

# spirax/sarco®

## M60 Stainless Steel Ball Valve for Clean Steam Systems

### Description

M60 clean ball valve for use in high purity and aseptic processes. Low maintenance, clean design is suitable for steam, liquid and gas service ranging from vacuum to high temperature and pressure.

### Options

- Cavity filler
- Electropolishing with internal wetted surfaces to 16-24 microinches (0.40 - 0.61  $\mu\text{m}$ ) Ra.
- Seat available in either glass reinforced PTFE (standard) or virgin PTFE.

### Sizes and end connections

1/2", 3/4", 1", 1-1/2", 2".

End connections : 0.065" (16 gauge) O/D tube and Tri-clamp

Other connections available on request

### Internal finish

Internal wetted surfaces finished to 32 microinches (0.81  $\mu\text{m}$ ) Ra.

### Technical data

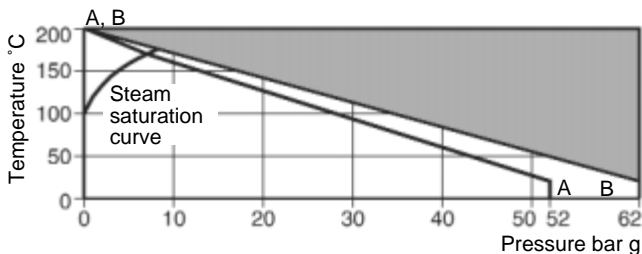
Leakage	Test procedure to ISO 5208 (rate 3)
Stem seal and seat	Materials comply with FDA Code of Federal Regulations Title 21, Part 177.

### Limiting conditions

Body design conditions	900 psig (62 barg)
Maximum operating temperature	392°F @ 0psig (200°C @ 0 barg)
Maximum operating pressure	900psig @ 68°F (62 barg @ 20°C)
Maximum saturation steam pressure	Virgin PTFE seat 100 psig (7.0 barg) Reinforced PTFE seats 115 psi (8.5 barg)
Maximum cold hydraulic test pressure	1350 psig (93 barg)

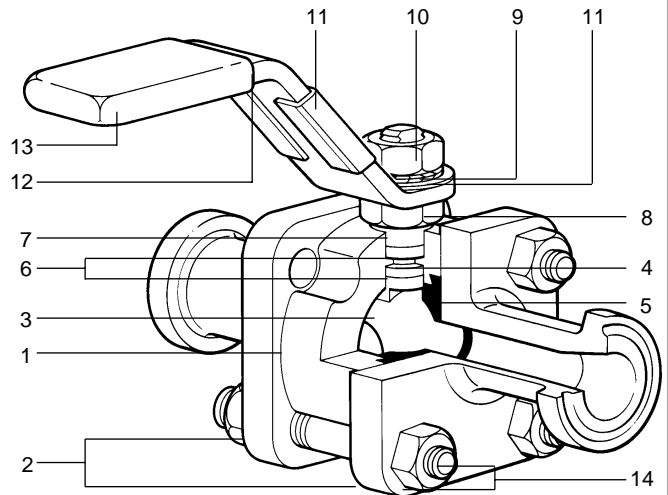
Note: that lower limits may be imposed by end connection type.

### Operating range



This product must not be used in this region.

- A — A Virgin PTFE seats.  
B — B Reinforced PTFE seats.



### Materials

No	Part	Material
1	Body	Stainless steel ASTM A 182 F 316L
2	End connections	Stainless steel ASTM A 182 F 316L
3	Ball	Stainless steel AISI 316L
4	Stem	Stainless steel AISI 316L
5	Seat	Reinforced or Virgin PTFE
6	Stem seals	Reinforced PTFE
7	Spacer	Stainless steel AISI 316
8	Compression nut	Stainless steel AISI 316
9	Lock washer	Stainless steel AISI 316
10	Stem nut	Stainless steel AISI 316
11	Name-plates	Stainless steel AISI 430
12	Handle	Stainless steel AISI 316
13	Cover	Vinyl
14	Studs and nuts	Stainless steel AISI 316
* 15	Cavity filler (optional)	Reinforced PTFE

\* Item 15 is shown overleaf.

## Dimensions / weights (approximate) in mm and kg

### Tri-clamp

Size	A4	B	C	D	G1	Port dia.	Weight
1/2"	89	120	57	22	44.5	8	0.45
3/4"	102	120	63	26	51.0	14	0.67
1"	114	157	91	31	57.0	21	1.33
1-1/2"	140	180	109	41	70.0	31	2.48
2"	159	180	115	48	79.5	38	3.50

### Tube

Size	A5	B	C	D	G2	ID	OD	Weight
1/2"	100	120	57	22	50.0	9.5	12.7	0.44
3/4"	102	120	63	26	51.0	15.9	19.1	0.66
1"	124	157	91	31	62.0	22.2	25.4	1.25
1-1/2"	138	180	109	41	69.0	34.9	38.1	2.42
2"	150	180	115	48	75.0	47.6	50.8	3.40

### C<sub>v</sub>s values

Size	1/2"	3/4"	1"	1-1/2"	2"
	2.5	11.7	31	81	120

For conversion  $C_v(\text{UK}) = K_v \times 0.97$        $C_v(\text{US}) = K_v \times 1.17$

### Operating torque (ft/lb)

Size	1/2"	3/4"	1"	1-1/2"	2"
	1.4	2.5	9.5	22	29

## Installation

M60 ball valves may be located in any convenient position in the pipeline. Gas welding can safely be used with all tube ended versions. Steam installations require a trapped drain pocket at the inlet low point and the valve should be opened slowly to prevent waterhammer damage. Full Installation and Maintenance Instructions are provided.

## Maintenance

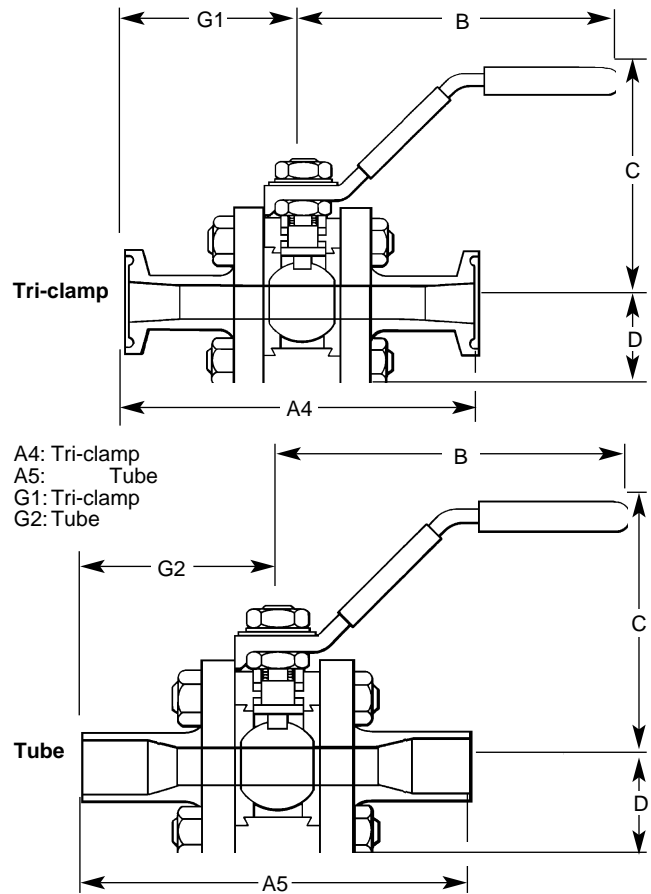
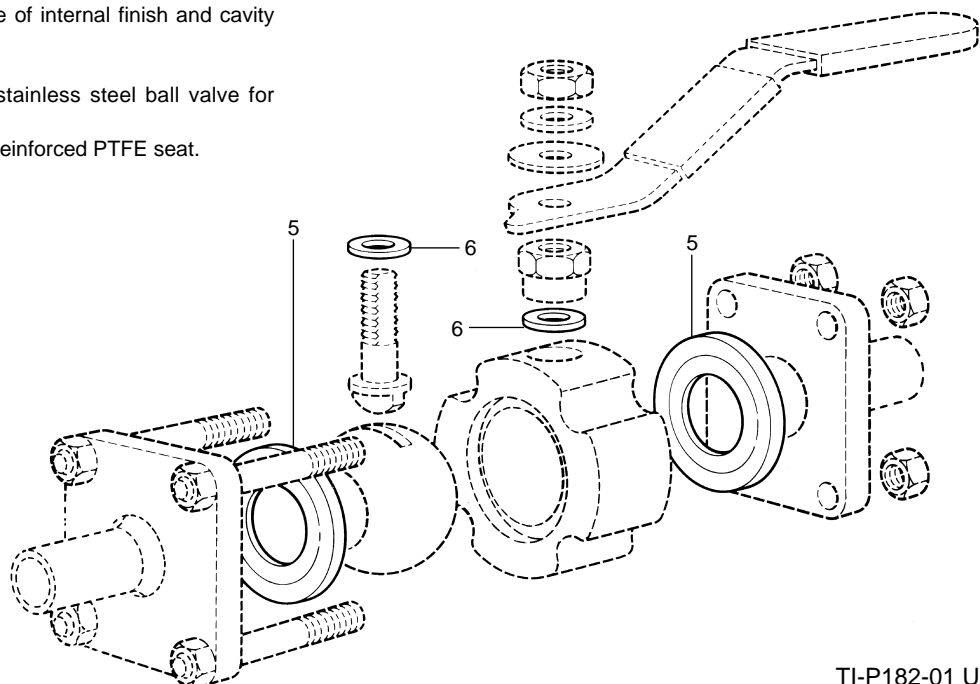
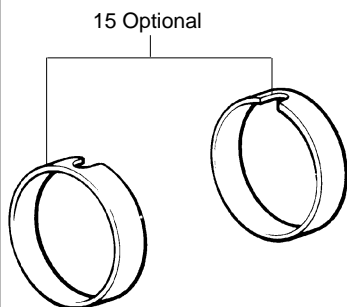
Before rebuilding, ensure that no flow is taking place in the pipeline and the line is isolated. Any fluid remaining in the line should be drained off. Spares can be fitted without removing the complete ball valve from the pipeline. Remove the two upper studs and nuts and loosen the lower two. The complete body assembly can then be removed and new parts fitted.

## How to order

The M60 stainless steel clean ball valve has a number of features that must be specified at the time of order. They are; size, type of end connection, seat material, degree of internal finish and cavity filler (if required).

**Example:** Spirax Sarco 1/2" M60 stainless steel ball valve for clean steam systems.

16 gauge O/D tube end connection. Reinforced PTFE seat. 32 microinch Ra finish.



## Spare parts

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

### Available spare

Seat and stem seal set	5, 6
Seat and stem seal set with cavity filler	5, 6, 15

### How to order spares

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

**Example:** 1 - Seat and stem seal set for 1/2" M60 ball valve.