

# spirax/sarco®

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

### Description

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

### ISO mounting

The integral ISO body mounting allows the valve to be automated without losing seal integrity, as the body does not require disassembly. Manual to remote control may therefore be easily accomplished by the ISO range of Spirax Sarco ball valves.

### Available types

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

### Options

- Self-venting ball.
- Extended stem to 50 mm (2") and 100 mm (4") to allow for full insulation.

### 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, BW, SW full bore and reduced bore.

DN15 — DN50

Flanged PN40, ANSI150, and ANSI300 full bore and reduced bore.

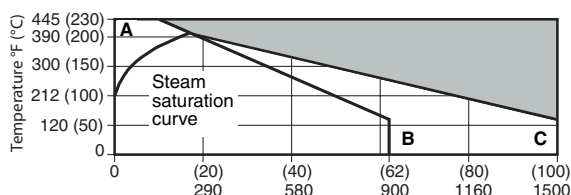
### Technical data

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

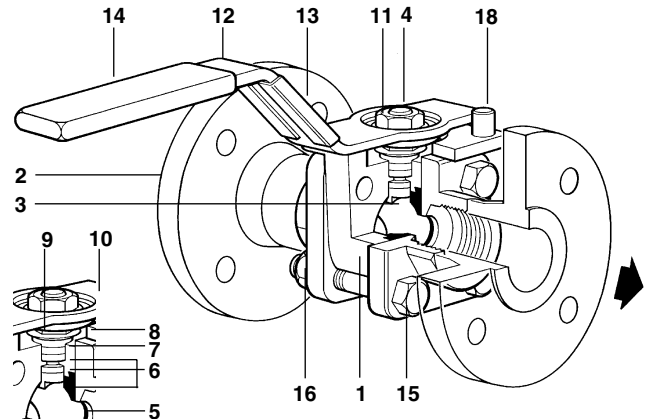
### Limiting conditions

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. Pressure psig (barg).  
 A - B 2" FB and 2-1/2" RB only  
 A - C 1/2" - 1-1/2" FB, RB and 2" RB



### Materials

No	Part	Material
1	Body	M10S2 ISO Zinc plated carbon steel ASTM A105
		M10S3 ISO Stainless steel ASTM A 182 F 316
		M10S4 ISO Stainless steel ASTM A 182 F 316
		M10S2 ISO Zinc plated carbon steel ASTM A105
2	Cap	M10S3 ISO Stainless steel ASTM A 182 F 316
		M10S4 ISO Stainless steel ASTM A 182 F 316
		M10S4 ISO 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 ISO Zinc plated carbon steel SAE 1010
		M10S3 ISO Stainless steel AISI 316
		M10S4 ISO Stainless steel AISI 316
8	Belleville washer	M10S2 ISO Stainless steel AISI 301
		M10S4 ISO Stainless steel AISI 301
9	Nut	M10S2 ISO Zinc plated carbon steel SAE 1010
		M10S3 ISO Stainless steel AISI 304
		M10S4 ISO Stainless steel AISI 304
10	Name-plate (DN)	M10S2 ISO Stainless steel AISI 430
		M10S4 ISO Stainless steel AISI 430
11	Stem nut	M10S2 ISO Zinc plated carbon steel SAE 1010
		M10S3 ISO Stainless steel AISI 304
		M10S4 ISO Stainless steel AISI 304
12	Lever	M10S2 ISO Zinc plated carbon steel SAE 1010
		M10S3 ISO Stainless steel AISI 316
		M10S4 ISO Stainless steel AISI 316
13	Name-plate	Stainless steel AISI 430
14	Grip	Vinyl
15	Bolts	M10S2 ISO Zinc plated carbon steel Grade 5
		M10S3 ISO Zinc plated carbon steel Grade 5
16	Nuts	M10S2 ISO Zinc plated carbon steel Grade 5
		M10S3 ISO Stainless steel AISI 304
		M10S4 ISO Stainless steel AISI 304
*17	Studs	M10S4 ISO Stainless steel AISI 316
		M10S2 ISO Zinc plated carbon steel SAE 12L14
18	Stop screw	M10S3 ISO Stainless steel AISI 30
		M10S4 ISO Stainless steel AISI 30

\* Item not shown

## Dimensions (approximate) in inches

### Reduced bore

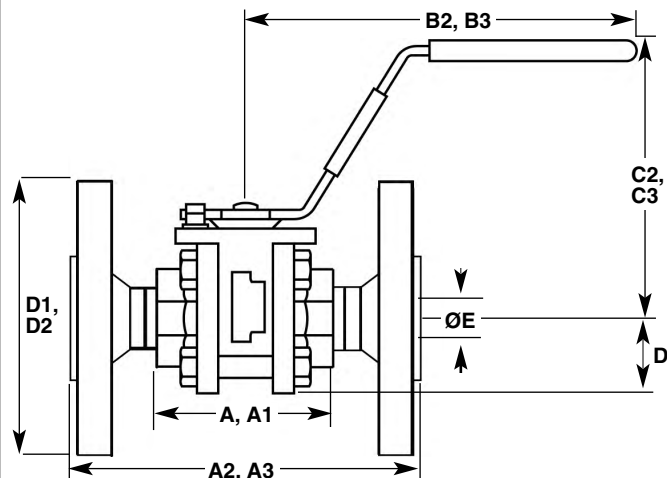
Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
1/4"	2.21	2.05	-	-	5.12	-	2.48	-	0.87	-	-	0.32
3/8"	2.21	2.05	-	-	5.12	-	2.48	-	0.87	-	-	0.32
1/2"	2.48	2.05	4.26	5.12	5.12	5.71	2.60	3.19	0.95	3.51	3.74	0.43
3/4"	2.68	2.36	4.61	5.91	5.12	5.71	2.72	3.31	1.02	3.86	4.14	0.55
1"	3.39	3.31	5.00	6.30	6.38	6.38	3.94	3.94	1.22	4.26	4.53	0.83
1-1/4"	3.90	3.70	5.52	7.09	6.38	6.38	4.10	4.10	1.46	4.65	5.52	0.99
1-1/2"	4.26	4.02	6.50	7.88	7.29	7.29	4.41	4.41	1.62	5.00	5.91	1.22
2"	4.89	4.65	7.01	9.06	7.29	7.29	4.73	4.73	1.89	5.99	6.50	1.50
2-1/2"	5.99	5.99	-	-	9.85	-	5.52	-	2.25	-	-	2.01

### Full bore

Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
1/4"	2.21	2.29	-	-	5.12	-	2.48	-	0.87	-	-	0.32
3/8"	2.48	2.36	-	-	5.12	-	2.60	-	0.95	-	-	0.43
1/2"	2.68	2.52	-	5.12	5.12	5.71	2.72	3.31	1.02	-	3.74	0.55
3/4"	3.39	3.31	-	5.91	6.38	6.38	3.94	3.94	1.22	-	4.14	0.83
1"	3.90	3.86	-	6.30	6.38	6.38	4.10	4.10	1.46	-	4.53	0.99
1-1/4"	4.26	4.18	-	7.09	7.29	7.29	4.41	4.41	1.62	-	5.52	1.22
1-1/2"	4.89	4.89	-	7.88	7.29	7.29	4.73	4.73	1.89	-	5.91	1.50
2"	5.99	5.99	-	9.06	9.85	9.85	5.52	5.52	2.25	-	6.50	2.01

## Weights (approximate) in kg

Size	Reduced bore			Full bore	
	Scrd/BW/SW	PN40	ANSI 150	Scrd/BW/SW	PN40
1/4"	1.4	-	-	1.4	-
3/8"	1.4	-	-	1.6	-
1/2"	1.6	5.1	3.9	2.1	5.7
3/4"	2.1	7.1	5.2	3.5	8.4
1"	3.5	9.3	7.7	4.5	10.4
1-1/4"	4.5	12.6	9.9	6.1	14.1
1-1/2"	6.1	15.0	13.1	9.4	18.3
2"	9.4	21.0	20.2	16.5	28.2
2-1/2"	16.5	-	-	-	-



- A:** Scrd and BW  
**A1:** SW  
**A2:** Flanged ANSI 150  
**A3:** Flanged PN40  
  
**B2:** Scrd, BW and SW  
**B3:** Flanged PN40 and ANSI 150  
  
**C2:** Scrd, BW and SW  
**C3:** Flanged PN40 and ANSI 150  
  
**D:** Scrd, BW and SW  
**D1:** Flanged ANSI 150  
**D2:** Flanged PN40  
  
**E:** All versions

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

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
Reduced bore	2.9	2.9	7.0	12	32	57	82	121	197
Full bore	2.9	8.0	20	42	68	104	179	240	-

## 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	33.5	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 600 psig (42 barg). 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 ISO flanged ball valves must be removed from the pipeline to facilitate the fitting of new parts.

## How to order

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

