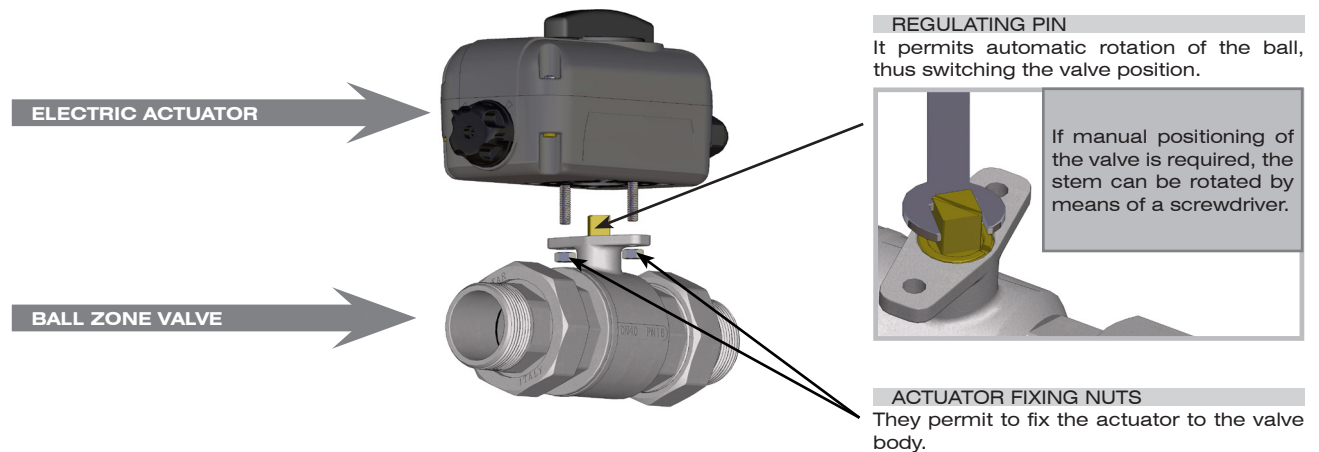# 1"½ AND 2" ZONE VALVES

## 2-WAY ZONE VALVES
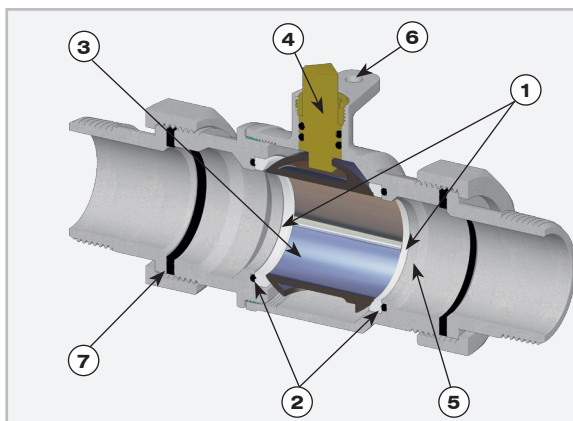


## 3-WAY ZONE VALVES



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**1** | ## DESCRIPTION

The FAR zone valve, which is controlled by an actuator connected to an ON-OFF room thermostat, permits to shut-off or divert the flow within the heating, cooling or sanitary systems.

The zone valve features a special internal anti-blockage system, which makes sure the correct rotation of the ball, even in case of hard water. The system comprises two PTFE seats located on two O-rings, which operate as "shock absorbers" so that ball rotation is guaranteed - even if it has not been used for a long period.

**ELECTRIC ACTUATOR**

**BALL ZONE VALVE**



**REGULATING PIN**
It permits automatic rotation of the ball, thus switching the valve position.

If manual positioning of the valve is required, the stem can be rotated by means of a screwdriver.

**ACTUATOR FIXING NUTS**
They permit to fix the actuator to the valve body.

### Construction features



| | |
|---|---|
| 1. Seats in P.T.F.E. | |
| 2. Sealing O-rings in EPDM | |
| 3. Ball in CW617N brass | |
| 4. Control stem in CW617N brass with O-rings in EPDM | |
| 5. Valve body in CW617N brass | |
| 6. Holes for screws for actuator | |
| 7. Gasket in Gold Gasket® | |

## Functioning

### 2-WAY ZONE VALVE

The 2-way full bore zone valve permits to shut-off or divert the flow within the heating or sanitary systems. The actuator opens or closes off the flow of fluid in response to signals received from the thermostat.

STARTING POSITION

NEXT POSITION



**Open valve**

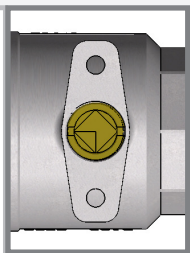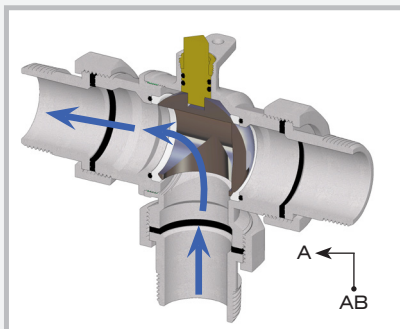THE WATER INLET AND OUTLET ARE REVERSIBLE

90°
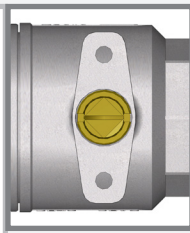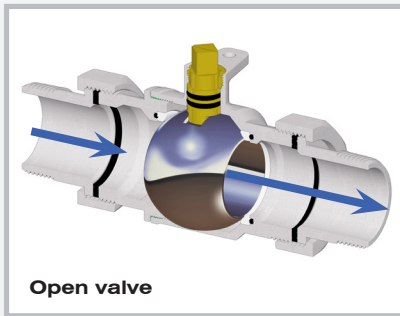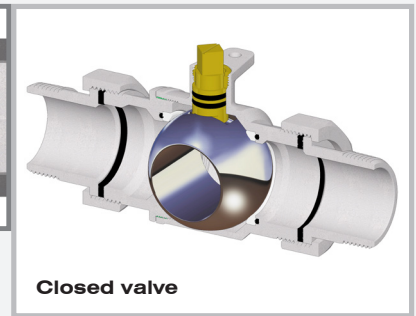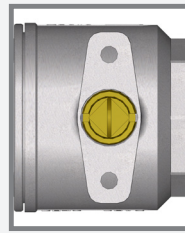
**Closed valve**

### 3-WAY DIVERTER ZONE VALVE

This kind of valve is designed to divert the flow from a circuit to another, i.e: to divert the water back when using a thermostat, or for switching in summer and winter to use circuit to heat or cool the room.
This valve can also be used in systems with both boiler and real fire fireplace. It is available with male-male, male-female and female-female side connections.

STARTING POSITION

The illustration shows a 3-Way diverter zone valve: in this case the position of the ball permits the inlet of fluid from below (**AB**) and then diverts it to the left (**A**).

NEXT POSITION

The illustration shows a 3-Way diverter zone valve: in this case the position of the ball permits the inlet of fluid from below (**AB**) and then diverts it to the right (**B**).



THE WATER INLET AND OUTLET ARE REVERSIBLE

90°
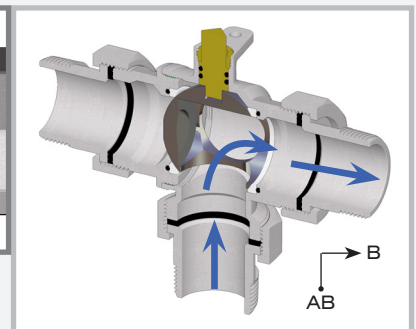
## 2 | ACTUATORS

The actuators incorporate two servomotors, one for opening and the other for closing. In this way wear on gears and servomotors can be reduced, ensuring a long life of the component.

Each actuator is equipped with an auxiliary micro-switch, which makes it possible to achieve parallel connections of zone valves and links to control pumps and boilers.

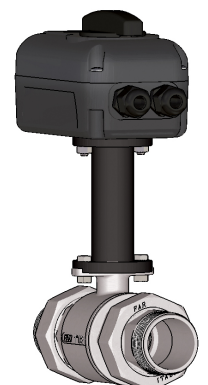⚠ **All actuators are AC, available with 24V or 230V voltage**

### Manual release

The manual release system is carried out by turning the handle clockwise until it reaches the position shown (**position of manual release**). Once this position has been reached, you can rotate - by means of the regulation handle – the valve on which the actuator is installed.

AUTOMATIC OPERATING POSITION

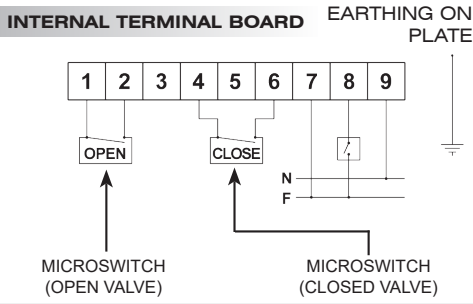MANUAL RELEASE POSITION

Regulation handle

Release handle
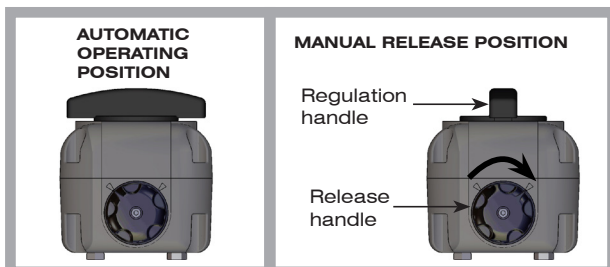
### Anti-condensation insulation

In systems subjected to condensation, it is recommended to install an anti-condensation insulation **Art.3042**, so as to avoid that any drops could damage the electrical parts.

**Art.3042**

## Electrical connections

**INTERNAL TERMINAL BOARD**     EARTHING ON PLATE

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

OPEN     CLOSE

N
F

MICROSWITCH (OPEN VALVE)     MICROSWITCH (CLOSED VALVE)

| 1 | Connectionto the common contact of the microswitch (OPENING) |
| 2 | Connection to the normally open contact of the micro (OPENING) |
| 3 | With open valve - presence of phase |
| 4 | Connectionto the common contact of the microswitch (CLOSING) |
| 5 | With closed valve - presence of phase |
| 6 | Connection to the normally open contact of the micro (CLOSING) |
| 7 | Connect directly to the phase |
| 8 | WITH PHASE PRESENCE – THE VALVE OPENS (connection to the thermostat) |
| 9 | Connect to the neutral |

### 3-WIRING CONNECTION – room thermostat

NEUTRAL
BLUE
BLACK — THERMOSTAT
BROWN
PHASE
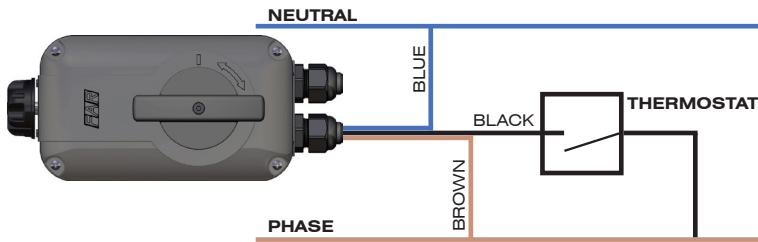
The brown wire must be connected directly to phase, the blue to neutral and the black to the thermostat.

• **Brown wire** – terminal 7
• **Black wire** – terminal 8
• **Blue wire** – terminal 9

⚠ **The choice of wiring colors is indicative**

### 5-WIRING CONNECTION – Room thermostat and boiler pump ON/OFF

NEUTRAL
BLUE   GRAY   WHITE
BOILER TERMINALS
BLACK — THERMOSTAT
BROWN
PHASE
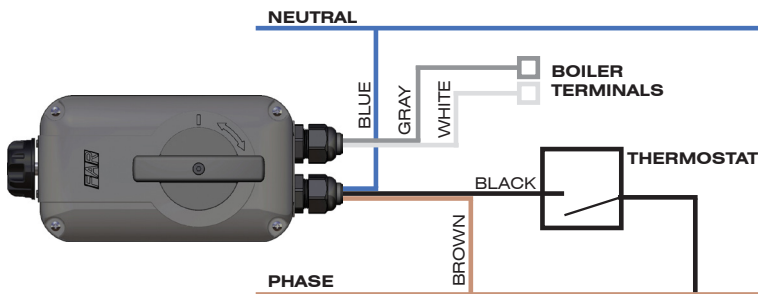
An inner auxiliary microswitch connected to the grey and white wires (clean contact on terminals 1 and 2), which comes into operation when the valve is open, permits connection in parallel of more than one actuator to control a single device, such as a pump or boiler. To control the starting of the pump, connect the grey and white wires to the 2 terminals provided in the boiler for connection to the thermostat. A microswitch which comes into operation when the valve is closed is also available (terminals 4 and 6).

⚠ **For proper operation it is essential that the brown cable is always live.**

**PRESENCE OF PHASE ON BLACK WIRE**

• **2-way zone valve:** the flow is open
• **Diverter zone valve:** the flow is switched from one side to another
• **Bypass valve:** the flow is linear

**ABSENCE OF PHASE ON BLACK WIRE**

• **2-way zone valve:** the flow is shut off
• **Diverter zone valve:** the flow is switched from one side to another
• **Bypass valve:** the flow is diverted in bypass

**TECHNICAL FEATURES**

• Feed voltage: 230V (**art. 3039**) 24V (**art. 3040**)
• Torque: 35Nm (80s) and 20Nm (30s)
• Rotation time: 30s – 80s
• Rotation angle: 90°
• Absorbed power: 6,5 VA
• Max. room temperature: -10°C a + 50°C
• Protection level: IP65 (dust and water jets)
• Flanged ISO5211 (F3 e F5)

• Galvanized gearbox
• M4 screw for earthing
• Transmission by means of heat treated metal gears
• Mechanical stop (0°...90°) produced in the actuator
• Double safety O-ring on the end shaft
• Synchronous actuator with low consumption and duty cycle of 100%
• Contact rating aux (opening and closing) 1A resistive
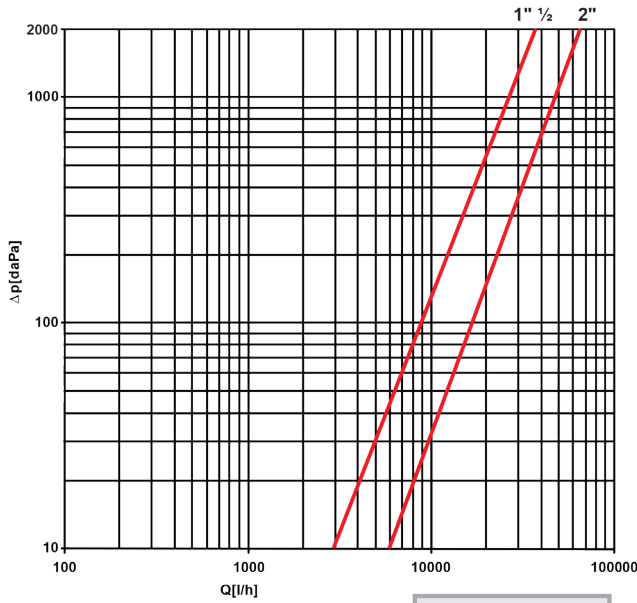• Earthing mounting method: action type 1

## 3   INSTALLATION

⚠ **Don't install the actuator upside-down.**
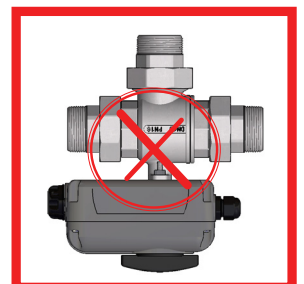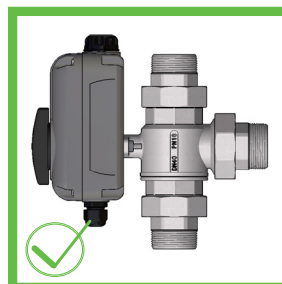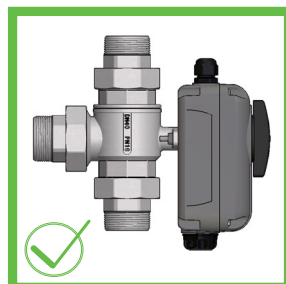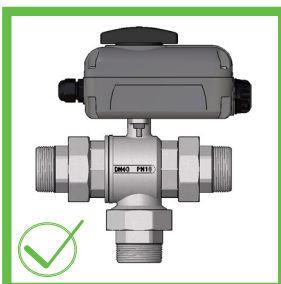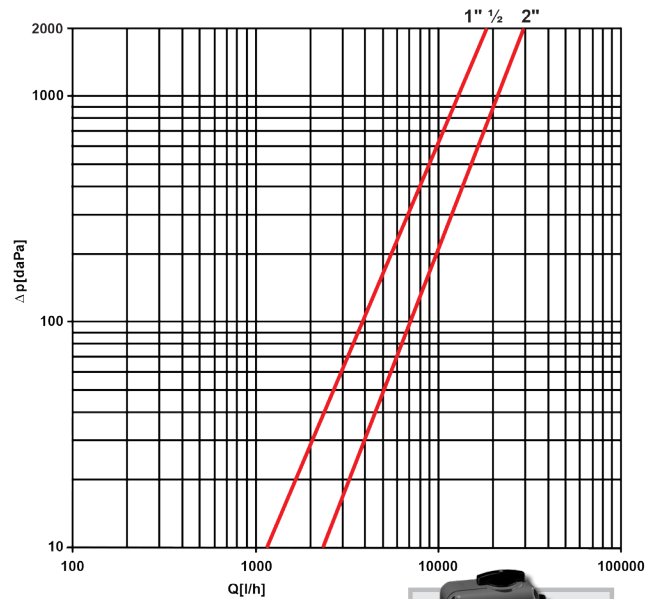
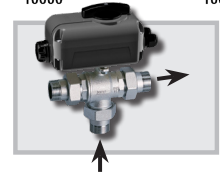## 4 FLUID-DYNAMICS FEATURES

### 2-WAY ZONE VALVES



| SIZE | 1" 1/2 | 2" |
|---|---|---|
| Kv [m³/h] | 79,42 | 136,22 |

### 3-WAY DIVERTER ZONE VALVES



| SIZE | 1" 1/2 | 2" |
|---|---|---|
| Kv [m³/h] | 40,85 | 64.86 |

## 5 CARATTERISTICHE TECNICHE

· Valve body and ball:   UNI EN 12165:98 CW617N Brass
· Sealing gaskets:   Anti-blockage system with OR in EPDM and seats in PTFE
· Control stem:   UNI EN 12164:98 CW614N Brass
· Nominal working pressure:   16 bar
· Differential maximum pressure:   5 bar
· Circulating fluid temperature:   –10 ℃ (with antifreeze) +100 ℃
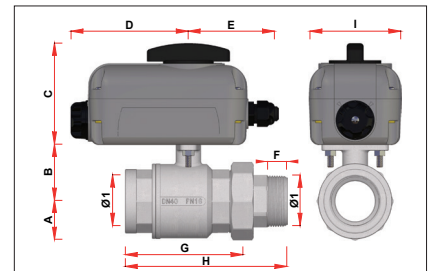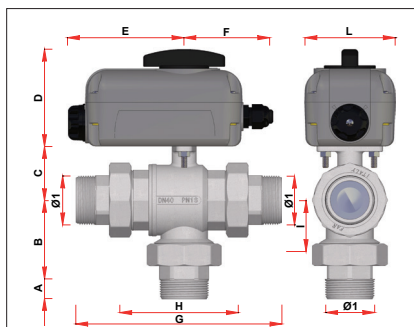· Usable fluids:   water, water with glycol

## 6 DIMENSIONAL FEATURES
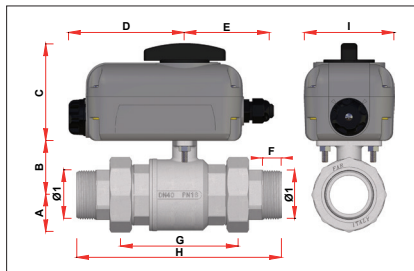


### ART. 303915

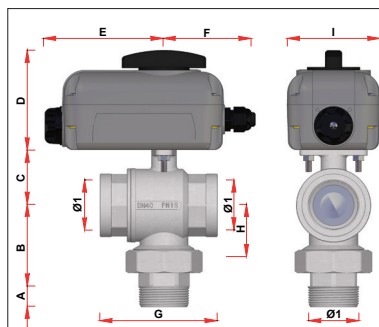| CODE | Ø1 | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|
| 303915 112 | 1" 1/2 | 35 | 53 | 95 | 116 | 84 | 113 | 202 | 88 |
| 303915 2 | 2" | 43 | 61 | 95 | 116 | 84 | 130 | 232 | 88 |
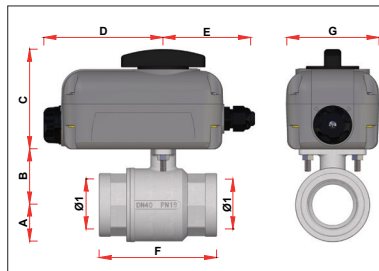


### ART. 303916

| CODE | Ø1 | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| 303916 112 | 1" 1/2 | 35 | 53 | 95 | 116 | 84 | 110 | 88 |
| 303916 2 | 2" | 43 | 61 | 95 | 116 | 84 | 129 | 88 |



### ART. 303917

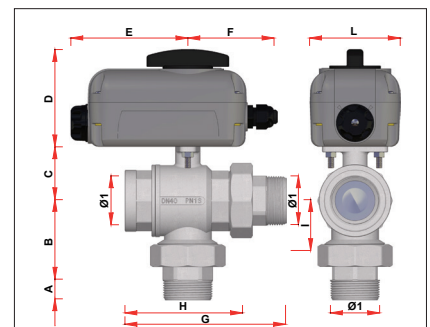| CODE | Ø1 | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|
| 303917 112 | 1" 1/2 | 35 | 53 | 95 | 116 | 84 | 112 | 157 | 88 |
| 303917 2 | 2" | 43 | 61 | 95 | 116 | 84 | 129 | 181 | 88 |



### ART. 303920

| CODE | Ø1 | A | B | C | D | E | F | G | H | I | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 303920 112 | 1" 1/2 | 19 | 78 | 53 | 95 | 116 | 84 | 201 | 113 | 52 | 88 |
| 303920 2 | 2" | 21 | 94 | 61 | 95 | 116 | 84 | 233 | 130 | 63 | 88 |



### ART. 303921

| CODE | Ø1 | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|---|
| 303921 112 | 1" 1/2 | 19 | 78 | 53 | 95 | 116 | 84 | 112 | 52 | 88 |
| 303921 2 | 2" | 21 | 94 | 61 | 95 | 116 | 84 | 129 | 63 | 88 |



### ART. 303922

| CODE | Ø1 | A | B | C | D | E | F | G | H | I | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 303922 112 | 1" 1/2 | 19 | 78 | 53 | 95 | 116 | 84 | 156 | 112 | 52 | 88 |
| 303922 2 | 2" | 21 | 94 | 61 | 95 | 116 | 84 | 181 | 129 | 63 | 88 |