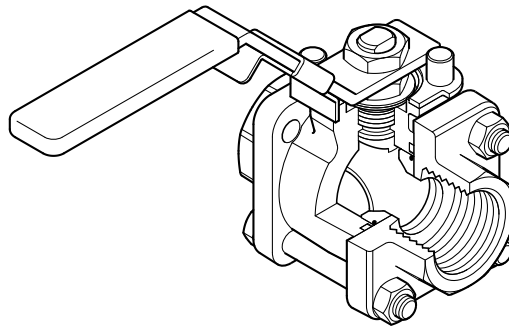


# spirax sarco

## M10Hi ISO Ball Valve 1/4" to 2 1/2" (High Pressure Applications)



### Description

The M10Hi ISO three-piece body ball valve has a lockable handle and ISO mounting as standard and features a special ball, which has received a surface hardening. It can be used on applications that use steam and other industrial fluids for services ranging from vacuum to the higher temperatures and pressures. The M10Hi ISO has been designed for use as an isolating valve, not a control valve, and can be serviced without removal from the pipeline.

### 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

<b>M10Hi2 ISO</b>	Zinc plated carbon steel body and caps.
<b>M10Hi4 ISO</b>	Complete stainless steel construction.

**Note:** The nomenclature will be followed with either **FB** (full bore) or **RB** (reduced bore) and needs to be stated when placing an order.

### Standards

This product fully complies with the requirements of the Pressure Equipment Directive (PED) and carries the **CE** mark when so required. This product has been specifically designed for use on steam, compressed air, water, and other industrial fluids that are in Group two of the above mentioned PED.

### Certification

This product is available with certification to EN 10204 3.1.  
**Note:** All certification / inspection requirements must be stated at the time of order placement.

### Options

- Self-venting ball.
- Extended stem 4" (100 mm) to allow full insulation. (manual operation only)

### Technical data

Flow characteristic	Modified linear
Port	Full and reduced bore versions
Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A)	

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.  
In the interests of development and improvement of the product, we reserve the right to change the specification.

### Sizes and pipe connections

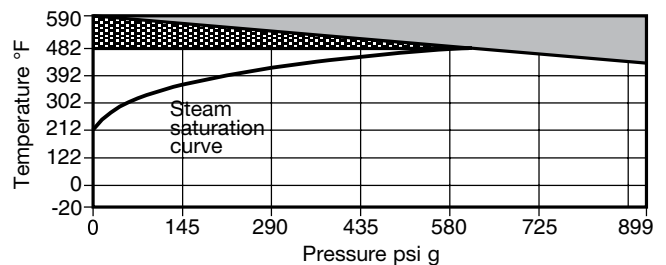
**Full bore**  
1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2"  
**Screwed** NPT, BW, SW

**Flanged**  
1/4" to 2"  
ASME 150, 300

**Reduced bore**  
1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" and 2 1/2"  
**Screwed** NPT, BW, SW

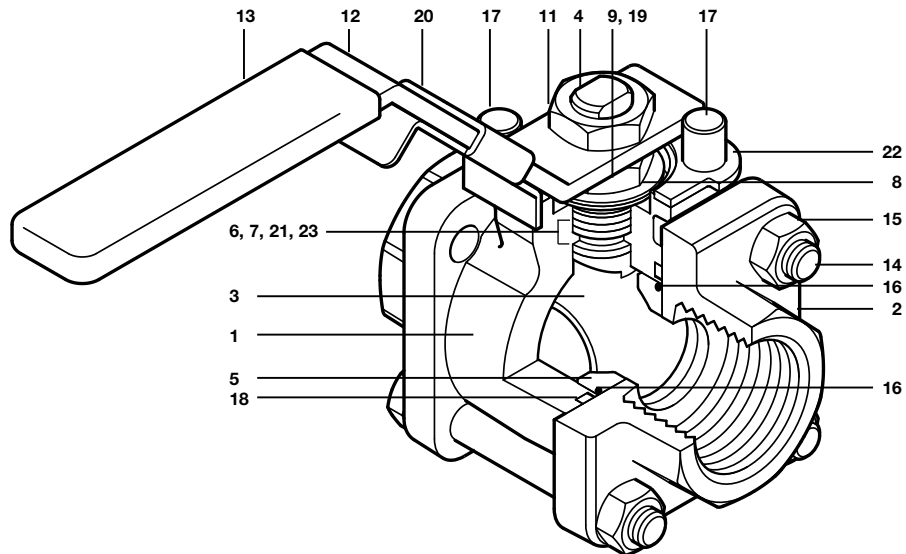
**Flanged**  
1/4" to 2 1/2"  
ASME 150, 300

### Pressure / temperature limits



- The product **must not** be used in this region.
- The product can only be used in this region for short periods of time.

PMA	Maximum allowable pressure	899 psig @ 419°F
TMA	Maximum allowable temperature	590°F @ 0 psig
Minimum allowable temperature		-20°F
PMO	Maximum operating pressure for saturated steam service	565 psi g
TMO	Maximum operating temperatures For short periods	590°F @ 0 psi g
	For continuous operation	482°F @ 565 psi g
Minimum operating temperature		-20°F
<b>Note:</b> For lower operating temperatures consult Spirax Sarco		
ΔPMX	Maximum differential pressure is limited to the PMO	
Designed for a maximum cold hydraulic test pressure of 1348 psi g		



## Materials

No.	Part	Material	
1	Body	<b>M10Hi2 ISO</b>	Zinc plated carbon steel ASTM A105
		<b>M10Hi4 ISO</b>	Stainless steel ASTM A 182 F 316L
2	Cap	<b>M10Hi2 ISO</b>	Zinc plated carbon steel ASTM A105
		<b>M10Hi4 ISO</b>	Stainless steel ASTM A 182 F 316L
3	Ball		Stainless steel (hardened) AISI 316
4	Stem		Stainless steel AISI 316
*5	Seat		Reinforced PEEK
*6	Stem seal		Reinforced PTFE
7	Separator	<b>M10Hi2 ISO</b>	Zinc plated carbon steel SAE 1010
		<b>M10Hi4 ISO</b>	Stainless steel AISI 316
8	Belleville washer		Stainless steel AISI 301
9	Lower stem nut	<b>M10Hi2 ISO</b>	Zinc plated carbon steel SAE 1010
		<b>M10Hi4 ISO</b>	Stainless steel AISI 304
10	Name-plate (Not shown)		Stainless steel AISI 430
11	Upper stem nut	<b>M10Hi2 ISO</b>	Zinc plated carbon steel SAE 1010
		<b>M10Hi4 ISO</b>	Stainless steel AISI 304
12	Lever	<b>M10Hi2 ISO</b>	Zinc plated carbon steel SAE 1010
		<b>M10Hi4 ISO</b>	Stainless steel AISI 316
13	Grip		Vinyl yellow
14	Studs	<b>M10Hi2 ISO</b>	Zinc plated carbon steel A193 B7
		<b>M10Hi4 ISO</b>	Stainless steel AISI 316
15	Nuts	<b>M10Hi2 ISO</b>	Zinc plated carbon steel A194 2H
		<b>M10Hi4 ISO</b>	Stainless steel AISI 304
*16	Seat 'O' ring		Geothermal EPDM
17	Stop screw	<b>M10Hi2 ISO</b>	Zinc plated carbon steel SAE 12L 14
		<b>M10Hi4 ISO</b>	Stainless steel AISI 304
*18	Body / cap 'O' ring		Geothermal EPDM
19	Nut locker		Stainless steel AISI 304
20	Lockable handle		Stainless steel AISI 304L
*21	Stem seal		Graphite
22	Lock-plate		Stainless steel AISI 304L
*23	Stem seal		Stainless steel AISI 316

\*Note: Available spare parts sold as a kit.

## Dimensions (approximate) in Inches

### Reduced Bore

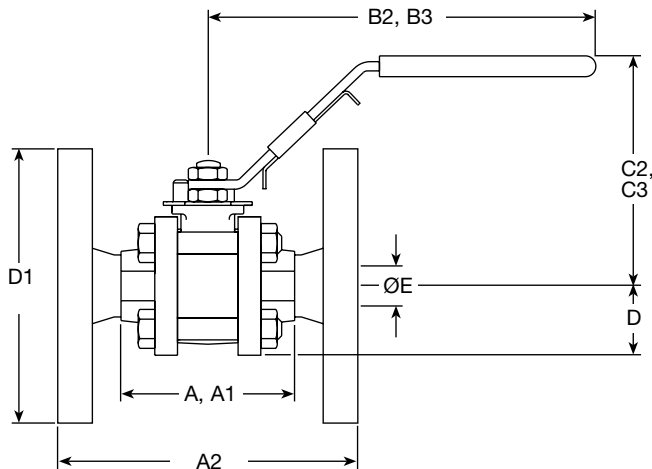
Size	A	A1	A2	B2	B3	C2	C3	D	D1	E
1/4"	2.6	2.6	-	6.4	-	0.4	-	0.9	-	0.4
3/8"	2.6	2.6	-	6.4	-	0.4	-	0.9	-	0.4
1/2"	2.6	2.6	4.3	6.4	6.4	0.4	0.4	0.9	3.5	0.4
3/4"	2.8	2.8	4.6	6.4	6.4	3.7	3.7	1	3.8	0.5
1"	3.4	3.4	5	6.4	6.4	3.9	3.9	1.2	4.3	0.8
1-1/4"	4	4	5.5	6.4	6.4	4.2	4.2	1.5	4.6	1
1-1/2"	4.3	4.3	6.5	7.3	7.3	4.6	4.6	1.6	5	1.2
2"	4.9	4.7	7	7.3	7.3	4.8	4.8	1.9	5.9	1.5
2-1/2"	6	6	-	9.8	9.8	5.5	5.5	2.2	-	2

### Full Bore

Size	A	A1	A2	B2	B3	C2	C3	D	D1	E
1/4"	2.6	2.6	-	6.4	-	0.4	-	0.9	-	0.4
3/8"	2.6	2.6	-	6.4	-	0.4	-	0.9	-	0.4
1/2"	2.8	2.8	-	6.4	6.4	3.7	3.7	1	-	0.5
3/4"	2.8	2.8	-	6.4	6.4	3.9	3.9	1.2	-	0.8
1"	3.4	3.4	-	6.4	6.4	4.2	4.2	1.5	-	1
1-1/4"	4	4	-	7.3	7.3	4.6	4.6	1.6	-	1.2
1-1/2"	4.3	4.3	-	7.3	7.3	4.8	4.8	1.9	-	1.5
2"	6	6	-	9.8	9.8	5.5	5.5	2.2	-	2

### Weights (approximate) in lb

Size	Reduced Bore		Full Bore
	Scrd / BW / SW	ASME 150	Scrd / BW / SW
1/4"	1.8	-	1.8
3/8"	1.8	-	1.8
1/2"	1.9	3.7	2.2
3/4"	2.2	4.9	3.4
1"	3.4	6.4	5.1
1-1/4"	5.1	9.1	6.7
1-1/2"	6.7	14.1	9.7
2"	9.7	18.4	19.9
2-1/2"	18.0	-	-



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

### Cv values

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
Reduced Bore	5.7	7.8	6.9	11.56	31.2	56.6	80.9	119	194.2
Full Bore	5.7	7.8	19.6	41.6	67	102.8	176.8	236.9	-

### Operating torque (Lb-Ft)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
Reduced Bore	7.3	7.3	7.3	10.3	17.7	33.1	40.5	47.9	59.0
Full Bore	7.3	7.3	10.3	17.7	33.1	40.5	47.9	59.0	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 580 psig. Valves that are subject to long static periods, may require greater break-out torque.

### Safety information, installation and maintenance

Installation and Maintenance Instructions, IM-P133-76.

### How to order example:

1 off Spirax Sarco 1/2" screwed NPT M10Hi2FB ISO ball valve.

### Spare parts

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

### Available spares

Seat, seals, body / cap 'O' ring and seat 'O' ring set

5, 6, 16, 18, 21, 23

### 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 ball valve.

**Example:** 1 - Seat, seals, body / cap 'O' ring and seat 'O' ring set for a Spirax Sarco 1/2" M10Hi2FB ISO ball valve.

