



**Application**



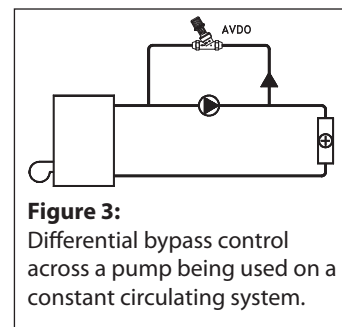
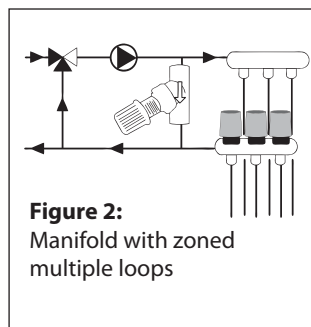
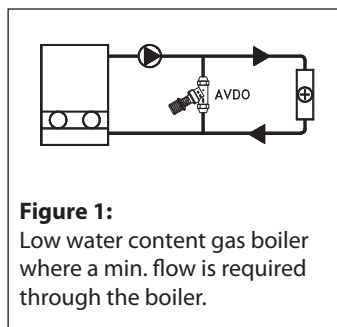
**AVDO** self-acting constant flow controls are used to maintain a minimum flow rate (e.g. through a low water content gas boiler) or to control differential pressure in a heating system. The closing of radiator or zone valves due to reduced heating demand may result in low flow and increased system differential pressure (potentially dead heating pumps). AVDO valves open with a falling system load and allow flow through a bypass line whenever the differential pressure through the valve exceeds set point; ensuring a minimum flow rate or a system differential pressure at minimum system load.

**AVDO:**

- Opens on rising differential pressure.
- Setting differential pressure range of 0.725 - 7.25 psi (0.05-0.5 bar).
- Designed for 145 psi (10 bar), max. 248°F (120°C).
- Operates without impulse tubes.
- Can be supplied with NPT or solder tail pieces.

**Application Examples:**

The placement of the AVDO can be piped between the supply and return or parallel to the circulator as seen in the figures below.



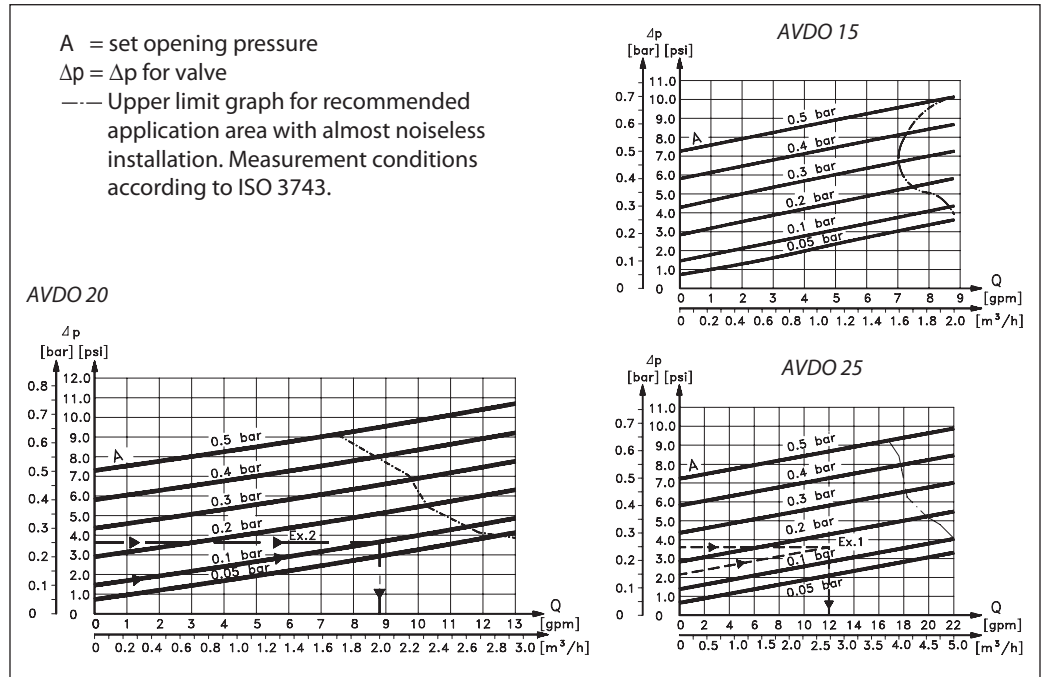
**Ordering**

| Code Numbers   | Type                | Description          | Size/Connection |
|----------------|---------------------|----------------------|-----------------|
| <b>AVDO 15</b> | Straight Valve Body | 1/2" Union Solder    | 003L602001      |
|                |                     | 1/2" Union Male, NPT | 003L602002      |
| <b>AVDO 20</b> |                     | 3/4" Union Solder    | 003L602501      |
|                |                     | 3/4" Union Male, NPT | 003L602502      |
| <b>AVDO 25</b> |                     | 1/2" Union Solder    | 003L603002      |

**Technical data**

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| <b>Setting range</b>              | 0.725 - 7.25 psi (0.05 - 0.5 bar) |
| <b>Max. differential pressure</b> | 7.25 psi (0.5 bar)                |
| <b>Operation pressure</b>         | 145 psi (10 bar)                  |
| <b>Max. flow temperature</b>      | 248°F (120°C)                     |
| <b>Max. leakage when closed</b>   | 0.22 gpm (0.05 m <sup>3</sup> /h) |

**Capacity**



**Design**

**Materials of parts in contact with water**

|                          |                                       |
|--------------------------|---------------------------------------|
| <b>1. Setting handle</b> | Pom-Plastic                           |
| <b>2. Base</b>           | Ms 58                                 |
| <b>3. Spring guide</b>   | Polyphenylene sulphide (PPS-plastics) |
| <b>4. Spring</b>         | Stainless steel                       |
| <b>5. Valve cone</b>     | Polyphenylene sulphide (PPS-plastics) |
| <b>6. Valve body</b>     | Ms 58, forged                         |
| <b>7. Setting pin</b>    | Stainless steel                       |
| <b>8. O-rings</b>        | EPDM rubber                           |

**Installation**

The valve body must be mounted with flow in the direction of the cast-in arrow.

**Setting**

The control is set by turning the adjustment knob. AVDO has a setting scale on which the opening pressure can be set according to the table to the right. The differential pressures stated for a given setting are indicative. The scale gives the differential pressure across the AVDO when it just begins to open.

|     |   |                   |   |      |
|-----|---|-------------------|---|------|
| 0.1 | - | 1                 | = | 1.45 |
| 0.2 | - | 2                 | = | 2.90 |
| 0.3 | - | 3                 | = | 4.35 |
| 0.4 | - | 4                 | = | 5.8  |
| 0.5 | - | 5                 | = | 7.25 |
| bar |   | mH <sup>2</sup> O |   | psi  |

Sizing

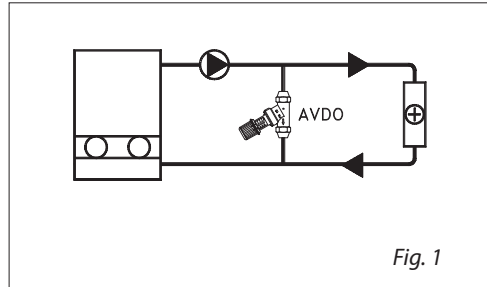


Fig. 1

**Example 1**

Bypass control across heating system

**Given:**

- System, see fig. 1
- Insignificant pressure loss in pipe from boiler to bypass.
- Pump characteristic, see fig. 2.
- 2.2 psi (0.15 bar) system differential pressure at max. system load.

**Required:**

- Bypass circulation beginning at 2.2 psi (0.15 bar) pump pressure.
- Min. 8.8 gpm (2.0 m<sup>3</sup>/h) boiler circulation

**Seek:**

- A constant flow control that opens simultaneously with falling load across the system (closing radiator valves or zone valves)
- A constant flow control that ensures min. 8.8 gpm (2.0 m<sup>3</sup>/h) boiler circulation at min. system load

**Solution:**

- An 8.8 gpm (2.0 m<sup>3</sup>/h) flow corresponds to a 3.6 psi (0.25 bar) pump pressure - see "Capacity".
- On closing radiator valves or zone valves AVDO ensures a minimum of 8.8 gpm (2.0 m<sup>3</sup>/h) circulation at 3.6 psi (0,25 bar) differential pressure across AVDO.
- Choose AVDO 25 that provides 12 gpm (2.7 m<sup>3</sup>/h) at 3.6 psi (0.25 bar) differential pressure across valve.
- Set AVDO to #1.5 (2.2 psi, 0.15 bar) opening pressure.

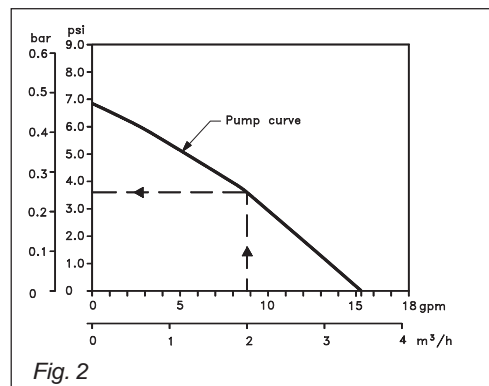


Fig. 2

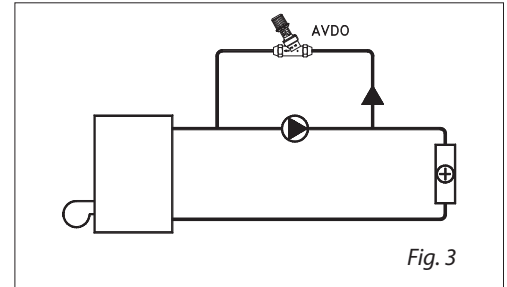


Fig. 3

**Example 2**

Bypass control across circulating pump

**Given:**

- System, see fig. 3
- Pump characteristic, see fig. 4

**Required:**

- Bypass circulation beginning at 1.5 psi (0.1 bar) pump pressure
- Max. system differential pressure with closed radiator valves or zone valves must be limited to 3.6 psi (0.25 bar)

**Seek:**

- A constant flow control that opens simultaneously with falling load across the system (closing radiator valves or zone valves)
- A constant flow control that ensures max. system differential pressure not to exceed 3.6 psi (0.25 bar) at min. system load

**Solution:**

- The max. permissible differential pressure 3.6 psi (0.25 bar) across the system corresponds to a 8 gpm (1.8 m<sup>3</sup>/h) water volume (fig. 4). At min. load AVDO must ensure 8 gpm (1.8 m<sup>3</sup>/h) in circulation through the bypass. In this example AVDO 20 must be used - see "Capacity".
- As circulation is not to begin before differential pressure across system has exceeded 1.5 psi (0.1 bar), AVDO is set to # 1.0 (1.5 psi, 0.1 bar) - see "Setting".

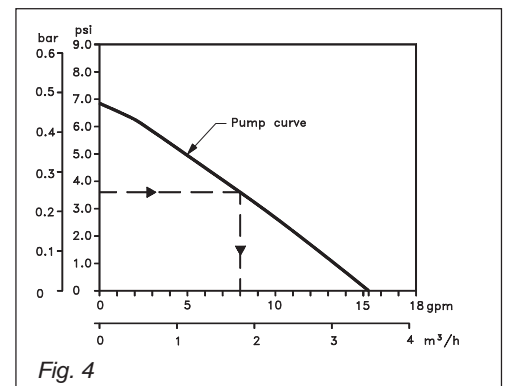
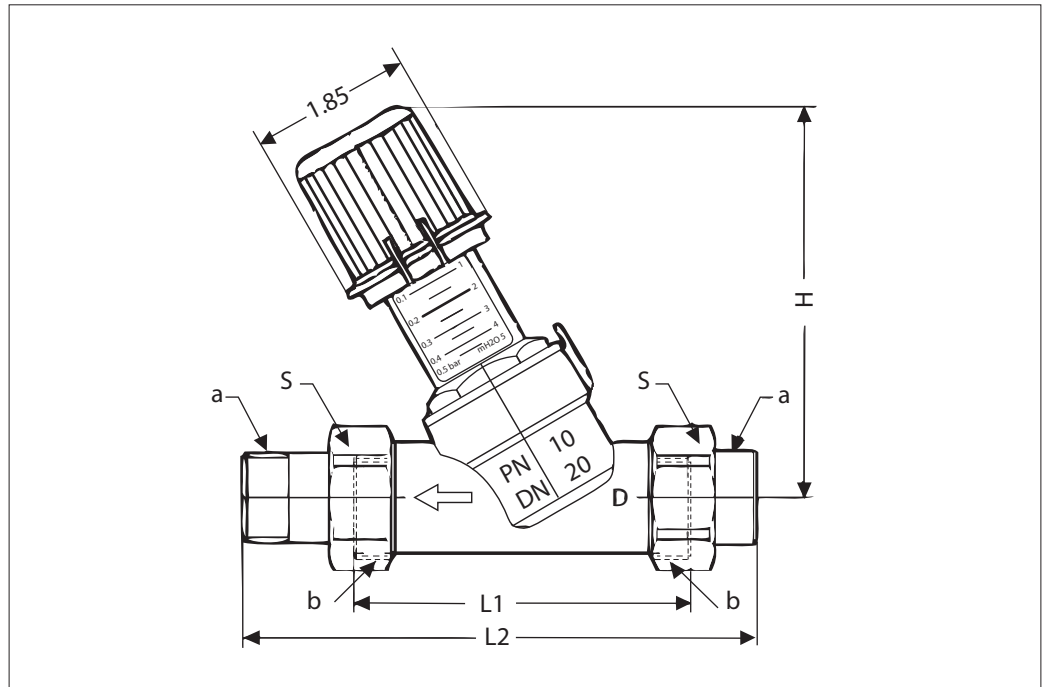


Fig. 4

Dimensions



| DN | Type    | Measure Unit | L1   | L2 Threaded | L2 Solder | H    |      | S    | a    | b ISO 228/1 |
|----|---------|--------------|------|-------------|-----------|------|------|------|------|-------------|
|    |         |              |      |             |           | Min  | Max  |      |      |             |
| 15 | AVDO 15 | inch         | 3.44 | 5.94        | 4.76      | 3.50 | 4.45 | 1.18 | 1/2" | G 3/4 A     |
|    |         | mm           | 87   | 151         | 121       | 89   | 113  | 30   |      |             |
| 20 | AVDO 20 | inch         | 3.66 | 6.49        | 5.39      | 3.55 | 4.49 | 1.46 | 3/4" | G 1 A       |
|    |         | mm           | 93   | 165         | 137       | 90   | 114  | 37   |      |             |
| 25 | AVDO 25 | inch         | 4.17 | 7.00        | -         | 3.74 | 4.69 | 4.69 | 1"   | G 1 1/4 A   |
|    |         | mm           | 106  | 178         | -         | 95   | 119  | 119  |      |             |

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