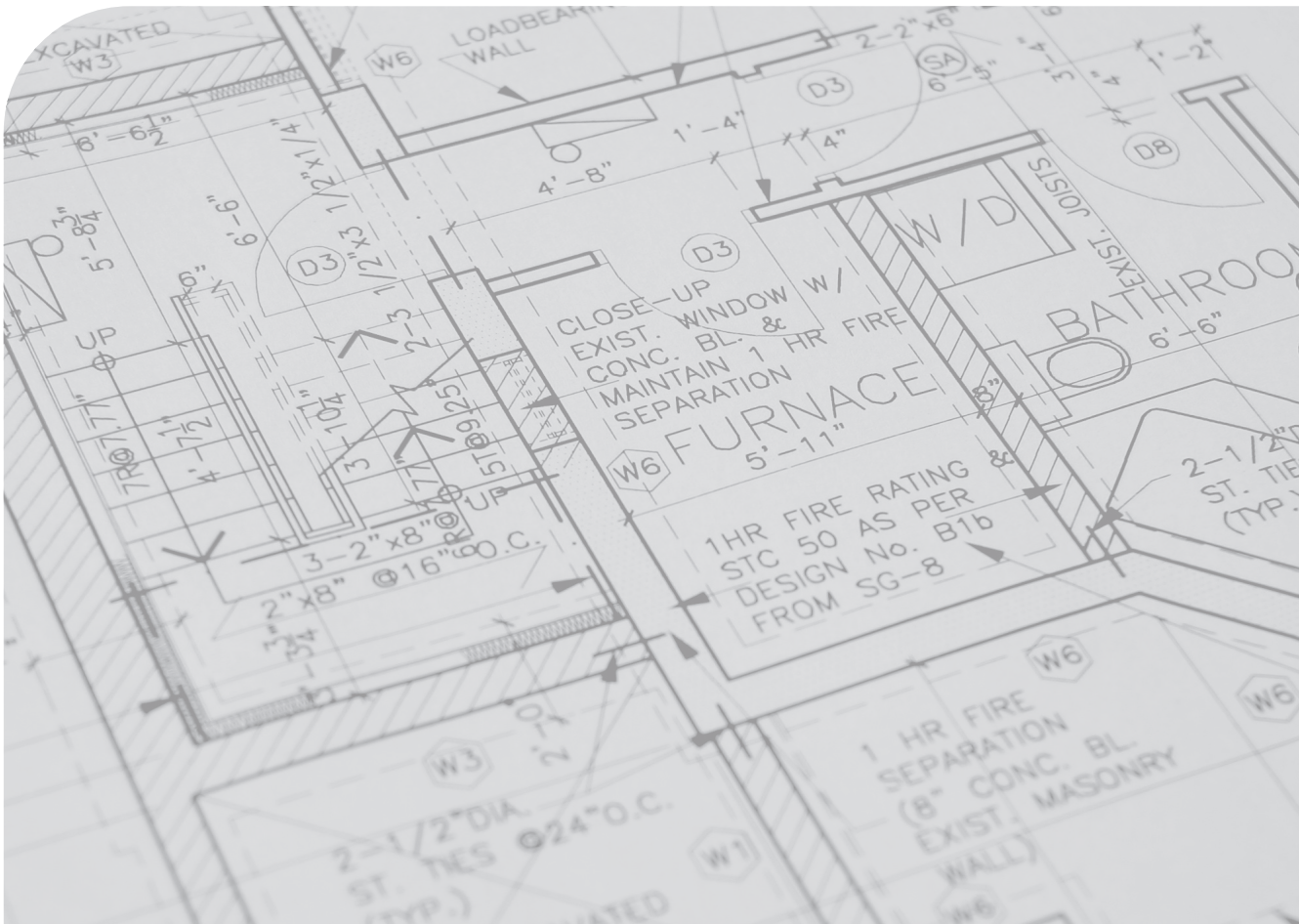
IMMERGAS

USER'S MANUAL

VICTRIX PRO V2
CASCADE INSTALLATION

IE

Instructions and recommendations



STD.011219/003

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1 INSTALLATION RECOMMENDATIONS

For correct installation of the appliances, we recommend reading the instruction and warning booklets for the specific models as well as compliance with the applicable technical legislation and relative standards.

This document integrates the instructions and warnings booklets of the generators for the part referring to the cascade installation diagrams.

It is recommended that the maximum number of appliances in the cascade be observed.



In this cascade installation, the maximum number of appliances that can be installed is five.

Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by authorised professionally qualified staff, intending staff with specific technical skills in the plant sector, as envisioned by the Law.

The appliances must be installed in the configurations and with their original Immergas battery kits. Immergas S.p.a. declines all liability whenever the installation technician does not use Immergas original appliances and kits or uses them improperly.

The modular generator can only be obtained from a combination of generators of homogeneous heat output.

1.1 FIRST START-UP

To install generators correctly in cascade, it is necessary to perform the following operations:
- Comply with the installation instructions for the specific appliance, as set forth in the instructions and warnings booklets furnished with the appliance.



Install appliances using the appropriate direct air intake appliances (see relative boiler manual).

Choose a suitable location for installation.
- Ensure that ventilation in the room is set up to regulation.
- Install the flue systems correctly.
- Use the kits supplied by Immergas according to the instructions set forth herein and in the relative instructions sheets.
- Ensure that all of the safety appliances are installed to regulation, and refer to the installation diagrams provided, by way of example, in the following paragraphs.
- Ensure that the fuel non-return valve has the correct diameter and operating temperature of 96 °C ±3°C.
- Set up the electrical connection of the appliance as shown in the relative electrical diagrams.
- Make the settings for the fan speed parameter 'Minimum speed' and 'Ignition speed' where applicable (see table in chapter 2).

2 DEFINITION OF CASCADE

These appliances are set up for installation in homogeneous cascade, therefore possible to place between 2 and 5 boilers of the same output, in cascade.
Also, based on the installed output, it is necessary to correctly install the flue system.
The following tables provide the parameters to correctly set up the boilers and flue system.

VICTRIX PRO V2 35 EU	2 Victrix Pro V2 35 EU	3 Victrix Pro V2 35 EU	4 Victrix Pro V2 35 EU	5 Victrix Pro V2 35 EU
Nominal heat input (kW)	69.8	104.7	139.6	174.5
Flue diameter (mm)	Ø 160			
Residual head at the ends of the cascade (Pa)	13.0	28.0	50.0	78.0
'Minimum speed' parameter Min Fan Speed (rpm)	1700			

Victrix Pro V2 55 EU	2 Victrix Pro V2 55 EU	3 Victrix Pro V2 55 EU	4 Victrix Pro V2 55 EU	5 Victrix Pro V2 55 EU
Nominal heat input (kW)	102.0	153.0	204.0	255.0
Flue diameter (mm)	Ø 160			
Residual head at the ends of the cascade (Pa)	27.0	61.0	109.0	170.0
'Minimum speed' parameter Min Fan Speed (rpm)	1700			

Victrix Pro V2 60 EU	2 Victrix Pro V2 60 EU	3 Victrix Pro V2 60 EU	4 Victrix Pro V2 60 EU	5 Victrix Pro V2 60 EU
Nominal heat input (kW)	119.8	179.7	239.6	299.5
Flue diameter (mm)	Ø 160			
Residual head at the ends of the cascade (Pa)	15.0	34.0	60.0	95.0
'Minimum speed' parameter Min Fan Speed (rpm)	1700			

Victrix Pro V2 68 EU	2 Victrix Pro V2 68 EU	3 Victrix Pro V2 68 EU	4 Victrix Pro V2 68 EU	5 Victrix Pro V2 68 EU
Nominal heat input (kW)	130.0	195.0	260.0	325.0
Flue diameter (mm)	Ø 160			
Residual head at the ends of the cascade (Pa)	18.0	40.0	70.0	110.0
'Minimum speed' parameter Min Fan Speed (rpm)	1700			

Victrix Pro V2 80 EU	2 Victrix Pro V2 80 EU	3 Victrix Pro V2 80 EU	4 Victrix Pro V2 80 EU	5 Victrix Pro V2 80 EU
Nominal heat input (kW)	150.0	225.0	300.0	375.0
Flue diameter (mm)	Ø 160			
Residual head at the ends of the cascade (Pa)	23.0	52.0	93.0	145.0
'Minimum speed' parameter Min Fan Speed (rpm)	1700			

Victrix Pro V2 100 EU	2 Victrix Pro V2 100 EU	3 Victrix Pro V2 100 EU	4 Victrix Pro V2 100 EU	5 Victrix Pro V2 100 EU
Nominal heat input (kW)	186.0	279.0	372.0	465.0
Flue diameter (mm)	Ø 200			
Residual head at the ends of the cascade (Pa)	11.5	26.0	45.0	71.0
'Minimum speed' parameter Min Fan Speed (rpm)	1500			

Victrix Pro V2 120 EU	2 Victrix Pro V2 120 EU	3 Victrix Pro V2 120 EU	4 Victrix Pro V2 120 EU	5 Victrix Pro V2 120 EU
Nominal heat input (kW)	229.0	343.5	458.0	572.5
Flue diameter (mm)	Ø 200			
Residual head at the ends of the cascade (Pa)	18.0	40.0	72.0	112.0
'Minimum speed' parameter Min Fan Speed (rpm)	1500			

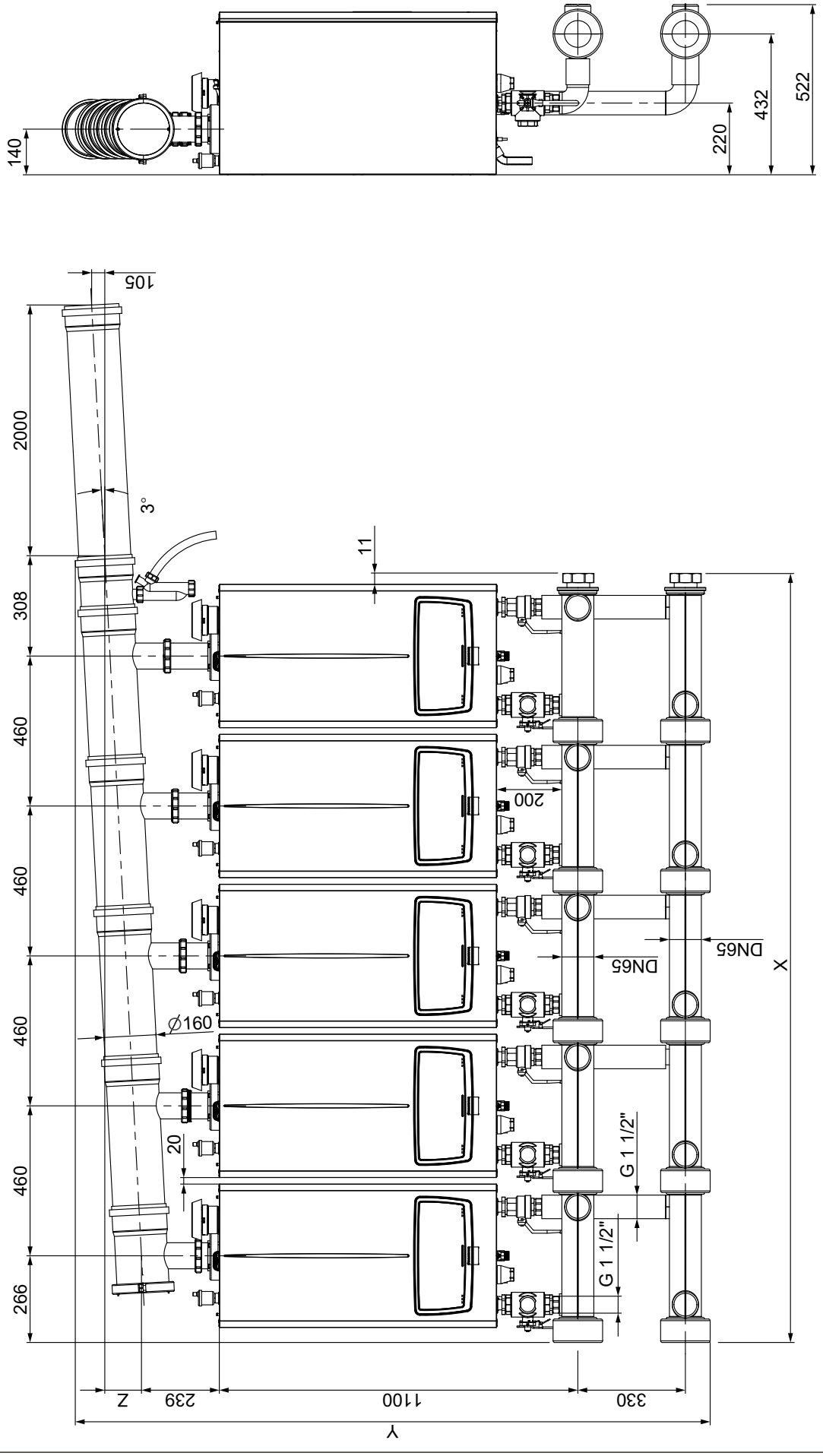
Victrix Pro V2 150 EU	2 Victrix Pro V2 150 EU	3 Victrix Pro V2 150 EU	4 Victrix Pro V2 150 EU	5 Victrix Pro V2 150 EU
Nominal heat input (kW)	282.0	423.0	564.0	705.0
Flue diameter (mm)	Ø 200		Ø 250	
Residual head at the ends of the cascade (Pa)	18.0	40.0	70.0	110.0
'Minimum speed' parameter Min Fan Speed (rpm)	1850*			
'Ignition speed' parameter	1850			
* Unchanged from single.				

For any missing data referring to the individual appliance model, and in terms of all of the operations that need to be carried out on the appliance control panel, refer to the relative instructions booklet.

2.1 ANTI-HUMIDITY

In the case of cascade installations combined with the corresponding flue manifold kits with dampers, moisture may form on the electrodes, causing them to malfunction; to prevent the formation of moisture, enable this function (by setting the 'System settings/Anti-humidity settings/Anti-humidity function' parameter to 'ON').
This function activates the fan (when there is no heat demand) at the speed set in the 'Fan speed' parameter, with cycles of 5 minutes ON and 5 minutes OFF. The activation of this function is subordinate to the temperature read by the flow probe:
Activation occurs when the temperature reading is above 35°C while deactivation occurs when the temperature reading falls below 30°C.

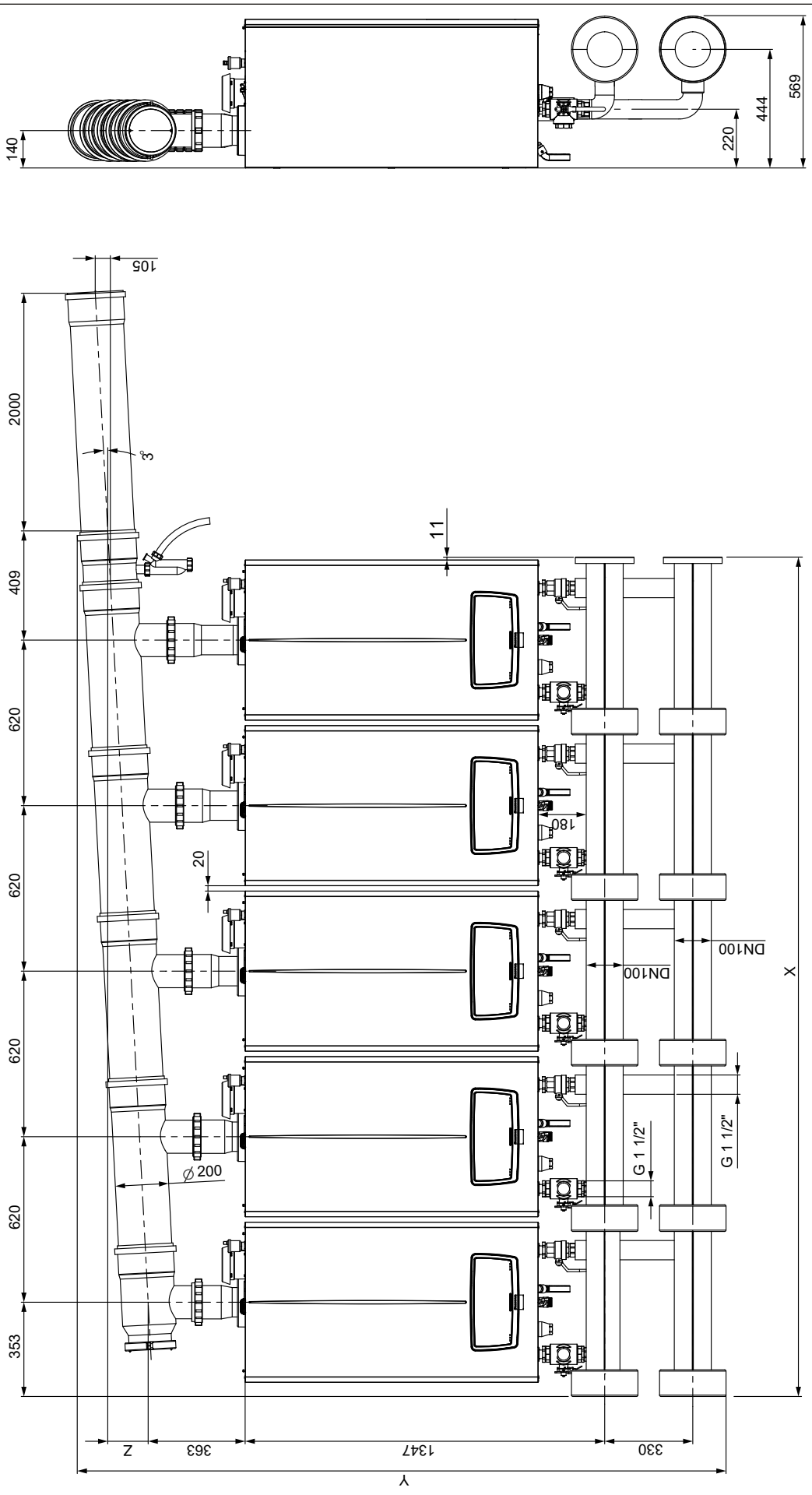
In the case of simple cascade, by activating the function via the appropriate parameter from the Master appliance, the function is also automatically activated on the Slave appliances.
With other forms of cascade (where there is no communication between individual appliances), the function must be activated on each individual appliance.



Variable	No. of Boilers				
	2	3	4	5
X	957 mm	1417 mm	1877 mm	2337 mm
Y	1876 mm	1900 mm	1924 mm	1948 mm
Z	41 mm	65 mm	89 mm	113 mm

1

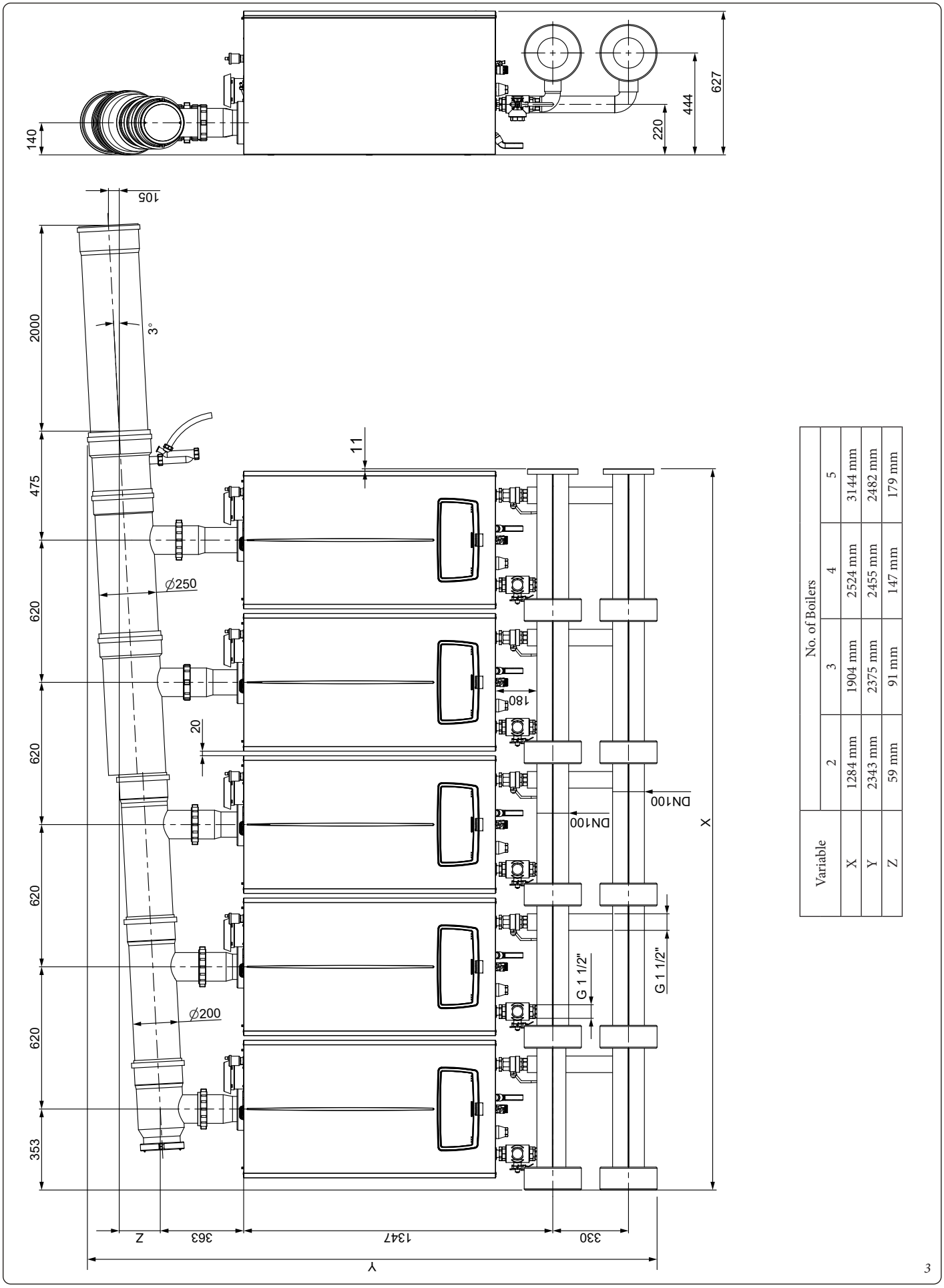
2.3 INSTALLATION CLEARANCES VICTRIX PRO V2 100-120 EU



Variable	No. of Boilers				
	2	3	4	5
X	1284 mm	1904 mm	2524 mm	3144 mm
Y	2335 mm	2367 mm	2399 mm	2431 mm
Z	55 mm	87 mm	119 mm	151 mm

2

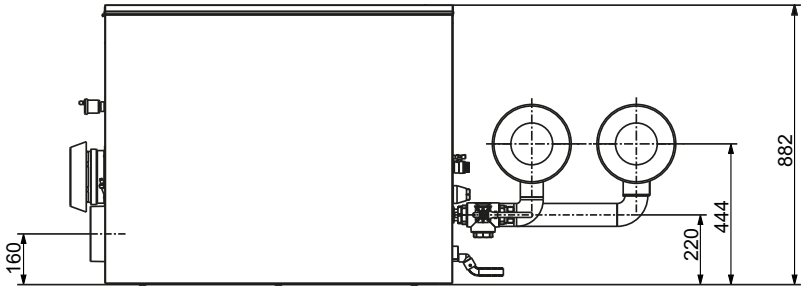
2.4 INSTALLATION CLEARANCES VICTRIX PRO V2 150 EU

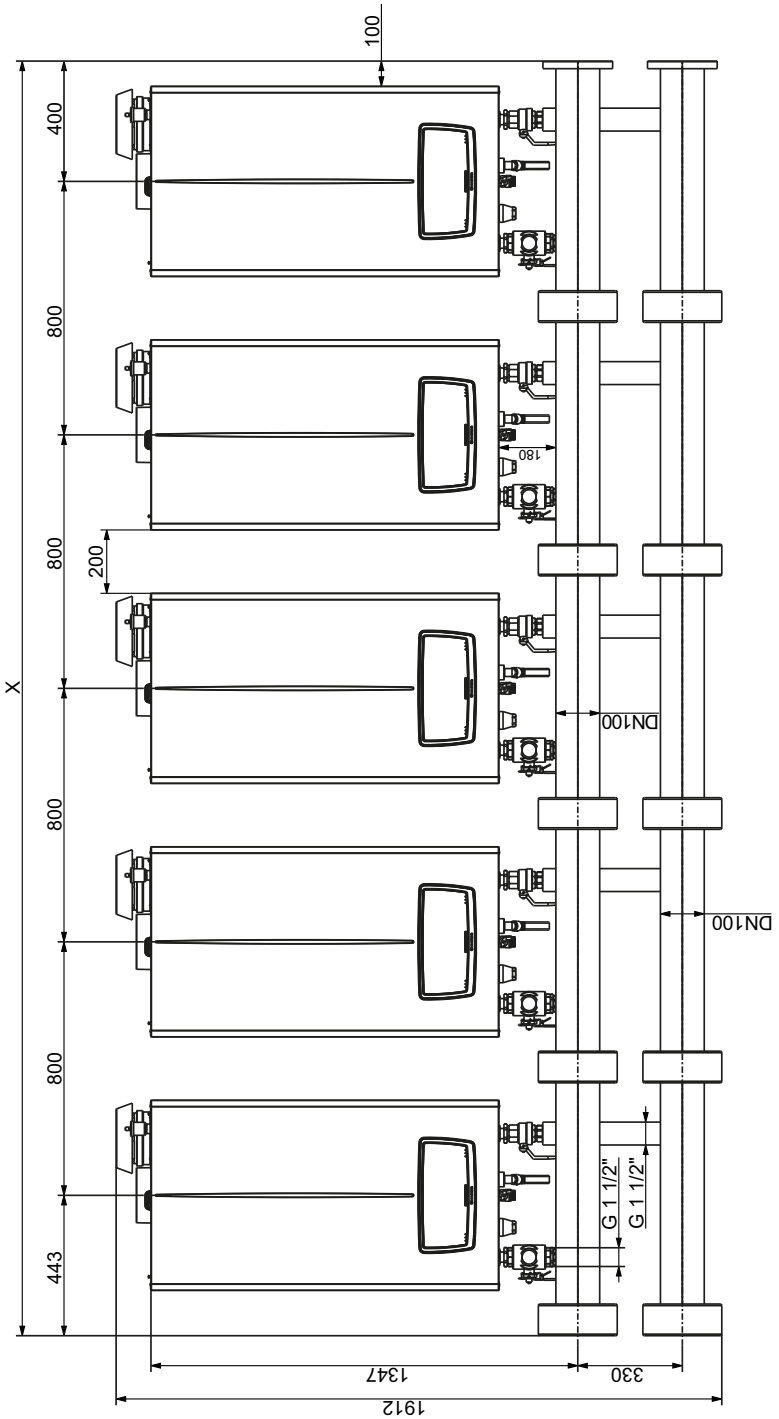


Variable	No. of Boilers				
	2	3	4	5
X	1284 mm	1904 mm	2524 mm	3144 mm
Y	2343 mm	2375 mm	2455 mm	2482 mm
Z	59 mm	91 mm	147 mm	179 mm

3

2.5 INSTALLATION CLEARANCE VICTRIX PRO V2 180 EU





Variable	No. of Boilers				
	2	3	4	5
X	1643 mm	2443 mm	3243 mm	4043 mm

4

3 INSTALLATION OF HYDRAULIC MANIFOLD KITS

3.1 INSTALLATION OF HYDRAULIC MANIFOLD KIT 2 BOILERS IN SERIES VICTRIX PRO V2 35-55-60-68-80 EU

Remove the lower protecting plate (17) of the boiler (18).
Pre-mount the fitting units (16) and nipples (8) on the 3-way valves (12), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting units (16) on the system shut-off valves (15) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (8) on the non-return valves (7) by interposing suitable sealing material such as oakum or similar.
Connect the non-return valves (7) to the manifolds (1) by interposing suitable sealing material such as oakum or similar.



When installing the non-return valves (7) make sure that the arrow on their body points towards the system return pipe (13) as shown in figure 6.

Connect the previously pre-assembled fitting assembly (16) and 3-way valve (12) to the system flow (M) of the boiler (18), making sure to interpose the corresponding gaskets (9).
Connect the preassembled ball valve (15) and the 3-way valve fitting assembly (16) to the system return (R) of the boiler (18), making sure to interpose the corresponding gaskets (9).
Connect the insulated flow pipes (11) to the 3-way valves (12) and the insulated return pipes (13) to the ball valve (15), interposing the seals (9).
Mount the galvanised cast iron cover (5) on the manifold (1).
Connect the manifold (1) to the flow pipe (11), interposing the gasket (9).
Connect the manifold (1) to the return pipe (13), interposing the gasket (9).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting the insulation (3) on the manifolds (1) and then the adhesive manifold end caps (6) with the collar insulation (3+4) on all manifold ends (1).
Mount the insulation (10) on the non-return valves (7) and the insulation (14) on the ball valve (15).
Refit the lower boiler protecting plate (17).
After the 1st temperature test, check the tightness of all the pipes.



The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 5.

To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

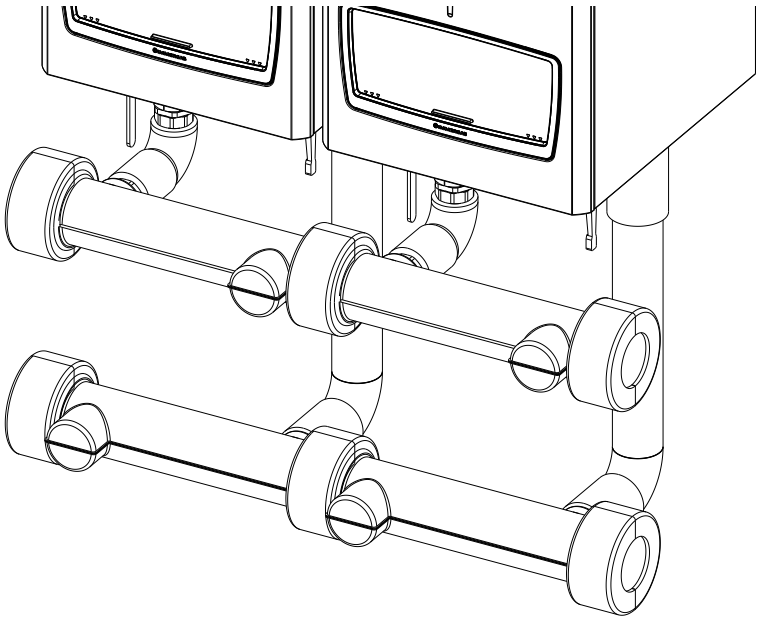


VICTRIX PRO V2 boilers have an electrical insulation rating of IPX5D. However, if installed outdoors, it is advisable to insulate the relative pipes and protect the kits from the weather.

Boilers must be installed in their original configurations and with their original battery kits. Immergas declines all liability whenever the installation technician does not use original Immergas appliances and kits, or uses them improperly.

Kit composition:

Ref	Qty	Description
1	4	Manifold G2" 1/2 + Upper (2) and lower (2) half-shells + Cap G1" 1/2 (4)
2	4	72x55x2 gasket
3	6	Manifold slot collar insulation G2" 1/2
4	6	Manifold half-shell collar insulation G2" 1/2
5	2	Galvanised cast iron cover G2" 1/2
6	2	Manifold closing adhesive cap G2" 1/2
7	2	Non-return valve G1" 1/2 FF
8	4	Nipples G1" 1/2 MM lowered
9	12	44x34x2 gasket
10	2	Velcro insulation 9 mm thick h 100
11	2	Flow pipe + Flow end insulation (2) + Short section return end insulation (2)
12	2	Manual 3-way valve body + Manual lever (2)
13	2	Return pipe + Long section return end insulation (2) + Curved section return end insulation (2)
14	2	Insulation with Velcro thickness 9 mm h 150
15	2	Ball valve G 1" 1/2
16	4	3-way valve fastening fitting assembly - manifold kit



LEFT OUTLET

5

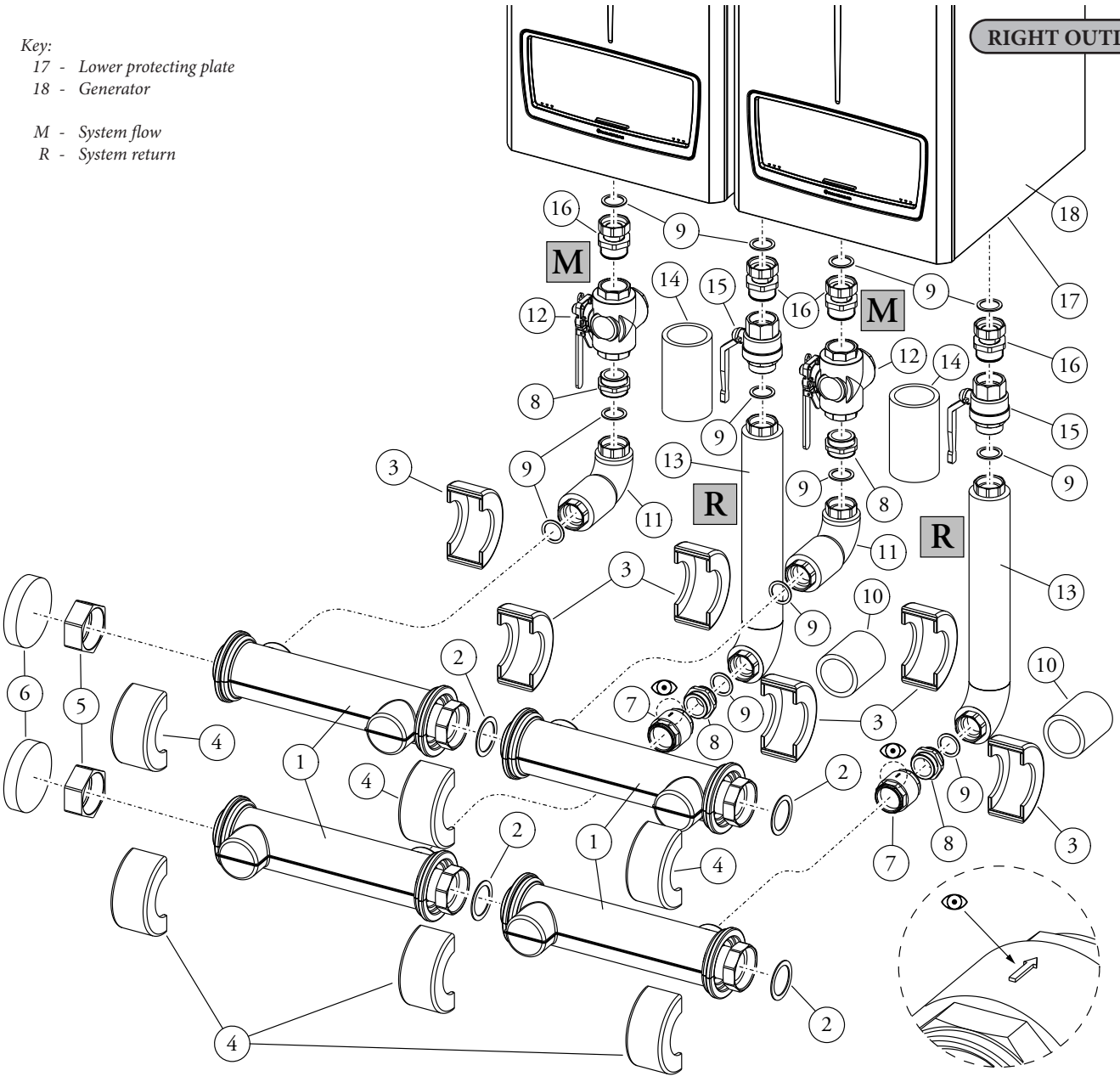
Key:

17 - Lower protecting plate

18 - Generator

M - System flow

R - System return



RIGHT OUTLET

6

3.2 VICTRIX PRO V2 35-55-60-68-80 EU ADDITIONAL BOILER HYDRAULIC MANIFOLD KIT INSTALLATION

Remove the lower protecting plate (15) of the boiler (16).
Pre-mount the fitting unit (12) and nipples (7) on the 3-way valve (11), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting unit (12) on the system shut-off valve (13) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (7) on the non return valve (5) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the non-return valve (5) to the manifold (1) by interposing suitable sealing material such as oakum or similar.

When installing the non-return valve (5) make sure that the arrow on the body points towards the system return pipe (10) as shown in figure 8.

Connect the previously preassembled fitting assembly (12) and 3-way valve (11) to the system flow (M) of the boiler (16), making sure to interpose the corresponding gaskets (8).
Connect the preassembled ball valve (13) and the 3-way valve fitting assembly (12) to the system return (R) of the boiler (16), making sure to interpose the corresponding gaskets (8).
Connect the insulated flow pipe (9) to the 3-way valve (11) and the insulated return pipe (10) to the ball valve (13), interposing the seals (8).
Connect the manifold (1) to the flow pipe (9), interposing the gasket (8).
Connect the manifold (1) to the return pipe (10), interposing the gasket (8).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting insulation (3) and (4) on the manifolds (1).
Mount the insulation (6) on the non-return valve (5) and the insulation (14) on the ball valve (13).
Refit the lower boiler protecting plate (15).
After the 1st temperature test, check the tightness of all the pipes.

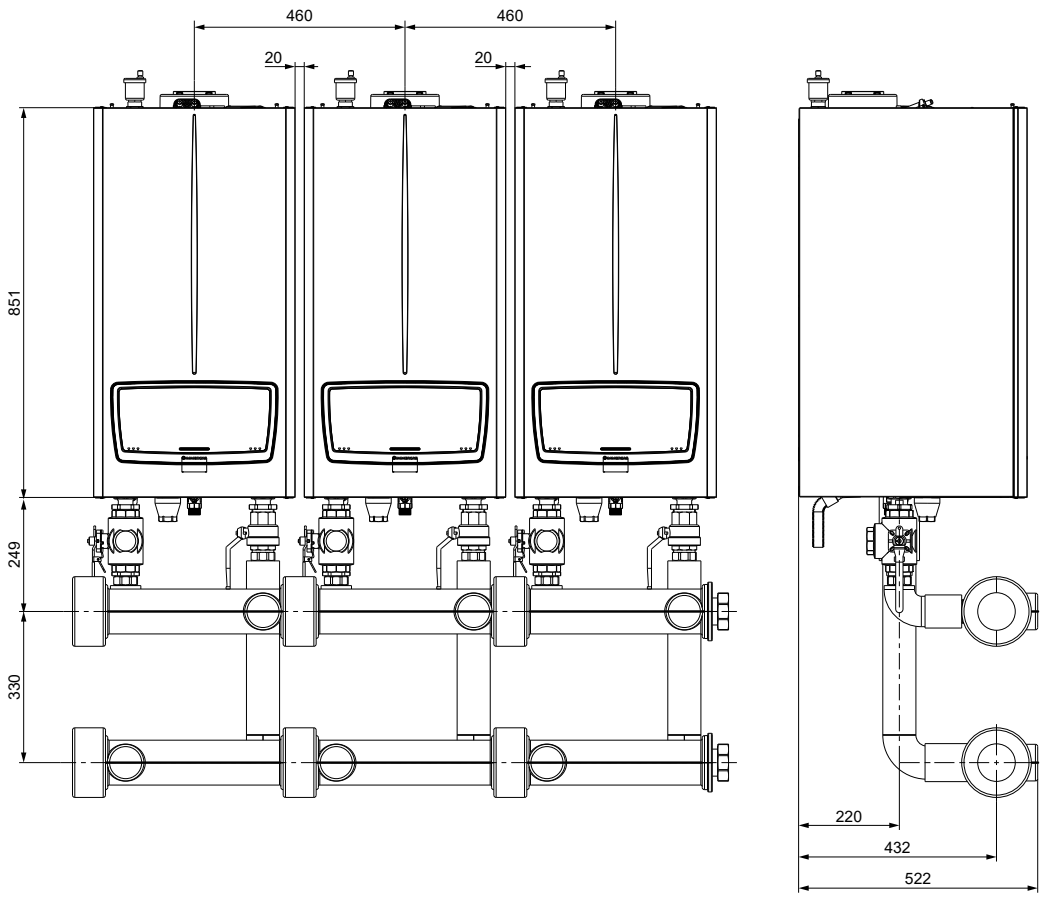
The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 7.

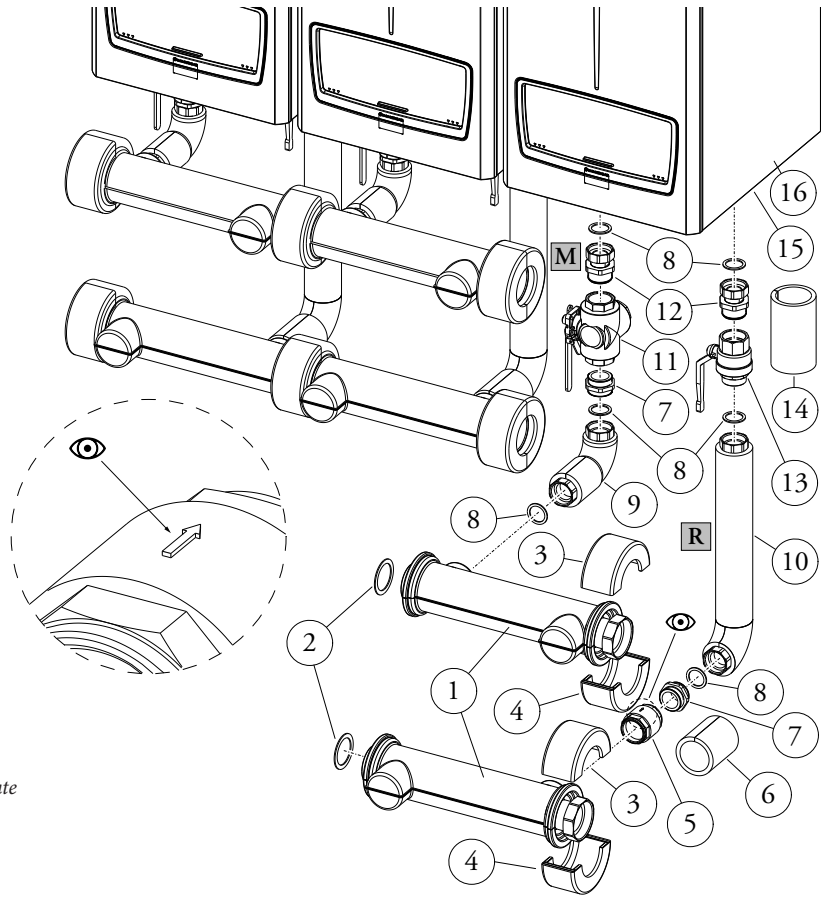
To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

Kit composition:

Ref	Qty	Description
1	2	Manifold G2' 1/2 + Upper half shell (2) and lower half shell (2) + Cap G1' 1/2 (2)
2	2	72x55x2 gasket
3	2	Manifold slot collar insulation G2" 1/2
4	2	Manifold half-shell collar insulation G2" 1/2
5	1	Non-return valve G1" 1/2 FF
6	1	Velcro insulation 9 mm thick h 100
7	2	Nipples G1" 1/2 MM lowered
8	6	44x34x2 gasket
9	1	Flow pipe + Flow end insulation (1) + Short section return end insulation (1)
10	1	Return pipe + Long section return end insulation (1) + Curved section return end insulation (1)
11	1	Manual 3-way valve body + Manual lever (1)
12	2	3-way valve fastening fitting assembly - manifold kit
13	1	Ball valve G 1" 1/2
14	1	Insulation with Velcro thickness 9 mm h 150



7



Key:

15 - Lower protecting plate
16 - Generator

M - System flow
R - System return

8

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3.3 INSTALLATION OF HYDRAULIC MANIFOLD KIT 2 BOILERS IN SERIES VICTRIX PRO V2 100-120-150 EU

Remove the lower protecting plate (20) of the boiler (21).
Pre-mount the fitting units (18) and nipples (13) on the 3-way valves (16), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting units (18) on the system shut-off valves (19) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (13) on the non-return valves (12) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (1) on the non-return valves (12) by interposing suitable sealing material such as oakum or similar.

When installing the non-return valves (12) make sure that the arrow on their body points towards the system return pipe (15) as shown in figure 10.

Connect the previously preassembled fitting assembly (18) and 3-way valve (16) to the system flow (M) of the boiler (21), making sure to interpose the corresponding gaskets (10).
Connect the preassembled ball valve (19) and the 3-way valve fitting assembly (18) to the system return (R) of the boiler (21), making sure to interpose the corresponding gaskets (10).
Connect the insulated flow pipes (14) to the 3-way valves (16) and the insulated return pipes (15) to the ball valve (19), interposing the seals (10).
Mount the blind flange (5) on the manifold (1), interposing the gasket (2).
Connect the manifold (1) to the flow pipe (14), interposing the gasket (10).
Connect the manifold (1) to the return pipe (15), interposing the gasket (10).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting the insulation (3) on the manifolds (1) and then the adhesive manifold end caps (6) with the collar insulation (3+4) on all manifold ends (1).
Mount the insulation (11) on the non-return valves (12) and the insulation (17) on the ball valve (19).
Refit the lower boiler protecting plate (20).
After the 1st temperature test, check the tightness of all the pipes.

The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 9.

To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

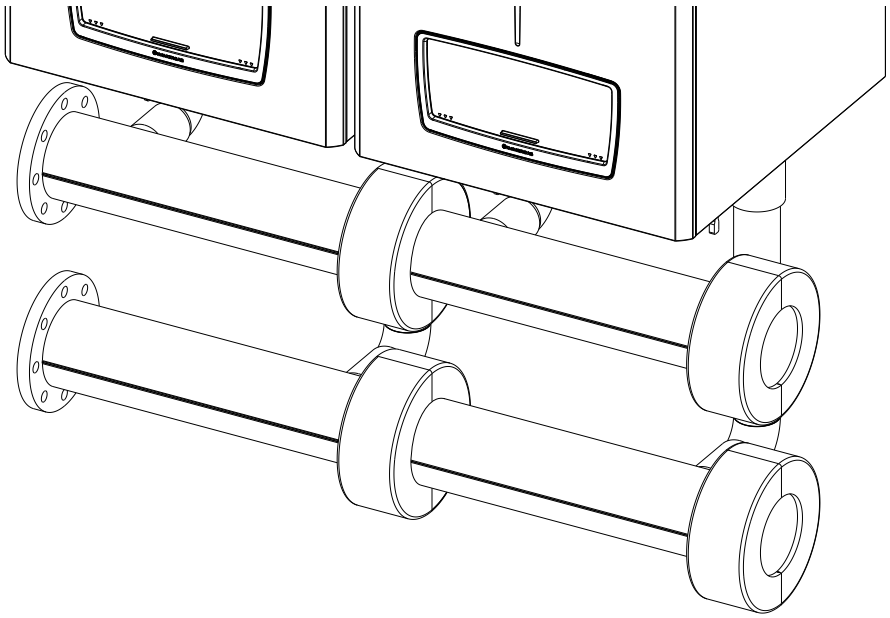
VICTRIX PRO V2 boilers have an electrical insulation rating of IPX5D. However, if installed outdoors, it is advisable to insulate the relative pipes and protect the kits from the weather.

Boilers must be installed in their original configurations and with their original battery kits. Immergas declines all liability whenever the installation technician does not use original Immergas appliances and kits, or uses them improperly.

Kit composition:

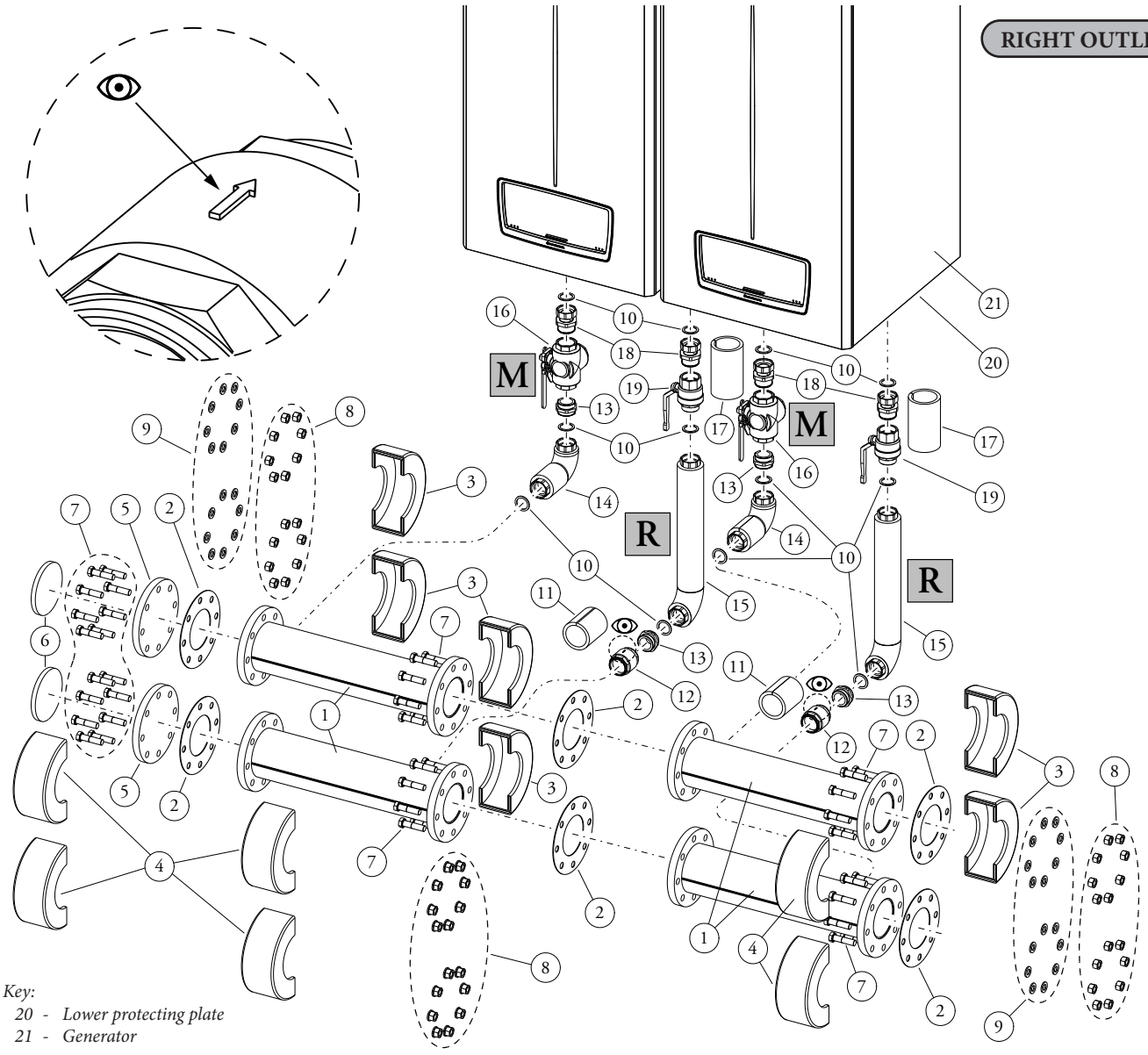
Ref	Qty	Description
1	4	Manifold DN 100 + Upper half shell (2) and lower half shell (2) + Cap G1' 1/2 (4)
2	6	Flange gasket DN 100
3	6	Manifold slot collar insulation DN 100
4	6	Manifold half-shell collar insulation DN 100
5	2	Blind flange DN 100
6	2	Manifold closing adhesive cap DN 100
7	48	Screw M16x65
8	48	Nut M16
9	48	Washer 17x30x3
10	12	44x34x2 gasket
11	2	Velcro insulation 9 mm thick h 100
12	2	Non-return valve G1" 1/2 FF
13	4	Nipples G1" 1/2 MM lowered
14	2	Flow pipe + Flow end insulation (2) + Short section return end insulation (2)
15	2	Return pipe + Long section return end insulation (2) + Curved section return end insulation (2)
16	2	Manual 3-way valve body + Manual lever (2)
17	2	Insulation with Velcro thickness 9 mm h 150
18	4	3-way valve fastening fitting assembly - manifold kit
19	2	Ball valve G 1" 1/2

LEFT OUTLET



9

RIGHT OUTLET



Key:

20 - Lower protecting plate
21 - Generator

M - System flow
R - System return

10

3.4 VICTRIX PRO V2 100-120-150 EU ADDITIONAL BOILER HYDRAULIC MANIFOLD KIT INSTALLATION

Remove the lower protecting plate (18) of the boiler (19).
Pre-mount the fitting unit (15) and nipples (10) on the 3-way valve (14), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting unit (15) on the system shut-off valve (16) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (10) on the non return valve (9) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the non-return valve (9) to the manifold (1) by interposing suitable sealing material such as oakum or similar.



When installing the non-return valve (9) make sure that the arrow on the body points towards the system return pipe (13) as shown in figure 12.

Connect the previously preassembled fitting assembly (15) and 3-way valve (14) to the system flow (M) of the boiler (19), making sure to interpose the corresponding gaskets (8).
Connect the preassembled ball valve (16) and the 3-way valve fitting assembly (15) to the system return (R) of the boiler (19), making sure to interpose the corresponding gaskets (8).
Connect the insulated flow pipe (12) to the 3-way valve (14) and the insulated return pipe (13) to the ball valve (16), interposing the seals (8).
Connect the manifold (1) to the flow pipe (12), interposing the gasket (8).
Connect the manifold (1) to the return pipe (13), interposing the gasket (8).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting insulation (3) and (4) on the manifolds (1).
Mount the insulation (11) on the non-return valve (9) and the insulation (17) on the ball valve (16).
Refit the lower boiler protecting plate (18).
After the 1st temperature test, check the tightness of all the pipes.



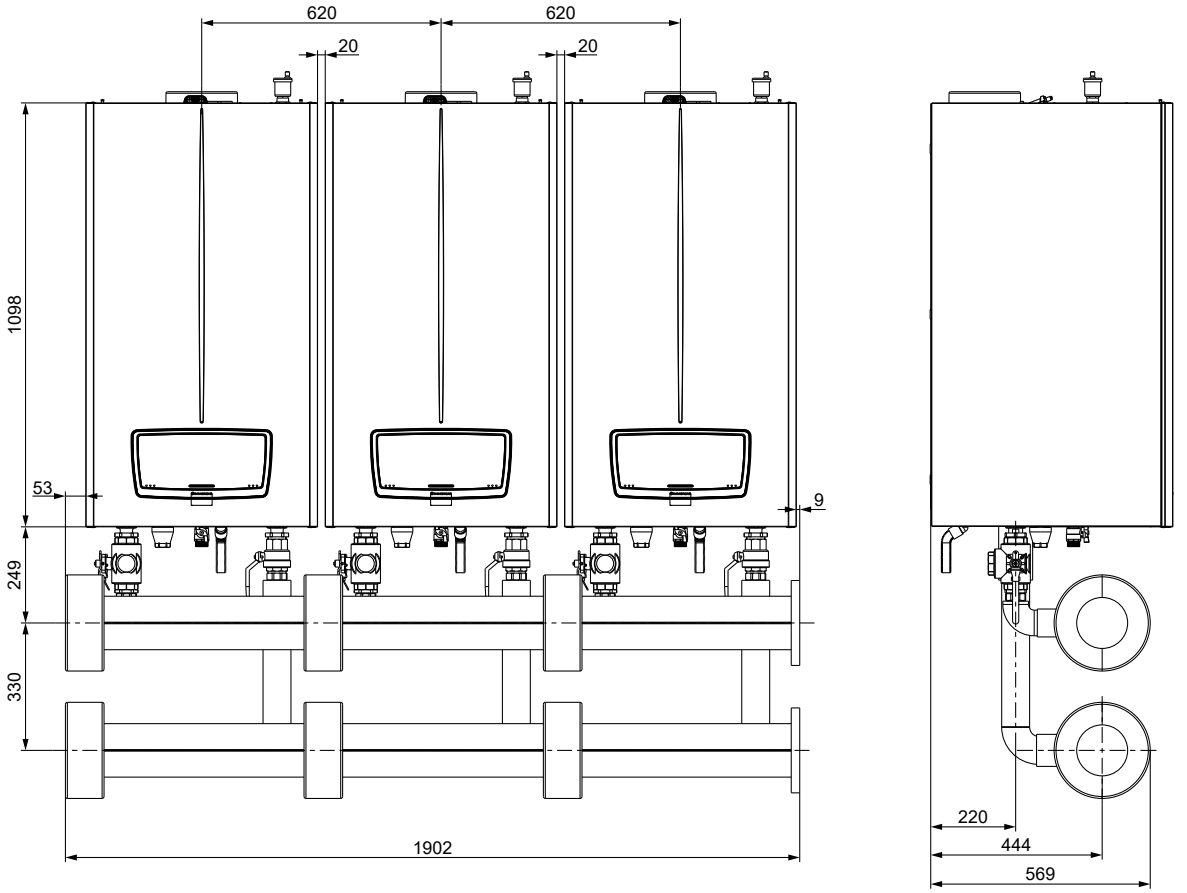
The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 11.

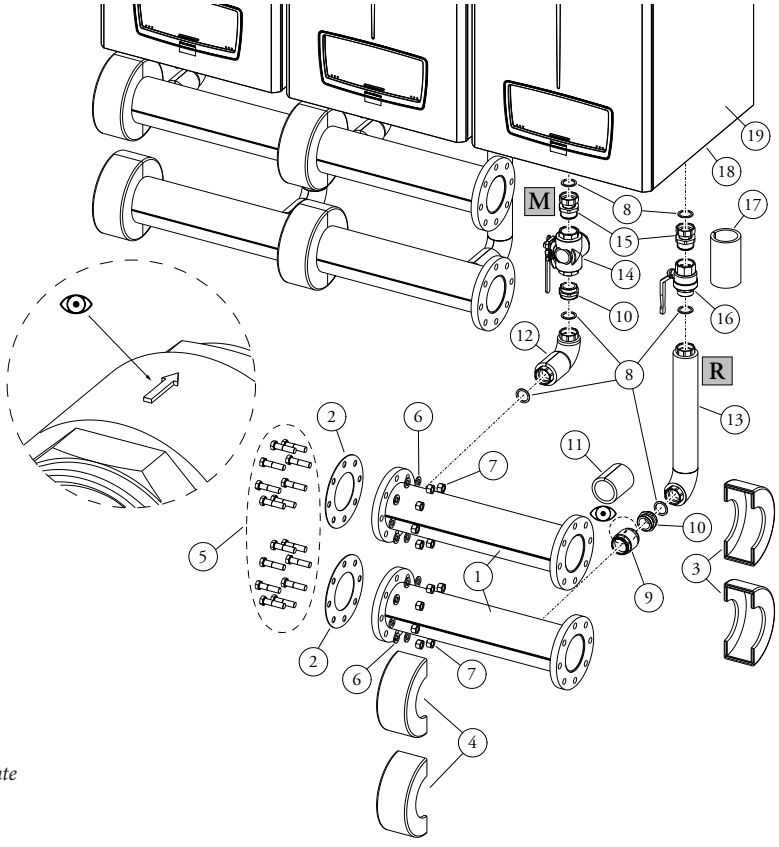
To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

Kit composition:

Ref	Qty	Description
1	2	Manifold DN 100 + Upper (2) and lower (2) half shell
2	2	Flange gasket DN 100
3	2	Manifold slot collar insulation DN 100
4	2	Manifold half-shell collar insulation DN 100
5	16	Screw M16x65
6	16	Nut M16
7	16	Washer 17x30x3
8	6	44x34x2 gasket
9	2	Nipples G1" 1/2 MM lowered
10	1	Velcro insulation 9 mm thick h 100
11	1	Manual 3-way valve body + Manual lever (1)
12	1	Flow pipe + Flow end insulation (1) + Short section return end insulation (1)
13	1	Return pipe + Long section return end insulation (1) + Curved section return end insulation (1)
14	2	3-way valve fastening fitting assembly - manifold kit
15	1	Manual 3-way valve body + Manual lever (1)
16	1	Ball valve G 1" 1/2
17	1	Insulation with Velcro thickness 9 mm h 150



11



Key:

18 - Lower protecting plate
19 - Generator

M - System flow
R - System return

12

3.5 INSTALLATION OF HYDRAULIC MANIFOLD KIT 2 BOILERS IN SERIES VICTRIX PRO V2 180 EU

Remove the lower protecting plate (20) of the boiler (21).
Pre-mount the fitting units (18) and nipples (13) on the 3-way valves (16), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting units (18) on the system shut-off valves (19) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (13) on the non-return valves (12) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (1) on the non-return valves (12) by interposing suitable sealing material such as oakum or similar.

When installing the non-return valves (12) make sure that the arrow on their body points towards the system return pipe (15) as shown in figure 14.

Connect the previously preassembled fitting assembly (18) and 3-way valve (16) to the system flow (M) of the boiler (21), making sure to interpose the corresponding gaskets (10).
Connect the preassembled ball valve (19) and the 3-way valve fitting assembly (18) to the system return (R) of the boiler (21), making sure to interpose the corresponding gaskets (10).
Connect the insulated flow pipes (14) to the 3-way valves (16) and the insulated return pipes (15) to the ball valve (19), interposing the seals (10).
Mount the blind flange (5) on the manifold (1), interposing the gasket (2).
Connect the manifold (1) to the flow pipe (14), interposing the gasket (10).
Connect the manifold (1) to the return pipe (15), interposing the gasket (10).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting the insulation (3) on the manifolds (1) and then the adhesive manifold end caps (6) with the collar insulation (3+4) on all manifold ends (1).
Mount the insulation (11) on the non-return valves (12) and the insulation (17) on the ball valve (19).
Refit the lower boiler protecting plate (20).
After the 1st temperature test, check the tightness of all the pipes.

The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 13.

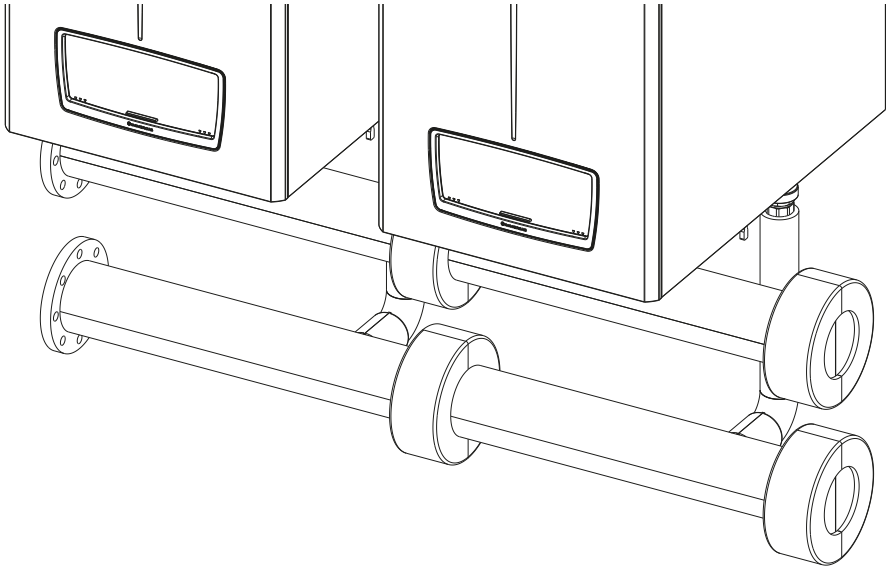
To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

VICTRIX PRO V2 boilers have an electrical insulation rating of IPX5D. However, if installed outdoors, it is advisable to insulate the relative pipes and protect the kits from the weather.

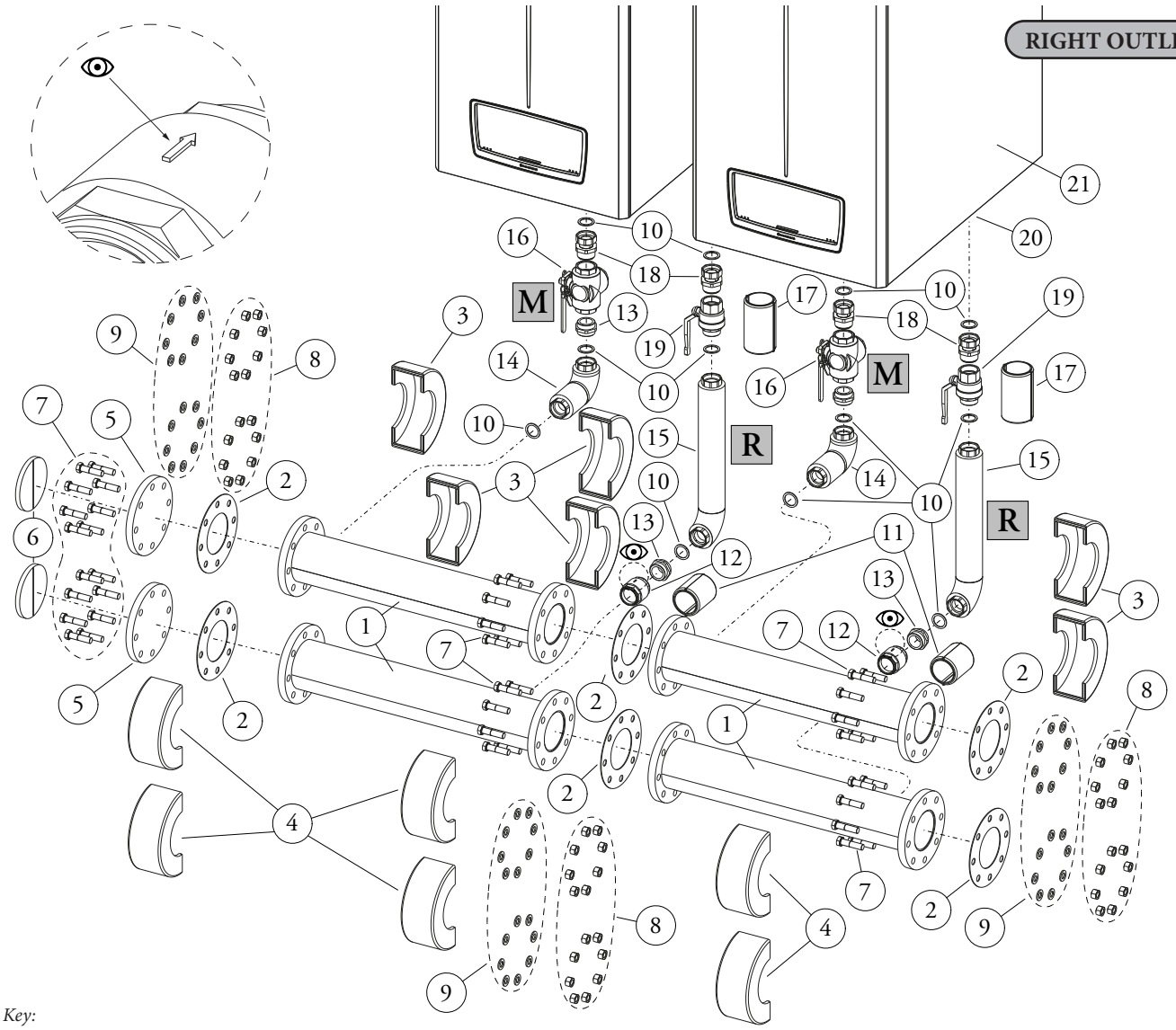
Boilers must be installed in their original configurations and with their original battery kits. Immergas declines all liability whenever the installation technician does not use original Immergas appliances and kits, or uses them improperly.

Kit composition:

Ref	Qty	Description
1	4	Manifold DN 100 + Upper half shell (2) and lower half shell (2) + Cap G1' 1/2 (4)
2	6	Flange gasket DN 100
3	6	Manifold slot collar insulation DN 100
4	6	Manifold half-shell collar insulation DN 100
5	2	Blind flange DN 100
6	2	Manifold closing adhesive cap DN 100
7	48	Screw M16x65
8	48	Nut M16
9	48	Washer 17x30x3
10	12	44x34x2 gasket
11	2	Velcro insulation 9 mm thick h 100
12	2	Non-return valve G1" 1/2 FF
13	4	Nipples G1" 1/2 MM lowered
14	2	Flow pipe + Flow end insulation (2) + Short section return end insulation (2)
15	2	Return pipe + Long section return end insulation (2) + Curved section return end insulation (2)
16	2	Manual 3-way valve body + Manual lever (2)
17	2	Insulation with Velcro thickness 9 mm h 150
18	4	3-way valve fastening fitting assembly - manifold kit
19	2	Ball valve G 1" 1/2



13



Key:

20 - Lower protecting plate
21 - Generator

M - System flow
R - System return

14

3.6 VICTRIX PRO V2 180 EU ADDITIONAL BOILER HYDRAULIC MANIFOLD KIT INSTALLATION

Remove the lower protecting plate (18) of the boiler (19).
Pre-mount the fitting unit (15) and nipples (10) on the 3-way valve (14), interposing suitable sealing material such as oakum or similar.
Pre-assemble the fitting unit (15) on the system shut-off valve (16) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the nipples (10) on the non return valve (9) by interposing suitable sealing material such as oakum or similar.
Pre-assemble the non-return valve (9) to the manifold (1) by interposing suitable sealing material such as oakum or similar.

When installing the non-return valve (9) make sure that the arrow on the body points towards the system return pipe (13) as shown in figure 16.

Connect the previously preassembled fitting assembly (15) and 3-way valve (14) to the system flow (M) of the boiler (19), making sure to interpose the corresponding gaskets (8).
Connect the preassembled ball valve (16) and the 3-way valve fitting assembly (15) to the system return (R) of the boiler (19), making sure to interpose the corresponding gaskets (8).
Connect the insulated flow pipe (12) to the 3-way valve (14) and the insulated return pipe (13) to the ball valve (16), interposing the seals (8).
Connect the manifold (1) to the flow pipe (12), interposing the gasket (8).
Connect the manifold (1) to the return pipe (13), interposing the gasket (8).
Proceed in this way for subsequent boilers, making sure to place the relative gaskets (2) between the manifold connections (1).
Upon completion of the connections, proceed by fitting insulation (3) and (4) on the manifolds (1).
Mount the insulation (11) on the non-return valve (9) and the insulation (17) on the ball valve (16).
Refit the lower boiler protecting plate (18).
After the 1st temperature test, check the tightness of all the pipes.

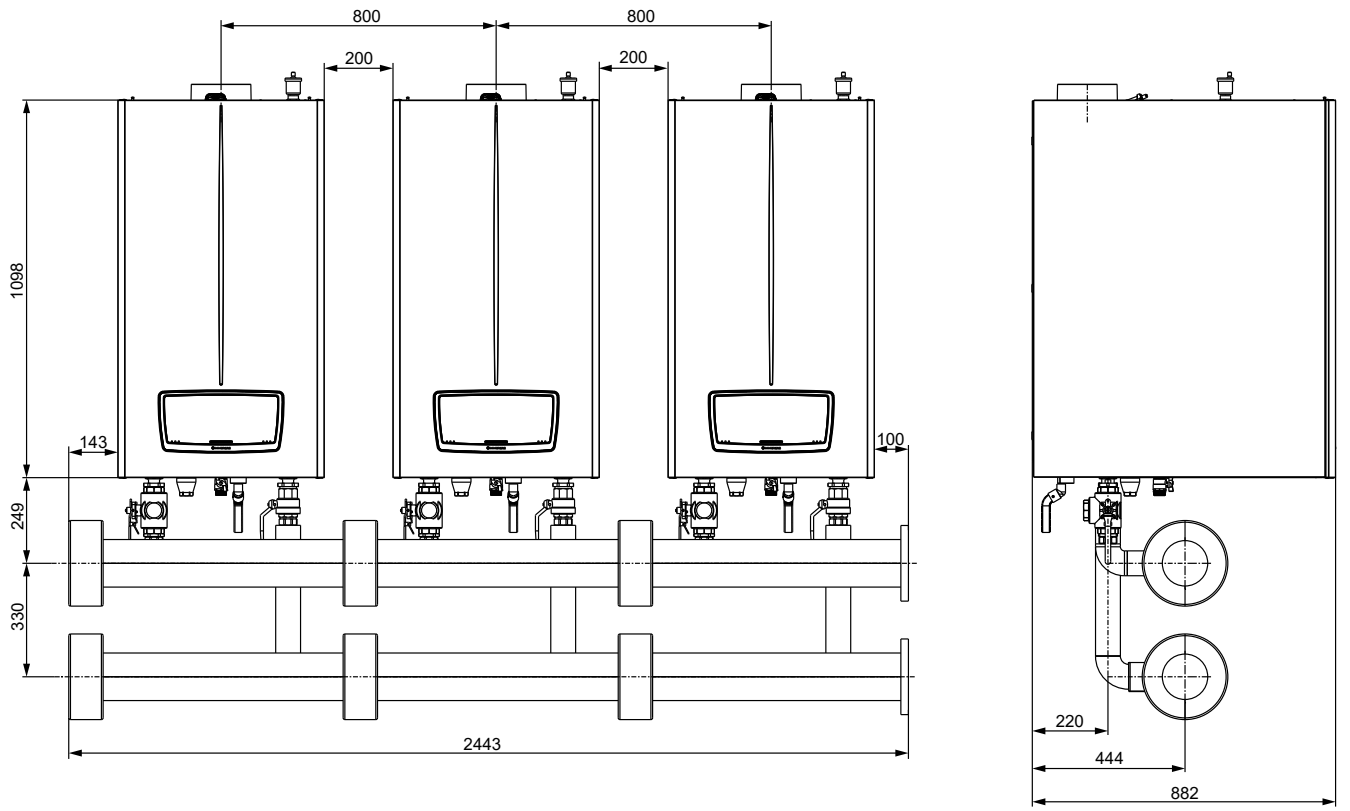
The components downstream of the system, such as the expansion tank, must be sized according to the flow rate of the system.

When assembling the kit with free outputs on the left side, perform the installation as shown in figure 15.

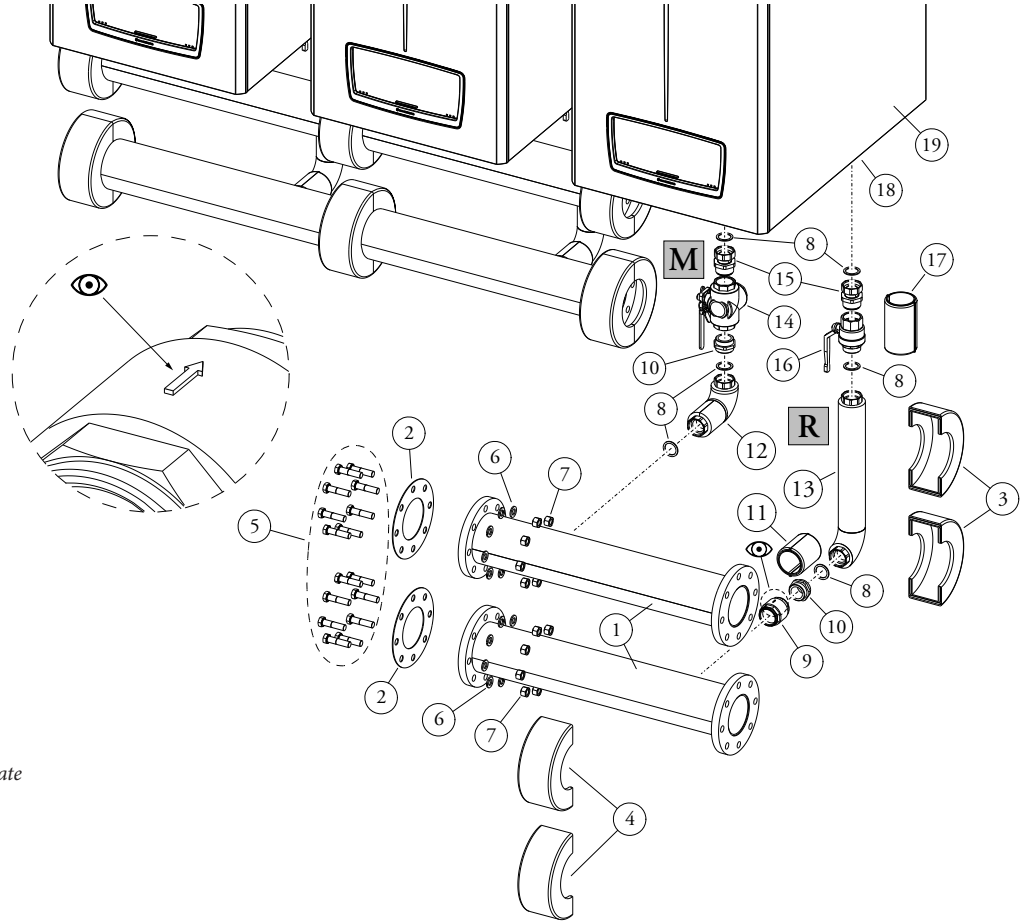
To empty the boiler, proceed as described in section 3.6 “Generator shut-off”.

Kit composition:

Ref	Qty	Description
1	2	Manifold DN 100 + Upper (2) and lower (2) half shell
2	2	Flange gasket DN 100
3	2	Manifold slot collar insulation DN 100
4	2	Manifold half-shell collar insulation DN 100
5	16	Screw M16x65
6	16	Nut M16
7	16	Washer 17x30x3
8	6	44x34x2 gasket
9	1	Nipples G1" 1/2 MM lowered
10	2	Velcro insulation 9 mm thick h 100
11	1	Manual 3-way valve body + Manual lever (1)
12	1	Flow pipe + Flow end insulation (1) + Short section return end insulation (1)
13	1	Return pipe + Long section return end insulation (1) + Curved section return end insulation (1)
14	2	Manual 3-way valve body + Manual lever (1)
15	1	3-way valve fastening fitting assembly - manifold kit
16	1	Ball valve G 1" 1/2
17	1	Insulation with Velcro thickness 9 mm h 150



15



Key:

18 - Lower protecting plate
19 - Generator

M - System flow
R - System return

16

3.6 GENERATORS` INTERCEPTION

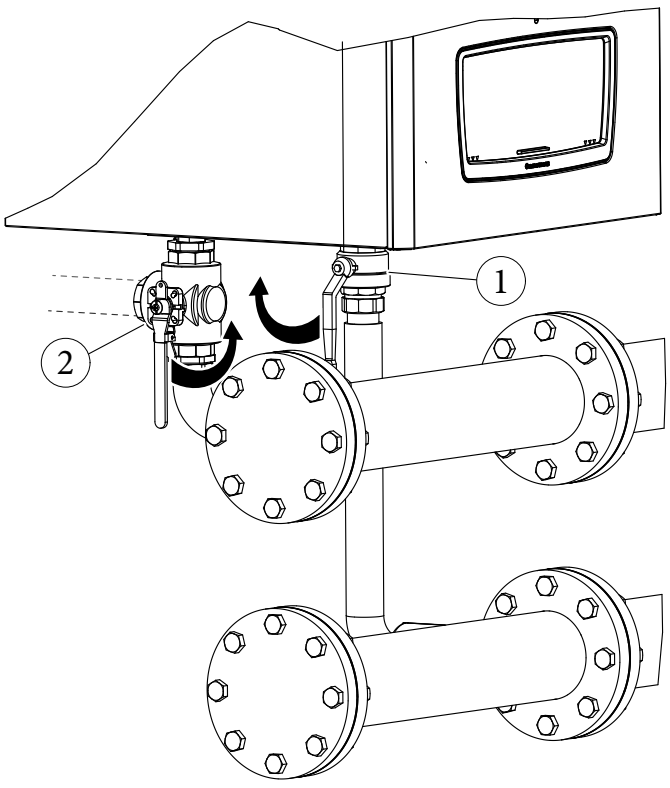
In the case of interception of each individual generator, proceed as follows:

For emptying the boiler:
1. switch off all taps by turning the main switch to '0';
2. close the gas tap upstream of the appliance;
3. close the ball tap (1) by turning the actuator clockwise, so that the actuator is in a horizontal position, perpendicular to the appliance/collector connection pipe after a complete 90° rotation;
4. then close the 3-way valve (2) by rotating the actuator anticlockwise, so that after a complete 90° rotation the actuator is in a horizontal position, perpendicular to the section of pipe connecting the appliance/manifold.

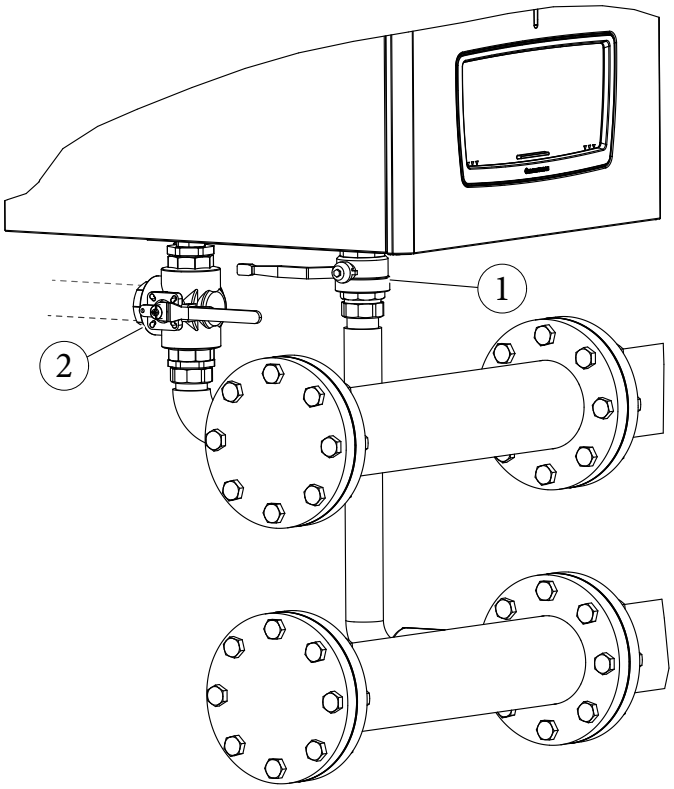
To restore the hydraulic circuit to its initial condition:
1. open the 3-way valve (2) by rotating the actuator clockwise, so that after a complete 90° rotation the actuator is in a vertical position, parallel to the section of pipe connecting the appliance/manifold;
2. subsequently open the ball tap (1) by rotating the actuator anticlockwise, so that after a complete 90° rotation the actuator is in a vertical position, parallel to the section of pipe connecting the appliance/manifold;
3. before switching on, check that the system is full of water by checking that the pressure gauge indicates the value on the basis of which the system was designed and calculated, and in any case not less than 0.5 bar;
4. switch on all appliances by turning the main switch to "ON"; at this point all appliances will perform a self-diagnosis and return to the state they were in before being turned off.

Before closing the system cut-off cocks, the boiler must be switched off.

17



Tap and 3-way valve
OPEN



Rubinetto e Valvola 3 vie
CHIUSE

4 FLUE INSTALLATION

For the Victrix Pro V2 180 EU model, cascade fume exhaust is not provided.

4.1 INSTALLATION RECOMMENDATIONS

- the generators must be positioned on the same horizontal line;
- the exhaust manifold must have a minimum inclination of 5%;
- the drain for the condensation water produced by the appliances must flow out according to the local legislation in force, based on the installed output;

Check and if necessary regulate the heating capacity of each individual appliance (see heat output regulations paragraph in the boiler instructions manual).

Before assembly, check that the seals are positioned correctly (see Fig. 18) and lubricate them with the paste supplied with the kit.

Condensate drain. To drain the condensate produced by the appliance, it is necessary to connect it by acid condensate-resistant pipes, using the drain trap (8). The connection must be set up so as to prevent the liquid in it from freezing. Before appliance start-up, ensure that the condensate can be correctly removed. Also, comply with national and local regulations on discharging waste waters.

The "green series" manifold cannot be installed externally without suitable protection against UV rays and other effects of the weather.

4.2 FLUE EXHAUST MANIFOLD KIT ASSEMBLY

Replace the intake closing cap on the boiler with the intake stub kit (1).

Insert connections (2) and (3) on the flanges of the respective boilers to the end stop.

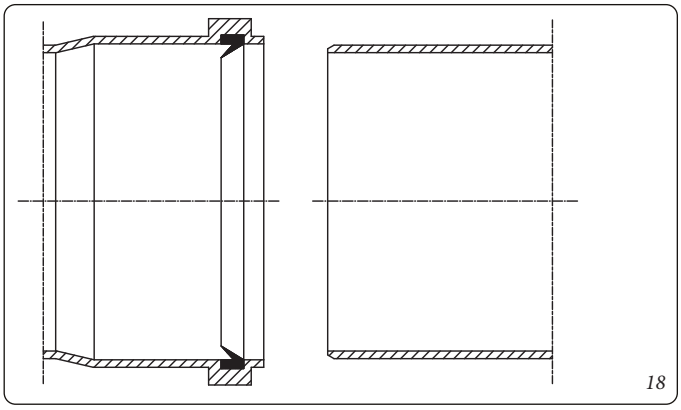
Place the clapet valve (4) on the respective connections (2) and (3), taking care to orientate the clapet valve correctly. (fig. 5 and 6).

Connect the first boiler manifold (5) to the connection (2) and secure them by the ring nut.

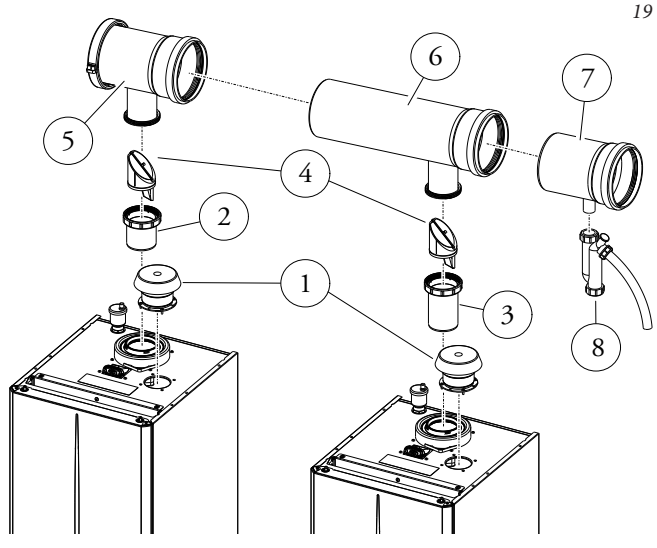
Connect the second boiler manifold (6) to the first boiler manifold (5) and secure it to the connection (3) using the ring nut.

Connect the manifold with condensate drain (7) to the manifold (6).

Now connect the condensate drain trap (8) to the manifold (7).



18

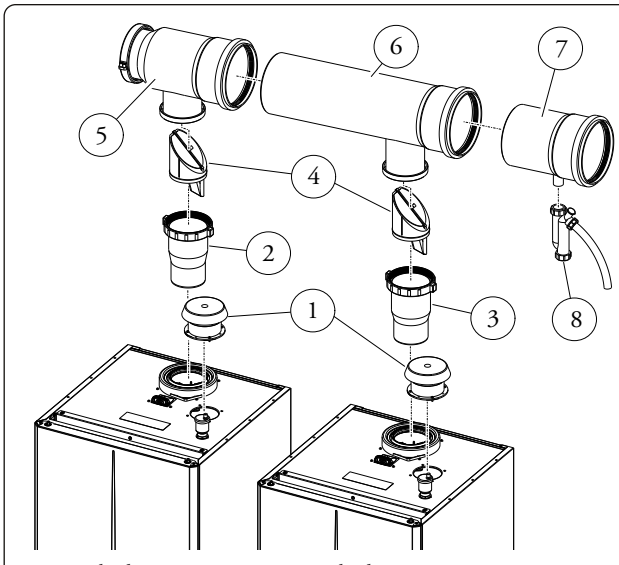


19

boiler 1 boiler 2

Composition of manifold kit Ø 160 flue exhaust Victrix Pro V2 35-55-60-68-80 EU

Ref.	Qty	Description
1	2	Intake stub pipe kit Ø 80
2	1	Vertical stub first boiler connection Ø 80
3	1	Vertical stub second boiler connection Ø 80
4	2	Clapet valve Ø 80
5	1	Smoke duct closing cap Ø 160
6	1	Second boiler connection manifold Ø 160
7	1	Manifold with condensate drain Ø 160
8	1	Condensate drain trap



20

boiler 1 boiler 2

Composition of manifold kit Ø 200 flue exhaust Victrix Pro V2 100-120-150 EU

Ref.	Qty	Description
1	2	Intake stub pipe kit Ø 100
2	1	Vertical stub first boiler connection Ø 110-125
3	1	Vertical stub second boiler connection Ø 110-125
4	2	Clapet valve Ø 125
5	1	Smoke duct closing cap Ø 200
6	1	Second boiler connection manifold Ø 200
7	1	Manifold with condensate drain Ø 200
8	1	Condensate drain trap

4.3 ASSEMBLY OF ADDITIONAL BOILER MANIFOLD KIT FOR VICTRIX PRO V2 35-55-60-68-80 EU

The extension kits make it possible to complete cascade installation, and you must have one for each boiler being connected, according to figure 20 (max of 5 boilers in cascade).

Replace the intake closing cap on the boiler with the intake stub kit (1).

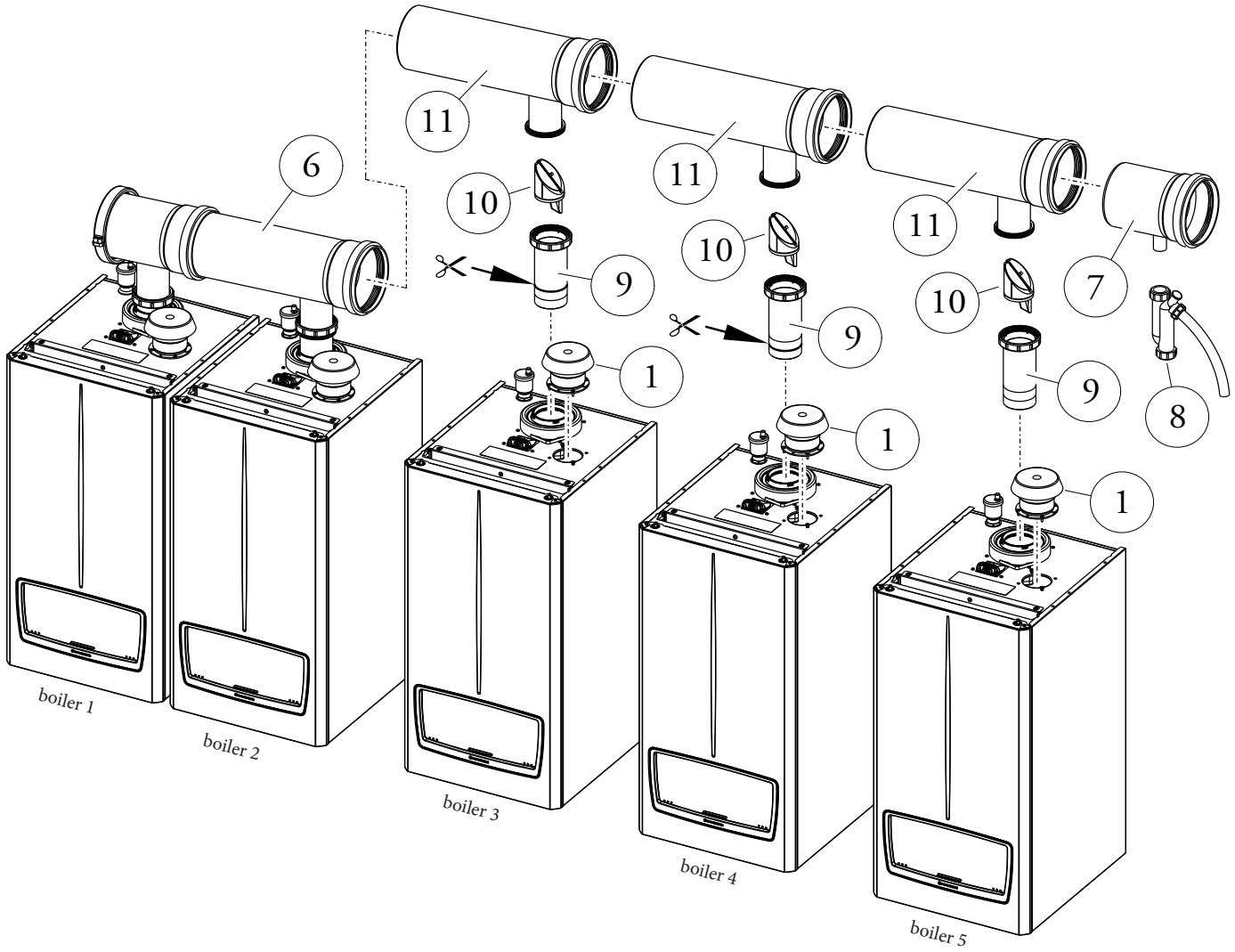
To make the connections (9) as shown in the figure according to the position of the boiler.

Then engage them on the boiler until they are to the end stop, taking care to orientate the clapet valve (10) correctly.

Connect the additional boiler manifolds (11) to the relative connections (9) and tighten the ring nut of each connection

Connect the manifold with condensate drain (7) to the manifold (7).

Now connect the condensate drain trap (8) to the manifold (7).



21

Manifold kit composition Ø 160 Victrix Pro V2 additional boiler 35-55-60-68-80 EU

Ref.	Qty	Description
9	1	Boiler connection DN80
10	1	Clapet DN80
11	1	Boiler manifold DN160

4.4 ASSEMBLY OF ADDITIONAL BOILER MANIFOLD KIT FOR VICTRIX PRO V2 100-120 EU

The extension kits make it possible to complete cascade installation, and you must have one for each boiler being connected, according to figure 21 (max of 5 boilers in cascade).

Replace the intake closing cap on the boiler with the intake stub kit (1).

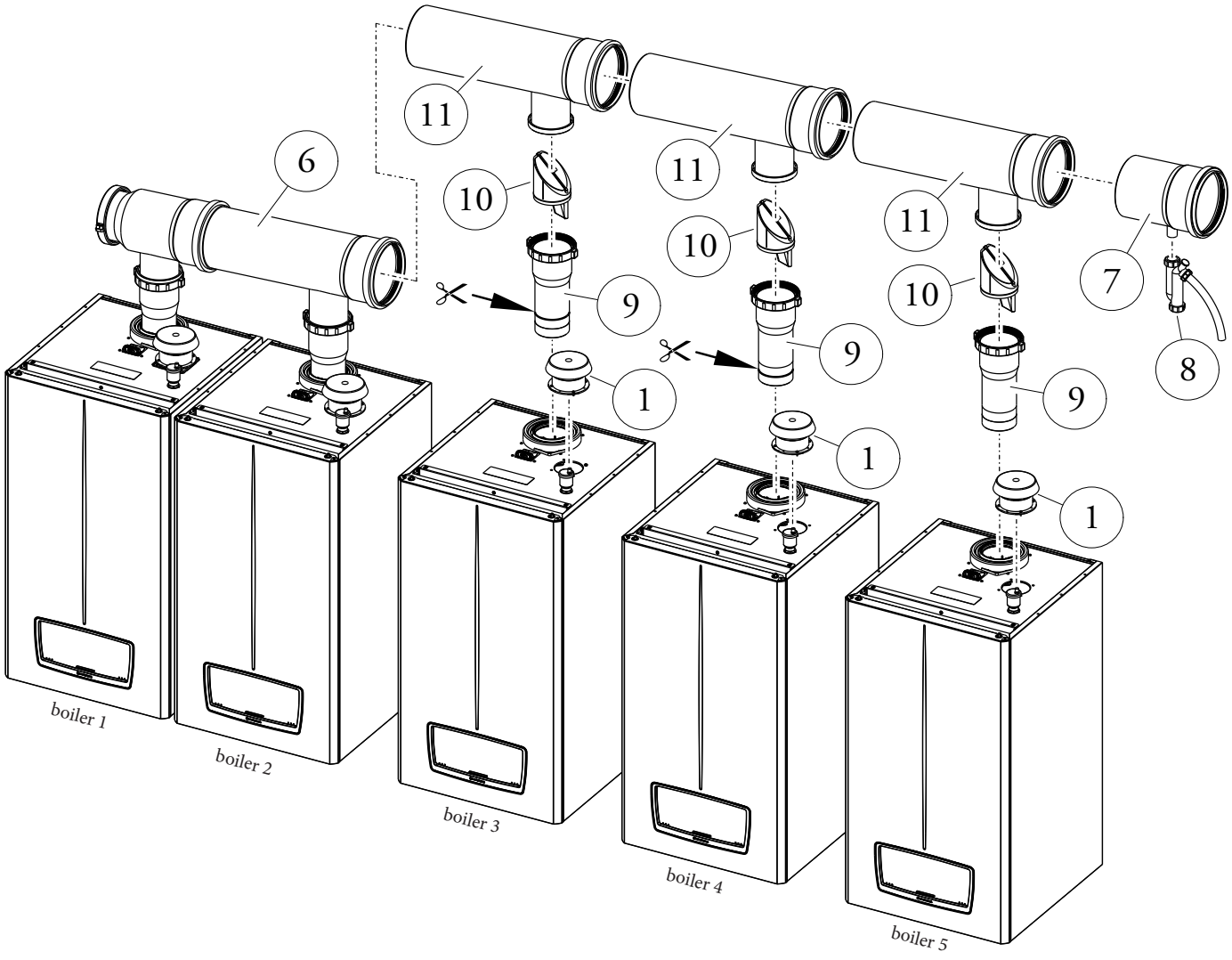
To make the connections (9) as shown in the figure according to the position of the boiler.

Then engage them on the boiler until they are to the end stop, taking care to correctly orientate the clapet valve (10)

Connect the additional boiler manifolds (11) to the relative connections (9) and tighten the ring nut of each connection.

Connect the manifold with condensate drain (7) to the manifold (11).

Now connect the condensate drain trap (8) to the manifold (7).



Manifold kit composition Ø 200 Victrix Pro V2 100-120 EU additional boiler

Ref.	Qty	Description
9	1	Boiler connection DN110-125
10	1	Clapet DN125
11	1	Manifold DN200

22

4.5 ASSEMBLY OF ADDITIONAL BOILER MANIFOLD KIT FOR VICTRIX PRO V2 150 EU

The extension kits make it possible to complete cascade installation, and you must have one for each boiler being connected, according to figure 22 (max of 5 boilers in cascade).

Replace the intake closing cap on the boiler with the intake stub kit (1).

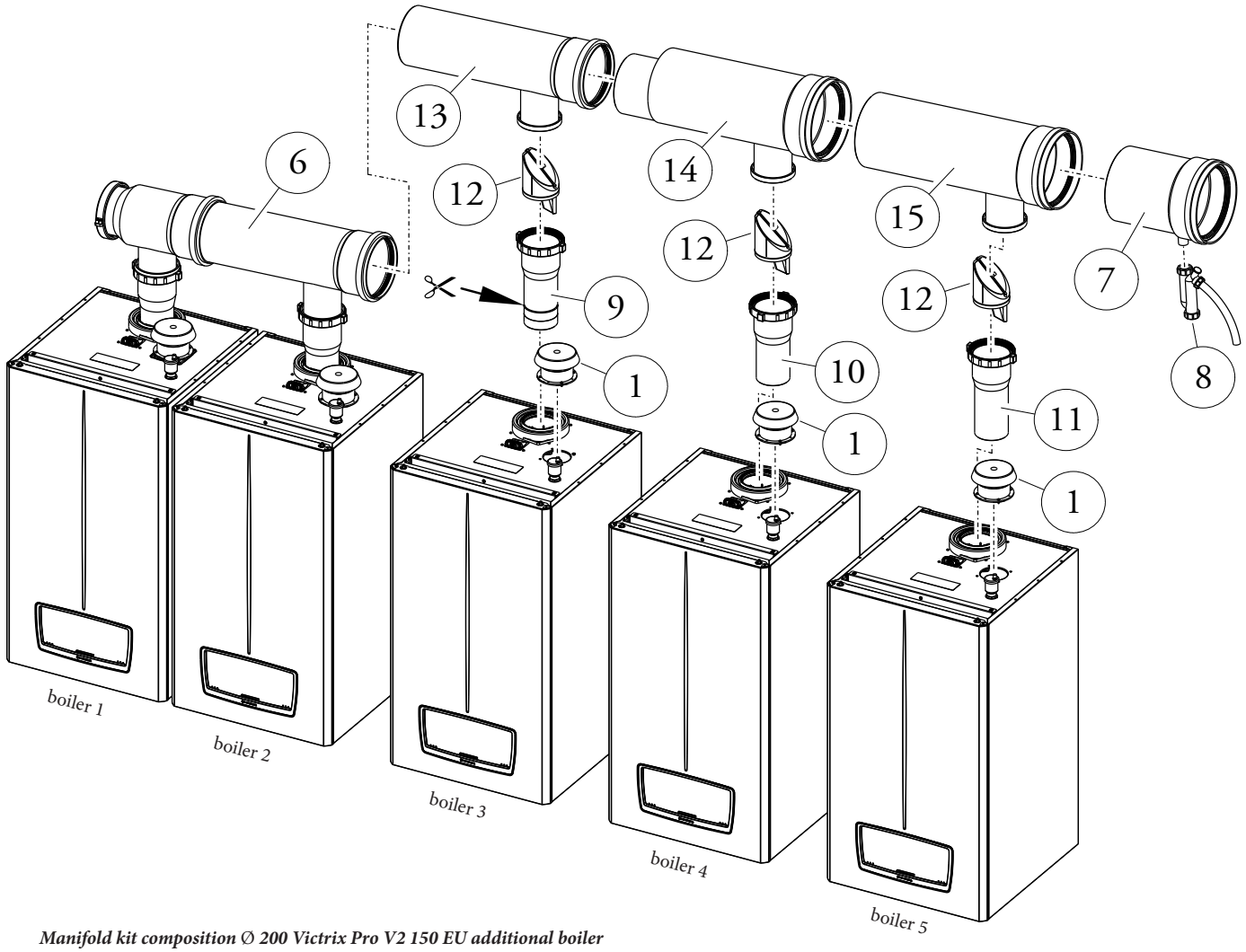
Cut off the connection (9) as shown in the figure and engage it on the third boiler, bringing it to a stop.

Next, engage the other connections (10) and (11) on the respective boilers to the end stop, taking care to orientate the clapet valve (12) correctly

Connect the additional boiler manifold (13) to the manifold (6) and then to the connection (9); the manifold (14) to the manifold (13) and then to the connection (10), the manifold (15) to the manifold (14) and then to the connection (11) and tighten the ring nut of each connection.

Connect the manifold with condensate drain (7) to the manifold (15).

Now connect the condensate drain trap (8) to the manifold (7).



23

Manifold kit composition Ø 200 Victrix Pro V2 150 EU additional boiler

Ref.	Qty	Description
9	1	Boiler connection DN110-125
12	1	Clapet DN125
13	1	Manifold DN200

Manifold kit composition Ø 250 additional boiler for Victrix Pro V2 150 EU (boiler no. 4)

Ref.	Qty	Description
10	1	Boiler connection DN110-125 (4th boiler)
12	1	Clapet DN125
14	1	Manifold DN200-250 (4th boiler)

Manifold kit composition Ø 250 additional boiler for Victrix Pro V2 150 EU (boiler no. 5)

Ref.	Qty	Description
11	1	Boiler connection DN110-125 (5th boiler)
12	1	Clapet DN125
15	1	DN250 manifold (5th boiler)

5 CASCADE ELECTRICAL CONNECTIONS

The cascade can be managed via communication BUS (cascade and zone regulator and simple cascade) as shown in the diagrams below.

5.1 SIMPLE CASCADE

By connecting several appliances via BUS (already available on individual appliances), a simple cascade can be created. Each request alternates the sequence in which the appliances are ignited. The amount of activated appliances and their power is managed according to the needs of the system.

For more details see the wiring diagrams on the following pages.

Make the BUS connection as shown in the diagram (Fig. 34).
A system flow probe is required in this configuration, see relative example installation wiring diagrams.

If you want to set a DHW-only hydraulic configuration (DHW pump), the system flow probe must also be set for heating in any case (on the Master unit see Technician/Hydraulic settings/System probe menu) otherwise error 89 will appear on the display.
The DHW-only setting for the system flow probe can only be implemented with the single unit.

If the system flow probe fails, the system will still function but with reduced performance (the flow probe of the pin appliance is taken as the reference for cascade operation).
The corresponding error will also be shown on the display.

To avoid wear and tear on the Master appliance, the ignition sequence of the appliances is alternated automatically. The appliance that activates first in the sequence is referred to as 'Pin'.

The ignition sequence of the appliances is different depending on whether there is a demand for domestic hot water or central heating.
In the case of a central heating demand, the first appliance is switched on and if necessary (Pin appliance), the others in sequence, running them all at the same power after the first period after the ignition cycle.
The sequence of switching off the appliances is the reverse of the one just described.
In the case of domestic hot water demand, the system switches on all appliances in rapid sequence, making them all operate at the same power.

The activation/deactivation sequence of the appliances is managed by the control algorithm and the parameters contained in the cascade menu.

Should one or more Slave appliances fail, the Master appliance automatically operates the remaining Slaves. In the event of a fault in the Master unit, simple cascade operation is not always guaranteed.
However, it is possible (after modification of the BUS and electrical connections), to assign the role of Master to one of the working Slaves, repeating the auto-detection function from the 'new' Master appliance.

In order for the system to recognise the appliances in simple cascade (after the electrical connections have been made), it is necessary to run auto-detection from the Master appliance (found in the technician/cascade menu).

- **Single appliance anti-freeze protection**

The boiler anti-freeze protection parameters (see boiler manual), are set by Master and are used by each individual appliance.
Each individual appliance in the cascade can activate its own anti-freeze protection function, which then works independently of the other appliances.
Activation of the anti-freeze protection for one or more appliances is indicated on the Master's main screen as if it were a heating request, while 'Frost protection' appears in the menu/boiler status.

This protection does not activate the pumps after the hydraulic circuit breaker but only activates the booster pump.

- **Parameter configuration**

Parameter customisation should be done from the Master appliance and only after auto-detection (see section 5.2), with Slave appliances switched on.
During parameter customisation, some parameters are also changed (synchronised) in the Slave appliances (see tables in sections 5.6 and 5.7 Synchronisation column and paragraph 3.3 under, Single parameter synchronisation). Not all parameters synchronised on the Slaves are used by the Slaves themselves.
An example of parameters synchronised and used on the Slaves are the language and the unit of measurement. These parameters are not present in the menu of the Slave appliances, which is why, when changing these parameters on the Master appliance, they are also changed on the Slave appliances.
These parameters mentioned above (as well as all custom parameters that can be synchronised), can however be updated, and thus synchronised, at a later time (see paragraph 5.3).
Certain parameters can be changed on each individual Slave.

At the end of parameter customisation on the Slaves, it is normal for the Master appliance to temporarily present error 99.
This is due to the updating of parameters on the Slave appliance (see paragraph Control panel in the boiler manual).

- **Re-configuring an appliance as single**

If a Master or Slave appliance is to be switched back to a single appliance, follow the procedure outlined in section 5.2.

The single unit is still referred to as Master.

After configuring the appliance as an individual, it may be necessary to modify those previously customised parameters and then return them to their initial conditions. In this case, apply the reset settings function.
After performing the reset function, it is however important, to check that the factory pre-set parameters for the appliance (e.g. fan speed) are respected (see boiler manual).

All electrical connections of sensors, circulators, valves, thermostats (heating and DHW) must be made on the Master appliance.

In this configuration, the cascade and zone regulator cannot be combined with the system.

Appliances in simple cascade must be of the same output and modulation range.

5.2 AUTO-DETECTION

This function allows you to configure the appliances in cascade in the case of a simple cascade installation then to assign the Master and Slave roles to the appliances in addition, to return to a single configuration from simple cascade.

Ensure that the communication BUS for simple cascade has been connected as in the diagram in Fig. 33.

The Master appliance in the cascade configuration and the Master appliance in the single appliance configuration differ in that auto-detection was performed in the two different contexts.

- **Cascade configuration**

In order to assign the role in the cascade of the individual appliances, switch them on (if the appliances have been on for more than 5 minutes, they must be switched off and on again), access the Technician/Cascade/Automatic Detection menu from the Master appliance.
Master is directly displayed on the Master appliance (if not, use the menu scroll buttons to select Master, then confirm with the 'OK' button).
Within 1 minute the Slave appliances, will present the menu for role assignment, then assign the role to each individual Slave appliance (the role assignment numbering, must necessarily be consecutive starting with 1).
Only at this point is it possible to give the OK to the Master appliance, thus starting the auto-detection which lasts approximately 2 minutes.
Ensure that the Master appliance has detected the total number of appliances in simple cascade (Master+Slave).
If the number of detected appliances is correct, auto-detection is finished, then confirm with the 'OK' button on the Master boiler.
Finally, wait for the parameter update phase to finish.
If, on the other hand, the total number of appliances in simple cascade is incorrect, press a button other than 'OK' on the Master appliance, the 'OK' button on the Slave appliance, and then repeat the above procedure.
At this point, error 89 is displayed, which indicates that the system flow probe (system probe) remains to be set.
If the system flow probe is defective (see errors 91, 92 in the boiler manual), the system will still function but with reduced performance.

The successful assignment of roles is displayed on the main screen.

However, the procedure can be repeated.

If, when assigning the role to the Slave appliance, a double confirmation (OK) is erroneously given, simply wait for the role assignment screen to reappear. This also applies in the event that the role was incorrectly assigned to the Slave and you wish to correct it without repeating the procedure from the beginning.

- **Single appliance configuration**

If you want to revert to single appliance configuration, you must switch off all other appliances and then repeat the auto-detection procedure, making sure to set it as Master. In this case, the total number of recognised appliances must be equal to 1 (recognition correctly as a single appliance).
Once the appliance has been configured as a single appliance, the Reset Settings function can help to reset many parameters previously modified from Simple Cascade to default values

If one or more Simple Cascade appliances have been configured as single, it is assumed that the Simple Cascade communication BUS is removed for their operation

5.3 RESTORE SETTINGS AND PARAMETER SYNCHRONISATION

Parameter reset, returns the parameters in the Master appliance to their factory settings (or to a set value) (see Restore settings column in the boiler manual) and at the same time, synchronises the parameters in the Slave appliances (see synchronisation column in the tables below).
There are also two separate synchronisation functions for setting parameters from Master to Slave appliance(s):
- Parameter synchronisation
- Single parameter synchronisation

For synchronisable parameters, see the Synchronisation column in the Slave appliances tables.

Before performing synchronisation operations, make sure that the cascade has been correctly detected by the Auto-detection function and that all boilers are switched on. This operation can only be performed from the Master appliance.

- **Parameter synchronisation**

This function is used, after the replacement of one or both boards of the Slave appliance, to quickly configure parameters.
On the Master appliance in the Technician/Cascade/Parameter Synchronisation Menu, there is the parameter to perform parameter synchronisation.
This function causes certain parameters on the Master appliance to be changed in the Slave appliance(s). Some parameters are synchronised on the slave appliance(s) but are not visible in the relative menu (visible when the appliance is configured as a single appliance). The list of synchronisable parameters can be seen in the Synchronisation column of the Slave menu table.

- **Single parameter synchronisation**

The parameters in the Synchronisation column of the Slave menu table are automatically changed on the Slave appliance(s) if they are changed on the Master appliance.
This function causes certain parameters on the Master appliance to be modified in the Slave appliance(s), for correct operation of the simple cascade. Some parameters are synchronised on the slave appliance(s) but are not visible in the relative menu (visible when the appliance is configured as a single appliance).

Some synchronisable parameters can be customised on the individual Slave appliance, however customisation is lost if one of these parameters is changed again by the Master appliance or the 'Parameter Synchronisation' function is activated.

5.4 CONFIGURABLE RELAYS

- **Booster relays**

The booster pump function can only be configured on the main board of the Slave appliances, while it can be configured on both boards of the Master appliance.
This relay can be used to signal boiler pump activity (must be configured for each individual appliance in the cascade).

- **Error relay**

The relay programmed as an error, adopts a different behaviour from Master and Slave appliances, but, there is no difference if programmed on the electronics board or display board.
The relay programmed on Master appliance is activated when there are errors in any appliance in the cascade.
The relay programmed on the Slave appliance is activated if there are errors on the Slave appliance itself.

The error display is present on the Master appliance even if caused by the Slave appliance, while in the error history, each appliance records its own errors.

- **Burner relay on**

The relay programmed as ignited burner, adopts a different behaviour from Master and Slave appliance and if programmed on the Master appliance's electronic board or display board.
The relay programmed on the Master or Slave circuit board shows the burner status of the appliance itself.
The relay programmed on the display board of the Master appliance, highlights the burner status of any appliance in the cascade.
The relay programmed on the display board of the Slave appliance shows the status of the appliance's burner.

On the main screen, the flame symbol represents the burner status of the appliance itself (the Master appliance does not replicate the burner status of Slave appliances).

5.5 CASCADE TECHNICIAN MENU (MASTER)

To access the technician menu, enter the password '123' using the '+' and '-' buttons, pressing 'OK' with each digit entered.

For the menus in the Master appliance, see the boiler manual, with the exception of the cascade menu, which is explained in more detail below.

TECHNICIAN/Cascade Menu	
1.	Settings
2.	Single burner power
3.	Autodetect
4.	Parameter synchronisation

TECHNICIAN/Cascade/Settings Menu						
Menu item		**Description**	**Range**	**Default**	**Reset Settings**	**Customised value**
1.	Activation and deactivation delay	This parameter is used to set the activation delay for all appliances except the pin appliance. The ignition delay of the appliances is not only given by this parameter but also by the regulating algorithm.	0 - 255 (s)	30 (s)	Yes	
2.	KI factor compensation	This parameter slows down the integral part of the control algorithm. If the activation of the appliances after the pin appliance is too slow, lower this value (the use of the 'Activation and deactivation delay' parameter is preferable in any case).	0 - 255 (s)	30 (s)	Yes	
3.	PI loop period	This parameter indicates how often the calculation of the control algorithm is performed. A lower value makes the system faster but also more unstable, while a higher value makes the system more stable but less responsive to changes.	1 - 15 (s)	5 (s)	Yes	
4.	Boiler for DHW	Attention, do not change this parameter.	0 - 6	0	Yes	
5.	Heterogeneous power with domestic hot water boiler	Attention, do not change this parameter.	Disabled - Enabled	Disabled	Yes	

TECHNICIAN/Cascade/Single burner power menu						
Menu item		**Description**	**Range**	**Default**	**Reset Settings**	**Customised value**
1.	Maximum	Defines the maximum effective power of the individual appliance. This parameter is used within the control algorithm. If the maximum power is changed via the 'Maximum power' parameters (DHW and heating), this parameter should not be adjusted, as depowering acts at the cascade level and not at the individual appliance level. If the maximum fan speed is changed, this parameter must be adjusted to the new maximum power obtained.	0 - 255 (kW)	Factory preset (See boiler booklet)	No	
2.	Minimum modulation level	Defines the actual modulation ratio of the individual appliance. This parameter is used within the control algorithm. If the maximum power is changed via the "Minimum power" parameters (DHW and heating), this parameter should not be adjusted, as the change in power acts at the cascade level and not at the individual appliance level. If the minimum fan speed is increased, it may be necessary to adjust this parameter. **Note:** with collective flue system use, the minimum fan speed is increased to bring the individual appliances to the minimum flow rate as per the data sheet; in this case this parameter should not be adjusted.	0 - 100 (%)	Factory preset (See boiler booklet)	No	

TECHNICIAN/Cascade/Automatic detection Menu
The function called up by this parameter is used to detect the number of appliances in cascade. This function can also be used to set a Master or Slave appliance as a single appliance. See section 'Auto-detection' for more details.

TECHNICIAN/Cascade/Parameter synchronisation menu
WARNING: read and understand what is stated in the "Parameter Synchronisation" section before performing this operation. This function synchronises the parameters of the Master appliance on the Slave appliance(s) according to the tables in the Slave appliance menu.

5.6 TECHNICIAN MENU (SLAVE)

TECHNICIAN Menu	
1	Hydraulic settings
2	Heating settings
3	DHW settings
4	System settings
5	Diagnostics
6	Cascade

TECHNICIAN/Hydraulic settings/Relay settings menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	K70-A1	Each relay has a dedicated parameter to determine its operation (see paragraph 5.4). **N.B.**: the first five relays are on the P.C.B., while the other two are on the display board.	Relay not used Booster pump Error Burner on	Relay not used	No	
2.	K70-A2				No	
3.	K70-A3				No	
4.	K70-A4				No	
5.	K70-A5				No	
6.	K70-A6		Relay not used Error Burner on		No	
7.	K70-A7				No	

TECHNICIAN/heating settings menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Post pump time	To set the heating pump delay time.	0 - 20 (min) *	3 (min) *	Yes	
* 0 = Off						

TECHNICIAN/DHW settings menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Post pump time	Sets the pump post-circulation time in domestic hot water seconds.	0 - 59 (s) *	0 (s) *	Yes	
2.	Post pump time	Sets the pump post-circulation time in domestic hot water minutes.	0 - 30 (min) *	1 (min) *	Yes	
* 0 = Off						

TECHNICIAN/System settings menu	
1.	Fan parameters
2.	Pump parameters
3.	T delta parameters
4.	Decreasing slope
5.	User interface settings
6.	Anti-humidity settings

TECHNICIAN/System settings/Fan parameters menu						
Menu item		**Description**	**Range**	**Default**	**Synchronisation**	**Customised value**
1.	Ignition speed *	To set the speed used during burner ignition.	750 - 6750 (rpm)	See boiler manual and table chapter 2 of this manual	No	
2.	Maximum speed **	This defines the max fan speed and therefore the maximum relative boiler operating power.	Minimum speed - 12750 (rpm)	See boiler booklet	No	
3.	Minimum speed ***	This defines the max fan speed and therefore the minimum relative boiler operating power.	Maximum speed - 12750 (rpm)	See table chapter 2 of this booklet	No	
4.	Post-purge speed	Defines the fan speed in the post-purge phase.	0 - 12750 (rpm)	See boiler booklet	No	
* This parameter can be stored at a value greater than the maximum speed and less than the minimum speed, but functionally, it will be limited by these two parameters.						
** When changing the value, it is possible to exceed the limit set by the minimum speed parameter, but when confirming, the previously stored value is retained.						
*** When changing the value, it is possible to exceed the limit set by the maximum speed parameter, but when confirming, the previously stored value is retained.						

TECHNICIAN/System settings/Pump parameters menu						
Menu item		**Description**	**Range**	**Default**	**Synchronisation**	**Customised value**
1.	Feedback	Disabled = pump feedback is not used Enabled = pump feedback is used.	Disabled - Enabled	Enabled	No	
2.	Feedback signal type	PWM = the pump feedback signal is a PWM-based signal - selectable between Wilo and Grundfos. RELAY = the pump feedback signal is a dry contact REAY (ON/OFF) signal.	PWM - Relay	See boiler booklet	No	
3.	Pump minimum speed	Defines the minimum pump speed expressed as a percentage (do not go below the default value).	1 - 100 (%)	See boiler booklet	No	
4	Maximum pump speed	Defines the maximum pump speed expressed as a percentage.	1 - 100 (%)	See boiler booklet	No	
5.	Pump start speed	Defines the speed of the circulator during the burner ignition phase (do not go below the default value).	1 - 100 (%)	See boiler booklet	No	

TECHNICIAN/System settings/Delta T parameters menu						
Menu item		**Description**	**Range**	**Default**	**Synchronisation**	**Customised value**
1.	Pump control	The pump speed increases in order not to exceed the value set in this parameter.	1 - 30 (°C)	See boiler booklet	No	
2.	Power control	The boiler output is reduced not to exceed the value set in this parameter (Caution, do not change this parameter).	0 - 60 (°C)	See boiler booklet	No	

TECHNICIAN/System settings/Decreasing slope menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Power threshold	The decreasing slope is a power value that triggers the protection. Below this value, the boiler output is reduced by 1% per time period	0 - 100 (%)	See boiler booklet	No	
2.	Step time	Defines the Time [0.2s] for a step during the descent of the slope	0 - 255 (s)	See boiler booklet	No	
3.	Decreasing slope time	Duration of rapid power variation after burner ignition	0 - 10 (min)	See boiler booklet	No	

TECHNICIAN/System Settings/User Interface Settings menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Standby backlighting	Standby backlight level. Add text warning: 'keep backlight level below 30% to reduce display degradation'.	30 - 100 (%)	See boiler booklet	No	
2.	Backlight	Active backlight level.	30 - 100 (%)	See boiler booklet	No	
3.	Display contrast	Defines the contrast of the LCD panel.	0 - 511	See boiler booklet	No	

TECHNICIAN/System settings/Anti-humidity settings menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Anti-humidity functions	Enables the 'Function' of the heat exchanger.	OFF - ON (min)	See boiler booklet	Yes	
2.	Fan speed	Defines the fan speed during this “Function”.	0 - 12750 (rpm)	See boiler booklet	Yes	
* 0 = Off						

TECHNICIAN/Diagnostics Menu		
Menu item		Description
1.	Boiler status	A new screen with the boiler status will open.
2.	System information	Shows a list of information about the installation.
3.	Log of errors	Shows a list of recent errors. Pressing OK on the highlighted error will open a new screen containing details of the boiler status when the error occurred.
4.	Boiler statistics	Shows a list of statistics.
5.	Firmware release	Shows which firmware version is currently installed on the boards.

TECHNICIAN/Diagnostics/Boiler Status menu	
Slave operation	Displayed in simple cascade mode (only on slave boilers).

TECHNICIAN/Diagnostics/System Information menu		
Menu item		**Description**
1.	Flame current *	Value in μA.
2.	Actual fan speed	Real-time fan speed (rpm).
3.	Required fan speed	Fan setpoint (rom).
4.	Modulation level *	Effective burner output value (%).
5.	Boiler setpoint *	Temperature value calculated by the system (°C) **.
6.	CH setpoint *	Required temperature value during heating (°C) **.
7.	DHW setpoint *	Required temperature value in DHW phase (°C) **.
8.	Boiler flow temperature *	Temperature value measured by the system flow regulation probe (°C).
9.	Return temperature *	Temperature value measured by the system return control probe (°C).
10.	Flue gas temperature *	Temperature value measured by the flue probe (°C).
11.	Flue temperature threshold	Error intervention threshold when the value detected by the flue probe is exceeded (high flue temperature limit) (Error code 84).
12.	External temperature *	Temperature value measured by the external probe (°C) **.
13.	Boiler temperatures *	Temperature value measured by the DHW probe (°C) **.
14.	System temperature *	Temperature value measured by the system-side flow probe (°C) **.
15.	Mixed zone temperature *	Temperature value measured by the low temperature flow probe (°C) **.
16.	Mixed zone setpoint	Required temperature value for the low-temperature zone (°C) **.
17.	Water pressure *	Pressure value measured by the pressure transducer (bar).
18.	Pump speed	Real-time pump speed (%).
19.	Pump feedback	Pump status (%).
20.	Number of burners	Number of appliances installed (1 = single boiler) **.
21.	Cascade role	Role of the appliance in the simple cascade (Master if single appliance or if simple cascade Master appliance, Slave if simple cascade Slave appliance followed by the number assigned during cascade configuration).
22.	Number of burners ON	Number of burners on **.
23.	Cascade modulation level	Effective power value of the simple cascade (%) **.
24.	Input 0/10V	Voltage value at the 0-10V input.
* When a line has a "*" at the end, pressing OK when the line is highlighted will open a graph showing the last 120 variable values stored every 12 minutes (24-hour history). The sample will not be averaged over the 12-minute period.		
** Valid only for Master and single appliance.		

TECHNICIAN/Cascade Menu	
1.	Single burner power
2.	Autodetect

TECHNICIAN/Cascade/Single burner power menu						
Menu item		**Description**	**Range**	**Default**	**Synchronisation**	**Customised value**
1.	Maximum	Defines the maximum effective power of the individual appliance. This parameter is used within the control algorithm. If the maximum power is changed via the 'Maximum power' parameters (DHW and heating), this parameter should not be adjusted, as depowering acts at the cascade level and not at the individual appliance level. If the maximum fan speed is changed, this parameter must be adjusted to the new maximum power obtained.	0 - 255 (kW)	Factory preset (See boiler booklet)	No	
2.	Minimum modulation level	Defines the actual modulation ratio of the individual appliance. This parameter is used within the control algorithm. If the maximum power is changed via the "Minimum power" parameters (DHW and heating), this parameter should not be adjusted, as the change in power acts at the cascade level and not at the individual appliance level. If the minimum fan speed is increased, it may be necessary to adjust this parameter. **Note:** with collective flue system use, the minimum fan speed is increased to bring the individual appliances to the minimum flow rate as per the data sheet; in this case this parameter should not be adjusted.	0 - 100 (%)	Factory preset (See boiler booklet)	No	

TECHNICIAN/Cascade/Automatic detection Menu
The function called up by this parameter is used to set the role of the Slave appliance in cascade, although normally this menu is opened automatically by activating this function from Master. This function can also be used to set a Master or Slave appliance as a single appliance. See section 'Auto-detection' for more details.

5.7 USER MENU (SLAVE)

The following parameters are displayed in cascade installation on the Slave appliance(s), i.e. the one(s) following the first boiler (Master).

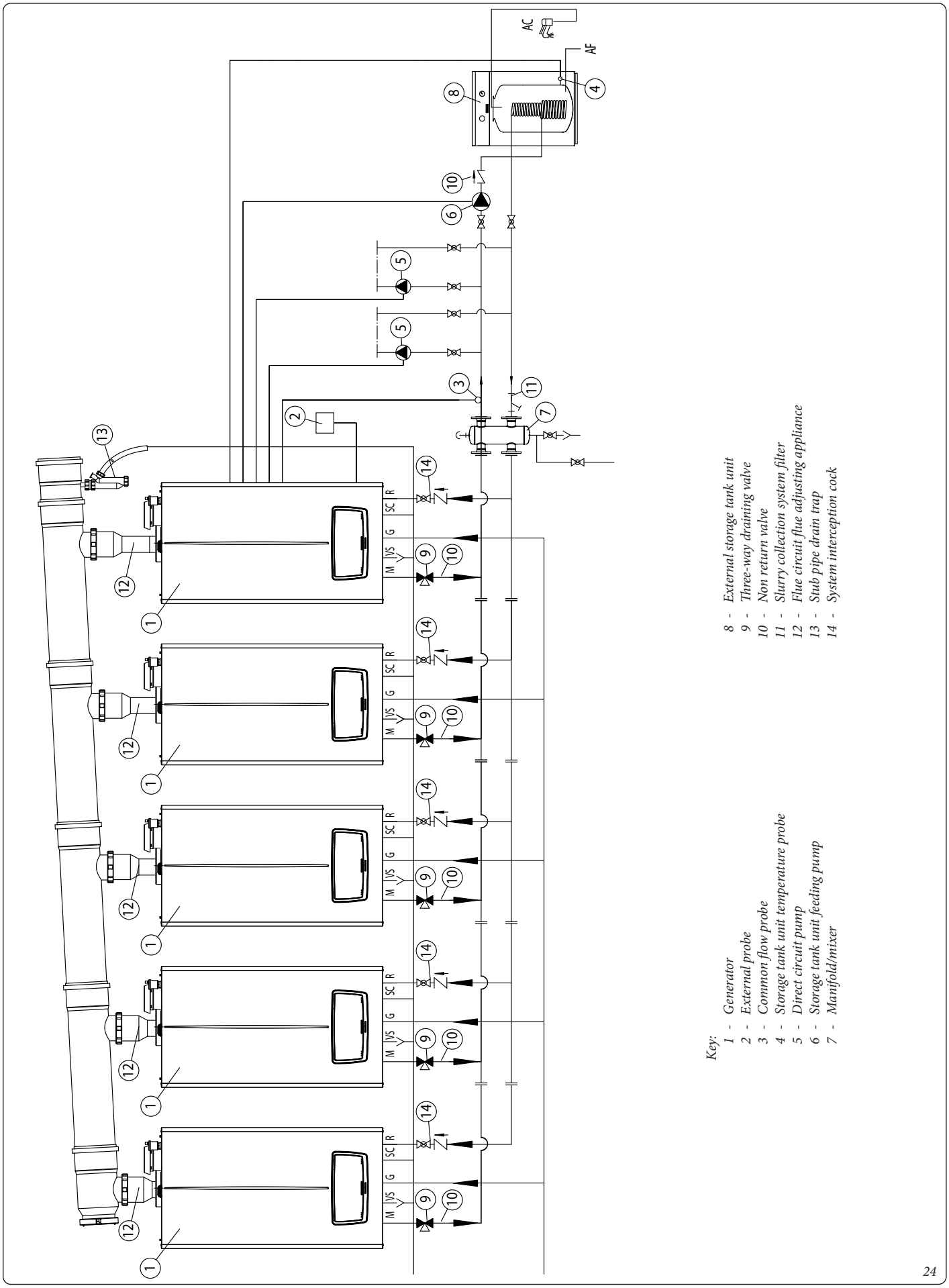
USER menu	
1	Settings
2	Diagnostics

USER/Settings Menu						
Menu item		Description	Range	Default	Synchronisation	Customised value
1.	Standby backlighting	Standby backlight level. Add text warning: 'keep backlight level below 30% to reduce display degradation'.	30 - 100 (%)	See boiler booklet	No	
2.	Backlight	Active backlight level.	30 - 100 (%)	See boiler booklet	No	
3.	Display contrast	Defines the contrast of the LCD panel.	0 - 511	See boiler booklet	No	

USER/Diagnostics menu		
Menu item		Description
1.	Boiler status	A new screen with the boiler status will open.
2.	System information	Shows a list of information about the installation.
3.	Log of errors	Shows a list of recent errors. Pressing OK on the highlighted error will open a new screen containing details of the boiler status when the error occurred.
4.	Boiler statistics	Shows a list of statistics.
5.	Firmware release	Shows which firmware version is currently installed on the boards.

For Boiler Status and System Information see chapter Technician Menu (Slave).

5.8 INSTALLATION DIAGRAM VICTRIX PRO V2 IN SIMPLE CASCADE TWO DIRECT HEATING ZONES WITH DHW TANK



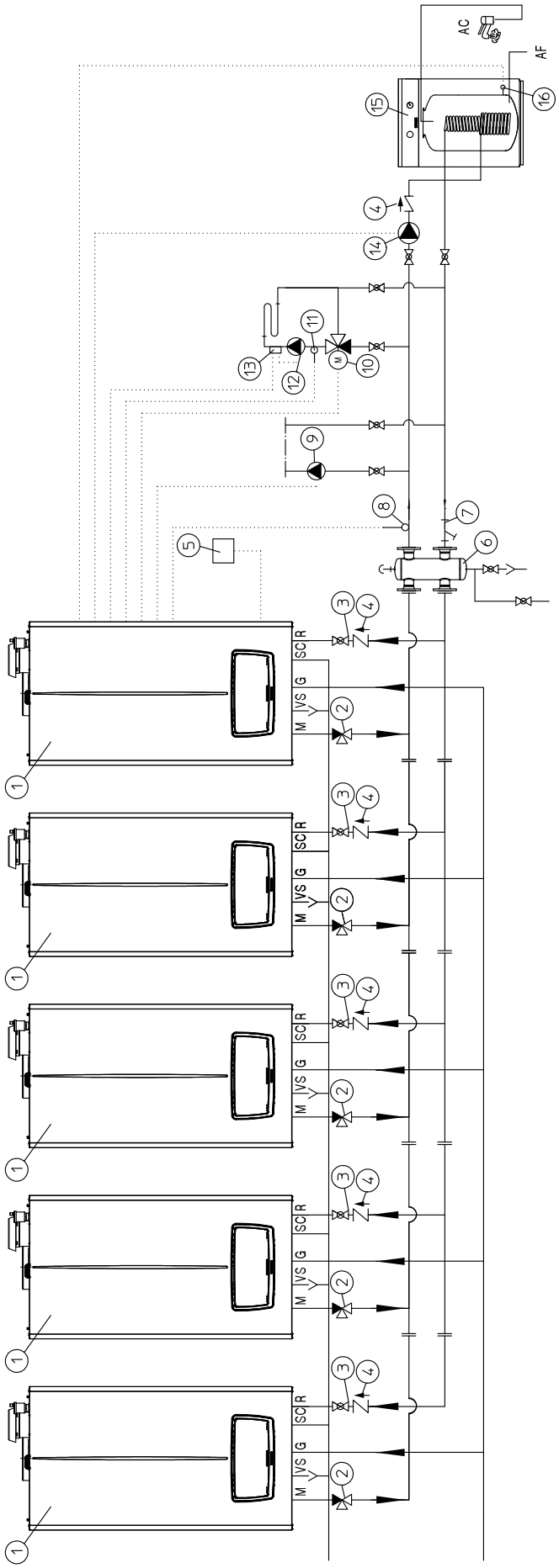
Key:

1 - Generator
2 - External probe
3 - Common flow probe
4 - Storage tank unit temperature probe
5 - Direct circuit pump
6 - Storage tank unit feeding pump
7 - Manifold/mixer
8 - External storage tank unit
9 - Three-way draining valve
10 - Non return valve
11 - Slurry collection system filter
12 - Flue circuit flue adjusting appliance
13 - Stub pipe drain trap
14 - System interception cock

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5.9 INSTALLATION DIAGRAM VICTRIX PRO V2 IN SIMPLE CASCADE ONE DIRECT CENTRAL HEATING ZONE AND ONE MIXED HEATING ZONE WITH DOMESTIC HOT WATER BOILER



Key:

1 - Generator
2 - Three-way draining valve
3 - System interception cock
4 - Non return valve
5 - External probe
6 - Manifold/mixer
7 - Slurry collection system filter
8 - Common flow probe
9 - Direct circuit pump
10 - Mixing valve
11 - Pressure gauge
12 - Manual reset minimum pressure switch
13 - Safety thermostat
14 - Storage tank unit feeding pump
15 - External storage tank unit
16 - Storage tank unit temperature probe

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5.10 TABLES AND NOTES COMMON TO SIMPLE CASCADE WIRING DIAGRAMS

The tables and notes in this paragraph apply to the diagrams in Fig. 26-27-28-29-30-31-32-33.

- **Type and size of connecting cables**

ELECTRICAL CONNECTIONS (SIGNALS)				
Components	Cable gauge (mm^2)		Cable diameter (mm)	Maximum length (m)
	minimum	maximum		
• B1-2 • B2 • B3 • S50 • 0-10V	0.5	1.5	5 - 7	25 (2x25)
• B4 • S20-1 • S20-2 • OpenTherm				50 (2x50)
• External reset				10 (2x10)
• A27	J-Y(ST)Y 2x0,6			50 (2x50)

Note: Screw terminal blocks for electrical connection (loads) accept a maximum cable gauge of 1.5 mm^2 and a minimum of 0.5 mm^2.

- **Maximum loads on relays**

MAXIMUM LOADS ON RELAYS OF BOARDS A2 AND A4				
Multifunction relay	Voltage	Current	Cosφ	Maximum length (m)
K70-A2/K70-A3 K70-A4/K70-A5 K70A1	230 Vac	< 0.1 A	≥ 0.6	From factory settings, K70 relays do not perform any functions. Insert an optional external relay to drive each load.
K70-A6/K70-A7	Potential-free contact (230 Vac MAX)	< 0.1 A	≥ 0.6	

- **Notes**

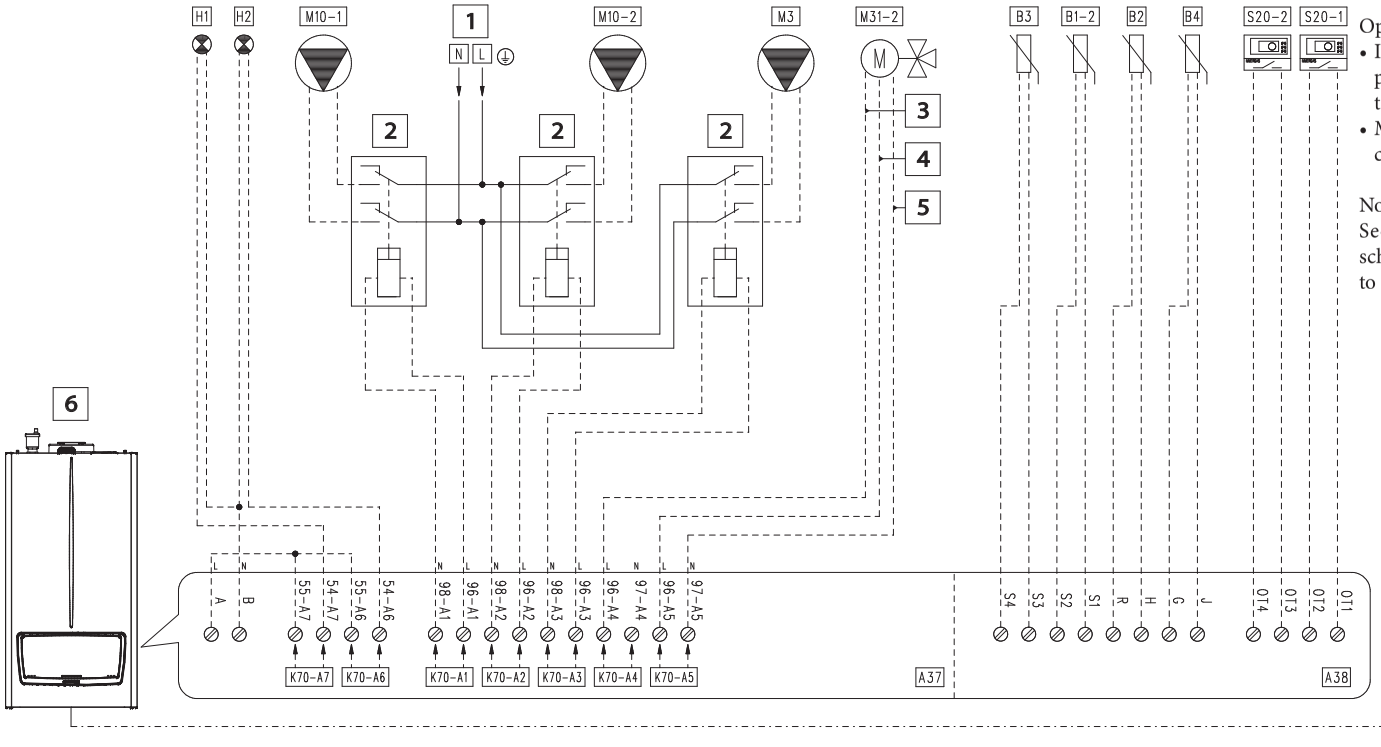
- the 'ERROR' signal lamp configured on any relay of the Master appliance is activated in the presence of faults detected along the Cascade;
- the 'Burner on' signal lamp configured on relays K70-A6 and K70-A7 of the Master boiler is activated when one or more burners are lit in the Cascade.

For more details on warning lights, see section 5.4.

Remove X40 bridge in case of connection:
- Cascade and zone regulator
- 0-10V
- BMS
- BUS OT
- Certain types of heating request ("Heating request type" parameter in the "Hydraulic settings" menu)

For low-temperature zones, insert a safety thermostat in series with the relative zone pump.

When configuring the mixing valve, use the relays on the main board (relays K70-A1 to K70-A5) or on the display board (relays from K70-A6 and K70-A7).
Do not use a relay on the main board and one on the display board.



OpenTherm:

- If an OpenTherm thermostat is used, set the parameter 'Heating request type' as 'Room thermostat setpoint';
- Make sure that the OpenTherm thermostat is compatible with the appliance.

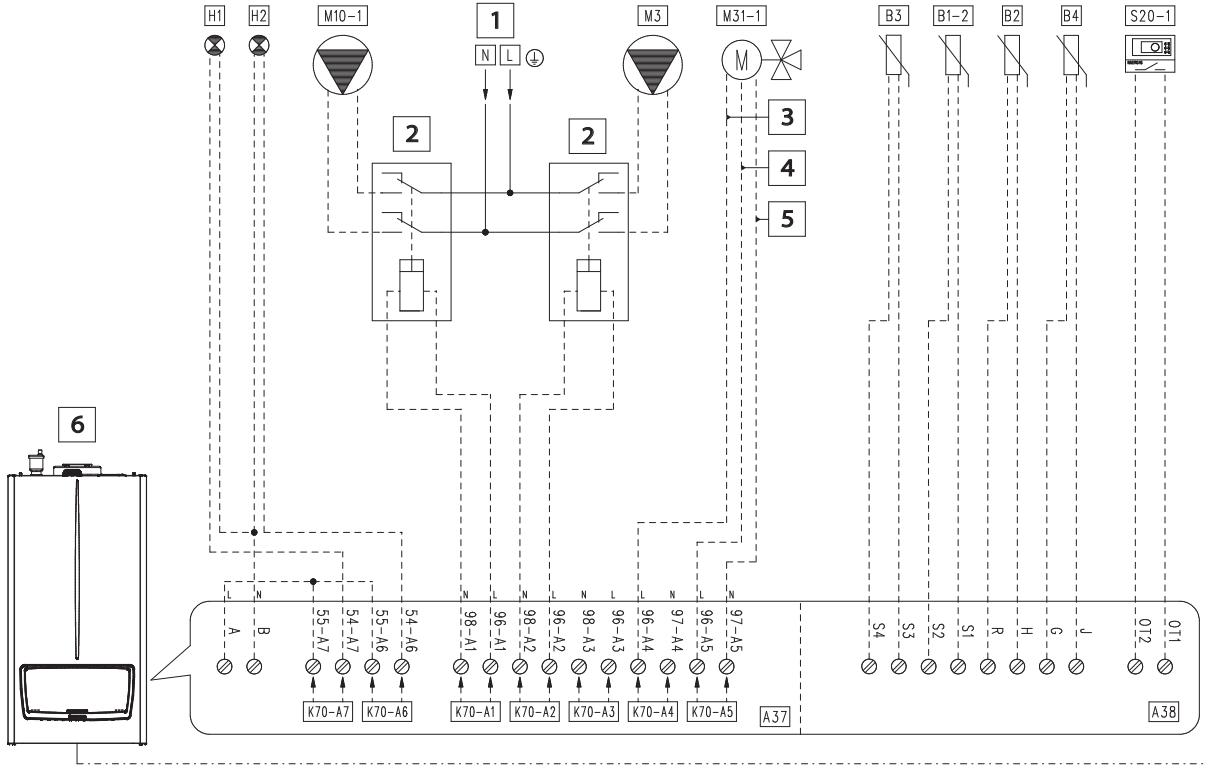
Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B3	-	*Low temperature flow sensor (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 pump (optional)*
M10-2	-	*Zone 2 circulator pump (optional)*
M31-2	-	*Zone 2 mixing valve (Optional)*
S20-1	-	*Zone 1 room thermostat (optional)*
S20-2	-	*Zone 2 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Close*
4	-	*Open*
5	-	*Common*
6	-	*Master appliance*
7	-	*Slave appliance (last boiler)*
8	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Zone 1 pump - Zone 2 pump - Domestic hot water pump: - Mixing valve: closes - Mixing valve: opens - Burner on - Error - not used
- System sensor	Heating + domestic hot water mode
"Mixed zone" submenu: - Mixed zone selection - Valve time	 - 2 - 150
- Type of heating request - DHW request type - Parallel mode	- Climatic curve outside temperature and room thermostat - Sensor - Disabled

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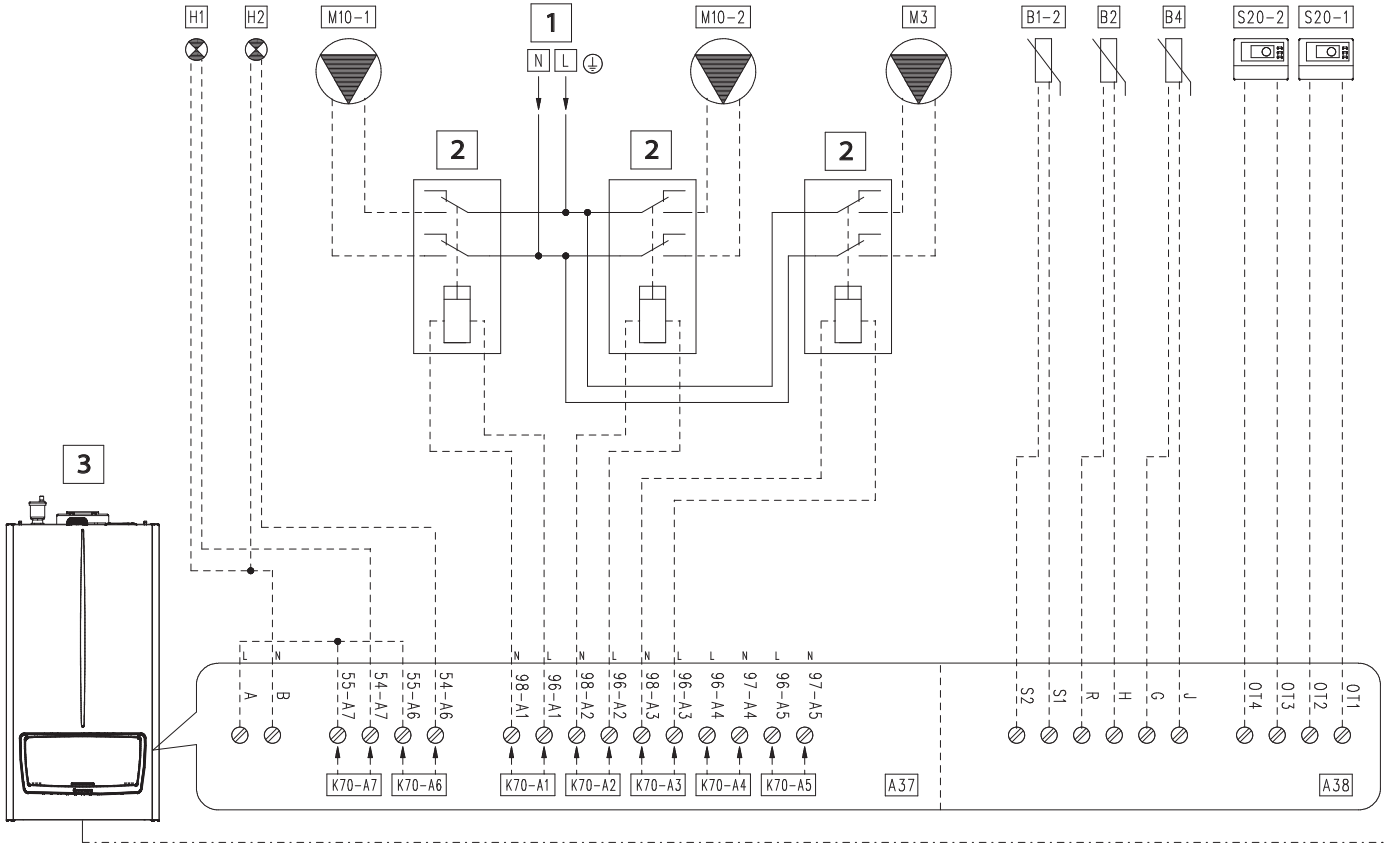
OpenTherm:
- If an OpenTherm thermostat is used, set the parameter 'Heating request type' as 'Room thermostat setpoint';
- Make sure that the OpenTherm thermostat is compatible with the appliance.

Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B3	-	*Low temperature flow sensor (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 circulator pump (optional)*
M31-1	-	*Mixing valve - zone 1 (optional)*
S20-1	-	*Zone 1 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Close*
4	-	*Open*
5	-	*Common*
6	-	*Master appliance*
7	-	*Slave appliance (last boiler)*
8	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Zone 1 pump - Domestic hot water pump: - Relay not used - Mixing valve: closes - Mixing valve: opens - Burner on - Error - not used
- System sensor	Heating + domestic hot water mode
"Mixed zone" submenu: - Mixed zone selection - Valve time	 - 1 - 150
- Type of heating request - DHW request type - Parallel mode	- Climatic curve outside temperature and room thermostat - Sensor - Disabled



OpenTherm:
Make sure that the OpenTherm thermostat is compatible with the appliance

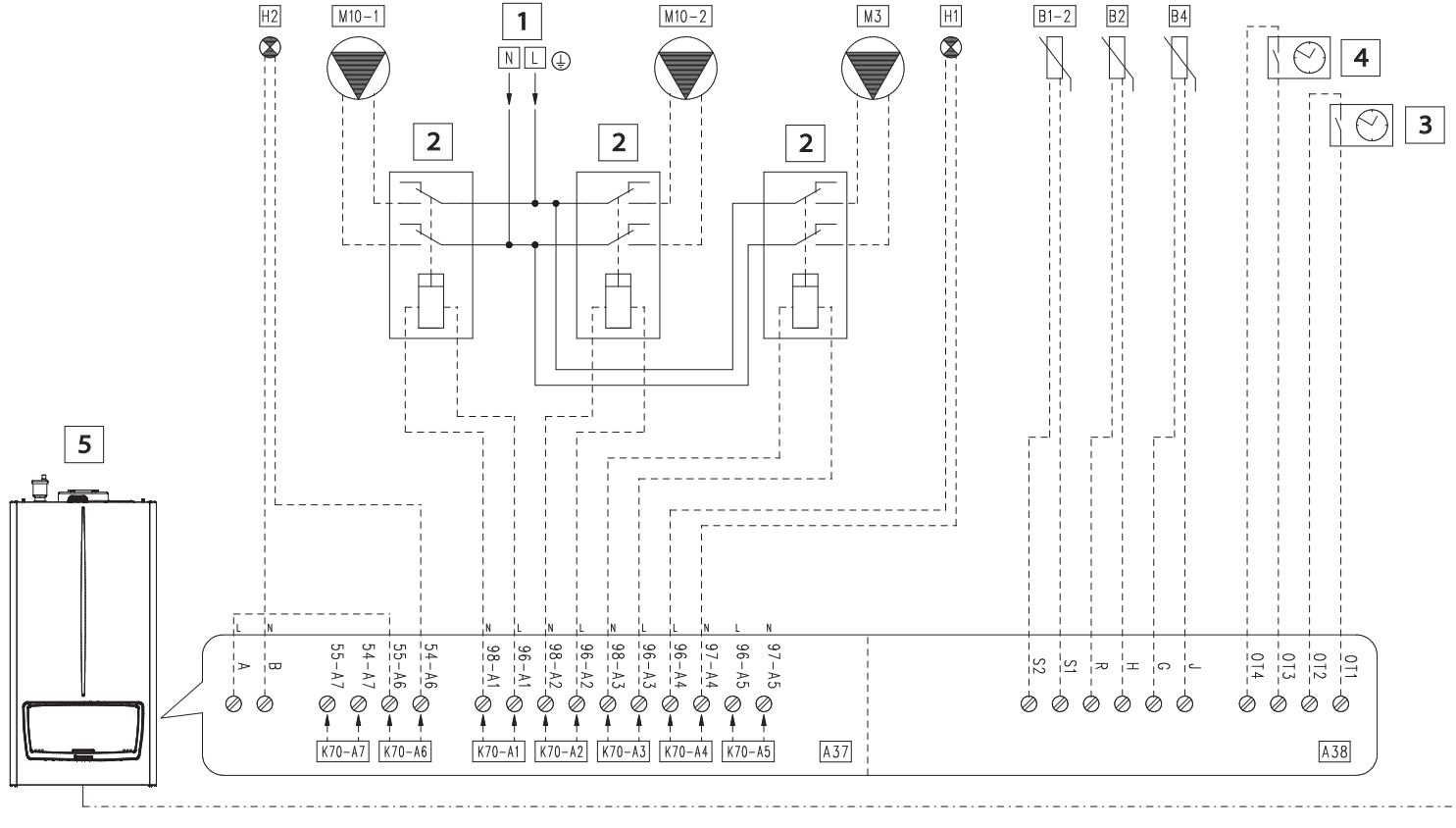
Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 pump (optional)*
M10-2	-	*Zone 2 circulator pump (optional)*
S20-1	-	*Zone 1 room thermostat (optional)*
S20-2	-	*Zone 2 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Master appliance*
4	-	*Slave appliance (last boiler)*
5	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Zone 1 pump - Zone 2 pump - Domestic hot water pump: - Relay not used - Relay not used - Burner on - Error - not used
- System sensor - Type of heating request - DHW request type - Parallel mode	- Heating + domestic hot water mode - Room thermostat setpoint - Sensor - Disabled

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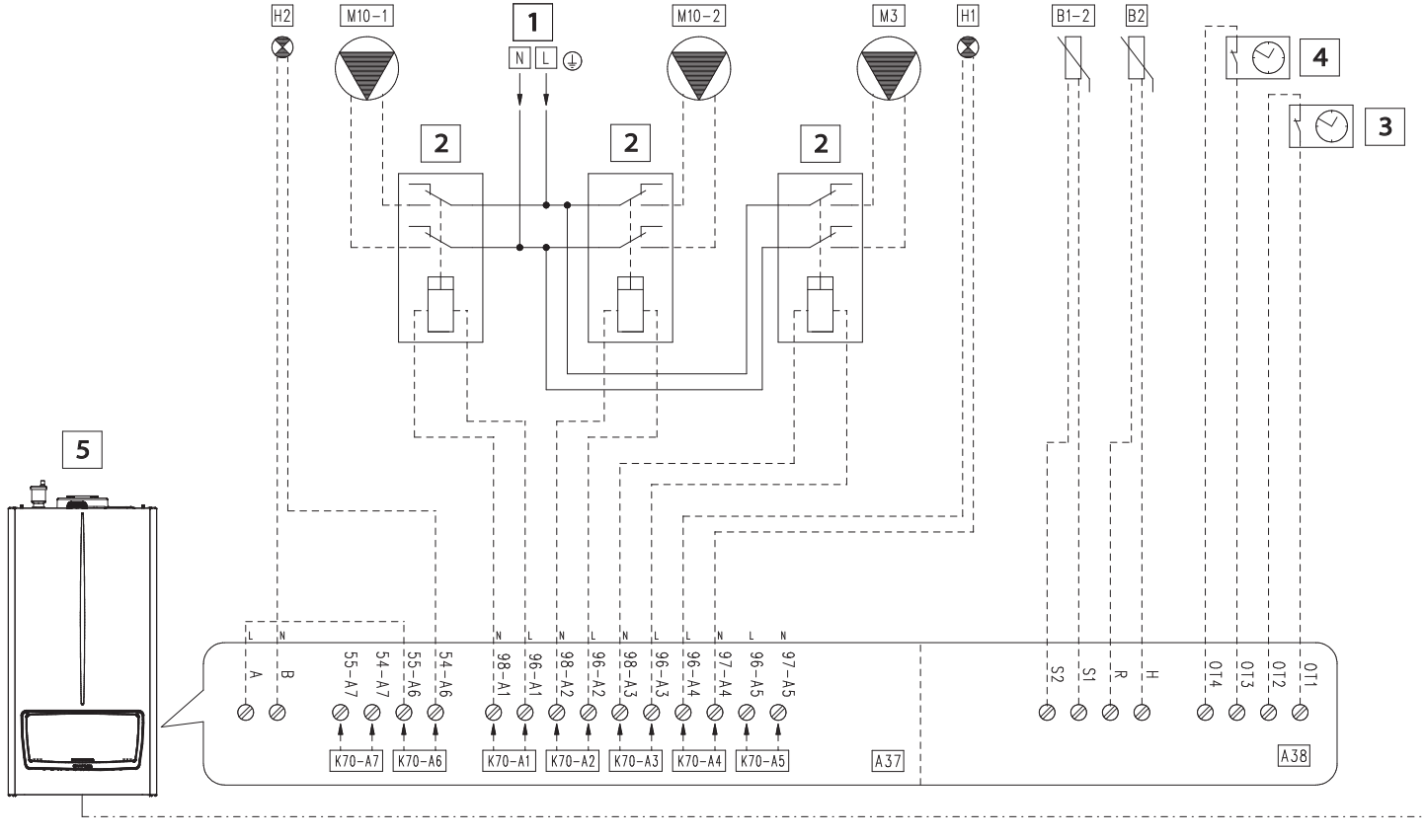


Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 pump (optional)*
M10-2	-	*Zone 2 circulator pump (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Zone 1 programmer clock (optional)*
4	-	*Zone 2 programming clock (optional)*
5	-	*Master appliance*
6	-	*Slave appliance (last boiler)*
7	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Zone 1 pump - Zone 2 pump - Domestic hot water pump: - Error - Relay not used - Burner on - Relay not used - not used
- System sensor - Type of heating request - DHW request type - Parallel mode	- Heating + domestic hot water mode - Only OTC - Sensor - Disabled
Note: when the contact of the programmer clock is closed, the heating setpoint is reduced according to the parameters "Reduction of ECO heating setpoint zone 1 and "Reduction of ECO heating setpoint zone 2" As an alternative to the programmer clock, use time programming.	



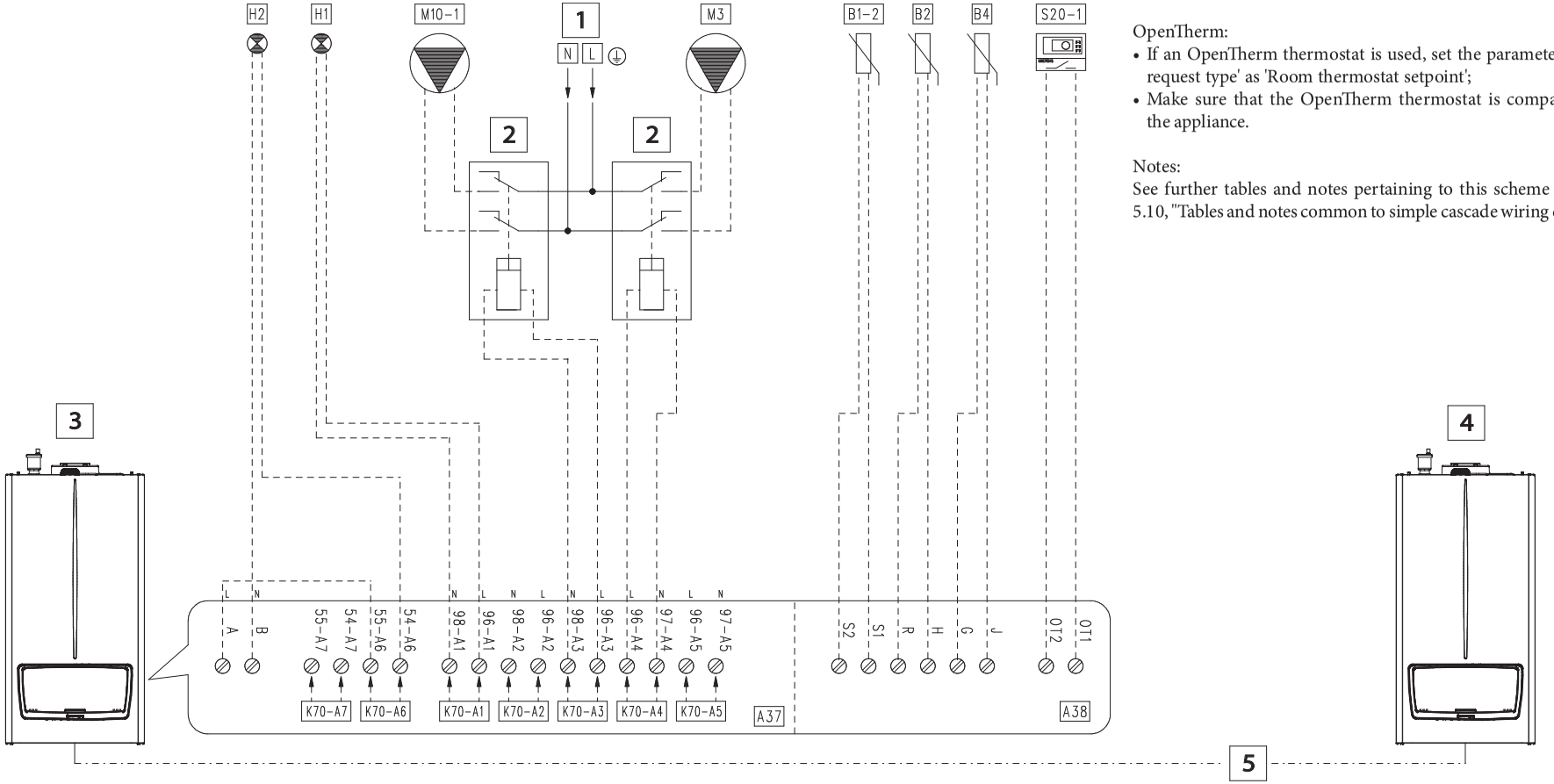
Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 pump (optional)*
M10-2	-	*Zone 2 circulator pump (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Zone 1 programmer clock (optional)*
4	-	*Zone 2 programming clock (optional)*
5	-	*Master appliance*
6	-	*Slave appliance (last boiler)*
7	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Zone 1 pump - Zone 2 pump - Domestic hot water pump: - Error - Relay not used - Burner on - Relay not used - not used
- System sensor - Type of heating request - DHW request type - Parallel mode	- Heating + domestic hot water mode - Constant setpoint - Sensor - Disabled
Note: when the contact of the programming clock is opened, the heating setpoint is reduced according to the parameters 'Reduction of constant heating setpoint zone 1 and 'Reduction of constant heating setpoint zone 2' (by default these two parameters are 0° C).	

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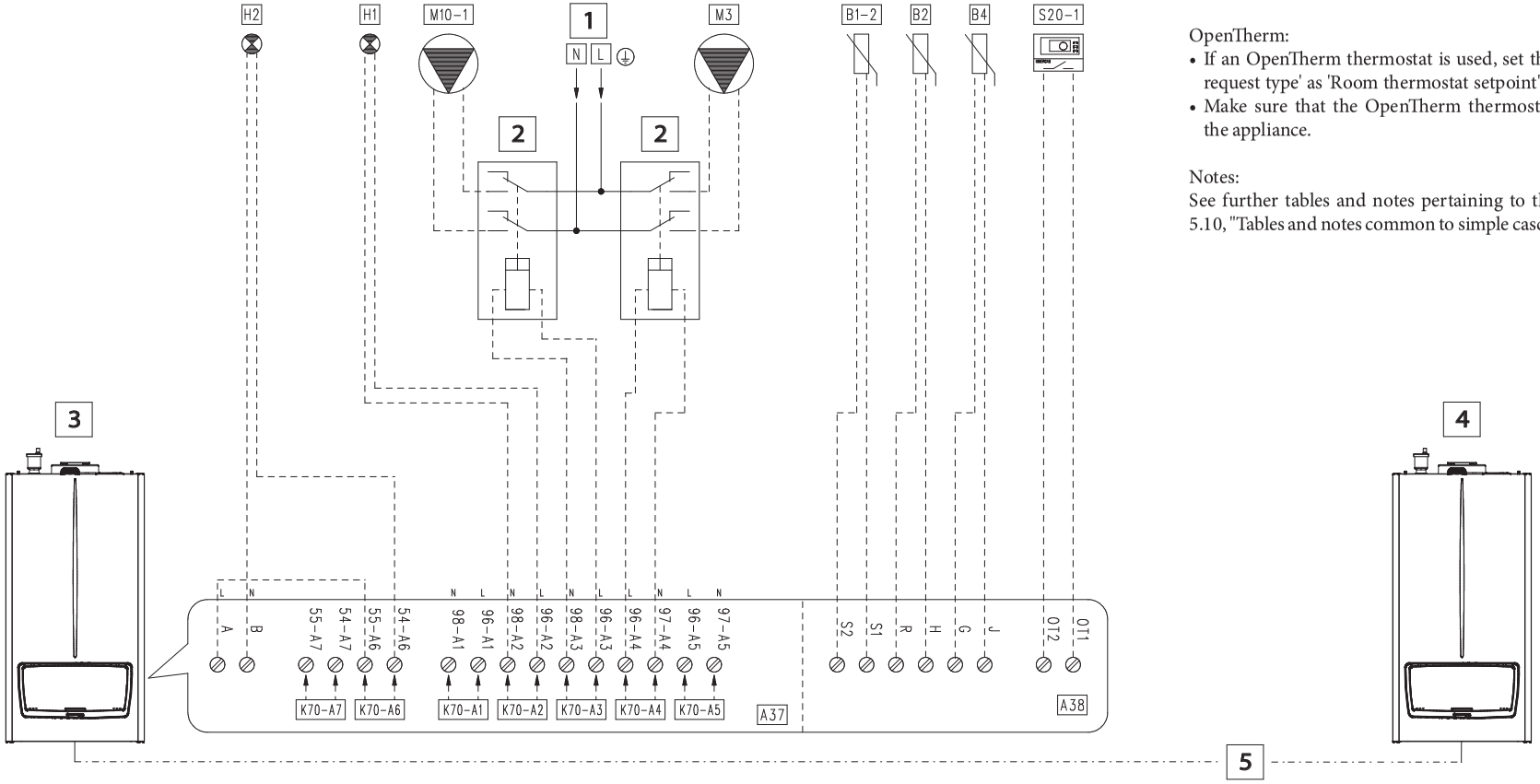
OpenTherm:
- If an OpenTherm thermostat is used, set the parameter 'Heating request type' as 'Room thermostat setpoint';
- Make sure that the OpenTherm thermostat is compatible with the appliance.

Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 circulator pump (optional)*
M20-1	-	*Zone 1 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Master appliance*
4	-	*Slave appliance (last boiler)*
5	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Error - Relay not used - Zone 1 pump - Domestic hot water pump: - Relay not used - Burner on - Relay not used - not used
- System sensor - Type of heating request - DHW request type - Parallel mode	- Heating + domestic hot water mode - Climatic curve outside temperature and room thermostat - Sensor - Disabled



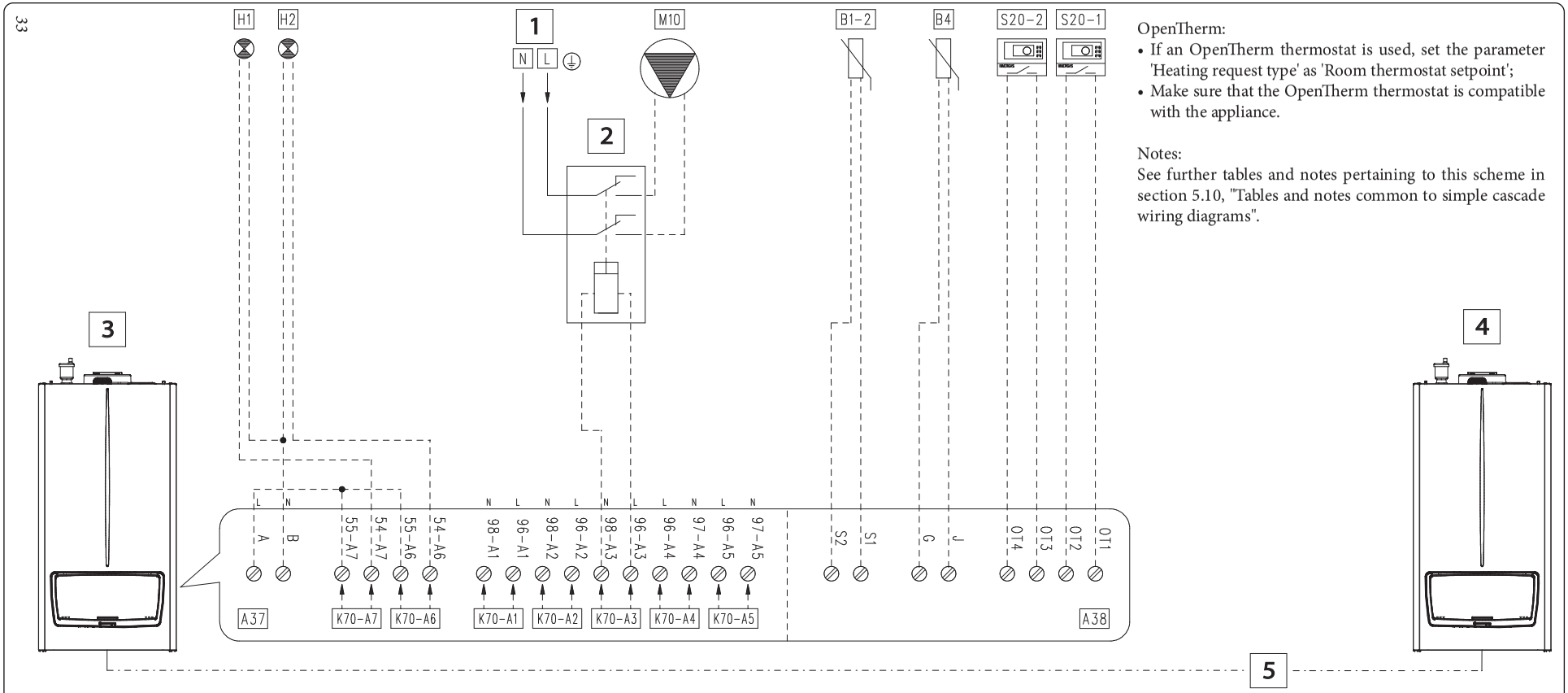
OpenTherm:
- If an OpenTherm thermostat is used, set the parameter 'Heating request type' as 'Room thermostat setpoint';
- Make sure that the OpenTherm thermostat is compatible with the appliance.

Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B2	-	*Domestic hot water probe (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M3	-	*DHW pump (optional)*
M10-1	-	*Zone 1 circulator pump (optional)*
S20-1	-	*Zone 1 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Master appliance*
4	-	*Slave appliance (last boiler)*
5	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Relay not used - Error - Zone 1 pump - Domestic hot water pump: - Relay not used - Burner on - Relay not used - not used
- System sensor - Type of heating request - DHW request type - Parallel mode	- Heating + domestic hot water mode - Outdoor temperature curve and room thermostat - Sensor - Enabled
With parallel mode enabled, the appliance uses the DHW setpoint and the maximum power used is the greater of the DHW and CH setpoint.	



OpenTherm:

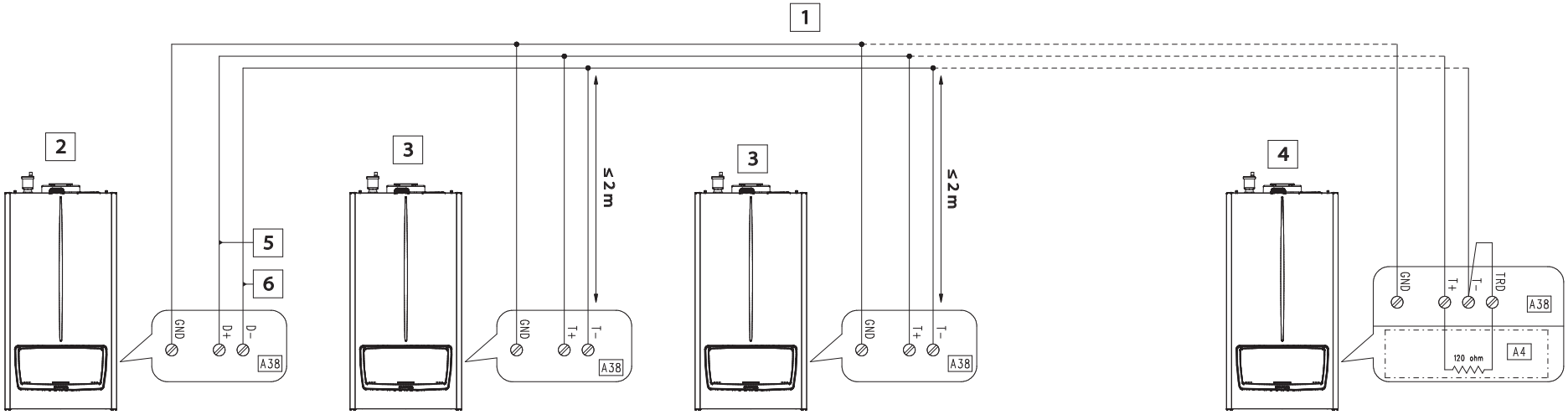
- If an OpenTherm thermostat is used, set the parameter 'Heating request type' as 'Room thermostat setpoint';
- Make sure that the OpenTherm thermostat is compatible with the appliance.

Notes:
See further tables and notes pertaining to this scheme in section 5.10, "Tables and notes common to simple cascade wiring diagrams".

Key:

A37	-	*Connection sheet (loads)*
A38	-	*Connection card (signals)*
B1-2	-	*System flow probe (NTC) (optional)*
B4	-	*External probe (NTC) (optional)*
H1	-	*"ERROR" warning light (230 Vac) (optional)*
H2	-	*"Burner on" indicator light (230 Vac) (optional)*
M10	-	*Zone circulator (optional)*
S20-1	-	*Zone 1 room thermostat (optional)*
S20-2	-	*Zone 2 room thermostat (optional)*
1	-	*230 Vac - 50 Hz*
2	-	*External relay (optional) - Coil 230 Vac Max. 0.1 A*
3	-	*Master appliance*
4	-	*Slave appliance (last boiler)*
5	-	*Simple cascade appliance communication BUS (make connections as per specific diagram)*

"HYDRAULIC SETTINGS" PARAMETER CONFIGURATION TABLE ('TECHNICIAN' MENU)	
Parameter/menu name	Setting
"Relay settings" submenu: - K70-A1 - K70-A2 - K70-A3 - K70-A4 - K70-A5 - K70-A6 - K70-A7 System pump configuration	 - Relay not used - Relay not used - System pump - Relay not used - Relay not used - Burner on - Error - Zone 1 + Zone 2
- System sensor - Type of heating request - DHW request type - Parallel mode	- C.H. mode - Outdoor temperature curve and room thermostat - Thermostat (In this case, the diagram does not provide for DHW, but default setting it as a thermostat avoids error 33) - Disabled
Note: the system pump is driven by both room thermostats.	

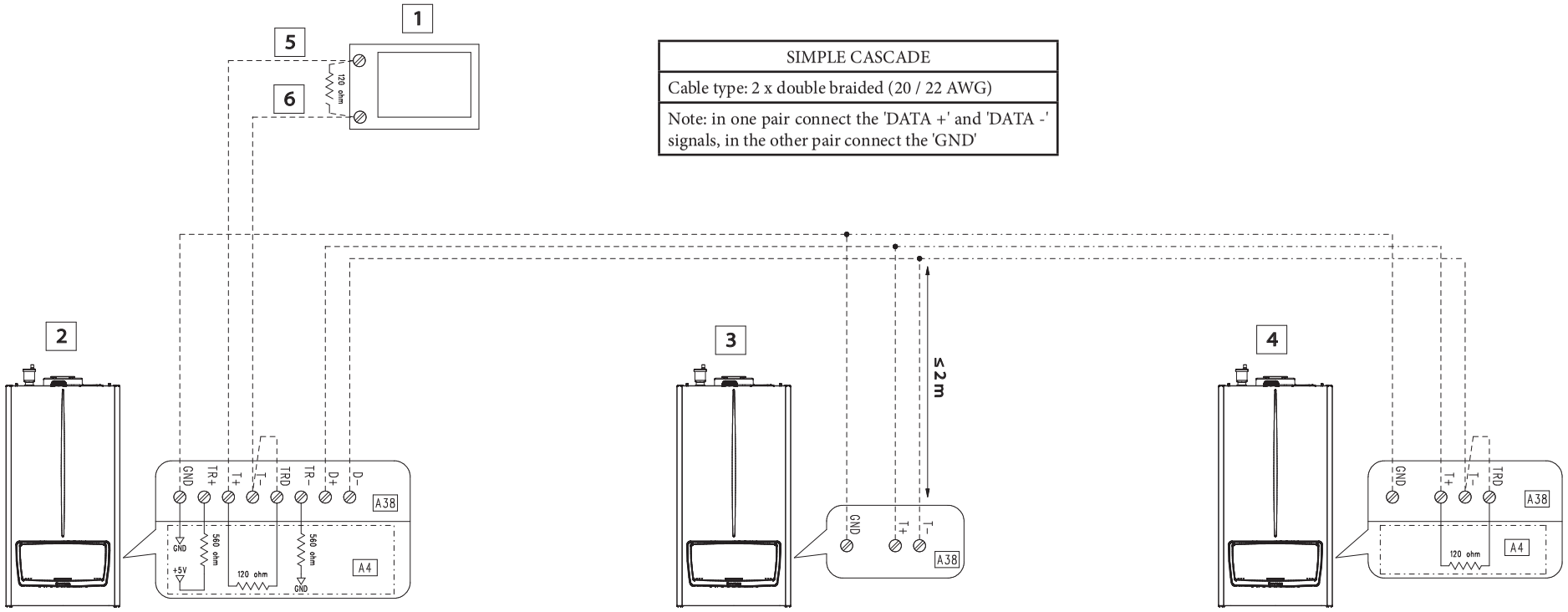


Key:
*1 - Cable type: 2 x twisted pair (20 / 22 AWG)**
2 - Master appliance
3 - Slave appliance
4 - Slave appliance (last appliance)
5 - Data +
6 - Date -

**Note: in one pair connect the 'DATA +' and 'DATA -' signals, in the other pair connect the 'GND'*

The communication BUS between the devices of the simple cascade is via Modbus protocol (RS485). The Modbus parameters, which can be configured via "MENU", have no effect on the simple cascade but serve for the BMS.

The link between the "TRD" and "T-" terminals is the responsibility of the installer (the 120 ohm resistance is already present on the "Display board").



SIMPLE CASCADE
Cable type: 2 x double braided (20 / 22 AWG)
Note: in one pair connect the 'DATA +' and 'DATA -' signals, in the other pair connect the 'GND'

Key:
A4 - *Display board*
A38 - *Connection card (signals)*
1 - *BMS (Modbus master)*
2 - *Master generator*
3 - *Slave generator*
4 - *Slave generator (last appliance)*
5 - *Data +*
6 - *Date -*

Remove jumper X40

Cable type (BMS): twisted pair (20 / 22 AWG)

Modbus parameters have no effect on the Simple cascade

The parameter 'Heating request type' must be set as 'Room thermostat setpoint' (default value)

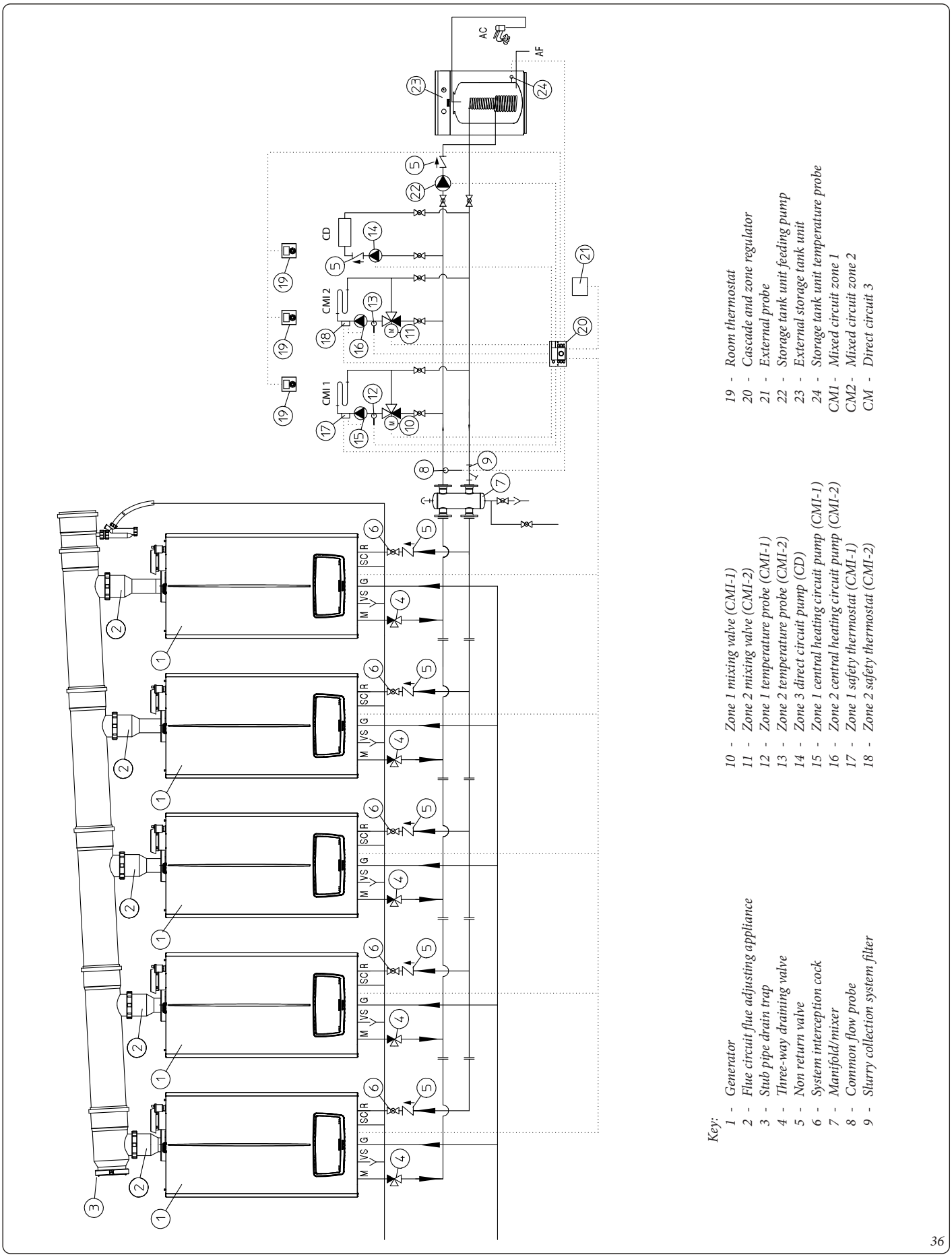
BUS: Modbus parameters can be found in the 'TECHNICIAN/ SYSTEM SETTINGS/Modbus parameters' MENU

It is possible to connect the following sensors to the Master appliance and read them via BUS:
- System flow probe (B1-2)
- External probe (B4)
- DHW probe (B2)
- DHW Thermostat/Contact (S50)

BMS: on one side of the bus, there must be a pull up resistance and a pull down resistance.
The diagram assumes that the two pull up and pull down resistances are already present in the external device (box 1 in the figure 34); if these resistances are not present on the external device, it is necessary to make the link between the TR+ terminals with T+ and TR- with T-, so as to use the pull up and pull down resistances already present on the display board (A4).
The termination resistance (120 ohm) is required on both sides of the BUS; to achieve this, the installer must fit the 120 ohm resistance (not supplied) on the external device (box 1 in fig. 34) and then make the link between the TRD and T- terminals, so as to use the resistance already present on the display board (A4).

6 CASCADE AND ZONE REGULATOR

6.1 CASCADE INSTALLATION DIAGRAM



Key:

1 - Generator
2 - Flue circuit flue adjusting appliance
3 - Stub pipe drain trap
4 - Three-way draining valve
5 - Non return valve
6 - System interception cock
7 - Manifold/mixer
8 - Common flow probe
9 - Slurry collection system filter
10 - Zone 1 mixing valve (CMI-1)
11 - Zone 2 mixing valve (CMI-2)
12 - Zone 1 temperature probe (CMI-1)
13 - Zone 2 temperature probe (CMI-2)
14 - Zone 3 direct circuit pump (CD)
15 - Zone 1 central heating circuit pump (CMI-1)
16 - Zone 2 central heating circuit pump (CMI-2)
17 - Zone 1 safety thermostat (CMI-1)
18 - Zone 2 safety thermostat (CMI-2)
19 - Room thermostat
20 - Cascade and zone regulator
21 - External probe
22 - Storage tank unit feeding pump
23 - External storage tank unit
24 - Storage tank unit temperature probe
CM1 - Mixed circuit zone 1
CM2 - Mixed circuit zone 2
CM - Direct circuit 3

Cut off the power to the appliance before setting up any electrical connection.

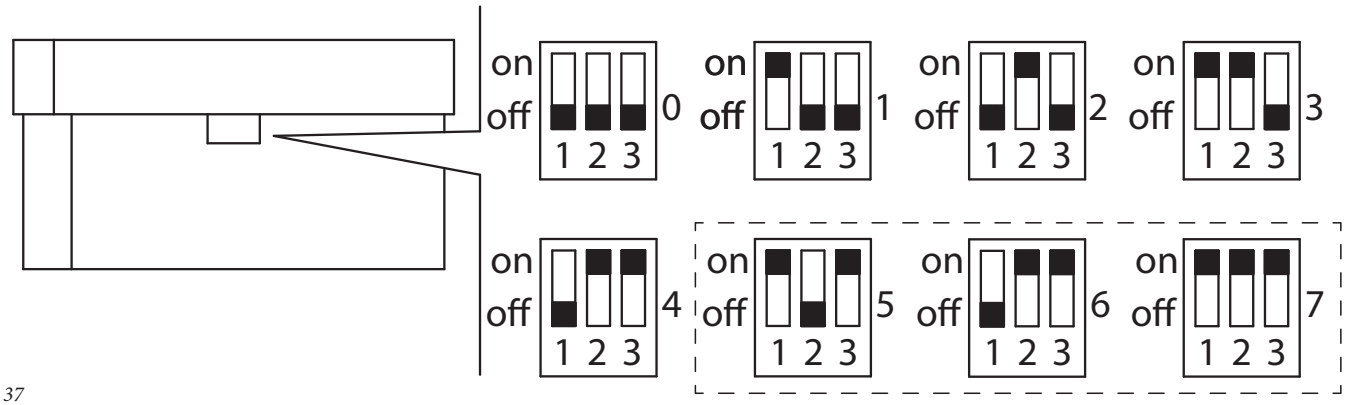
The communication board (4) is an accessory supplied as an option.

Set the address on the communication board (4) of each individual boiler according to the indications (fig. 38); we recommend starting with address '0'.

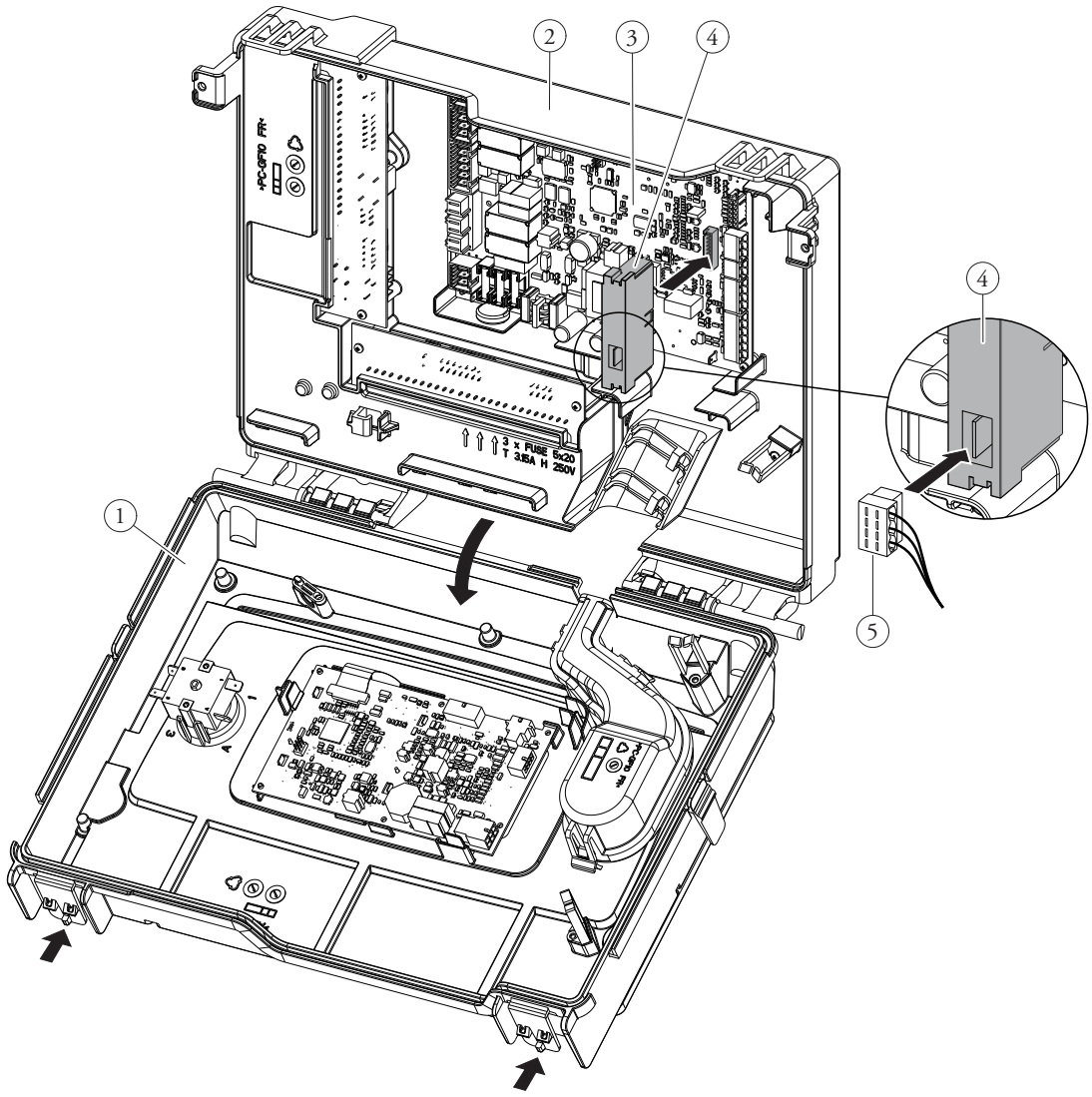
After removing the front casing (the operation of which is indicated in the boiler manual in the Maintenance section), open the front panel (1) (making sure beforehand that the power to the boiler has been switched off) by pressing on the top of the control panel near the two hooks;

Insert the communication board into the indicated slot (fig. 38).

Connect the connector (5) to the board (4) (fig. 37).



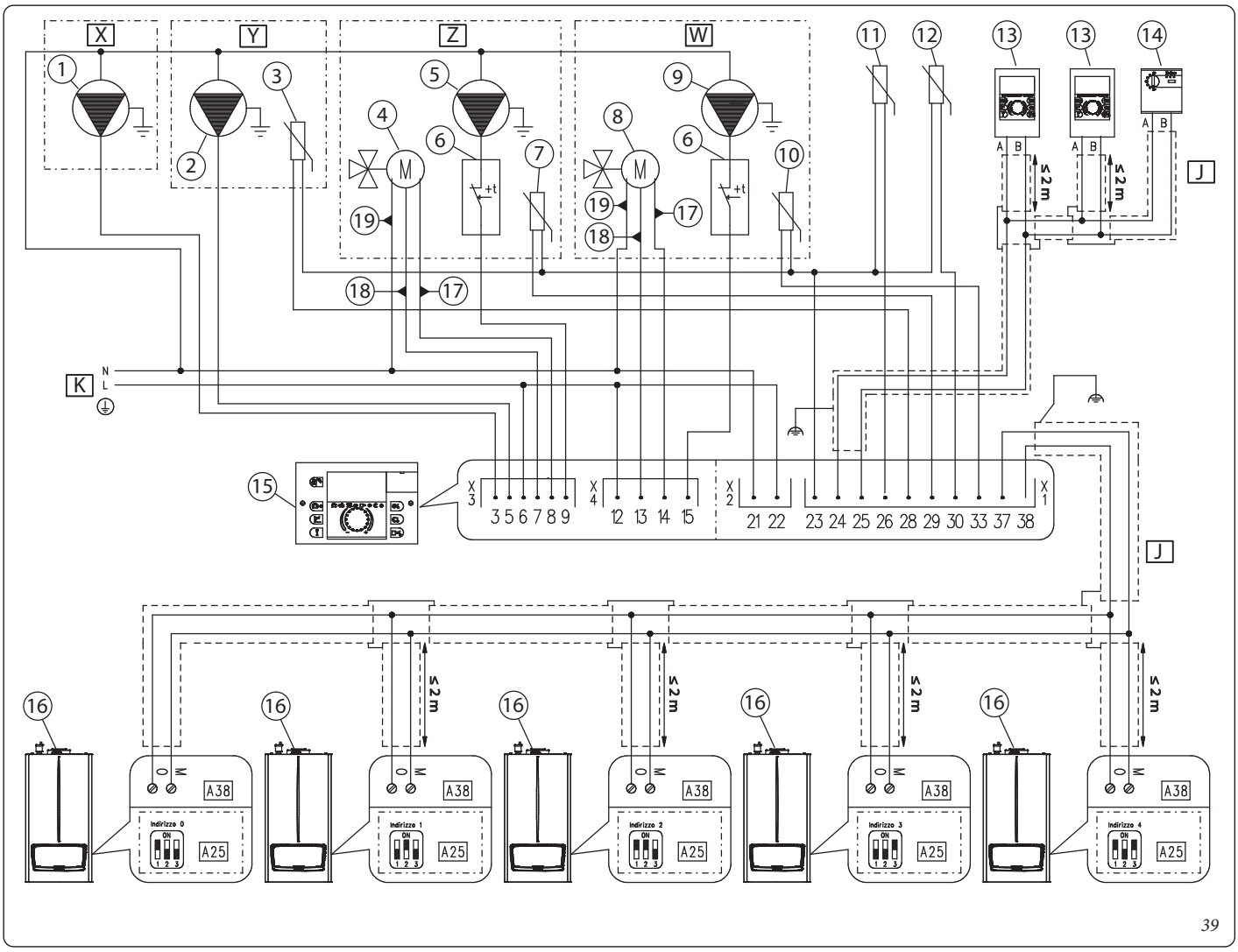
37



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6.2 WIRING DIAGRAM WITH OLD CASCADE REGULATOR (3.015244) - THREE HEATING ZONES (TWO MIXED AND ONE DIRECT) WITH DOMESTIC HOT WATER STORAGE TANK



Key:

1 - Central heating circuit pump zone 3 (230 Vac - max 2 A)
2 - Boiler unit supply pump (230 Vac - max 2 A)
3 - Storage tank unit temperature probe (PTC)
4 - Mixing valve zone 1 (230 Vac - max 2 A)
5 - Central heating circuit pump zone 1 (230 Vac - max 2 A)
6 - Safety thermostat mixed zone
7 - Zone 1 temperature probe (PTC)
8 - Mixing valve zone 2 (230 Vac - max 2 A
9 - Central heating circuit pump zone 2 (230 Vac - max 2 A)
10 - Zone 2 temperature probe (PTC)
11 - External probe (PTC)
12 - Common flow temperature probe (PTC)
13 - Zone manager
14 - Modulating room thermostat
15 - Cascade and zone regulator
16 - Generator
17 - Close
18 - Open
19 - Common
A25 - CLIP-IN (optional)
A38 - Connection card (signals)
X - Zone 3
Y - Storage tank unit
Z - Zone 1
W - Zone 2
J - BUS cable: J-Y(St)Y 2x2x0.6 (Max. permissible length 50 m)
K - 230 Vac - 50 Hz power supply

Notes:
Remove jumper X40

The parameter 'Heating request type' must be set as 'Room thermostat setpoint' (default value).

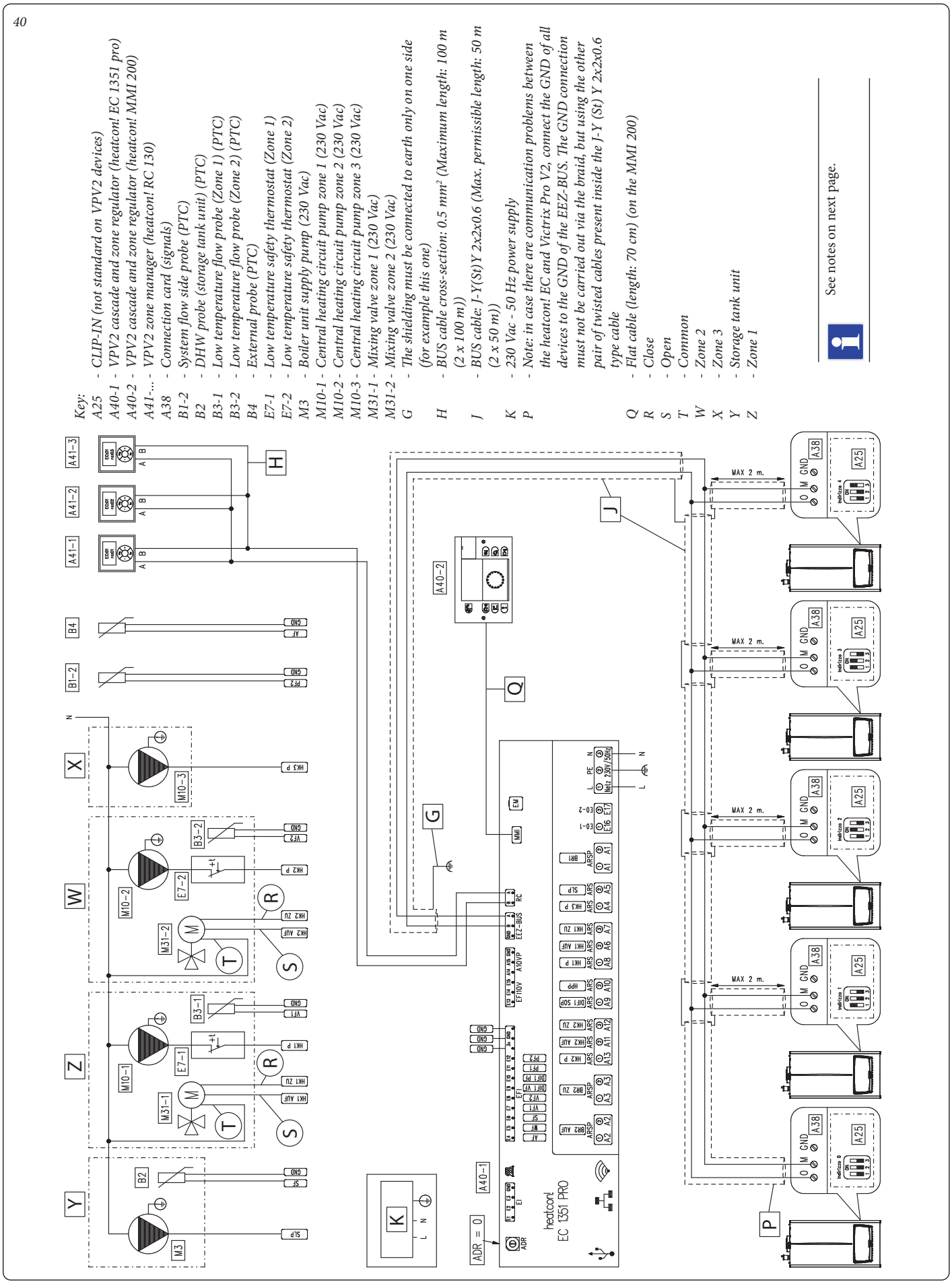
Probe cable gauge: 0.5 mm²
Maximum permitted length: 100 m

The external probe can be connected to the lower-address appliance as an alternative to connection to the Cascade and Zone Regulator (order the Immergas code for the appropriate external probe).

The Cascade and Zone Regulator can deliver a maximum total load of 6 A.
For this reason, insert an external relay (optional) in series with the loads .

6.3 WIRING DIAGRAM WITH CASCADE REGULATOR AND VPV2 ZONES (3.034119) - THREE HEATING ZONES (TWO MIXED AND ONE DIRECT) WITH DOMESTIC HOT WATER STORAGE TANK

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STD.011219/003

Remove jumper X40.

Probe cable gauge: 0.5 mm^2.
Maximum permitted length: 100 m (2 x 100 m).

The external probe can be connected to the lower-address appliance as an alternative to connection to the Cascade and Zone Regulator (order the Immergas code for the appropriate external probe).

For each individual relay of the CASCADE AND ZONE REGULATOR, respect the maximum current load shown below:
- 10 x ARS relays (230 V - N.A.), maximum load 2 A (screw terminals from A4 to A13) (total current: 10 A maximum);
- 1 x ARSP relay (dry contacts - N.O.), maximum load 6 A/230 V (pair of screw terminals A1);
- 2 x ARSP relay (dry contacts - N.O.), maximum load 2 A/230 V for each relay (pair of screw terminals A2 and A3).

PARAMETER SETTING - (WIZARD PROCEDURE)
RC 130 - SETTINGS
Using the "+" and "-" keys, select the desired Zone/Room Group:
- rc:01 = Zone 1 (Room group 1);
- rc:02 = Zone 2 (Room group 2);
- rc:03 = Zone 3 (Room group 3).

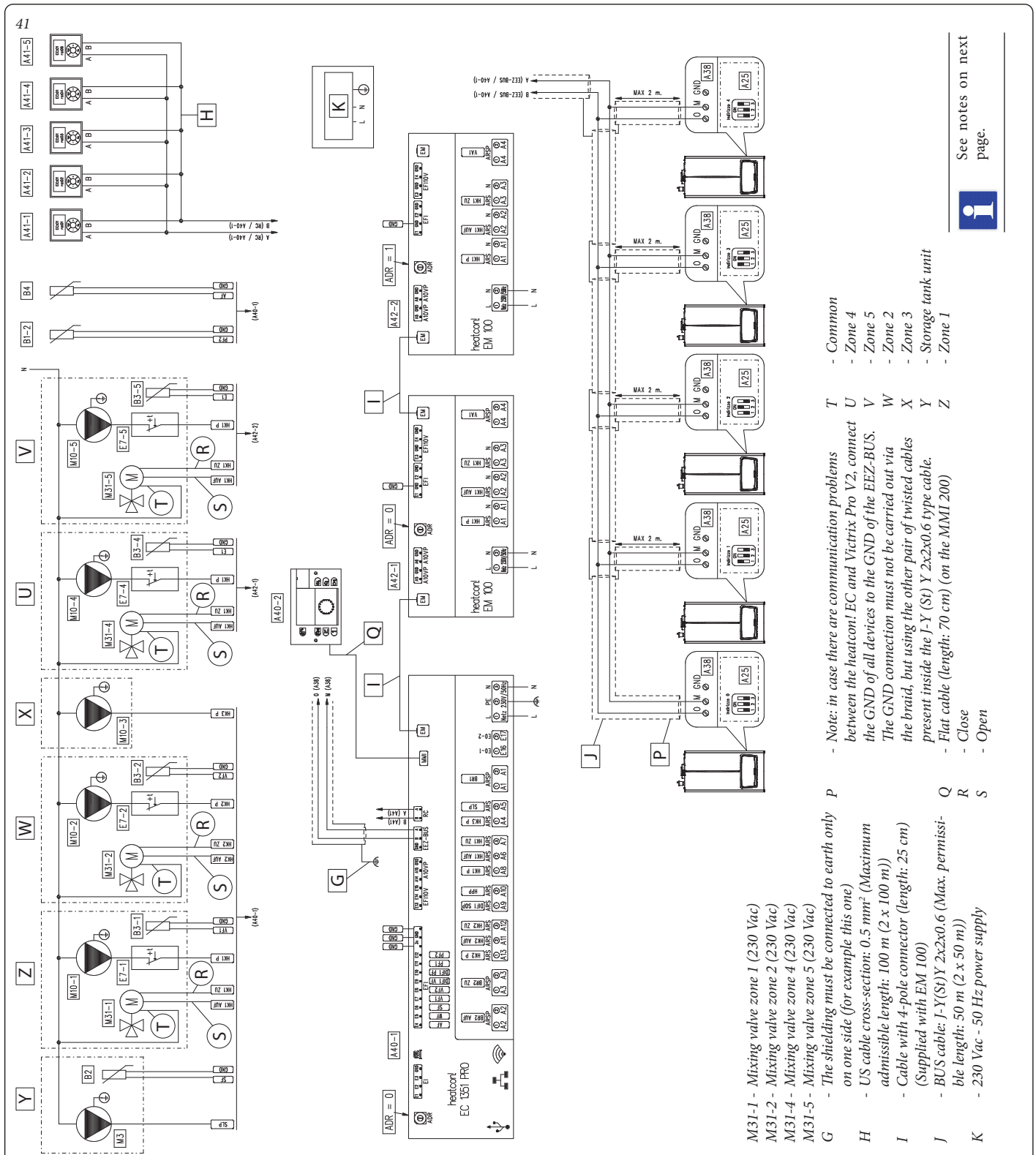
WIZARD PROCEDURE - via MMI 200:
1. "EC1-ADRO", confirm;
2. "Hjdraulik", confirm;
3. "Sprachauswahl" "DE": select "IT" language and confirm;
4. "Energy gener. 1 Function": select "Automat" and confirm;
5. "Energy gener. 2 Function": "Off", confirm;
6. "Function Heating Buffer": "Off", confirm;
7. "Func. hot water Function": select "Storage pump ..." and confirm;
8. "Heating circuit 1 Function": select "CMS" and confirm;
9. "Heating circuit 2 Function": select "CMS" and confirm;
10. "Heating circuit 3 Function": select "Direct circuit" and confirm;
11. "Differential control 1 Function": "Off", confirm.

ADDITIONAL SETTINGS - via MMI 200:
12. Select "E12:EF" from the "Configuration" / "Function" / "Total flow" menu;
13. possibly change the default setting of the "Stop position deactivation" parameter inherent to the closing behaviour of the mixing valve:
    Off = valve always powered when closing (default);
    On = timed valve closing.
    See menu "Heating circuit 1" / "Mixing valve" and "Heating circuit 2" / "Mixing valve";
14. possibly change the default setting of the "Switching Control level" parameter relating to the rotation of the appliances:
    Off = the appliance indicated by the "Control level" parameter always turns on first (default);
    min = value in minutes for the rotation.
    See "Cascade" / "Basic setting" / "Switching control level" menu.

15. By default, the room regulation is carried out on the temperature read by the external probe, and the weekly timer program is active, ...;
16. the "Zone 1 heating setpoint" parameter of each individual appliance limits the setpoint requested by the "Cascade and zone regulator". Be careful, as the setpoint of the "Cascade and zone regulator" is limited both in the system heating phase and in the DHW phase;
17. the appliance parameters "Zone 1 maximum heating setpoint" and "Zone 1 minimum heating setpoint" interact with the "Maximum temperature" and "Minimum temperature" parameters present in the "Cascade and zone regulator" (Energy generator / Heating). Check the consistency of all the "Maximum temperature and "Minimum temperature" parameters of the "Cascade and zone regulator" present in the various menus (Direct flow, Energy generator, Heating circuit, Hot water);
18. check that all parameters are correct for the system ("Clima zone", "Building", ...).

In all appliances, the "Type of heating request" parameter must be set as "Room thermostat setpoint" (default value).

6.4 WIRING DIAGRAM WITH CASCADE REGULATOR AND VPV2 ZONES (3.034119) - FIVE HEATING ZONES (FOUR MIXED AND ONE DIRECT) WITH DOMESTIC HOT WATER STORAGE TANK



Key:

- A25 - CLIP-IN (not standard on VPV2 devices)
- A40-1 - Cascade and zone regulator VPV2 (heatcon! EC 1351 pro)
- A40-2 - Cascade and zone regulatorVPV2 (heatcon! MMI 200)
- A41-... - Zone manager VPV2 (heatcon! RC 130)
- A38 - Connection card (signals)
- A42-1 - Expansion for Victrix Pro V2 cascade regulator zone 4 (heatcon! EM 100)
- A42-2 - Expansion for Victrix Pro V2 cascade regulator zone 5 (heatcon! EM 100)
- B1-2 - System flow side probe (PTC)
- B2 - DHW probe (storage tank unit) (PTC)
- B3-1 - Low temperature flow probe (Zone 1) (PTC)
- B3-2 - Low temperature flow probe (Zone 2) (PTC)
- B3-4 - Low temperature flow probe (Zone 4) (PTC)
- B3-5 - Low temperature flow probe (Zone 5) (PTC)
- B4 - External probe (PTC)
- E7-1 - Low temperature safety thermostat (Zone 1)
- E7-2 - Low temperature safety thermostat (Zone 2)
- E7-4 - Low temperature safety thermostat (Zone 4)
- E7-5 - Low temperature safety thermostat (Zone 5)
- M3 - Boiler unit supply pump (230 Vac)
- M10-1 - Central heating circuit pump zone 1 (230 Vac)
- M10-2 - Central heating circuit pump zone 2 (230 Vac)
- M10-3 - Central heating circuit pump zone 3 (230 Vac)
- M10-4 - Central heating circuit pump zone 4 (230 Vac)
- M10-5 - Central heating circuit pump zone 5 (230 Vac)
- M31-1 - Mixing valve zone 1 (230 Vac)
- M31-2 - Mixing valve zone 2 (230 Vac)
- M31-4 - Mixing valve zone 4 (230 Vac)
- M31-5 - Mixing valve zone 5 (230 Vac)
- G - The shielding must be connected to earth only on one side (for example this one)
- H - US cable cross-section: 0.5 mm² (Maximum admissible length: 100 m (2 x 100 m))
- I - Cable with 4-pole connector (length: 25 cm) (Supplied with EM 100)
- J - BUS cable: J-Y(St)Y 2x2x0.6 (Max. permissible length: 50 m (2 x 50 m))
- K - 230 Vac - 50 Hz power supply
- P - Note: in case there are communication problems between the heatcon! EC and Victrix Pro V2, connect the GND of all devices to the GND of the EEZ-BUS. The GND connection must not be carried out via the braid, but using the other pair of twisted cables present inside the J-Y (St) Y 2x2x0.6 type cable.
- Q - Flat cable (length: 70 cm) (on the MMI 200)
- R - Close
- S - Open
- T - Common
- U - Zone 4
- V - Zone 5
- W - Zone 2
- X - Zone 3
- Y - Storage tank unit
- Z - Zone 1

See notes on next page.

Remove jumper X40.

Probe cable gauge: 0.5 mm^2.
Maximum permitted length: 100 m (2 x 100 m).

The external probe can be connected to the lower-address appliance as an alternative to connection to the Cascade and Zone Regulator (order the Immergas code for the appropriate external probe).

For each individual relay of the CASCADE AND ZONE REGULATOR, respect the maximum current load shown below:
- 10 x ARS relays (230 V - N.A.), maximum load 2 A (screw terminals from A4 to A13) (total current: 10 A maximum);
- 1 x ARSP relay (dry contacts - N.O.), maximum load 6 A/230 V (pair of screw terminals A1);
- 2 x ARSP relay (dry contacts - N.O.), maximum load 2 A/230 V for each relay (pair of screw terminals A2 and A3).

For each individual relay of the Victrix Pro V2 cascade regulator expansion, respect the maximum current load shown below:
- 3 x ARS relays (230 V - N.A.), maximum load 2 A;
- 1 x ARSP relay (dry contacts - N.O.), maximum load 2 A/230 V.

PARAMETER SETTING - (WIZARD PROCEDURE)
RC 130 - SETTINGS
Using the "+" and "-" keys, select the desired Zone/Room Group:
- rc:01 = Zone 1 (Room group 1);
- rc:02 = Zone 2 (Room group 2);
- rc:03 = Zone 3 (Room group 3);
- rc:04 = Zone 4 (Room group 4);
- rc:05 = Zone 5 (Room group 5).

WIZARD PROCEDURE - via MMI 200:
1. "EC1-ADRO", confirm;
2. "Hjdraulik", confirm;
3. "Sprachauswahl" "DE": select "IT" language and confirm;
4. "Energy gener. 1 Function": select "Automat" and confirm;
5. "Energy gener. 2 Function": "Off", confirm;
6. "Function Heating Buffer": "Off", confirm;
7. "Func. hot water Function": select "Storage pump ..." and confirm;
8. "Heating circuit 1 Function": select "CMS" and confirm;
9. "Heating circuit 2 Function": select "CMS" and confirm;
10. "Heating circuit 3 Function": select "Direct circuit" and confirm;
11. "Heating circuit 4 Function": select "CMS" and confirm;
12. "Heating circuit 5 Function": select "CMS" and confirm;
13. "Differential control 1 Function": "Off", confirm.

ADDITIONAL SETTINGS - via MMI 200:
14. Select "E12:EF" from the "Configuration" / "Function" / "Total flow" menu;
15. possibly change the default setting of the "Stop position deactivation" parameter inherent to the closing behaviour of the mixing valve:
    Off = valve always powered when closing (default);
    On = timed valve closing.
    See menu "Heating circuit 1" / "Mixing valve" and "Heating circuit 2" / "Mixing valve";
16. possibly change the default setting of the "Switching Control level" parameter relating to the rotation of the appliances:
    Off = the appliance indicated by the "Control level" parameter always turns on first (default);
    min = value in minutes for the rotation.
    See "Cascade" / "Basic setting" / "Switching control level" menu.

17. By default, the room regulation is carried out on the temperature read by the external probe, and the weekly timer program is active, ...;
18. the "Zone 1 heating setpoint" parameter of each individual appliance limits the setpoint requested by the "Cascade and zone regulator". Be careful, as the setpoint of the "Cascade and zone regulator" is limited both in the system heating phase and in the DHW phase;
19. the appliance parameters "Zone 1 maximum heating setpoint" and "Zone 1 minimum heating setpoint" interact with the "Maximum temperature" and "Minimum temperature" parameters present in the "Cascade and zone regulator" (Energy generator / Heating). Check the consistency of all the "Maximum temperature and "Minimum temperature" parameters of the "Cascade and zone regulator" present in the various menus (Direct flow, Energy generator, Heating circuit, Hot water);
20. check that all parameters are correct for the system ("Clima zone", "Building", ...).

In all appliances, the "Type of heating request" parameter must be set as "Room thermostat setpoint" (default value).

7 REPLACING CASCADE GENERATORS

To replace discontinued battery generators, proceed as follows.

The **Victrix Pro 35 2 ErP** and **Victrix Pro 35 1 E** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	34.9
Central heating circuit max. operating pressure	bar	4.5
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

The thermal module '***Victrix Pro V2 35 EU***' is compatible for replacing modules '***Victrix Pro 35 2 ErP***' and '***Victrix Pro 35 1 E***'.

The **Victrix 50**, Victrix **Pro 55 2 ErP** and **Victrix Pro 55 1 E** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	51.0
Central heating circuit max. operating pressure	bar (MPa)	4.5
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

The '***Victrix Pro V2 55 EU***' thermal module is compatible for replacing modules '***Victrix 50***', '***Victrix Pro 55 2 ErP***' and '***Victrix Pro 55 1 E***'.

The **Victrix Pro 68 2 ERP** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	65
Central heating circuit max. operating pressure	bar (MPa)	4.5
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

The '***Victrix Pro V2 68 EU***' thermal module is compatible for replacing the '***Victrix Pro 68 2 ERP***' module.

The **Victrix 75**, Victrix **Pro 80 2 ErP** and **Victrix Pro 80 1 E** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	75.0
Central heating circuit max. operating pressure	bar (MPa)	4.5
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

The thermal module '***Victrix Pro V2 80 EU***' is compatible for replacing modules ***'Victrix 75',***'Victrix ***Pro 80 2 ERP'*** and ***'Victrix Pro 80 1 E'***.

The **Victrix 90, Victrix Pro 100 2 ErP** and **Victrix Pro 100 1 E** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	93.0
Central heating circuit max. operating pressure	bar	5.4
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

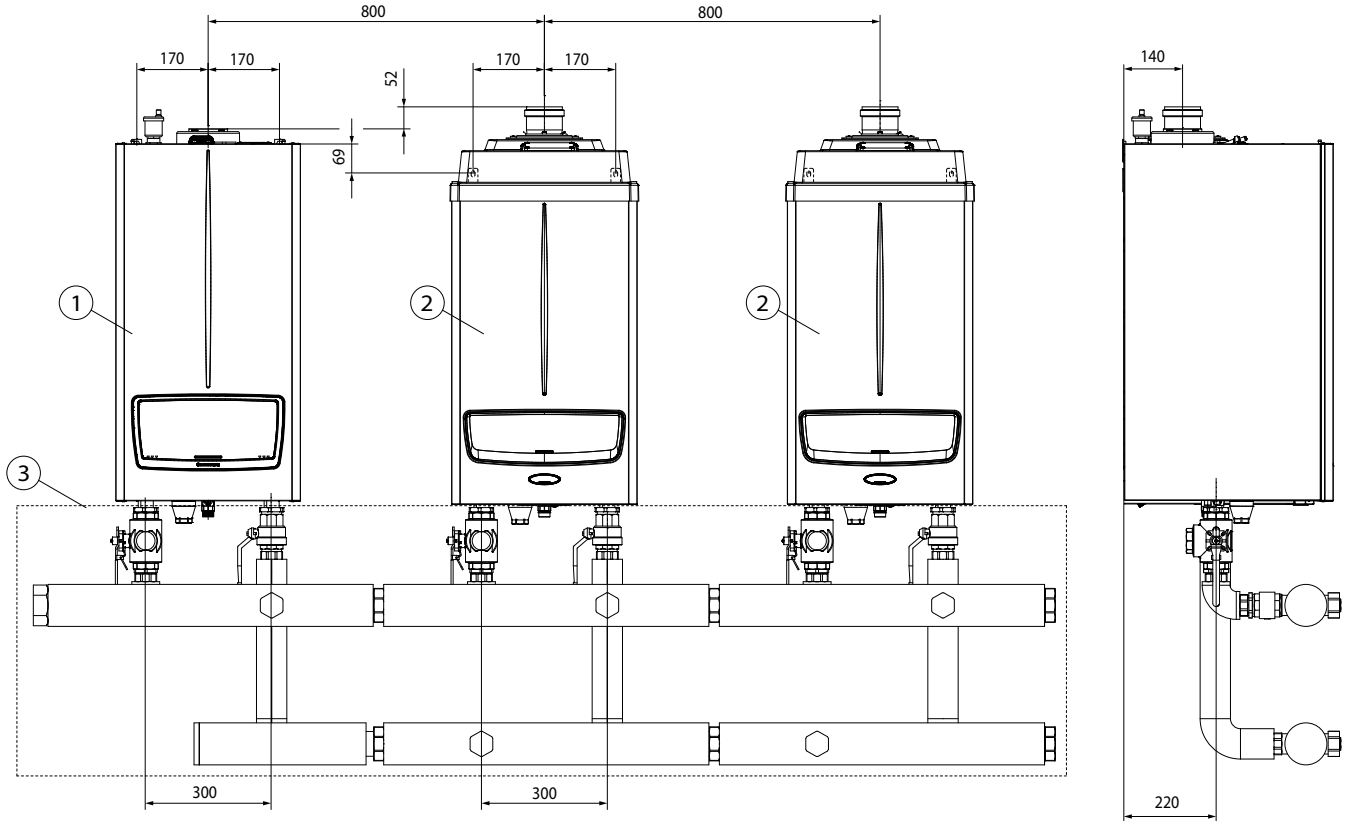
The '***Victrix Pro V2 100 EU***' thermal module is compatible for replacing modules '***Victrix 90', 'Victrix Pro 100 2 ErP***' and '***Victrix Pro 100 1 E'***.

The **Victrix 115, Victrix Pro 120 2 ErP** and **Victrix Pro 120 1 E** thermal module can be replaced with an equivalent IMMERGAS thermal module with the following specifications:

Nominal heat input (useful)	kW	114.5
Central heating circuit max. operating pressure	bar	5.4
Maximum heating temperature	°C	95
Safety appliances with the same characteristics		

The thermal module '***Victrix Pro V2 120 EU***' is compatible for replacing modules ***'Victrix 115', 'Victrix Pro 120 2 ErP' and 'Victrix Pro 120 1 E'***.

7.1 REPLACING VICTRIX PRO 35-55 2 ERP AND VICTRIX PRO 35-55 1 E WITH VICTRIX PRO V2 35-55 EU

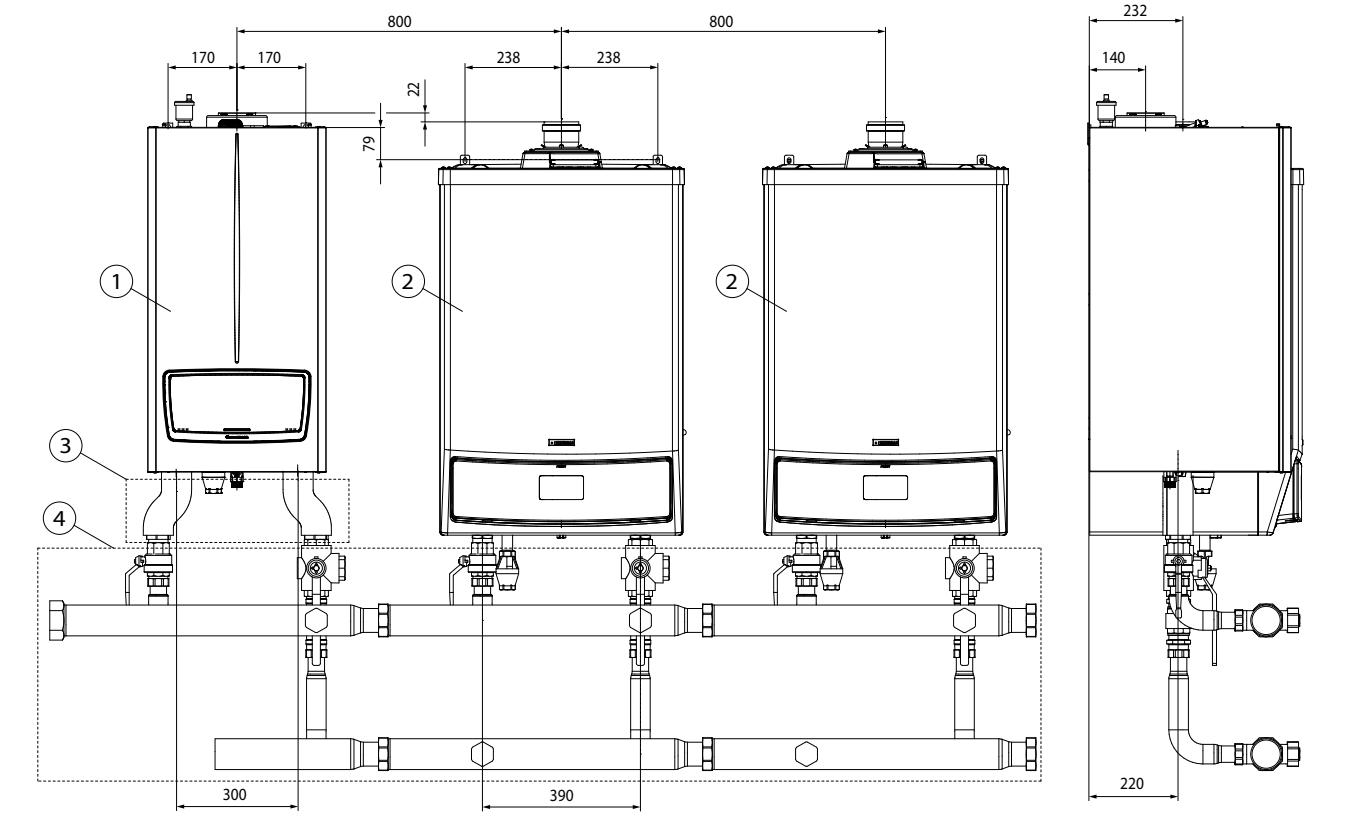


Key:

1 - Victrix Pro V2 35-55 EU
2 - Victrix Pro 35-55 2 ERP and Victrix Pro 35-55 1 E
3 - Battery hydraulic manifold kit

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7.2 REPLACING VICTRIX 50 WITH VICTRIX PRO V2 55 EU

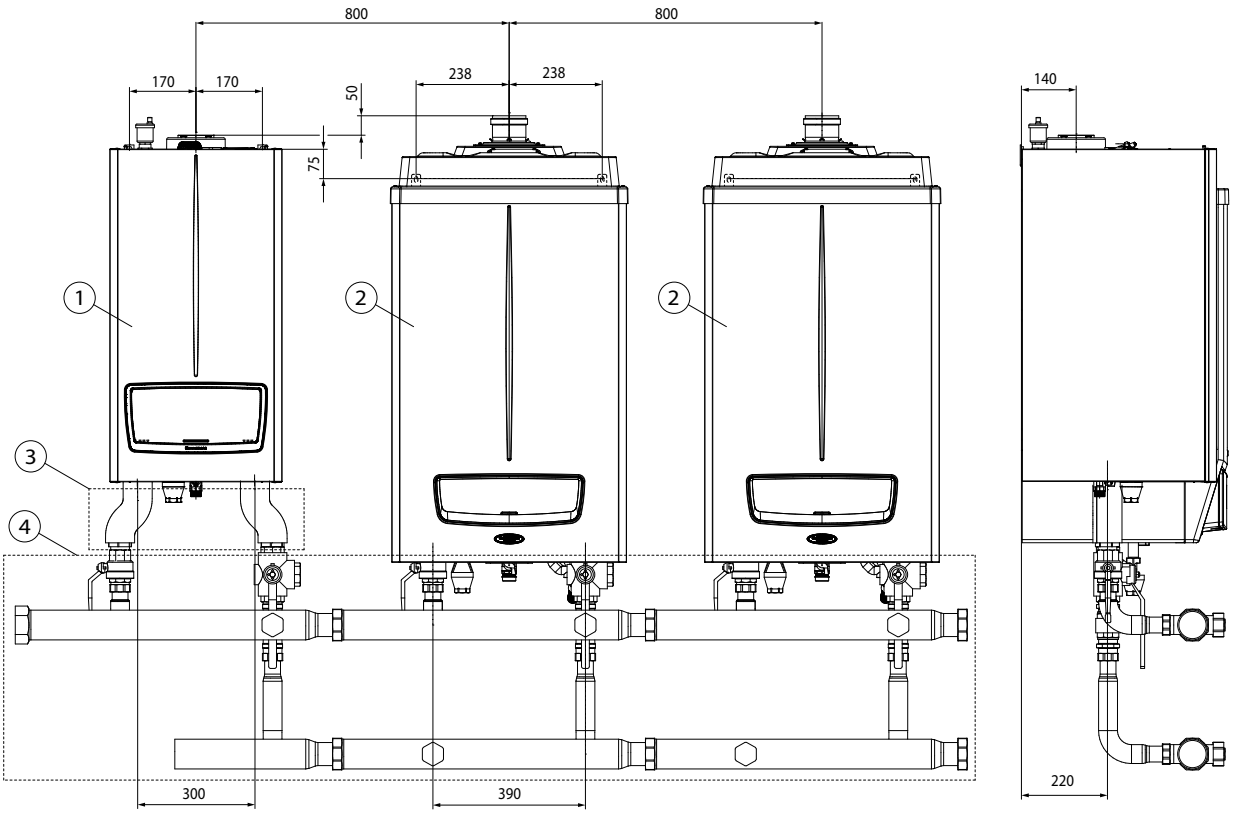


Key:

1 - Victrix Pro V2 55 EU
2 - Victrix 50
3 - Victrix Pro Adapter Kit
4 - Battery hydraulic manifold kit

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7.3 REPLACING VICTRIX 68 2 ERP AND VICTRIX PRO 68 1 E WITH VICTRIX PRO V2 68 EU

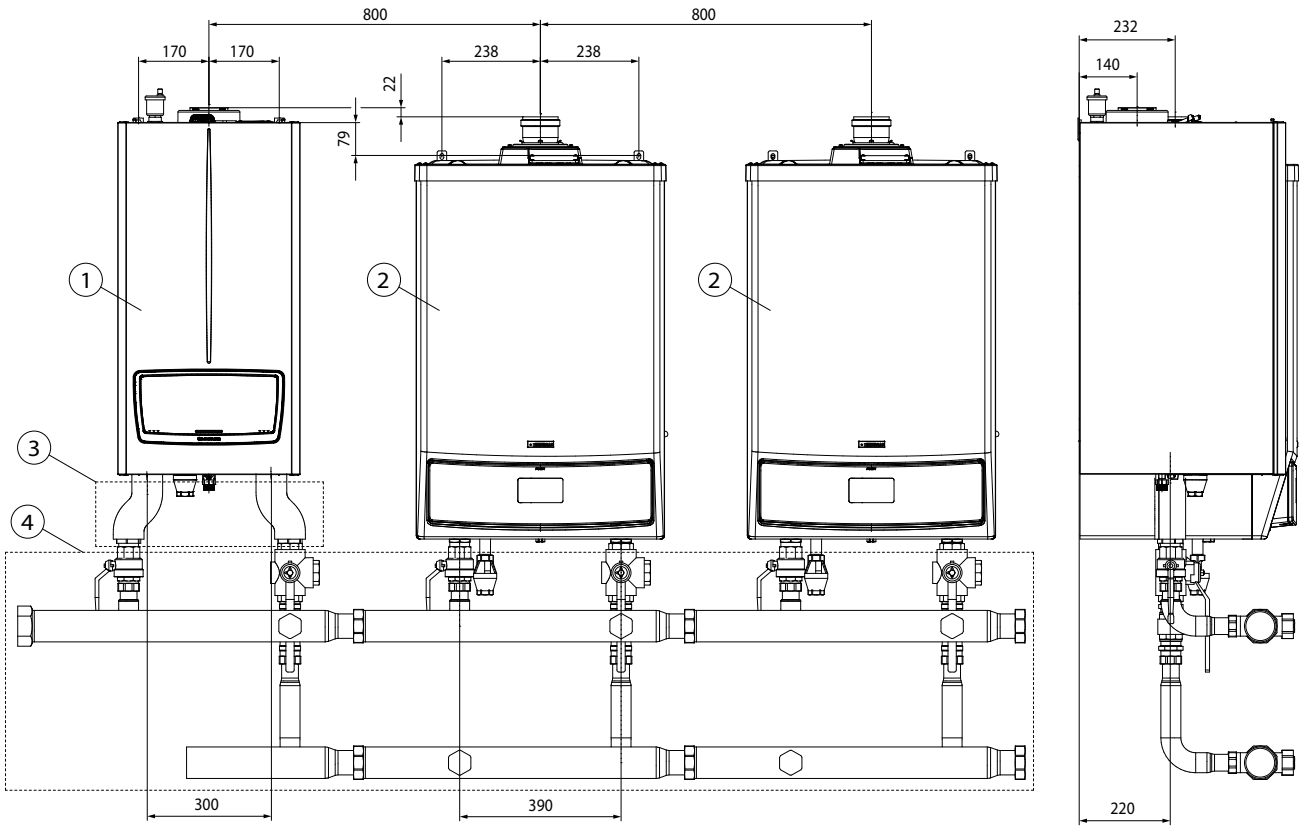


Key:

1 - Victrix Pro V2 68 EU
2 - Victrix 68 2 ERP and Victrix Pro 68 1 E
3 - Victrix Pro Adapter Kit
4 - Battery hydraulic manifold kit

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7.4 REPLACING VICTRIX 75 WITH VICTRIX PRO V2 80 EU

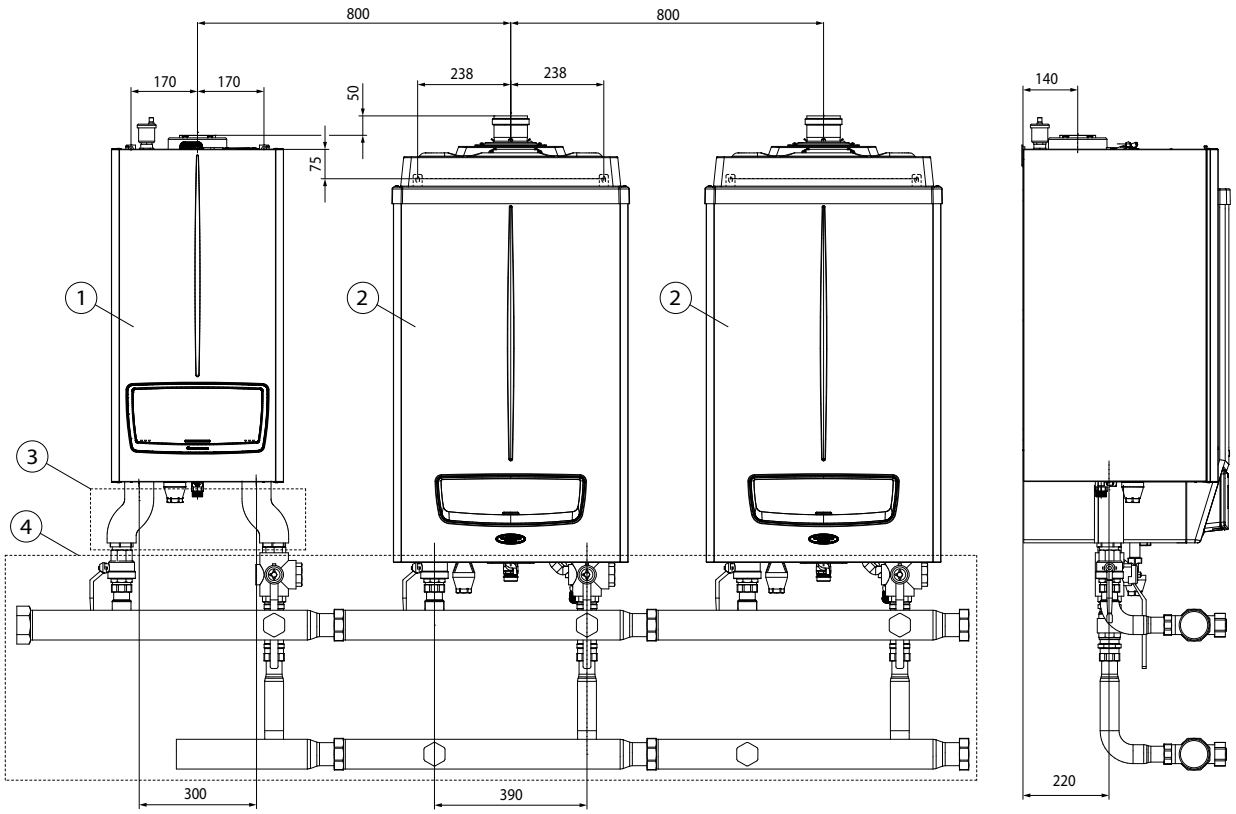


Key:

1 - Victrix Pro V2 80 EU
2 - Victrix 75
3 - Victrix Pro Adapter Kit
4 - Battery hydraulic manifold kit

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7.5 REPLACING VICTRIX PRO 80 2 ERP AND VICTRIX PRO 80 1 E WITH VICTRIX PRO V2 80 EU

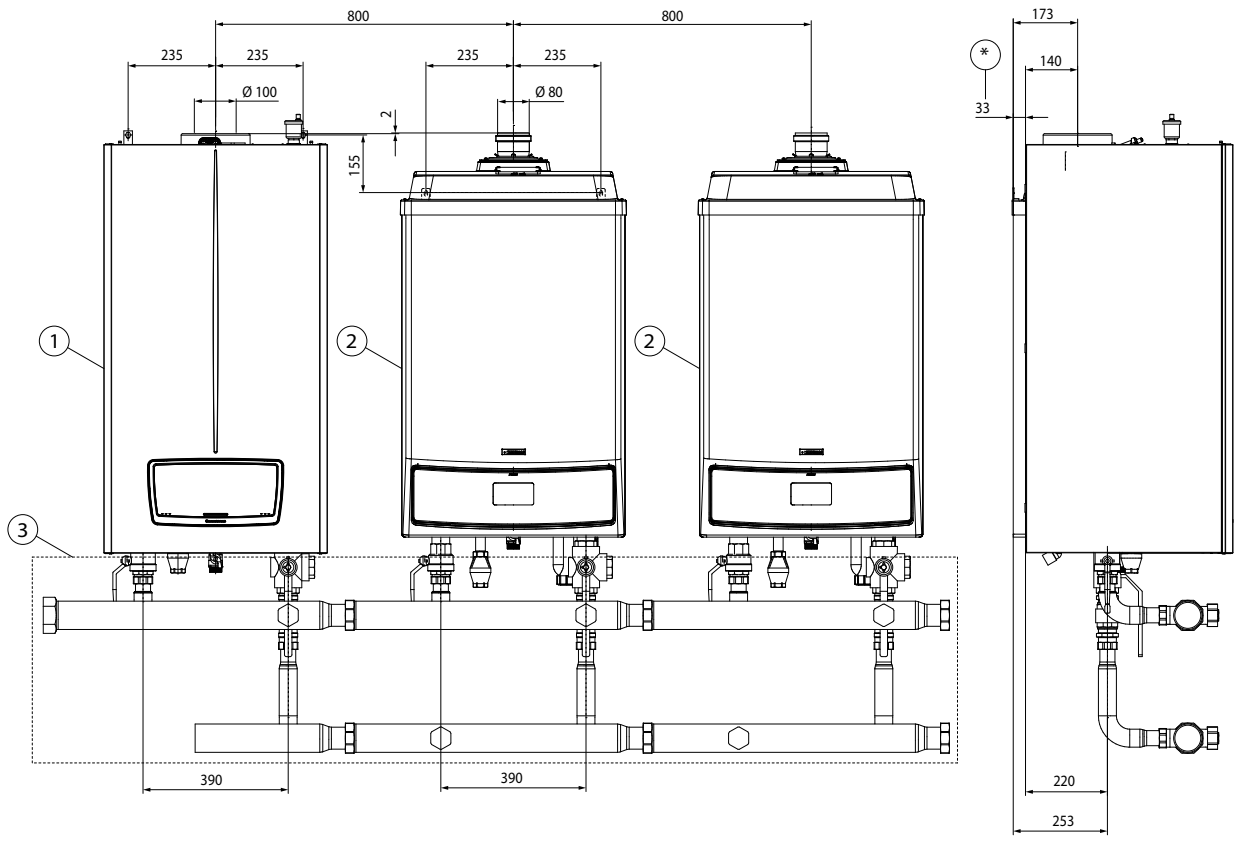


Key:

1 - Victrix Pro V2 80 EU
2 - Victrix Pro 80 2 ERP and Victrix Pro 80 1 E
3 - Victrix Pro Adapter Kit
4 - Battery hydraulic manifold kit

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7.6 REPLACING VICTRIX 90-115 WITH VICTRIX PRO V2 100-120 EU

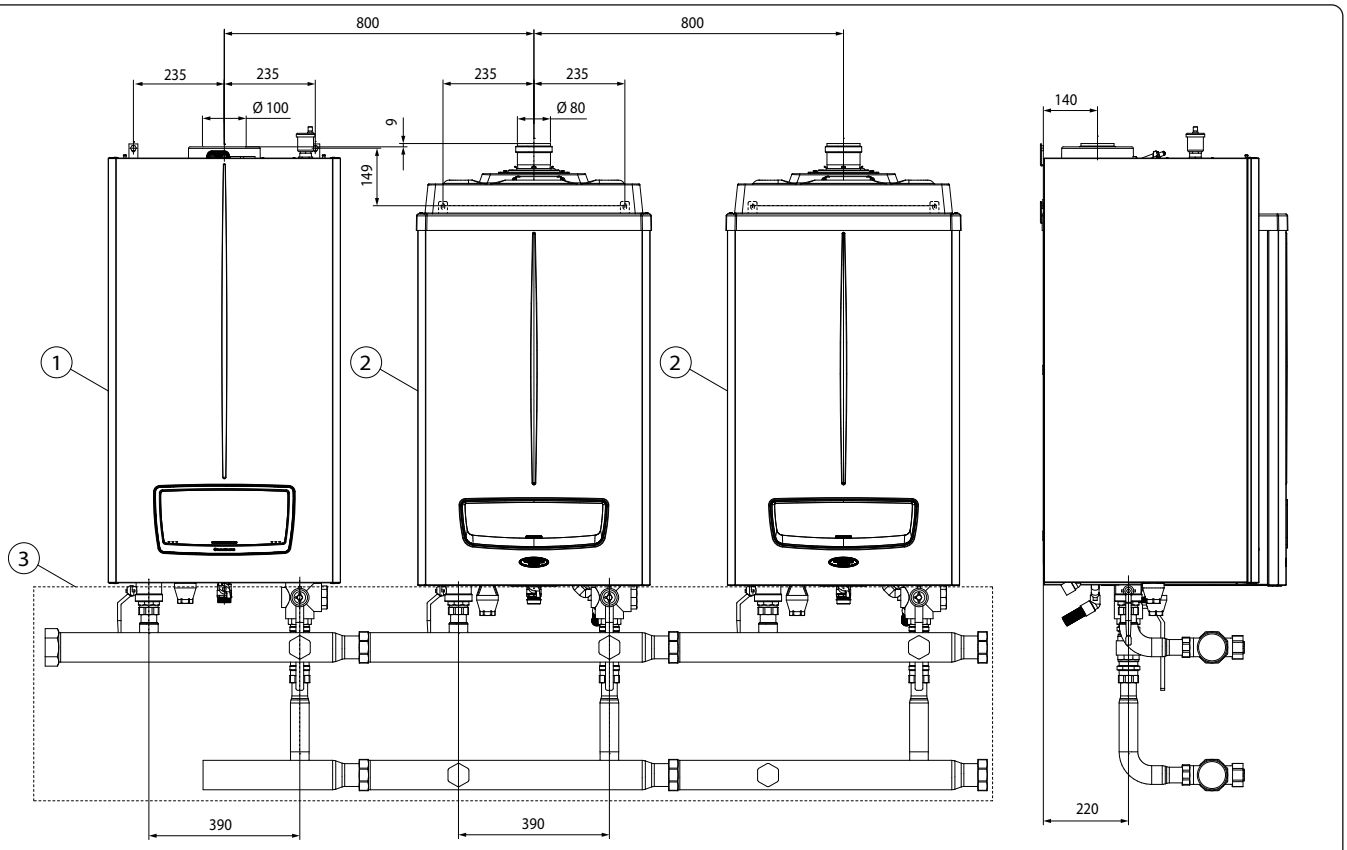


Key:

1 - Victrix Pro V2 100-120 EU
2 - Victrix 90-115
3 - Battery hydraulic manifold kit
** - Wall clearance for Victrix Pro V2 installation with hydraulic connection alignment*

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7.7 REPLACING VICTRIX PRO 100-120 2 ERP AND VICTRIX PRO 100-120 1 E WITH VICTRIX PRO V2 100-120 EU



Key:

1 - Victrix Pro V2 100-120 EU

2 - Victrix Pro 100-120 2 ERP and Victrix Pro 100-120 1 E

3 - Battery hydraulic manifolds kit

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42041 Brescello (RE) - Italy
Tel. 0522.689011
immergas.com

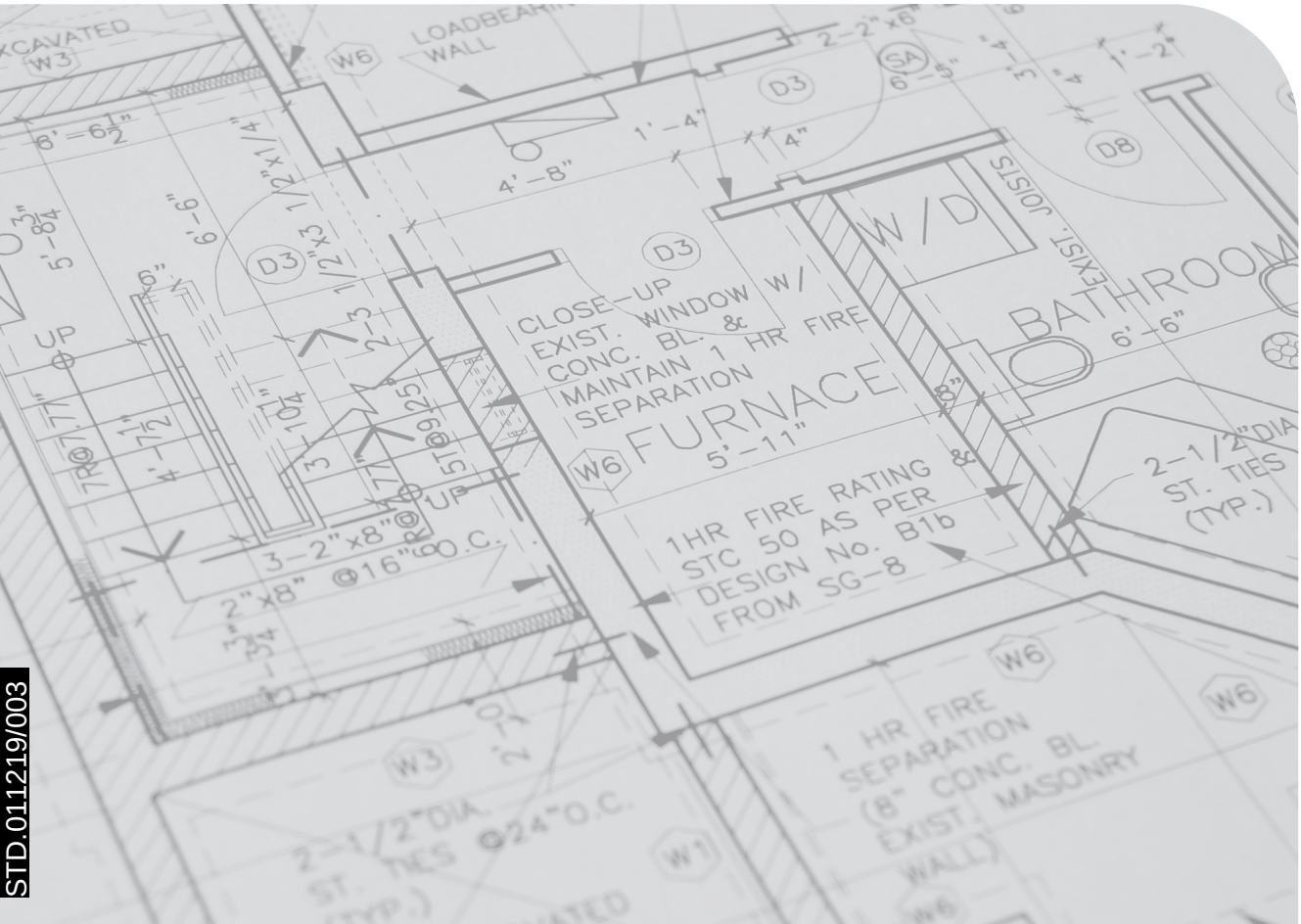
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