

# UC

## DESCRIPTION

Pettinaroli modular heat accounting unit **UC** for floor distribution of central heating installation with PICV **DYNASTY 92**.

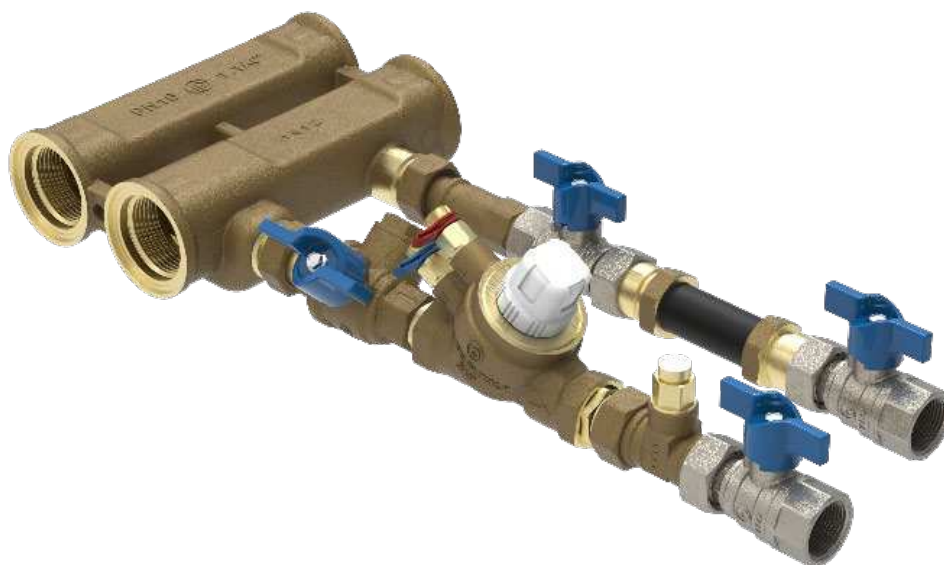
The Pettinaroli **UC** is a perfect solution for metering and recording of heat consumption of a single apartment in a central heating system. The unit enhances the **energy efficiency** of the installation thanks to PICV **DYNASTY 92**: it keeps the flow rate constant independently of pressure fluctuation (**dynamic balancing**) and, along with variable speed pumps, minimizes the pump energy consumption. The user can get large cost and **energy savings** and a fair heating cost allocation among all the users. Moreover, the **insulating case** reduce heat losses.

Perfect **modularity** is always achieved through the dedicated manifold, equipped of O-Rings and M10 connecting screw: the **floor distribution** can be adapted according to the specific requirements of each floor, adding units wherever it needs. The resulting installation is very **compact**.

The **maintenance** is also eased: Pettinaroli **Filterball** makes the strainer always accessible and avoid the need of drain the system. Moreover, the patented flow limiter of **DYNASTY 92** is **dirt resistant**. Isolating ball valves allows any operation on the unit and on the systems. Each unit is **factory tested**.

The unit maximizes the central heating benefits: energy efficiency of central heating and freedom of an individual heating system.

The PICV valve **DYNASTY 92** works as a zone valve (if it is coupled with an On/Off room thermostat and actuator) or a control valve (if it is coupled with a proportional room thermostat and actuator).



## BENEFITS

- **Dynamic balancing:**
  - User: the total incoming flow rate is always constant – ENERGY SAVING
  - Installer: no balancing of main risers. Just set one valve – TIME SAVING
- Apartment temperature and **flow rate control** and balancing with a single valve
- Quick installation: manifold, strainer, isolating valves, control and balancing valve already **assembled and factory tested**
- **Flexible installation:** the manifold can be connected on the right or on the left to the riser
- **Direct coupling** between manifold with O-Ring and M10 screw.
- Compact design: **2-in-1 ball valve and FM028 strainer** (Filterball).
- **Easy strainer maintenance:** no need of drain out the water. Few drops of water leak out.
- **Dirt resistant PICV flow limiter**
- Heat meter: removable  $\frac{3}{4}$ " plastic sleeve, 110 mm long. The heat meter can be installed just when needed, after the system commissioning
- **20 mm insulation case.** Contact Fratelli Pettinaroli to know which heat meters suit the case.
- High flow rate range (20 l/h to 1850 l/h) according to the variations
- **Accessories** to connect the manifold to the rises:
  - Isolating valves with thermometer option: the union end with O-Ring is suitable for direct connection to the manifold;
  - 3 pieces unions;
  - End-of-line drain and air vent;
  - Actuators;

## COMPONENTS

- 1 x **8090** manifold
- 3 x **52MET** ballvalve
- 1 x **52F** ballvalve with SS strainer FM28 - **Filterball**
- 1 x PICV valve **DYNASTY 92** to be selected among:
  - **92L ½"**: max flow rate 450 l/h
  - **92H ½"**: max flow rate 850 l/h
  - **92L ¾"**: max flow rate 1000 l/h
  - **92H ¾"**: max flow rate 1850 l/h
- 1 x temperature gauge
- 1 x plastic sleeve
- 1 x brackets to install the kit on the wall
- 1 x insulating case (for specific variations)

ENERGY METER NOT INCLUDED

## VARIATIONS

**UC\_\_EFI**: modular heat metering unit with PICV Dynasty 92 (with test points) and insulation

**UC\_\_DFI**: modular heat metering unit with PICV Dynasty 92-1 (without test points) and insulation

**UC\_\_EF**: modular heat metering unit with PICV Dynasty 92 (with test points). **No insulation**

**UC\_\_DF**: modular heat metering unit with PICV Dynasty 92-1 (without test points). **No insulation**

**PICV Dynasty 92 codification:**

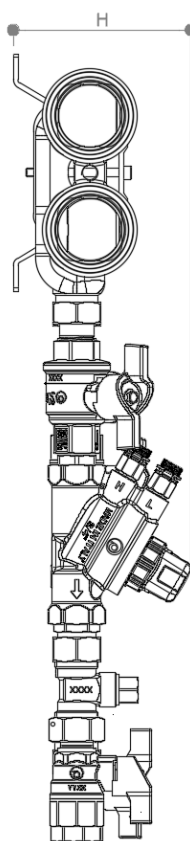
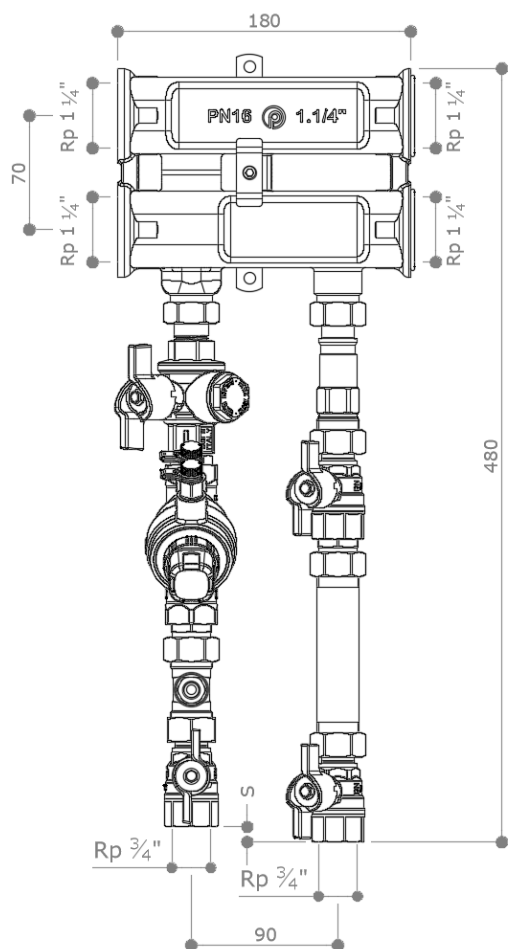
**04**: **92L ½"** 450 l/h or **92L1 ½"** 450 l/h

**08**: **92H ½"** 850 l/h or **92H1 ½"** 850 l/h

**10**: **92L ¾"** 1000 l/h or **92L1 ¾"** 1000 l/h

**18**: **92H ¾"** 1850 l/h or **92H1 ¾"** 1850 l/h

## DIMENSIONS



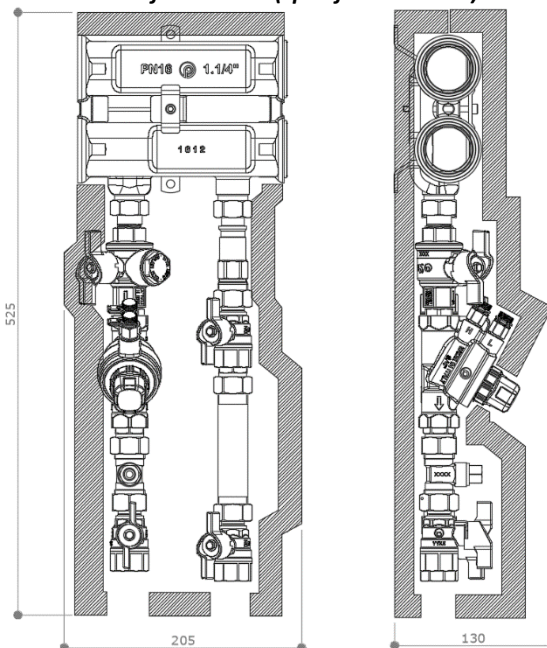
	UC04_F_	UC08_F_	UC10_F_	UC18_F_
Flow rate	450 l/h	850 l/h	1000 l/h	1850 l/h
S	20	10	10	10
H	107	109	109	109
	143	145	146	146
	168.5	171.5	171	171

Without actuator  
With V54202, V54402, A54204, A54404  
With VA7481, VA7482

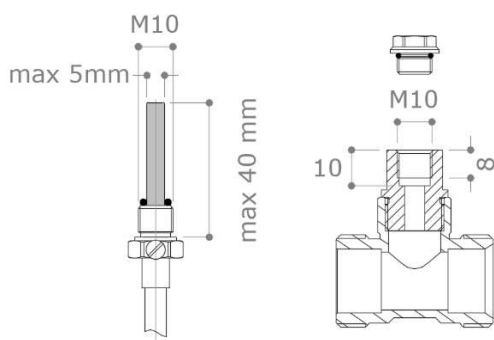
Dimensions in mm

All threads are conform to ISO 7-1 standards

**Dimensions of insulation (specific variations)**



## Connection detail of the temperature sensor



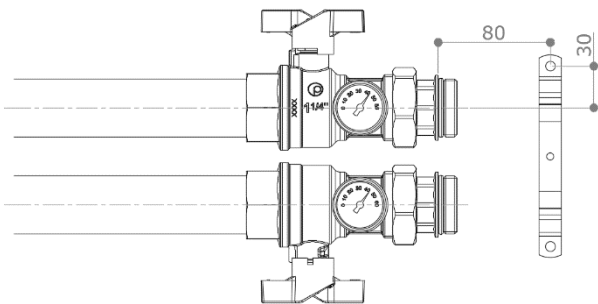
The sensor is not included. It is supplied with the energy meter. Please be sure it is suitable to be fitted into the probe, according to the drawing beside.

O-ring

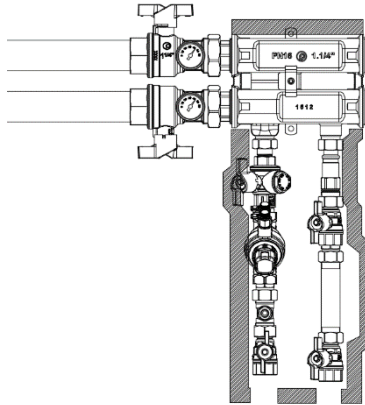
## MATERIALS

<b>Manifold</b>	Casted brass UNI EN 1982-CB 753S
<b>PICV</b>	CW602N (EN 12167) CuZn36Pb2As
<b>Filterball</b>	CW602N (EN 12167) CuZn36Pb2As
<b>Isolating valve</b>	CW617N (EN 12165) CuZn40Pb2 nickel plated
<b>Unions</b>	CW617N (EN 12165) CuZn40Pb2
<b>Temperature gauge</b>	CW617N (EN 12165) CuZn40Pb2
<b>Nipples</b>	CW614N (EN 12164) CuZn39Pb3
<b>110 mm plastic pipe</b>	PA66 GF30

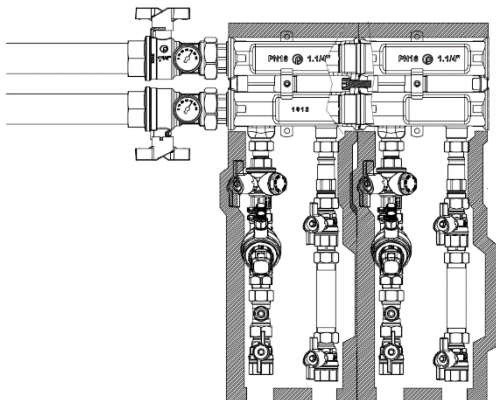
## INSTALLATION



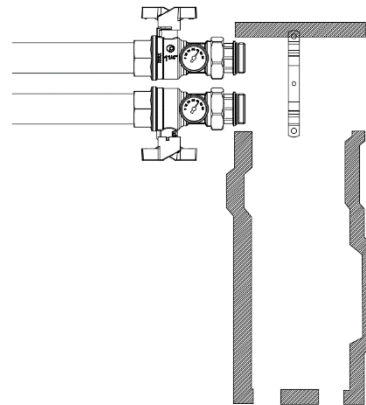
1. Fix the bracket on the wall, in the suggested position (mm)



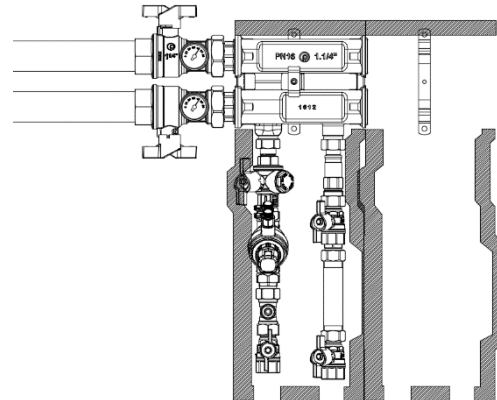
3. Install the unit and fix it to the bracket. Connect the risers unions to the manifolds



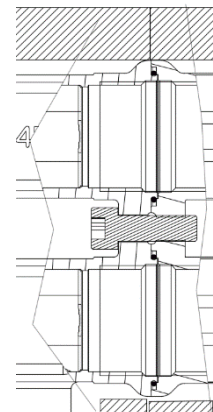
5. Fix the unit at the bracket: be sure the manifolds are correctly aligned and close one each other.



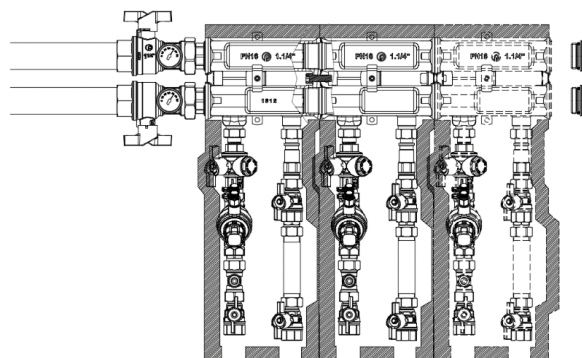
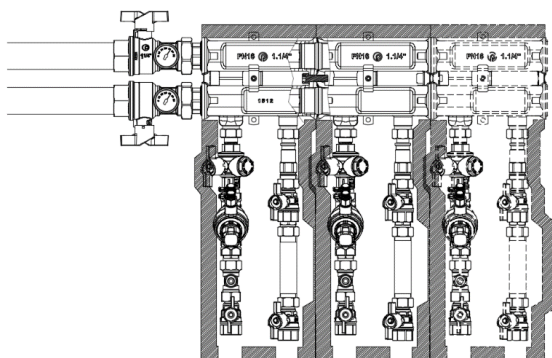
2. Place the bottom side of the insulation



4. Fix the following bracket, 180 mm far from the previous one, at the same level. Place the insulation.



6. Tighten the connecting M10 screw between the manifolds.



7. Add the required number of units. Take into consideration the total flow rate and the pressure drop across the branch.

8. Tighten the end connections or the cap (not included)

9. Connect the branch pipes. Hold the unit from the isolating valve octagon (purple).

10. Open the isolating valves and fill the manifolds and the branches. Purge the air in the manifolds.

11. Carry out the commissioning of the strainer and the PICV.

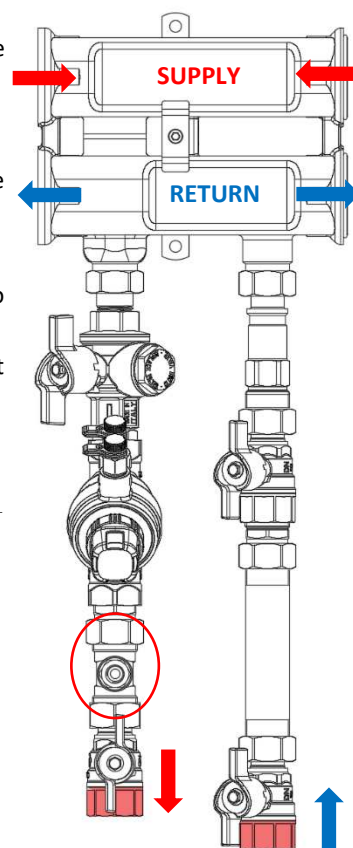
12. The heat meter should be install after the commissioning.

The unit manifold is symmetrical and it can be connected to the riser on the right or on the left. The upper manifold is the supply manifold and lower one is the return one.

#### Installation of the heat meter temperature sensor

Install the supply temperature sensor in the red circled test probe. Refer to dimensions above to check the compatibility.

The suggested heat meter has the return temperature sensor integrated: the unit is suitable for heat meters with **integrated return temperature sensor**.



#### TECHNICAL FEATURES

Nominal pressure*	10 bar
Max temperature*	90°C
Min differential pressure	35 kPa to 45 kPa
Max differential pressure	600 kPa
Face to face heat meter	110 mm
Close-off pressure	6 bar <sup>^</sup>
Leakage rate PICV	Class IV IEC 60534-4
Flow rate accuracy	±5% up to 1 bar
Fluid*	Water or water-glycol 30%
Filtering capacity	Ø 700 µm
Connections	Rp ¾" Female
Probe housing	M10 Female
Energy meter connection	¾" flat end

\* with plastic sleeve on. Verify technical specifications of the energy meter.

<sup>^</sup> the close-off pressure of 92H - 92H1 ¾" 1850 l/h coupled with thermoelectric actuators is 3 bar.

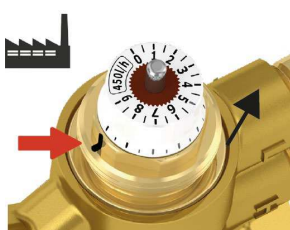


# PICV PRESETTING RANGE

The maximum flow rate delivered by the PICV can be preset during the commissioning by means of the white graduated dial. Follow the table below to know flow rates and presetting range of every available PICV:

Model	UC04_F_	UC08_F_	UC10_F_	UC18_F_
	450 l/h 92L ½"	850 l/h 92H ½"	1000 l/h 92L ¾"	1850 l/h 92H ¾"
Pre-setting %	Flow rate [l/h]			
9	450	850	1000	1850
8	387	774	911	1734
7	328,8	689	804	1548
6	261	606	722	1320
5	207	496	573	1080
4	165	393	451	846
3	121,2	331	376	624
2	81,6	265	291	492
1	42	157	169	276
0	0	0	0	0

In order to preset the valve and install the actuator, follow the instruction below:



Remove the handwheel or the actuator.  
Default setting: pos 9



Turn the selector wheel to the target position. See flow table above



Re-assembly the handwheel or the actuator. Fill the setting label.



1.



2.



3.

Assembling of valve and thermoelectric actuator. Valve stroke 3 mm. **VA64** adapter included



1.



2.



3.

Assembling of valve and electro-mechanic actuator. Valve stroke 3mm. **0A7010** adapter not included with actuator.  
Max force 160N

For further information about DYNASTY 92 (including valve maintenance), please refer to the specific technical specification available on Pettinaroli website [www.pettinaroli.com](http://www.pettinaroli.com).

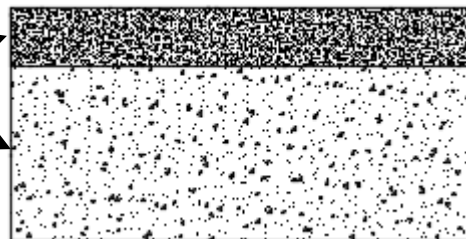
## INSULATING CASE

Unit insulation is made by 2 shells connected with **Velcro®**. Thickness 20 mm.

### Materials

**Body (external layer)** Polyethylene cross linked foam, density 80 kg/m<sup>3</sup>

**Body (internal layer)** Polyethylene cross linked foam, density 29 kg/m<sup>3</sup>



### Technical features

	Standard	Insulation case		Unit of measure
Density	ISO 845	29	80	Kg/m <sup>3</sup>
Compression stress (50% deflection)	ISO 3386/1	88	260	kPa
Tensile strength longitudinal	ISO 1798	0.18	0.8	MPa
Extension longitudinal stretch	ISO 1798	120 (at break)	170 (at break)	%
Residual distortion 22 h at 23°C Deflection of 25% 24h after release	ISO 1856	13	1.5	%
Operating temperature range	-	-60/+90	-60/+90	°C
Thermal conductivity	EN 12667	0.040	0.049	W/mK
Fire resistance	UL94	HF1	HF2	-

## ACCESSORIES

- *Thermoelectric actuators:*

24 V	120V - 230V
<b>V54402</b> (on/off, 2 wires)	<b>V54202</b> (on/off, 2 wires) – 230V
<b>A54402</b> (on/off, 2 wires)	<b>A54202</b> (on/off, 2 wires) – 230V
<b>A54404</b> (on/off, 4 wires, switch)	<b>A54204</b> (on/off, 4 wires, switch) – 230V
<b>A544P3</b> (0-10V, 3 wires)	<b>A55102</b> (on/off, 2 wires) – 120V

Please refer to Pettinaroli technical specifications for further details

- *Electro mechanical actuators:*

24 V	230V
<b>VA7481</b> (on/off)	<b>VA7481</b> (on/off)
<b>VA7482</b> (0-10V) – 3.2 mm	

Please refer to Pettinaroli technical specifications for further details. 0A7010 adapter required.

- *1 1/4" 3-pieces union connection:*

- **701** (straight)
- **700** (elbow)

- *1 1/4" isolating valve with direct union connection with thermometer option (thermometer not included):*

- **52T/3BM** (blue butterfly handle)
- **52T/3RM** (red butterfly handle)

- *Thermometer **T40** (for isolating valves 52T/3BM and 52T/3RM)):*



- 1 ¼" end cap **3522M+O** with O-Ring



- 1 ¼" x ½" x ½" end connection for drain and air vent **070M** with O-Ring



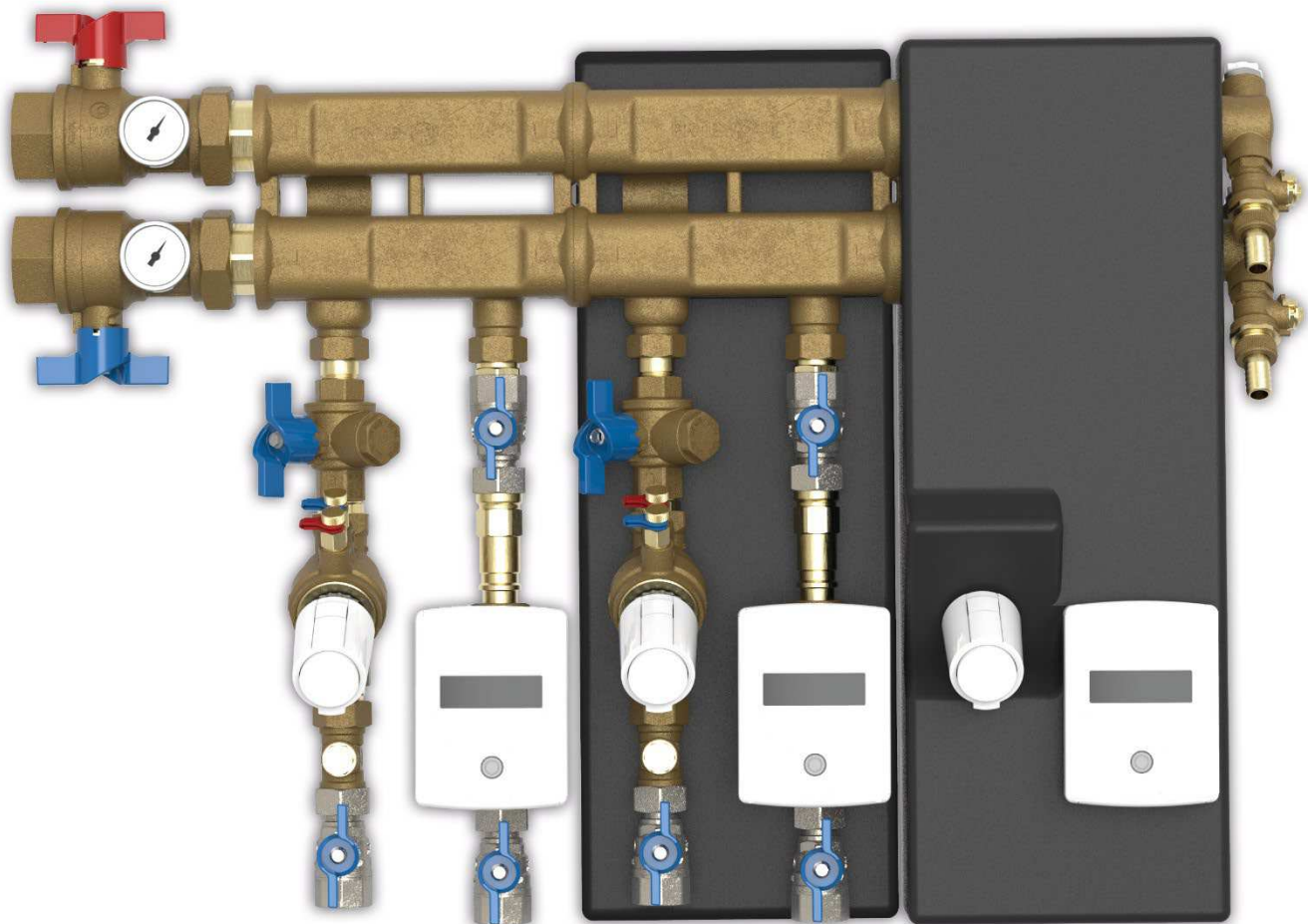
- ½" drain valve **146SC**



- ½" manual air vent **VS620**

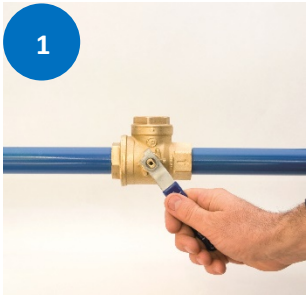
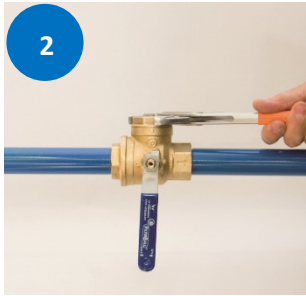
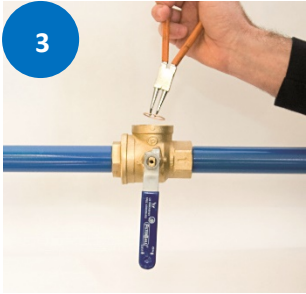

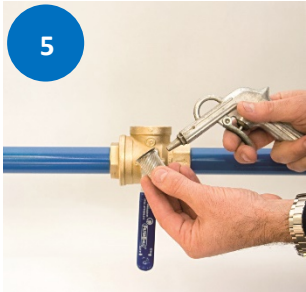
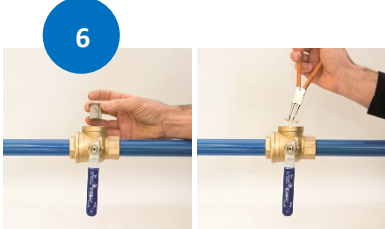
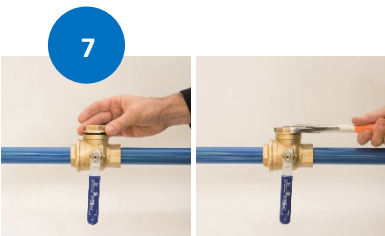
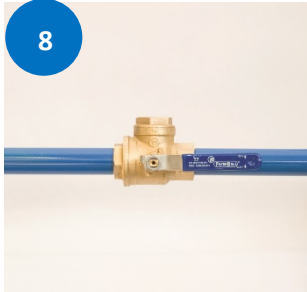


Example of application with optional (flow meter not included)



## STRAINER MAINTENANCE OF BALL VALVE 52F

In order to keep pressure losses across the strainer low due to debris, a yearly strainer cleaning is suggested. Please follow the instruction below to carry out the strainer maintenance:

- 1 
  - Close the valve
- 2 
  - Unscrew the inspection cap. Protect the heat meter and the actuator
- 3 
  - Remove the Seeger ring
- 4 
  - Take the strainer out
- 5 
  - Clean or change the strainer
- 6 
  - Insert the strainer and lock it with Seeger ring
- 7 
  - Screw and close the cap
- 8 
  - Open the valve

**Always remove the actuator to remove the insulation and open the side cap of 52F for the maintenance of the strainer. Protect the heat meter with a cloth when opening the side cap. The cap must be opened just with the valve Filterball 52F closed. Do not open the valve Filterball 52F when the cap is open.**

## GENERALS

The manufacturer does not accept any liability for improper or wrong use of this product.

make sure water quality complies with UNI 8065 standards ( $Fe < 0.5 \text{ mg/kg}$  and  $Cu < 0.1 \text{ mg/Kg}$ ).

Furthermore, maximum iron oxide in the water passing through control valve (PICV) should not exceed  $25 \text{ mg/Kg}$  ( $25 \text{ ppm}$ ). To ensure the main pipework is cleaned appropriately, flushing by-passes should be used without flushing through the pressure regulator of the PICV thereby preventing debris that might clog the valve. During cleaning operation of the valve use a damp cloth, DO NOT use any detergent or chemical solvent that could seriously damage the parts.

For some valve models, depending on max set flow rate, at high differential pressure values, noise above 50 dB could be generated. For any further assistance, contact sales or technical departments, prior to installation.