

## Data Sheet

# Automatic Bypass Control AVDO

### Application



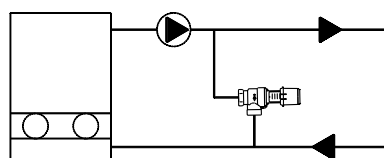
AVDO is a self-acting constant flow control primarily used either to maintain minimum flow rates through e.g. a low-capacity gas boiler or to control the differential pressure in a central heating system.

- is dimensioned for pressure stage PN 10, max. 120 °C
- DN 15 and DN 20
- operates without impulse tubes

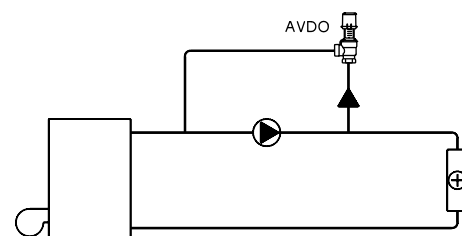
#### AVDO:

- opens on rising differential pressure
- has a setting range of 0.05 - 0.5 bar

On delivery valve housing is fit onto AVDO with one of the following fittings: internal socket thread, internal socket thread/nipple or external thread for compression fittings.



*Low-capacity gas boiler where maintenance of a min. flow is required*



*Differential pressure control*

Ordering

Type	Setting range, bar	Inlet	Connection	Outlet	Code no.
AVDO 15	0.05 - 0.5	R <sub>p</sub> 1/2 <sup>1)</sup>		R 1/2 <sup>1)</sup>	003L6002
AVDO 20		R <sub>p</sub> 3/4 <sup>1)</sup>		R 3/4 <sup>1)</sup>	003L6007
AVDO 25		R <sub>p</sub> 1 <sup>1)</sup>		R 1 <sup>1)</sup>	003L6012
AVDO 15	0.05 - 0.5	R <sub>p</sub> 1/2 <sup>1)</sup>		R 1/2 <sup>1)</sup>	003L6003
AVDO 20		R <sub>p</sub> 3/4 <sup>1)</sup>		R 3/4 <sup>1)</sup>	003L6008
AVDO 25		R <sub>p</sub> 1 <sup>1)</sup>		R 1 <sup>1)</sup>	003L6013
AVDO 15	0.05 - 0.5	G 3/4 A <sup>2)</sup>		G 3/4 A <sup>2)</sup>	003L6020
AVDO 20		G 1 A <sup>2)</sup>		G 1 A <sup>2)</sup>	003L6025
AVDO 25		G 1 1/4 A <sup>2)</sup>		G 1 1/4 A <sup>2)</sup>	003L6030
AVDO 15	0.05 - 0.5	R <sub>p</sub> 1/2 <sup>1)</sup>		R 1/2 <sup>1)</sup>	003L6018
AVDO 20		R <sub>p</sub> 3/4 <sup>1)</sup>		R 3/4 <sup>1)</sup>	003L6023
AVDO 25		R <sub>p</sub> 1 <sup>1)</sup>		R 1 <sup>1)</sup>	003L6028

<sup>1)</sup> According to ISO 7/1

<sup>2)</sup> According to ISO 228/1

Accessories (supplied in boxes of 10)

Copper tube fittings		Code no.
AVDO 15	Ø 16 x 1	013U0131
	Ø 18 x 1	013U0132
AVDO 20	Ø 18 x 1	013U0134
	Ø 22 x 1	013U0135
AVDO 25	Ø 28 x 1	013U0140

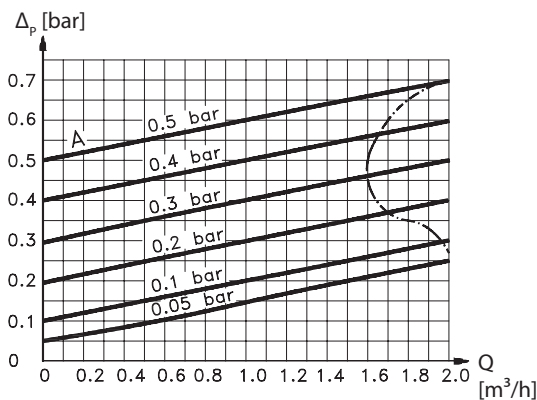
Technical Data

Setting range:	0.05 - 0.5 bar
Max. differential pressure	0.5 bar
Operation pressure	PN 10

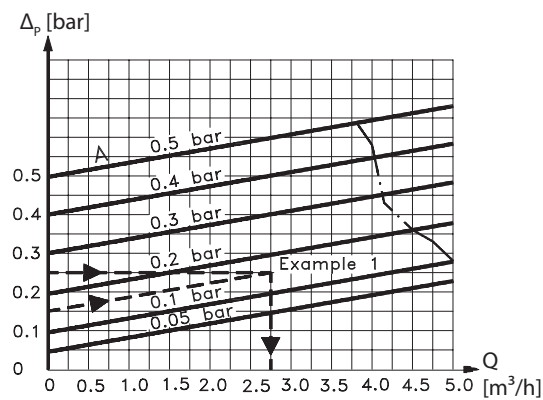
Max. flow temperature	120 °C
Max. leakage at closed valve	50 l/h

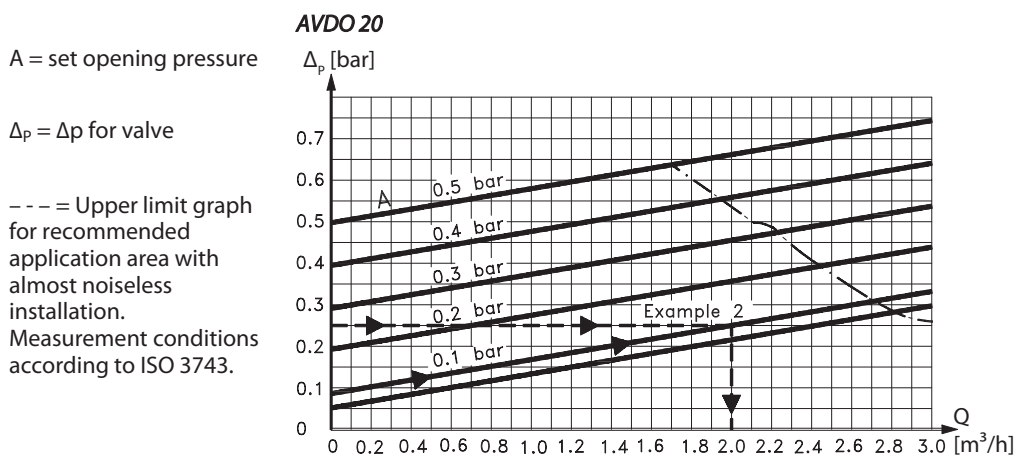
Capacities

AVDO 15

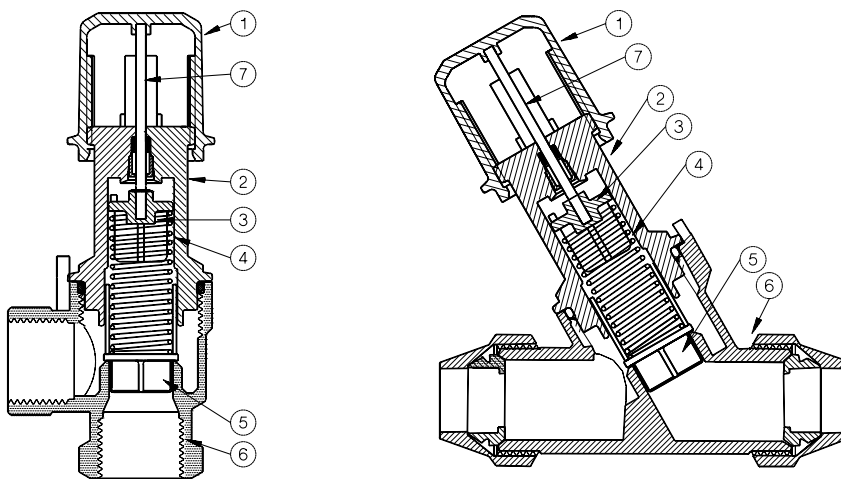


AVDO 25





**Design**



**Materials**

1. Setting handle	Pom-plast
2. Base	Ms 58
3. Spring guide	PPS plastic
4. Spring	Stainless steel
5. Valve cone	PPS plastic
6. Valve body	Ms 58, hot-pressed
7. Setting pin	Stainless steel
O-rings	EPDM

**Installation**

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

**Setting**

The control is set by turning the setting dial. AVDO has a setting scale on which the opening pressure in bar or mwg can be directly read. 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.

Sizing

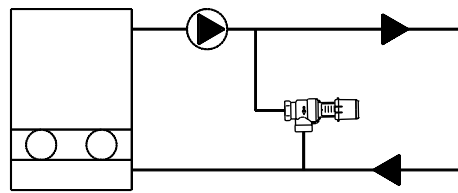


Fig. 1

**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.
- 0.15 bar system differential pressure at max. system load.

Required:

- Bypass circulation beginning at 0.15 bar pump pressure.
- Min. 2.0 m<sup>3</sup>/h boiler circulation.

Seek:

- A constant flow control that opens concurrently with falling load across the system (closing radiator thermostats).
- A constant flow control that ensures min. 2.0 m<sup>3</sup>/h boiler circulation at min. system load.

Solution:

- A 2.0 m<sup>3</sup>/h flow corresponds to a 0.25 bar pump pressure. On closing radiator thermostats AVDO is to ensure min. 2.0 m<sup>3</sup>/h circulation at 0.25 bar differential pressure across AVDO. Choose AVDO 25 that provides 2.75 m<sup>3</sup>/h at 0.25 bar differential pressure across valve. Set AVDO on 0.15 bar required opening pressure.

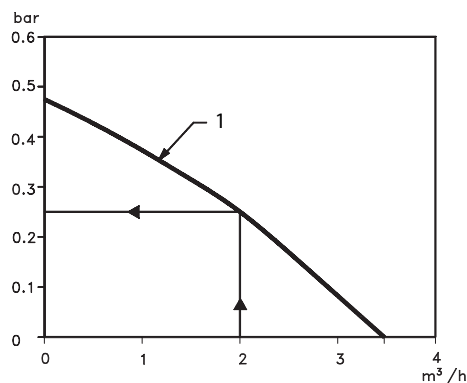


Fig. 2

1. Pump characteristic

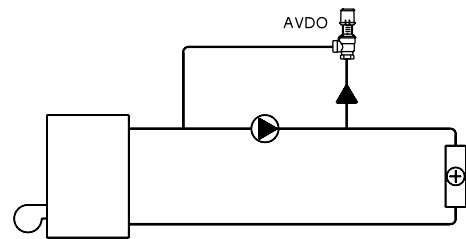


Fig. 2

**Example 2:**  
Bypass control across circulation pump

Given:

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

Required:

- Bypass circulation beginning at 0.1 bar pump pressure.
- Max. system differential pressure at closed radiator thermostats must be limited to 0.25 bar.

Seek:

- A constant flow control that opens concurrently with falling load across the system (closing radiator thermostats).
- A constant flow control that ensures max. system differential pressure not exceeding 0.25 bar at min. system load.

Solution:

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

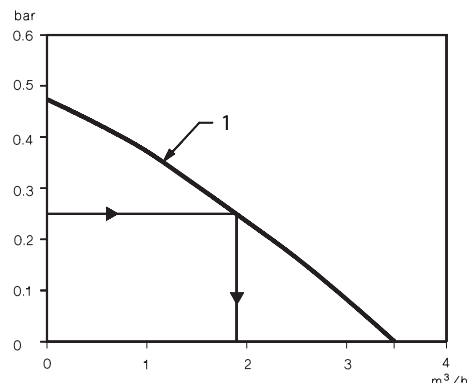


Fig. 4

Dimensions

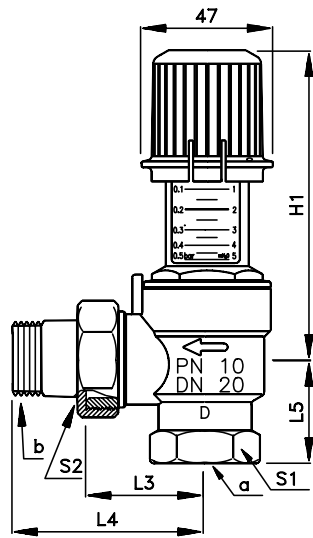


Fig. 1

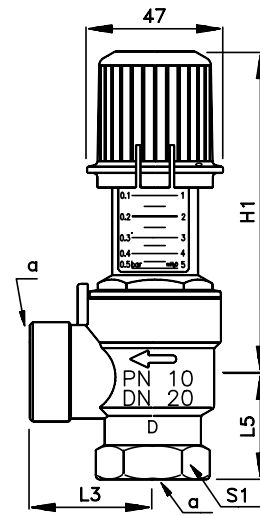


Fig. 2

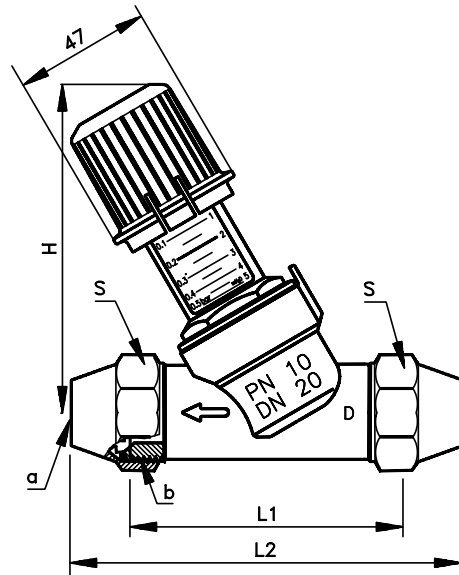


Fig. 3

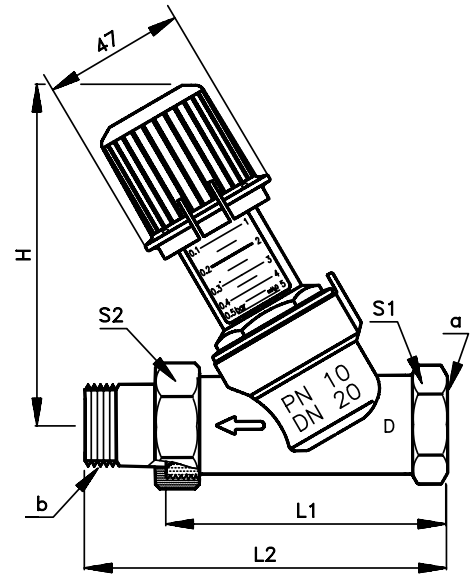


Fig. 4

Fig. 1

DN	Type	a <sup>1)</sup>	b <sup>1)</sup>	L3	L4	L5	H1		S1	S2
							min	max		
15	AVDO 15	R <sub>p</sub> ½	R ½	40	69	33	83	112	28	30
20	AVDO 20	R <sub>p</sub> ¾	R ¾	42	74	37	83	112	34	37
25	AVDO 25	R <sub>p</sub> 1	R 1	46	81	46	85	114	43	40

Fig. 2

DN	Type	a <sup>1)</sup>	L3	L5	H1		S1
					min	max	
15	AVDO 15	R <sub>p</sub> ½	40	33	83	112	28
20	AVDO 20	R <sub>p</sub> ¾	42	37	83	112	34
25	AVDO 25	R <sub>p</sub> 1	46	46	85	114	43

Fig. 3

DN	Type	a, mm	b <sup>2)</sup>	L1	L2	H1		S
						min	max	
15	AVDO 15	15/16/18	G ¾ A	87	111	89	113	30
20	AVDO 20	18/22	G 1 A	93	120	90	114	37
25	AVDO 25	28	G 1¼ A	106	136	95	119	45

Fig. 4

DN	Type	a <sup>1)</sup>	b <sup>1)</sup>	L1	L2	H1		S1	S2
						min	max		
15	AVDO 15	R <sub>p</sub> ½	R ½	87	116	89	113	28	30
20	AVDO 20	R <sub>p</sub> ¾	R ¾	93	125	90	114	34	37
25	AVDO 25	R <sub>p</sub> 1	R 1	106	141	95	119	43	40

<sup>1)</sup> According to ISO 7/1

<sup>2)</sup> According to ISO 228/1



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