Stokvis R40 Modupak

Cascade Assembly Manual

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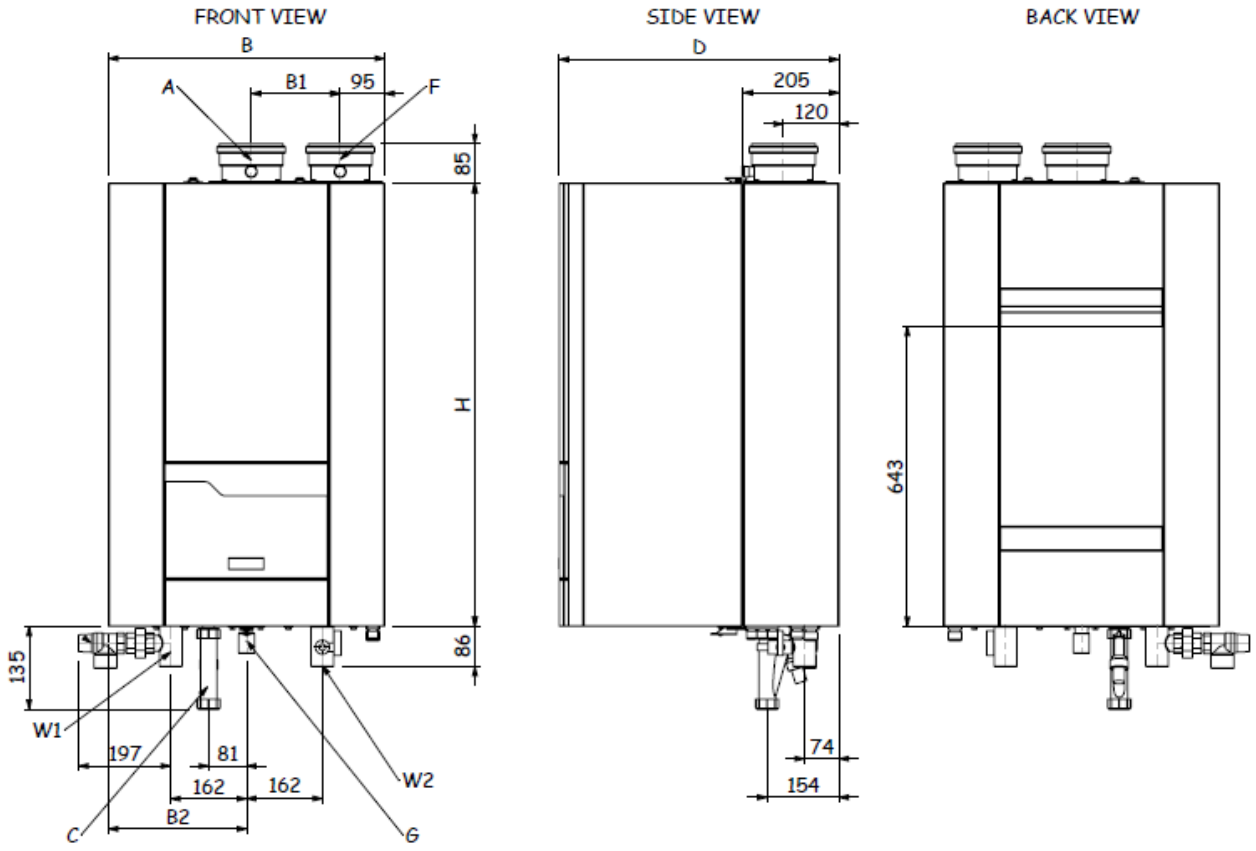
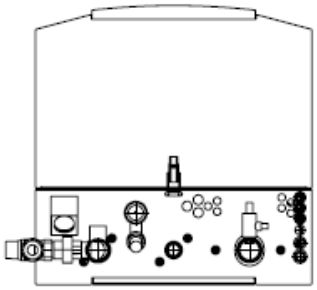
Contents

Technical data

		R40 50	R40 65	R40 85	R40 100	R40 120	R40 150
Nominal heat output at 80/60ºC max/min	kW	45.7/7.7	60.8/10.1	81.1/13.4	92.9/15.6	111.6/18.7	132.2/23.3
Nominal heat output at 75/60ºC max/min	kW	45.8/7.7	60.9/10.1	81.3/13.4	93.1/15.6	111.8/18.7	132.5/23.3
Nominal heat output at 40/30ºC max/min	kW	48.0/8.4	63.9/11.1	85.3/14.8	100.0/17.2	120.0/20.6	142.3/25.6
Nominal heat input Hi max/min	kW	46.9/7.8	62.4/10.4	83.3/13.8	95.2/16.0	114.3/19.2	135.5/23.9
Efficiency at 80/60ºC	%	97.4	97.4	97.4	97.6	97.6	97.6
Efficiency at 40/30ºC	%	102.4	102.4	102.4	105.0	105.0	105.0
Annual efficiency (NNG 75/60ºC)	%	106.2	106.2	106.2	106.2	106.2	106.2
Annual efficiency (NNG 40/30ºC)	%	>110	>110	>110	>110	>110	>110
Standstill losses (T_{water} = 70ºC)	%	0.20	0.20	0.20	0.20	0.20	0.20
Max. condensate flow	l/h	2.6	3.5	4.8	6.4	7.7	9.1
Gas consumption G20 max/min (10,9 kWh/m^3)	m^3/h	4.3/0.7	5.7/1.0	7.6/1.3	8.7/1.5	10.5/1.8	12.4/2.2
Gas consumption G25 max/min (8,34 kWh/m^3)	m^3/h	5.6/0.9	7.5/1.2	10.0/1.7	11.4/1.9	13.7/2.3	16.3/2.9
Gas consumption G31 max/min (12,8 kWh/kg)	kg/h	-/-	-/-	-/-	-/-	-/-	-/-
Gas pressure G20	mbar	20	20	20	20	20	20
Gas pressure G25	mbar	25	25	25	25	25	25
Gas pressure G31	mbar	-/-	-/-	-/-	-/-	-/-	-/-
Maximum gas pressure	mbar	50	50	50	50	50	50
Flue gas temperature at 80/60ºC max/min	ºC	76/63	76/63	76/63	76/63	76/63	76/63
Flue gas temperature at 40/30ºC max/min	ºC	55/39	55/39	55/39	55/39	55/39	55/39
Flue gas quantity max/min	m^3/h	89/14	119/19	159/25	178/29	213/35	253/44
CO_2 level G20/G25 max/min	%	8.5/8.5	8.5/8.5	8.5/8.5	8.7/8.5	8.7/8.5	8.7/8.5
CO_2 level G31 max/min	%	-/-	-/-	-/-	-/-	-/-	-/-
NOx level	mg/kWh	39	39	39	39	39	39
CO level max/min	mg/kWh	98/7	98/7	98/7	98/7	98/7	98/7
Max. permissible flue resistance max/min	Pa	150/15	150/15	150/15	150/15	200/15	200/15
Water volume	l	4.0	4.0	4.7	6.5	8.0	9.4
Water pressure max/min	bar	8/1.5	8/1.5	8/1.5	8/1.5	8/1.5	8/1.5
High limit thermostat	ºC	100	100	100	100	100	100
Maximum temperature setpoint	ºC	90	90	90	90	90	90
Nominal water flow at dT=20K	m^3/h	1.9	2.6	3.4	4.0	4.8	5.6
Hydraulic resistance at nominal water flow	kPa	9	16	29	15	22	34
Electrical connection	V	230	230	230	230	230	230
Frequency	Hz	50	50	50	50	50	50
Mains connection fuse	A	10	10	10	10	10	10
IP class	-	IPX4D	IPX4D	IPX4D	IPX4D	IPX4D	IPX4D
Power consumption boiler max/min (no pump)	W	98/26	98/26	167/38	195/30	228/36	248/44
Power consumption 3-step pump (optional)	W	150	150	205	150	210	385
Power consumption speed contr. pump (opt)	W	124	124	124	130	130	130
Weight (empty)	kg	60	60	68	80	90	97
Noise level at 1 meter distance *	dB(A)	56/50	56/50	56/50	56/50	56/50	56/50
Ionisation current minimum	µA	3	3	3	3	3	3
PH value condensate	-	3.2	3.2	3.2	3.2	3.2	3.2
CE certification code	-	CE-0063CM3576					
Water connections	-	R1.1/4"	R1.1/4"	R1.1/4"	R1.1/2"	R1.1/2"	R1.1/2"
Gas connection	-	R3/4"	R3/4"	R3/4"	R1"	R1"	R1"
Flue gas connection	mm	100	100	100	100	100	130
Air intake connection (for room sealed use)	mm	100	100	100	100	100	130
Condensate connection	mm	22	22	22	22	22	22

Technical data





Dimensions		R40 50 - 65	R40 85	R40 100	R40 120	R40 150
B	mm	490	490	590	590	590
B1	mm	140	140	140	140	190
B2	mm	245	245	295	295	295
D	mm	500	500	600	600	600
H	mm	810	810	950	950	950
W1	mm	R 1 1/4"	R 1 1/4"	R 1 1/2"	R 1 1/2"	R 1 1/2"
W2	mm	R 1 1/4"	R 1 1/4"	R 1 1/2"	R 1 1/2"	R 1 1/2"
G	mm	R 3/4"	R 3/4"	R 1"	R 1"	R 1"
F	mm	100	100	100	100	130
A	mm	100	100	100	100	130

Declaration of Conformity

Rendamax BV, Hamstraat 76, 6465 AG Kerkrade (NL),
Declares that the product

R40

Is in conformity with the following standards:

EN 298
EN 483
EN 15420
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)

This product is designated with CE number:

CE – 0063CM3576

Kerkrade, 16-11-2010

ing. G.A.A. Jacobs
Managing Director

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 commisioned 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!).

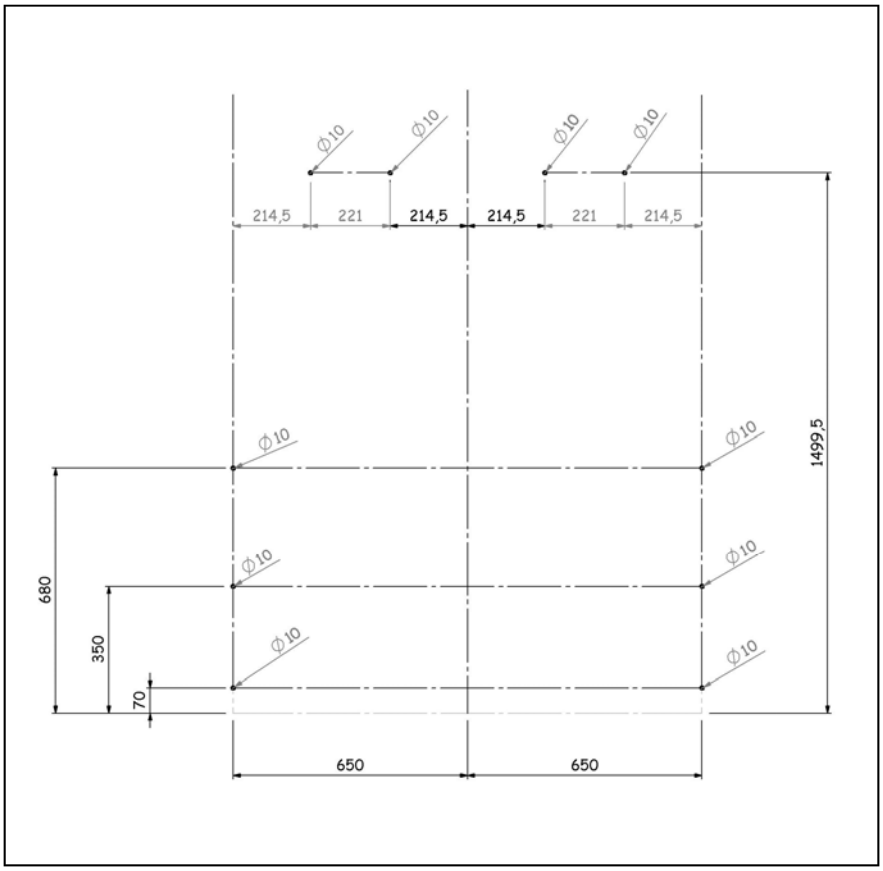
This manual is purely meant to assist to the installation of a complete cascade system. For technical details about the boilers or system components, please refer to the boiler manual or planner documentation.

Cascade assembly

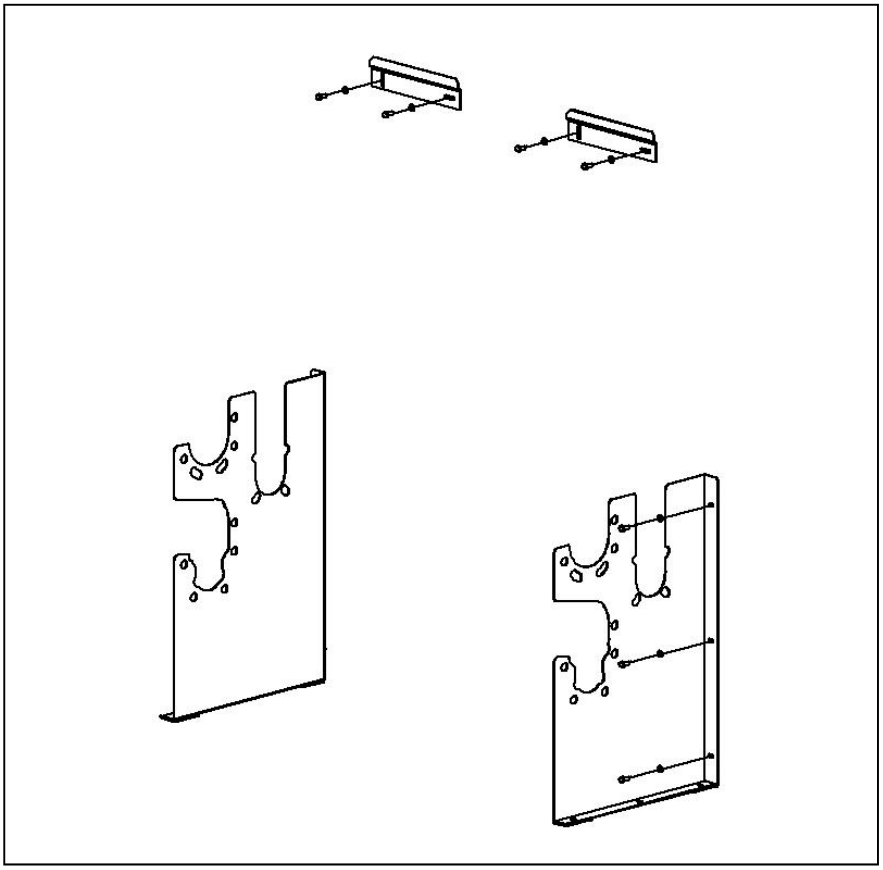
Frame - line, wall mounted

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.

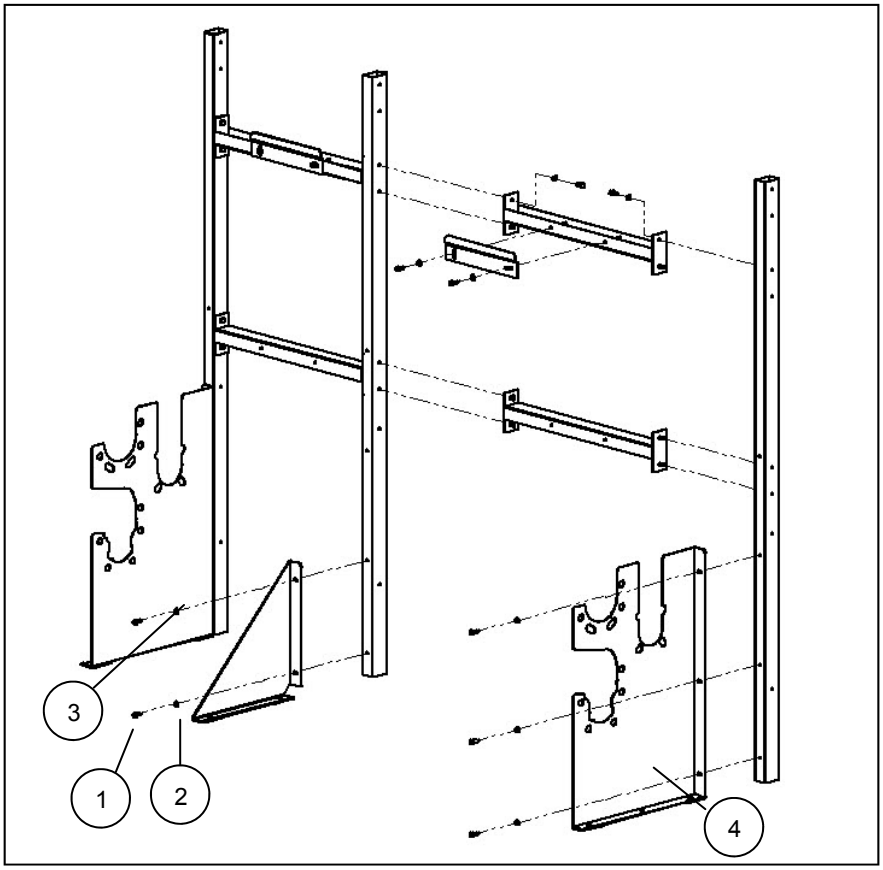


Cascade assembly

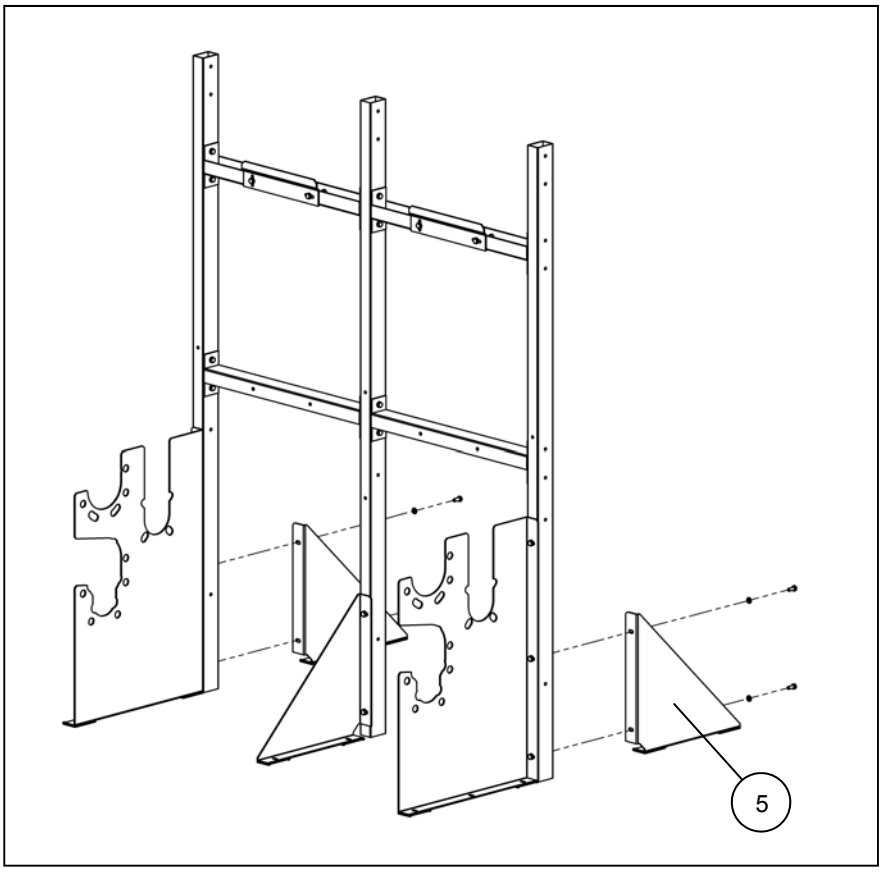
Frame - line, floor standing frame

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.

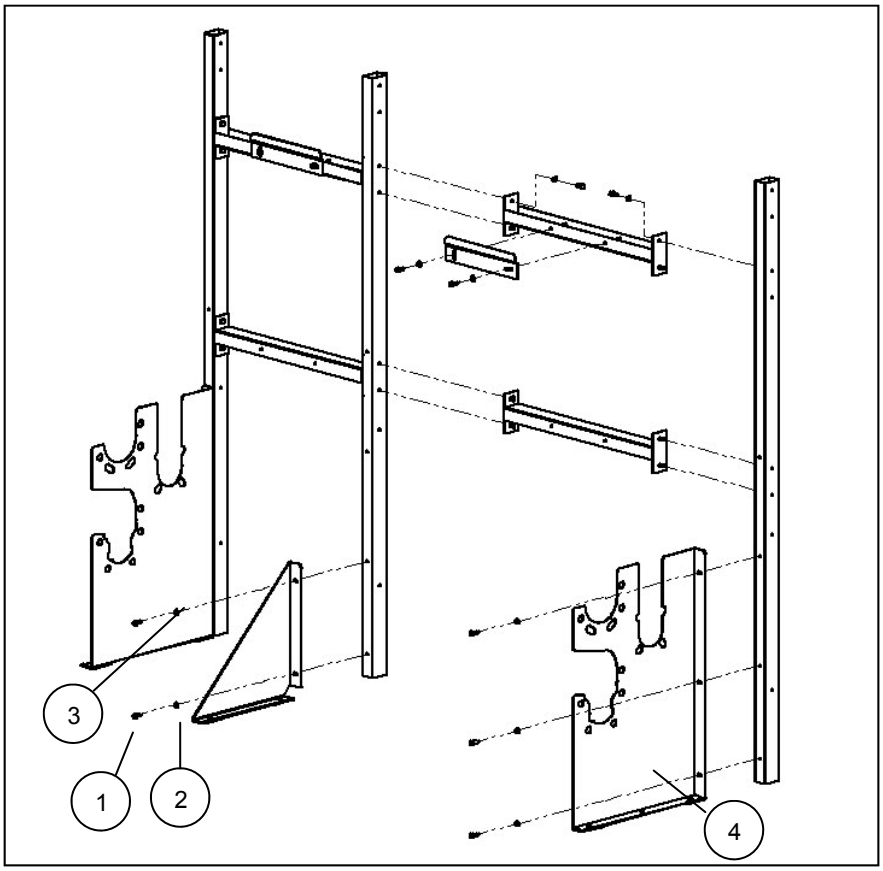


Cascade assembly

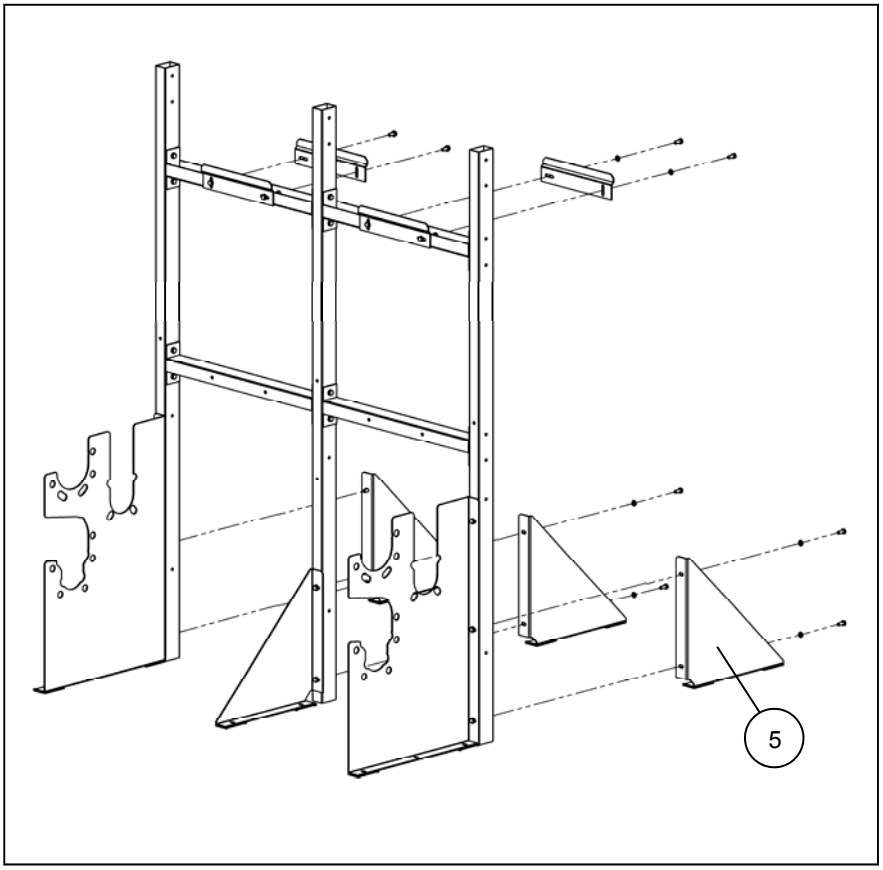
Frame - back to back, floor standing frame

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).



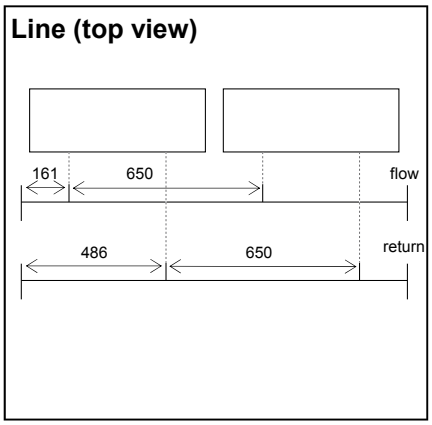
Cascade assembly

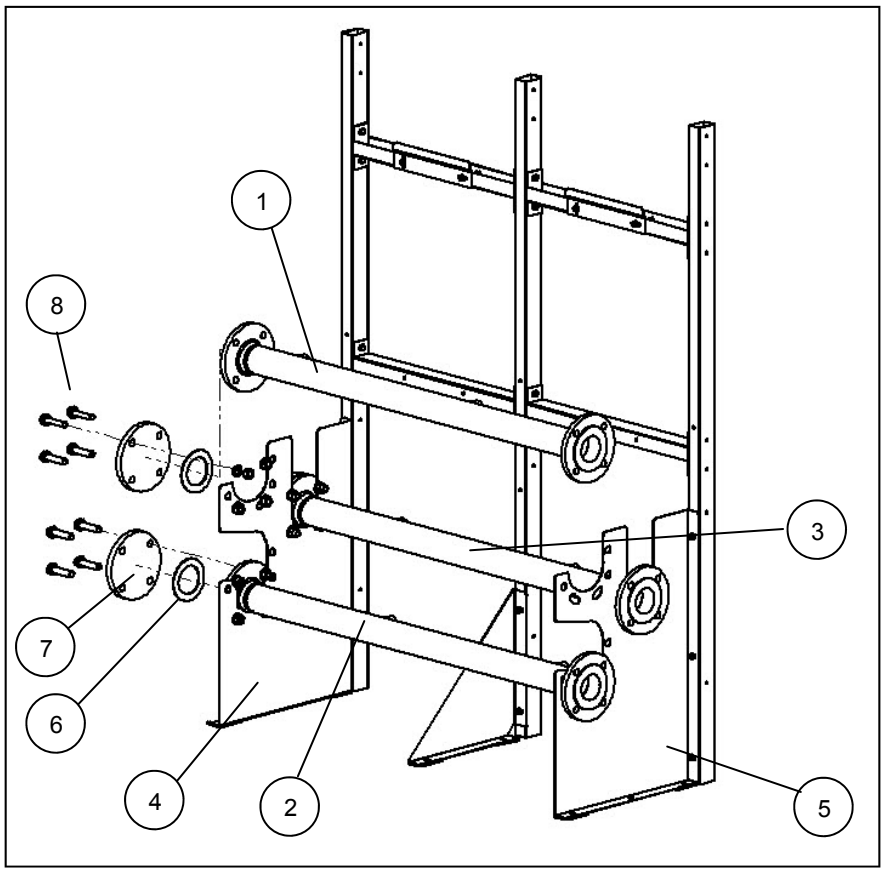
Collector

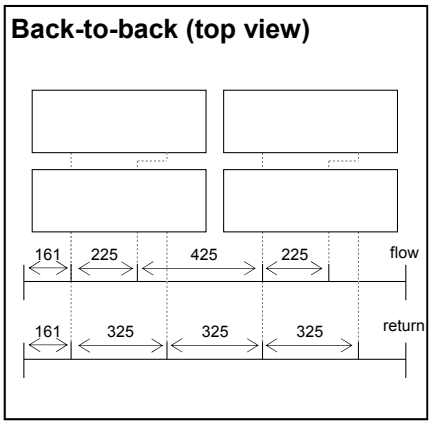
Position the flow (1) and return (2) tubes, as well as the gas tube (3) on the collector supports (4 and 5).

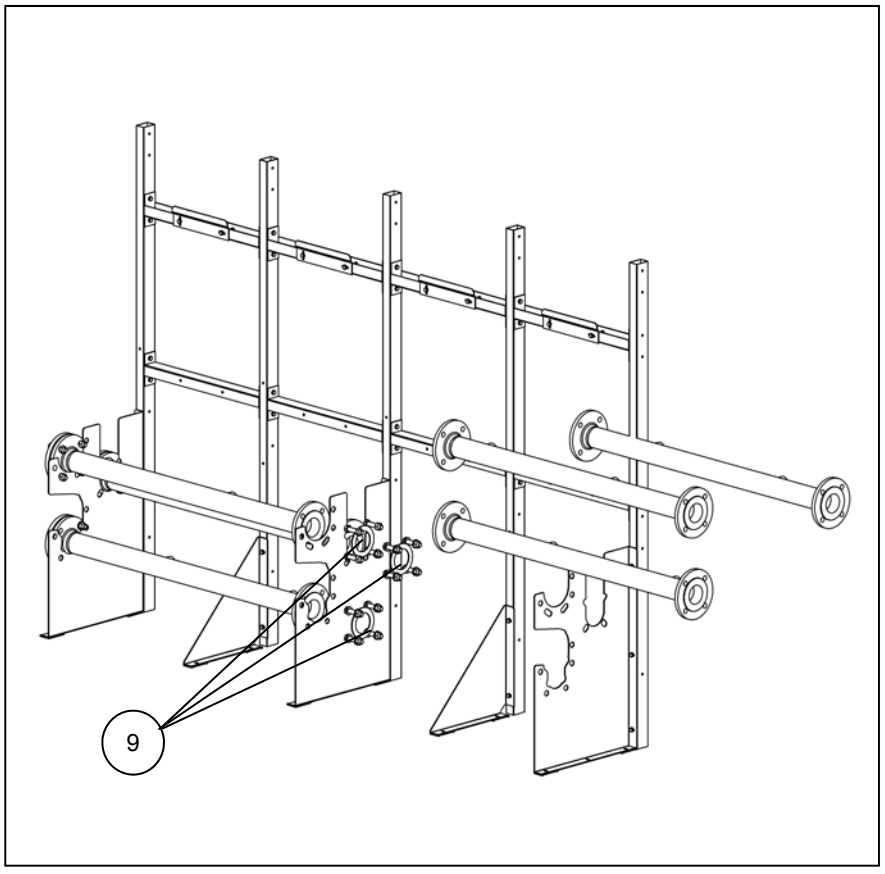
Place the gaskets (6) and the blind flanges (7) and assemble them with M16 bolts and nuts (8).

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.







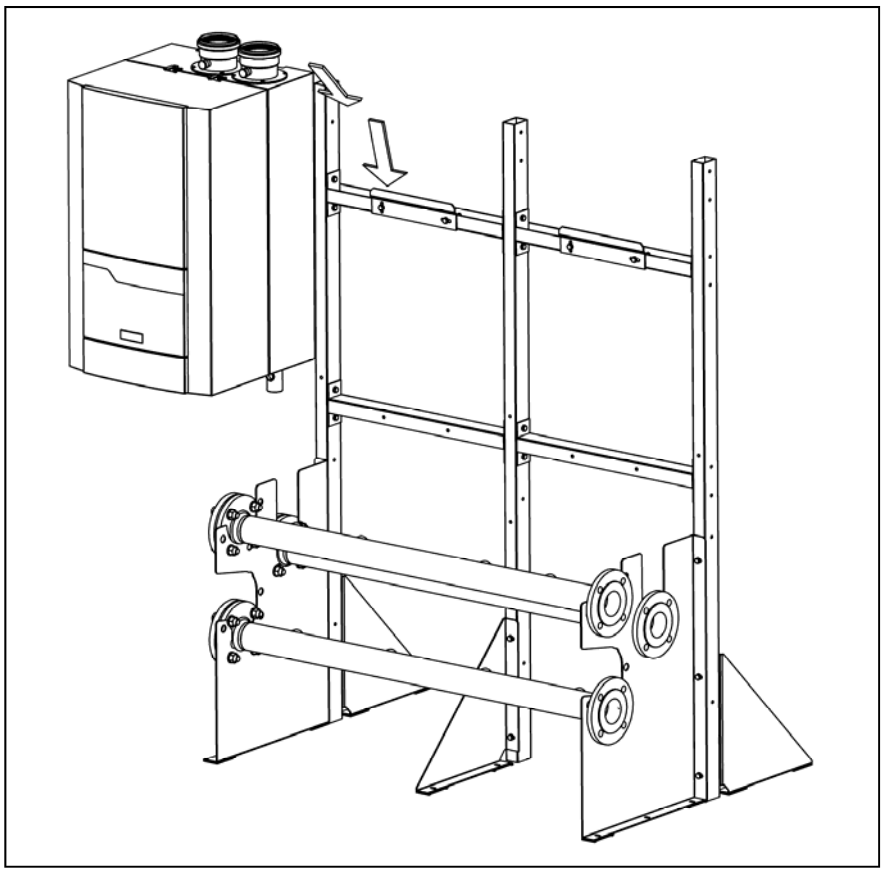


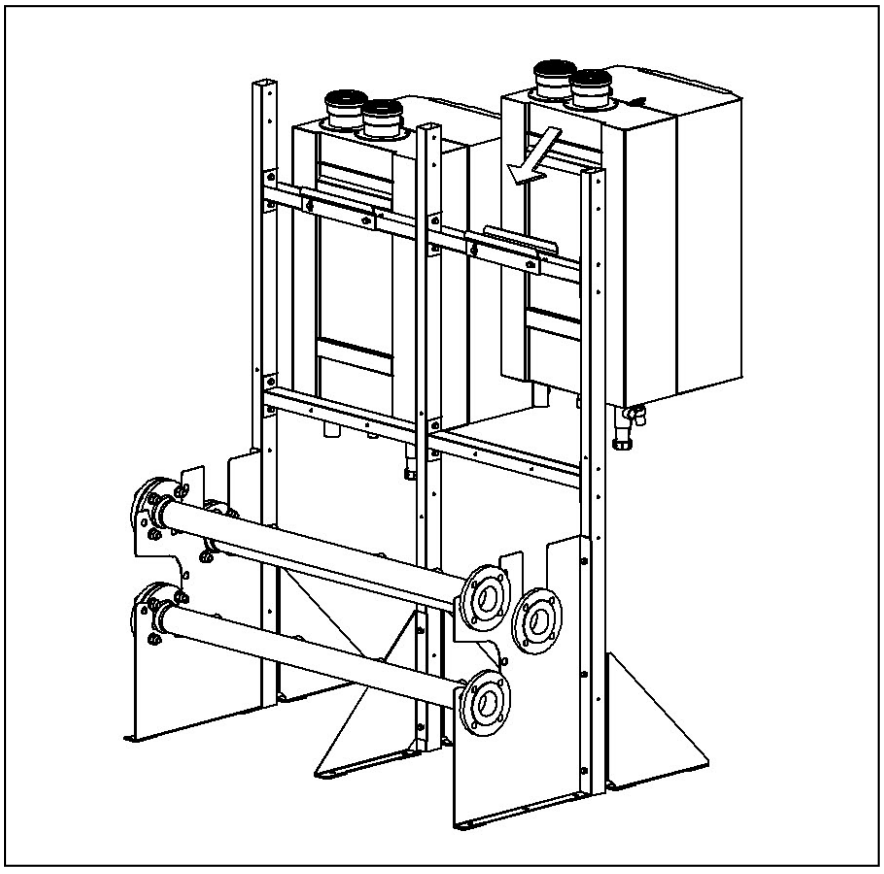
For line configurations of more than 3 boilers and back to back configurations of more than 6 boilers, two collectors have to be connected.
In this situation, a hydraulic connection kit (9) must be used to connect the hydraulic and gas flanges of one collector to the other. A second left-hand collector support is used as mid support.

Cascade assembly

Boilers

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



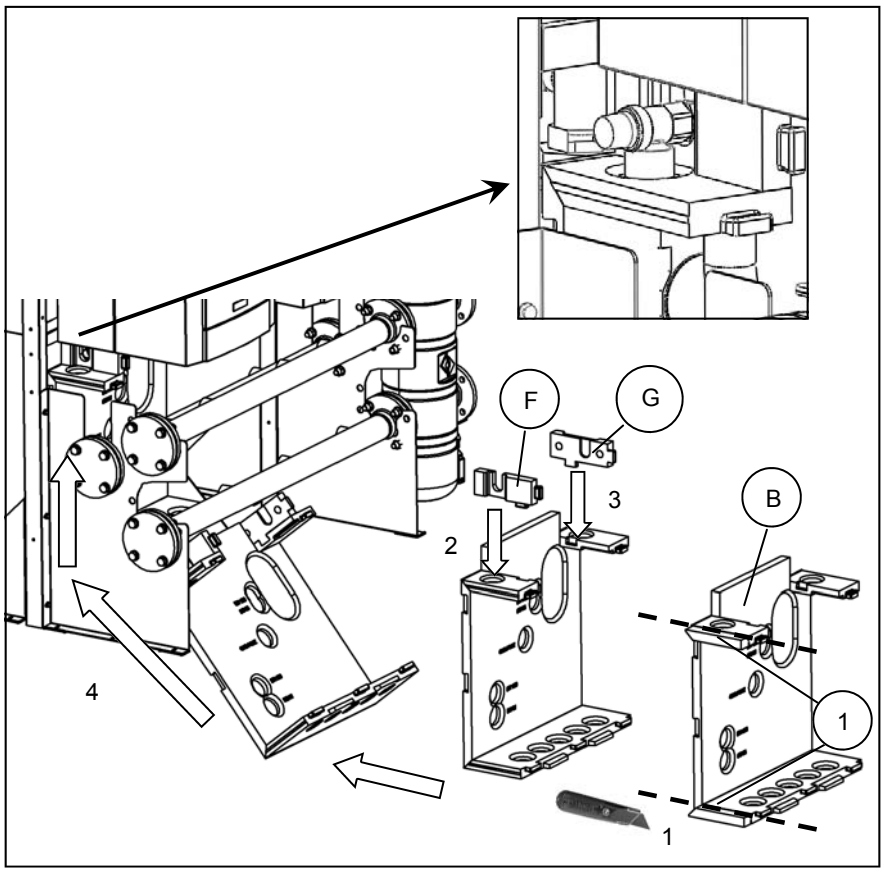


Insulation - back panel

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!)

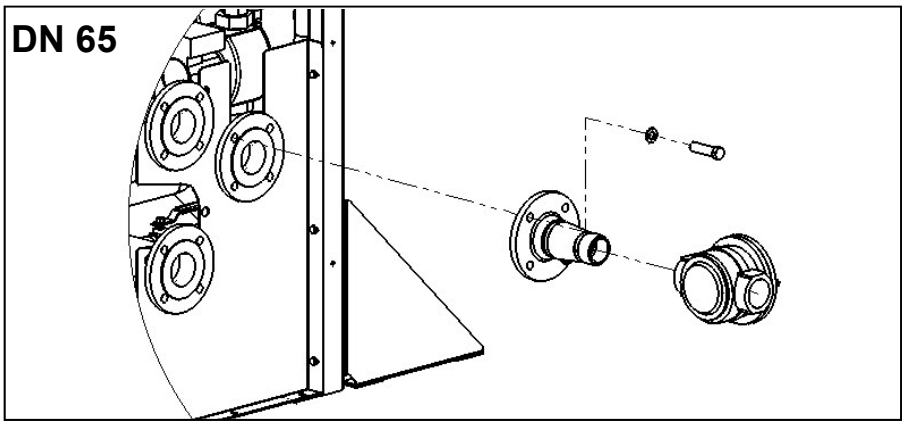
For an eventual 3rd boiler repeat the activities as described for boiler 2.

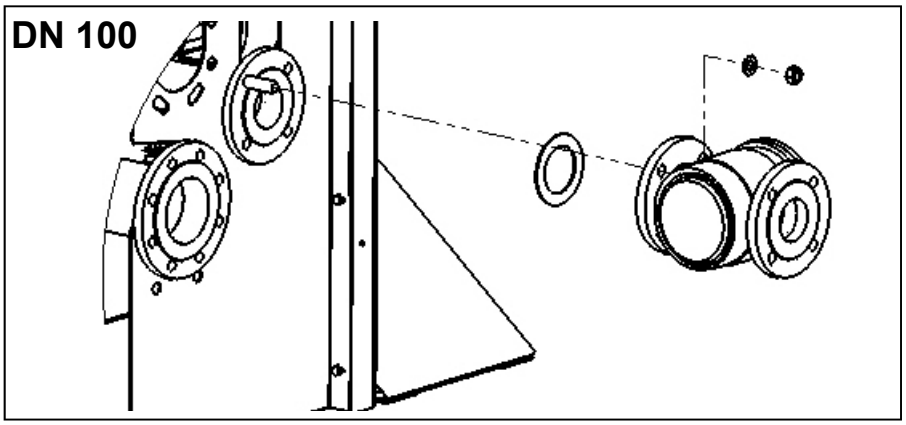


Cascade assembly

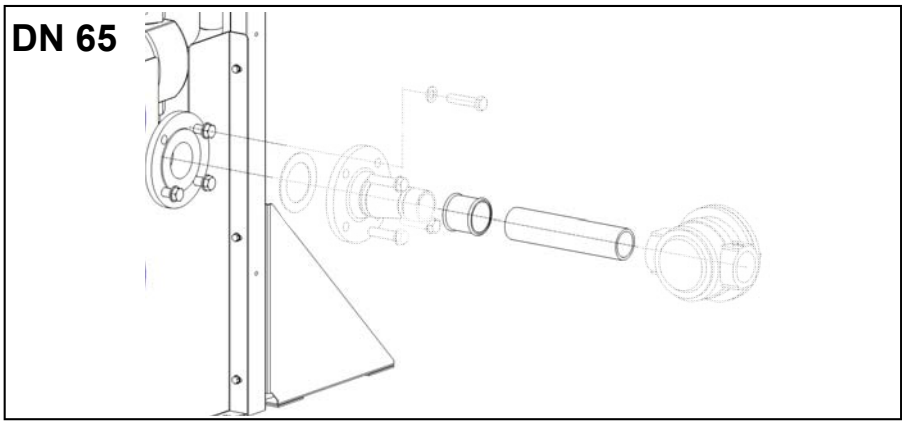
Gas filter

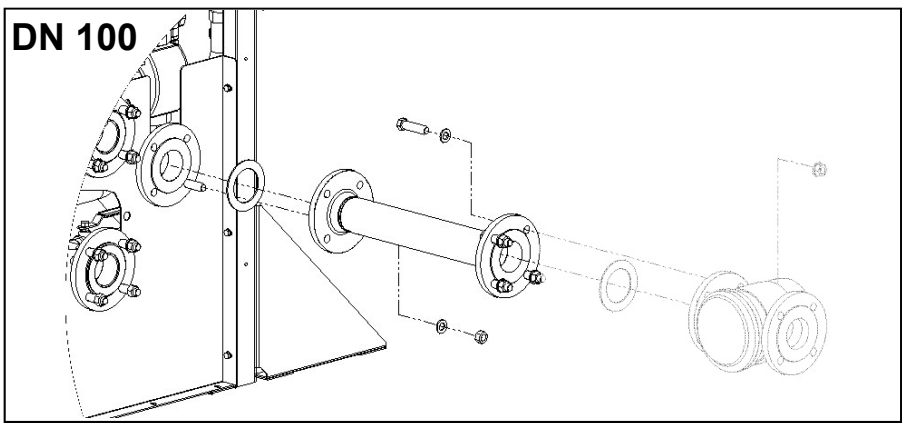
Assemble the gas filter to the gas connection of the cascade collector as shown on the picture.





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.





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.

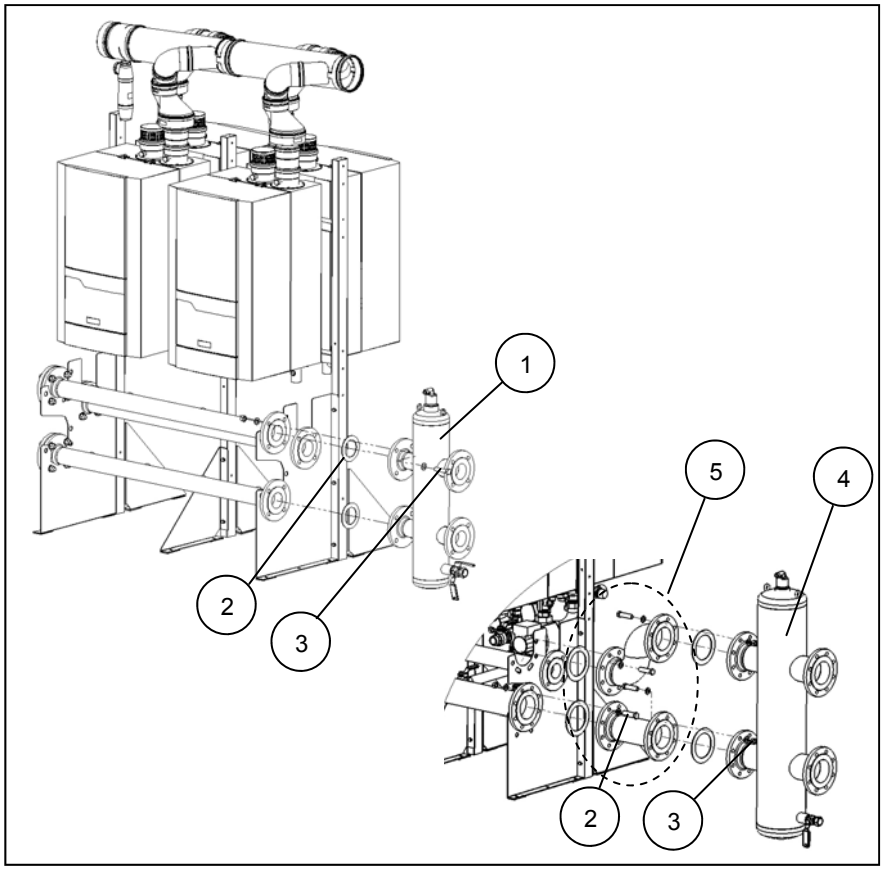


Plate heat exchanger assembly
Assemble PHE (1) and return manifold (4) with gasket (2), M16 bolts and nuts (3).
Assemble top flow manifold (5) and bottom flow manifold (6) according to left or right positioning of the system to the cascade collector with gasket (2), M16 bolts and nuts (3).
Assemble the top manifold assembly (5,6) to the PHE (1) with gasket (2), M16 bolts and nuts (3).

Place the PHE assembly on the baseplate (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).

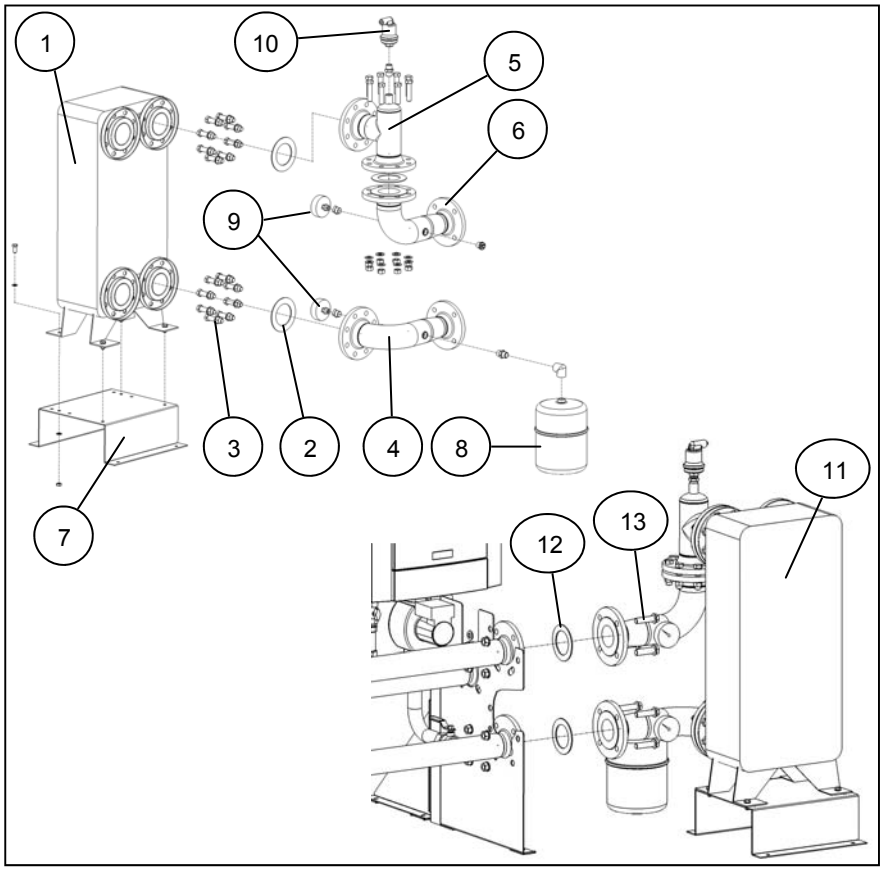


Plate heat exchanger
Position the plate heatexchanger (11) to the flow and return connection of the collector.

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

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

Boiler connection kit - line

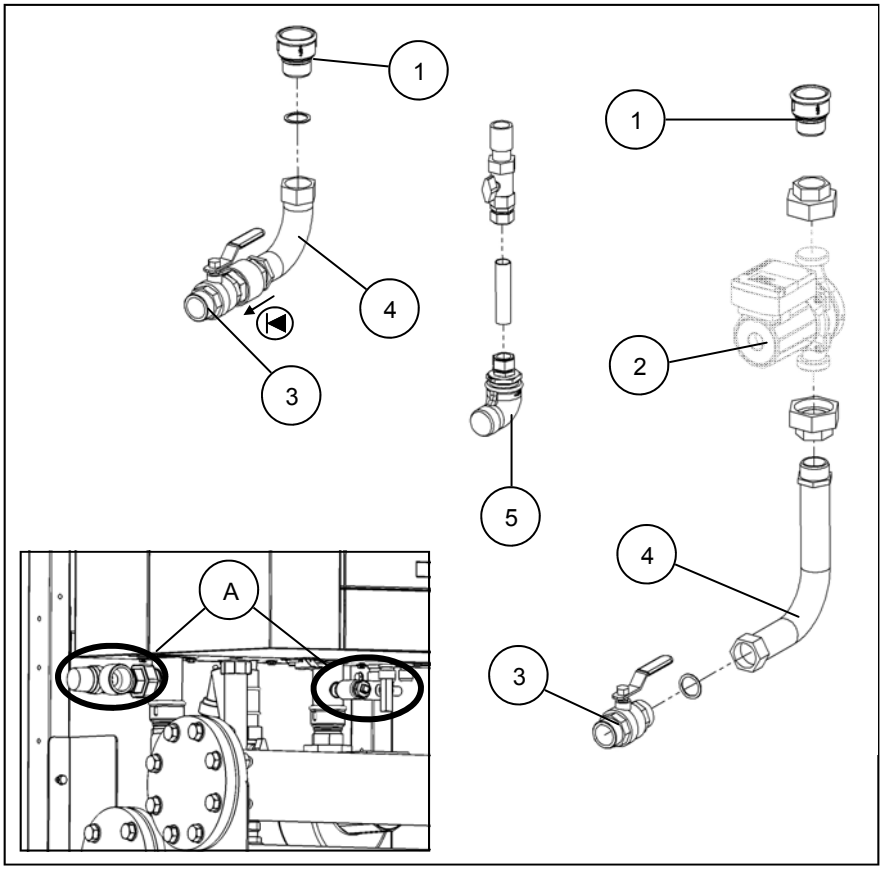
The 1½" x 1¼" reducers (1) should only be used for hydraulic connection to boiler types 100-150 having 1½" connections. Boiler types 50-85 are equipped with 1¼" connections and therefore don't need the reducers.

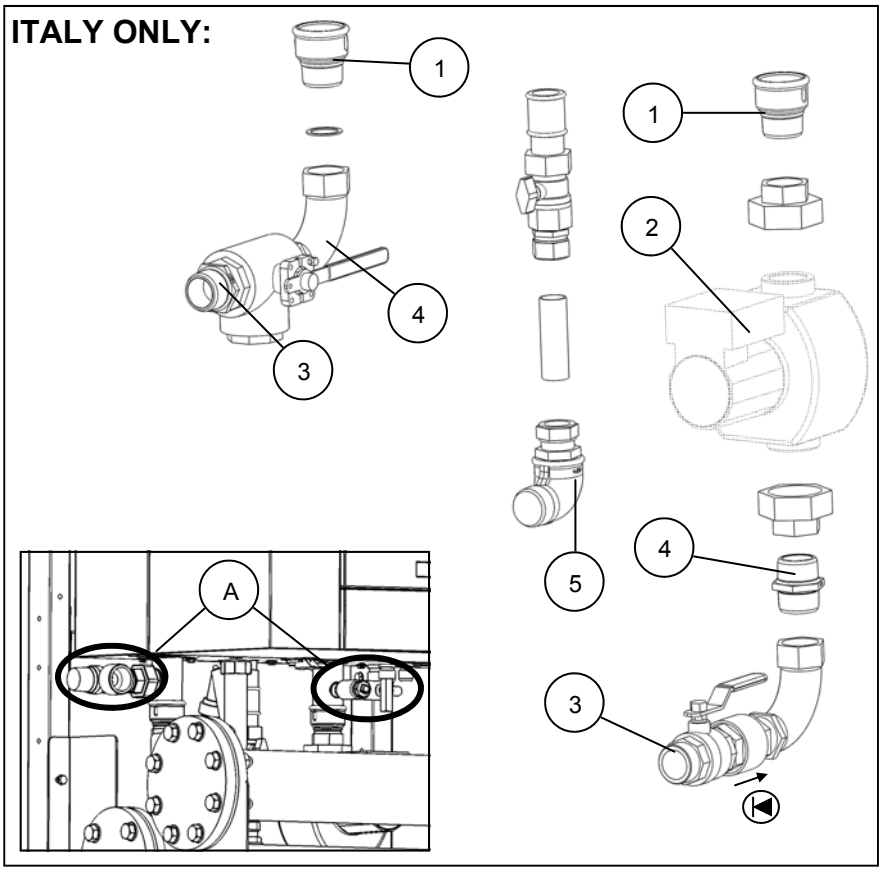
Assemble the water and gas connections for each boiler in the following order (see also pictures):

- 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. It's possible to choose between a standard pump or a high efficiency speed controller pump (see page 20-21).

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





Boiler connection kit - back to back

The 1½" x 1¼" reducers (1) should only be used for hydraulic connection to boiler types 100-150 having 1½" connections. Boiler types 50-85 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.

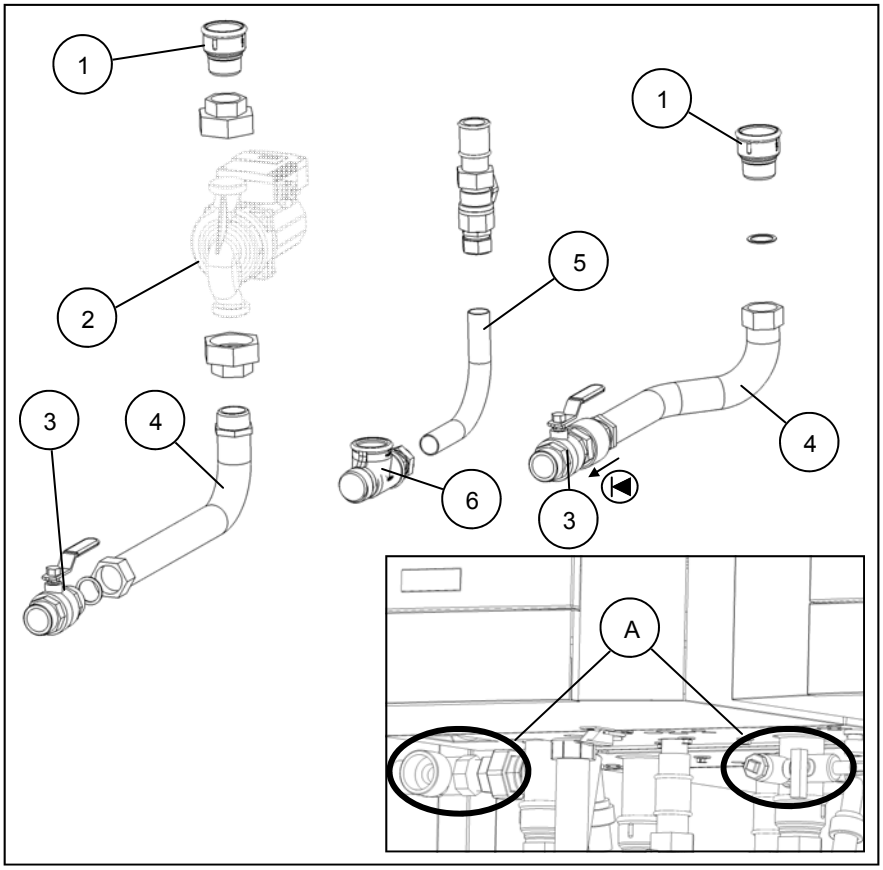
Assemble the water and gas connections for each back boiler in the following order (see also pictures):

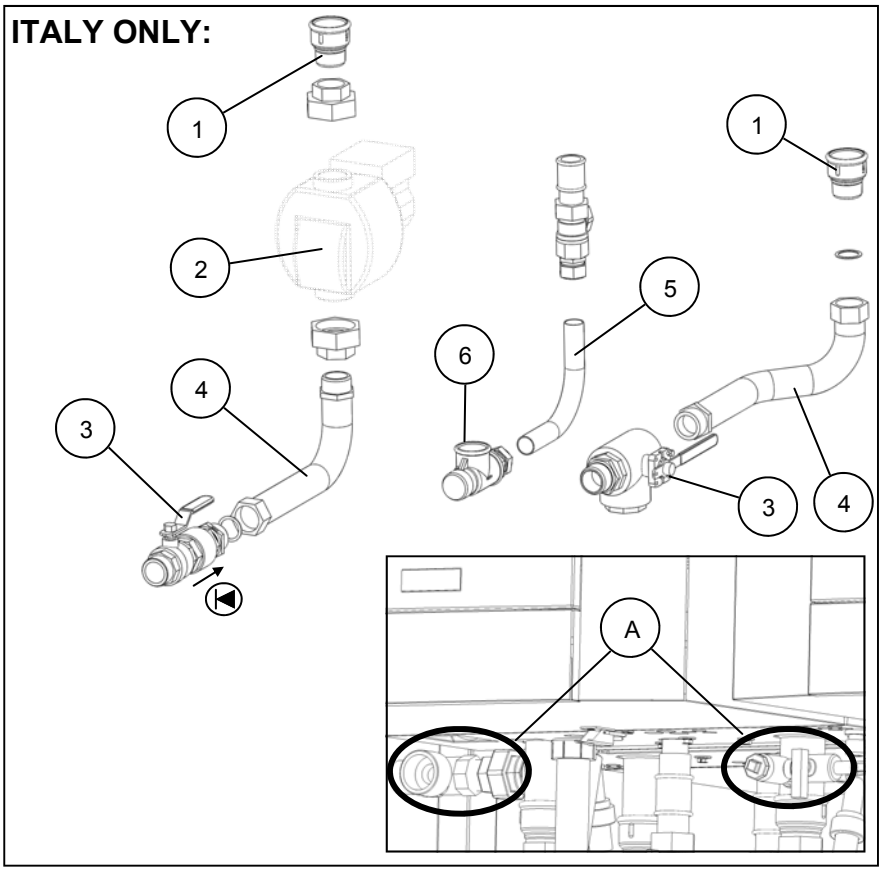
- Mount the safety valve and fill/drain valve to the boiler connections (see drawing A);
- install the pump (2) to the return connection of the boiler;
- install the ball valves (3) to the flow and return connection of the hydraulic collector;
- bend the flex pipe assembly (4) to fit the connection and 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. It's possible to choose between a standard pump or a high efficiency speed controller pump (see page 20-21).

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.





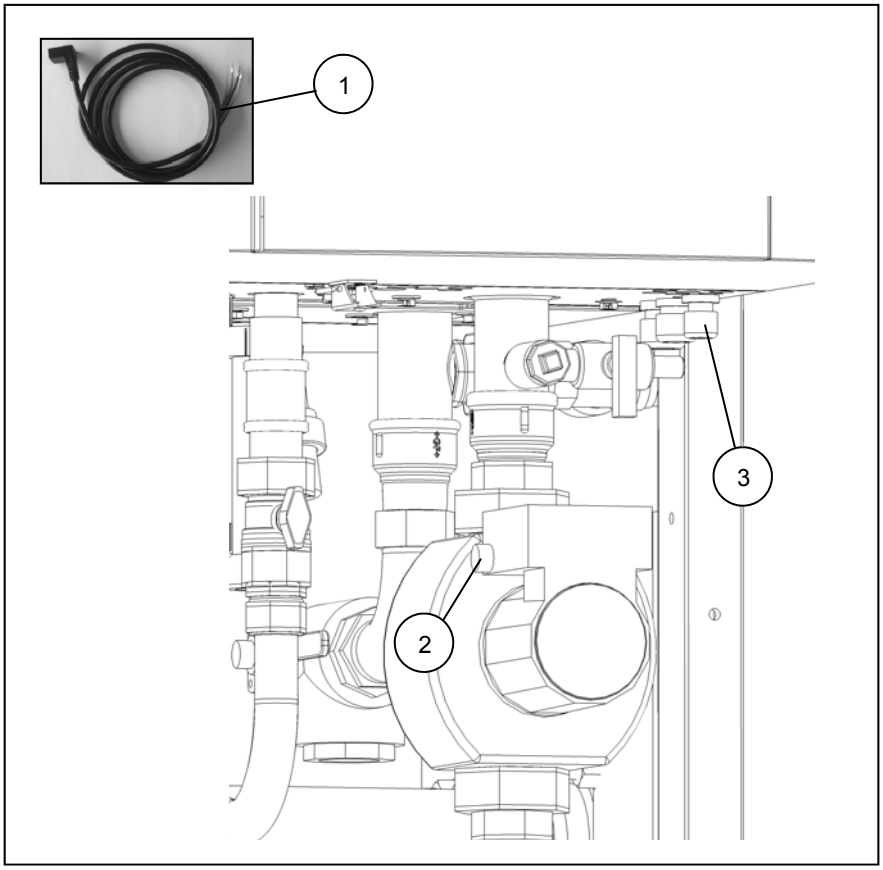
Cascade assembly

Boiler pump - standard

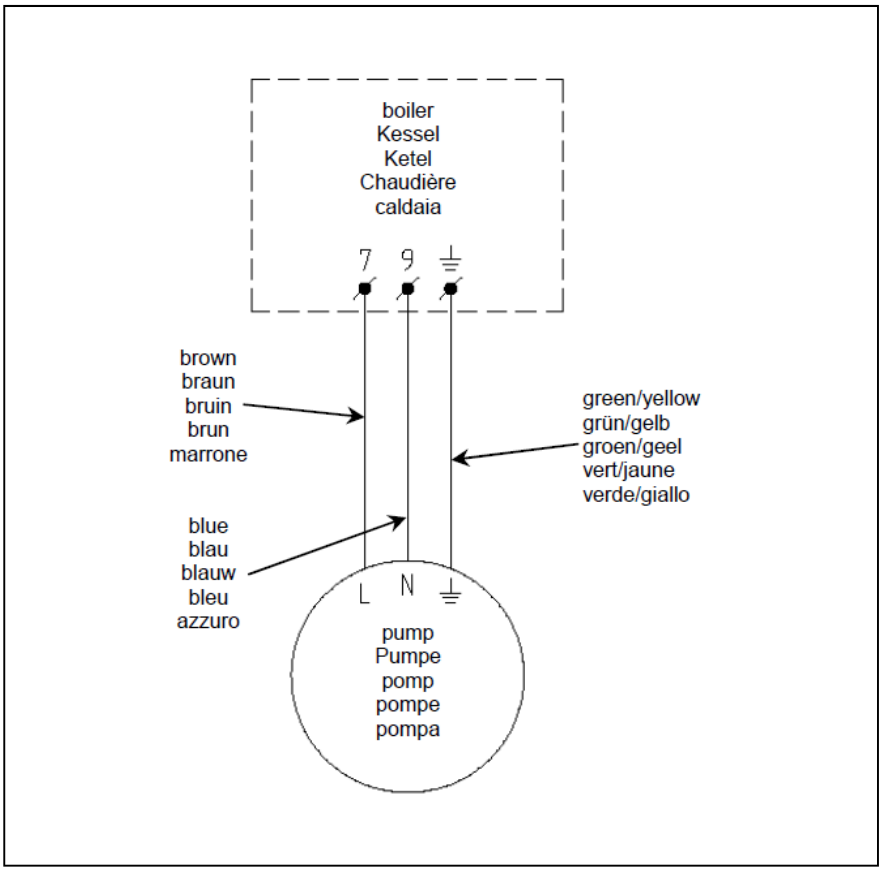
The mechanical assembly of the boiler pumps is included in the assembly description of the boiler connection kits, see previous pages.

The cable for electrical connection of the pump to the boiler (1) is included in the pump delivery. Follow next steps to connect the pump to the boiler terminals:

– connect the plug of the cable to the pump connector (2);
– guide the cable into the boiler via the cable gland (3) and lead it to the terminal rail;
– connect the terminals to the boiler as shown on the electrical diagram below.



PUMP TYPES					
	TOP-RL 30/4	TOP-RL 30/7.5	TOP-RL 30/8.5	TOP-S 30/10	Setting
R40 50-65	x				2
R40 85		x			1
R40 100	x				2
R40 120			x		1
R40 150				x	2



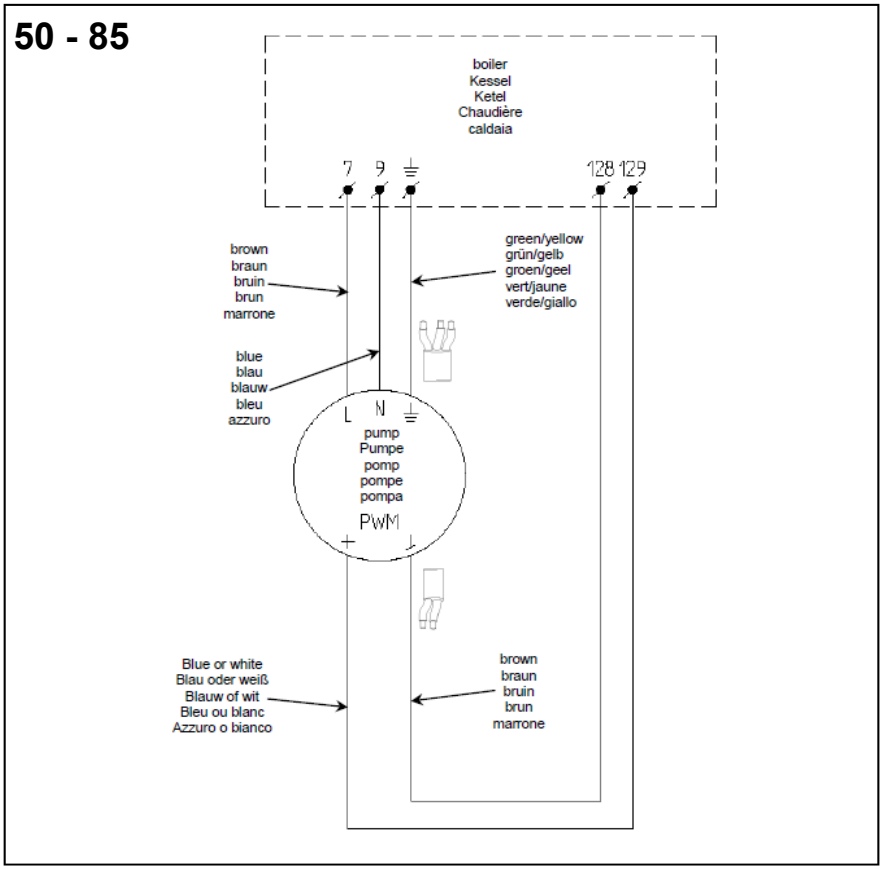
Boiler pump - high efficiency speed controlled

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:

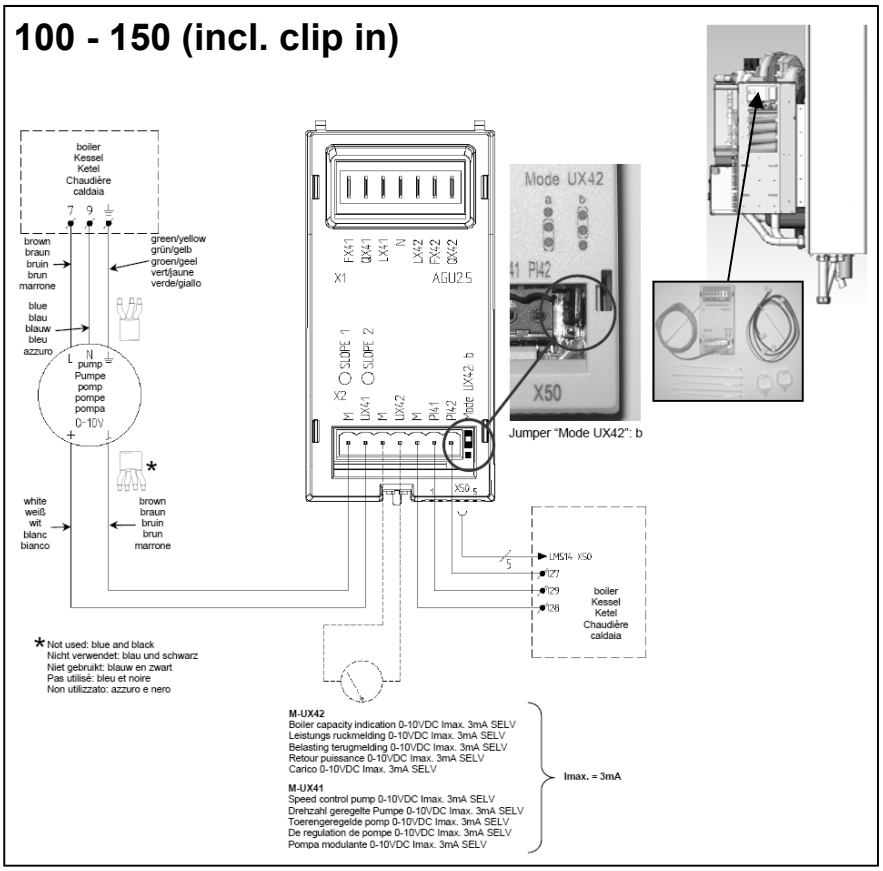
– guide the cables into the boiler via the cable gland and lead them to the terminal rail;
– connect the terminals to the boiler as shown on the electrical diagram below.

50 - 85



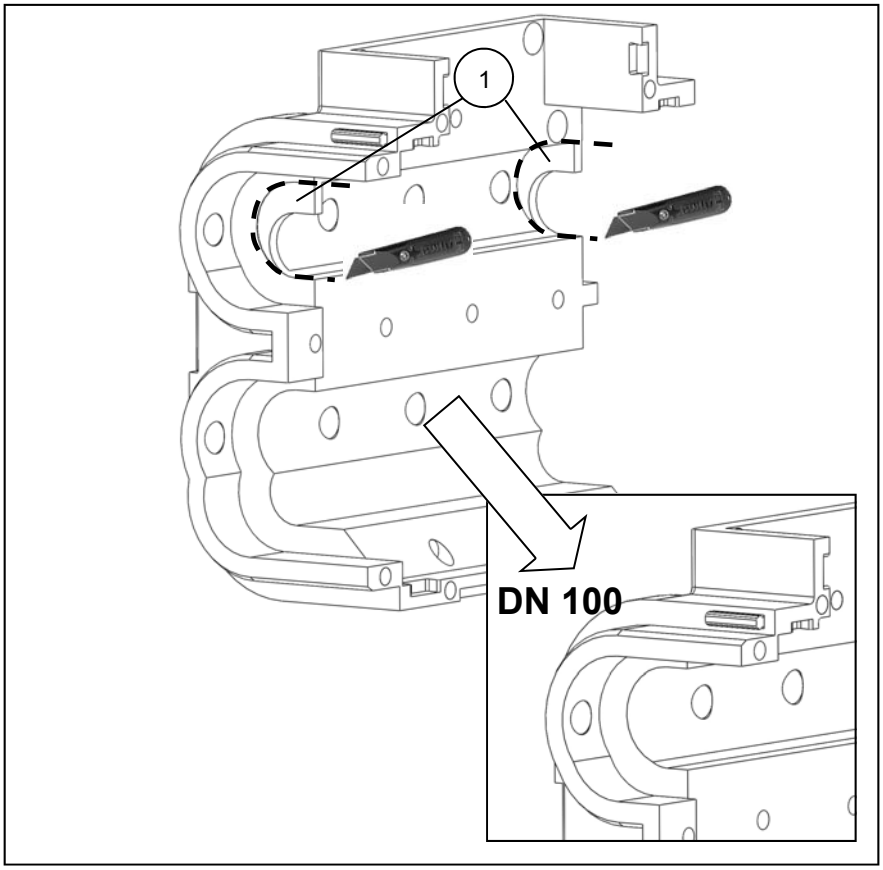
PUMP TYPES		
	Stratos PARA 30/1-7	Stratos PARA 30/1-8
R40 50-65	x	
R40 85	x	
R40 100		x
R40 120		x
R40 150		x

100 - 150 (incl. clip in)



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.

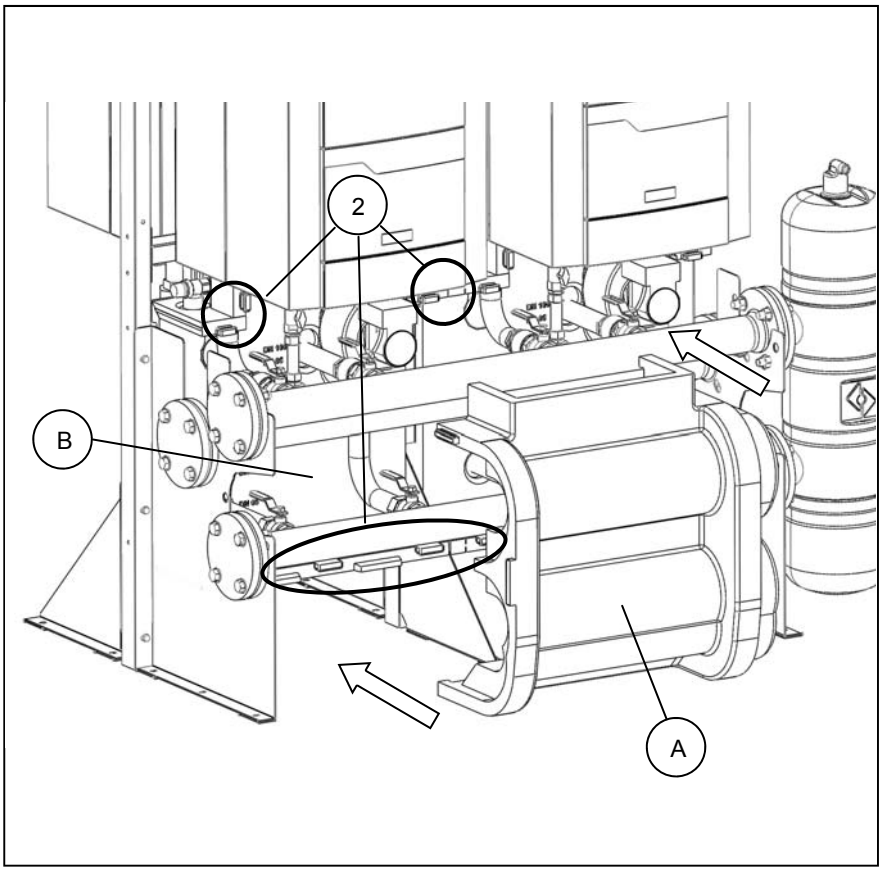


Front panel assembly boiler 1 (left):

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).

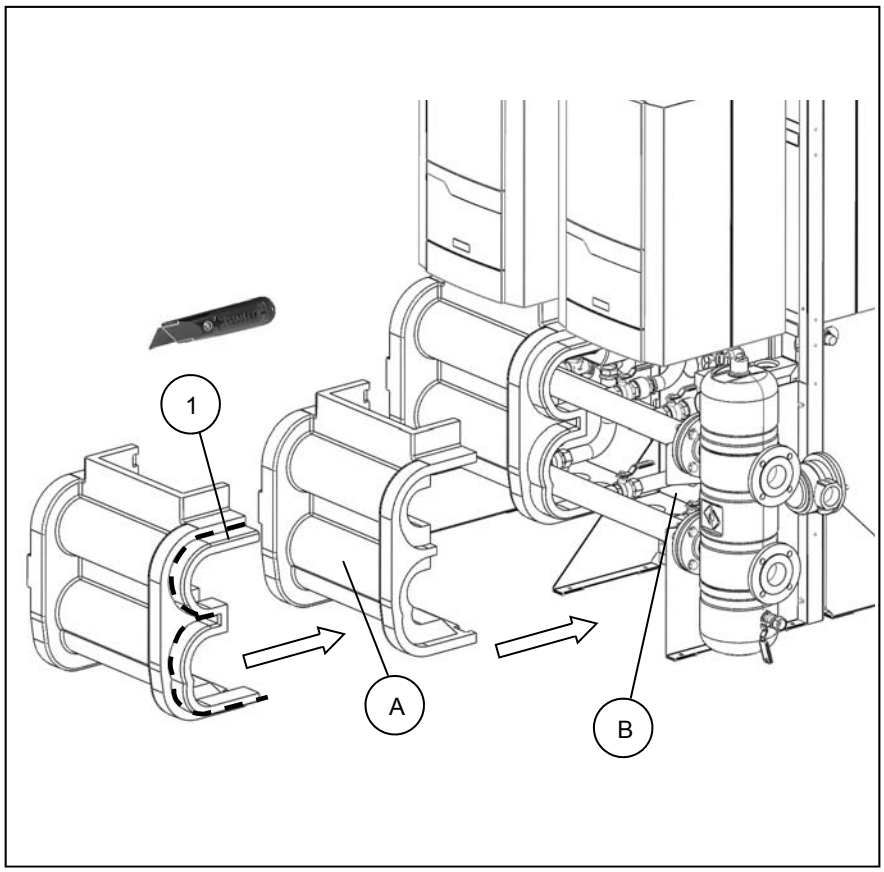
In case of a 3 boiler cascade collector, repeat the activities described for boiler 2, then proceed with the next steps for boiler 3.

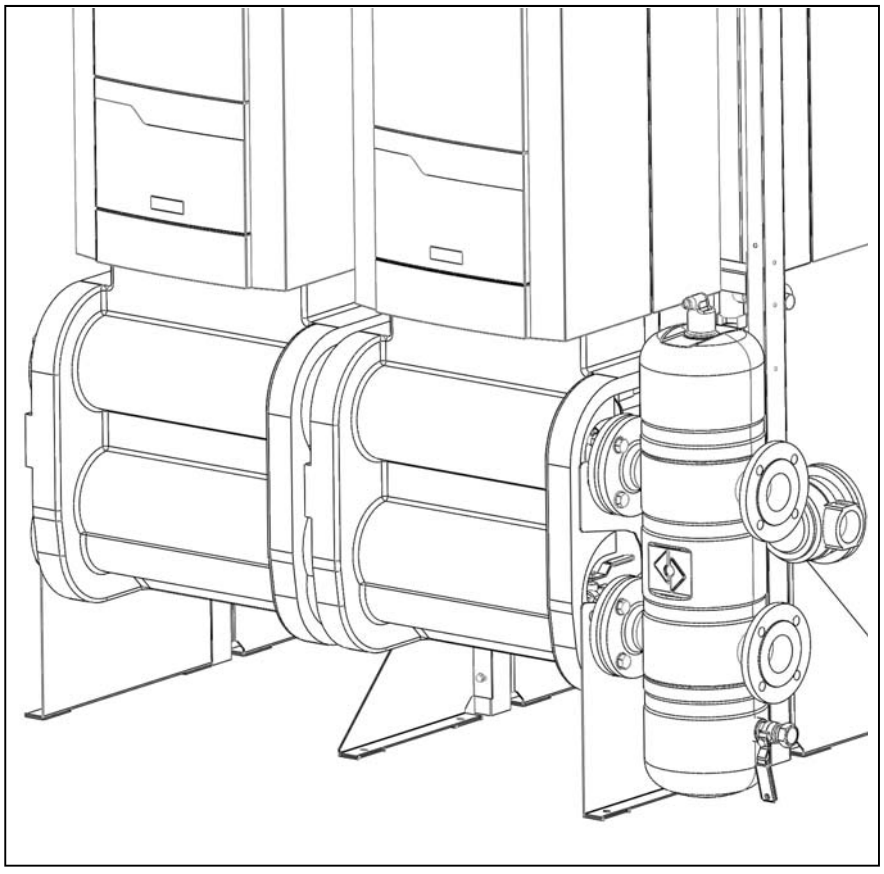


Insulation - front panel

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 snappersof back panel **B** fit correctly in the front panel **A**, both at top and bottom connection.





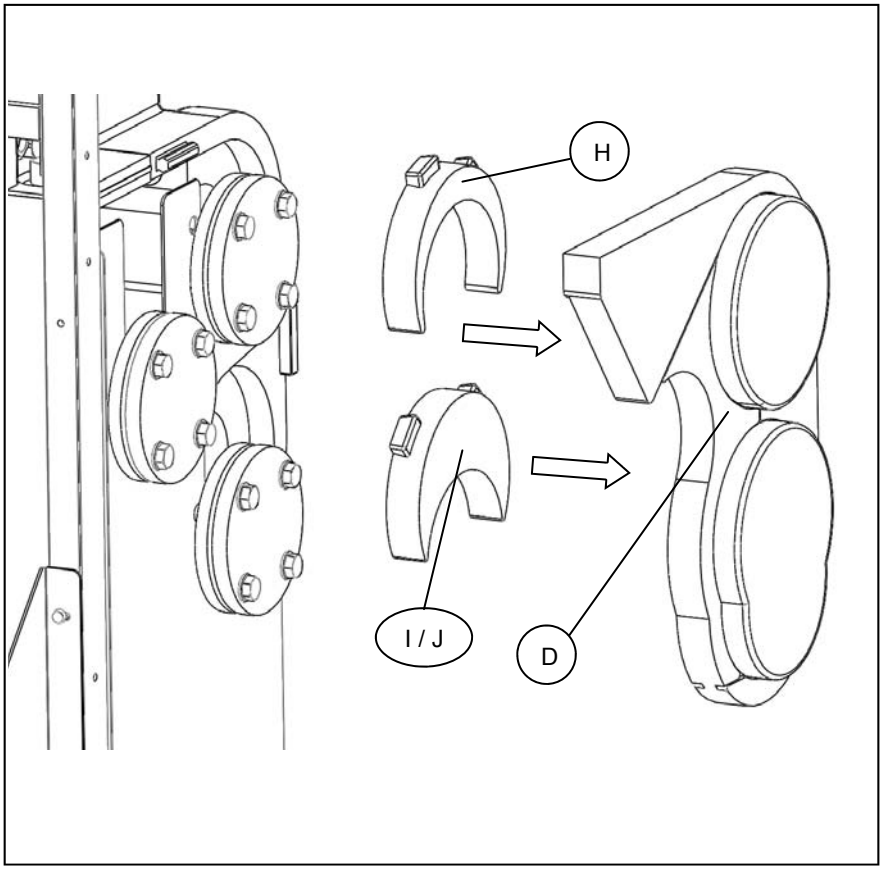
Insulation - end pieces

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

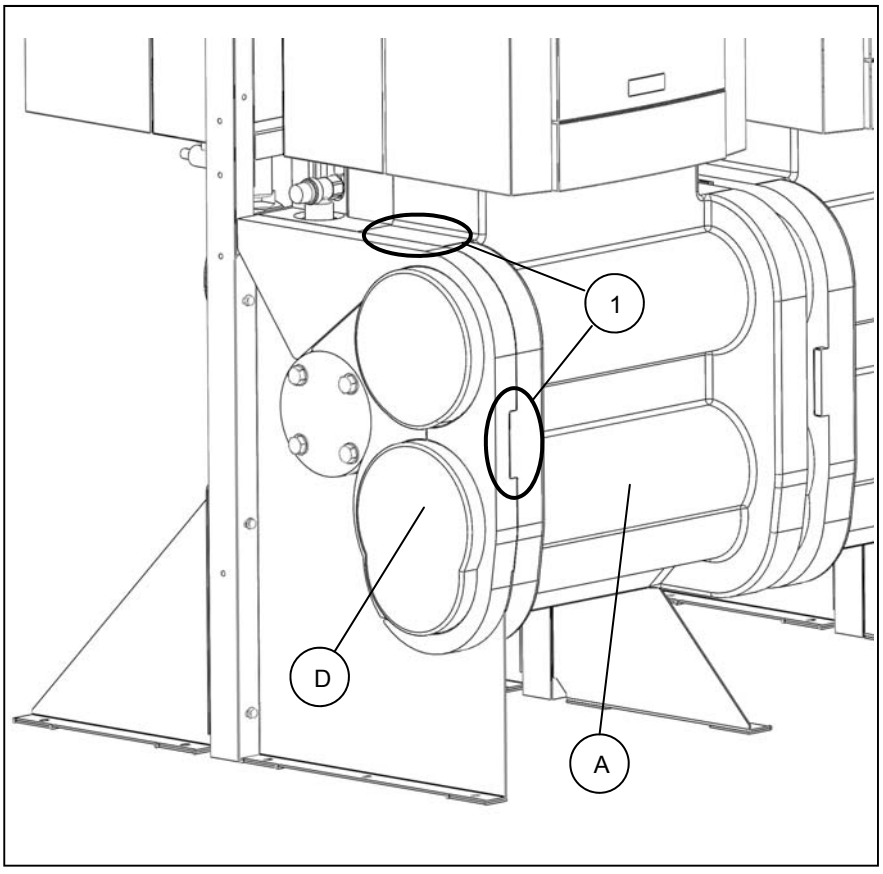
End cover for left positioning:
1. Place insert **H** into end cover **D**.
2. Place insert **I** into end cover **D.**

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**.



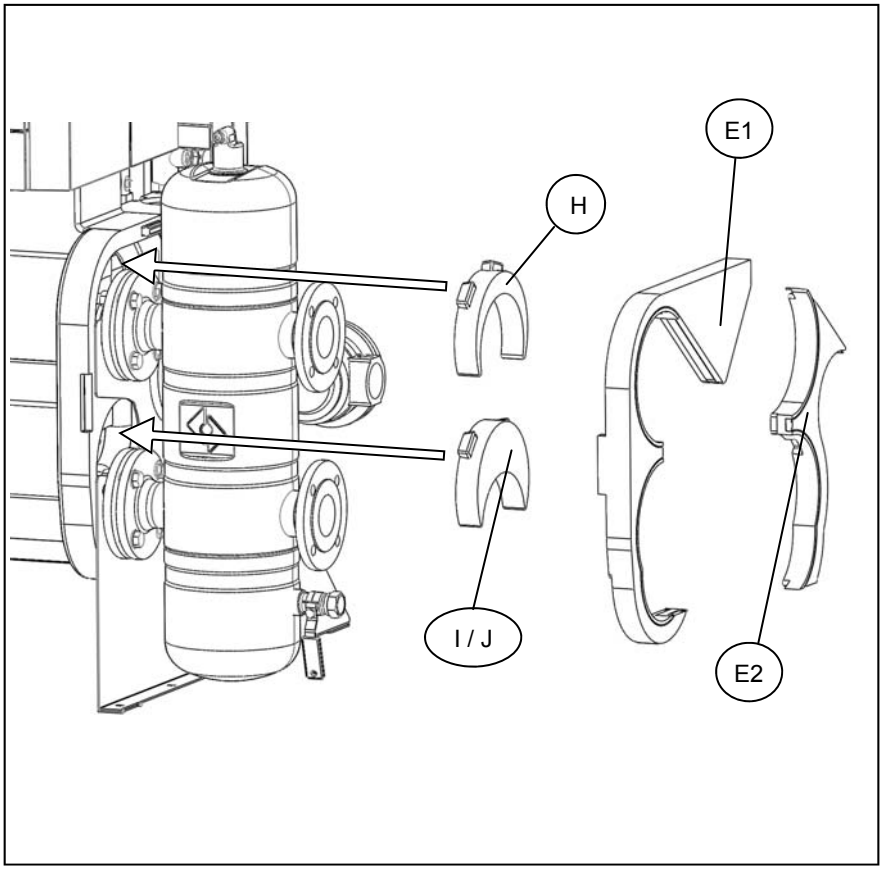
Insulation - end pieces

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

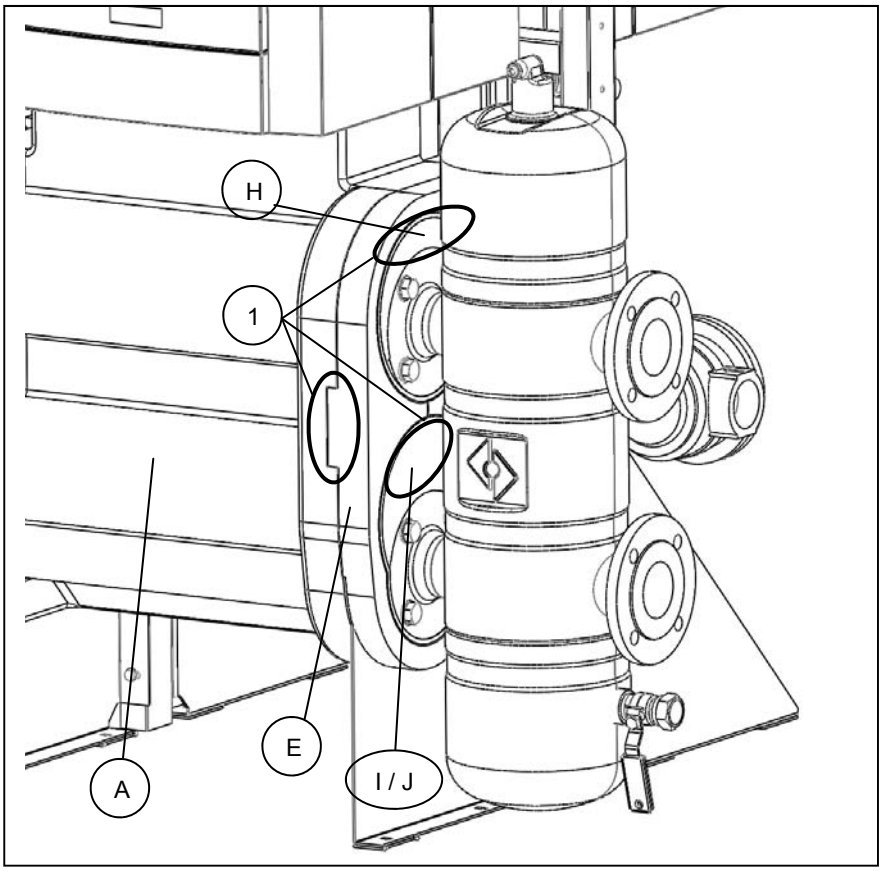
System side cover for left positioning:
1. Place insert **H** over the top flange.
2. Place insert **I** over the lower flange.

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**.



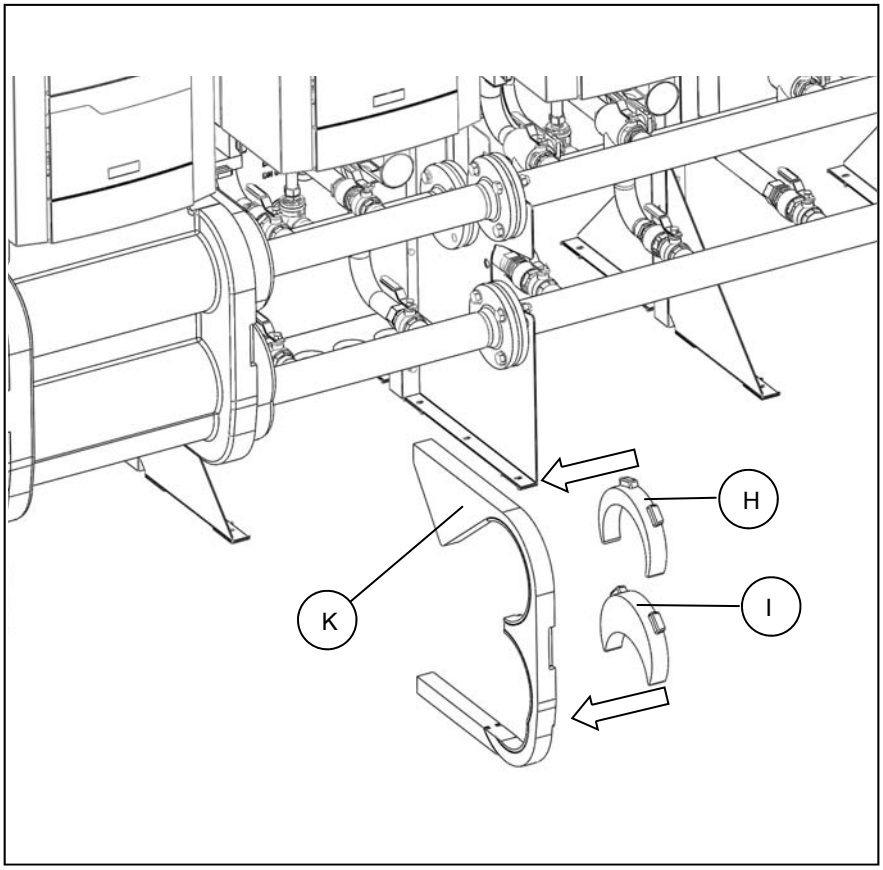
Insulation - connection piece 2 collectors

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.

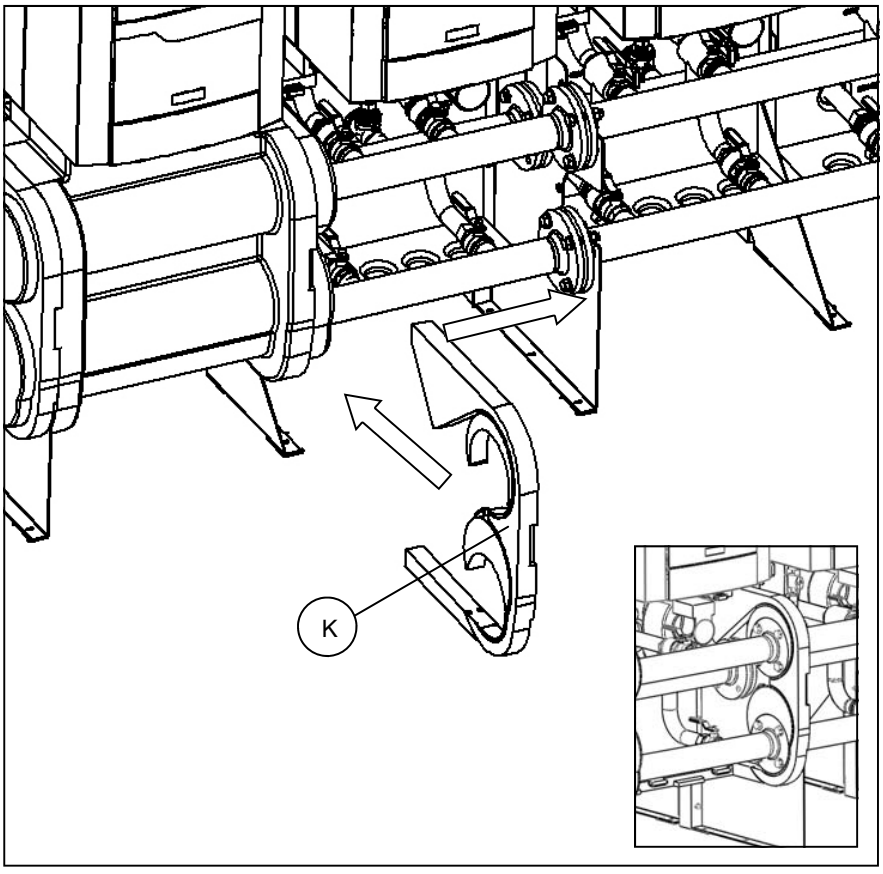
When using the connection piece on a DN65 cascade system, the included inserts should be placed before assembly:

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.



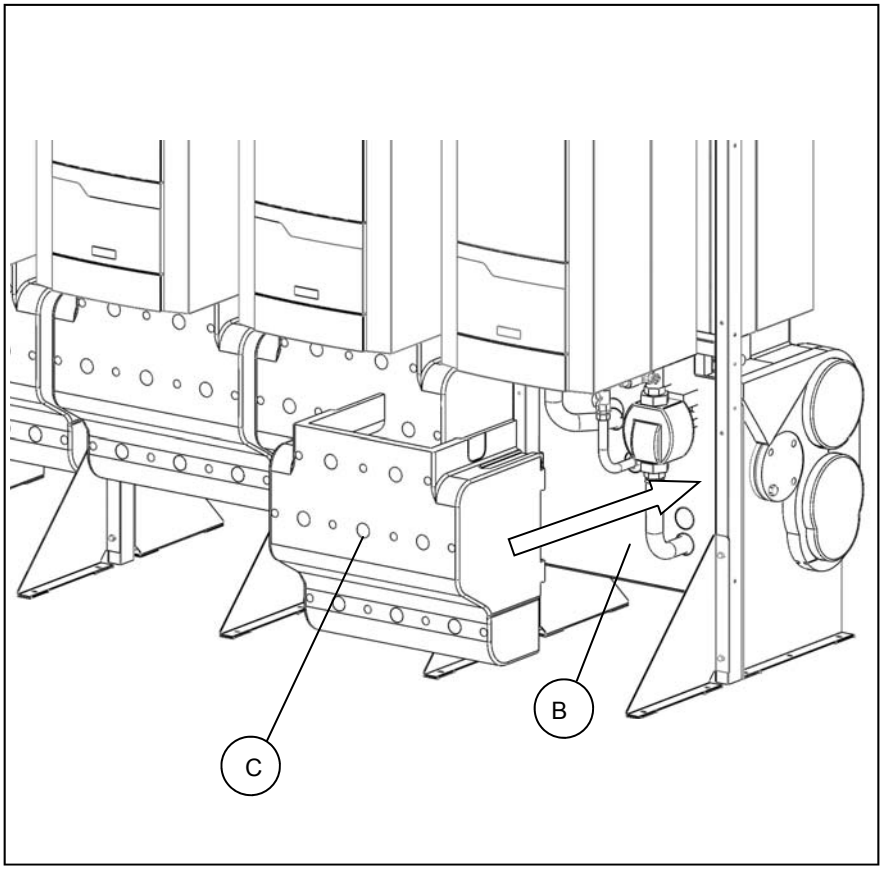
Connection piece assembly:
1. Place connection piece **K** over the flanges as shown on the picture.



Insulation - back to back panel

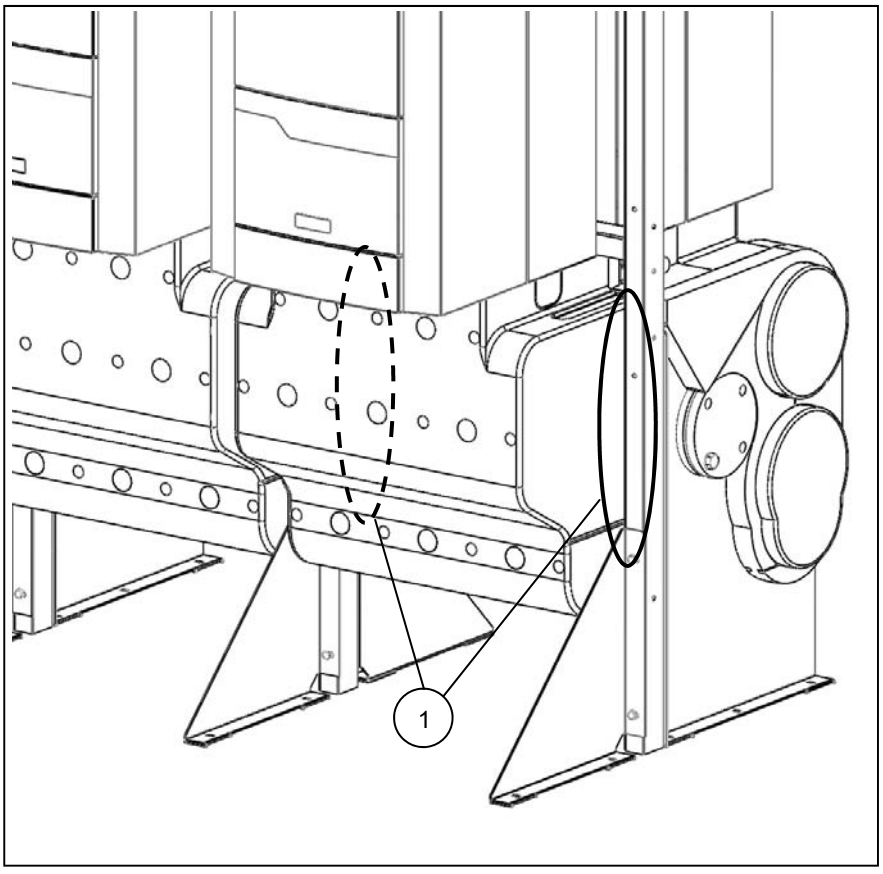
The assembly of the insulation kits for the front boilers of a back to back cascade system is identical to the assembly of the insulation for line cascade systems, as described on the previous pages.

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



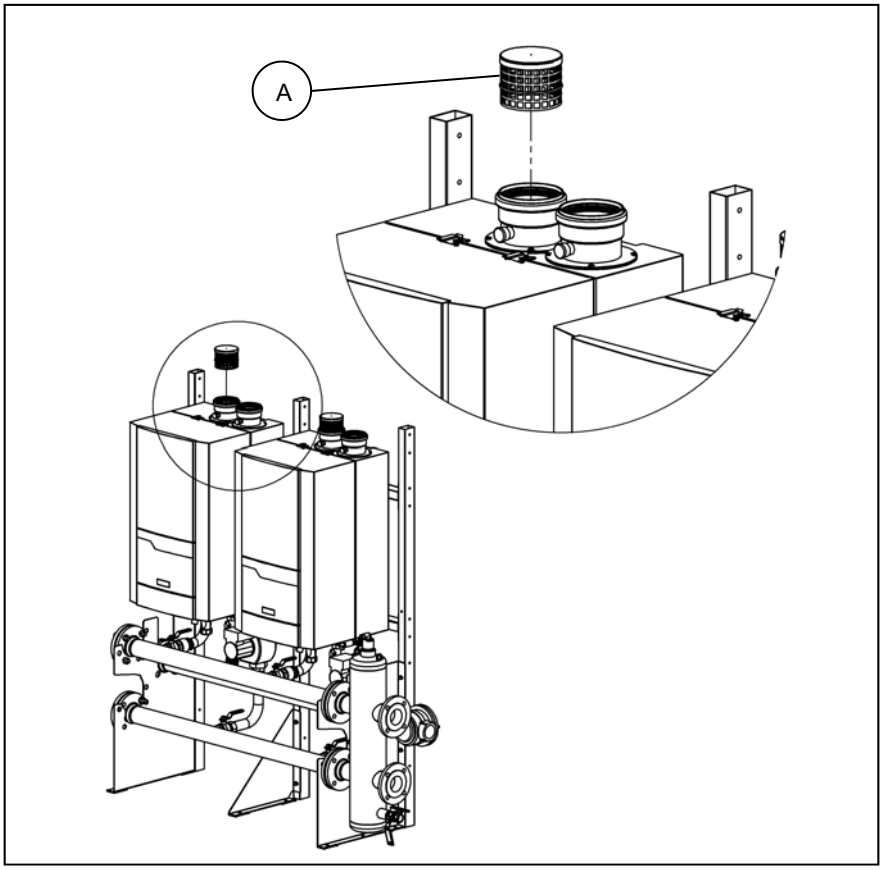
Back panel assembly:

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**.



Air inlet cover

Mount the air inlet cover **A** on the air inlet connection of each boiler.
Boiler types 50-120 have a 100 mm air inlet connection, boiler type 150 has a 130 mm connection.

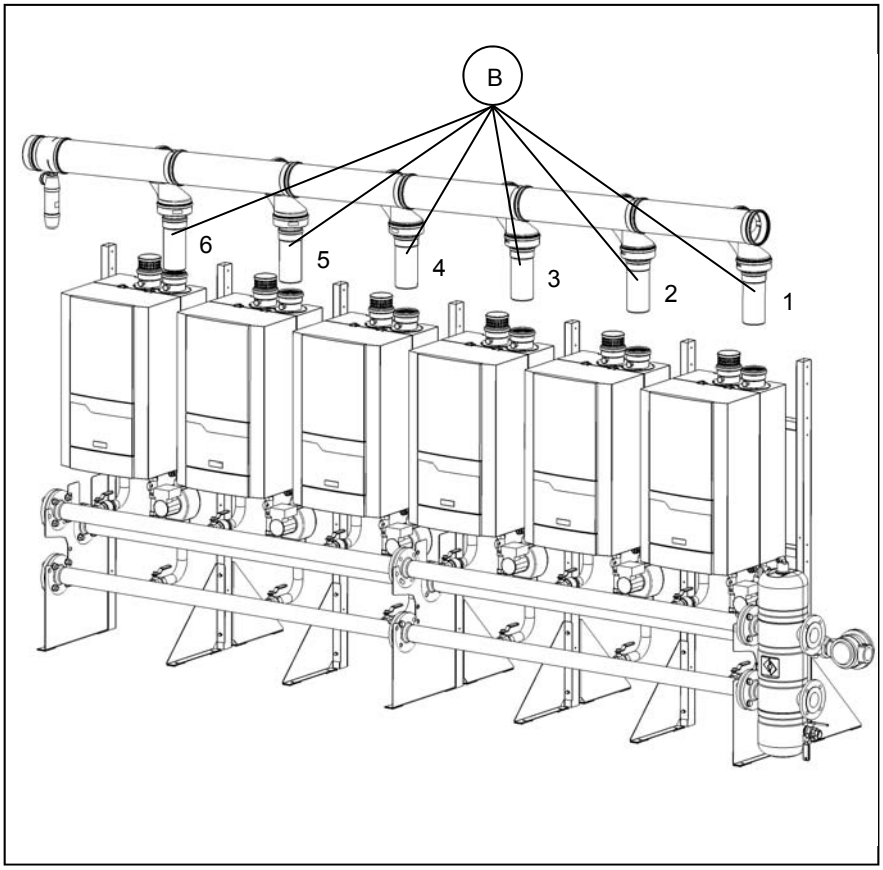


Flue system - line

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.

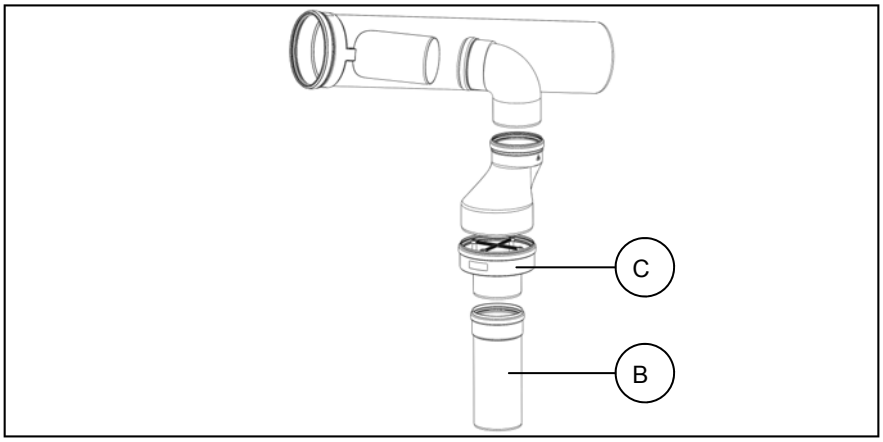
Below table gives the pipe lenghts for the vertical section **B** for each boiler. The vertical section in the standard delivery has a length of 250mm and needs to be shortened accordingly.

NOTE:
For boiler type 150, an additional adapter from 130mm to 100mm is required for each boiler. This adapter replaces vertical section **B** from the flue system kit.

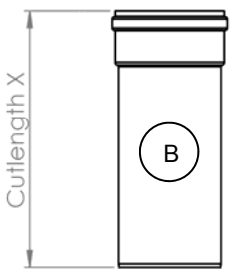


Flue system assembly:
1. Cut the vertical section for each boiler to the correct lenght.
2. Assemble the flue system as shown on the pictures

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

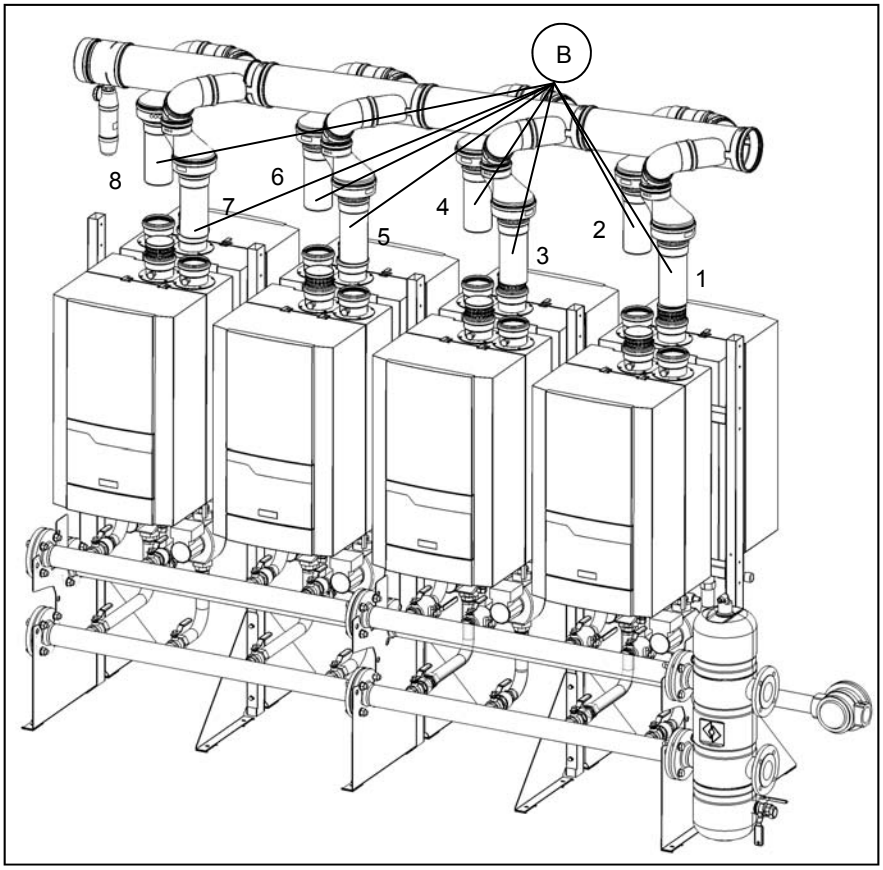


Flue system - back to back

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 lenghts 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.

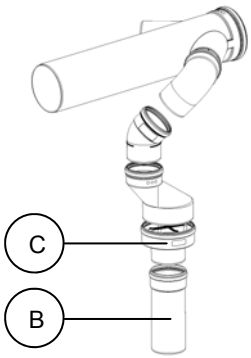
NOTE:
For boiler type 150, an adiitional adapter from 130mm to 100mm is required for each boiler. This adapter replaces vertical section **B** from the flue system kit.



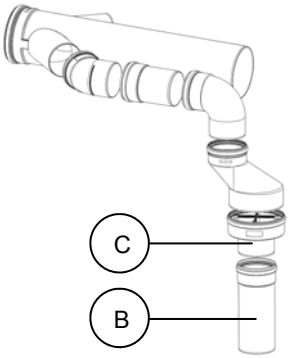
Flue system assembly:
1. Cut the vertical section for each boiler to the correct lenght.
2. Assemble the flue system as shown on the pictures

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

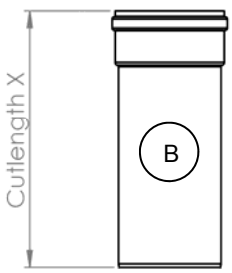
Front boiler:



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

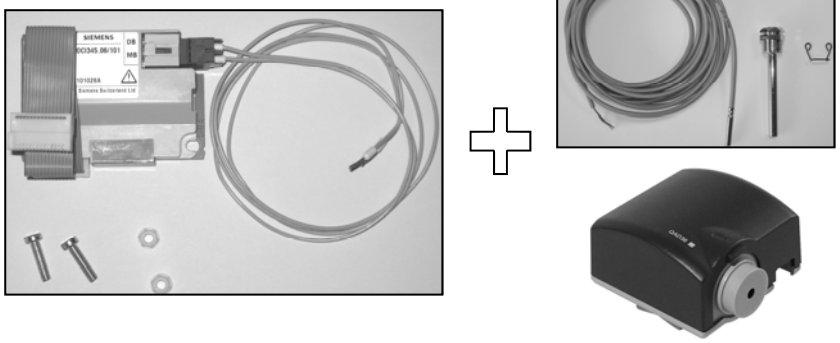
The boilers can be managed by the integrated Master/Slave cascade management logic.
To enable communication from one boiler to the other, the OCI345 communication modules should be connected.

Contents of the kits are:

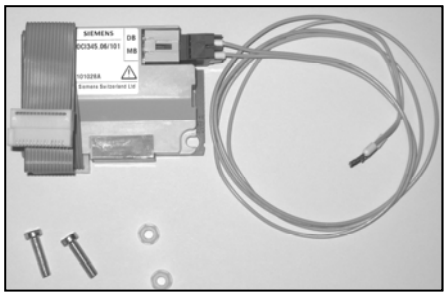
Cascade kit MASTER
1x OCI345 communication module with connection material, 1x header sensor QAZ36 with 6m cable incl. pocket (½“), 1x heating zone sensor QAD36 with 4m cable.

Cascade kit SLAVE
1x OCI345 communication module.

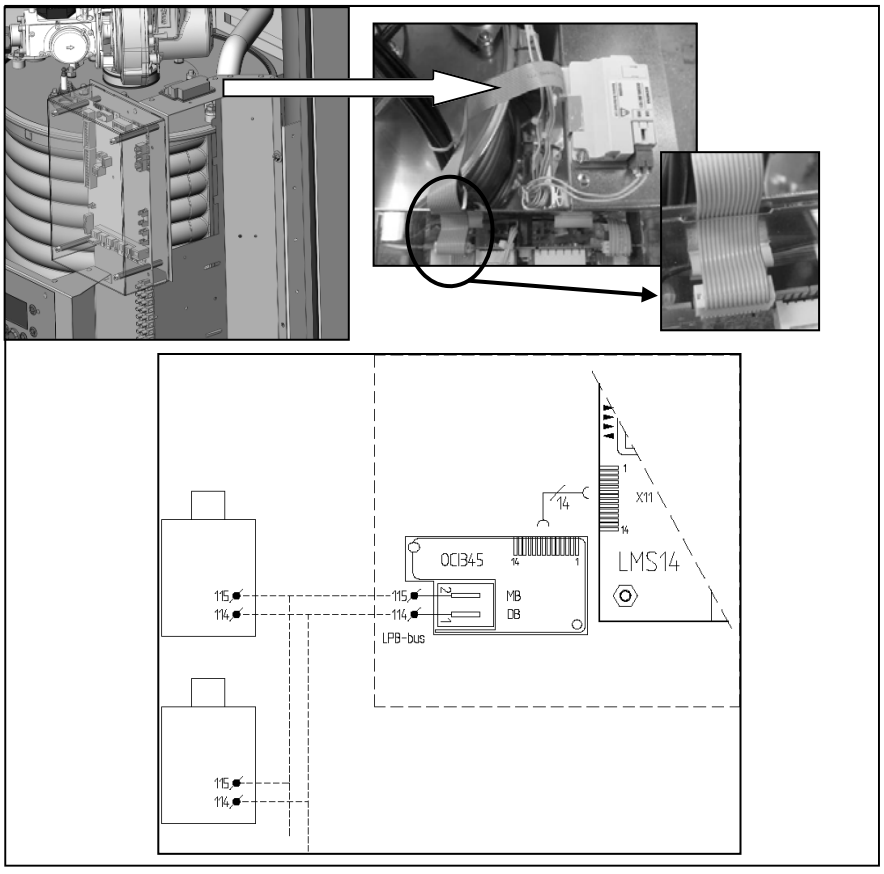
MASTER



SLAVE



Controls assembly:
1. Assemble the OCI345 communication module in each boiler as shown on the pictures.
2. Connect the yellow wires from the OCI345 to the boiler terminals 114-115, see diagram.
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 114-115, see diagram.
5. Set the following parameters in each boiler controller:
   - 6600 = boiler #
     (boiler 1 = 1, boiler 2 = 2,…)
   - 6601 = 0



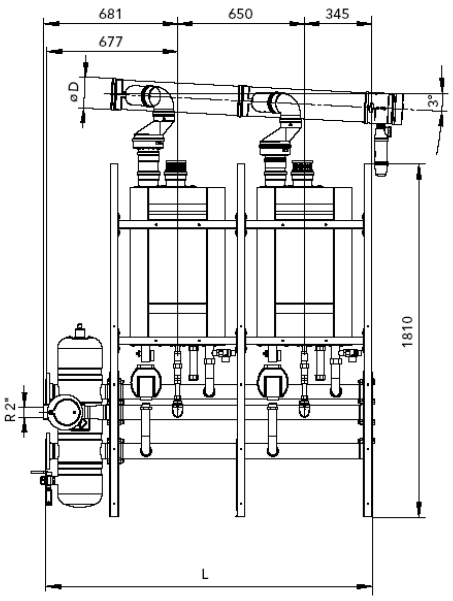
Dimensions

DN65 line + low loss header

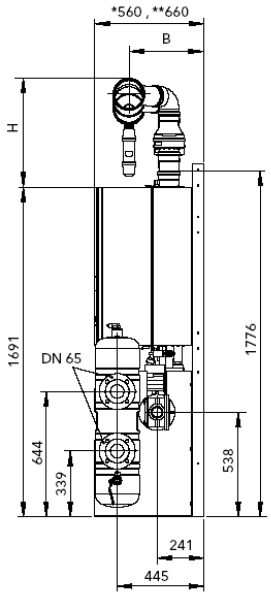
Standard

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

Rear view



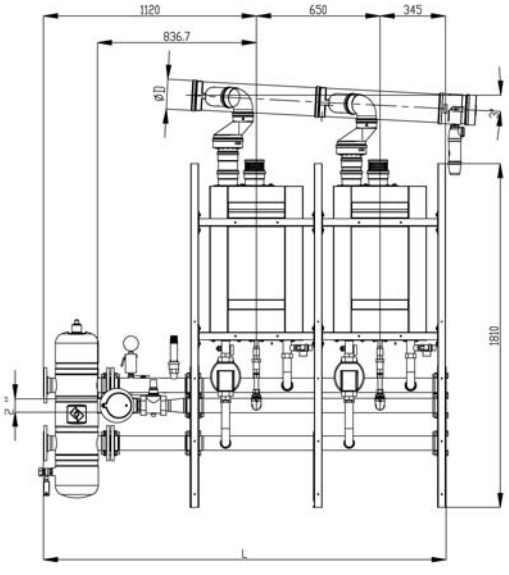
Side view



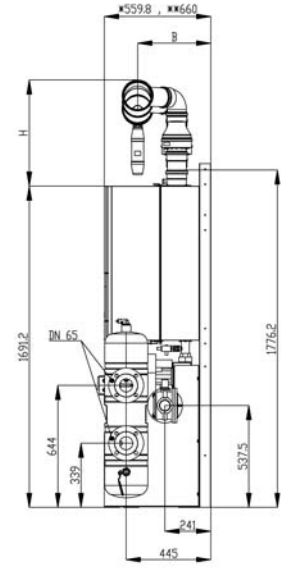
ISPESL (Italy only)

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

Rear view



Side view



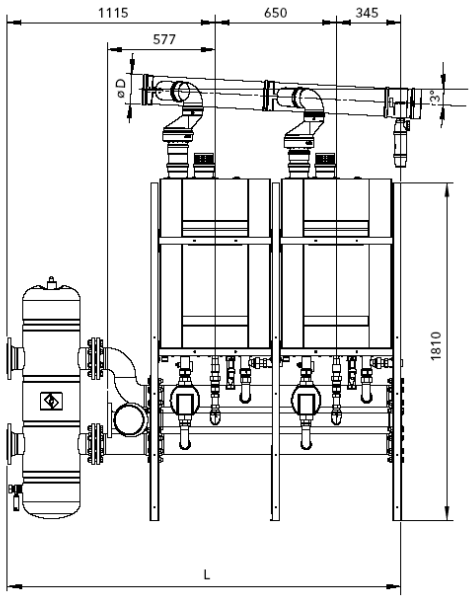
Dimensions

DN100 line + low loss header

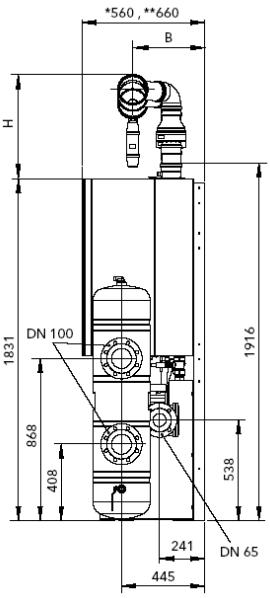
Standard

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

Rear view



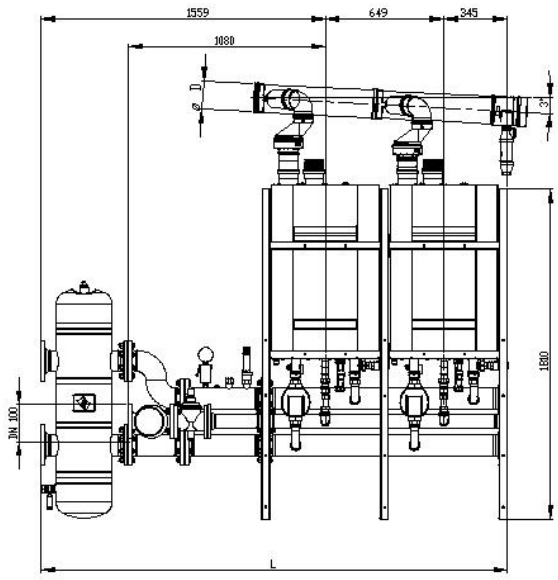
Side view



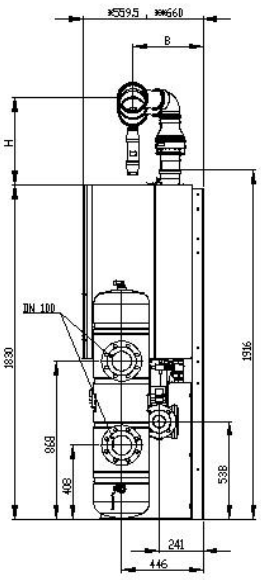
ISPESL (Italy only)

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

Rear view



Side view



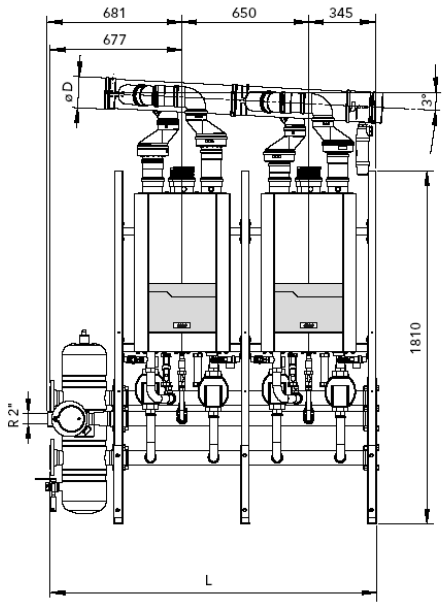
Dimensions

DN65 back to back + low loss header

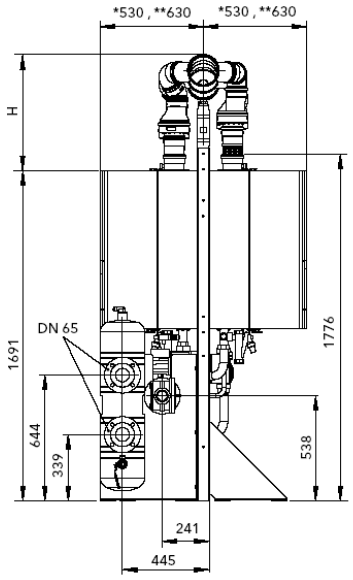
Standard

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

Rear view



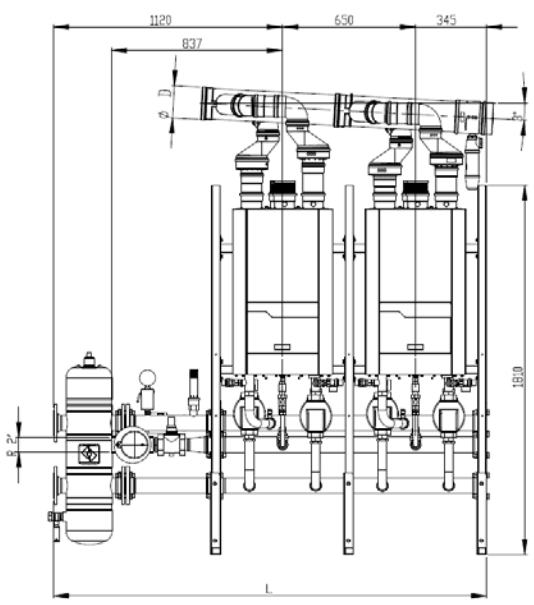
Side view



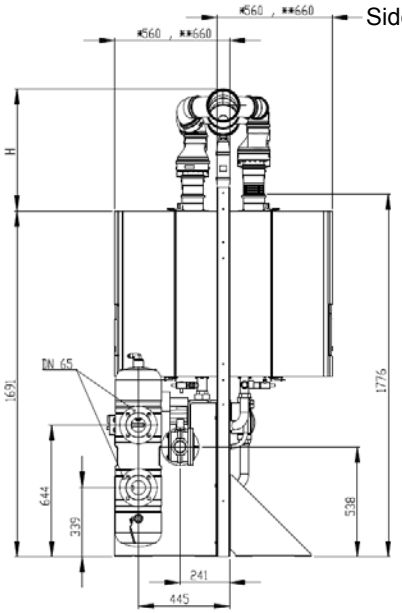
ISPESL (Italy only)

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

Rear view



Side view



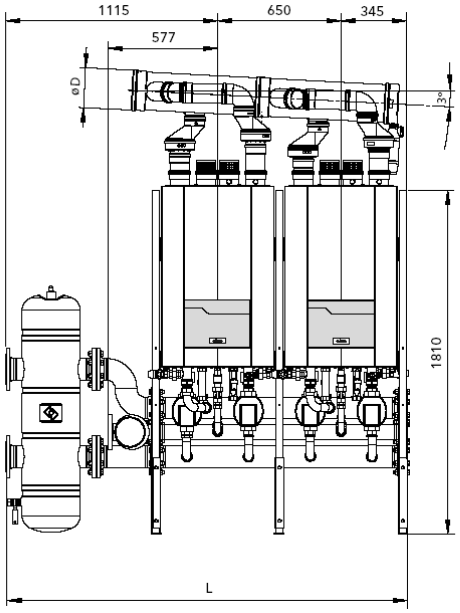
Dimensions

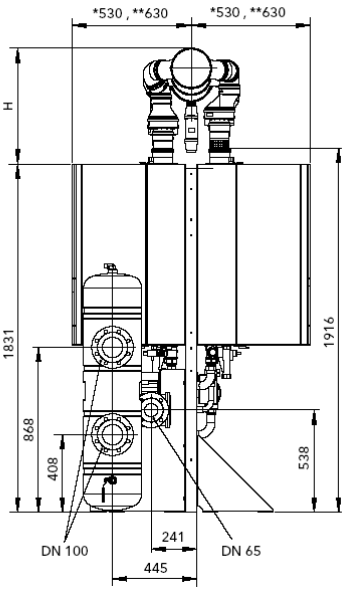
DN100 back to back + low loss header

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

Rear view



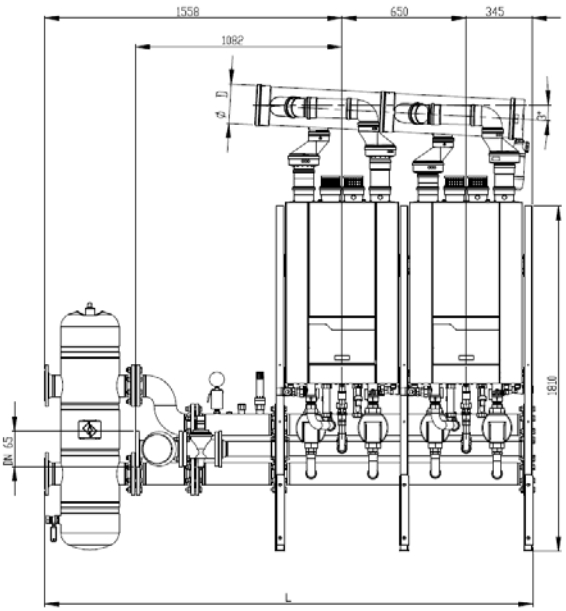


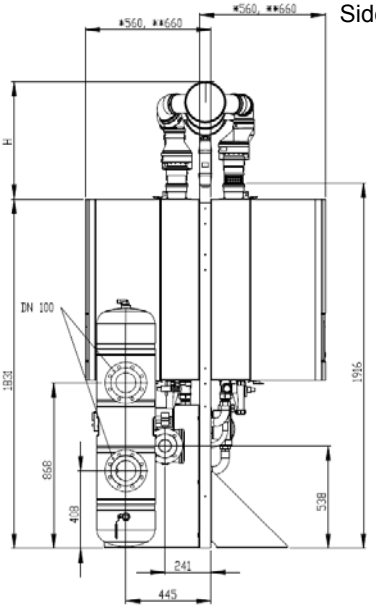
Side view

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

Rear view





Side view

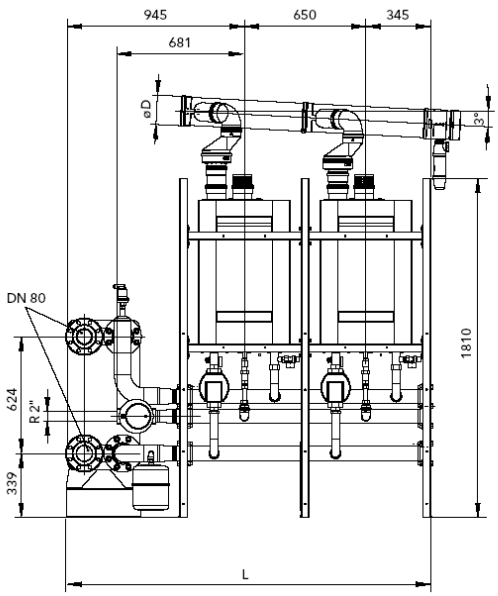
Dimensions

DN65 line + plate heat exchanger

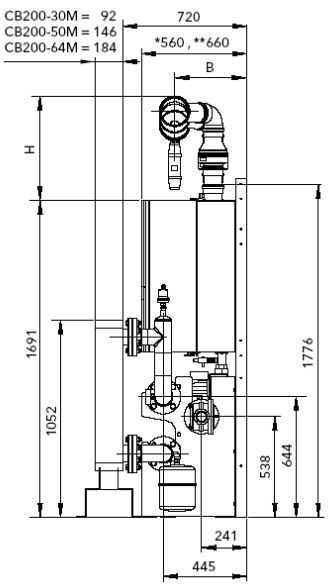
Standard

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

Rear view



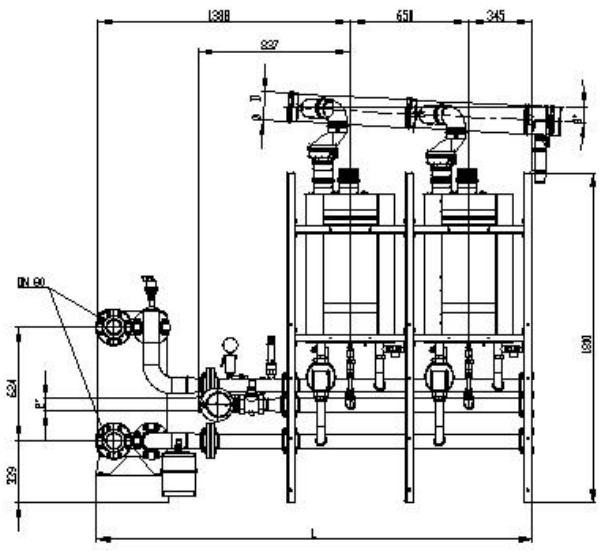
Side view



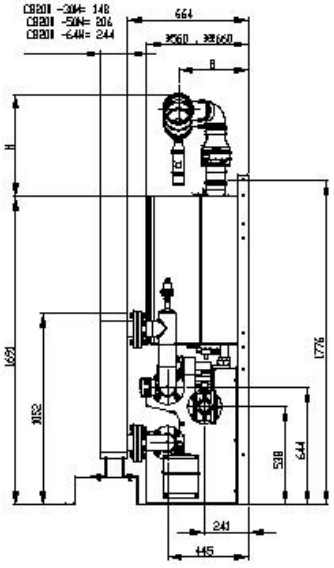
ISPESL (Italy only)

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

Rear view



Side view



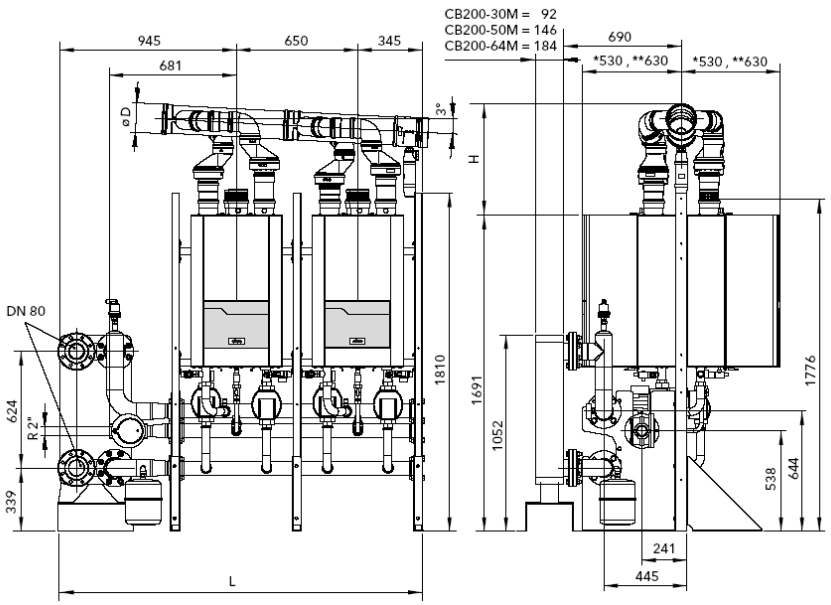
Dimensions

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

Rear view

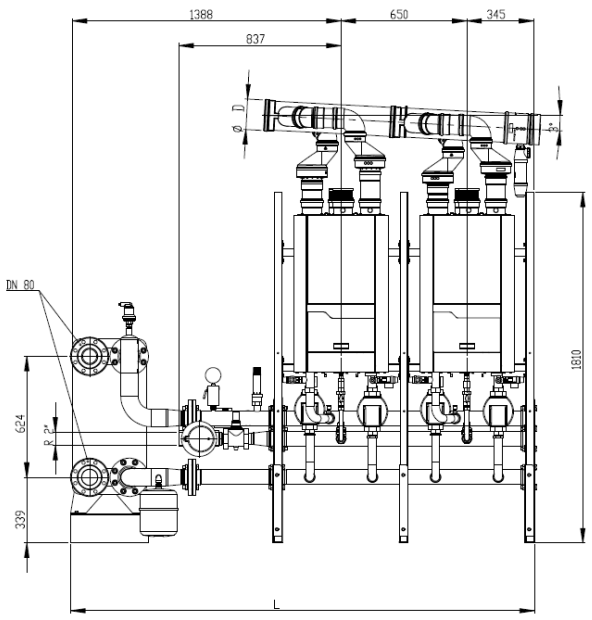


Side view

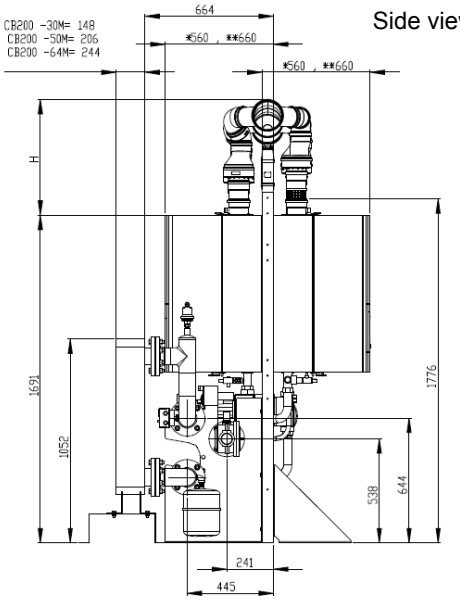
ISPESL (Italy only)

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

Rear view

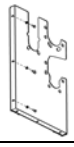
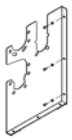
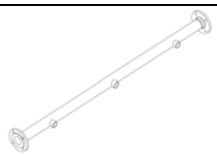
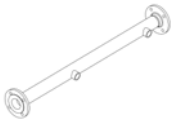
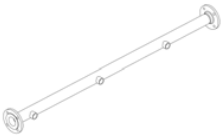
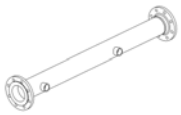
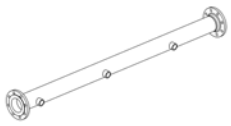


Side view



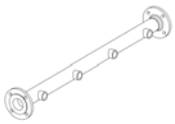
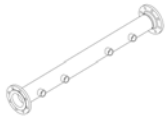
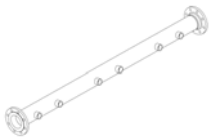
Component index

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	

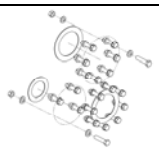
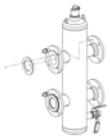
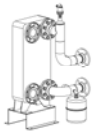
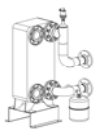
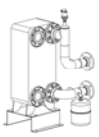
Component index

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	ISPESL KIT DN65	x	x		
	3590266	ISPESL KIT DN100			x	x
	3590302	2ND ISPESL SAFETY VALVE DN100 > 555KW			x	x

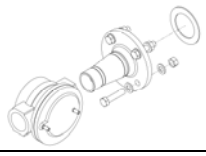
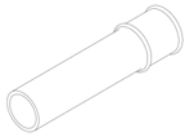
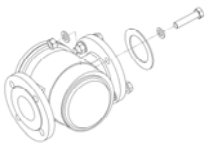
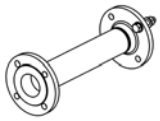
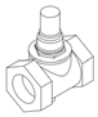
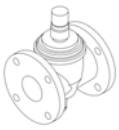
Component index

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 R40 CASCADE	x	x		
	3590358	PLATE HEAT EXCH. CB200-50M R40 CASCADE	x	x		
	3590359	PLATE HEAT EXCH. CB200-64M R40 CASCADE	x	x		

Component index

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	ISPESL GAS VALVE 2"	x	x		
	3590304	ISPESL GAS VALVE DN65			x	x

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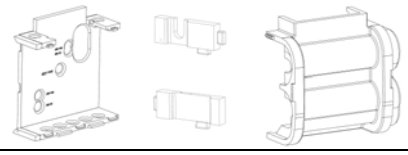
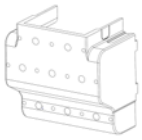
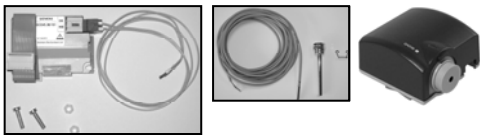
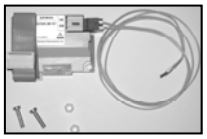
Insulation
Controls

Picture	Art. code	Description	DN65		DN100	
			Line	B2B	Line	B2B
	3590418	CASC. INSULATION LINE 1 BOILER R40	x	x	x	x
	3590419	CASC. INSULATION END PIECES RIGHT R40	x	x	x	x
	3590420	CASC. INSULATION END PIECES LEFT R40	x	x	x	x
	3590421	CASC. INSULATION MID CONN. PIECE R40	x	x	x	x
	3590422	CASC. INSULATION B2B 1 BOILER R40		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 QA-Z36 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 WIRE-LESS	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

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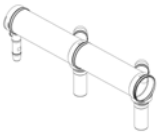
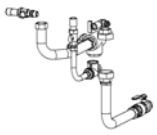
Flue system

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 CONNEC-TION R40 150	x	x	x	x
	3590311	AIR INLET COVER 100MM R40 65-120	x	x	x	x
	3590312	AIR INLET COVER 130MM R40 150	x	x	x	x

Component index

Boiler connection kits

Picture	Art. code	Description	Boiler type					
			50	65	85	100	120	150
	3590284	CONNECTION KIT R40 65-85 LINE	x	x	x			
	3590285	CONNECTION KIT R40 100-150 LINE				x	x	x
	3590286	CONNECTION KIT R40 65-85 B2B	x	x	x			
	3590287	CONNECTION KIT R40 100-150 B2B				x	x	x
	3590288	CONNECTION KIT R40 65-85 LINE (ITALY ONLY)	x	x	x			
	3590289	CONNECTION KIT R40 100-150 LINE (ITALY ONLY)				x	x	x
	3590290	CONNECTION KIT R40 65-85 B2B (ITALY ONLY)	x	x	x			
	3590291	CONNECTION KIT R40 100-150 B2B (ITALY ONLY)				x	x	x

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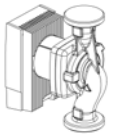
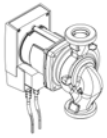
Boiler pumps

Picture	Art. code	Description	Boiler type					
			50	65	85	100	120	150
	3590322	PUMP R40 65+100	x	x		x		
	3590323	PUMP R40 85			x			
	3590324	PUMP R40 120					x	
	3590325	PUMP R40 150						x
	3581308	SPEED CONTR. HE PUMP R40 65-85	x	x	x			
	3590353	SPEED CONTR. PUMP R40 100-150				x	x	x

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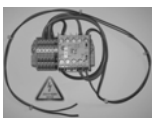
Boiler accessories

Picture	Art. code	Description	Boiler type					
			50	65	85	100	120	150
	3590305	TAS GAS VALVE 3/4"	x	x	x			
	3590306	TAS GAS VALVE 1"				x	x	x
	3590327	SAFETY VALVE TÜV 4 BAR R40 65-85	x	x	x			
	3590328	SAFETY VALVE TÜV 5 BAR R40 65-85	x	x	x			
	3590329	SAFETY VALVE TÜV 6 BAR R40 65-85	x	x	x			
	3590331	SAFETY VALVE TÜV 4 BAR R40 100-150				x	x	x
	3590332	SAFETY VALVE TÜV 5 BAR R40 100-150				x	x	x
	3590333	SAFETY VALVE TÜV 6 BAR R40 100-150				x	x	x
	3590348	MIN. GAS PRESSURE SWITCH R40	x	x	x	x	x	x
	3590349	ROOM FAN + EXT. GAS VALVE R40	x	x	x	x	x	x

Service:

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