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TW
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.

Available types

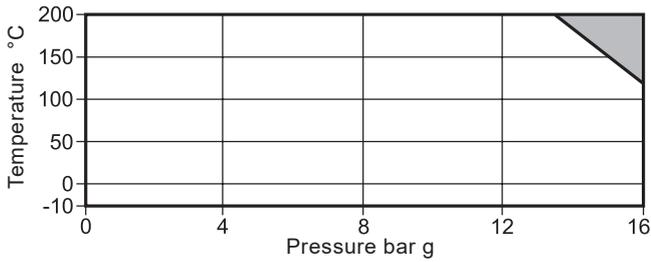| **Bronze valves** | Screwed | ¾", 1" and 1½" |
| | Flanged | DN50 |
| **Cast iron valves** | Flanged | DN50, DN80 and DN100 |

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. |
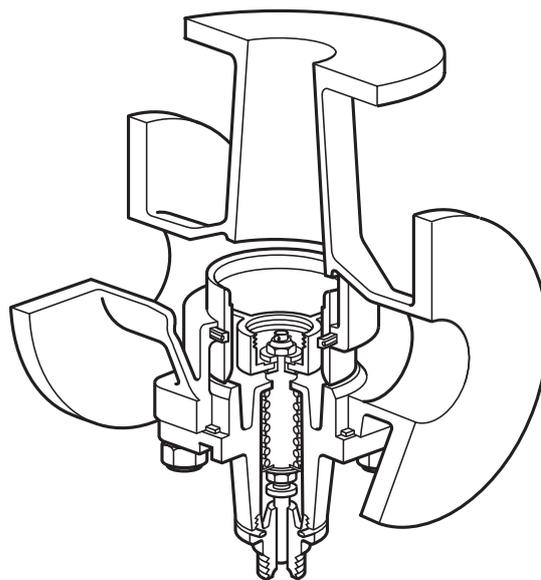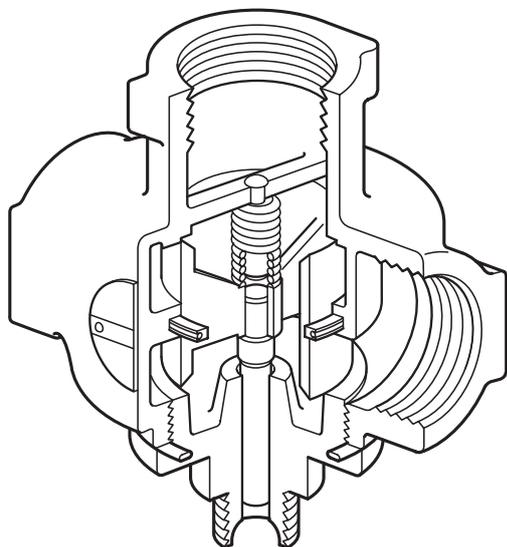
Pressure/temperature limits

Cast iron valves - flanged PN16

Bronze valves - screwed and flanged PN25
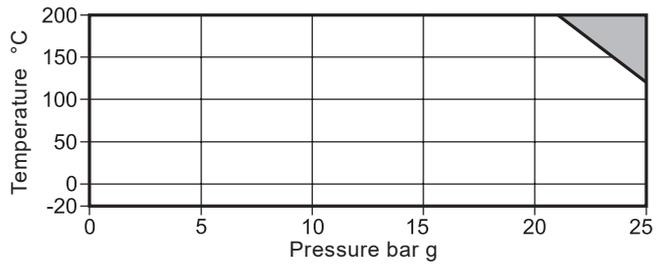
The product **must not** be used in this region.

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

Maximum differential pressure	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 Kv (see overleaf for Kv values)

Kv values

Size	¾"	1"	1½"	DN50	DN80	DN100	For conversion:
Kv	4.64	8.96	20.29	41.20	97.85	118.45	C_v (UK) = K_v x 0.963 C_v (US) = K_v x 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.

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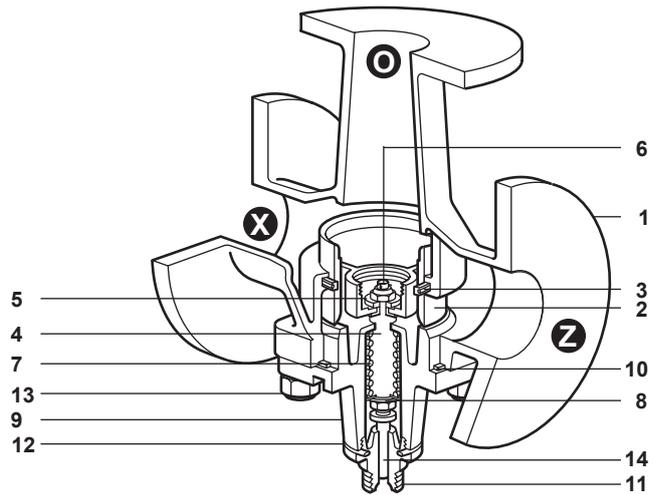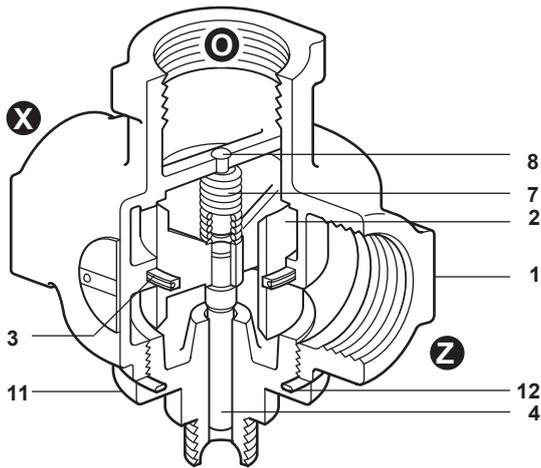
Materials

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/PFA	
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
8	Return spring cover	DN20 - DN40	Brass	BS 2874 CZ 121
		DN50 - DN100	Bronze	BS 2874 BP 102
9	Bonnet		Bronze	CC491 KM
			Cast iron	EN GJL 250
10	Cover sealing ring		Reinforced exfoliated graphite	
11	Bonnet	DN20 - DN25	Brass	CW 617N
		DN40 - DN100	Bronze	CC491 KM
12	Bonnet gasket		Nickel reinforced exfoliated graphite	
13	Cover studs		Steel	
			⁷⁄₁₆" UNF x 1∠" (35 mm)	BS 2693/1
	Cover nuts		Steel	BS 1768/R
14	Back seal		Bronze	BS 2874 PB 102

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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

Screwed
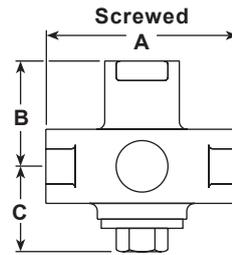
Bronze flanged PN25

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

Flanged
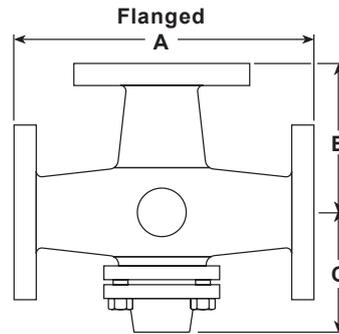
Safety information, installation and maintenance
For full details see the Installation and Maintenance Instructions supplied with the product.

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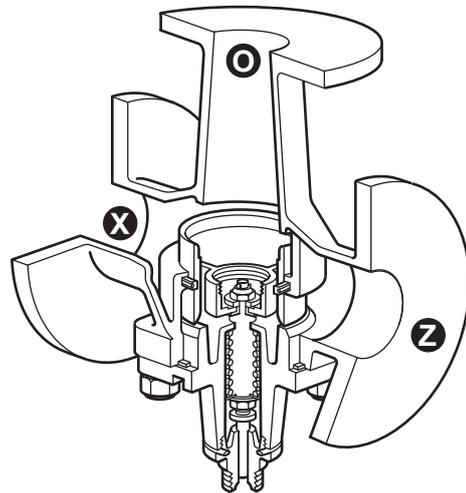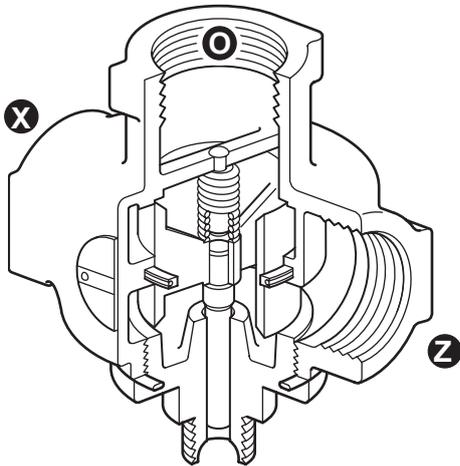
How to order
Example: 1 off Spirax Sarco DN50, TW 3-port self-acting control valve having a bronze body and flanged connections to PN25.

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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.

Detail of piston ring
X
Y

C

J
B
H
C

F

A

A

P

E

D

G

G

P

E

Valve size
¾" - 1½"

Valve size
DN50 - DN100

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