

DAB 50 – ANSI flanges



Differential pressure relief valves
Proportional relief valve – DN 32-200

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This proportional relief valve for heating and cooling systems maintains a minimum flow through the main pipe, minimising the response times of the system's control loops. Its ability to open at times of increasing differential pressure ensures the pumps are protected. Rust protection is assured thanks to the electrophoretically painted ductile iron body.



Key features

- > **Special internal geometry**
Allows big pressure drop without noise.
- > **Adjustable set-point**
Ensure the desired differential pressure.

Technical description

Application:

Heating and cooling systems.

Function:

Maintaining minimum flow through the main pipe to minimize response times of control loops in the system.
Opens at increasing Δp .

Dimensions:

DN 32-200

Pressure class:

Class 150

Max. differential pressure (Δp_V):

1600 kPa = 16 bar

Setting range:

Differential pressure adjustable
10 - 60 kPa, 50 - 150 kPa and
130 - 250 kPa.

Temperature:

Max. working temperature: 150°C
Min. working temperature: -10°C

Media:

Water or neutral fluids, water-glycol mixtures (0-57%).

Material:

Valve body: Ductile iron EN-GJS-400-15
Actuator body: Ductile iron EN-GJS-400-15
Diaphragm: EPDM
Valve seat: Stainless steel
Valve plug: Stainless steel with EPDM insert

Surface treatment:

Electrophoretic painting.

Marking:

IMI TA, DN, PN and flow direction arrow.

Flanges:

According to ASME/ANSI B16.42
Class 150.

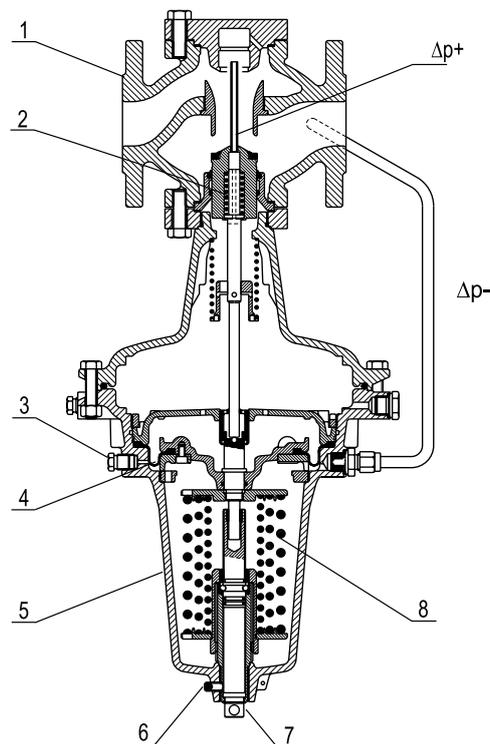
Operating function

Installation in bypass pipe. The controller consists of a valve (1) and a diaphragm actuator (5). Valve is protected against overload with a safety spring (2).

The pressure upstream the controller acts through an internal impulse pipe ($\Delta p+$), to the top side of the diaphragm (4) and attempts to open the valve.

The pressure downstream the consumer acts through an external impulse pipe ($\Delta p-$) to the bottom side of the diaphragm and attempts to close the valve together with the force of the working spring (8).

As long as the forces on the diaphragm are balanced, the valve's plug stands still. If the differential pressure rises, the valve opens until new balance is reached, and vice versa.



Sizing

Select the size according to maximal speed. To prevent noise, maximal speed should not exceed 2 m/s in residential buildings and 3 m/s in industrial buildings.

Control the pressure drop in the valve by formula:

$$\Delta p = \left(\frac{q}{100 \times Kvs} \right)^2 \quad [\text{kPa, l/h}]$$

Installation

Install the controller in bypass pipe. The direction of flow is shown by the arrow on the valve body.

It is recommended to install the controller in horizontal pipeline with actuator body below. Installation of a strainer upstream of the controller is recommended.

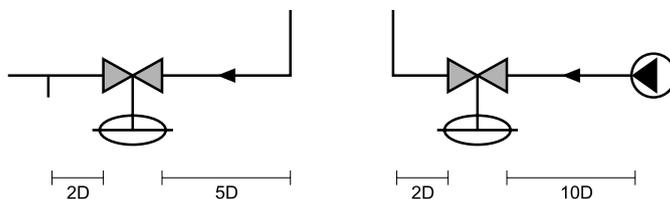
It is important to ensure that working temperature and pressure do not exceed allowed values.

Before you mount the controller, check the fitting length of the controller, pitch diameter and the diameter of the holes for the screws.

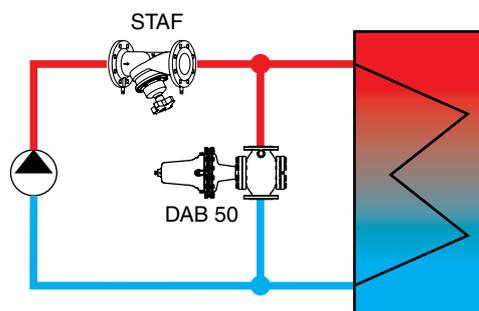
When the pipeline and the controller are full of water and the pressure is stabilized, vent the controller by vent screws (3). Installation of balancing valve STAF is recommended to enable flow measurement, commissioning and troubleshooting with our balancing instrument.

Normal pipe fittings

Try to avoid mounting taps and pumps immediately before the valve.



Application example

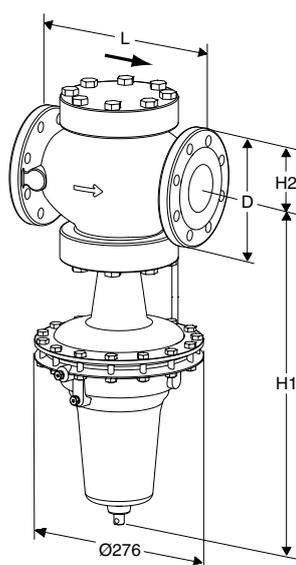


Setting

Differential pressure adjustment

1. Release the fixing screw (6).
2. Adjust differential pressure by turning adjustment screw (7).
3. To increase the differential pressure, turn the adjustment screw clockwise (bottom view of the screw).
4. At the end, tighten the fixing screw.
5. The pressures can be controlled through pressure gauges on the pipeline.

Articles



Flanged

Flanges according ASME/ANSI B16.42 Class 150.

DN	D	L	H1	H2	Kvs	Kg	EAN	Article No
10-60 kPa								
32	115	180	535	102	21	38	3831112533103	52 789-732
40	125	200	535	102	25	39	3831112533127	52 789-740
50	150	230	560	116	32	46	3831112533158	52 789-750
65	180	290	580	135	55	55	3831112533189	52 789-765
80	190	310	592	149	70	66	3831112533226	52 789-780
100	230	350	680	175	120	88	3831112532991	52 789-790
125	255	400	690	190	145	105	3831112533028	52 789-791
150	280	480	775	227	230	235	3831112532984	52 789-792
200	345	600	822	260	360	297	3831112533073	52 789-793
50-150 kPa								
32	115	180	535	102	21	38	3831112533110	52 789-832
40	125	200	535	102	25	39	3831112533141	52 789-840
50	150	230	560	116	32	46	3831112533172	52 789-850
65	180	290	580	135	55	55	3831112533219	52 789-865
80	190	310	592	149	70	66	3831112533240	52 789-880
100	230	350	680	175	120	88	3831112533011	52 789-890
125	255	400	690	190	145	105	3831112533042	52 789-891
150	280	480	775	227	230	235	3831112533066	52 789-892
200	345	600	822	260	360	297	3831112533097	52 789-893
130-250 kPa								
32	115	180	535	102	21	38	3831112533196	52 789-932
40	125	200	535	102	25	39	3831112533134	52 789-940
50	150	230	560	116	32	46	3831112533165	52 789-950
65	180	290	580	135	55	55	3831112533202	52 789-965
80	190	310	592	149	70	66	3831112533233	52 789-980
100	230	350	680	175	120	88	3831112533004	52 789-990
125	255	400	690	190	145	105	3831112533035	52 789-991
150	280	480	775	227	230	235	3831112533059	52 789-992
200	345	600	822	260	360	297	3831112533080	52 789-993

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

→ = Flow direction

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