



# SELF-ACTING BALANCED TEMPERATURE REGULATOR

## MODEL TC2

TEMPERATURE REGULATING VALVE FOR NON-HAZARDOUS LIQUIDS AND GASES

### Features

Balanced self-acting single seat globe valve type temperature regulator. Suitable for steam heating of liquids, air and non-hazardous gases.

1. Self-acting design simplifies installation by eliminating the need for power supply and instrument signal lines.
2. No external energy required, allowing for ease of installation in remote areas or potentially flammable atmospheres.
3. Robust design minimizes maintenance.
4. Reliable long-life spring mechanism protects the sensor from overheat damage.
5. Wide set point range and simple set point adjustment provide easy operation.
6. Pressure-balancing bellows provides improved flow and differential pressure performance compared to unbalanced type.



### Specifications

#### VALVE

Model	TC2					
Size(DN)	15	20	25	32	40	50
Kvs Value (DIN)	4	6.3	8	16	20	32
Cv Value (UK)	3.9	6.1	7.8	15.6	19.4	31
Cv Value (US)	4.7	7.4	9.4	19	23	37
Leakage Rate	< 0.05% of Cv (Kvs) value					
Body Material	Cast Iron	Ductile Cast Iron	Cast Steel			
DIN EN Material Number	EN-JL 1040	EN-JS 1049	1.0619			
ASTM/AISI Equivalent	A126 Cl.B	A395	A216 Gr. WCB			
Connection	Flanged DIN 2501 PN 16**	Flanged DIN 2501 PN 25	Flanged DIN 2501 PN 40**			
Maximum Operating Pressure (barg)	PMO	13	16***			
Maximum Allowable Differential Pressure* (bar)	ΔPMX	13	16***			
Maximum Operating Temperature (°C)	TMO	200	220			

\* Subject to limitations of body pressure rating \*\* ASME standards also available \*\*\* Higher pressures possible with optional isolation piece 1 bar = 0.1 MPa

#### THERMOSTAT

Model	TC-A
Suitable for Immersion in*	Liquids compatible with sensor material
Set Point Range*	20 °C to 120 °C
Maximum Temperature at Sensor	Set Point Value + 100 °C
Ambient Temperature Limits at Adjustment Head	- 40 °C to 80 °C
Capillary Tube Length* (m)	5

\* Other options available, see overleaf for details

#### PRESSURE SHELL DESIGN CONDITIONS (NOT OPERATING CONDITIONS):

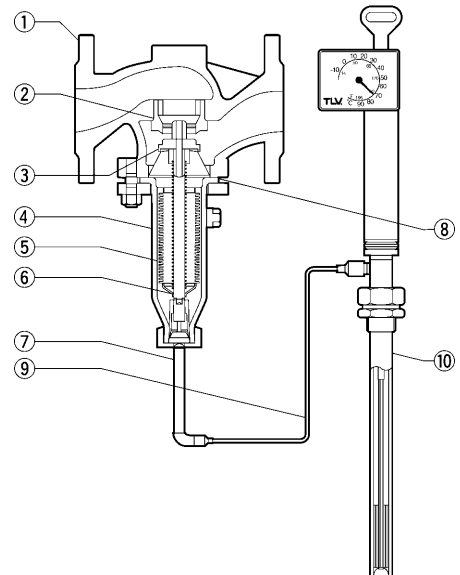
Maximum Allowable Pressure (barg) PMA:  
 13 (Cast Iron), 16 (Ductile Cast Iron & Cast Steel)  
 Maximum Allowable Temperature (°C) TMA:  
 200 (Cast Iron), 220 (Ductile Cast Iron & Cast Steel)



To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

No.	Description	Material	DIN EN	ASTM/AISI*
①	Body	As specified above		
②	Seat	Stainless Steel	1.4006 or 1.4104	AISI410 or AISI430F
③	Plug	Stainless Steel	1.4006 or 1.4104	AISI410 or AISI430F
④	Bellows Housing	Carbon Steel	1.0425	A515 Gr.60
⑤	Balancing Bellows	Stainless Steel	1.4571	A240 S31635
⑥	Plug Stem	Stainless Steel	1.4301	AISI304
⑦	Operating Element	Nicke-plated Brass	—	—
⑧	Body Gasket	Graphite on Metal Core	—	—
⑨	Capillary Tube	Nickel-plated Copper	—	—
⑩	Temperature Sensor	Nickel-plated Bronze	—	—

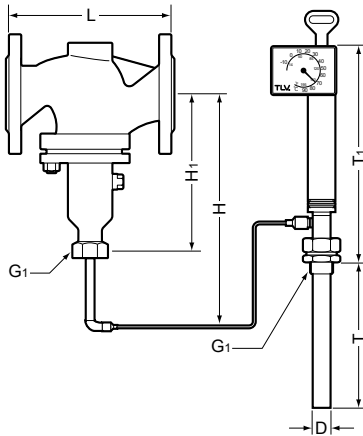
\* Equivalent materials



Copyright © TLV

**Dimensions**

● **TC2**  
Flanged



**TC2 Flanged\*** (mm)

DN	L		H	H <sub>1</sub>	Weight** (kg)
	DIN 2501 PN16	PN25/40			
15	130		515	225	5.0
20	150				5.5
25	160				6.5
32	180				13
40	200				13.5
50	230				16

\* ASME standards available for cast Iron and cast steel body  
 \*\* Approximate weight for DIN 2501 PN 16, add 15% for PN 25/40

**Thermostat\*\*\*** (mm)

φD	T	T <sub>1</sub>	G <sub>1</sub>	Weight (kg)
25	290	310	1 inch	3.2

\*\*\* Standard model shown, other options available

**Capacities (kg/h)**

For a pressure drop of 10% P<sub>1</sub> across the valve:  
 (Coil and steam trap follow the regulator)

P <sub>1</sub> (barg)	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
1	40	64	81	162	203	325
2	70	110	140	280	351	561
3	99	156	198	396	495	792
4	127	201	255	511	638	1022
5	156	246	312	625	781	1250
6	184	291	369	739	924	1478
7	213	336	426	853	1066	1706
8	241	380	483	967	1209	1934
9	270	425	540	1081	1351	2162
10	298	470	597	1195	1493	2390
11	327	515	654	1308	1636	2617
12	355	560	711	1422	1778	2845
13	384	605	768	1536	1920	3073
14	412	649	825	1650	2062	3300
15	441	694	882	1764	2205	3528
16	469	739	938	1877	2347	3755

For a pressure drop of 50% P<sub>1</sub> across the valve:  
 (Direct steam injection system follows the regulator)

P <sub>1</sub> (barg)	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
1	113	178	227	454	568	908
2	170	268	340	681	852	1363
3	227	357	454	908	1136	1817
4	284	447	568	1136	1420	2272
5	340	536	681	1363	1704	2726
6	397	626	795	1590	1988	3180
7	454	715	908	1817	2272	3635
8	511	805	1022	2044	2556	4089
9	568	894	1136	2272	2840	4544
10	624	984	1249	2499	3124	4998
11	681	1073	1363	2726	3408	5452
12	738	1162	1476	2953	3692	5907
13	795	1252	1590	3180	3976	6361
14	852	1341	1704	3408	4260	6816
15	908	1431	1817	3635	4544	7270
16	965	1520	1931	3862	4828	7724

1 bar = 0.1 MPa

**Options**

Item	Options
Isolation Piece	Allows ductile cast iron valve for use up to 19 barg and cast steel valve up to 25 barg
Thermostat (Model)	Suitable for immersion in liquid with separate set point adjustment (TC-B) Suitable for immersion in air or gas with set point adjustment at sensor (TC-C) Suitable for immersion in air or gas with separate set point adjustment (TC-D) All models available in stainless steel construction
Set Point Range	50 °C to 150 °C 150 °C to 250 °C (separate set point adjustment only)
Capillary Tube Length	10 m   15 m
Capillary Tube Material	Stainless steel construction

Manufacturer  
**TLV** CO., LTD.  
 Kakogawa, Japan  
 is approved by LRQA Ltd. to ISO 9001/14001

