

Application

Temperature control in heating and cooling processes in industrial plants, for h.v.a.c services and marine engineering. For liquids, gases, vapours.

Design

The self-acting temperature controller consists of a valve featuring a thermostat and a sensor. According to the service conditions the controller is optionally equipped with a cooling unit or a sensor pocket.

The temperature sensed by the sensor changes the volume of the measuring liquid in the capillary tube. The resulting pressure acts directly on the actuating piston which, in turn, operates the valve spindle. As the temperature rises, the regulating valve is held in closed position (heating process) or open position (cooling process) until the pre-set release temperature is reached.

When the temperature drops again, a built-in return spring resets the valve to original position.

Valves

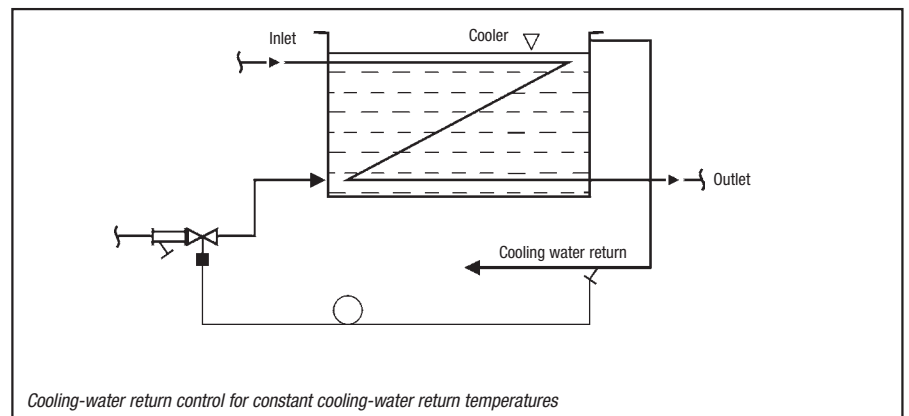
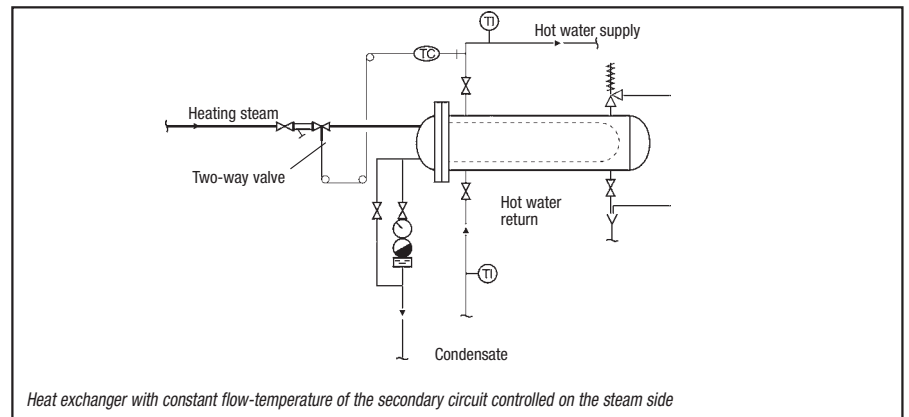
Two-way valves, with single seat or pressure-balanced single/double seat. Double-seated, two-way reverse-acting valves or three-way valves for diverting and mixing applications. Valve components made of gunmetal, cast iron, nodular cast iron or cast steel, with flanged or screwed connections.

Thermostat

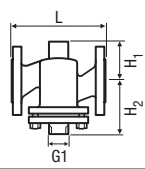
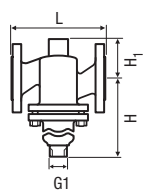
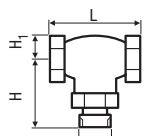
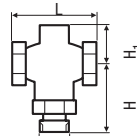
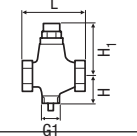
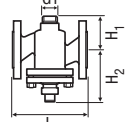
The thermostat is firmly attached to the sensor capillary tube. The rod-, spiral- or airduct-type sensors are made of copper or high-alloy stainless steel.

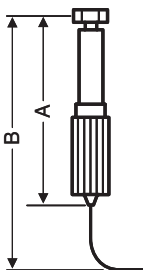
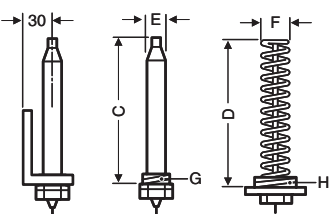
The capillary tube is available in different lengths, made of copper or high-alloy stainless steel.

Examples of Industrial Process Applications



Dimensions [mm] and Weights [kg] for Valves and Thermostats

Valve type	DN	15	20	25	32	40	50	65	80	100	125	150
	G	½	¾	1	1¼	1½	2					
M1F	L	130	150	160	180	200	230					
G1F	H ₁	80	85	95	105	110	125					
H1F	H ₂	60	65	70	75	85	95					
	M1F/G1F	kg	3.1	4.2	5.5	8.1	9.7	14.7				
	H1F	kg	3.4	4.6	6.1	9.0	10.8	15.5				
M1FBN	L	130	150	160	180	200	230	290	310			
G1FBN	H	101	107	112	122	125	140	154	164			
H1FBN	H ₁	80	85	70	75	85	95	110	115			
	M1FBN	kg	4	5	6.0	9.0	13.0	16.0	23.0	38.0		
	G1FBN	kg	4	5	6.0	9.0	13.0	16.0	23.0	38.0		
	H1FBN	kg	4	5	6.0	9.0	13.0	16.0	23.0	38.0		
L1S	L	85	95									
	H	65	67									
	H ₁	20	32									
	kg	0.7	0.8									
L2S	L					129	153					
	H					118	122					
	H ₁					68	71					
	kg					2.9	3.8					
L2SR	L					129	153					
	H					65	70					
	H ₁					90	94					
	kg					3.0	4.0					
M2FR	L		150	160	180	200	230	290	310	350	400	400
G2FR	H ₁		63	70	75	85	95	110	155	145	160	180
H2FR	H ₂		112	117	151	155	163	180	195	240	260	293
	kg		5.0	6.5	9.0	11.0	16.0	21.0	35.0	39.0	75.0	77.0

Thermostats	Type V 2.05		Type V 4.03		Type V 4.05		Type V 4.10		Type V 8.09		Type V 8.18	
	K	N	K	N	K	N	K	N	K	N	K	N
Adjusting cylinder	A	305	305	385	385	385	385	385	385	560	560	560
	B	405	405	525	525	525	525	525	525	740	740	740
	C	210	190	210	190	390	380	490	515	710	745	800
Rod- and spiral-type sensor with BSP connection	D	235	170	235	170	235	250	325	325	425	435	810
	E	22	22	22	22	22	22	28	25	28	25	34
	F	49	49	49	49	49	49	49	49	49	49	49
	G	¾	¾	1	1	1	1	1	1	2	2	2
	H	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
	kg	1.8	1.8	2.4	2.4	2.6	2.6	3.3	3.3	6.3	6.3	7.3
	kg	2.3	2.3	2.9	2.9	3.1	3.1	3.8	3.8	6.3	6.3	7.3

Closing Pressure Ratings for Valves and Sensors

Single-seated regulating valves with flanged ends and rod-type copper sensor with copper capillary tube (3 m)

	DN [mm]	15/6	15/9	15/12	15	20	25	32	40	50	65	80
	k_{vs} value	0.45	0.95	1.7	2.75	5	7.5	12.5	20	30	50	80
Δp_{max} for sensor type	2.05	20	13	9.3	5.3	1.9	0.9	–	–	–		
Fluid: saturated steam	4.05	40	38	24	15	6.7	–	–	–	–		
Type M1F, G1F, H1F	4.10	–	–	–	–	–	4.1	1.9	0.8	–		
	8.09	–	–	–	–	16	10	5.8	3.3	2.3		

Balanced, single-seated regulating valves with flanged ends and rod-type copper sensor with copper capillary tube (3 m)

	DN				15	20	25	32	40	50	65	80
	k_{vs} value				4	6.3	10	16	25	35	58	80
Δp_{max} for sensor type	4.05				16	16	16	16	9	8	6	4
Fluid: saturated steam	4.10				16	16	16	16	9	8	6	4
Type M1FBN, G1FBN, H1FBN	8.09				16	16	16	16	16	16	16	16
	8.18				16	16	16	16	16	16	16	16

Single-seated regulating valves with screwed end connection and rod-type copper sensor capillary tube (3 m)

	BSP	1/2 / 6	1/2 / 9	1/2 / 12	1/2	3/4						
	k_{vs} value	0.45	0.95	1.7	2.75	5						
Δp_{max} for sensor type	2.05	16	16	–	6	2.9						
Fluid: saturated steam	4.05	16	16	–	16	9						
Type L 1S	4.10	16	16	–	16	9						

Double-seated regulating valves with screwed connection and rod-type copper sensor with copper capillary tube (3 m)

	BSP	1/2 / 6	1/2 / 9	1/2 / 12	1/2	3/4	1	1 1/4	1 1/2	2		
	k_{vs} value	0.45	0.95	1.7	2.75	5	7.5	12.5	20	30		
Δp_{max} for sensor type	2.05	–	–	–	–	–	–	–	–	–		
Fluid: water < 120 °C	4.10	–	–	–	–	–	–	–	21	14		
Type L 2S												

Double-seated reverse-acting valve with screwed connection and rod-type copper sensor with copper capillary tube (3 m)

	BSP	1/2	3/4	1	1 1/4	1 1/2	2
	k_{vs} value	2.75	5	7.5	12.5	20	30
Δp_{max} for sensor type	2.05	–	–	–	–	–	–
Fluid: water < 120 °C	4.05	–	–	–	–	–	–
Type L2SR	4.10	–	–	–	–	2.7	1.8

Double-seated reverse-acting valve with flanged ends and rod-type copper sensor with copper capillary tube (3 m)

	DN [mm]	20	25	32	40	50	65	80	100	125	150
	k_{vs} value	5	7.5	12.5	20	30	50	80	125	215	310
Δp_{max} for sensor type	2.05	8.3	8	–	–	–	–	–	–	–	–
Fluid: water < 120 °C	4.05	8.3	8	7	–	–	–	–	–	–	–
Type M2FR, G2FR, H2FR	4.10	–	–	–	6.6	5.3	5.8	6.7	–	–	–
	8.09	–	–	–	–	–	–	–	12.1	–	–
	8.10	–	–	–	–	–	–	–	12.1	9	7.5



Three-way valves available on request.