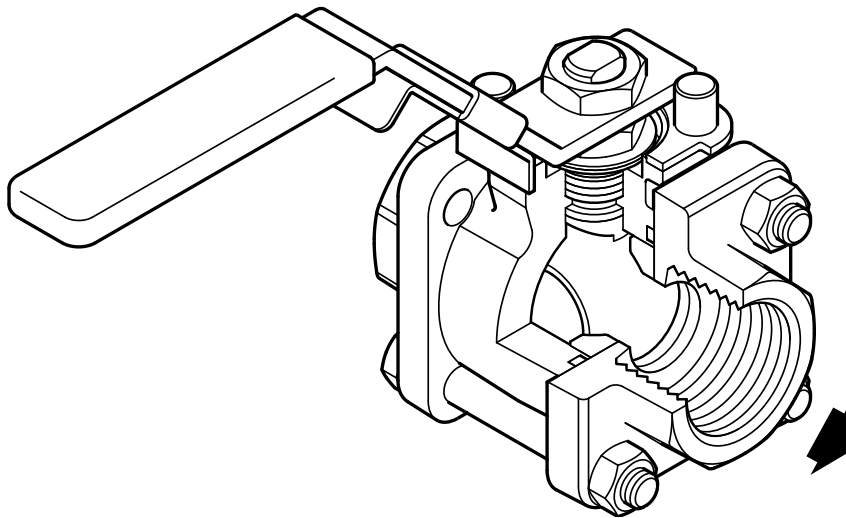


# spirax sarco

TI-P133-60  
 ST Issue 6

## M10Vi ISO Ball Valve DN $\frac{1}{4}$ " to DN2 $\frac{1}{2}$ "



### Description

The M10Vi 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 with process 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>M10Vi2_ _ ISO</b>	Zinc plated carbon steel body, PTFE seats.
<b>M10Vi3_ _ ISO</b>	Stainless steel body, PTFE seats.
<b>M10Vi4_ _ ISO</b>	Complete stainless steel, PTFE 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  $\text{CE}$  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.

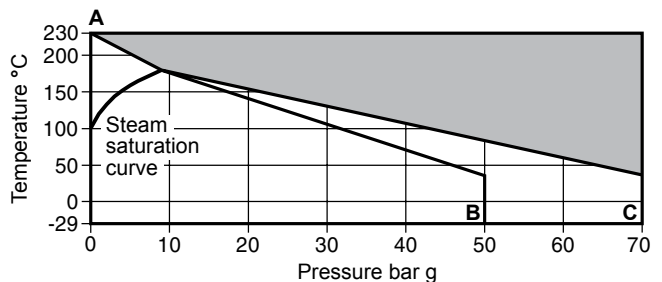
### Sizes and pipe connections

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

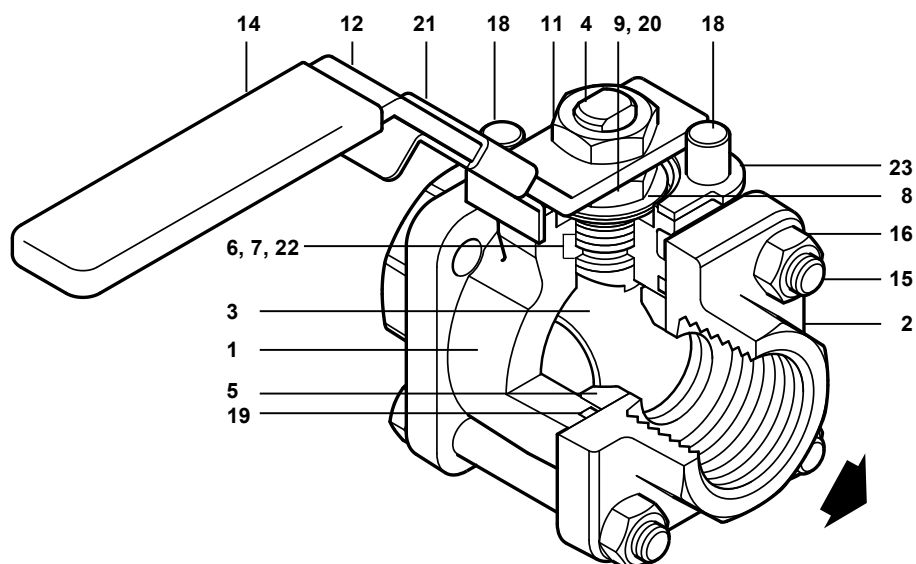


**The product must not be used in this region.**

- A - B** 2" FB and 2 $\frac{1}{2}$ " RB only
- A - C**  $\frac{1}{4}$ " - 1 $\frac{1}{2}$ " FB, RB and 2" RB

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

PMA	Maximum allowable pressure	70 bar g @ 60°C
TMA	Maximum allowable temperature	230°C @ 0 bar g
	Minimum allowable temperature	-29°C
PMO	Maximum operating pressure for saturated steam service	10 bar g
TMO	Maximum operating temperature	232°C @ 0 bar g
	Minimum operating temperature	-29°C
<b>Note:</b> For lower operating temperatures consult Spirax Sarco		
$\Delta$ PMX	Maximum differential pressure is limited to the PMO	
Designed for a maximum cold hydraulic test pressure of 105 bar g		



## Materials

No. Part		Material	
1	Body	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
2	Cap	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
3	Ball	Stainless steel	AISI 316
4	Stem	Stainless steel	AISI 316
5	Seat	Virgin PTFE	
6	Stem seal	Reinforced PTFE antistatic	
7	Separator	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
8	Spring washer	Stainless steel	AISI 301
9	Nut	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
10	Name-plate (Not shown)	Stainless steel	AISI 430
11	Stem nut	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
12	Lever	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
14	Grip	Vinyl orange	
15	Bolts	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
16	Nuts	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
17	Studs	Stainless steel	AISI 31
<b>Note:</b> Item 17 can not be shown as it is only applicable to welded versions			
18	Stop screw	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
19	Body/cap gasket - 'O' ring	EPDM geothermal	
20	Nut locker	Stainless steel	AISI 316
21	Lockable handle	M10Vi2 ISO	Zinc plated carbon steel
		M10Vi3 ISO	Stainless steel
		M10Vi4 ISO	Stainless steel
22	Stem seal	Stainless steel	
23	Lock-plate	Stainless steel	AISI 304L

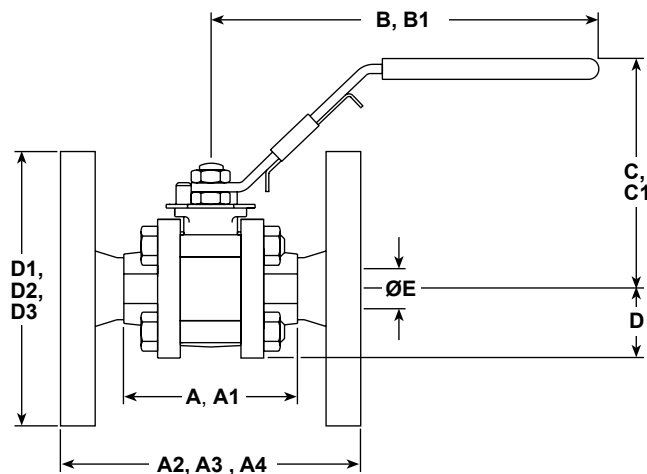
**Dimensions (approximate) in mm**

**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 M10Vi2FB 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" M10Vi2FB ISO ball valve.

