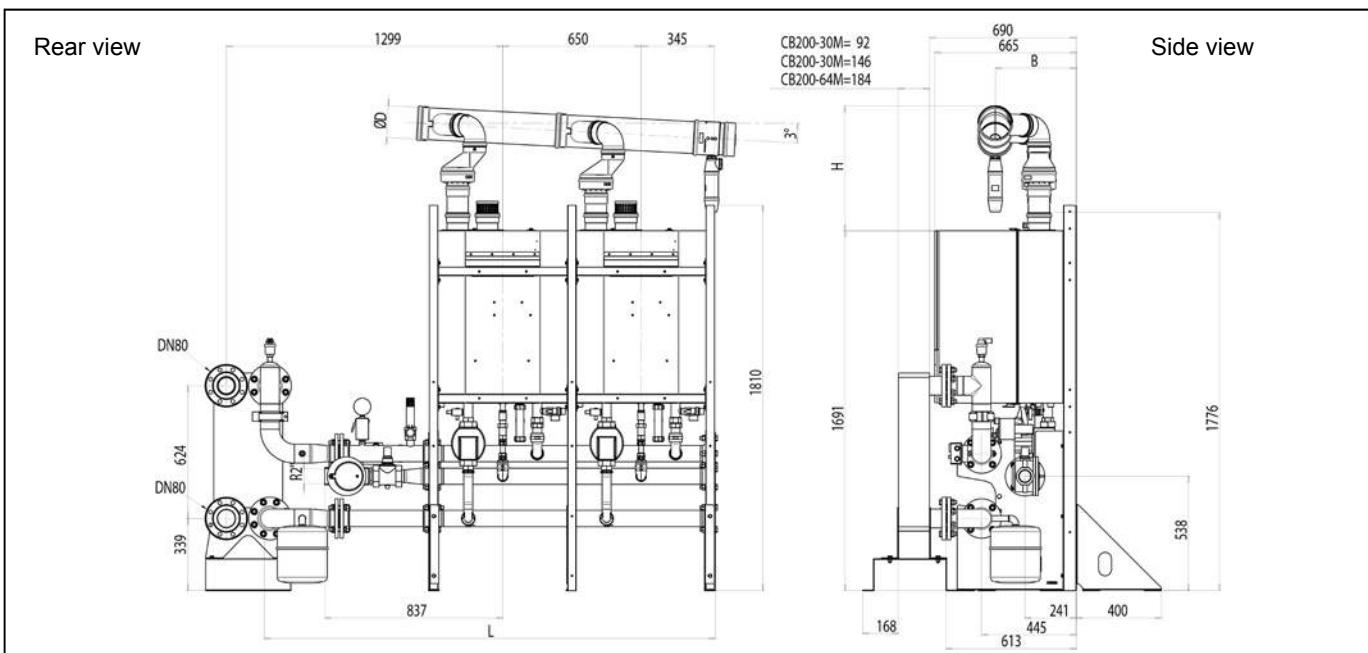
Standard

CASCADE DN 65	Number of boilers		2	3	4	5	6
Total width		L mm	1940	2590	3240	3890	4540
ø D = 150mm	B = 400 - 450	H mm	553	646	738	831	924
ø D = 200mm	B = 350 - 400	H mm	616	709	801	894	987



ISPESL (Italy only)

CASCADE DN 65	Number of boilers		2	3	4	5	6
Total width		L mm	2383	3033	3683	4333	4983
ø D = 150mm	B = 400 - 450	H mm	553	646	738	831	924
ø D = 200mm	B = 350 - 400	H mm	616	709	801	894	987

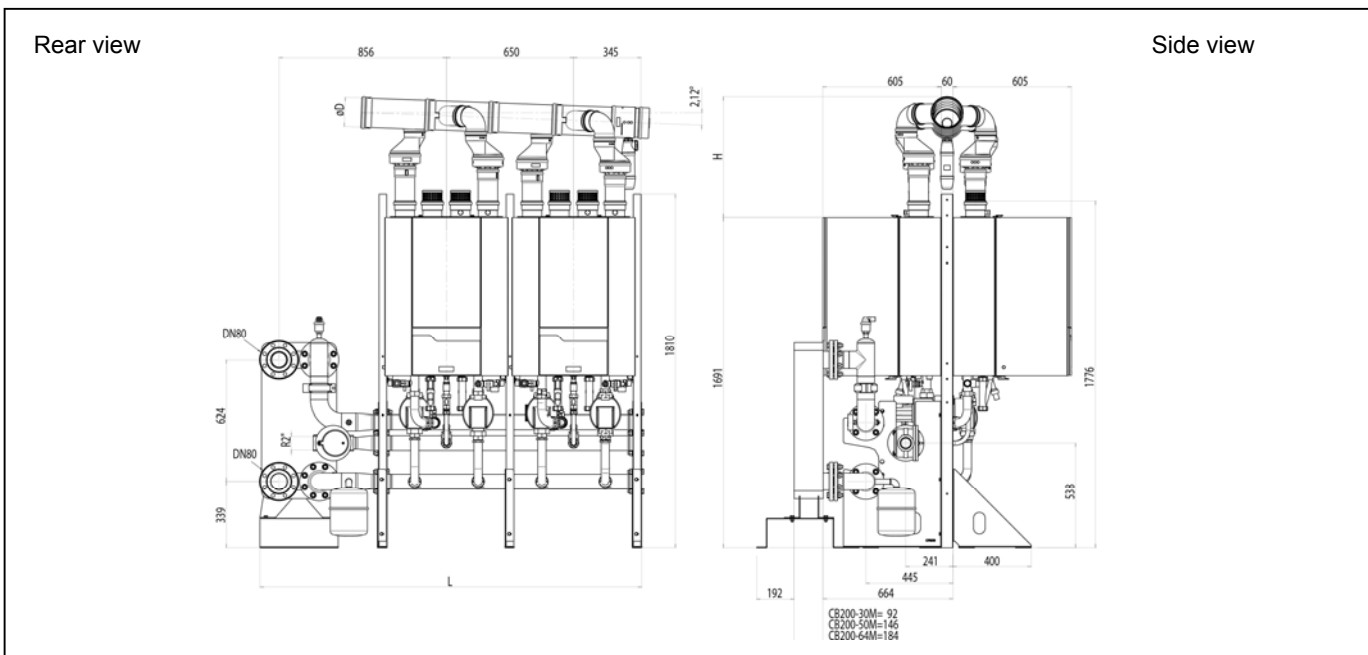


Dimensions

DN65 back to back + plate heat exchanger

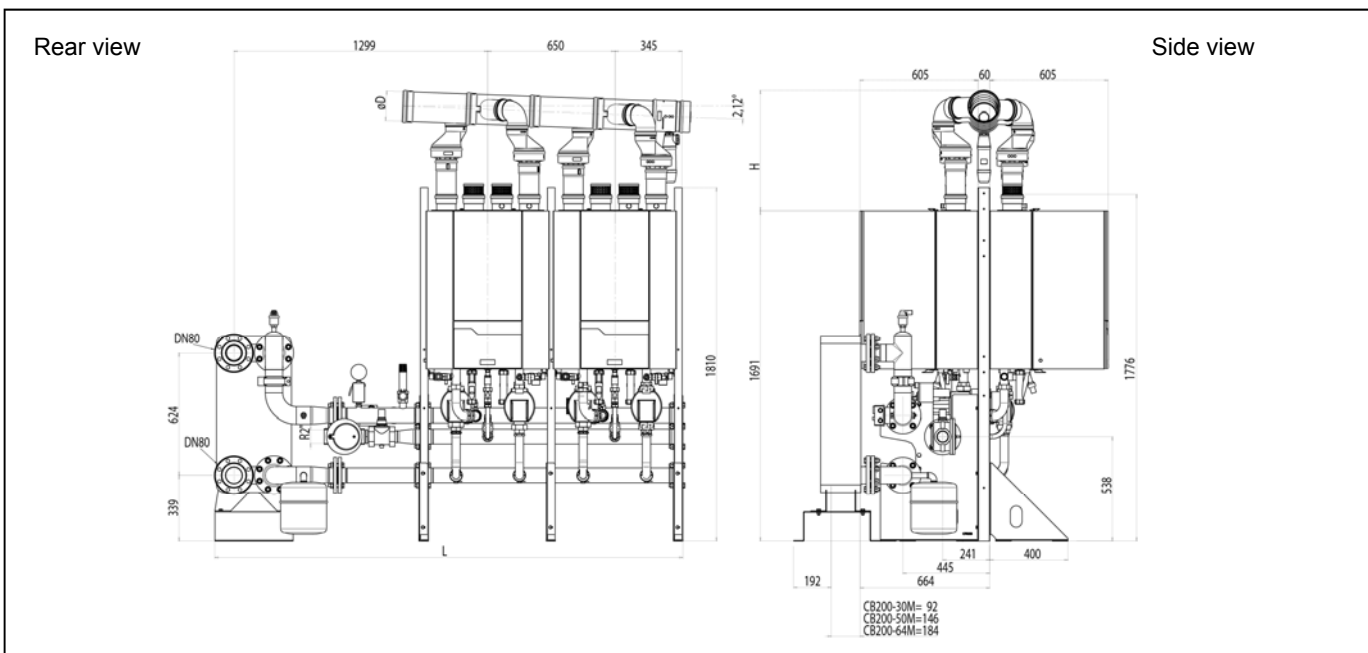
Standard

CASCADE DN 65	Number of boilers		3-4	5-6	7-8
Total width		L mm	1940	2590	3240
ø D = 150mm	B = 400 - 450	H mm	553	646	738
ø D = 200mm	B = 350 - 400	H mm	616	709	801




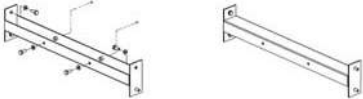




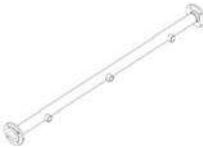

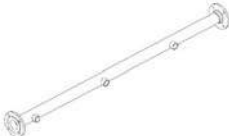
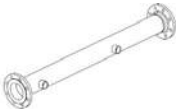
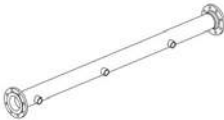
ISPESL (Italy only)

CASCADE DN 65	Number of boilers		3-4	5-6	7-8
Total width		L mm	2383	3033	3683
ø D = 150mm	B = 400 - 450	H mm	553	646	738
ø D = 200mm	B = 350 - 400	H mm	616	709	801



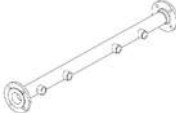
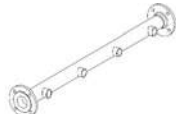


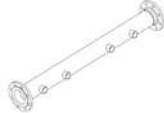
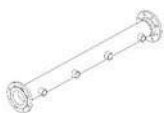
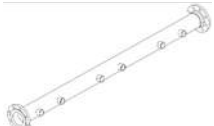
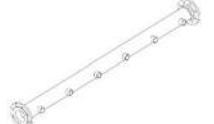



Component index

System components

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590279	FRAME VERTICAL SUPPORT	x	x	x	x
	3590280	FRAME HORIZONTAL SUPPORT	x	x	x	x
	3590281	COLLECTOR SUPPORT LEFT	x	x	x	x
	3590282	COLLECTOR SUPPORT RIGHT	x	x	x	x
	3590283	FRAME FOOT	x	x	x	x
	3590267	COLLECTOR GAS DN65 2B LINE / 4B B2B	x	x		
	3590268	COLLECTOR GAS DN65 3B LINE / 6B B2B	x	x		
	3590253	COLLECTOR FLOW/RETURN DN65 2B LINE	x			
	3590254	COLLECTOR FLOW/RETURN DN65 3B LINE	x			
	3590255	COLLECTOR FLOW/RETURN DN100 2B LINE			x	
	3590256	COLLECTOR FLOW/RETURN DN100 3B LINE			x	




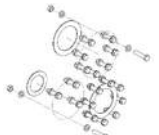
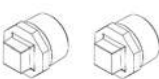
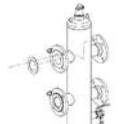


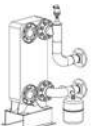
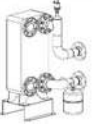
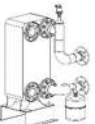
Component index

System components

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590257	COLLECTOR FLOW DN65 4B B2B		X		
	3590258	COLLECTOR RETURN DN65 4B B2B		X		
	3590259	COLLECTOR FLOW DN65 6B B2B		X		
	3590260	COLLECTOR RETURN DN65 6B B2B		X		
	3590261	COLLECTOR FLOW DN100 4B B2B				X
	3590262	COLLECTOR RETURN DN100 4B B2B				X
	3590263	COLLECTOR FLOW DN100 6B B2B				X
	3590264	COLLECTOR RETURN DN100 6B B2B				X
	3590265	ISPEL KIT DN65	X	X		
	3590266	ISPEL KIT DN100			X	X
	3590302	2ND ISPEL SAFETY VALVE DN100 > 555KW			X	X

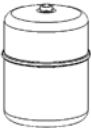

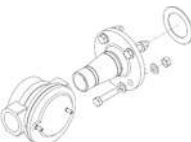

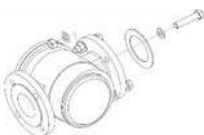



Component index

System components

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590269	FLANGE KIT DN65	x	x		
	3590270	FLANGE KIT DN100			x	x
	3590271	CONNECTION KIT 2 COLLECTORS DN65	x	x		
	3590272	CONNECTION KIT 2 COLLECTORS DN100			x	x
	3590273	BLIND KIT FOR 1 BOILER		x		x
	3590274	SPIROCROSS DN65	x	x		
	3590276	SPIROCROSS DN100			x	x
	3590277	ADAPTER KIT SPIROCROSS DN100			x	x
	3590357	PLATE HEAT EXCH. CB200-30M TH-L EVO / R40 EVO CASCADE	x	x		
	3590358	PLATE HEAT EXCH. CB200-50M TH-L EVO / R40 EVO CASCADE	x	x		
	3590359	PLATE HEAT EXCH. CB200-64M TH-L EVO / R40 EVO CASCADE	x	x		

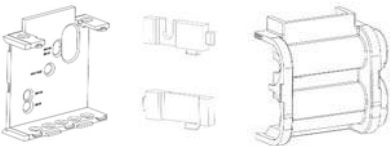

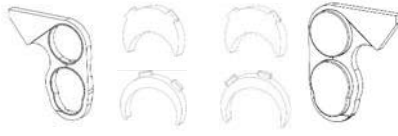
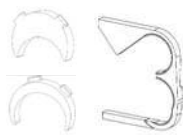
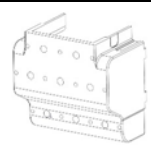






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System components

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590198	EXPANSION VESSEL FLEXCON TOP 4/1,5 BAR	x	x		
	3590199	EXPANSION VESSEL FLEXCON TOP 8/1,5 BAR	x	x		
	3590298	GAS FILTER 2" INCL. CONNECTOR DN65	x	x		
	3590299	EXTENSION TUBE GAS 2"	x	x		
	3590300	GAS FILTER DN65			x	x
	3590301	EXTENSION TUBE GAS DN65			x	x
	3590303	ISPEL GAS VALVE 2"	x	x		
	3590304	ISPEL GAS VALVE DN65			x	x

Component index

Insulation Controls

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590418	CASC. INSULATION LINE 1 BOILER TH-L EVO / R40 EVO	x	x	x	x
	3590419	CASC. INSULATION END PIECES RIGHT TH-L EVO / R40 EVO	x	x	x	x
	3590420	CASC. INSULATION END PIECES LEFT TH-L EVO / R40 EVO	x	x	x	x
	3590421	CASC. INSULATION MID CONN. PIECE TH-L EVO / R40 EVO	x	x	x	x
	3590422	CASC. INSULATION B2B 1 BOILER TH-L EVO / R40 EVO		x		x
	3590275	INSULATION SPIROCROSS DN65	x	x		
	3590278	INSULATION SPIROCROSS DN100			x	x
	3590251	EXTENSION MODULE AGU2.550	x	x	x	x
	3590252	EXTENSION MODULE AGU2.551 FOR 0-10V	x	x	x	x
	171237	OUTDOOR SENSOR QAC34.101	x	x	x	x
	171238	HEADER/HOT WATER SENSOR QAZ36 CABLE 2M	x	x	x	x



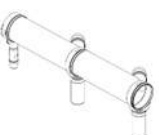








Component index

Controls

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	12081759	HEADER/HOT WATER SENSOR QAZ36 CABLE 6M	X	X	X	X
	11002600	ZONE SENSOR QAD36.201 WITH 4M CABLE	X	X	X	X
	12048253	ROOM CONTROLLER QAA75.610/101	X	X	X	X
	12048264	ROOM CONTROLLER QAA78.610/301 WIRELESS	X	X	X	X
	12048275	RECEIVER AVS71.390/109 WIRELESS	X	X	X	X
	12048286	OUTDOOR SENSOR AVS13.399.201 WIRELESS	X	X	X	X
	3590243	CASCADE KIT MASTER LMS	X	X	X	X
	3590244	CASCADE KIT SLAVE LMS	X	X	X	X
	3590246	RVS63.283/360 CONTROLLER + WALL HUNG BOX	X	X	X	X




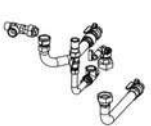


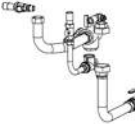
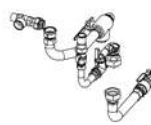
Component index

Flue system

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590313	CASCADE FLUE KIT BASIC DN150 LINE	x			
	3590314	CASCADE FLUE KIT EXTENSION DN150 LINE	x			
	3590315	CASCADE FLUE KIT BASIC DN200 LINE	x		x	
	3590316	CASCADE FLUE KIT EXTENSION DN200 LINE	x		x	
	3590317	CASCADE FLUE KIT BASIC DN150 B2B		x		
	3590318	CASCADE FLUE KIT EXTENSION DN150 B2B		x		
	3590319	CASCADE FLUE KIT BASIC DN200 B2B		x		x
	3590320	CASCADE FLUE KIT EXTENSION DN200 B2B		x		x
	3590321	ADAPTER FOR CASCADE CONNECTION TH-L EVO / R40 EVO 140	x	x	x	x
	3590311	AIR INLET COVER 100MM TH-L EVO / R40 EVO 70-120	x	x	x	x
	3590312	AIR INLET COVER 130MM TH-L EVO / R40 EVO 140	x	x	x	x


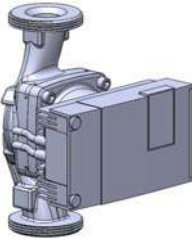
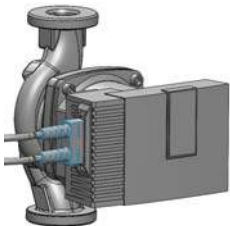
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Boiler connection kits

Picture	Art. code	Description	Boiler type					
			60	70	80	100	120	140
	3590284	CONNECTION KIT TH-L EVO / R40 EVO 70-80 LINE	X	X	X			
	3590285	CONNECTION KIT TH-L EVO / R40 EVO 100-140 LINE				X	X	X
	3590286	CONNECTION KIT TH-L EVO / R40 EVO 70-80 B2B	X	X	X			
	3590287	CONNECTION KIT TH-L EVO / R40 EVO 100-140 B2B				X	X	X
	3590288	CONNECTION KIT TH-L EVO / R40 EVO 70-80 LINE (ITALY & UK ONLY)	X	X	X			
	3590289	CONNECTION KIT TH-L EVO / R40 EVO 100-140 LINE (ITALY & UK ONLY)				X	X	X
	3590290	CONNECTION KIT TH-L EVO / R40 EVO 70-80 B2B (ITALY & UK ONLY)	X	X	X			
	3590291	CONNECTION KIT TH-L EVO / R40 EVO 100-140 B2B (ITALY & UK ONLY)				X	X	X










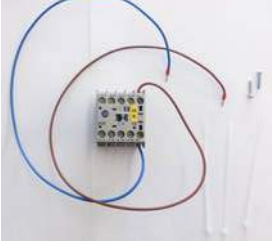
Component index

Boiler pumps

Picture	Art. code	Description	Boiler type					
			60	70	80	100	120	140
	3590629	PUMP Yonos PARA 30/7,5 TH-L EVO / R40 EVO	x	x				
	3590630	PUMP Stratos PARA 30/1-9 TH-L EVO / R40 EVO			x	x	x	
	3590631	PUMP Stratos PARA 30/1-8 TH-L EVO / R40 EVO						x

Component index

Boiler accessories

Picture	Art. code	Description	Boiler type					
			60	70	80	100	120	140
	3590305	TAS GAS VALVE 3/4"	x	x	x			
	3590306	TAS GAS VALVE 1"				x	x	x
	3590327	SAFETY VALVE TÜV 4 BAR TH-L EVO / R40 EVO 70-80	x	x	x			
	3590328	SAFETY VALVE TÜV 5 BAR TH-L EVO / R40 EVO 70-80	x	x	x			
	3590329	SAFETY VALVE TÜV 6 BAR TH-L EVO / R40 EVO 70-80	x	x	x			
	3590331	SAFETY VALVE TÜV 4 BAR TH-L EVO / R40 EVO 100-140				x	x	x
	3590332	SAFETY VALVE TÜV 5 BAR TH-L EVO / R40 EVO 100-140				x	x	x
	3590333	SAFETY VALVE TÜV 6 BAR TH-L EVO / R40 EVO 100-140				x	x	x
	3590348	MIN. GAS PRESSURE SWITCH TH-L EVO / R40 EVO	x	x	x	x	x	x
	3590660	ROOM FAN + EXT. GAS VALVE TH-L EVO / R40 EVO	x	x	x	x	x	x

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