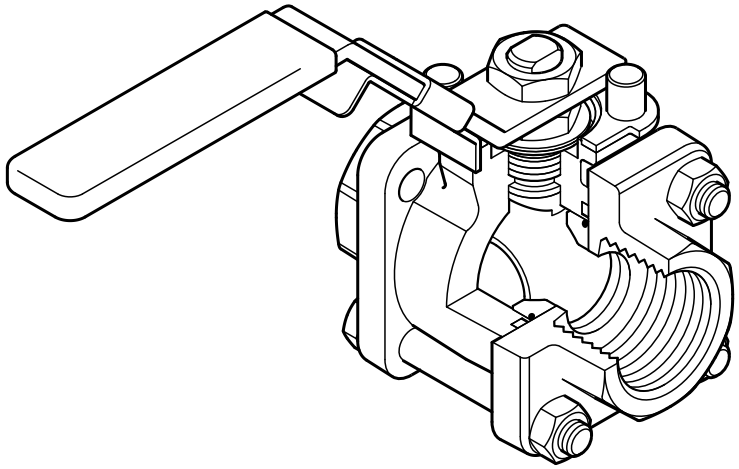
Cert. No. LRQ 0963008

ISO 9001

spirax sarco

TI-P133-70
ST Issue 2

M10Hi ISO Ball Valve DN¼" 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 European Pressure Equipment Directive 97/23/EC and carries the CE 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.

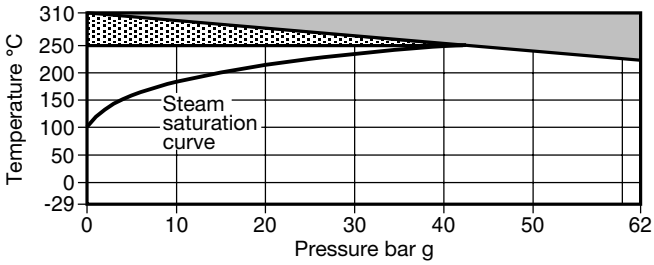
Technical data

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

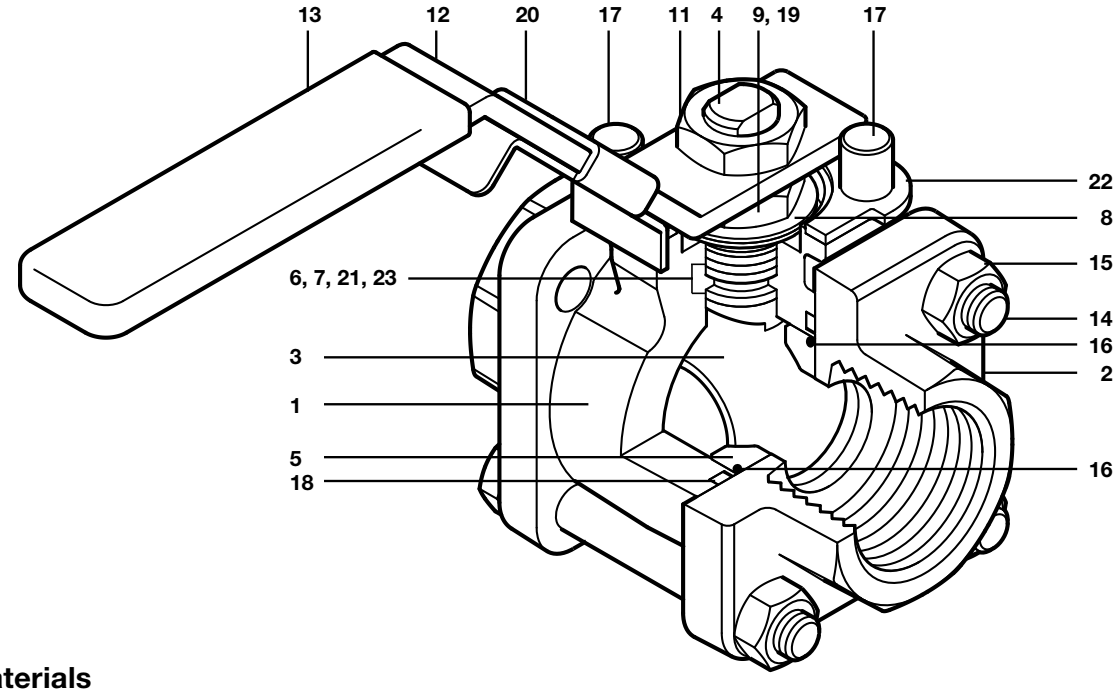


The product **must not** be used in this region.

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
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 **Note:** For lower operating temperatures consult Spirax Sarco			-29°C
ΔPMX	Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure of 93 bar g			

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification without notice.



Materials

No.	Part		Material	
1	Body	**M10Hi2 ISO**	Zinc plated carbon steel	ASTM A105
		M10Hi3 ISO **M10Hi4 ISO**	Stainless steel	ASTM A 182 F 316L
2	Cap	**M10Hi2 ISO**	Zinc plated carbon steel	ASTM A105
		M10Hi3 ISO **M10Hi4 ISO**	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	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	SAE 1010
		M10Hi4 ISO	Stainless steel	AISI 316
8	Belleville washer		Stainless steel	AISI 301
9	Lower stem nut	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	SAE 1010
		M10Hi4 ISO	Stainless steel	AISI 304
10	Name-plate (Not shown)		Stainless steel	AISI 430
11	Upper stem nut	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	SAE 1010
		M10Hi4 ISO	Stainless steel	AISI 304
12	Lever	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	SAE 1010
		M10Hi4 ISO	Stainless steel	AISI 316
13	Grip		Vinyl yellow	
14	Studs	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	A193 B7
		M10Hi4 ISO	Stainless steel	AISI 316
15	Nuts	**M10Hi2 ISO** **M10Hi3 ISO**	Zinc plated carbon steel	A194 2H
		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

Dimensions (approximate) in mm

Reduced bore

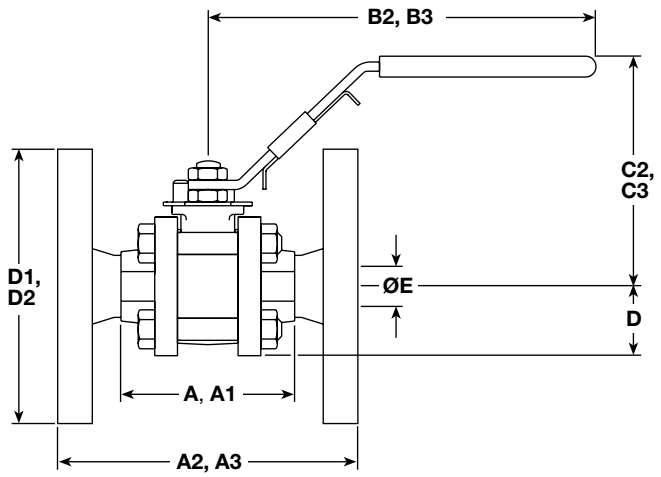
Size	A	A1	A2	A3	B2	B3	C2	C3	D	D1	D2	E
¼"	66	66	-	-	162	-	93	-	24	-	-	11
⅜"	66	66	-	-	162	-	93	-	24	-	-	11
½"	66	66	108	130	162	162	93	93	24	89	95	11
¾"	72	72	117	150	162	162	95	95	26	98	105	14
1"	87	87	127	160	162	162	101	101	31	108	115	21
1¼"	104	104	140	180	162	162	106	106	37	118	140	25
1½"	111	111	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

Weights (approximate) in kg

Size	Reduced bore			Full bore	
	Scrd /BW/SW	PN40	ASME 150	Scrd /BW/SW	PN40
¼"	0.86	-	-	0.86	-
⅜"	0.84	-	-	0.84	-
½"	0.81	2.35	1.70	1.02	2.59
¾"	1.02	3.20	2.25	1.56	3.76
1"	1.56	4.30	2.92	2.35	5.02
1¼"	2.35	6.40	4.15	3.08	6.92
1½"	3.08	7.20	6.40	4.41	9.09
2"	4.41	10.72	8.35	9.05	13.96
2½"	8.17	-	-	-	-



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

K_V values

Size	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"
Reduced bore	5	6.8	6	10	27	49	70	103	168
Full bore	5	6.8	17	36	58	89	153	205	-

For conversion C_V (UK) = K_V x 0.963 C_V (US) = K_V x 1.156

Operating torque (N m)

Size	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"
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 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 ½" M10Hi2FB ISO ball valve.