

2-Way Thermostatic Control Valve

Overview

Model C thermostatic valves cover multiple sizes and settings for fluid temperature control. They can be mounted in any position, and use the thermal expansion of a copper-wax compound to actuate element assemblies. Temperature settings: 18°C–113°C. For durability avoid continuous operation within 14°C of the max continuous rating.



Typical applications

Temperature control

- in various systems such as tanks, district-heating installations, engines, gear units

Temperature limitation

- prevents excessively low temperatures, frost protection function
- prevents overheating in hot-water pipelines (anti-scald protection)

Water-saving systems

- maintains a min. flow through the cooler for proper operation, but shuts down unnecessary flow when temp. is sufficiently high or low

Valve Spec Highlights

Available Sizes		
DN15 1/2 ‘’	DN20 3/4’’	DN25 1’’
Materials		
Housing	Carbon Steel	
	316 Stainless Steel	
	NANO-treated 316 Stainless Steel (for saltwater)	
Seals	Buna N/Nitril	
	Viton	
	Neoprene	
Elements	Nickel-plated/Stainless Steel	
Leak Holes		
Optional leak holes 1-5mm to allow small sensing flow		
Accreditations Available		
SEP	PED (Group 1 & 2 liquids)	
ATEX II 2G Ex h IIC T6...T3 Gb X	Complies with all relevant EU directives	

Key benefits

- No external power source required
- Simple, low-cost installation, operation and maintenance
- No user setting needed, “fit and forget”, tamper-resistant
- Robust design that withstands high vibration & shock
- Can be mounted in any position ↕
- Explosion-proof

Key features

- Flow rates of 0.3–6.5 m³/h.
- Threaded connection, BSPP or NPT
- Tamper-proof temperature settings
- Pressure ratings up to 40 bar
- The 2-way thermostatic valve can be supplied in two versions:
#1 Opens with rising temperature
#2 Opens with falling temperature

Valve characteristics

Recommended sizing Δp : 0.14–0.5 bar. Flow rate (m³/hr) – Water

Flow values shown in the table below apply to a fully open valve and water as the medium.

Size		Pressure drop in mbar					
		50	120	200	300	400	550
DN15	Low flow	0,9	1,2	1,5	1,9	2,2	2,6
DN15	Std flow	1,5	2,1	2,7	3,3	3,9	4,5
DN20	Low flow	1	1,3	1,7	2,1	2,5	2,9
DN20	Std flow	2	2,8	3,6	4,4	5,2	6
DN25	Low flow	1	1,3	1,7	2,1	2,5	2,9
DN25	Std flow	2,2	3,1	4	4,9	5,8	6,6

Flow coefficient (calculated)

Kv is the metric flow coefficient used to describe the hydraulic capacity of a valve. It expresses how much water can flow through the valve under standardized conditions.

Kv is defined as the volumetric flow of water in cubic meters per hour (m³/h) at a temperature of 16 °C, passing through the valve with a pressure drop of 1 bar.

In practical terms, a higher Kv value means a valve allows more flow for a given pressure drop, while a lower Kv indicates a more restrictive valve.

Calculated Flow Coefficient				
Size			Kv	Cv
DN15	½"	Low Flow	3,5	4,0
DN15	½"	Std Flow	6,1	7,0
DN20	¾"	Low Flow	3,9	4,5
DN20	¾"	Std Flow	8,2	9,5
DN25	1"	Low Flow	3,9	4,5
DN25	1"	Std Flow	9,0	10,4

Temperature and element characteristics

The valve is available in two versions:

Temperature-opening:

Remains closed below the setpoint and progressively opens when the temperature exceeds the setpoint.

Temperature-closing:

Remains open below the setpoint and progressively closes when the temperature exceeds the setpoint.

The valve modulates continuously between the closed and open positions in response to changes in media temperature within the control range. This ensures accurate temp. regulation without sudden opening or closing actions.

See ['Valve Model Code Overview'](#) for further details.

Code	Control range from begins to open to fully open			Max cont. °C
	Crack open	50% OPEN = set temp °C	Fully open	
065	15	18	25	47
075	20	24	29	60
085	24	29	34	63
095	30	35	40	73
100	33	38	42	61
110	38	43	47	82
120	43	49	55	96
130	49	54	60	95
140	54	60	65	95
150	60	66	71	100
160	65	71	76	100
170	72	77	82	100
175	76	79	85	105
180	79	82	88	110
190	85	87	93	110
200	90	93	100	110
205	93	96	103	110
215	96	101	107	115
225	101	107	114	120
235	107	113	133	124

Element type and seal material

Code	Element for std flow	Seal	Element type
01	Std AMOT thermostatic element	Nitrile/Buna N	1125X
02	Nickel plated AMOT thermostatic element	Viton	1125P
06	Std AMOT thermostatic element	Viton	1125X
09	Nickel plated AMOT thermostatic element	Nitrile/Buna N	1125P
35	Short stroke, high overtemp AMOT thermostatic element	Viton	9778R
86	Salt water AMOT thermostatic element	Viton	44844X

Example of article number and item description

1125X100 Std AMOT thermostatic element, set: 38°C.

81964X101 Service kit, nitrile

Valve Specifications

Specification	Metric units
Flow rate	0,3–6,5 m ³ /h
Pressure rating Carbon steel	40 bar
Pressure rating 316 Stainless Steel	40 bar
Seal materials	Buna N/Nitrile, Viton, Neoprene
Mounting position	Any orientation
Vibration and shock	Withstands very high levels of vibration and shock
Port connections – Threaded	DN15, 20, 25
Valve sizes (nominal bore)	DN 15 – 25
Recommended Δp open	0.1 – 0.5 barg
Control temperatures	18°C – 113°C
Accreditations	SEP; suitable for Groupe I & II liquids
Accreditations	 ATEX: II 2G Ex h IIC T6...T3 Gb X

Weight (approx.)

3 kg for all sizes in carbon steel, 316 SS & NANO treated 316 SS.

Maintenance & Service Parts

Recommended service interval:
≤ 36 months

Standard configurations **STOCKED**

2-WAY DN15, DN20 and DN25 BSPP, 316SS, STD ELEMENT, NITRILE

Many different set temp. available - see [Valve Model Code Overview](#) on the next page

SET. TEMP **STOCKED**

Set. temp 18°C	Set. temp 35°C	Set temp 49°C
Set. temp 29°C	Set temp 38°C	Set temp 54°C
Set. temp 24°C	Set temp 43°C	Set temp 60°C

**Other set. temperatures available upon request – lead times may vary.*

Valve Model Code Overview

Example 2 way model code: **15 C2SR R U 065 01 -00 -AA** 2-WAY DN15, BSPP, 316SS, STD ELMT, NITRILE, SET: 18°C

Example 3 way model code: **25 C3CS R U 100 01 -00 -AA** 3-WAY DN25, BSPP, 316SS, STD ELMT, NITRILE, SET: 38°C

Valve size (A) in mm (inches)		
Valve size (A)	15	DN15 - 1/2"
	20	DN20 - 3/4"
	25	DN25 - 1"
Valve model (B)		
Valve model (B)	C2LF	2-way, low flow, OPENS at falling
	C2LR	2-way, low flow, OPENS at rising
	C2SF	2-way, std flow, OPENS at falling
	C2SR	2-way, std flow, OPENS at rising
	C3LC	3-way, low flow, temp controll valve
	C3SC	3-way, std flow, temp controll valve
Valve body material (C)		
Valve body material (C)	S	216 Steel, PN25
	R	316 Stainless steel, PN25
	N	316 Stainless steel treated with NANO-polymer, PN25
Port connection (D)		
Port connection (D)	U	Female Parallel Threads (BSPP/G) EN ISO 228 1
	Z	Female BSPT Threads (tapered) R, ISO 7 1
	T	Std tapered female NPT thread per ASME B1.20.3. 60°
Set temp (E)		
Set temp (E)	065	Set temp 18°C
	075	Set temp 24°C
	085	Set temp 29°C
	095	Set temp 35°C
	100	Set temp 38°C
	110	Set temp 43°C
	120	Set temp 49°C
	130	Set temp 54°C
	140	Set temp 60°C
	150	Set temp 66°C
	160	Set temp 71°C
	170	Set temp 77°C
	175	Set temp 79°C
	180	Set temp 82°C
	190	Set temp 87°C
	200	Set temp 93°C
	205	Set temp 96°C
	215	Set temp 101°C
	225	Set temp 107°C
	235	Set temp 113°C
Element and seal (F)		
ELEMENT AND SEAL (F)	01	Std AMOT thermnstatic element, Nitrile/Buna N
	02	Nickel plated AMOT thermostatic element, Viton
	06	Std AMOT thermostatic element, Viton
	09	Nickel plated AMOT thermo element, Nitrile/Buna N
	35	Short stroke, high overtemp AMOT element, Viton
	86	Salt water AMOT thermostatic element, Viton
Leakehole size (G)		
Leakehole size (G)	00	None = Std
	10	1,0 mm
	15	1,5 mm
	20	2,0 mm
	25	2,5 mm
	30	3,0 mm
	35	3,5 mm
	40	4,0 mm
	50	5,0 mm
Port connection (D)		
Special requirements (H)	-AA	Standard product configuration per model code
	-xxx	A model code extension is specified for non standard configurations