

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.

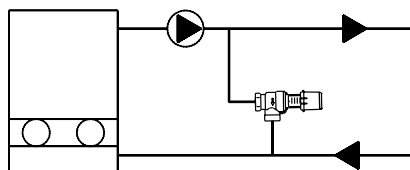
- is dimensioned for pressure stage PN 10, max. 120 °C
- DN 15 and DN 20
- operates without impulse tubes

AVDO:

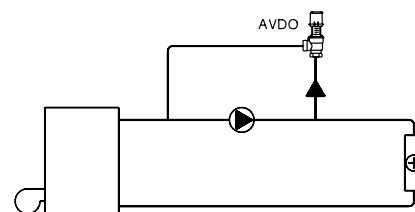
- opens on rising differential pressure
- has a setting range of 0.05 - 0.5 bar

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.

Princip



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



Differential pressure control

Ordering

Type	Setting range, bar	Connection		Code no.
		Inlet	Outlet	
AVDO 15	0.05 - 0.5	R _p 1/2 ¹⁾		R _p 1/2 ¹⁾
AVDO 20		R _p 3/4 ¹⁾		R _p 3/4 ¹⁾
AVDO 25		R _p 1 ¹⁾		R _p 1 ¹⁾
AVDO 15	0.05 - 0.5	R _p 1/2 ¹⁾		R 1/2 ¹⁾
AVDO 20		R _p 3/4 ¹⁾		R 3/4 ¹⁾
AVDO 25		R _p 1 ¹⁾		R 1 ¹⁾
AVDO 15	0.05 - 0.5	G 3/4 A ²⁾		G 3/4 A ²⁾
AVDO 20		G 1 A ²⁾		G 1 A ²⁾
AVDO 25		G 1 1/4 A ²⁾		G 1 1/4 A ²⁾
AVDO 15	0.05 - 0.5	R _p 1/2 ¹⁾		R 1/2 ¹⁾
AVDO 20		R _p 3/4 ¹⁾		R 3/4 ¹⁾
AVDO 25		R _p 1 ¹⁾		R 1 ¹⁾

¹⁾ According to ISO 7/1

²⁾ According to ISO 228/1

Accessories (supplied in boxes of 10)

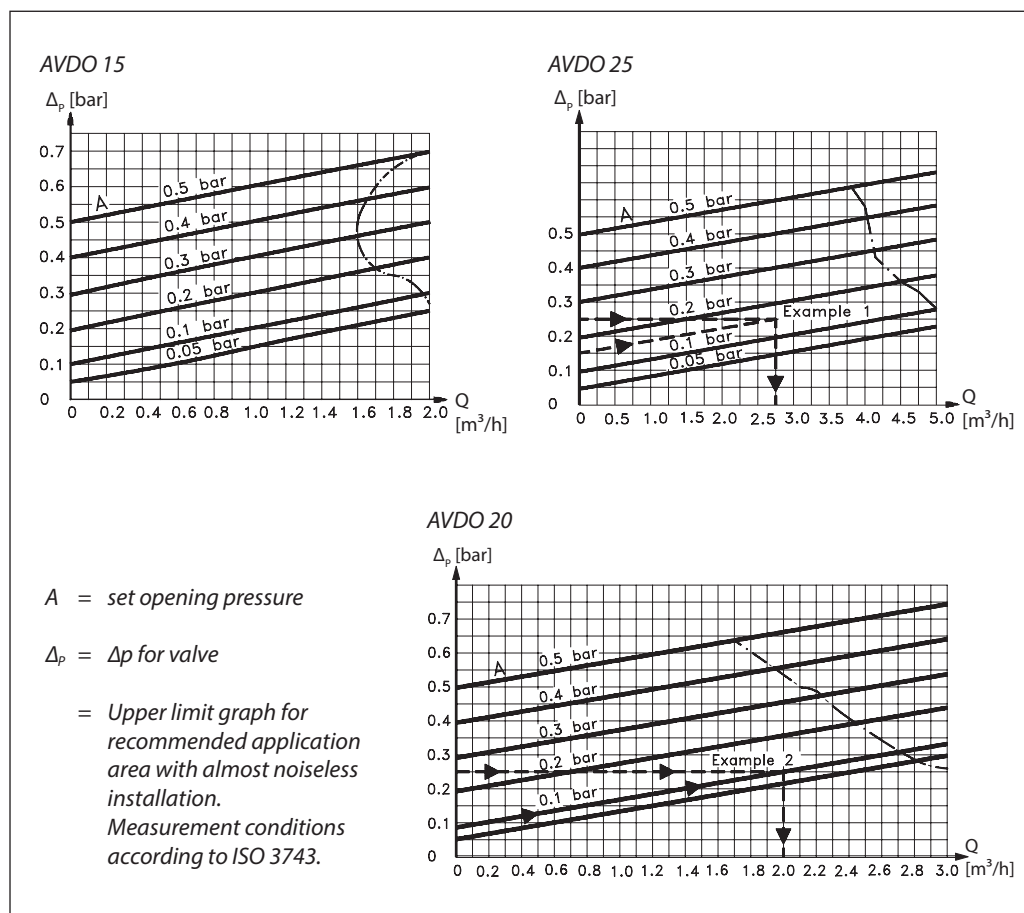
Copper tube fittings		Code no.
AVDO 15	Ø 16 x 1	13U0131
	Ø 18 x 1	13U0132
AVDO 20	Ø 18 x 1	13U0134
	Ø 22 x 1	13U0135
AVDO 25	Ø 28 x 1	13U0140

Technical data

Setting range.....0.05 - 0.5 bar
 Max. differential pressure0.5 bar
 Operation pressurePN 10

Max. flow temperature..... 120 °C
 Max. leakage at closed valve50 l/h

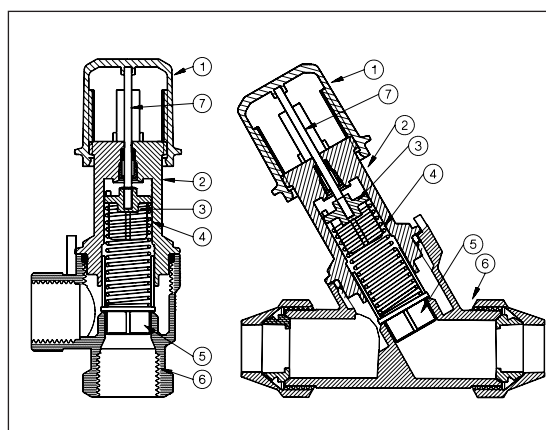
Capacity



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

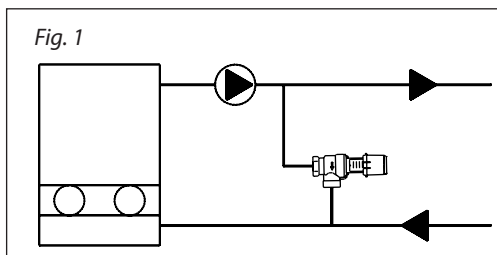


Fig. 1

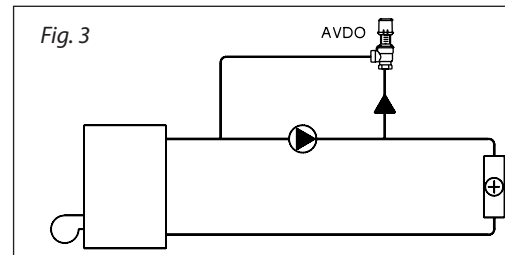


Fig. 3

**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 m³/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 m³/h boiler circulation at min. system load.

Solution:

- A 2.0 m³/h flow corresponds to a 0.25 bar pump pressure. On closing radiator thermostats AVDO is to ensure min. 2.0 m³/h circulation at 0.25 bar differential pressure across AVDO. Choose AVDO 25 that provides 2.75 m³/h at 0.25 bar differential pressure across valve. Set AVDO on 0.15 bar required opening pressure.

**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 m³/h water volume (fig. 4). At min. load AVDO must ensure 1.8 m³/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".

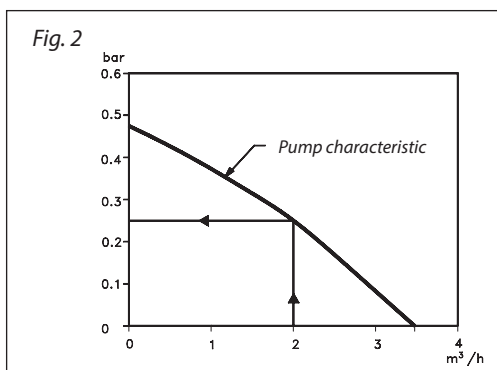


Fig. 2

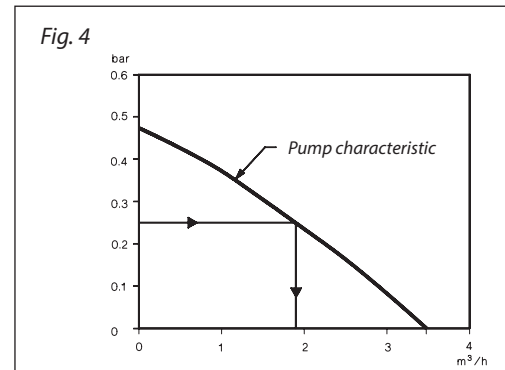
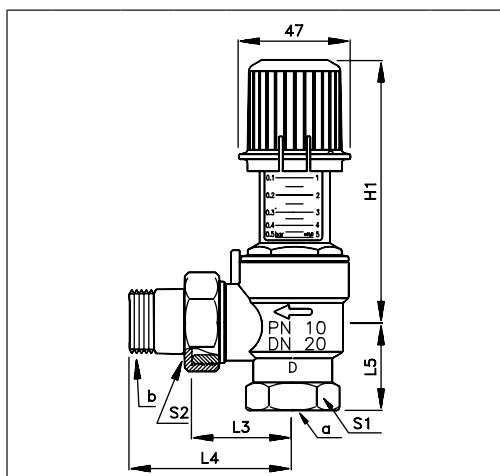
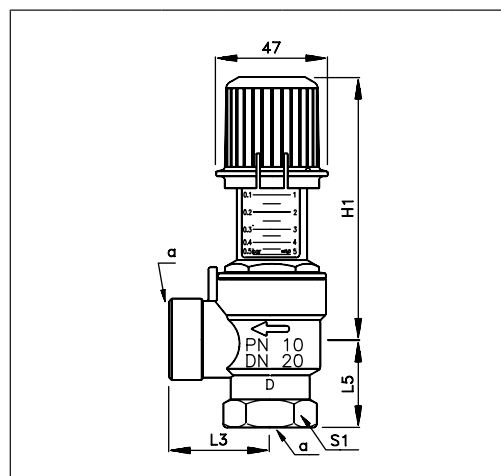


Fig. 4

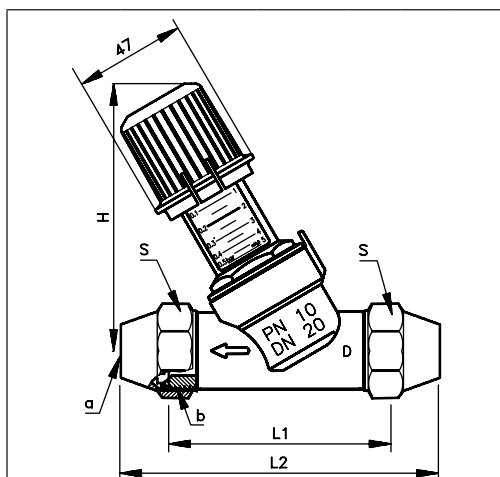
Dimensions



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

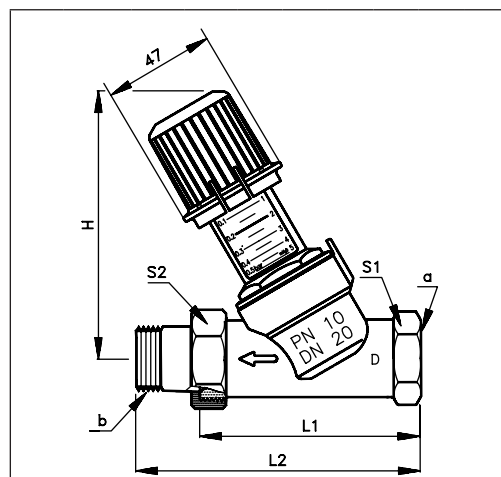


DN	Type	a ¹⁾	L3	L5	H1		S1
					min.	max.	
15	AVDO 15	R _p ½	40	33	83	112	28
20	AVDO 20	R _p ¾	42	37	83	112	34
25	AVDO 25	R _p 1	46	46	85	114	43



DN	Type	a mm	b ²⁾	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 1 ¼ A	106	136	95	119	45

¹⁾ According to ISO 7/1



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

²⁾ According to ISO 228/1

Danfoss Randall Ltd.

Amphill Road
 Bedford
 MK42 9ER
 Telephone: 01234 364621
 Fax: 01234 219705

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.