

# DAB 50 – ANSI flanges



## Differential pressure relief valves

Proportional relief valve, size 1 1/4" - 8"

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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. Ductile iron body - painted with duasolid that offers good rust protection.



## 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  $\Delta p$ .

### Dimensions:

1 1/4" - 8"

### Pressure class:

Class 150

### Max. differential pressure ( $\Delta p_V$ ):

232 psi (1600 kPa)

### Setting range:

Differential pressure adjustable 1.45 - 8.7 psi,  
7.25 - 21.7 psi and 18.8 - 36.2 psi.  
(10 - 60 kPa, 50 - 150 kPa and  
130 - 250 kPa).

### Temperature:

Max. working temperature: 302°F  
Min. working temperature: 14°F

### 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.

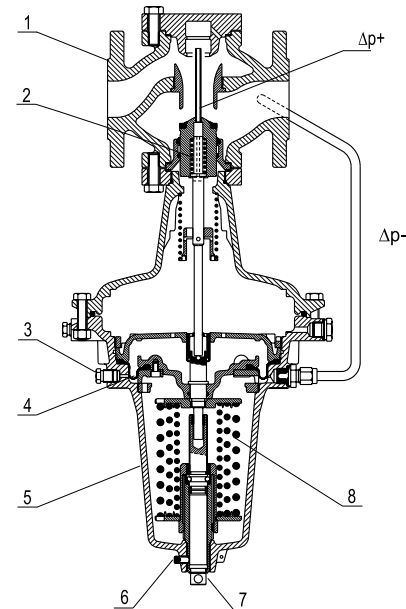
## Operating function

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 6.56 ft/s (2 m/s) in residential buildings and 9.84 ft/s (3 m/s) in industrial buildings.

Control the pressure drop in the valve by formula:

$$\Delta p = \left( \frac{q}{100 \times Cvs} \right)^2 \quad [\text{psi, gpm}]$$

## 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.

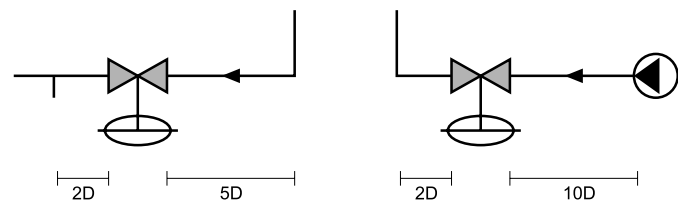
Before you mount the controller, check the fitting length of the controller, pitch diameter and the diameter of the holes for the screws.

When the pipeline and the controller are full of water and the pressure is stabilized, vent the controller by vent screws (3).

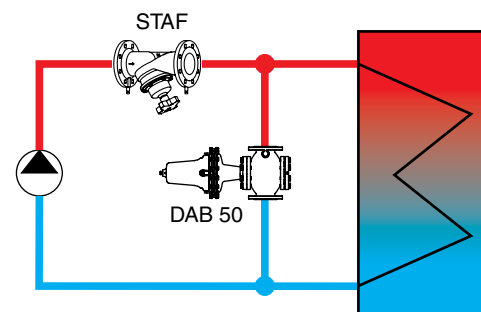
Installation of balancing valve STAF is recommended to enable flow measurement, commissioning and troubleshooting with our balancing instrument.

### Normal pipe fittings

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



### Application example

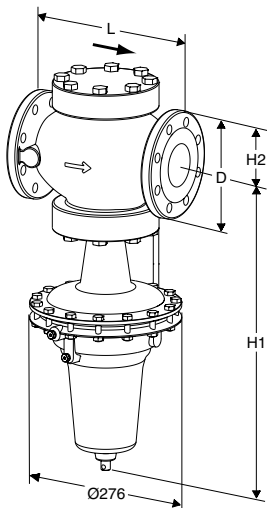


## Setting

### 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



### Flanges

Flanges according ASME/ANSI B16.42 Class 150.

Size	D [in]	L [in]	H1 [in]	H2 [in]	Cvs	Weight [lb]	Article No ** North America	Article No International
<b>1.45 - 8.7 psi (10 - 60 kPa)</b>								
1 1/4"	4.53	7.09	21.06	4.16	24.36	83.8	52 788-632	52 789-732
1 1/2"	5.90	7.87	21.06	4.16	29.00	86.0	52 788-640	52 789-740
2"	6.50	9.05	22.05	4.57	37.12	101.4	52 788-650	52 789-750
2 1/2"	7.09	11.42	22.83	5.31	63.80	121.3	52 788-665	52 789-765
3"	7.48	12.20	23.31	5.87	81.20	145.5	52 788-680	52 789-780
4"	9.06	13.78	26.77	6.89	139.2	194.0	52 788-690	52 789-790
5"	10.04	15.75	27.17	7.48	168.2	231.5	52 788-691	52 789-791
6"	11.02	18.90	30.51	8.94	266.8	518.1	52 788-692	52 789-792
8"	13.58	23.62	32.36	10.24	417.6	654.8	52 788-693	52 789-793
<b>7.25 - 21.7 psi (50 - 150 kPa)</b>								
1 1/4"	4.53	7.09	21.06	4.16	24.36	83.8	52 788-732	52 789-832
1 1/2"	5.90	7.87	21.06	4.16	29.00	86.0	52 788-740	52 789-840
2"	6.50	9.05	22.05	4.57	37.12	101.4	52 788-750	52 789-850
2 1/2"	7.09	11.42	22.83	5.31	63.80	121.3	52 788-765	52 789-865
3"	7.48	12.20	23.31	5.87	81.20	145.5	52 788-780	52 789-880
4"	9.06	13.78	26.77	6.89	139.2	194.0	52 788-790	52 789-890
5"	10.04	15.75	27.17	7.48	168.2	231.5	52 788-791	52 789-891
6"	11.02	18.90	30.51	8.94	266.8	518.1	52 788-792	52 789-892
8"	13.58	23.62	32.36	10.24	417.6	654.8	52 788-793	52 789-893
<b>18.8 - 36.2 psi (130 - 250 kPa)</b>								
1 1/4"	4.53	7.09	21.06	4.16	24.36	83.8	52 788-832	52 789-932
1 1/2"	5.90	7.87	21.06	4.16	29.00	86.0	52 788-840	52 789-940
2"	6.50	9.05	22.05	4.57	37.12	101.4	52 788-850	52 789-950
2 1/2"	7.09	11.42	22.83	5.31	63.80	121.3	52 788-865	52 789-965
3"	7.48	12.20	23.31	5.87	81.20	145.5	52 788-880	52 789-980
4"	9.06	13.78	26.77	6.89	139.2	194.0	52 788-890	52 789-990
5"	10.04	15.75	27.17	7.48	168.2	231.5	52 788-891	52 789-991
6"	11.02	18.90	30.51	8.94	266.8	518.1	52 788-892	52 789-992
8"	13.58	23.62	32.36	10.24	417.6	654.8	52 788-893	52 789-993

\*\*\*) Distributed by Victaulic.

Cvs = gpm at a pressure drop of 1 psi and fully open valve.

→ = Flow direction

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