

ART.2171



Booster unit for high temperature complete with:

- Pump
- Shut-off valves
- No.2 temperature gauges with 0÷80°C scale
- PPE insulation

ART.2174



Fixed point booster unit complete with:

- Fixed point thermostatic mixer
- Pump
- Shut-off valves
- No.2 temperature gauges with 0÷80°C scale
- PPE insulation

ART.2176



Booster unit with mixed valve:

- Reversible mixing valve with 3-point actuator
- Pump
- Shut-off valves
- No.2 temperature gauges with 0÷80°C scale
- PPE insulation

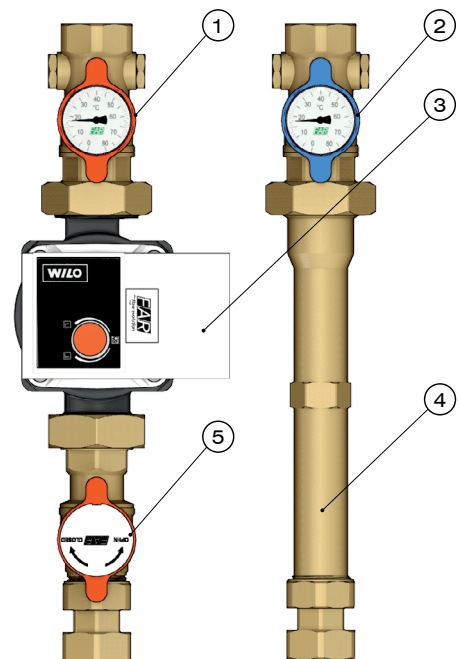
1 DESCRIPTION

The booster units—temperature regulating units—are suitable for temperature control and water distribution in multi-storey or multi-zone applications. They are usually installed in central heating plant, after the boiler and the hydraulic separator, and can be incorporated into distribution manifolds supplying low water temperature systems, provided a mixing valve is used. They are also suitable for high water temperature systems.

2 BOOSTER UNIT FOR HIGH WATER TEMPERATURE SYSTEMS

The booster unit **art.2171** controls the water distribution at the same temperature as the supply from the boiler or chiller.

1. 1" ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline
2. 1" ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline
3. Pump with connection to 1"1/2 unions. Pump centre distance: 130mm (electronic pump, energy class A)
4. Brass extension with built-in non-return valve for possible pump displacement
5. 1" ball valve

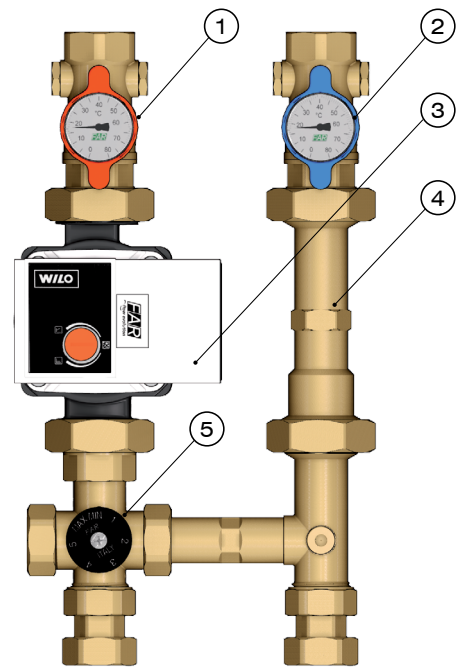


The regulating unit is supplied with insulation comprising front and back shells and a reversible plug for pump.

3 FIXED POINT BOOSTER UNIT WITH THERMOSTATIC MIXER FOR LOW WATER TEMPERATURE SYSTEMS

The booster unit **art.2174** permits a fixed point regulation by means of a thermostatic mixer.

1. 1" ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline
2. 1" ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline
3. Pump with connection to 1"1/2 unions. Pump centre distance: 130mm (electronic pump, energy class A)
4. Brass extension with built-in non-return valve for possible pump displacement
5. Thermostatic mixer with graduated handle



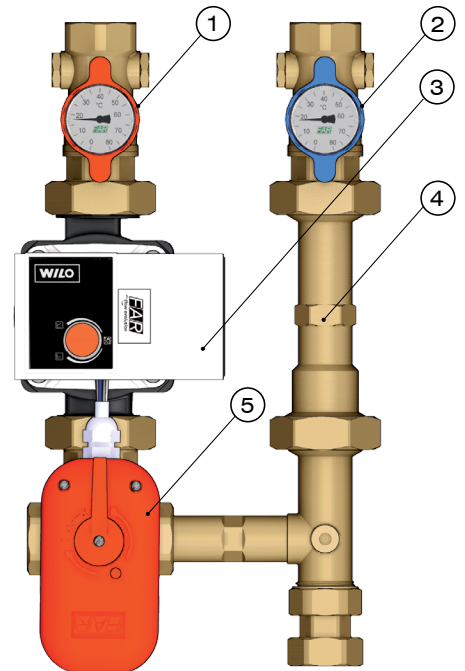
The regulating unit is supplied with insulation comprising front and back shells and a reversible plug for pump.

4 BOOSTER UNIT WITH MIXING VALVE FOR LOW WATER TEMPERATURE SYSTEMS

The booster unit **art. 2176** controls the water distribution through two different types of regulation:

- **Fixed point functioning:** with constant temperature, using the control unit **art.9612** complete with supply probe and seat.
- **Temperature control:** with variable temperature, using the control unit **art.9611** complete with supply and external probe.

1. 1" ball valve with 0÷80°C temperature gauge and red handle, for connection to supply pipeline
2. 1" ball valve with 0÷80°C temperature gauge and blue handle, for connection to return pipeline
3. Pump with connection to 1"1/2 unions. Pump centre distance: 130mm (electronic pump, energy class A)
4. Brass extension with built-in non-return valve for possible pump displacement
5. Mixing valve with 1" connections and modulating actuator for automatic regulation



The regulating unit is supplied with insulation comprising front and back shells, a reversible plug for pump and a plug for actuator.

The version with mixing valve needs an electronic control unit:

Set point operation:

Art.9612 consisting of an electronic control unit and delivery probe.



Climatic operation:

Art.9611 consisting of an electronic control unit, delivery probe and external probe.

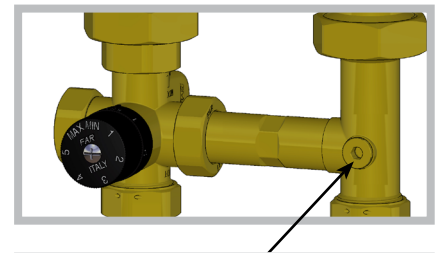
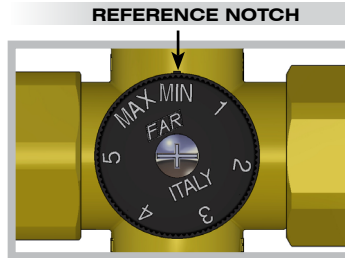


5 COMPONENTS

Thermostatic mixer

The thermostatic mixer is designed to keep constant temperature in the system. Temperature setting must be carried out when system is operating and in relation to the design heads. An approximate setting can be effected by considering the following correspondence between the numbering on the mixer and the outgoing water temperature.

POSITION	t [°C]
MIN	18 ± 2
1	20 ± 2
2	22 ± 2
3	30 ± 2
4	40 ± 2
5	50 ± 2
MAX	55 ± 2



The return connection is provided with a 1/4" seating, suitable for the installation of a probe or a pressure gauge.

Once the mixer handle position has been set, the system is calibrated. The values indicated in the table above can vary (±2°C tolerance), depending on the characteristics of the system where the unit is installed. Final adjustment can be made by referring to the value indicated on the ball valve temperature gauge.

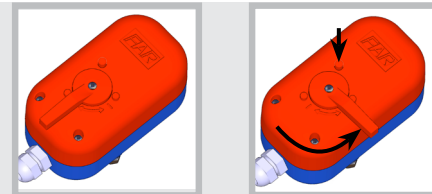
Point actuator for mixing valve

CODE	VOLTAGE	ABSORBED POWER	ROTATION ANGLE	ROTATION TIME	TORQUE	WORKING TEMPERATURE	PROTECTION LEVEL	COLOUR
3010 40	230 V-50Hz	4,5 VA	90°	180 S	10 Nm	-10° + 50°C	IP54	RED/BLUE

The actuator incorporates a servomotor, which permits automatic operation of the mixing valve. It operates in response to a signal from a control unit.

MANUAL RELEASE

In order to position the actuator as desired, press the red key for a few seconds and simultaneously rotate the position indicator connected to the drive shaft through 90°, clockwise or counterclockwise. Automatic reset to normal function. Normal functioning will return automatically.



WIRING

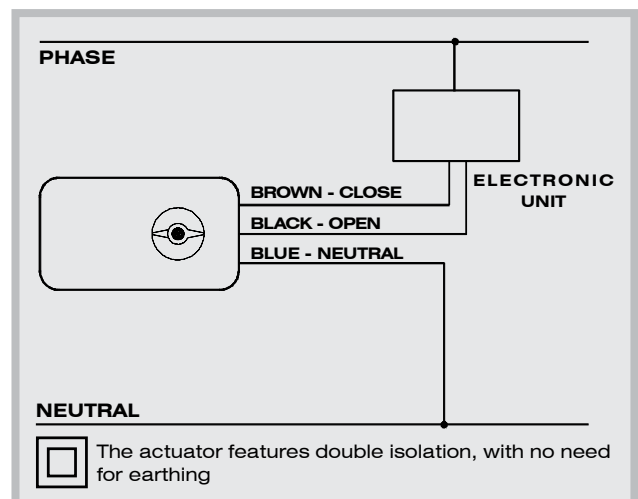
Before connecting the actuator make sure that the selected model is fully compatible with the available network voltage. All connections must be made by qualified personnel and with respect for the overall electrical system (also shown on actuator) – taking care that the electricity supply is switched off. Incorrect connections may endanger both persons and equipment.

All actuators have been designed with an additional auxiliary micro-switch, i.e. exchange contacts without voltage, for low-tension signals (max 230 V) and/or to supply applications with low electrical input (max 2A).

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

3 WIRING CONNECTION: CONTROL THROUGH AN ELECTRONIC UNIT

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



Electronical high-efficiency pump


The high efficiency electronic circulator, **art.2185 130EA**, is equipped with a red selector through which it is possible to set the operation mode. A green circular LED indicates the proper functioning of the circulator



Green LED on

Proportional pressure operation $\Delta p-v$
Suitable for use on radiator systems.



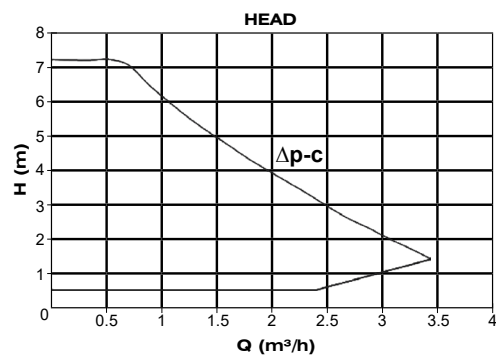
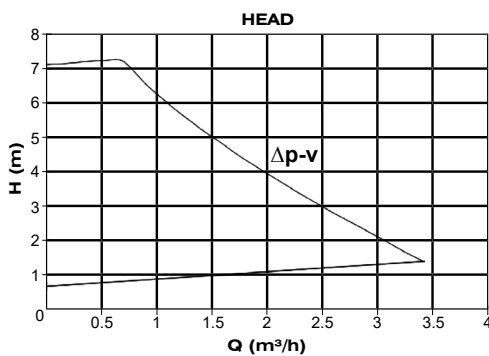
Green LED flashing

Automatic mode for the air vent activation when system starts.



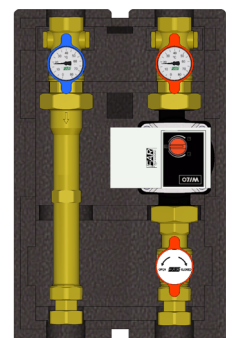
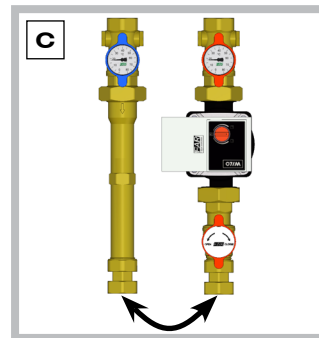
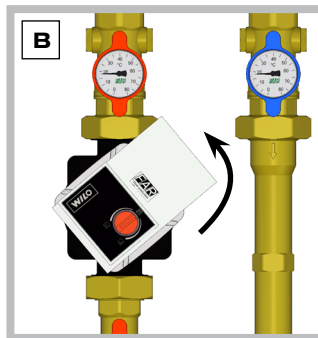
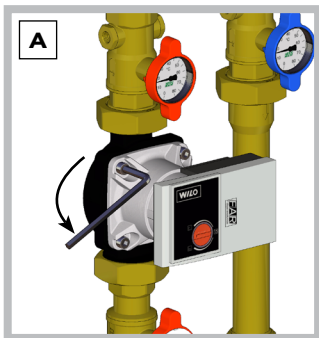
Green LED on

Constant pressure operation $\Delta p-c$
Suitable for use in underfloor heating systems.



Approved fluids - Heating water (in accordance with VDI 2035)
- Water-glycol mixtures (max: 50% water - 50% glycol)
Max. delivery head: 7.6 m

T. range for applications - Flow temperature 0°C - 95°C
- Ambient temperature 57°C
Max. volume flow: 2.7 m³/h

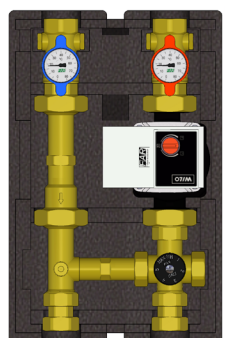
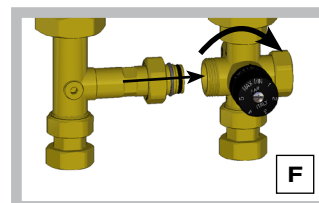
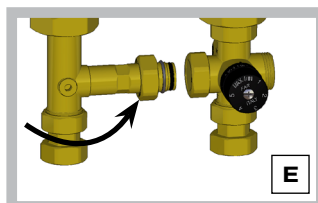
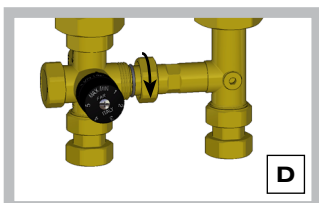
6
PUMP CONFIGURATION WITH RIGHT-HAND SIDE SUPPLY


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:

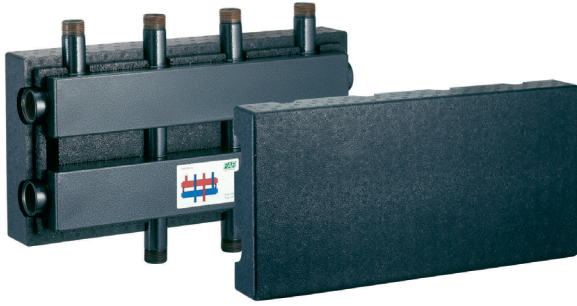
- A-** Unscrew the 4 locking screws.
- B-** Rotate the electronic part of the pump through 180° and tighten the locking screws again.
- C-** Reverse the supply and the return pipelines.

If it is necessary to install the booster units **art.2174-2176** 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



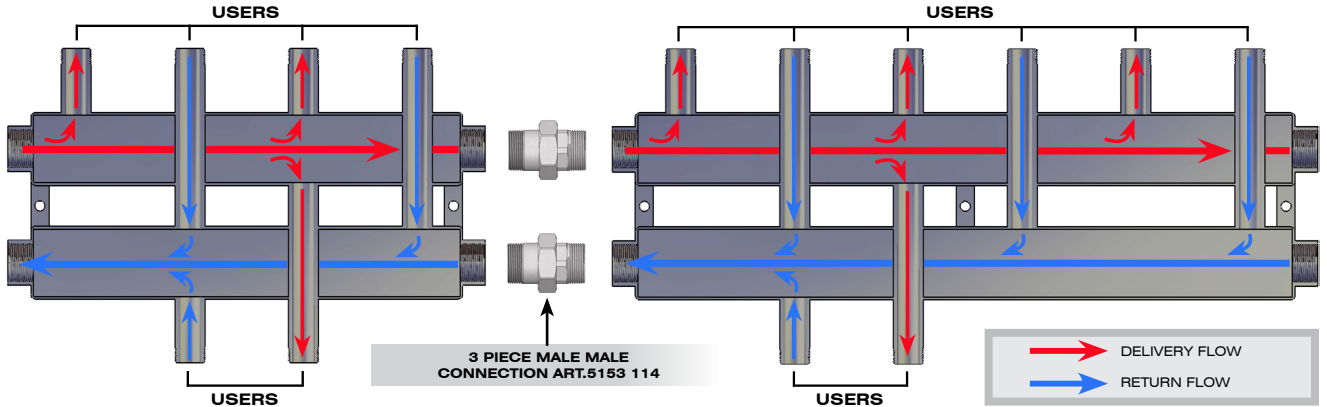
To install booster units in a central heating system, FAR offers a range of painted steel manifolds **Art.2191 11402** (2+1 port) and **Art.2191 11403** (3+1 port).

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 FLOW IN 2 AND 3 PORT MANIFOLDS

The scheme below shows the flows inside the manifolds.



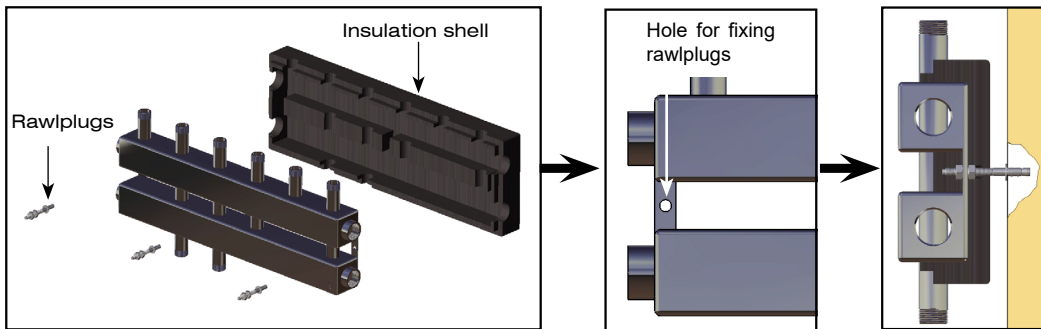
7.2 INSTALLATION

Manifolds must be installed on the wall by means of Rawplugs 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.

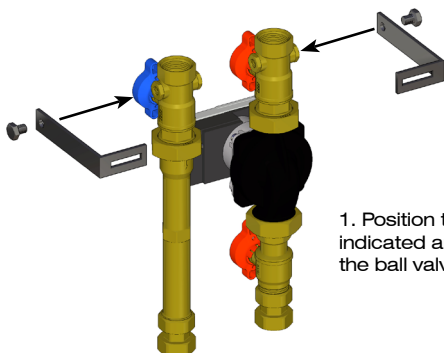
The manifold features side connections, which permit positioning of an expansion tank, in order to absorb an increase in volume as the water heats up.

Manifolds must be installed on the wall by means of Rawplugs (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

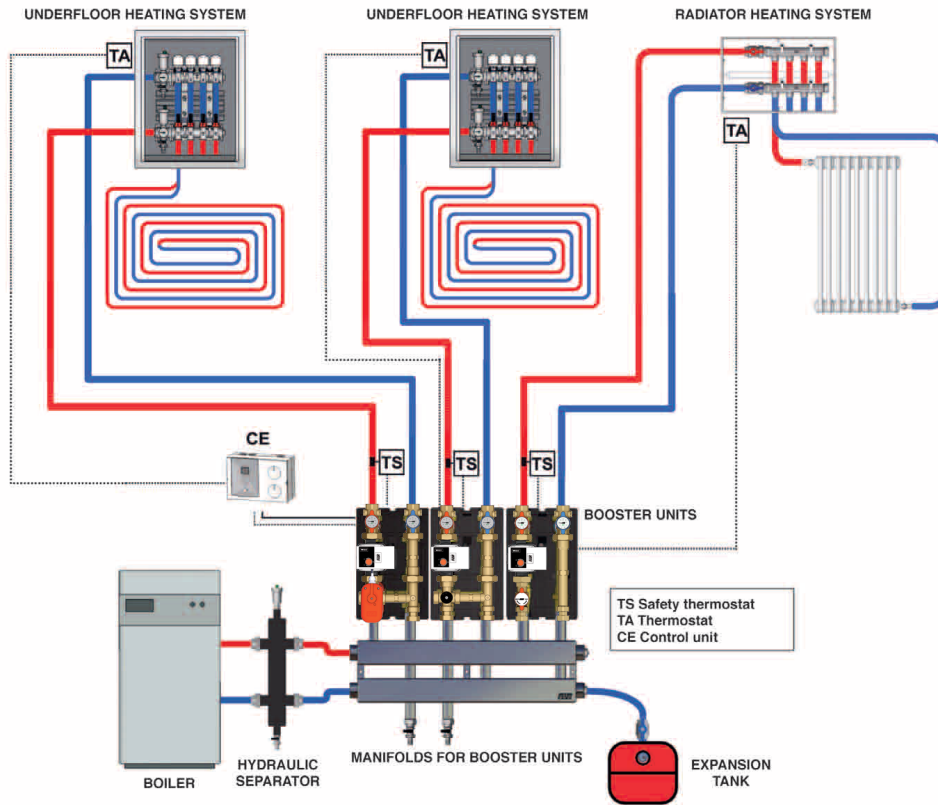
Brackets complete with screws, **art.7478** can be used for wall installation.



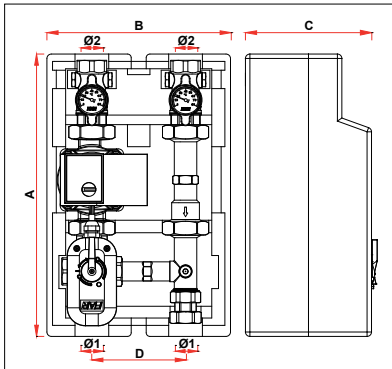
1. Position the bracket as indicated and screw it on the ball valve plug.



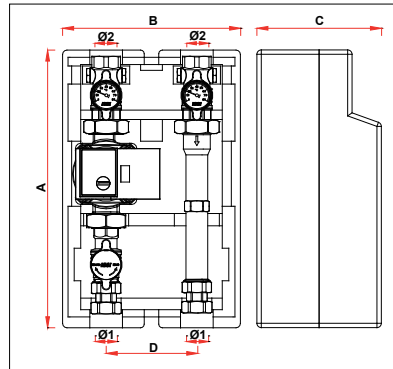
2. To insert the brackets in the insulation, cut along the splits on the back shell and fix using two Rawplugs.

8.1 WIRING SCHEME


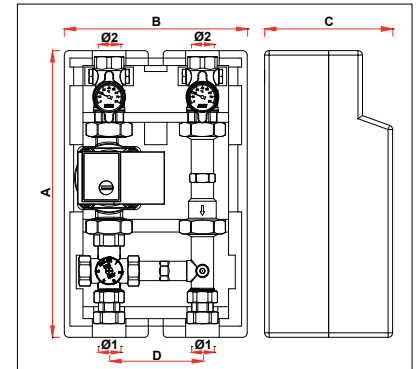
The wiring scheme indicates an installation overview of components for central heating. The unit with mixing valve can be regulated through an electronic controller - CE - with fixed point functioning or climatic operation. The room thermostat must be connected to the control unit art.9611, which controls pump start-up. The unit with thermostatic mixer is suitable for fixed point low temperature systems, where the room thermostat shall be connected to the pump. The first unit on the right is for high temperature systems, where a room thermostat controls the pump. We recommend that a safety thermostat with contact probe is installed on the supply pipeline to prevent excessively hot water entering the system.

9 DIMENSIONAL AND TECHNICAL FEATURES


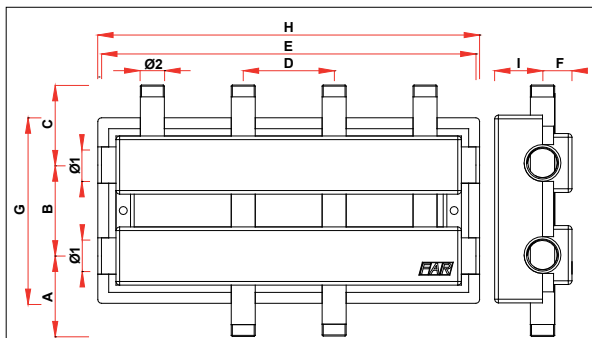
CODE	Ø1	Ø2	A	B	C	D
2176 1130EA	G1	G1	384	245	170	125
2176 1180xx	G1	G1	434	245	170	125



CODE	Ø1	Ø2	A	B	C	D
2171 1130EA	G1	G1	384	245	170	125
2171 1180xx	G1	G1	434	245	170	125



CODE	Ø1	Ø2	A	B	C	D
2174 1130EA	G1	G1	384	245	170	125
2174 1180xx	G1	G1	434	245	170	125



CODE	Ø1	Ø2	A	B	C	D	E	F	G	H	I
2190-2191 11402	G1 1/4	G1	110	125	110	125	515	40	255	525	65
2190-2191 11403	G1 1/4	G1	110	125	110	125	765	40	255	775	65

Technical 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: CB753S brass