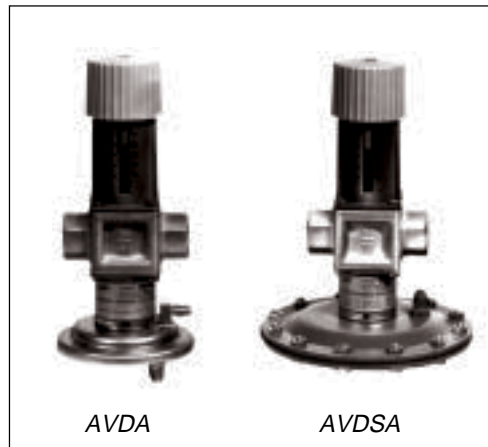


Application

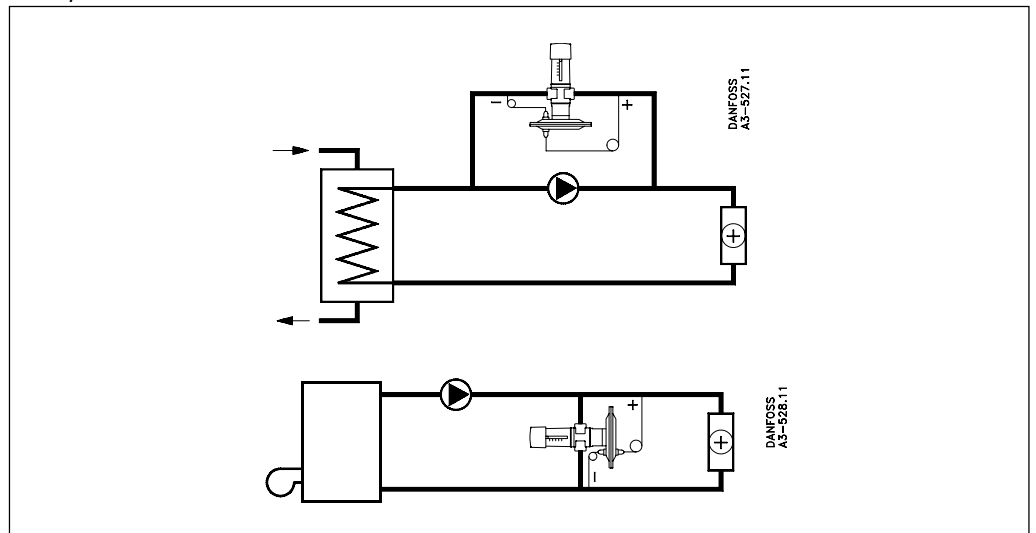


For apartment block heating, district heating plant and central heating systems.

AVDA and AVDSA characteristics:

- constant flow control or bypass control
- self-acting
- DN 15, 20, 25
- PN 10 or PN 16

Principle



Ordering

Pressure controls

Typ	DN	Connection - valve		Connection Impulse tube flare	k <sub>vs</sub> m <sup>3</sup> /h	Setting range bar	Code no. <sup>1)</sup>	
		Internal thread ISO 7/1	External thread ISO 228/1				for controls with internal thread	for controls with external thread
AVDA 15	15	R <sub>p</sub> 1/2	-	7/16-20 UNF	1.9	0.1 - 1.2	<b>003N0038</b>	-
AVDA 20	20	R <sub>p</sub> 3/4	-		3.4		<b>003N0039</b>	-
AVDA 25	25	R <sub>p</sub> 1	-		5.5		<b>003N0040</b>	-
AVDSA 15	15	R <sub>p</sub> 1/2	G 3/4 A	7/16-20 UNF	1.9	0.05 - 0.5	<b>003N8204<sup>2)</sup></b>	<b>003N5171<sup>2)</sup></b>
AVDSA 20	20	R <sub>p</sub> 3/4	G 1 A		3.4		<b>003N8205<sup>2)</sup></b>	<b>003N5172<sup>2)</sup></b>
AVDSA 25	25	R <sub>p</sub> 1	G 1 1/4 A		5.5		<b>003N8206</b>	<b>003N5173<sup>2)</sup></b>

<sup>1)</sup> The code no. includes 2 impulse tubes (0.5 and 1.5 m) with tailpieces.

<sup>2)</sup> Delivered on enquiry

Ordering

Tailpieces

Weld-on fittings	DN	Code no.
1 set (incl. 2 union nuts and 2 seals)	15	003N5090
	20	003N5091
	25	003N5092

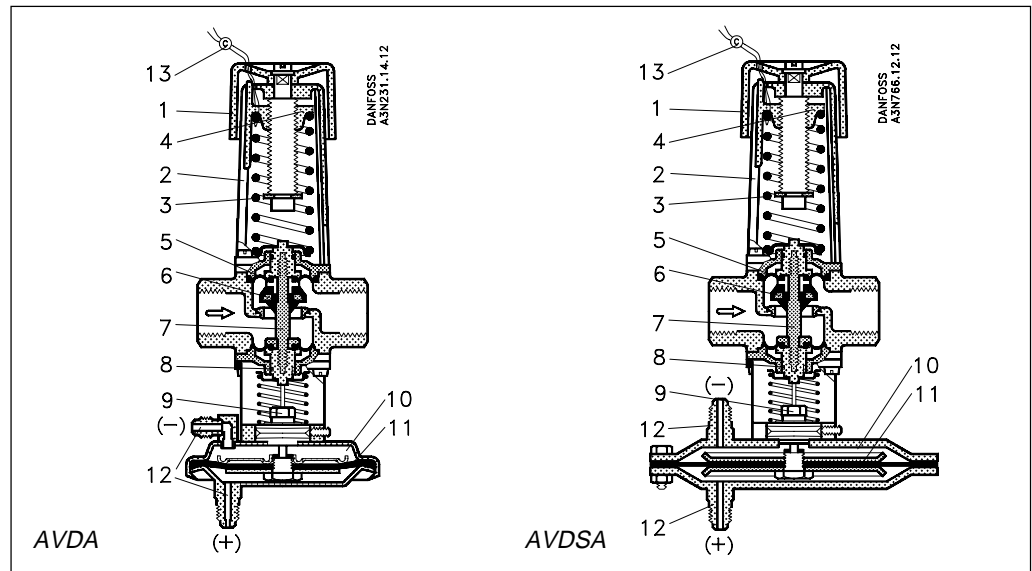
  

External thread	DN	Code no.
1 set (incl. 2 union nuts and 2 seals)	15	003N5070
	20	003N5071
	25	003N5072

Spare parts

Type		Code no.
Impulse tube (1-off 0.5 m long and 1-off 1.5 m long supplied as standard)	0.5 m	060-0070
	1.5 m	060-0072
Brass-dipped nipple (two supplied as standard)		631X4700
Diaphragm housing AVDA		003N0065
Diaphragm housing AVDSA		003N0284
Diaphragm housing gland AVDA and AVDSA		065F0006
Repair kit (two diaphragms, two O-rings one valve cone, a tube of grease and eight screws)	DN15	003N4006
	DN 20	003N4007
	DN 25	003N4008
Top part without spring and spring screws		003N0001

1. Selector knob
2. Adjustment head
3. Setting spring
4. Spring retainer
5. Diaphragm
6. Valve cone
7. Spindle
8. O-ring
9. O-ring gland
10. Diaphragm unit
11. Control diaphragm
12. Nipple for impulse tube
13. Lead seal



Design

Parts in contact with water

Valve body  
(Internal thread): Ms 58, DIN 17660, w.no. 2.0402

Valve body  
(External thread): Dezincing-free Ms, BS 2872/CZ 132

Diaphragm: EPDM rubber

Valve seat: CrNi-Steel, DIN 17660, w.no. 1.4301

Valve cone: NBR rubber

Spindle: Dezincing-free Ms, BS 2874/CZ 132

Diaphragm housing: Zinc-cromated steel, DIN 1624, W.Nr. 1.0338

Impulse tube: Copper

Control diaphragm: EPDM-rubber

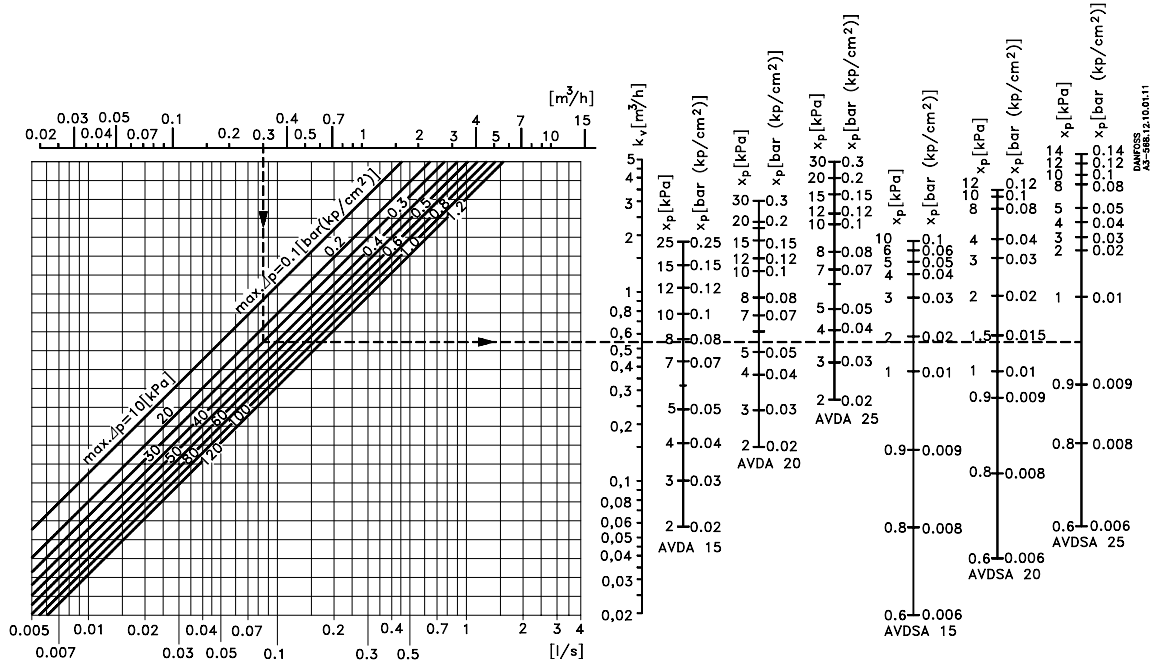
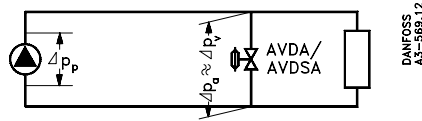
Data

**AVDA**  
 Pressure stage PN ..... 10 bar  
 Test pressure ..... 16 bar  
 Max. differential pressure ..... 7 bar  
 Max. water temperature ..... 130 °C

**AVDSA**  
 Pressure stage PN ..... 16 bar  
 Test pressure ..... 25 bar  
 Max. differential pressure ..... 7 bar  
 Max. water temperature ..... 130 °C

Sizing

Constant flow control



Example

Given

Assuming a pressure drop in the line from the pump to and from the valve connections of nil so that  $\Delta p_p = \Delta p_a = \Delta p_v$ , the plant differential pressure at max. load = 0.25 bar.

Condition

Maximum plant differential pressure with closed radiator valves limited to 0.3 bar. Pump water volume (Q) for this condition = 0.3 m<sup>3</sup>/h.

Required

A pressure relief control able to circulate a water volume of at least 0.3 m<sup>3</sup>/h at  $\Delta p_a = 0.3$  bar and which will remain closed under max. plant load,  $\Delta p_a = 0.25$  bar.

Method

Locate the necessary water volume, Q = 0.3 m<sup>3</sup>/h, on the horizontal axis in the nomogram.

From the 0.3 m<sup>3</sup>/h point, take a vertical line up to intersect the curve that gives the pressure at which the valve must be completely open (here, 0.3 bar). From the intersection, take a horizontal line to intersect the vertical axes on the right. These axes give the pressure rise X<sub>p</sub> that is necessary across the valve before it can give the required capacity Q.

Since the pressure rise in this example is 0.3 - 0.25 = 0.05 bar, a valve where X<sub>p</sub> ≤ 0.05 bar could be used, i.e. an AVDA 25.

This setting is therefore 0.25 bar, i.e. the valve is closed when the differential pressure across it is 0.25 bar.

A pressure gauge can be used in making the setting, or an approximate setting can be made as shown in the associated installation example.

**Installation**

The valve body can be installed in any position. A Danfoss FV strainer is recommended.

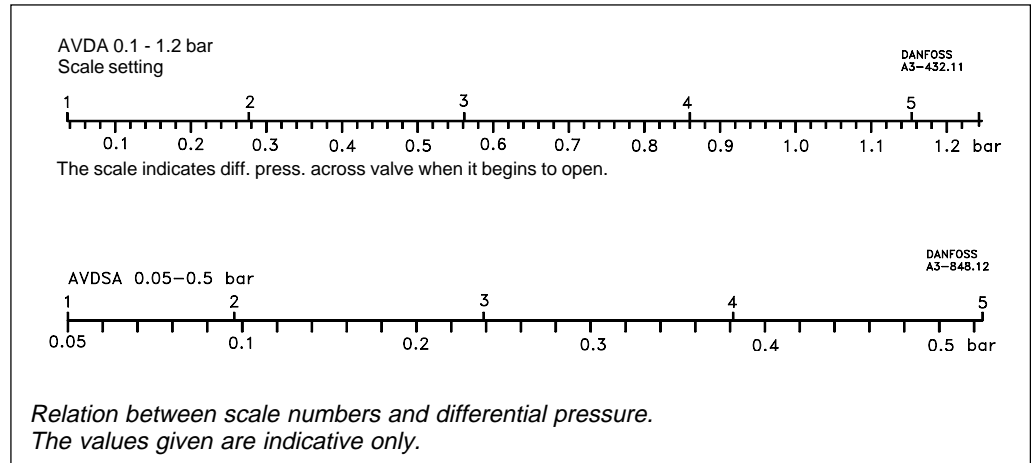
Pressure control impulse tube must be fit vertically or horizontally onto the main pipe, never downwards.

Needle valve can be fit between main pipe and impulse tube, if necessary.

Impulse tube connector marked (+) is fit in flow pipe and connector marked (-) in return pipe. To simplify settings main pipe must have manometer connector fit close to impulse tube.

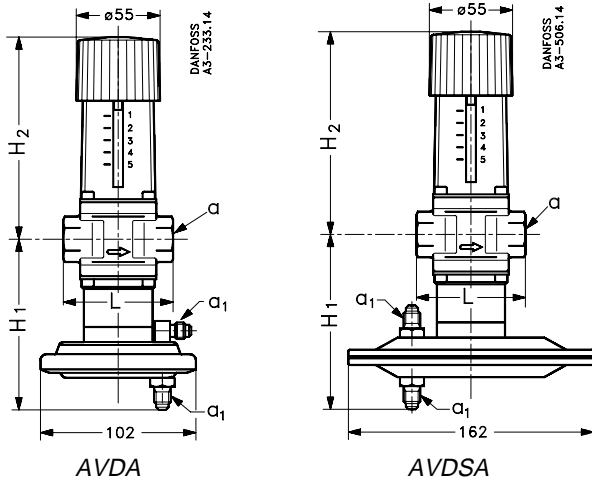
On turning diaphragm housing downwards the letter "RA" on valve housing must be oriented upright.

**Setting**

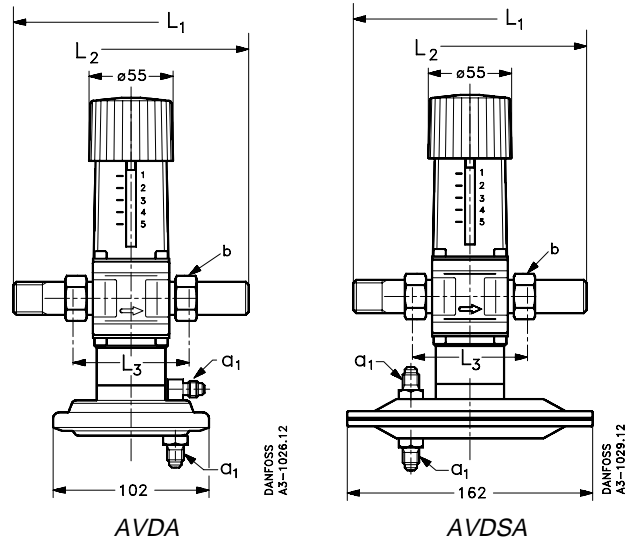


Dimensions

AVD and AVDSA with internal thread

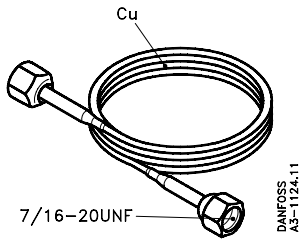


AVDA and AVDSA with external thread

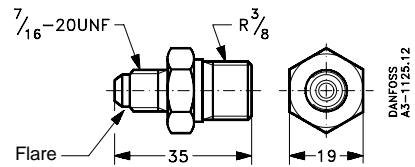


Type	H <sub>1</sub> mm	H <sub>2</sub> mm	L mm	a ISO 7/1	a <sub>1</sub> flare
DN 15	112	133	72	R <sub>p</sub> 1/2	7/16-20 UNF
DN 20	112	133	90	R <sub>p</sub> 3/4	7/16-20 UNF
DN 25	117	138	95	R <sub>p</sub> 1	7/16-20 UNF

Type	L <sub>1</sub> mm	L <sub>2</sub> mm	L <sub>3</sub> mm	b ISO 228/1
DN 15	141	149	75	G 3/4 A
DN 20	152	164	80	G 1 A
DN 25	167	167	83	G 1 1/4 A



Impulse tube



Nipple





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