BOOSTER UNITS
FOR HOT-COLD TEMPERATURE REGULATION

ART.2187

Direct booster unit for cooling and heating systems complete with:

- High efficiency pump
- Shut-off valves
- N° 2 temperature gauges with 0÷80°C scale
- PE insulation
- Connections centre distance: 125 mm

ART.2188

Booster unit for cooling and heating systems complete with:

- Reversible mixing valve with 3-point actuator (**230V**)
- High efficiency pump
- Shut-off valves
- N° 2 temperature gauges with 0÷80°C scale
- PE insulation
- Connections centre distance: 125 mm

ART.2189

Booster unit for cooling and heating systems complete with:

- Reversible mixing valve with **0-10V** actuator
- High efficiency pump
- Shut-off valves
- N° 2 temperature gauges with 0÷80°C scale
- PE insulation
- Connections centre distance: 125 mm

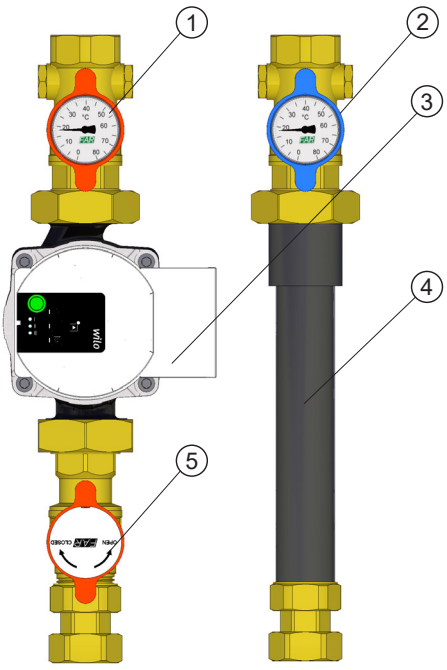
1 DESCRIPTION

The booster units are suitable for temperature control and water distribution. They are usually installed in central heating plant, after the boiler and the hydraulic separator, and can be incorporated into distribution manifolds supplying high and low water temperature system. The units are available in three versions: a direct version without the mixing valve, another version with a 230 V motorized mixing valve and the version with a 24V motorized mixing valve with 0-10V signal.

2 BOOSTER UNIT FOR DIRECT SYSTEMS

The booster unit **art.2187** controls the water distribution at the same temperature as the supply from the hot/cold water generator system.

1. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline.
2. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline.
3. High efficiency pump with 1"1/2 or 2" (for 1" 1/4 booster units) unions.
4. Steel extension with built-in non-return valve for possible pump displacement.
5. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve.



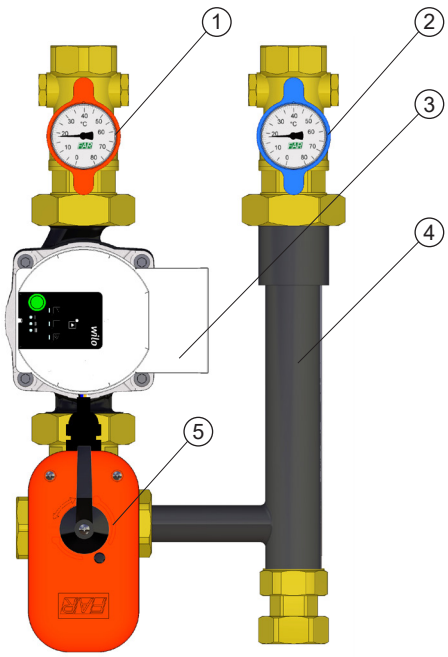
The regulating unit is supplied with insulation comprising front and back shells.

3 BOOSTER UNIT WITH MIXING VALVE AND ACTUATOR (230V)

The booster unit **Art.2188** permits the regulation of the system flow distribution, by means of an electronic control.

Suitable for heating and mixed systems (heating and cooling systems), the booster unit must be used in association with an electronic control unit, complete with temperature probe, **Art.9614**. For the mixed hot/cold heating and cooling systems, it is available the temperature and humidity probe, **Art.9605**.

1. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline.
2. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline.
3. High efficiency pump with 1"1/2 or 2" (for 1" 1/4 booster units) unions.
4. Steel extension with built-in non-return valve for possible pump displacement.
5. Mixing valve with 1" connections and modulating actuator (**230V**) for automatic regulation.



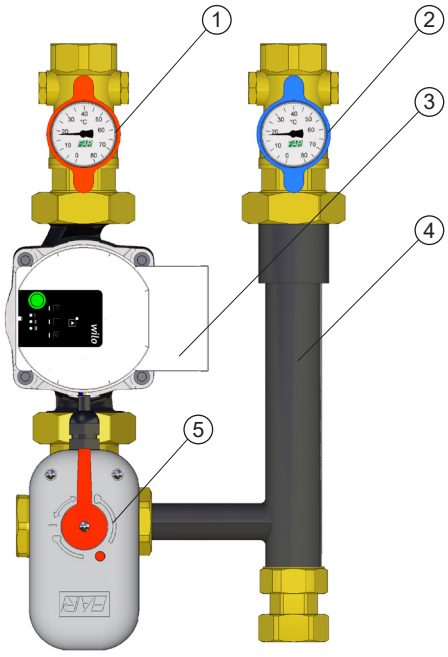
The regulating unit is supplied with insulation comprising front and back shells.

4 BOOSTER UNIT WITH MIXING VALVE AND ACTUATOR (0-10V)

The booster unit **Art.2189** permits the regulation of the system flow distribution, by means of an electronic control.

Suitable for heating and mixed systems (heating and cooling systems), the booster unit must be used in association with an electronic control unit, complete with temperature probe, **Art.9614**. For the mixed hot/cold heating and cooling systems, it is available the temperature and humidity probe, **Art.9605**.

1. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline.
2. 1" or 1"1/4 (for 1" 1/4 booster units) ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline.
3. High efficiency pump with 1"1/2 or 2" (for 1" 1/4 booster units) unions.
4. Steel extension with built-in non-return valve for possible pump displacement.
5. Mixing valve with 1" connections and modulating actuator (**0-10V**) for automatic regulation.



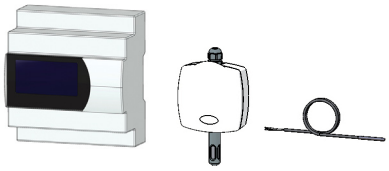
The regulating unit is supplied with insulation comprising front and back shells.

The booster unit equipped with mixing valve must be used in association with an electronic control unit:

Climatic operation (hot-cold)

To control the regulation of the mixing valve, it is available the **Art.9614**, equipped with an electronic hot/cold unit, a supply probe and an external probe.

The control unit is single zone, i.e.it can control one actuator.



CONFIGURABLE FOR BOTH VERSIONS OF ACTUATORS

OPTION

Art. 9605 temperature and humidity probe (for heating/cooling systems)

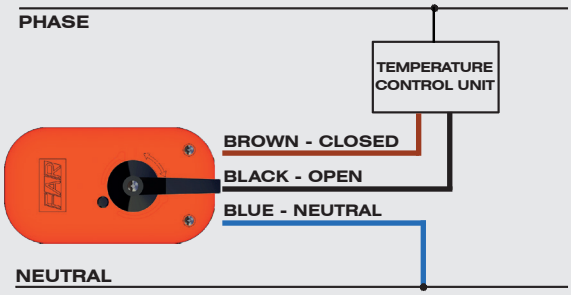
5 COMPONENTS

3 POINTS 230V ACTUATOR FOR MIXING VALVE

CODE	VOLTAGE FREQUENCY	ABSORBED POWER	ROTATION ANGLE	ROTATION TIME	TORQUE	ROOM TEMPERATURE	DEGREE OF PROTECTION
3010 40	230 V-50Hz	4,5 VA	90°	180 S	10 Nm	-10° + 50°C	IP54

N°	COLOUR	CONNECTION	DESCRIPTION
1	GREY	MICROSWITCH COMMON CONTACT	CONNECTED TO THE COMMON CONTACT OF THE MICROSWITCH
2	WHITE	N.O. OF THE MICROSWITCH	CONNECTED TO THE NORMALLY OPEN CONTACT OF THE MICROSWITCH
3		SIGNAL INDICATOR	WITH OPEN VALVE PRESENCE OF PHASE ON TERMINAL
N	BLUE	NEUTRAL	CONNECTION TO THE NEUTRAL OF SYSTEM
5	BROWN	PHASE - CLOSE	VALVE CLOSING
6	BLACK	PHASE - OPEN	VALVE OPENING
7		SIGNAL INDICATOR	WITH CLOSED VALVE PRESENCE OF PHASE ON TERMINAL

ELECTRICAL CONNECTION



The actuator is provided with a double isolation, so earthing is not required.

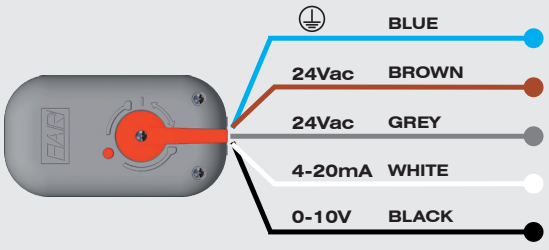
To control opening and closing of a zone valve via an actuator, connect the blue wire to the neutral one, the brown and the black to the temperature control unit. The valve opens in presence of phase on the black wire, while with phase on the brown the valve closes.

MODULATING ACTUATOR WITH SIGNAL 0-10V

CODE	VOLTAGE FREQUENCY	ABSORBED POWER	ROTATION ANGLE	ROTATION TIME	TORQUE	ROOM TEMPERATURE	DEGREE OF PROTECTION
3012 180	24 V-50Hz	4,5 VA	90°	180 S	10 Nm	-10° + 50°C	IP54

ELECTRICAL CONNECTION

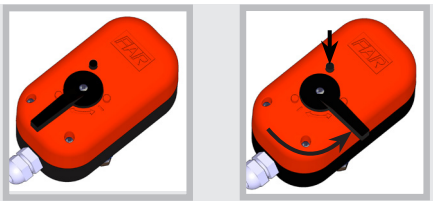
COLOUR	CONNECTION	DESCRIPTION
BLUE	NEUTRAL	NEUTRAL CONNECTION – ACTUATOR POWER SUPPLY
BROWN	PHASE	24Vac PHASE CONNECTION – ACTUATOR POWER SUPPLY
GREY	PHASE	24Vac PHASE CONNECTION – ROTATION POINT INVERSION
WHITE	4-20mA	CONNECTION TO THE CONTROL UNIT WITH 4-20mA CONTROL SIGNAL
BLACK	0-10V	CONNECTION TO THE CONTROL UNIT WITH 0-10V CONTROL SIGNAL



To control the opening and closing of the zone valve through the actuator, simply connect the blue cable to neutral, the brown cable to phase and the black cable to the 0-10V control unit (or the white cable if the regulation is 4-20mA). The grey cable is used to invert the starting point of the actuator and, as far as our applications are concerned, we suggest to leave it always under power.

MANUAL RELEASE

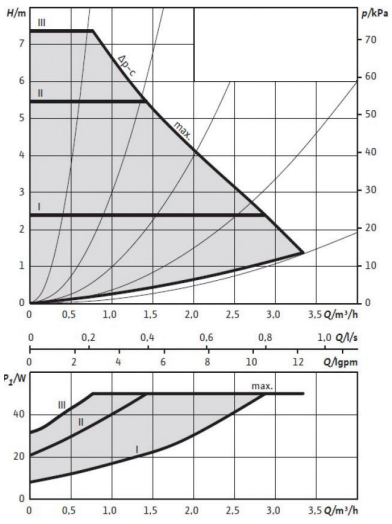
In order to manually open or close the actuator, push the button and simultaneously turn the position indicator counter-clockwise through 90°. Normal functioning will return automatically.



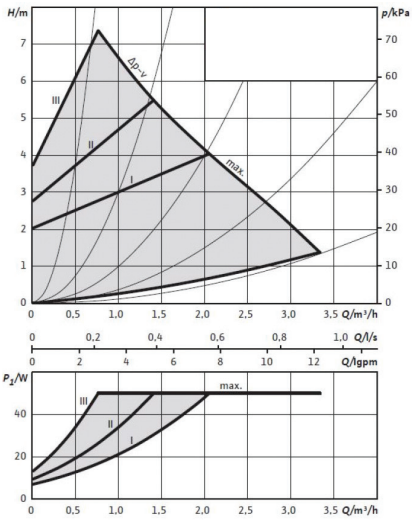
Electronical high-efficiency pump - Delivery head 1 - 7 m (standard pump)

Approved fluids:	- Heating water (in accordance with VDI 2035) - Water-glycol mixtures (max: 50% water - 50% glycol)
Max. delivery head:	7.7 m
Temp. range for applications:	- Flow temperature 0°C - 95°C - Ambient temperature 0°C - 70°C
Max. volume flow:	3.5 m³/h

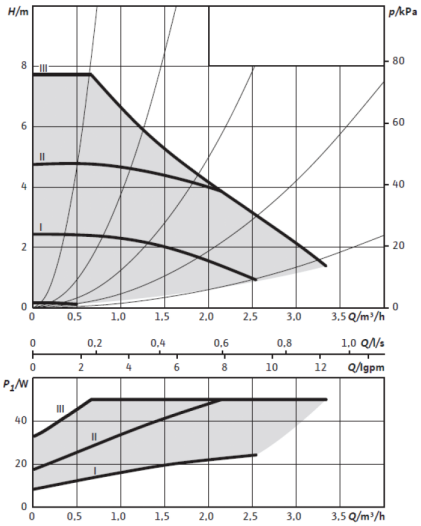
Fluid-dynamic features with proportional delivery Δp-v



Fluid-dynamic features with costant delivery Δp-c

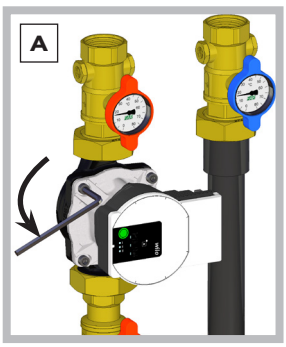


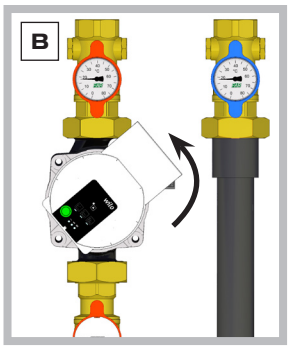
Costant speed features with I, II e III pump curves

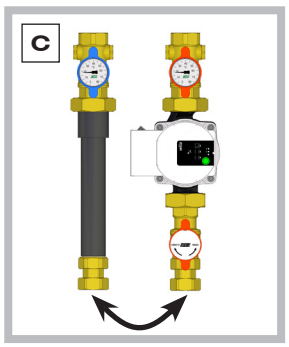


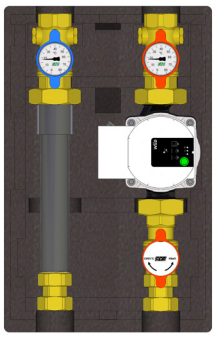
For further technical specifications consult the technical data sheet dedicated to circulators.
(Request to servizio.tecnico@far.eu)

6 PUMP CONFIGURATION WITH RIGHT-HAND SIDE SUPPLY







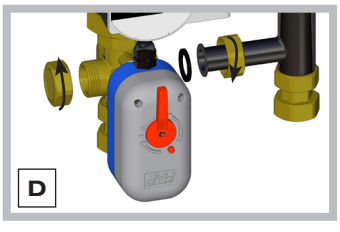


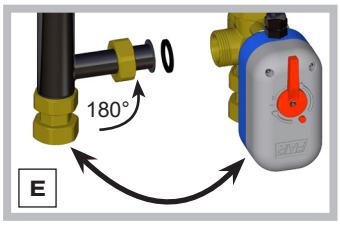
When the pump is installed on the right side, it is also necessary to rotate the electronic part. In order to achieve this arrangement please proceed as follows:

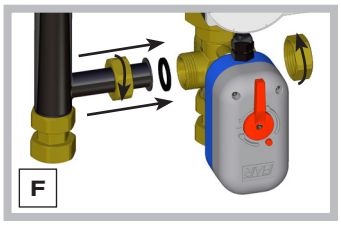
A- Unscrew the 4 locking screws.
B- Rotate the electronic part of the pump through 180° and tighten the locking screws again.
C- Reverse the supply and the return pipelines.

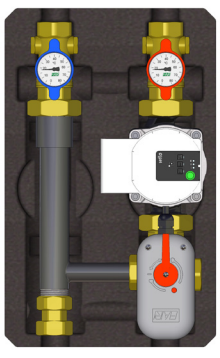
If it is necessary to install the booster units **art.2188-2189** on the right side, the mixing unit must also be rotated:

D- Unscrew the central nut in order to separate the supply from the return line.
E- Move the supply to the right side and rotate the central extension piece through 180°.
F- Remove the plug and screw it on the right side of the mixing unit and connect the central extension piece.

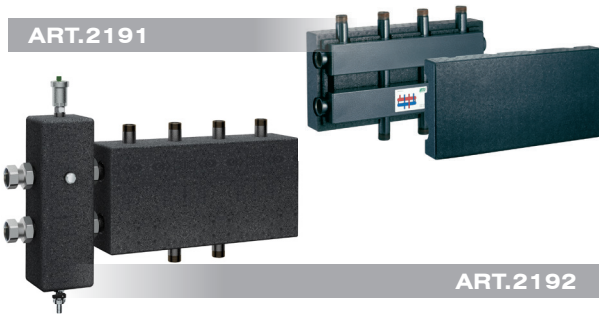








7 MANIFOLDS FOR CENTRAL HEATING



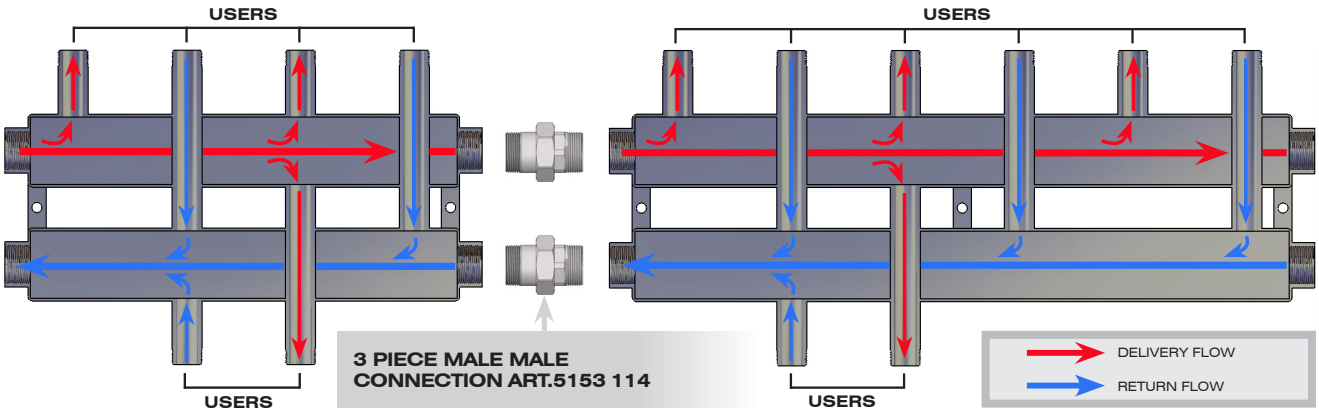
To install booster units in a central heating system, FAR offers a range of painted steel manifolds: Art.2191 -2192 (with hydraulic separator)

Central heating manifolds make it possible to have supply and return pipes at the same level, making it easier to integrate a booster unit into the heating system, thus reducing overall dimensions. They comprise two rectangular sections: one for flow and the other for the return. They are thermally insulated by means of insulation shells.

Insulation shells are supplied with the manifolds: they are in PPE guaranteeing both thermal insulation and excellent resistance stem.

7.1 FLOWS IN A MANIFOLD

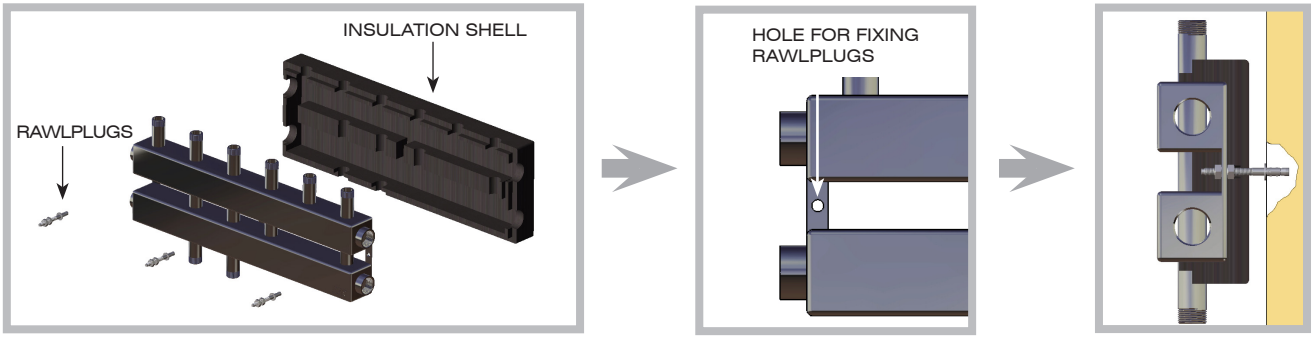
The scheme below shows the flows inside the manifolds.



7.2 INSTALLATION

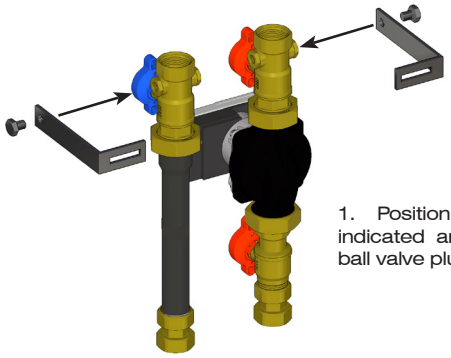
Manifolds must be installed on the wall by means of rawlplugs and placed as illustrated below.
A hydraulic separator should be placed between the boiler and the manifold, thus creating independent circuits, in such a way as to avoid interferences to pumps installed in the system. The manifold features side connections, which permit positioning of an expansion tank, in order to absorb an increase in volume as the water heats up.

Manifolds must be installed on the wall by means of rawlplugs (NOT SUPPLIED) located directly on the manifold brackets. Before this is done, the insulation shell should be positioned on the manifold, so as to sit between manifold and the wall.



8 WALL INSTALLATION

Brackets complete with screws, **art.7478** can be used for wall installation.

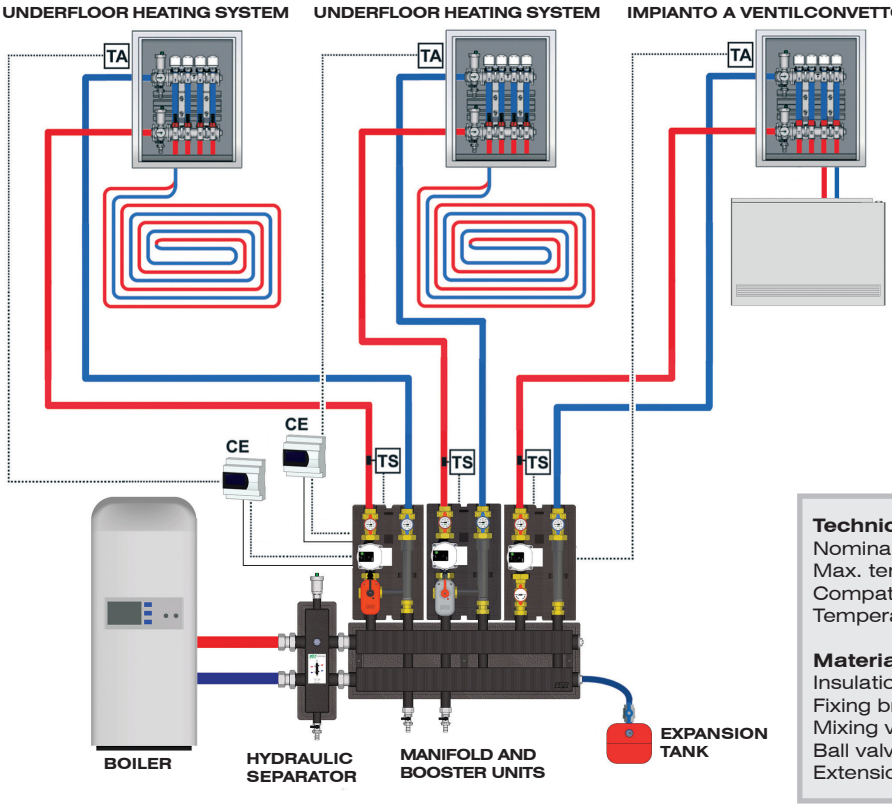


1. Position the bracket as indicated and screw it on the ball valve plug.

2. To insert the brackets in the insulation, cut along the splits on the back shell and fix using two rawlplugs.

8.1 WIRING SCHEME AND TECHNICAL FEATURES

The wiring scheme indicates an installation overview of components for central heating.



The booster units with mixing valve must be regulated through two electronic control units (CE), **Art.9614**.

The room thermostats (TA) of the radiant systems, connected to the respective control units (CE), controls pump start-up.

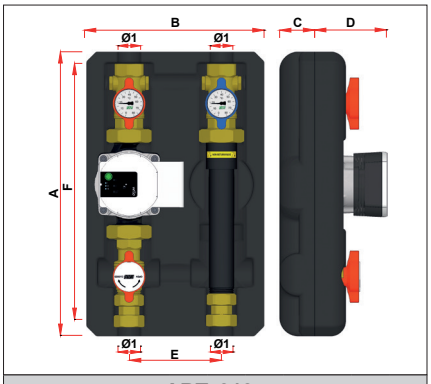
The first unit on the right is for direct systems and feeds a fan coil system where a room thermostat controls the pump.

It is advisable that a safety thermostat (TS) with contact probe is installed on the supply pipeline to prevent excessively hot water entering the system.

Technicals features:
Nominal pressure: 10 bar
Max. temperature: 95°C
Compatible media: water, water with glycol
Temperature gauge scale: 0÷80°C

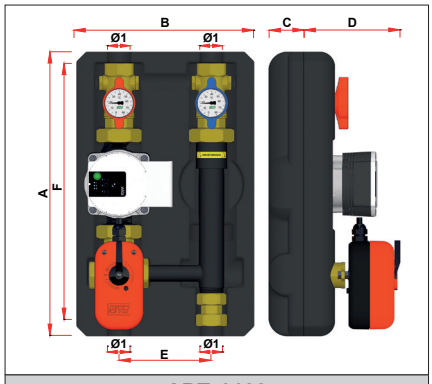
Materials:
Insulation shell: PPE
Fixing brackets: zinc-coated steel
Mixing valve: CB753S brass
Ball valves and T gauge holder: CW617N brass
Extension with non-return valve: steel

9 DIMENSIONAL FEATURES



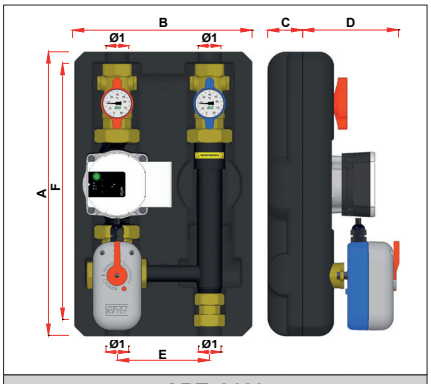
ART. 2187

CODE	Ø1	A	B	C	D	E	F
2187 1130EA	1"	385	240	49	96	125	347
2187 1180xx	1"	435	240	52	98/154	125	397
2187 114180xx	1"1/4	435	240	52	115/149	125	412



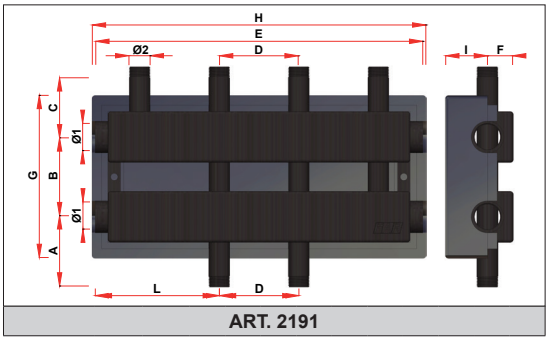
ART. 2188

CODE	Ø1	A	B	C	D	E	F
2188 1130EA	1"	385	240	49	128	125	347
2188 1180xx	1"	435	240	52	128/154	125	397
2188 114180xx	1"1/4	435	240	52	126/149	125	412



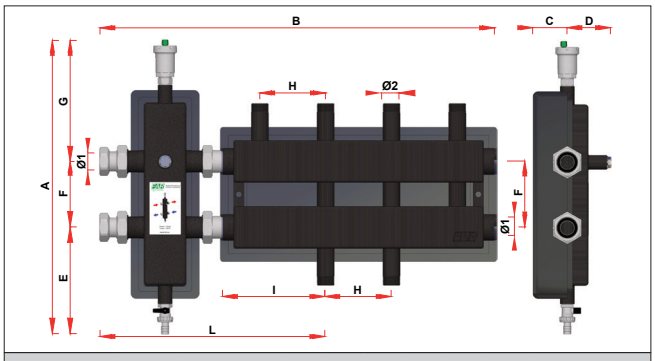
ART. 2189

CODE	Ø1	A	B	C	D	E	F
2189 1130EA	1"	385	240	49	128	125	347
2189 1180xx	1"	435	240	52	128/154	125	397
2189 114180xx	1"1/4	435	240	52	126/149	125	412



ART. 2191

CODE	Ø1	Ø2	A	B	C	D	E	F	G	H	I	L
2191 11402	1"1/4	1"	110	125	94	125	515	40	255	525	65	195
2191 11403	1"1/4	1"	110	125	94	125	765	40	255	775	65	195
2191 202	2"	1"1/4	130	165	113	125	515	60	335	525	85	195
2191 203	2"	1"1/4	130	165	113	125	765	60	335	775	85	195
2191 204	2"	1"1/4	130	165	113	125	1015	60	335	1025	85	195



ART. 2192

CODE	Ø1	Ø2	A	B	C	D	E	F	G	H	I	L
2192 11402	1" 1/4	1"	110	125	110	125	515	40	255	525	65	195
2192 11403	1" 1/4	1"	110	125	110	125	765	40	255	775	65	195