



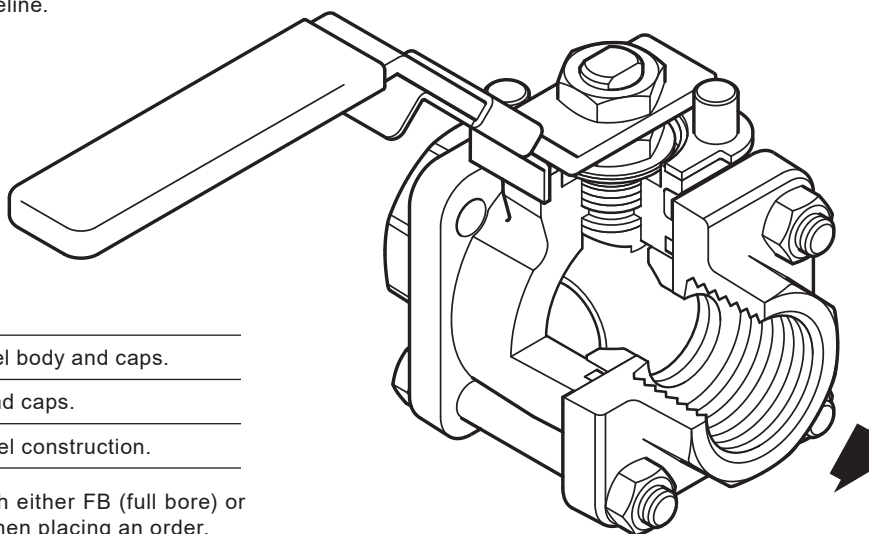
## M10Hi ISO Ball Valve DN $\frac{1}{4}$ " to DN2 $\frac{1}{2}$ "

### 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>M10Hi3 ISO</b>	Stainless 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  mark when so required.

### 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 100 mm (4") to allow full insulation.
- Fully degreased under request (i.e: Oxygen application).

### 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)	

### Sizes and pipe connections

#### Full bore

$\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " and 2"

**Screwed** BSP, BSPT, NPT, BW, SW

#### Flanged

DN15 to DN50

ASME (ANSI) Class 150,300 and EN 1092 PN40

#### Reduced bore

$\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", 2" and 2 $\frac{1}{2}$ "

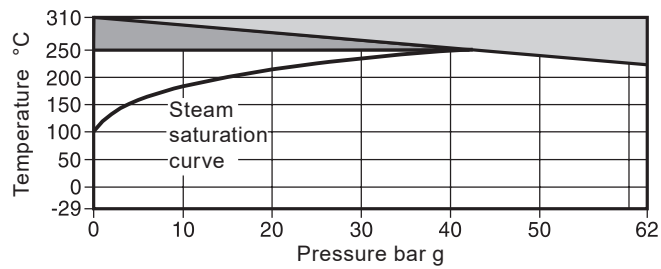
**Screwed** BSP, BSPT, NPT, BW, SW

#### Flanged

DN15 to DN65

ASME (ANSI) Class 150,300 and EN 1092 PN40

## Pressure/temperature limits

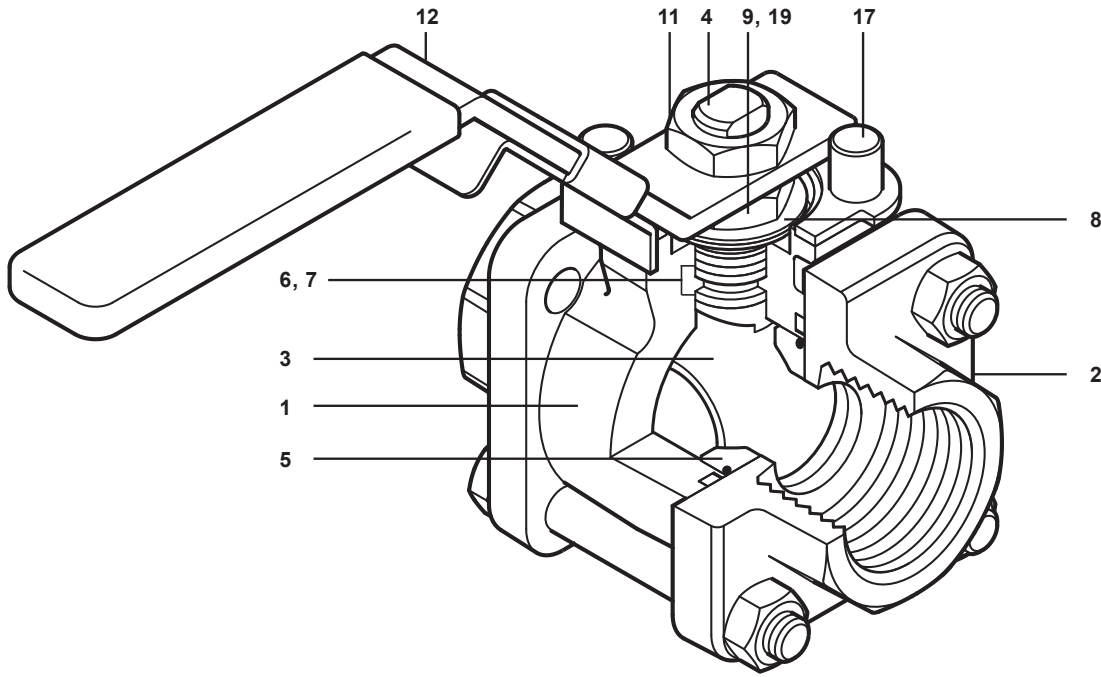


The product **must not** be used in this region.

The product can only be used in this region for short periods of time.

Body design conditions		PN63
PMA	Maximum allowable pressure	62 bar g @ 215 °C
TMA	Maximum allowable temperature	310 °C @ 0 bar g
Minimum allowable temperature		-29 °C
PMO	Maximum operating pressure for saturated steam service	39 bar g
TMO	Maximum operating temperatures	
	For short periods	310 °C @ 0 bar g
	For continuous operation	250 °C @ 39 bar g
Minimum operating temperature		-29 °C
<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		93 bar g

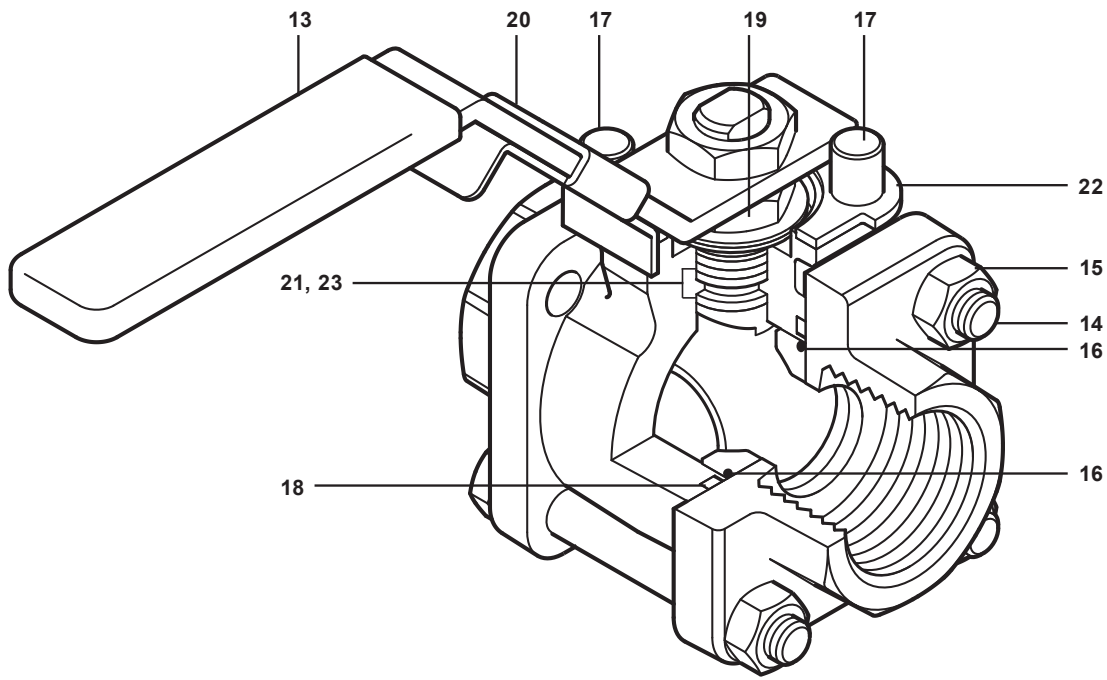
## Materials



No.	Part		Material	
1	Body	M10Hi2 ISO	Zinc plated carbon steel	ASTM A105
		M10Hi3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Hi4 ISO		
2	Cap	M10Hi2 ISO	Zinc plated carbon steel	ASTM A105
		M10Hi3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Hi4 ISO		
3	Ball		Stainless steel (hardened)	AISI 316
4	Stem		Stainless steel	AISI 316
5	Seat		Reinforced PEEK	
6	Stem seal		Reinforced PTFE	
7	Separator	M10Hi2 ISO	Zinc plated carbon steel	SAE 1010
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 316
8	Belleville washer		Stainless steel	AISI 301
9	Lower stem nut	M10Hi2 ISO	Zinc plated carbon steel	SAE 1010
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 304
10	Name-plate (Not shown)		Stainless steel	AISI 430
11	Upper stem nut	M10Hi2 ISO	Zinc plated carbon steel	SAE 1010
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 304
12	Lever	M10Hi2 ISO	Zinc plated carbon steel	SAE 1010
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 316

For parts 13 to 23 see page 4

**Materials (continued)**



No.	Part	Material		
13	Grip	Vinyl yellow		
14	Studs	M10Hi2 ISO M10Hi3 ISO	Zinc plated carbon steel	A193 B7
		M10Hi4 ISO	Stainless steel	AISI 316
		M10Hi2 ISO M10Hi3 ISO	Zinc plated carbon steel	A194 2H
15	Nuts	M10Hi4 ISO	Stainless steel	AISI 304
		16	Seat 'O' ring	Geothermal
17	Stop screw	M10Hi2 ISO M10Hi3 ISO	Zinc plated carbon steel	SAE 12L 14
		M10Hi4 ISO	Stainless steel	AISI 304
		18	Body/cap 'O' ring	Geothermal
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	

**For parts 1 to 12 see page 3**

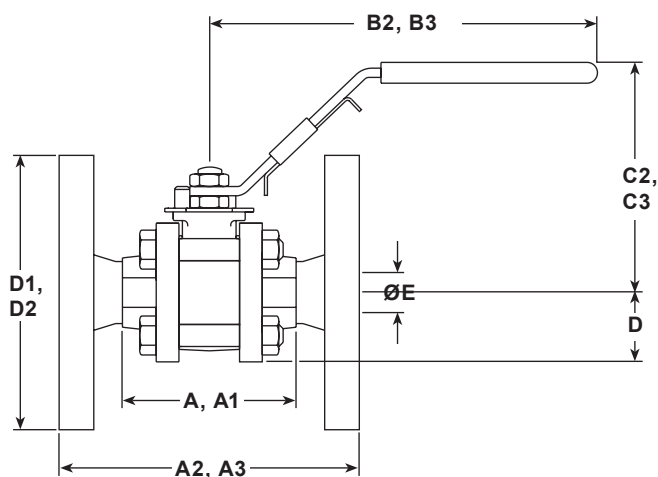
## Dimensions (approximate) in mm

### Reduced bore

Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
¼"	66	66	-	-	162	-	93	-	24	-	-	11
⅜"	66	66	-	-	162	-	93	-	24	-	-	11
½"	66	66	108	130	162	162	93	93	24	89	95	11
¾"	72	72	117	150	162	162	95	95	26	98	105	14
1"	87	87	127	160	162	162	101	101	31	108	115	21
1¼"	104	104	140	180	162	162	106	106	37	118	140	25
1½"	111	111	165	200	186	186	118	118	41	127	150	31
2"	125	119	178	230	186	186	123	123	48	152	165	38
2½"	153	153	-	-	251	251	140	140	57	-	-	50

### Full bore

Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
¼"	66	66	-	-	162	-	93	-	24	-	-	11
⅜"	66	66	-	-	162	-	93	-	24	-	-	11
½"	72	72	-	130	162	162	95	95	26	-	95	14
¾"	87	87	-	150	162	162	101	101	31	-	105	21
1"	104	104	-	160	162	162	106	106	37	-	115	25
1¼"	111	111	-	180	186	186	118	118	41	-	140	31
1½"	125	125	-	200	186	186	123	123	48	-	150	38
2"	153	153	-	230	251	251	140	140	57	-	165	50



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

## Weights (approximate) in kg

Size	Reduced bore			Full bore	
	Scrd /BW/SW	PN40	ASME 150	Scrd /BW/SW	PN40
1/4"	0.86	-	-	0.86	-
3/8"	0.84	-	-	0.84	-
1/2"	0.81	2.35	1.70	1.02	2.59
3/4"	1.02	3.20	2.25	1.56	3.76
1"	1.56	4.30	2.92	2.35	5.02
1 1/4"	2.35	6.40	4.15	3.08	6.92
1 1/2"	3.08	7.20	6.40	4.41	9.09
2"	4.41	10.72	8.35	9.05	13.96
2 1/2"	8.17	-	-	-	-

## K<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	2.5	6.8	6	10	27	49	70	103	168
Full bore	2.5	6.8	17	36	58	89	153	205	-

For conversion:

$$C_v \text{ (UK)} = K_v \times 0.963$$

$$C_v \text{ (US)} = K_v \times 1.156$$

## Operating torque (N m)

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Reduced bore	10	10	10	14	24	45	55	65	80
Full bore	10	10	14	24	45	55	65	80	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 40 bar. Valves that are subject to long static periods, may require greater break-out torque.

## Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

### How to order example:

1 off Spirax Sarco ½" screwed BSP M10Hi2FB ISO ball valve.

## Spare parts

The spare parts available are shown in solid outline. Parts drawn in a grey 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 ½" M10Hi2FB ISO ball valve.

