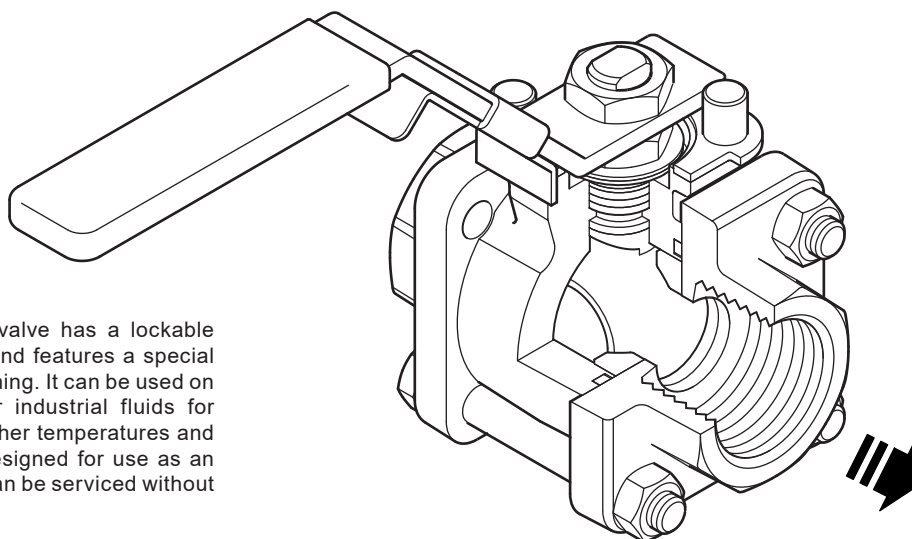




TI-P133-70
CMGT Issue 5

M10Hi ISO Ball Valve DN1¼" to DN2½"



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

M10Hi2 ISO	Zinc plated carbon steel body and caps.
M10Hi3 ISO	Stainless steel body and caps.
M10Hi4 ISO	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

¼", ⅜", ½", ¾", 1", 1¼", 1½" and 2"
Screwed BSP, BSPT, NPT, BW, SW

Flanged

DN15 to DN50
ASME (ANSI) Class 150,300 and EN 1092 PN40

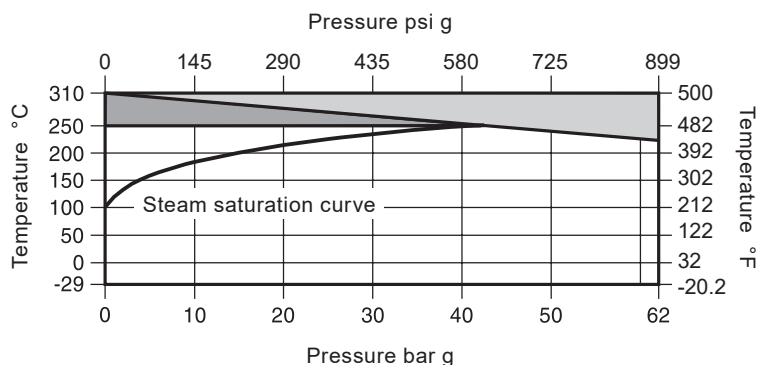
Reduced bore

¼", ⅜", ½", ¾", 1", 1¼", 1½", 2" and 2½"
Screwed BSP, BSPT, NPT, BW, SW

Flanged

DN15 to DN65
ASME (ANSI) Class 150,300 and EN 1092 PN40

Pressure/temperature limits

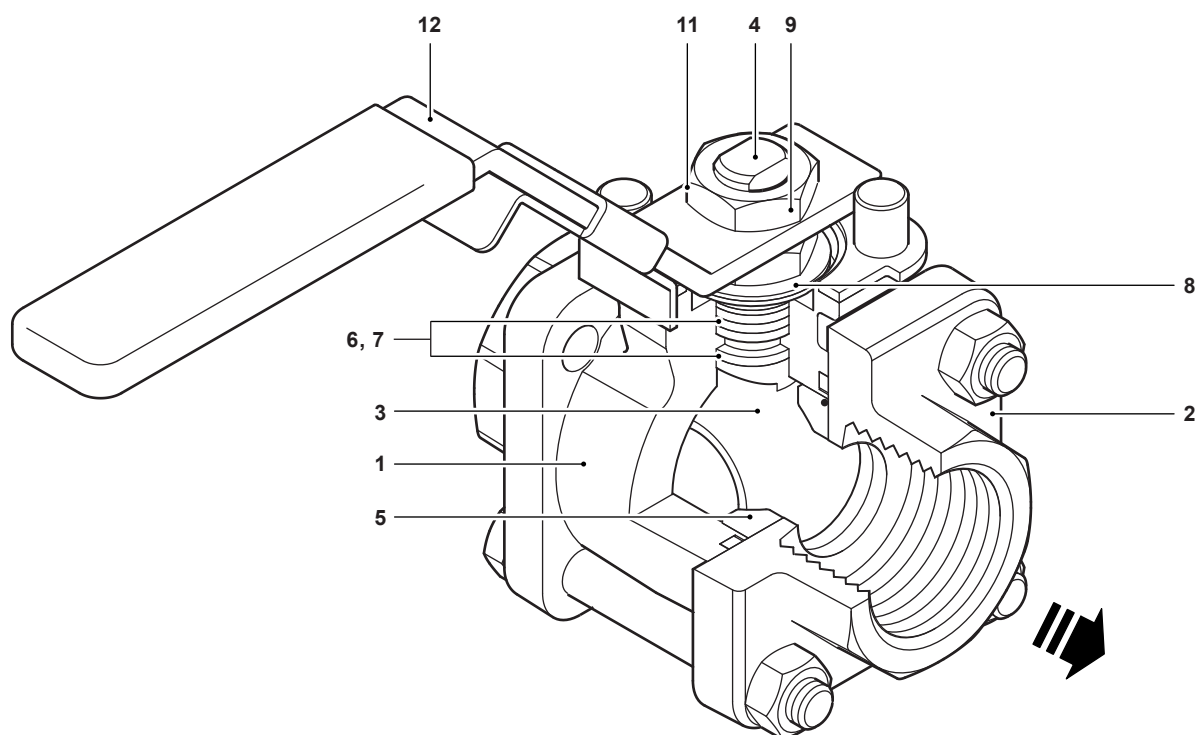


 The product **must not** be used in this region.

 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	899 psi g @ 419 °F
TMA	Maximum allowable temperature		310 °C @ 0 bar g	590 °F @ 0 psi g
Minimum allowable temperature			-29 °C	-20.2 °F
PMO	Maximum operating pressure for saturated steam service		39 bar g	566 psi g
TMO	Maximum operating temperatures	For short periods	310 °C @ 0 bar g	590 °F @ 0 psi g
		For continuous operation	250 °C @ 39 bar g	482 °F @ 566 psi g
Minimum operating temperature			-29 °C	-20.2 °F
Note: 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	1349 psi g

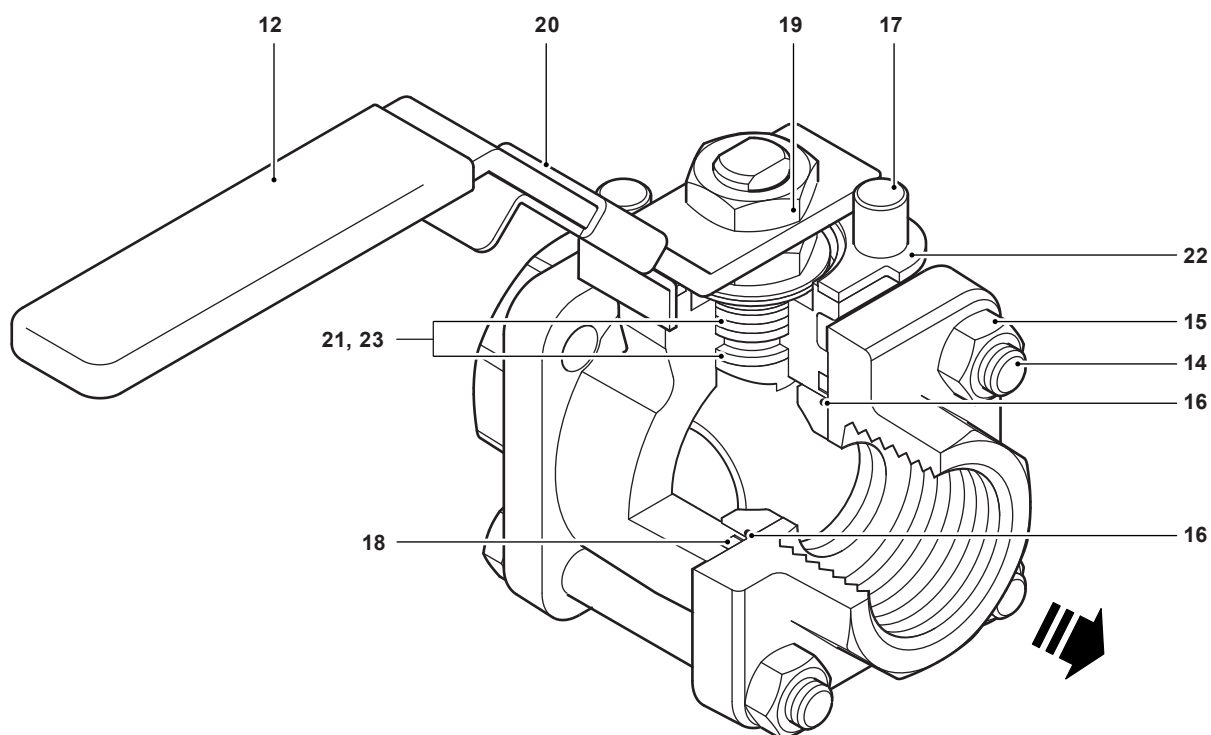
Materials



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

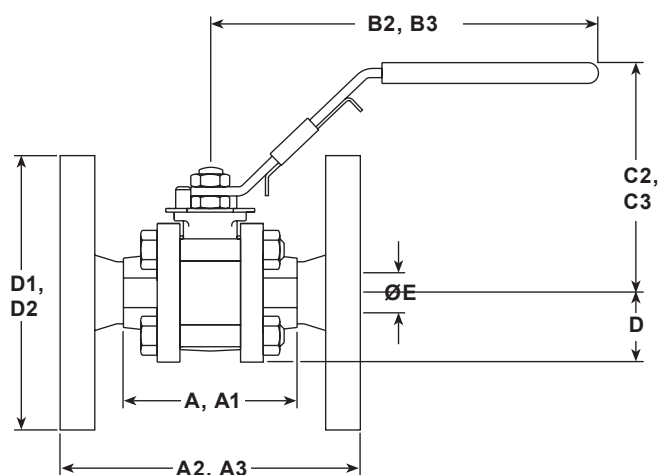
Materials continued on next page

Materials (continued)



No.	Part		Material	
12	Lever	M10Hi2 ISO	Zinc plated carbon steel	SAE 1010
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 316
13	Grip		Vinyl yellow	
14	Studs	M10Hi2 ISO	Zinc plated carbon steel	A193 B7
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 316
15	Nuts	M10Hi2 ISO	Zinc plated carbon steel	A194 2H
		M10Hi3 ISO		
		M10Hi4 ISO	Stainless steel	AISI 304
16	Seat 'O' ring		Geothermal	
17	Stop screw	M10Hi2 ISO	Zinc plated carbon steel	SAE 12L 14
		M10Hi3 ISO		
		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

Dimensions (approximate) in mm (inches)



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

Reduced bore

Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
1/4"	66 (2.60)	66 (2.60)			162 (6.38)		93 (3.66)		24 (0.94)	89 (3.50)	95 (3.74)	11 (0.43)
3/8"			108 (4.25)	130 (5.12)				93 (3.66)				
1/2"												
3/4"	72 (2.83)	72 (2.83)	117 (4.61)	150 (5.91)	162 (6.38)	162 (6.38)	95 (3.74)	95 (3.74)	26 (1.02)	98 (3.86)	105 (4.13)	14 (0.55)
1"	87 (3.43)	87 (3.43)	127 (5.00)	160 (6.30)			101 (3.98)	101 (3.98)	31 (1.22)	108 (4.25)	115 (4.53)	21 (0.83)
1 1/4"	104 (4.09)	104 (4.09)	140 (5.51)	180 (7.09)			106 (4.17)	106 (4.17)	37 (1.46)	118 (4.65)	140 (5.51)	25 (0.98)
1 1/2"	111 (4.37)	111 (4.37)	165 (6.50)	200 (7.87)	186 (7.32)	186 (7.32)	118 (4.65)	118 (4.65)	41 (1.61)	127 (5.00)	150 (5.91)	31 (1.22)
2"	125 (4.92)	119 (4.69)	178 (7.01)	230 (9.06)			123 (4.84)	123 (4.84)	48 (1.89)	152 (5.98)	165 (6.50)	38 (1.50)
2 1/2"	153 (6.02)	153 (6.02)					140 (5.51)	140 (5.51)	57 (2.24)			50 (1.97)

Full bore

Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
1/4"	66 (2.60)	66 (2.60)			162 (6.38)		93 (3.66)		24 (0.94)			11 (0.43)
3/8"												
1/2"				130 (5.12)				95 (3.74)	95 (3.74)	26 (1.02)	95 (3.74)	14 (0.55)
3/4"	87 (3.43)	87 (3.43)		150 (5.91)	162 (6.38)	162 (6.38)	101 (3.98)	101 (3.98)	31 (1.22)		105 (4.13)	21 (0.83)
1"	104 (4.09)	104 (4.09)		160 (6.30)			106 (4.17)	106 (4.17)	37 (1.46)		115 (4.53)	25 (0.98)
1 1/4"	111 (4.37)	111 (4.37)		180 (7.09)	186 (7.32)	186 (7.32)	118 (4.65)	118 (4.65)	41 (1.61)		140 (5.51)	31 (1.22)
1 1/2"	125 (4.92)	119 (4.69)		200 (7.87)			123 (4.84)	123 (4.84)	48 (1.89)		150 (5.91)	38 (1.50)
2"	153 (6.02)	153 (6.02)		230 (9.06)			140 (5.51)	140 (5.51)	57 (2.24)		165 (6.50)	50 (1.97)

Weights (approximate) in kg (lbs)

Size	Reduced bore			Full bore	
	Scrd /BW/SW	PN40	ASME 150	Scrd /BW/SW	PN40
1/4"	0.86 (1.90)			0.86 (1.90)	
3/8"	0.84 (1.85)			0.84 (1.85)	
1/2"	0.81 (1.79)	2.35 (5.18)	1.70 (3.75)	1.02 (2.25)	2.59 (5.71)
3/4"	1.02 (2.25)	3.20 (7.05)	2.25 (4.96)	1.56 (3.44)	3.76 (8.29)
1"	1.56 (3.44)	4.30 (9.48)	2.92 (6.44)	2.35 (5.18)	5.02 (11.1)
1 1/4"	2.35 (5.18)	6.40 (14.1)	4.15 (9.15)	3.08 (6.79)	6.92 (15.3)
1 1/2"	3.08 (6.79)	7.20 (15.9)	6.40 (14.1)	4.41 (9.72)	9.09 (20.0)
2"	4.41 (9.72)	10.72 (23.6)	8.35 (18.4)	9.05 (20.0)	13.96 (30.8)
2 1/2"	8.17 (18.0)				

Kv 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:

Cv (UK) = Kv x 0.963

Cv (US) = Kv x 1.156

Operating torque

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Reduced bore Nm (lbf ft)	10 (7)	10 (7)	10 (7)	14 (10)	24 (18)	45 (33)	55 (41)	65 (48)	80 (59)
Full bore Nm (lbf ft)	10 (7)	10 (7)	14 (10)	24 (18)	45 (33)	55 (41)	65 (48)	80 (59)	

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 40 bar (580 psi).

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

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

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

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

Seat, seals, body/cap 'O' ring and seat 'O' ring set	5, 6, 16, 18, 21, 23
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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.

