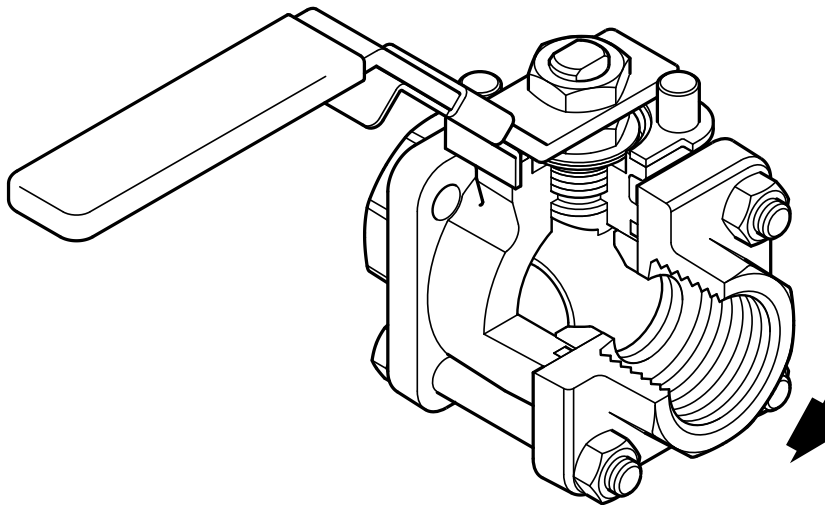


# spirax sarco

TI-P133-58  
 ST Issue 6

## M10Si ISO Ball Valve DN $\frac{1}{4}$ " to DN2 $\frac{1}{2}$ "



### Description

The M10Si ISO three-piece body ball valve has been designed for use as an isolating valve, not a control valve, has a lockable handle as standard and can be serviced without removal from the pipeline (screwed and welded versions only). It can be used for steam and other industrial fluids for services ranging from vacuum to the higher temperatures and pressures.

### 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>M10Si2__ISO</b>	Zinc plated carbon steel body, PDR 0.8 seats.
<b>M10Si3__ISO</b>	Stainless steel body, PDR 0.8 seats.
<b>M10Si4__ISO</b>	Complete stainless steel, PDR 0.8 seats.

**Note:** The nomenclature will be followed with either **FB** (full bore) or **RB** (reduced bore).

### 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.

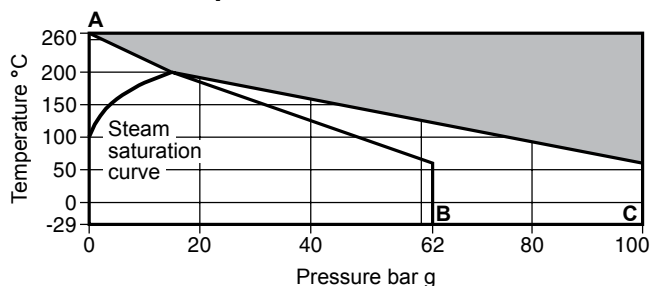
### Sizes and pipe connections

Full bore	Flanged
<b>Screwed and welded</b> 1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" BSP, BSPT, API/NPT, BW, SW	DN15 to DN50 ASME Class 150, ASME Class 300, and EN 1092 PN40.
Reduced bore	Flanged
<b>Screwed and welded</b> 1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" and 2 1/2" BSP, BSPT, API/NPT, BW, SW	DN15 to DN65 ASME Class 150, ASME Class 300, and EN 1092 PN40.

### 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)	
Antistatic device	Complies with ISO 7121 and BS 5351

### Pressure / temperature limits

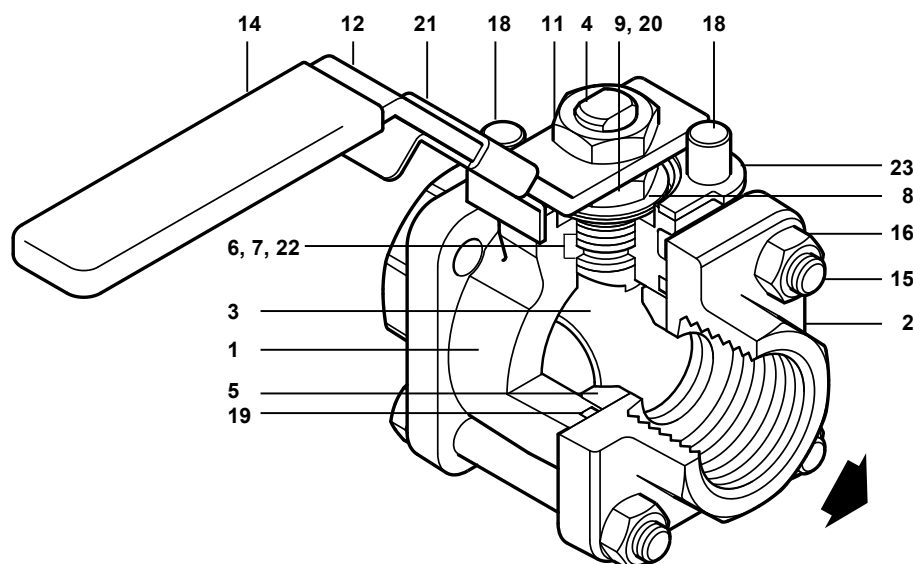


**■** The product **must not** be used in this region.

- A - B** 2" FB and 2 1/2" RB only
- A - C** 1/4" - 1 1/2" FB, RB and 2" RB

**Note:** The flange standard may restrict the maximum operating pressure. Please check with Spirax Sarco.

PMA	Maximum allowable pressure	100 bar g @ 60°C
TMA	Maximum allowable temperature	260°C @ 0 bar g
Minimum allowable temperature		-29°C
PMO	Maximum operating pressure for saturated steam service	17.5 bar g
TMO	Maximum operating temperature	260°C @ 0 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 150 bar g		



## Materials

No. Part		Material		
1	Body	M10Si2 ISO	Zinc plated carbon steel	ASTM A105
		M10Si3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Si4 ISO		
2	Cap	M10Si2 ISO	Zinc plated carbon steel	ASTM A105
		M10Si3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Si4 ISO		
3	Ball	Stainless steel	AISI 316	
4	Stem	Stainless steel	AISI 316	
5	Seat	Carbon / graphite reinforced PTFE	PDR 0.8	
6	Stem seal	Reinforced PTFE antistatic		
7	Separator	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 316
8	Spring washer	Stainless steel	AISI 301	
9	Nut	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 304
10	Name-plate (Not shown)	Stainless steel	AISI 430	
11	Stem nut	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 304
12	Lever	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 316
14	Grip	Vinyl		
15	Bolts	M10Si2 ISO	Zinc plated carbon steel	Grade 5
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 304
16	Nuts	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 304
17	Studs	M10Si4 ISO	Stainless steel	AISI 316
<b>Note:</b> Item 17 can not be shown as it is only applicable to welded versions				
18	Stop screw	M10Si2 ISO	Zinc plated carbon steel	SAE 12L 14
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 304
19	Body/cap gasket - 'O' ring	EPDM geothermal		
20	Nut locker	Stainless steel	AISI 316	
21	Lockable handle	M10Si2 ISO	Zinc plated carbon steel	SAE 1010
		M10Si3 ISO		
		M10Si4 ISO	Stainless steel	AISI 316
22	Stem seal	Stainless steel		
23	Lock-plate	Stainless steel	AISI 304L	

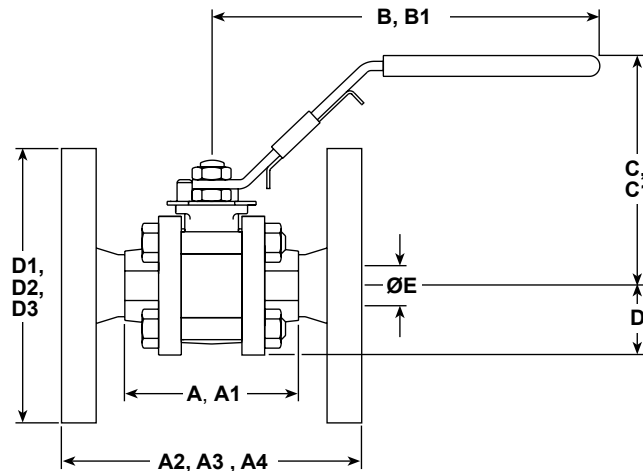
**Dimensions (approximate) in mm**

**Reduced bore**

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
¼"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
⅜"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
½"	66	66	108	130	140	162	145	93	81	24	89	95	95	11
¾"	72	60	117	150	152	162	145	95	84	26	98	105	117	14
1"	87	84	127	160	165	162	162	106	100	31	108	115	124	21
1¼"	104	94	140	180	178	162	162	106	104	37	118	140	133	25
1½"	110	102	165	200	190	186	185	116	112	41	127	150	155	31
2"	125	118	178	230	216	186	185	123	120	48	152	165	165	38
2½"	153	152	-	-	241	251	-	142	-	57	-	-	190	51

**Full bore**

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
¼"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
⅜"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
½"	72	64	-	130	140	162	145	95	84	26	-	95	95	14
¾"	87	84	-	150	152	162	162	101	100	31	-	105	117	21
1"	104	98	-	160	165	162	162	106	104	37	-	115	124	25
1¼"	110	106	-	180	178	186	185	116	112	41	-	140	133	31
1½"	125	124	-	200	190	186	185	123	120	48	-	150	155	38
2"	153	152	-	230	216	251	250	142	140	57	-	165	165	51



- A :** Scrd and BW
- A1 :** SW
- A2 :** Flanged ASME 150
- A3 :** Flanged PN40
- A4 :** Flanged ASME 300
- B :** Scrd, BW, SW
- B1 :** Flanged ASME 150, PN40
- C :** Scrd, BW, SW
- C1 :** Flanged ASME 150, PN40
- D :** Scrd, BW, SW
- D1 :** Flanged ASME 150
- D2 :** Flanged PN40
- D3 :** Flanged ASME 300
- E :** All versions

**Weights (approximate) in kg**

Size	Reduced bore				Full bore			
	Scrd / BW / SW	PN40	ASME 150	ASME 300	Scrd / BW / SW	PN40	ASME 150	ASME 300
¼"	0.65	-	-	-	0.65	-	-	-
⅜"	0.65	-	-	-	0.72	-	-	-
½"	0.72	2.30	1.77	1.70	0.95	2.60	1.87	2.40
¾"	0.95	3.20	2.35	2.28	1.60	3.80	2.73	3.79
1"	1.60	4.20	3.47	2.91	2.05	4.70	3.55	5.01
1¼"	2.05	5.70	4.47	4.15	2.75	6.40	4.76	6.50
1½"	2.75	6.80	5.96	5.88	4.25	8.30	5.82	9.22
2"	4.25	9.50	9.16	8.12	7.50	12.80	11.91	13.99
2½"	7.50	-	-	15.85	-	-	-	-

**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<sub>v</sub> (UK) = K<sub>v</sub> x 0.963      C<sub>v</sub> (US) = K<sub>v</sub> x 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	3.25	3.25	3.25	5.50	13.25	20	50	60	75
Full bore	3.25	3.25	5.50	13.25	20	50	60	75	-

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 1/2" screwed BSP M10Si2FB ISO ball valve.

**Optional extras:**

- Self-venting ball.
- Extended stems 50 mm (2") and 100 mm (4") to allow full insulation.
- Oval handle for confined spaces. Ideal for trap modules.

**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 and body gasket set	<b>5, 6, 19, 22</b>
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**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 and body gasket set for a Spirax Sarco 1/2" M10Si2FB ISO ball valve.

