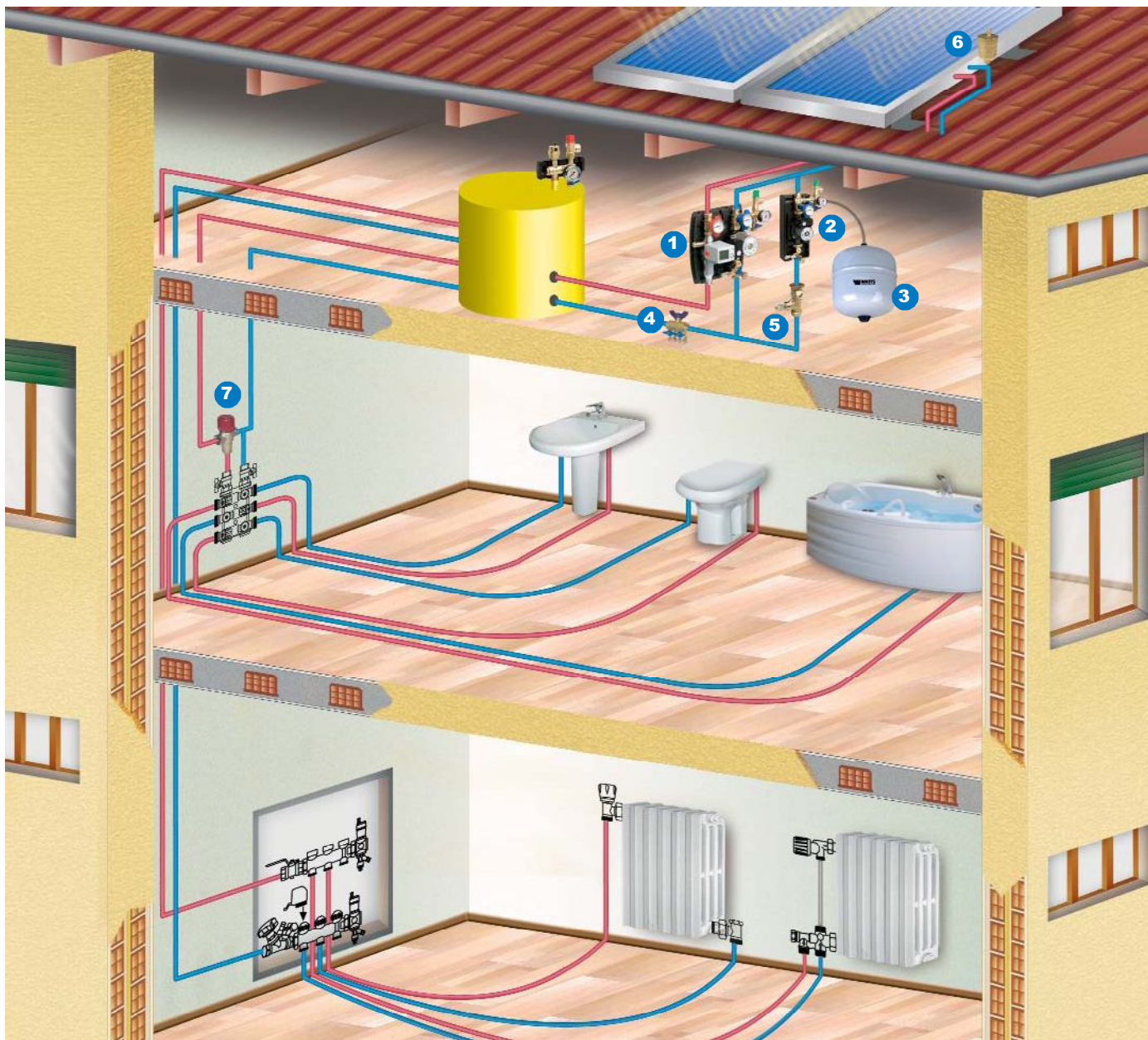


# Components for solar applications




EXAMPLE OF APPLICATION




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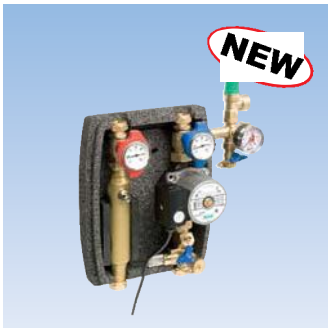
Thermostatic mixing valve

**SOLAR HEATING CONTROL UNITS**

**FBS 8000**

Ready-to-mount, compact solar control unit. Overall height 308 mm, standard circulation pumps with installation length of 130 mm - cabling ex works, balancing valve WattFlow with fill and drain-cock, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cock, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity brake via 45° position of the thermo handle, thermometer integrated in multifunction isolating valve, joints with solar-fit gaskets, EPP heat insulation. Use of special solar pumps (Wilo ST.. or Grundfos UPS-Solar..) and safety relief valve with set pressure 4 / 8 / 10 bar available on request !

| Type     | Part number | Description                       | Min. order |
|----------|-------------|-----------------------------------|------------|
| FBS 8000 | 3504200     | 0,5 - 6 l/min, WILO RS 15/4-3     | 1          |
| FBS 8000 | 3504205     | 0,5 - 6 l/min, WILO RS 15/6-3     | 1          |
| FBS 8000 | 3504210     | 0,5 - 6 l/min, GRUNDFOS UPS 15-40 | 1          |
| FBS 8000 | 3504215     | 0,5 - 6 l/min, GRUNDFOS UPS 15-60 | 1          |
| FBS 8000 | 3504220     | 2 - 16 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000 | 3504225     | 2 - 16 l/min, GRUNDFOS UPS 15-60  | 1          |
| FBS 8000 | 3504230     | 4 - 36 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000 | 3504235     | 4 - 36 l/min, GRUNDFOS UPS 15-60  | 1          |


**FBS 8000-E**

Ready-to-mount, compact solar control unit. Overall height 308 mm, standard circulation pumps with installation length of 130 mm - cabling ex works, balancing valve WattFlow with fill and drain-cock, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cock, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity brake via 45° position of the thermo handle, thermometer integrated in multifunction isolating valve, joints with solarfit gaskets, EPP heat insulation, venting pipe with RDT manual air vent in the supply.

Use of special solar pumps (Wilo ST.. or Grundfos UPS-Solar..) and safety relief valve with set pressure 4 / 8 / 10 bar available on request !

| Type       | Part number | Description                       | Min. order |
|------------|-------------|-----------------------------------|------------|
| FBS 8000-E | 3504240     | 0,5 - 6 l/min, WILO RS 15/4-3     | 1          |
| FBS 8000-E | 3504245     | 0,5 - 6 l/min, WILO RS 15/6-3     | 1          |
| FBS 8000-E | 3504250     | 0,5 - 6 l/min, GRUNDFOS UPS 15-40 | 1          |
| FBS 8000-E | 3504255     | 0,5 - 6 l/min, GRUNDFOS UPS 15-60 | 1          |
| FBS 8000-E | 3504260     | 2 - 16 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000-E | 3504265     | 2 - 16 l/min, GRUNDFOS UPS 15-60  | 1          |
| FBS 8000-E | 3504270     | 4 - 36 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000-E | 3504275     | 4 - 36 l/min, GRUNDFOS UPS 15-60  | 1          |


**FBS 8000-C**

Ready-to-mount, compact solar control unit with integrated solar controller.

Overall height 308 mm, standard circulation pumps with installation length of 130 mm - cabling ex works, balancing valve WattFlow with fill and drain-cock, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cock, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity brake via 45° position of the thermo handle, thermometer integrated in multifunction isolating valve, joints with solar-fit gaskets, EPP heat insulation.

Use of special solar pumps (Wilo ST.. or Grundfos UPS-Solar..) and safety relief valve with set pressure 4 / 8 / 10 bar available on request !

| Type       | Part number | Description                            | Min. order |
|------------|-------------|--|------------|
| FBS 8000-C | 3504280     | 0,5 - 6 l/min, WILO RS 15/4-3 35 04280 | 1          |
| FBS 8000-C | 3504285     | 0,5 - 6 l/min, WILO RS 15/6-3          | 1          |
| FBS 8000-C | 3504290     | 0,5 - 6 l/min, GRUNDFOS UPS 15-40      | 1          |
| FBS 8000-C | 3504295     | 0,5 - 6 l/min, GRUNDFOS UPS 15-60      | 1          |
| FBS 8000-C | 3504300     | 2 - 16 l/min, WILO RS 15/6-3           | 1          |
| FBS 8000-C | 3504305     | 2 - 16 l/min, GRUNDFOS UPS 15-60       | 1          |
| FBS 8000-C | 3504310     | 4 - 36 l/min, WILO RS 15/6-3           | 1          |
| FBS 8000-C | 3504315     | 4 - 36 l/min, GRUNDFOS UPS 15-60       | 1          |

## SOLAR HEATING CONTROL UNITS

**FBS 8000-CE**

Ready-to-mount, compact solar control unit with integrated solar controller. Overall height 308 mm, standard circulation pumps with installation length of 130 mm - cabling ex works, balancing valve WattFlow with fill and drain-cock, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cock, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity brake via 45° position of the thermo handle, thermometer integrated in multifunction isolating valve, joints with solar-fit gaskets, EPP heat insulation, venting pipe with RDT manual air vent in the supply.

Use of special solar pumps (Wilo ST.. or Grundfos UPS-Solar..) and safety relief valve with set pressure 4 / 8 / 10 bar available on request !

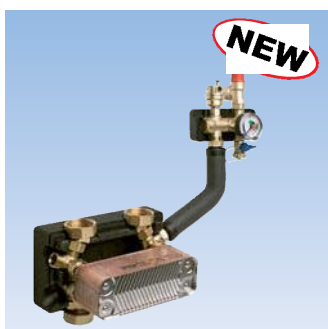
| Type        | Part number | Description                       | Min. order |
|-------------|-------------|-----------------------------------|------------|
| FBS 8000-CE | 3504320     | 0,5 - 6 l/min, WILO RS 15/4-3     | 1          |
| FBS 8000-CE | 3504325     | 0,5 - 6 l/min, WILO RS 15/6-3     | 1          |
| FBS 8000-CE | 3504330     | 0,5 - 6 l/min, GRUNDFOS UPS 15-40 | 1          |
| FBS 8000-CE | 3504335     | 0,5 - 6 l/min, GRUNDFOS UPS 15-60 | 1          |
| FBS 8000-CE | 3504340     | 2 - 16 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000-CE | 3504345     | 2 - 16 l/min, GRUNDFOS UPS 15-60  | 1          |
| FBS 8000-CE | 3504350     | 4 - 36 l/min, WILO RS 15/6-3      | 1          |
| FBS 8000-CE | 3504355     | 4 - 36 l/min, GRUNDFOS UPS 15-60  | 1          |

**FBS 7000**

Ready-to-mount, compact solar return line. Overall height 350 mm, standard circulation pumps with installation length of 180 mm - cabling ex works, balancing valve WattFlow with fill and drain-cock, safety unit with pressure gauge, solar safety relief valve 6 bar and fill and drain-cock, wall bracket including corrugated tube to connect with the expansion vessel, arrangeable metal gravity brake via 45° position of the thermo handle, thermometer integrated in multifunction isolating valve, joints with solar-fit gaskets, EPP heat insulation.

Use of special solar pumps (Wilo ST.. or Grundfos UPS-Solar..) and safety relief valve with set pressure 4 / 8 / 10 bar available on request !

| Type     | Part number | Description                       | Min. order |
|----------|-------------|-----------------------------------|------------|
| FBS 7000 | 3504140     | 0,5 - 6 l/min, WILO RS 25/4-3     | 1          |
| FBS 7000 | 3504145     | 0,5 - 6 l/min, WILO RS 25/6-3     | 1          |
| FBS 7000 | 3504150     | 0,5 - 6 l/min, GRUNDFOS UPS 25-40 | 1          |
| FBS 7000 | 3504155     | 0,5 - 6 l/min, GRUNDFOS UPS 25-60 | 1          |
| FBS 7000 | 3504160     | 2 - 16 l/min, WILO RS 25/6-3      | 1          |
| FBS 7000 | 3504165     | 2 - 16 l/min, GRUNDFOS UPS 25-60  | 1          |
| FBS 7000 | 3504170     | 4 - 36 l/min, WILO RS 25/6-3      | 1          |
| FBS 7000 | 3504175     | 4 - 36 l/min, GRUNDFOS UPS 25-60  | 1          |

**FBWT****Solar heating system separation**

Modular design through use of different components. Based on the FlowBox WT heat exchanger unit. In the primary circuit (solar heating system) combination with solar control units FBS Series.

Functions through different module combinations:

- Heat transfer unit for storage load
- Fresh water station for direct water heating.

Plate heat exchangers are available in many different types with various dimensions and capacities.

| Type | Part number | Size                      | Min. order |
|------|-------------|---------------------------|------------|
| FBWT | 3504180     | 22 MM compression fitting | 1          |
| FBWT | 3504190     | 18 MM compression fitting | 1          |

**SOLAR HEATING CONTROL UNITS**

**ASV-SOLAR**
**Solar connection pipework**

Installation unit with insulated elbow pipes, connection fittings, rinse and filling device, etc. All pipes from storage to the solar control unit are usually rigidly coupled. To bridge different distances of storage connections, a telescope or compression fitting connection can be integrated.

Customized design available on request.

| Type      | Part number | Size                | Min. order |
|-----------|-------------|---------------------|------------|
| ASV-SOLAR | on request  | Connection pipework | 1          |

**FITTINGS FOR SOLAR HEATING CONTROL UNITS**

**SER**

Venting pipe for the solar control units FlowBox Solar Control and FlowBox Solar FBS Series.

| Type    | Part number | Description             | Min. order |
|---------|-------------|-------------------------|------------|
| SER-MV  | 3504400     | with automatic air vent | 1          |
| SER-RDT | on request  | with manual air vent    | 1          |


**QUICKFILL**

Easy filling and rinsing of heating, solar or heat pump circuits. Brass body, short installation length, any installation position.

| Type      | Part number | Description                  | Min. ord. |
|-----------|-------------|------------------------------|-----------|
| QUICKFILL | 3499610     | 12 mm compression fitting    | 1         |
| QUICKFILL | 3499615     | 15 mm compression fitting    | 1         |
| QUICKFILL | 3499620     | 18 mm compression fitting    | 1         |
| QUICKFILL | 3499635     | 18 mm compression fitting    | 1         |
| QUICKFILL | 3499625     | 3/4" male thread*            | 1         |
| QUICKFILL | 3499630     | 1" male thread, flat sealing | 1         |

\*Eurocone

## FITTINGS FOR SOLAR HEATING CONTROL UNITS

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**SVE-SOL**

Diaphragm safety valve for solar systems. Body and cap of brass CW617N, EN 12165-99. Elastomeric diaphragm. Discharge pressure factory set and with sealed knob. Suitable for water, also water mixtures (glycol up to 50%) as according to DIN 4757 Part 1. Max operating temperature : 160 °C

**TÜV SOLAR certified. According to Directive PED 97/23/CEE.**  
**Identification number CE1115.**

| Type    | Part number | Size        | bar | Min. order |
|---------|-------------|-------------|-----|------------|
| SVE-SOL | 0215835     | 1/2" x 3/4" | 3,5 | 10         |
| SVE-SOL | 0215840     | 1/2" x 3/4" | 4   | 10         |
| SVE-SOL | 0215860     | 1/2" x 3/4" | 6   | 10         |
| SVE-SOL | 0215880     | 1/2" x 3/4" | 8   | 10         |
| SVE-SOL | 0215899     | 1/2" x 3/4" | 10  | 10         |

**SRV-SOL****Balancing valve WattFlow sol**

Special design for solar installations. Brass body with female or male thread, compression fittings or pump flange and union nut on the outlet side.

Precise adjustment of the flow rate through inclined valve seat.

No correction factors for water and glycol required.

Maximum operating temperature 120 °C (plastic sight glass).

Maximum operating temperature 160 °C (silicate sight glass).

| Type    | Part number | Description | Min. order |
|---------|-------------|-------------|------------|
| SRV-SOL | on request  | 0,5 - 6 l/m | 1          |
| SRV-SOL | on request  | 1 - 10 l/m  | 1          |

For further balancing valves see pages 22 - 24

**MV-SOL****MINIVENT**

Automatic air vent valve for solar systems with unscrewable cover for inspection.

Body and cover of brass CW617N, 1265-99. Polyethylene float.

Seal between reservoir and cover with O-ring. Connection ND 3/8" - 1/2" DIN - ISO 228/1

Stainless steel (AISI 304) vacuum breaker (only for ND 3/8")

Max. operating pressure : 12 bar. Max. operating temperature : 160 °C.

| Type   | Part number | Size | Min. order |
|--------|-------------|------|------------|
| MV-SOL | 0249110     | 3/8" | 10         |
| MV-SOL | 0249115     | 1/2" | 10         |

**RIA/MV-SOL**

For SOLAR automatic air vent MV10 SOL / MV15 SOL .

| Type       | Part number | Size        | Min. order |
|------------|-------------|-------------|------------|
| RIA/MV-SOL | 0259310     | 3/8" x 3/8" | 10         |
| RIA/MV-SOL | 0259315     | 1/2" x 1/2" | 10         |

**FITTINGS FOR SOLAR HEATING CONTROL UNITS**

**KFE**
**Solar ball valve**

Universal use for sanitary, solar and heating installations, self-sealing connection 1/2", full bore, PN 10, hot-pressed brass MS 58 with threaded hose coupling, with KTW - tested seals, can be used up to a maximum of 160 °C.

| Type        | Part number | Size | Min. order |
|-------------|-------------|------|------------|
| KFE15SD UNI | 0553615     | 1/2" | 10         |


**SK-SOL**
**Solar quick coupling**

To test and replace expansion vessels without draining of the system, for solar heating systems, temperature range up to a maximum of 160 °C.

| Type   | Part number | Min. order |
|--------|-------------|------------|
| SK-SOL | 0608102     | 10         |


**KAV**
**Cap valve in accordance with DIN EN 12828 (DIN 4751)**

To test diaphragm type expansion vessels without draining of the system or disassembly of the vessel, brass MS 58, with draining valve and lead seal, nominal pressure PN 10, max. operating temperature 130 °C.

| Type   | Part number | Description          | Min. order |
|--------|-------------|----------------------|------------|
| KAV 20 | 0608120     | 3/4" x 3/4"          | 5          |
| KAV 25 | 0608125     | 1" x 1"              | 5          |
| KAV 32 | 0608132     | 1/4" x 1/4"          | 1/5        |
| SP/KAV | 0699033     | 10 lead seal inserts | 1          |


**VE-SOL**
**Solar expansion vessel**

To collect the additional volume that is generated during heat-up, prevents draining via safety relief valve, with nitrile diaphragm, primary pressure 2,5 bar, max. temperature 99 °C, connection 3/4", max. positive operating pressure 10 bar.

| Type   | Part number | Volume | Min. order |
|--------|-------------|--------|------------|
| VE-SOL | 0604901     | 12l    | 1          |
| VE-SOL | 0604902     | 18l    | 1          |
| VE-SOL | 0604903     | 25l    | 1          |
| VE-SOL | 0604904     | 35l    | 1          |
| VE-SOL | 0604905     | 50l    | 1          |

## FITTINGS FOR SOLAR HEATING CONTROL UNITS

**SSG****Solar safety group**

For connection with FlowBox Solar, pressure gauge 0 - 10 bar, solar combined feed cock and drain valve, solar safety relief valve 6 bar. Different set pressures on request.

| Type  | Part number | Size                              | Min. order |
|-------|-------------|-----------------------------------|------------|
| SSG 6 | 3500560     | 3/4" union nut x 3/4" male thread | 1          |

**WH-MAG****Wall bracket with quick coupling for expansion vessel**

For installation of the expansion vessel in connection with the FlowBox Solar.

| Type   | Part number | Description                                   | Min. order |
|--------|-------------|---|------------|
| WH-MAG | 4188117     | with reinforcing seam in the mounting bracket | 1          |
| WH-MAG | 4188118     | with reinforcement in the mounting bracket    | 1          |

**MMV****Thermostatic mixing valve**

With two integrated check valves (DVGW, BELGA QUA, KIWA, NF, WRC), adjustment range 30 - 65 °C, for drinking water installations PN 10, serves as scalding protection, brass body, max. hot water supply 90 °C, with screw connections.

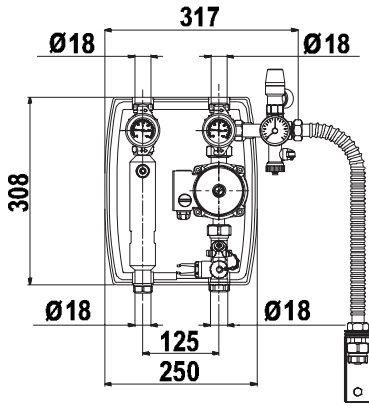
Any installation position.

**In accordance with EN 1111 and BSP1415 Pt 2 (TMV2).**

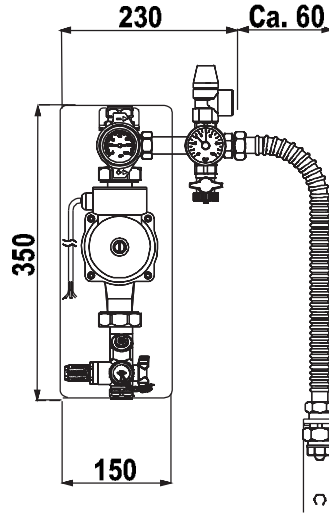
| Type  | Part number | Size | Min. order |
|-------|-------------|------|------------|
| MMV15 | 97082       | 1/2" | 5          |
| MMV20 | 97081       | 3/4" | 5          |



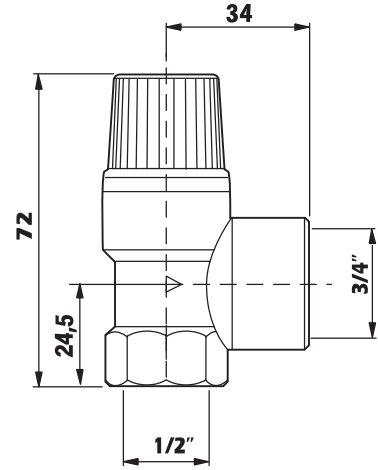
**FBS 8000**



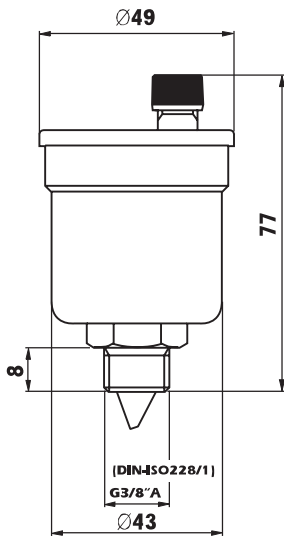
**FBS 7000**



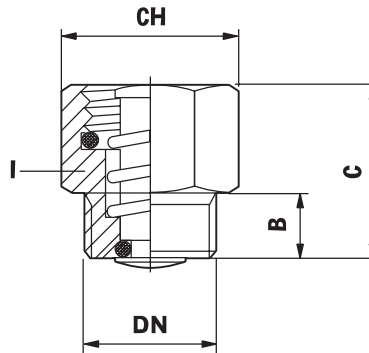
**SVE - SOL**



**MV-SOL**



**RIA/MV-SOL**



| DN   | B | C  | CH |
|------|---|----|----|
| 1/4" | 8 | 11 | 19 |
| 3/8" | 8 | 11 | 19 |
| 1/2" | 8 | 11 | 24 |