



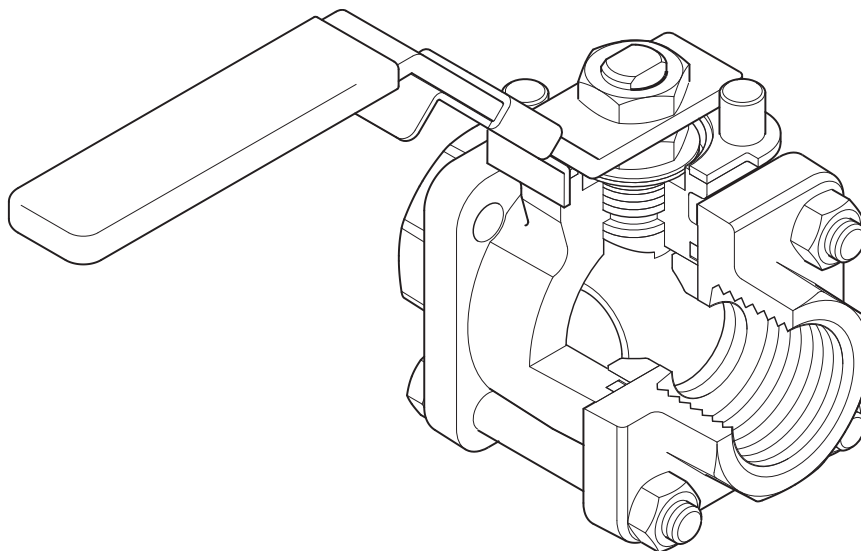
## M10Ti ISO Ball Valve DN $\frac{1}{4}$ " to DN $2\frac{1}{2}$ "

### Description

The M10Ti 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 has been specially designed for applications that cannot use Teflon, for example the tobacco industry. The seat and seals are of UHMWPE (Ultra High Molecular Weight Polyethylene).

### 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

**M10Ti2 ISO** Zinc plated carbon steel body and caps.


**M10Ti3 ISO** Stainless steel body and caps.

**M10Ti4 ISO** Complete stainless steel construction.

**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 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 (ie: 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)	
Antistatic device (optional)	Complies with ISO 7121 and BS 5351

### 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, ASME (ANSI) Class 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

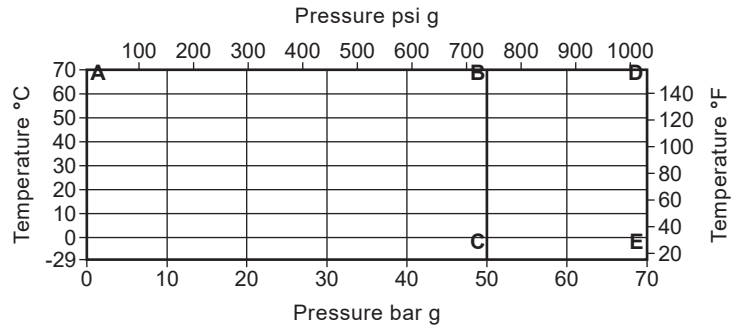
BSP, BSPT, NPT, BW, SW

#### Flanged

DN15 to DN65

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

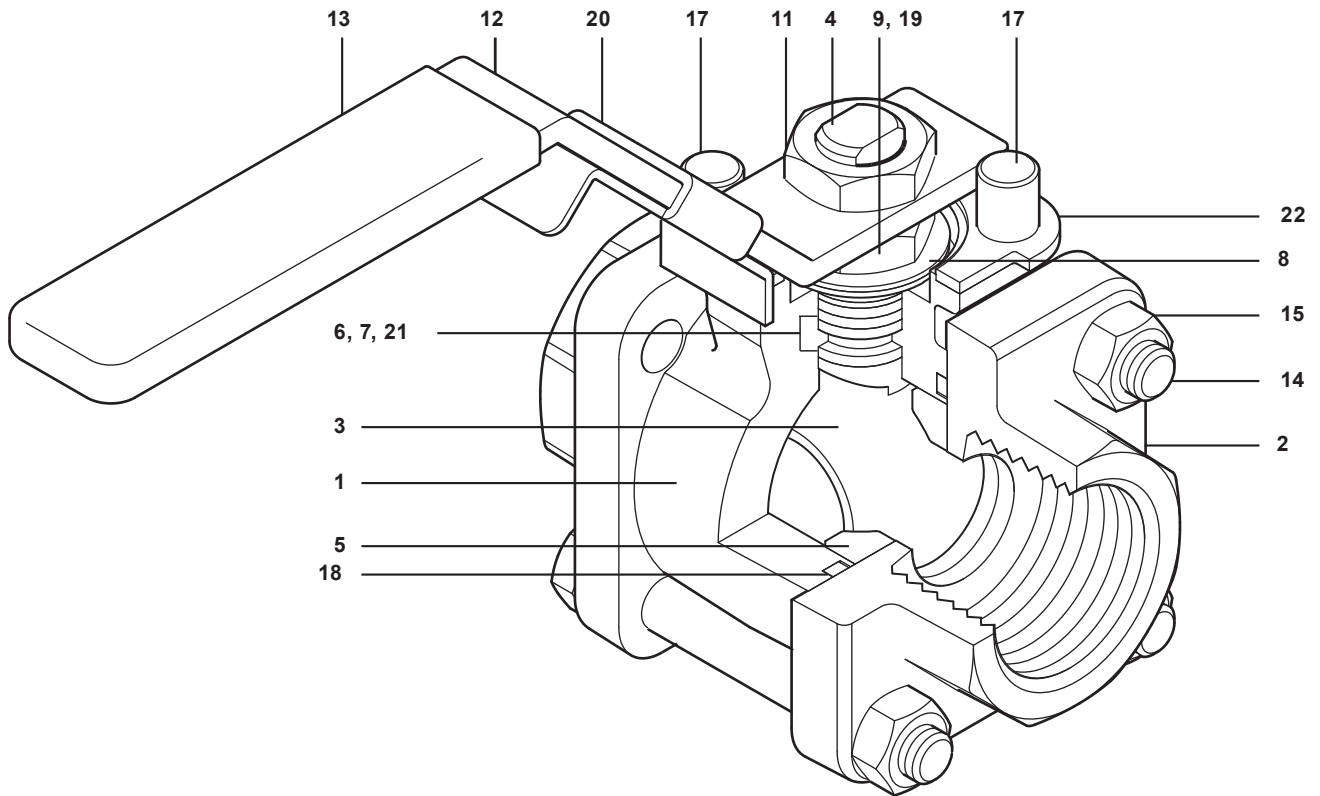
## Pressure/temperature limits



**A-D-E** ¼" to 1½" FB and RB, and 2" RB

**A-B-C** 2" FB and 2½" RB

PMA	Maximum allowable pressure	70 bar g @ 70 °C
TMA	Maximum allowable temperature	70 °C @ 70 bar g
	Minimum allowable temperature	-29 °C
PMO	Maximum operating pressure for saturated steam service	70 bar g
TMO	Maximum operating temperature	70 °C @ 70 bar g
	Minimum operating temperature	-29 °C
<b>Note:</b> For lower operating temperatures consult Spirax Sarco.		
ΔPMX	Maximum differential pressure	70 bar
Designed for a maximum cold hydraulic test pressure of:		105 bar g



## Materials

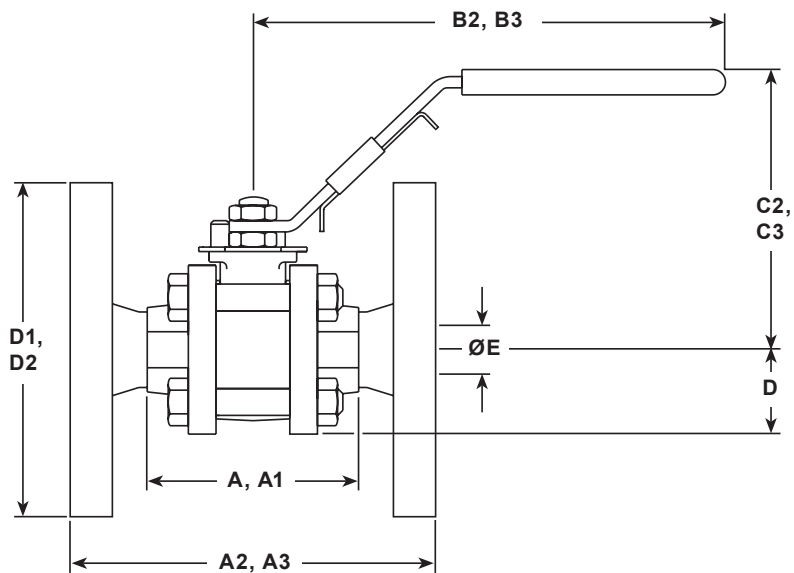
No.	Part		Material	
1	Body	M10Ti2 ISO	Zinc plated carbon steel	ASTM A105
		M10Ti3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Ti4 ISO		
2	Cap	M10Ti2 ISO	Zinc plated carbon steel	ASTM A105
		M10Ti3 ISO	Stainless steel	ASTM A 182 F 316L
		M10Ti4 ISO		
3	Ball		Stainless steel	AISI 316
4	Stem		Stainless steel	AISI 316
5	Seat		UHMWPE	
6	Stem seal		UHMWPE	
7	Separator	M10Ti2 ISO	Zinc plated carbon steel	SAE 1010
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 316
8	Belleville washer		Stainless steel	AISI 301
9	Lower stem nut	M10Ti2 ISO	Zinc plated carbon steel	SAE 1010
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 304
10	Name-plate - DN (Not shown)		Stainless steel	AISI 430
11	Upper stem nut	M10Ti2 ISO	Zinc plated carbon steel	SAE 1010
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 304
12	Lever	M10Ti2 ISO	Zinc plated carbon steel	SAE 1010
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 316
13	Grip		Vinyl light blue	
14	Bolts	M10Ti2 ISO	Zinc plated carbon steel	Grade 5
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 304
15	Nuts	M10Ti2 ISO	Zinc plated carbon steel	SAE 1010
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 304
16	Studs	M10Ti4 ISO	Stainless steel	AISI 316
<b>Note:</b> Item 16 can not be shown as it is only applicable to welded versions				
17	Stop screw	M10Ti2 ISO	Zinc plated carbon steel	SAE 12L 14
		M10Ti3 ISO		
		M10Ti4 ISO	Stainless steel	AISI 304
18	Body/cap 'O' ring		Geothermal	
19	Nut locker		Stainless steel	AISI 316
20	Lockable handle		Stainless steel	AISI 316
21	Stem seal		Stainless steel	
22	Lock-plate		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
2"	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"
<b>Reduced bore</b>	5	6.8	6	10	27	49	70	103	168
<b>Full bore</b>	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"	2"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
<b>Reduced bore</b>	3.25	3.25	3.25	5.50	13.25	20	50	60	75
<b>Full bore</b>	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 ½" screwed BSP M10Ti2FB 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 spare

Seat, seals and body gasket set	5, 6, 18, 21
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#### How to order spares

Always order spares by using the description given in the column headed 'Available spare' and state the size and type of ball valve.

**Example:** 1 - Seat, seals and body gasket set for a Spirax Sarco ½" M10Ti2FB ISO ball valve.

