



### Technical description

**Application:**

Heating and cooling systems with variable flow.  
District heating substations, primary side.

**Function:**

Differential pressure control over the load.  
Closes at increasing  $\Delta p$ .

**Pressure class:**

PN 16 or PN 25

**Max. differential pressure:**

1600 kPa = 16 bar

**Temperature:**

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

**Setting range:**

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

**Media:**

Water and neutral fluids, water-glycol mixtures.

**Material:**

Valve body: Ductile iron EN-GJS-400-18LT  
Actuator body: Ductile iron EN-GJS-400-18LT  
Diaphragms: EPDM  
Valve plug: Stainless steel with EPDM insert.  
Valve seat: Stainless steel.

**Surface treatment:**

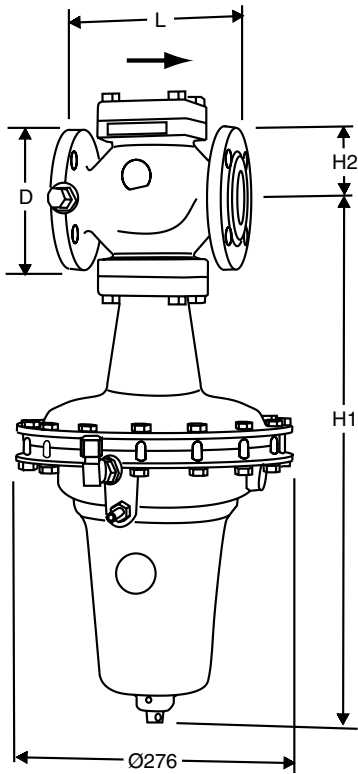
Duasolid painting.

**Marking:**

TA, DN, PN and flow direction arrow.

**Flanges:**

According to EN-1092-2:1997, type 21.



Capillary pipe (Ø6) included: 2 500 mm

→ = Flow direction

**10-60 kPa**

TA No	DN	D	L	H1	H2	Kvs	Kg
<b>PN 16</b>							
52 780-565	65	185	290	580	135	55	55
52 780-590	100	235	350	680	175	120	88
52 780-591	125	270	400	690	190	145	105
52 780-592	150	300	480	775	227	230	235
52 780-593	200	360	600	822	260	360	297
<b>PN 25 (DN 32-50 and DN 80 also fit PN 16 flanges)</b>							
52 780-132	32	140	180	535	102	21	38
52 780-140	40	150	200	535	102	25	39
52 780-150	50	165	230	560	116	32	46
52 780-165	65	185	290	580	135	55	55
52 780-180	80	200	310	592	149	70	66
52 780-190	100	235	350	680	175	120	88
52 780-191	125	270	400	690	190	145	105
52 780-192	150	300	480	775	227	230	235
52 780-193	200	360	600	822	260	360	297

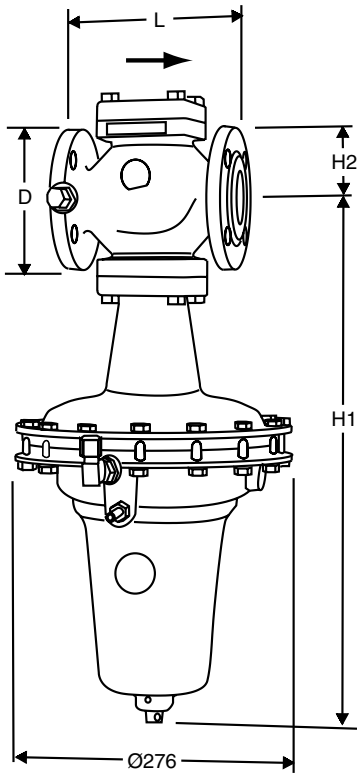
**50-150 kPa**

TA No	DN	D	L	H1	H2	Kvs	Kg
<b>PN 16</b>							
52 780-665	65	185	290	580	135	55	55
52 780-690	100	235	350	680	175	120	88
52 780-691	125	270	400	690	190	145	105
52 780-692	150	300	480	775	227	230	235
52 780-693	200	360	600	822	260	360	297
<b>PN 25 (DN 32-50 and DN 80 also fit PN 16 flanges)</b>							
52 780-232	32	140	180	535	102	21	38
52 780-240	40	150	200	535	102	25	39
52 780-250	50	165	230	560	116	32	46
52 780-265	65	185	290	580	135	55	55
52 780-280	80	200	310	592	149	70	66
52 780-290	100	235	350	680	175	120	88
52 780-291	125	270	400	690	190	145	105
52 780-292	150	300	480	775	227	230	235
52 780-293	200	360	600	822	260	360	297

**130-250 kPa**

TA No	DN	D	L	H1	H2	Kvs	Kg
<b>PN 16</b>							
52 780-765	65	185	290	580	135	55	55
52 780-790	100	235	350	680	175	120	88
52 780-791	125	270	400	690	190	145	105
52 780-792	150	300	480	775	227	230	235
52 780-793	200	360	600	822	260	360	297
<b>PN 25 (DN 32-50 and DN 80 also fit PN 16 flanges)</b>							
52 780-332	32	140	180	535	102	21	38
52 780-340	40	150	200	535	102	25	39
52 780-350	50	165	230	560	116	32	46
52 780-365	65	185	290	580	135	55	55
52 780-380	80	200	310	592	149	70	66
52 780-390	100	235	350	680	175	120	88
52 780-391	125	270	400	690	190	145	105
52 780-392	150	300	480	775	227	230	235
52 780-393	200	360	600	822	260	360	297

**DAF 50**



Capillary pipe (Ø6) included: 2 500 mm

→ = Flow direction

**10-60 kPa**

TA No	DN	D	L	H1	H2	Kvs	Kg
<b>PN 16</b>							
52 785-565	65	185	290	580	135	55	55
52 785-590	100	235	350	680	175	120	88
52 785-591	125	270	400	690	190	145	105
52 785-592	150	300	480	775	227	230	235
52 785-593	200	360	600	822	260	360	297
<b>PN 25 (DN 32-50 and DN 80 also fit PN 16 flanges)</b>							
52 785-132	32	140	180	535	102	21	38
52 785-140	40	150	200	535	102	25	39
52 785-150	50	165	230	560	116	32	46
52 785-165	65	185	290	580	135	55	55
52 785-180	80	200	310	592	149	70	66
52 785-190	100	235	350	680	175	120	88
52 785-191	125	270	400	690	190	145	105
52 785-192	150	300	480	775	227	230	235
52 785-193	200	360	600	822	260	360	297

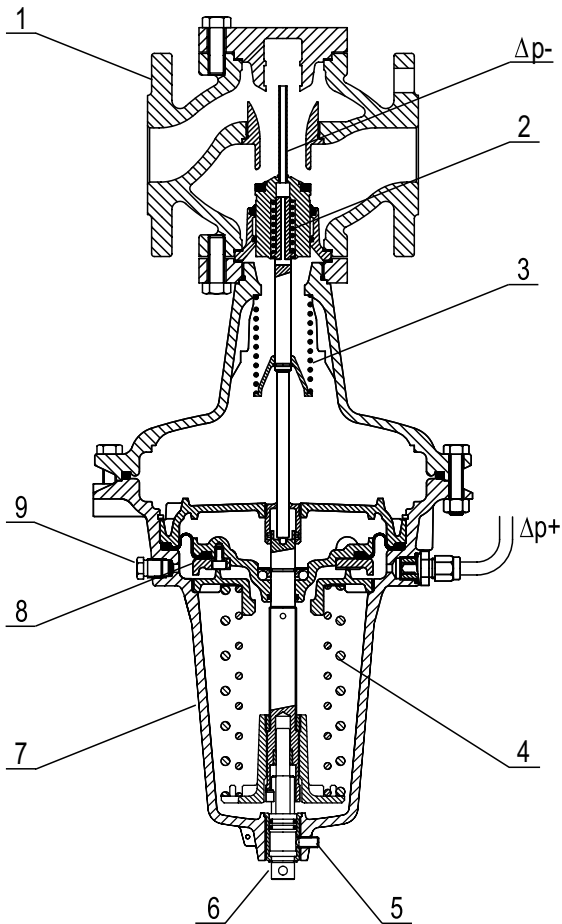
**50-150 kPa**

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<b>PN 16</b>							
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52 785-390	100	235	350	680	175	120	88
52 785-391	125	270	400	690	190	145	105
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## Operating function



### DA 50

Installation in the return pipe. The controller consists of a valve (1) and a diaphragm actuator (7). Valve is protected against overload with a safety spring (2).

The pressure upstream the consumer acts through an external impulse pipe ( $\Delta p+$ ),  $\text{Ø}6 \times 2500$  mm, to the bottom side of the diaphragm (8) and attempts to close the valve.

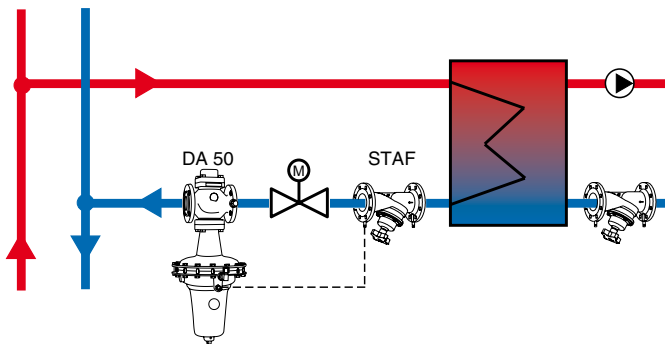
The pressure downstream the consumer acts through an internal impulse pipe ( $\Delta p-$ ) to the top side of the diaphragm and attempts to open the valve together with the force of the working spring (4). As long as the forces on the diaphragm are balanced, the valve's plug stands still.

If the differential pressure rises, the valve closes until new balance is reached, and vice versa.

### DAF 50

Installation in the inlet pipe. Function is the same as DA 50, except that the pressure downstream the consumer acts through another external copper impulse pipe ( $\Delta p-$ ).

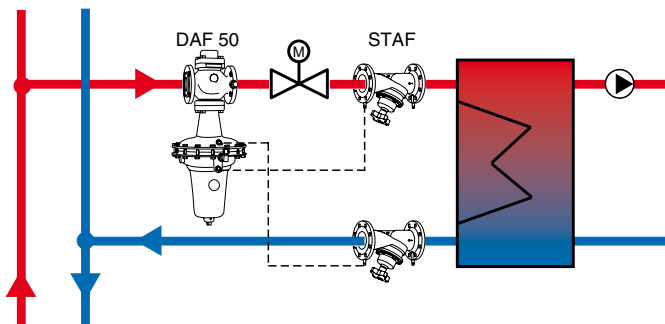
## Installation



The controller has to be installed in the return pipe, downstream the consumer (DA 50) or in the inlet pipe, upstream the consumer (DAF 50).

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

When filling, vent the actuator body by using the venting screws. The direction of the flow is shown by the arrow on the valve body. Connect capillary pipes (copper  $\text{Ø}6 \times 1$ ) always laterally to the pipe.



### Keeping the differential pressure over a control valve constant

#### Heat exchanger

The controller should be mounted downstream the control valve and STAF upstream the control valve, but downstream the heat exchanger.

STAF can be mounted in the supply pipe, but with a decreased valve authority as a consequence.

## Setting

1. Release the fixing screw (5).
2. Adjust differential pressure by turning adjustment screw (6).
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.

## Sizing

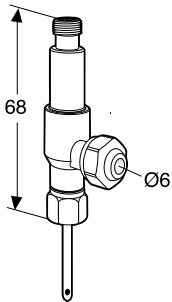
Select the size according to maximal speed. To prevent noise, maximal speed should not exceed 2 m/s in residential buildings and 3 m/s in industrial buildings.

Control the pressure drop in the valve by formula:  $\Delta p = 100 \times q^2 / Kvs^2$  [kPa], where q is flow in m<sup>3</sup>/h.

## Accessories

### Measuring point, two-way

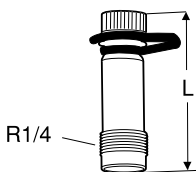
For connection of 6 mm copper pipe (STAF) while permitting simultaneous use of TA-CBI/TA-CMI.



TA No
52 179-206

### Measuring point

Max 120°C (intermittent 150°C)



TA No	d	L
52 179-009	R1/4	39
52 179-609	R1/4	103
52 179-008	R3/8	39
52 179-608	R3/8	103

**Balancing valve STAF, STAF-SG – see separate catalogue leaflet**

**Other products, see TA Product catalogue section “Balancing valves”.**

