

TECHNICAL CATALOGUE

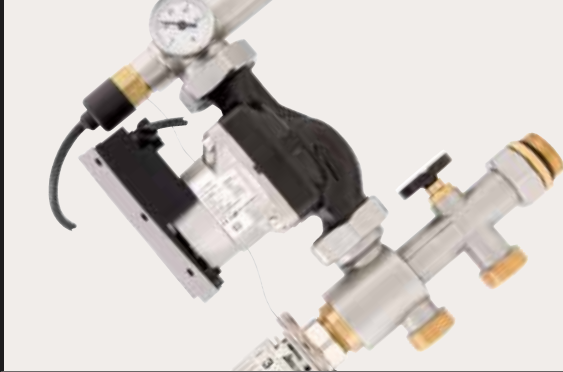
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# SET POINT REGULATING UNIT





ITAP SpA, founded in Lumezzane (Brescia) in 1972, is currently one of the leading production companies in Italy of valves, fittings and distribution manifolds for plumbing and heating systems. Thanks to fully automated production processes, with 72 tooling machines and 51 assembly lines, we are able to produce 200,000 pieces per day. Our innate pursuit for innovation and observance of technical regulations is supported by the company certification ISO 9001: 2008. The company has always considered its focus on quality as the main tool to obtain significant business results: today ITAP SpA is proud to offer products bearing the approval of numerous international certifying bodies.



## ART. 949

### SET POINT REGULATING UNIT

#### CAUTION:

When installed in the metal box **Art. 498**, the regulating unit must be installed only with the brackets **Art. 498STK** with a centre distance of 200mm and offset of 13mm.

#### TECHNICAL SPECIFICATIONS

- Medium: water, glycol solution (up to 30%)
- Control temperature range: 20°C to 55°C
- Maximum operating pressure: 6 bar
- Regulating unit materials:  
Nickel-plated brass CW617N
- Available sizes: 1"
- Threaded connections:  
ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228)
- Kv (mixing valve only): 7,50 m<sup>3</sup>/h
- Centre distance (pump): 130mm.
- Threaded connections (pump): 1" 1/2





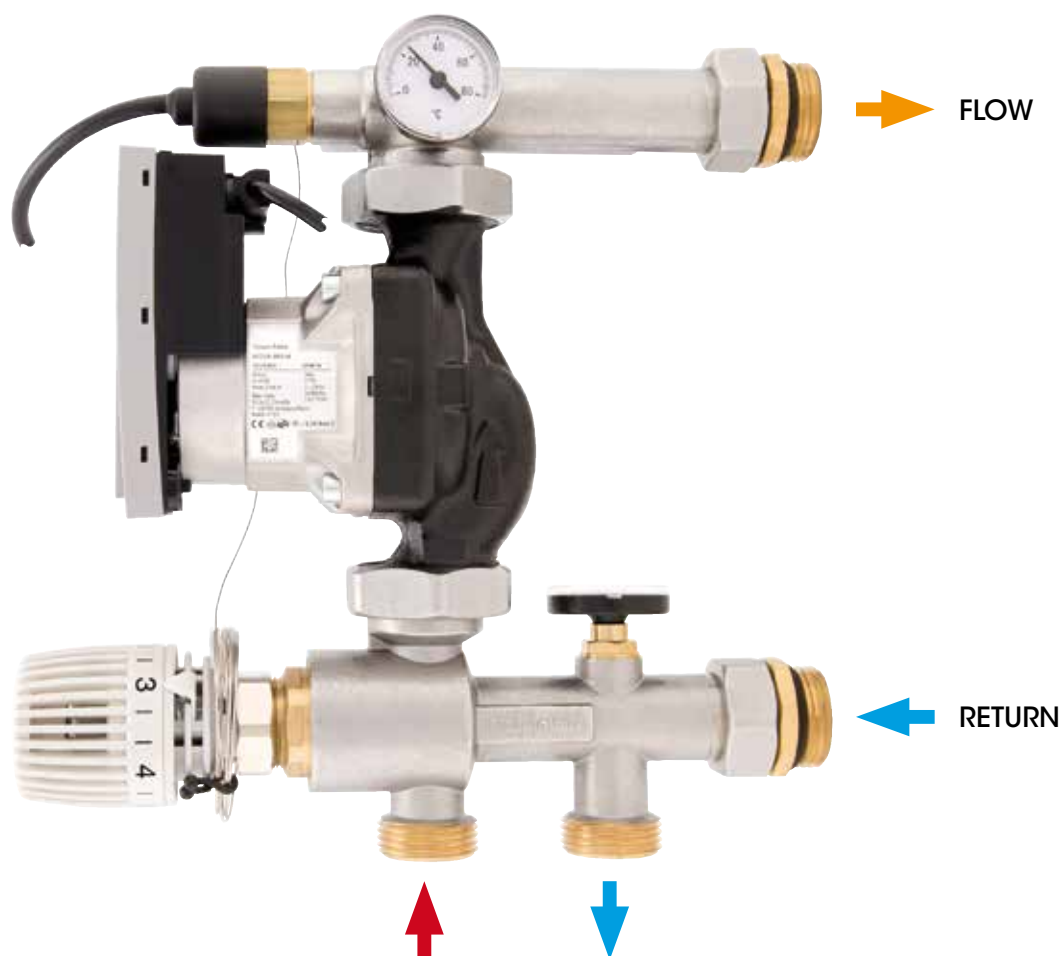
# SET POINT REGULATING UNIT

# COMPONENTS

## CERTIFICATIONS:



- 3-way mixing valve
- Thermostatic head with built-in sensor
- Low consumption pump (optional)
- Safety thermostat (factory set at 55°C)
- Flow thermometer (0°C through 80°C)
- Return thermometer (0°C through 80°C)



The regulating unit is used for underfloor heating systems, and its compact size (less than 90 mm deep) allows it to be installed directly in the distribution manifold box. It lowers and maintains the fluid temperature with a 3-way mixing valve and adjustable thermostatic head with built-in sensor. The circulation pump drives the fluid through the pipes with a safety thermostat to limit the temperature to no more than 55° (compliant with UNI EN 1264); when the temperature exceeds this value, the pump stops running to allow the fluid temperature to fall below it. The regulating unit assembles the manifold with union connections which enable quick removal for maintenance and other requirements. The electrical wiring case has all the contacts required for the unit to operate, such as the boiler enable signal and connection to one or more ON-OFF room thermostats.



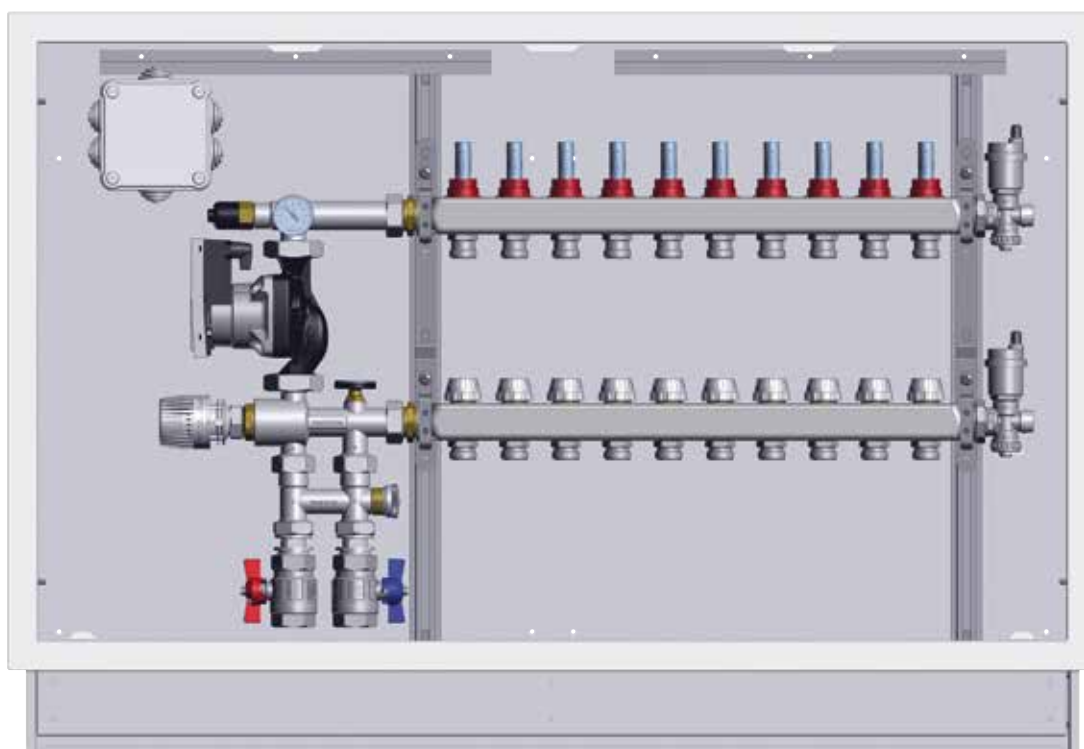


The wiring case has all the connections required for the regulation unit: boiler enable signal (NO), room thermostat (TA), safety thermostat (TS) and pump power (POMPA). It has to be powered at 230V.



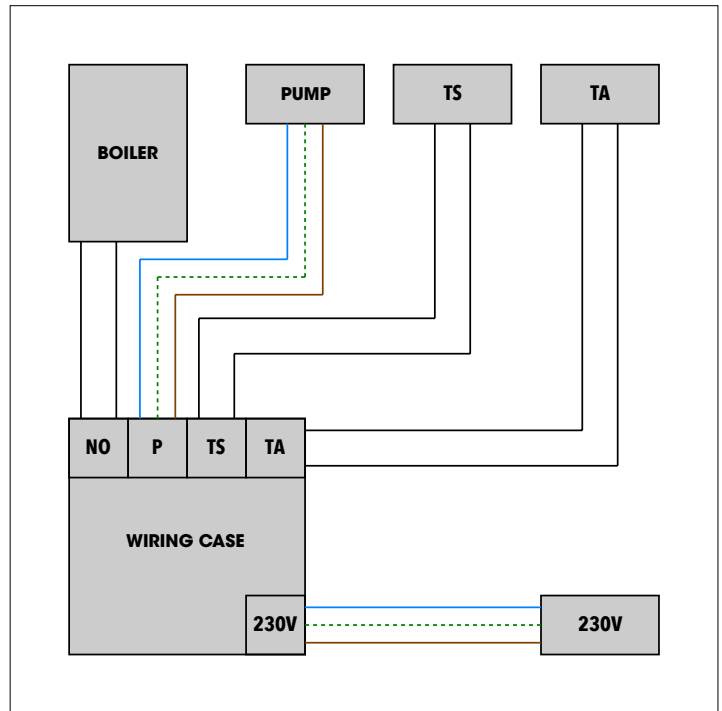
The thermostatic head adjusts the temperature of water through the flow manifolds. The temperature can be set by turning the head to the desired figure.

1	2	3	4	5	6
20°	30°	40°	50°	60°	70°



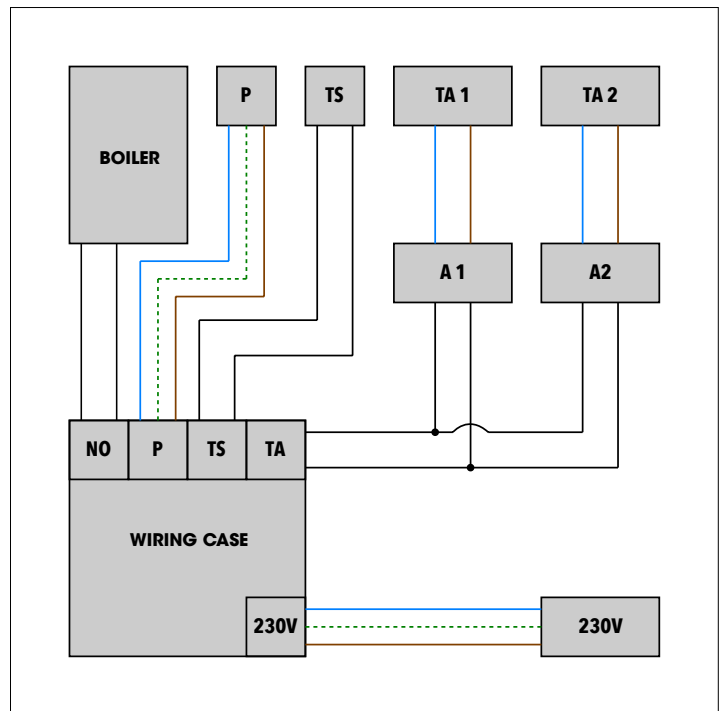
## EXAMPLE OF SINGLE-ZONE INSTALLATION

For single-zone systems, simply wire the components to the wiring case - no other cabling is required. When the room thermostat's ON-OFF contact closes (i.e. the room temperature is below the setpoint) it sends the enable signal to the boiler (NO contact) thus turning on the mixing unit circulation pump.



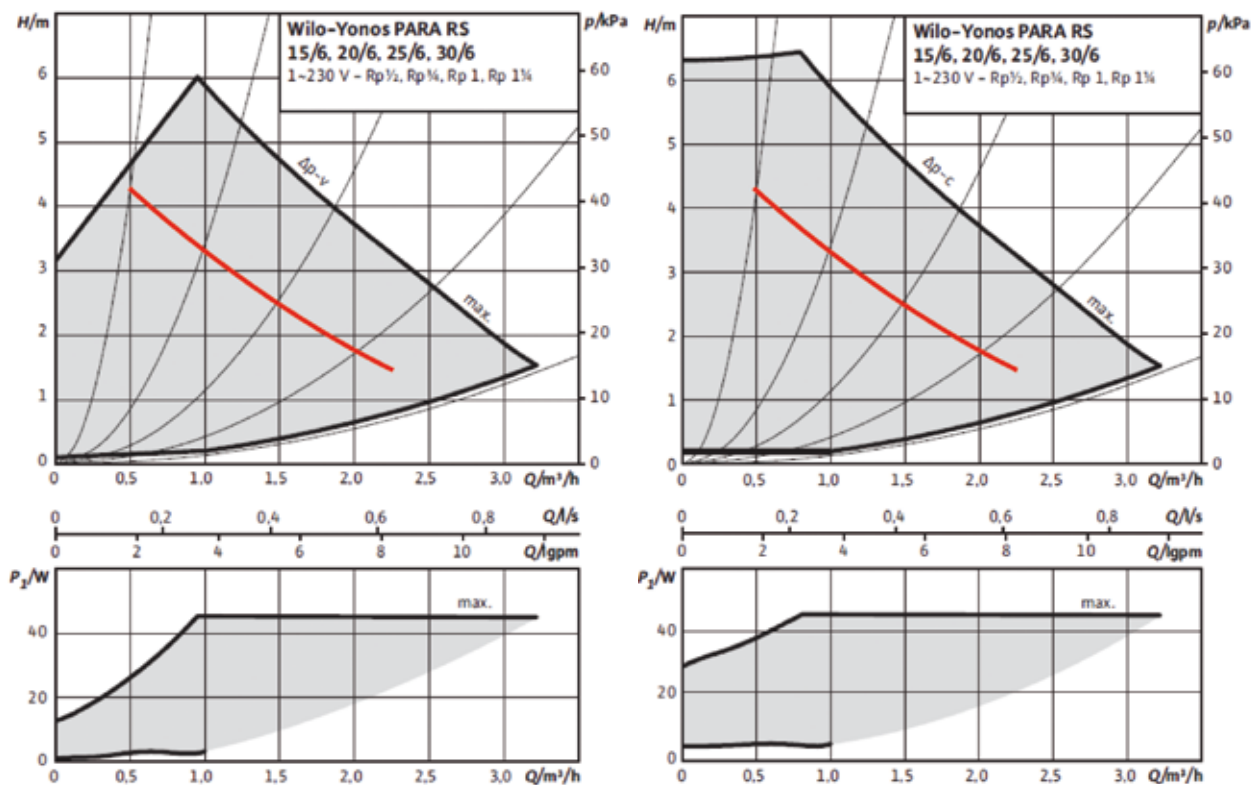
## EXAMPLE OF MULTI-ZONE INSTALLATION

Multi-zone systems require the use of thermo-electric actuators with auxiliary micro-switch (not included) and a room thermostat for each zone. The room thermostat's ON-OFF contact must be connected to the power cable wires (blue and brown) of each thermo-electric actuator, while the auxiliary micro-switch wires of all actuators in all zones must be connected to the TA contact. This means that the room thermostat contact will open the actuators connected to it which, once they are completely open, send the enable signal to the boiler and to the mixing unit's circulation pump.

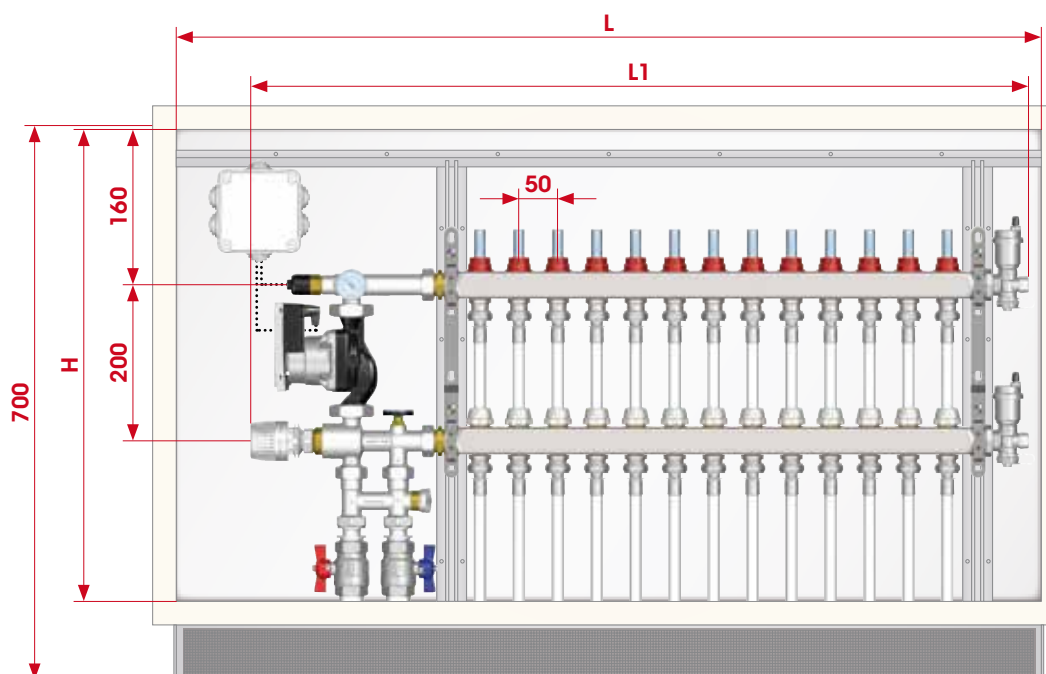




## AVAILABLE HEAD OF PRESSURE AT MIXING UNIT CONNECTIONS



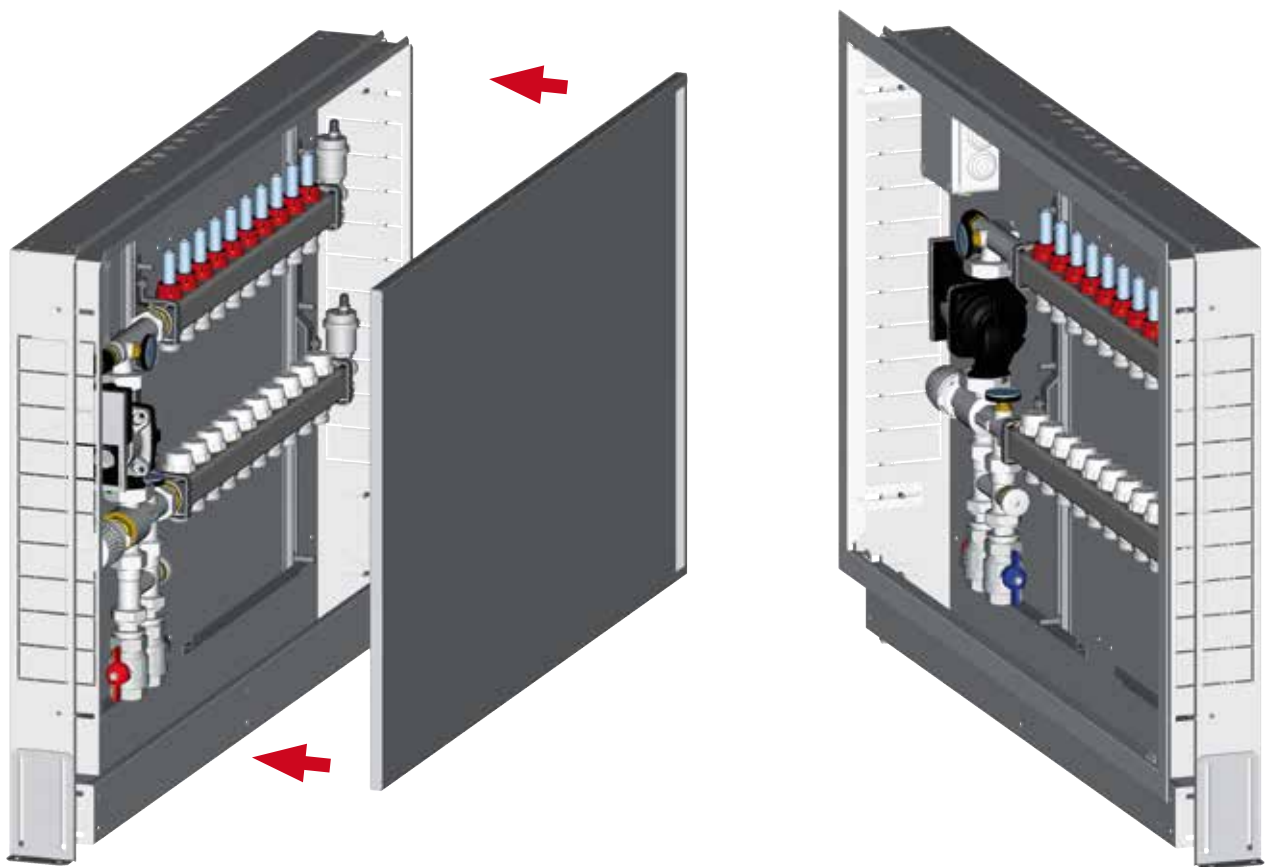
## POSITIONING THE REGULATING UNIT INTO THE METAL BOX



CODE	498.600.600	498.700.600	498.800.600	498.1000.600	498.1100.600
LxH (mm)	600x600	700x600	800x600	1000x600	1100x600
N. ways	2-3	4-5	6-7	8-9-10	11-12-13
MANIFOLD	1"				
L1	498	598	698	848	998

## CONSTRUCTION

The regulating unit is housed in a galvanised steel box (depth 90 mm), which makes it ideal for installation in thin walls. To protect the contents of the enclosure and facilitate the necessary masonry work, it is fitted with a galvanised steel cover, which mounts to the front of the enclosure with four screws. The cover has a 1 cm rim, which acts as a plastering guide. Both the front and back of the enclosure are fitted with mesh to prevent the plaster retracting and cracking. Once the enclosure has been installed and plastered over, remove the cover and fit the frame and door with the four screws. These are made of galvanised steel with a white (RAL9010) coating and protective film which is removed at the end of the installation process. The base of the enclosure is adjustable vertically by 100 mm, while its door can be adjusted inwards or outwards by 50 mm. The roof of the enclosure has holes for routing the electrical cables.



The 3-way mixing valve has 20 mm inside diameter. This large diameter means that the medium can be heated up to the desired temperature quicker than with units with smaller diameter ports. The result is that the circulator pump runs for less time throughout the day, which considerably reduces its power consumption. An additional saving is represented by the use of variable speed circulator pumps compliant with Directive ErP 2015 (starting from January 1<sup>st</sup> 2013), which considerably reduces power consumption and promote the new concept of eco-design.



## 949CEF

WIRING CASE FOR  
PUMP CONNECTION



CODE	PACKING
949CEF	1/13

### TECHNICAL SPECIFICATIONS

Including for all the connections required for the correct operation of art. 949 regulating unit:

- boiler enablement (NO)
- room thermostat (RT)
- safety thermostat (ST)
- circulator power supply (PUMP).

It has to be supplied at 230V

### CERTIFICATIONS



## 949BY

PRIMARY CIRCUIT  
BY-PASS KIT



SIZE	PRESSURE	CODE	PACKING
1"	6bar/87psi	949BY100	1/18

### TECHNICAL SPECIFICATIONS

To be installed before art. 949 regulating unit.

It allows the flow circulation in the primary circuit.

Adjustable for differential pressure between 10 and 30 kPa.

Maximum operating temperature: 100°C (without steam)

Maximum operating pressure: 6 bar.

Available size: 1"

ISO 228 thread (equivalent to DIN EN ISO 228 and BS EN ISO 228).

Supplied with a pair of flat fibre seals.

### CERTIFICATIONS



## 894K

PAIR OF UNION  
CONNECTIONS,  
FLAT SEAT



SIZE	PRESSURE	CODE	PACKING
1"	10bar/145psi	894DC100MPK	1/100

### TECHNICAL SPECIFICATIONS

These are required for connecting art. 092K ball valve kit to art. 949 regulating unit.

Body in nickel-plated brass.

O-ring in EPDM.

Maximum operating temperature: 100°C (without steam)

Maximum operating pressure: 10 bar.

Available size: 1"M x 1"F.

Supplied with a pair of fibre washer.

## 092K

BALL VALVES KIT



SIZE	PRESSURE	CODE	PACKING
1"	40bar/580psi	0920100K	1/30

### TECHNICAL SPECIFICATIONS

Female/female threads.

T handle in aluminium.

Body in nickel-plated brass.

Minimum and maximum working temperatures: -20°C, 150°C in absence of steam.

Threads: ISO228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).

### CERTIFICATIONS



# NOTES

A series of horizontal dashed lines for taking notes.



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