

KTM 50



Combined control & balancing valves

Pressure independent balancing and control valve – ANSI flanges



Engineering
GREAT Solutions

KTM 50

High-performing pressure-independent temperature control valve for variable flow heating and cooling systems. Particularly effective in situations requiring high temperatures and/or pressure drops, e.g. for the primary side of district heating and industrial cooling. Also suitable for use on the secondary side in district heating and comfort cooling systems. Ductile iron body - painted with duasolid offering good rust protection.



Key features

- > **Special internal geometry**
Allows big pressure drop without noise.
- > **Adapters**
For use with most available actuators.
- > **Adjustable flow**
Ensures the design flow.

Technical description

Application:

Heating and cooling systems with variable flow.

Function:

Temperature control, differential pressure control over an integrated control valve and flow control.

Dimensions:

4" - 8"

Pressure class:

Class 150
Max. working pressure: 360 psi

Max. differential pressure (Δp_V):

232 psi

Pressure drop in the throttle (F_c):

2.17 psi

Temperature:

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

Media:

Water or neutral fluids, water-glycol mixtures.

Material:

Valve body: Ductile iron EN-GJS-400
Diaphragms and gaskets: EPDM
Valve plug: Stainless steel with EPDM insert

Surface treatment:

Duasolid painting.

Marking:

TA, size, Class, Cvs and flow direction arrow.

Flanges:

According to ASME/ANSI B16.42
Class 150.

Max. lift of the control valve:

0.787"

Leakage rate:

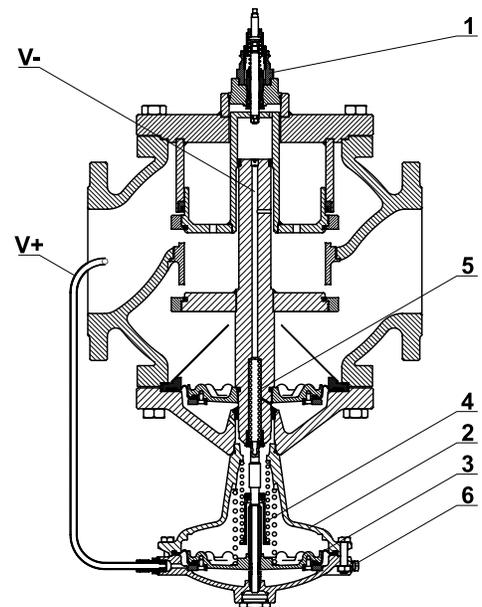
Tight sealing

Operating function

Bonnet for temperature control (1) and diaphragm operated differential pressure controller (2) are built in one valve body. Pressure upstream of the control valve acts through an external impulse pipe (V+) to bottom side of the diaphragm (3). Pressure downstream control valve (V-) acts to top side of diaphragm together with a spring (4) force. The differential pressure controller pressure relieves the control valve and at the same time limits the flow to the value preset via lift limitation of control valve. The differential pressure controller keeps 2.17 psi across the control valve. Valve is protected against overload with a safety spring (5).

1. Bonnet
2. Δp controller
3. Diaphragm
4. Spring
5. Safety spring
6. Vent screw

V+ External impulse pipe
V- Internal impulse pipe



Sizing

Select the size according to maximum flow. Control the pressure drop in the valve by using the formula:

$$\Delta p_{\min} = F_c + \left(\frac{q}{C_{vd}} \right)^2 \quad [\text{gpm, psi}]$$

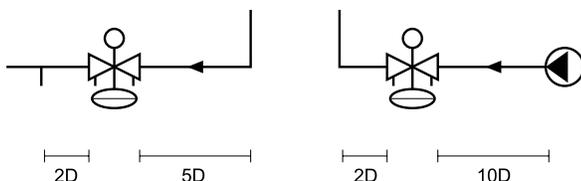
F_c is the constant pressure drop in the throttle (2.17 psi).

Installation

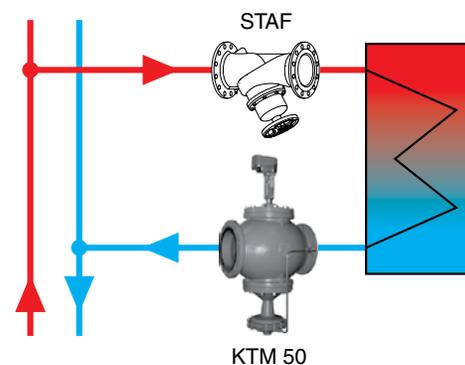
Flow direction is shown by the arrow on the valve body. Install the valve so that the flow adjustment scale is visible and measuring points (if used) are accessible. Check the allowed positions of the actuator. Installation of a strainer upstream of the valve is recommended. Install the actuator after undertaken a leakage test. Installation of a balancing valve STAF is recommended to enable flow measurement, commissioning and trouble-shooting with IMI Hydronic Engineering's balancing or measuring instruments.

Normal pipe fittings

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

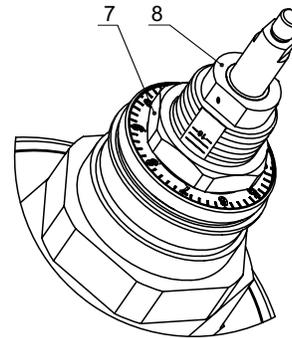


Application example

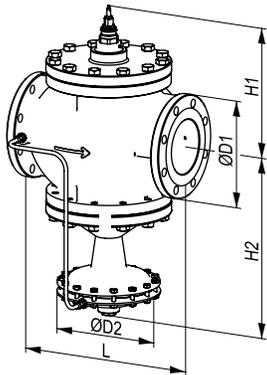


Setting

Release the fixing nut (7). Turn the flow setting screw (8) clockwise to the position of 0,0 turns. Turn the flow setting screw **anticlockwise** corresponding to the number of turns on the flow chart. Tighten the fixing nut.



Articles



Class 150

Size	D1 [in]	D2 [in]	L [in]	H1 [in]	H2 [in]	Cvd	q _{max} [gpm]	lb	Article No
Fc = 2.17 psi									
4"	9.0	10.87	13.78	13.62	18.15	139	352	172	52 764-890
5"	10.0	10.87	15.75	14.02	18.54	169	396	209	52 764-891
6"	11.0	10.87	18.90	15.43	19.61	267	836	496	52 764-892
8"	13.5	10.87	23.62	16.93	21.26	419	946	633	52 764-893

Fc is constant pressure drop in the control valve = 2.17 psi.

Cvd = Is the Cv value of the differential pressure control component when fully open, used to calculate the minimum pressure drop necessary for the valve to operate according to the formula found under "Sizing".

Adapters for actuators

For actuator	Article No
TA-NV24, Belimo UNV 003	52 757-901
Sauter AVN 224, AVF 234, AVM 234	52 757-904
TA-MC100	52 757-907
TA-MC100 FSE/FSR	52 757-912
TA-MC160/230	52 757-913