



spirax sarco

TW

TI-P047-01
CH Issue 12

Three-port Self-acting Control Valve for Liquid Systems

Description

The TW valve is a 3-port self-acting control valve for liquid systems (including sea water) and can be used for mixing or diverting applications. It is used in conjunction with a Spirax Sarco SA control system to provide a self-acting temperature control unit. Alternatively, it can be used as an electrically actuated temperature control valve by fitting an EL200 Series electric actuator with a suitable temperature transmitter and controller.

Available types

Bronze valves	Screwed	¾", 1" and 1½"
	Flanged	DN50
Cast iron valves	Flanged	DN50, DN80 and DN100

Sizes and pipe connections

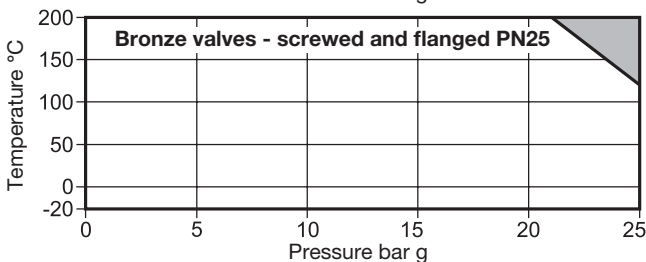
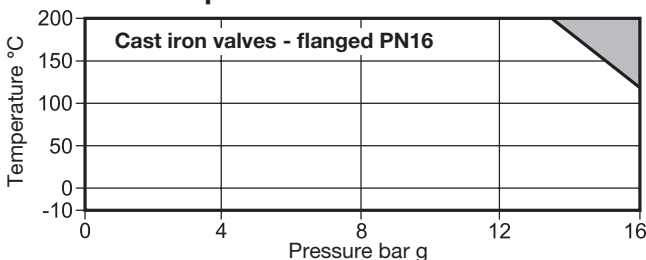
Bronze valves

¾", 1" and 1½" screwed BSP (BS 21 parallel) or NPT. DN50 standard flange EN 1092 PN25 which also meets the face-to-face dimensions of PN16 and PN10.

Cast iron valves

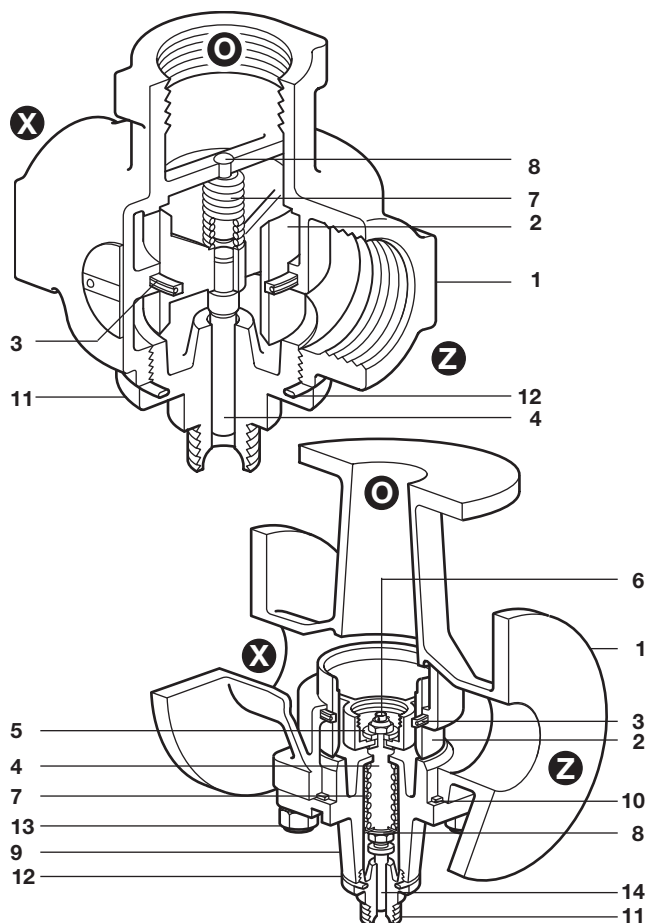
DN50, DN80 and DN100 standard flange EN 1092 PN16 which also meets the face-to-face dimensions of PN10.

Pressure/temperature limits



The product **must not** be used in this region.

Body design conditions	Cast iron	PN16
	Bronze	PN25
Maximum design pressure	Cast iron	16 bar g @ 120°C
	Bronze	25 bar g @ 120°C
Maximum design temperature	Cast iron	200°C @ 13.5 bar g
	Bronze	200°C @ 21.0 bar g
Minimum design temperature	Cast iron	-10°C
	Bronze	-90°C
Maximum operating temperature	Cast iron	200°C @ 13.5 bar g
	Bronze	200°C @ 21.0 bar g
Minimum operating temperature	Cast iron	-10°C
	Bronze	-20°C
Note: For lower operating temperatures consult Spirax Sarco	¾", 1" and 1½"	3.4 bar
	DN50, DN80 and DN100	2.7 bar
Designed for a maximum cold hydraulic test pressure of:	Cast iron	24 bar g
	Bronze	37.5 bar g
Leakage rate	1% of full K _v (see overleaf for K _v values)	



Materials

No.	Part	Material
1	Body	Bronze CC491 KM
		Cast iron EN GJL 250
2	Piston	Bronze CC491 K or CC491 KM
3	Piston sealing ring	FEP/silicone rubber 'O' ring
4	Stem	DN20 - DN40 Brass BS 2874 CZ 121
		DN50 - DN100 Bronze
5	Spacer piece	Bronze BS 2874 PB 102
6	Lock-nut	Bronze BS 2874 PB 102
7	Return spring	Stainless steel BS 2056 302 S26
		DN20 - DN40 Brass BS 2874 CZ 121
8	spring cover	DN50 - DN100 Bronze BS 2874 BP 102
		Bronze CC491 KM
9	Bonnet	Cast iron EN GJL 250
		Reinforced exfoliated graphite
10	Cover sealing ring	Reinforced exfoliated graphite
		DN20 - DN25 Brass CW 617N
11	Bonnet	DN40 - DN100 Bronze CC491 KM
		Nickel reinforced exfoliated graphite
12	Bonnet gasket	Steel BS 2693/1
		7/16" UNF x 1 3/8" (35 mm)
13	Cover studs	Steel BS 1768/R
		Steel BS 1768/R
14	Back seal	Bronze BS 2874 PB 102

Local regulations may restrict the use of this product to below the conditions quoted.

In the interests of development and improvement of the product, we reserve the right to change the specification without notice.

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K_v values

Size	¾"	1"	1½"	DN50	DN80	DN100
K_v	4.64	8.96	20.29	41.20	97.85	118.45
For conversion:	$C_v \text{ (UK)} = K_v \times 0.963$		$C_v \text{ (US)} = K_v \times 1.156$			

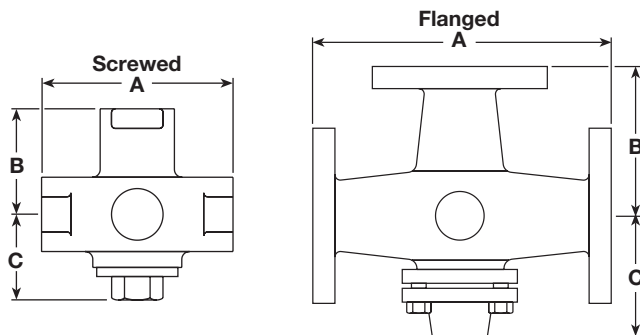
Stroke mm

Size	¾"	1"	1½"	DN50	DN80	DN100
Stroke	2.7	4.3	5.9	7.7	12.4	13.9

Sizing See TI-GCM-09.

Dimensions/weights (approximate) in mm and kg
Bronze screwed

Size	A	B	C	Weight
¾"	97	54	58	1.2
1"	114	57	61	1.9
1½"	151	70	76	3.8

**Bronze flanged PN25**

Size	A	B	C	Weight
DN50	201	144	133	15.0

Cast iron flanged PN16

Size	A	B	C	Weight
DN50	219	153	133	13.7
DN80	250	176	135	25.0
DN100	351	151	140	32.0

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P047-04) supplied with the product.

Installation note:

The valve should be fitted in a horizontal line with the actuator vertically below the line. Note that the ports are marked **X**, **Z** and **O**.

How to order

Example: 1 off Spirax Sarco DN50, TW 3-port self-acting control valve having a bronze body and flanged connections to PN25.

**Spare parts**

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

Available spares

Piston sealing ring set	¾" to 1½"	C, F, E
	DN50 to DN100	C, D, E
Piston set	¾" to 1½"	A, C, E, F
	DN50 to DN100	A, B, C, D, E, J, H
Set of cover studs and nuts		P

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of valve.

Example: 1 - Piston set for a Spirax Sarco DN50 TW 3-port self-acting control valve.

