

# spirax sarco®

## M10S Ball Valve 1/4" to 2-1/2"

### Description

M10S is a three piece body ball valve designed for steam and other industrial fluids for services ranging from vacuum to the higher temperatures and pressures.

M10S can be serviced without removing the valve from the pipeline. (Screwed and welded versions only).

### Available types

<b>M10S2RB</b>	Zinc plated carbon steel body, R-PTFE seats, reduced bore.
<b>M10S2FB</b>	Zinc plated carbon steel body, R-PTFE seats, full bore.
<b>M10S3RB</b>	Stainless steel body, R-PTFE seats, reduced bore.
<b>M10S3FB</b>	Stainless steel body, R-PTFE seats, full bore.
<b>M10S4RB</b>	A complete stainless steel construction, R-PTFE seats, reduced bore.
<b>M10S4FB</b>	A complete stainless steel construction, R-PTFE seats, full bore.

### Options

- Self-venting ball.
- Extended stem to 50 mm (2") and 100 mm (4") to allow full insulation.
- Lockable handle.
- Oval handle for confined spaces. Ideal for trap modules.

### Sizes and pipe connections

1/4", 3/8", 1/2", 3/4", 1", 1-1/4", 1-1/2", 2", (2-1/2" only available with reduced bore).

Screwed BSP, BSPT, API/NPT, SW, BW full bore and reduced bore.

1/2" to 2" flanged PN40 reduced bore and full bore.

1/2" to 2" flanged ANSI 150 reduced bore.

1/2" to 2" flanged ANSI 300 reduced bore.

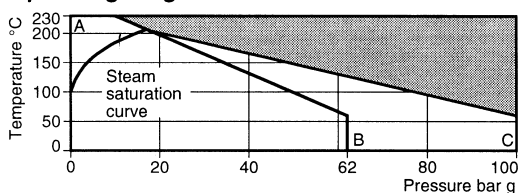
### Technical data

Flow characteristic	Modified linear
Port	Full and reduced port versions
Leakage	Test procedure to ISO 5208 (rate A)
Antistatic	Complies with ISO 7121 and BS 5351

### Limiting conditions

Maximum operating temperature	445°F @ 150 psig (230°C @ 10 barg)
Maximum operating pressure	1500 psig @ 140°F (100 barg @ 60°C)
Maximum saturation steam pressure	260 psig (17.5 barg)
Cold hydraulic test pressure	2250 psig (150 barg)

### Operating range

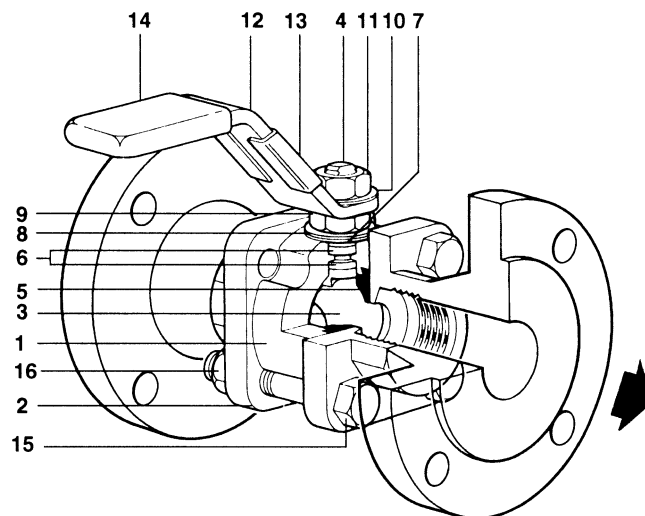


The product must not be used in this region.

A - B 2" FB and 2½" RB only  
A - C ¼" - 1½" FB, RB and 2" RB

**Note:** On the 2" FB and 2½" RB M10S2 and M10S3:-

1. A PTFE gasket is fitted between the body and cap.
2. The lever name-plate has upper rivets.



### Materials

No Part	Material
1 Body	M10S2 Zinc plated carbon steel ASTM A105
	M10S3 Stainless steel ASTM A 182 F 316
	M10S4 Stainless steel ASTM A 182 F 316
	M10S2 Zinc plated carbon steel ASTM A105
2 Cap	M10S3 Stainless steel ASTM A 182 F 316
	M10S4 Stainless steel ASTM A 182 F 316
3 Ball	Stainless steel AISI 316
4 Stem	Stainless steel AISI 316
5 Seat	Carbon/graphite reinforced PTFE
6 Stem seal	Reinforced PTFE antistatic
7 Separator	M10S2 Zinc plated carbon steel SAE 1010
	M10S3 Stainless steel AISI 316
	M10S4 Stainless steel AISI 316
8 Belleville washer	Stainless steel AISI 301
9 Nut	M10S2 Zinc plated carbon steel SAE 1010
	M10S3 Stainless steel AISI 304
	M10S4 Stainless steel AISI 304
10 Name-plate (DN)	M10S2 Stainless steel AISI 430
	M10S3 Stainless steel AISI 430
11 Stem nut	M10S2 Zinc plated carbon steel SAE 1010
	M10S3 Stainless steel AISI 304
	M10S4 Stainless steel AISI 304
12 Lever	M10S2 Zinc plated carbon steel SAE 1010
	M10S3 Stainless steel AISI 316
	M10S4 Stainless steel AISI 316
13 Name-plate	Stainless steel AISI 430
14 Grip	Vinyl
15 Bolts	M10S2 Zinc plated carbon steel Grade 5
	M10S3 Zinc plated carbon steel Grade 5
16 Nuts	M10S2 Zinc plated carbon steel Grade 5
	M10S3 Zinc plated carbon steel Grade 5
	M10S4 Stainless steel AISI 304
* 17 Studs	M10S4 Stainless steel AISI 316

\* Item not shown

## Dimensions (approximate) in mm

### Reduced bore

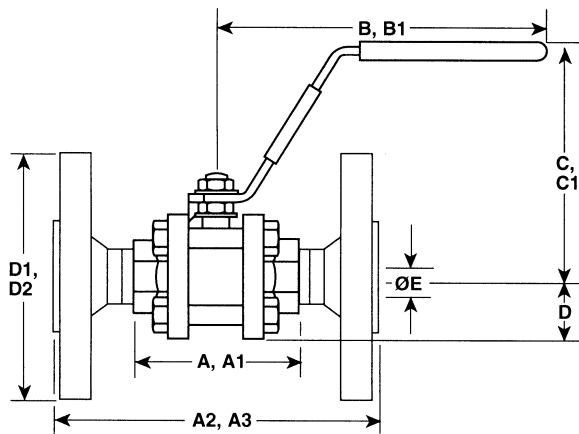
Size	A	A1	A2	A3	B	B1	C	C1	D	D1	D2	E
1/4"	56	52	-	-	120	-	57	-	22	-	-	8
3/8"	56	52	-	-	120	-	57	-	22	-	-	8
1/2"	63	52	108	130	120	120	61	87	24	89	95	11
3/4"	68	60	117	150	120	120	63	89	26	98	105	14
1"	86	84	127	160	157	157	91	91	31	108	115	21
1-1/4"	99	94	140	180	157	157	95	95	37	118	140	25
1-1/2"	108	102	165	200	180	180	109	109	41	127	150	31
2"	124	118	178	230	180	180	115	115	48	152	165	38
2"	152	152	-	-	245	-	132	-	57	-	-	51

### Full bore

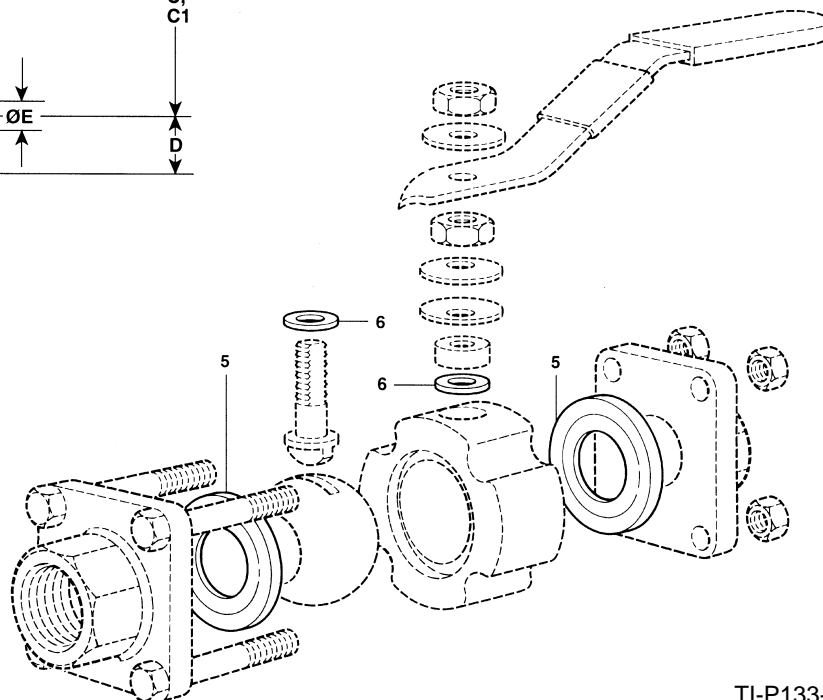
1/4"	56	58	-	-	120	-	57	-	22	-	-	8
3/8"	63	60	-	-	120	-	61	-	24	-	-	11
1/2"	68	64	-	130	120	120	63	89	26	-	95	14
3/4"	86	84	-	150	157	157	91	91	31	-	105	21
1"	99	98	-	160	157	157	95	95	37	-	115	25
1-1/4"	108	106	-	180	180	180	109	109	41	-	140	31
1-1/2"	124	124	-	200	180	180	115	115	48	-	150	38
2"	152	152	-	230	245	245	132	132	57	-	165	51

## Weights (approximate) in kg

Size	Reduced bore			Full bore	
	Scrd/BW/S	PN40	ANSI	Scrd/BW/SW	PN40
1/4"	0.52	-	-	0.52	-
3/8"	0.52	-	-	0.61	-
1/2"	0.61	2.2	1.65	0.70	2.3
3/4"	0.70	2.9	2.20	1.27	3.5
1"	1.27	3.9	3.38	1.77	4.4
1-1/4"	1.77	5.4	4.44	2.50	6.2
1-1/2"	2.50	6.5	5.84	3.50	7.5
2"	3.50	8.8	8.99	6.90	12.2
2-1/2"	6.90	-	-	-	-



- A** : Scrd and BW
- A1** : SW
- A2** : Flanged ANSI 150
- A3** : Flanged PN40
  
- B** : Scrd, BW, SW
- B1** : Flanged ANSI 150, PN40
  
- C** : Scrd, BW, SW
- C1** : Flanged ANSI 150, Flanged PN40
  
- D** : Scrd, BW, SW
- D1** : Flanged ANSI 150
- D2** : Flanged PN40



## C<sub>y</sub> values

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
Reduced bore	2.5	2.5	7	11.5	31.5	57	81.5	120.5	196.5
Full bore	2.5	7.5	19	42	67.5	104	179	239.5	-

## Operating torque (ft / lb)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
Reduced bore	1.5	1.5	1.5	3	10	15.5	23	29.5	33.5
Full bore	1.5	1.5	3	10	15.5	23	29.5	33	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 1500 psig.

Valves that are subject to long static periods, may require up to 75% greater break out torque.

## Maintenance

Before commencing any dismantling work 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.

The new parts can be fitted without removing the complete ball valve from the pipeline (screwed, SW and BW versions only).

Remove the two upper bolts and nuts and loosen the lower two. The complete assembly can then be removed and the new parts fitted.

M10S flanged ball valves must be removed from the pipeline to facilitate the fitting of the new parts.

## How to order

**Example:** Spirax Sarco 1/2" screwed NPT M10S2FB ball valve.

## Spare parts

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

## Available spare

Seat and stem seal set

5, 6

## 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" M10S2FB ball valve.