

spirax
sarco
M33HT ISO

TI-P133-91
CMGT Issue 3

Full Bore Ball Valve for the Tobacco Industry
DN50 to DN200 Flanged ASME 150 and ASME 300


Description

The M33HT ISO is a full bore, two-piece body, ball valve with floating ball and has ISO mounting, as standard. As a main feature the valve has a special ball which has received a surface hardening and also has benefits from having virgin PEEK seats. The M33HT ISO has been designed for use as an isolating valve, not a control valve, and can be used in Teflon free steam applications such as the Tobacco Industry. It is not recommended for gases applications.

Available types

M33HT2 ISO	Zinc plated carbon steel body, Virgin PEEK seats.
M33HT3 ISO	Stainless steel body, Virgin PEEK seats.

Standards

This product fully complies with the requirements of the Pressure Equipment Directive (PED) and carries the  mark when so required.

Certification

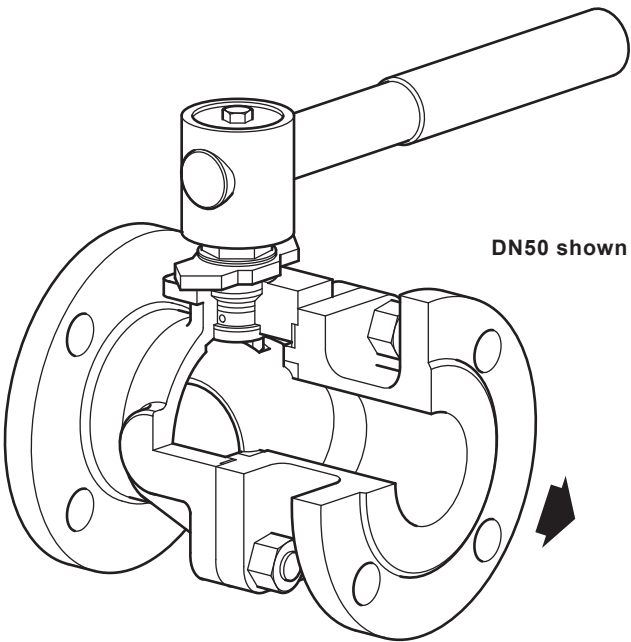
This product is available with certification to EN 10204 3.1.
Note: All certification/inspection requirements must be stated at the time of order placement.

Options

- Hollow ball for DN150 and DN200 sizes - Not API 6D rated.
- Self-venting ball.
- Ring joint flanges.
- Extended stems to allow full insulation.
- Operation by pneumatic actuator BVA300 series for all sizes.
- Operation by pneumatic actuator BVA300 series and declutchable gearbox.
- Operation by gearbox.
- Lockable handle.
- Materials according to NACE MR0175.
- Relief valve.
- Drain plug.

Sizes and pipe connections

DN50, DN65, DN80, DN100, DN150 and DN200.
Standard flange ASME 150 and ASME 300 with face-to-face dimensions according to ASME B 16.10.

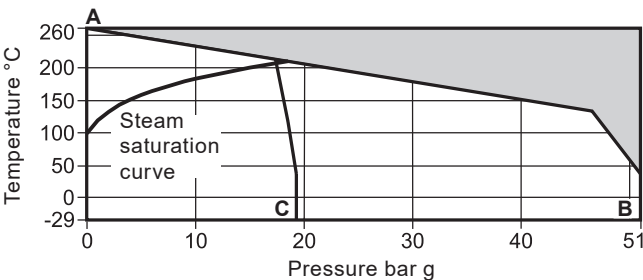


Pipeline ancillaries
Ball valves

Technical data

Flow characteristic	Modified linear
Port	Full bore
Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A) and BS 5351	
Antistatic device	Complies with ISO 7121 and BS 5351

Pressure/temperature limits



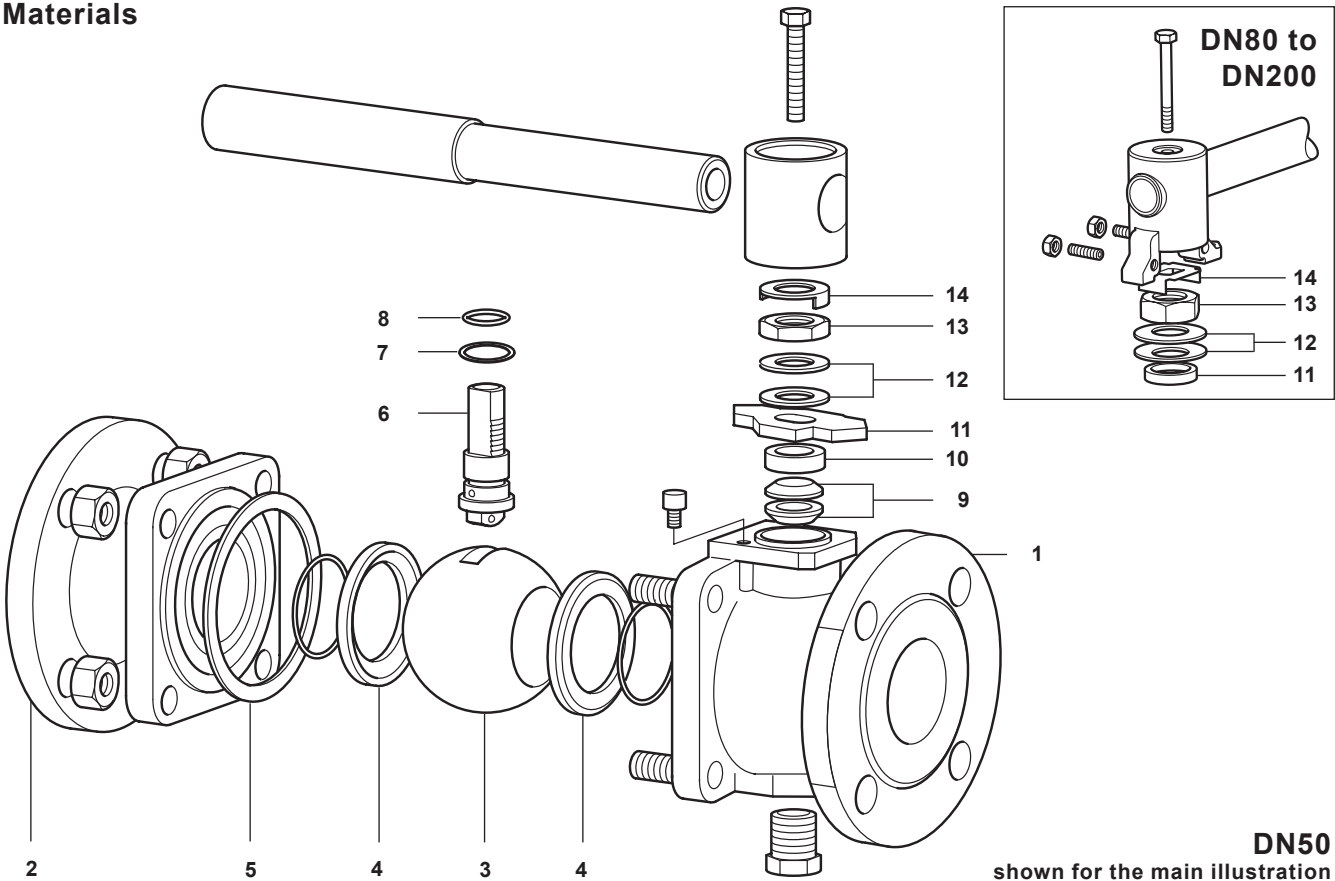
The product **must not** be used in this region.

A - B Flanged ASME 300

A - C Flanged ASME 150

Body design conditions		ASME 150 and ASME 300
PMA	Maximum allowable pressure	ASME 150 19 bar g @ 38 °C
		ASME 300 51 bar g @ 38 °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
Note: For lower operating temperatures consult Spirax Sarco		
Δ PMX Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure of:	ASME 150	28.5 bar g
	ASME 300	76.5 bar g

Materials

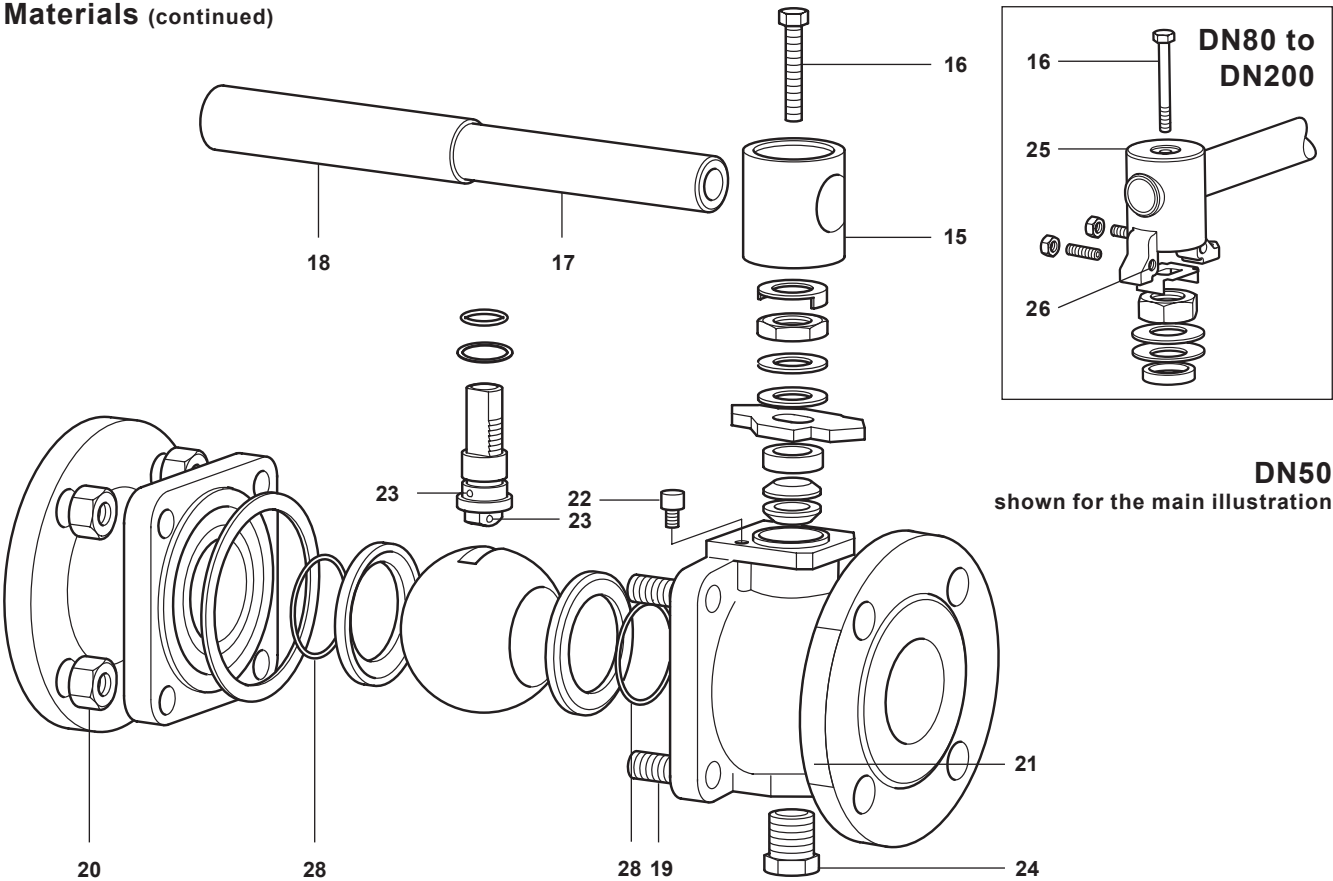


No.	Part	Material		
1	Body	M33HT2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33HT3 ISO	Stainless steel	ASTM A 351 CF8M
2	Insert	M33HT2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33HT3 ISO	Stainless steel	ASTM A 351 CF8M
3	Solid ball		Stainless steel	AISI 316 hardened surface
4	Seat		Virgin PEEK	
5	Body gasket		Graphite with metal insert	
6	Stem	DN50 to DN80	Duplex stainless steel	AISI 318 LN
		DN100 to DN200	Stainless steel	AISI 316/AISI 420
7	Lower stem seal		Virgin PEEK	
8	Stem 'O' ring		EPDM	Geothermal
9	Upper stem packing		Graphite	
10	Separator		Zinc plated carbon steel	SAE 1010
11	Stop plate with indicator for DN50		Zinc plated carbon steel	SAE 1010
12	Belleville stem washer		Carbon steel/stainless steel	
13	Gland nut		Zinc plated carbon steel	SAE 1010/SAE 12L14
14	Locking plate		Stainless steel	AISI 304

For parts 15 to 28, go to page 4

Pipeline ancillaries
Ball valves

Materials (continued)



No.	Part	Material	
15	Adaptor DN50	Zinc plated SG iron	
16	Adaptor screw	Zinc plated carbon steel	Grade 5
17	Handle	Zinc plated carbon steel	SAE 1010
18	Grip	Vinyl	Yellow
19	Stud	Zinc plated alloy steel	A193-B7
20	Nut	Zinc plated carbon steel	A194-2H
21	Nameplate	Stainless steel	AISI 430
22	Stop screw	Zinc plated carbon steel	SAE 12L14
23	Antistatic device ball	Stainless steel	AISI 302
24	Drain plug (optional)	M33HT2 ISO	Carbon steel
		M33HT3 ISO	Stainless steel
25	Adaptor with indicator for DN65 to DN200	Zinc plated SG iron	
26	Stop screw for DN65 to DN200	Zinc plated carbon steel	SAE 12L14
27	Lifting eye (DN200 only) - not shown	Zinc plated carbon steel	SAE 1010
28	Seat 'O' ring	EPDM	Geothermal

For parts 1 to 14, go to page 3

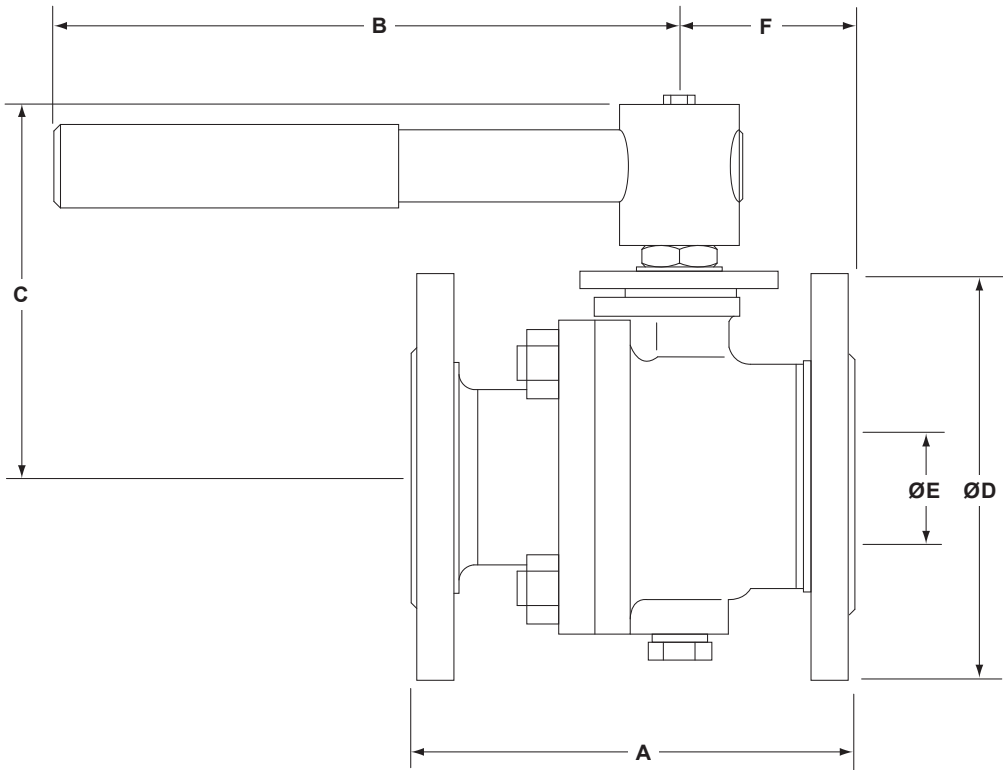
Dimensions/weights (approximate) in mm and kg

Flanged ASME 150

Size	A	B	C	D	E	F	Weight
DN50	178	275	140	152	50	70	10.8
DN65	190	415	160	178	63	82.5	16.2
DN80	203	515	168	191	74	87	20.0
DN100	229	700	202	229	100	106	35.3
DN150	394	850	283	279	150	197	80.2
DN200	457	950	317	343	201	228	140.0

Flanged ASME 300

Size	A	B	C	D	E	F	Weight
DN50	216	275	140	165	50	85.5	14.8
DN65	241	415	160	191	63	90.5	22.8
DN80	283	515	168	210	74	99	30.0
DN100	305	700	202	254	100	122	50.0
DN150	403	850	283	318	150	179	111.2
DN200	502	950	317	381	201	213	185.3



Pipeline ancillaries

Ball valves

K_v values

DN	50	65	80	100	150	200
K _v	300	430	750	1030	2410	4800

For conversion:
C_v (UK) = K_v x 0.963
C_v (US) = K_v x 1.156

Operating torque (N m)

DN	50	65	80	100	150	200
N m	90	120	190	350	750	1150

The torque figures shown are for a valve at maximum operating pressure that is operated frequently. 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.

Welding

Only the models that have connections designed for welding (SW, BW, Imperial Tube connections) should be welded. Carbon steel valves with flanged connections must not be welded to avoid damages to the valve and/or injury to personnel.

How to order

Specify:	Size	DN50, DN65, DN80, DN100, DN150, DN200
	Model	M33HT_ISO
	Body material	2 = Carbon steel
		3 = Stainless steel
	Flanges	ASME 150 or ASME 300

Example: 1 off Spirax Sarco DN50 flanged ASME 150 M33HT2 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.

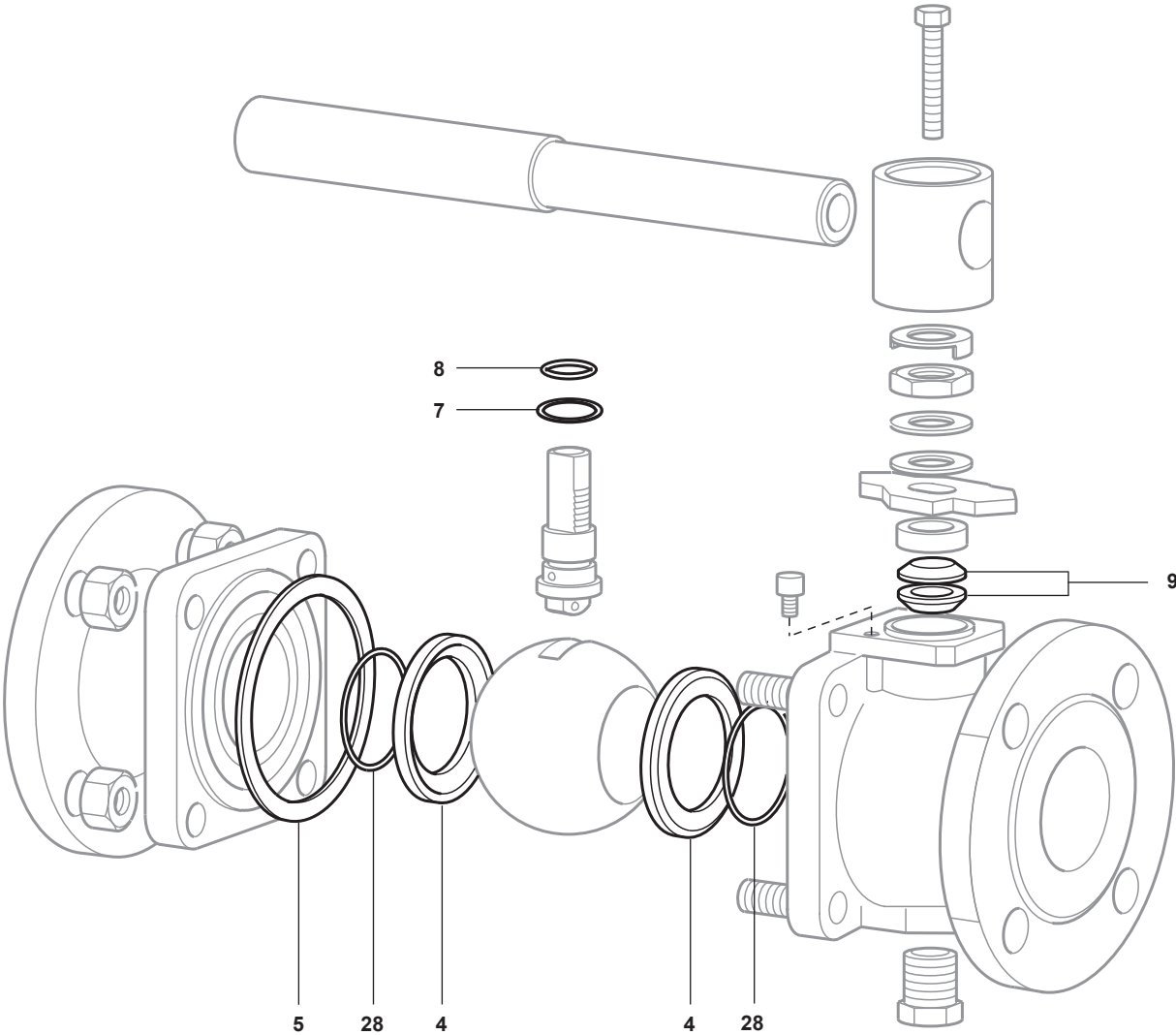
Available spares

Seats, body gasket, lower stem seal, upper stem packing, stem 'O' ring and seat 'O' ring set	4, 5, 7, 8, 9, 28
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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 - Seats, body gasket, lower stem seal, upper stem packing, stem 'O' ring and seat 'O' ring set for a Spirax Sarco DN80 flanged ASME 150 M33HT2 ISO ball valve.



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M33T ISO

TI-P133-92
CMGT Issue 4

Full Bore Ball Valve for the Tobacco Industry DN50 to DN200 Flanged ASME 150 and 300

Description

The M33T ISO is a full bore, two-piece body, ball valve with floating ball and has ISO mounting in accordance with ISO 5211, as standard. As a main feature the valve has UHMWPE seats.

The M33T ISO has been designed for use as an isolating valve, not a control valve, and can be used in Teflon free process applications at moderate temperatures. The M33T ISO is not suitable for steam applications.


It is not recommended for gases applications.

Available types

M33T2 ISO Zinc plated carbon steel body, UHMWPE seats.

M33T3 ISO Stainless steel body, UHMWPE seats.

Standards

This product fully complies with the requirements of the Pressure Equipment Directive (PED) and carries the  mark when so required.

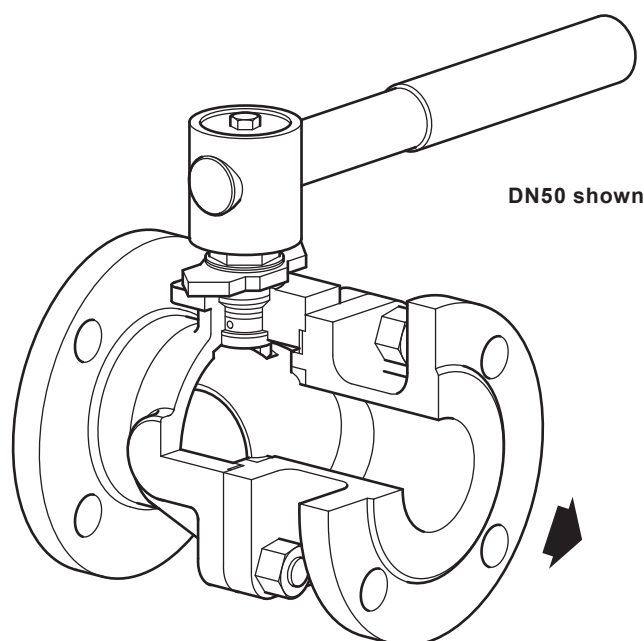
Certification

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

- Hollow ball for DN150 and DN200 sizes.
- Self-venting ball.
- Ring joint flanges.
- Extended stems to allow full insulation.
- Operation by pneumatic actuator BVA300 series for all sizes.
- Operation by pneumatic actuator BVA300 series and declutchable gearbox.
- Operation by gearbox.
- Lockable handle.
- Materials according to NACE MR0175
- Relief valve.
- Drain plug.



Sizes and pipe connections

DN50, DN65, DN80, DN100, DN150 and DN200.

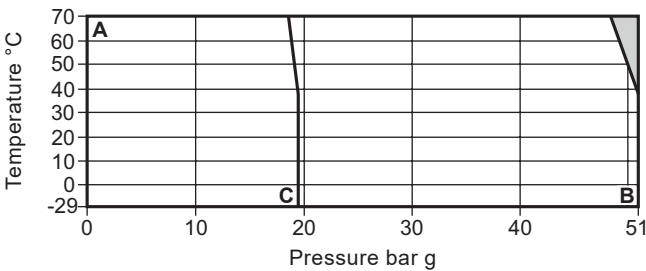
Standard flange ASME 150 and ASME 300 with face-to-face dimensions according to ASME B 16.10.

Pipeline ancillaries
Ball valves

Technical data

Flow characteristic	Modified linear
Port	Full bore
Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A) and BS 5351	
Antistatic device	Complies with ISO 7121 and BS 5351

Pressure/temperature limits



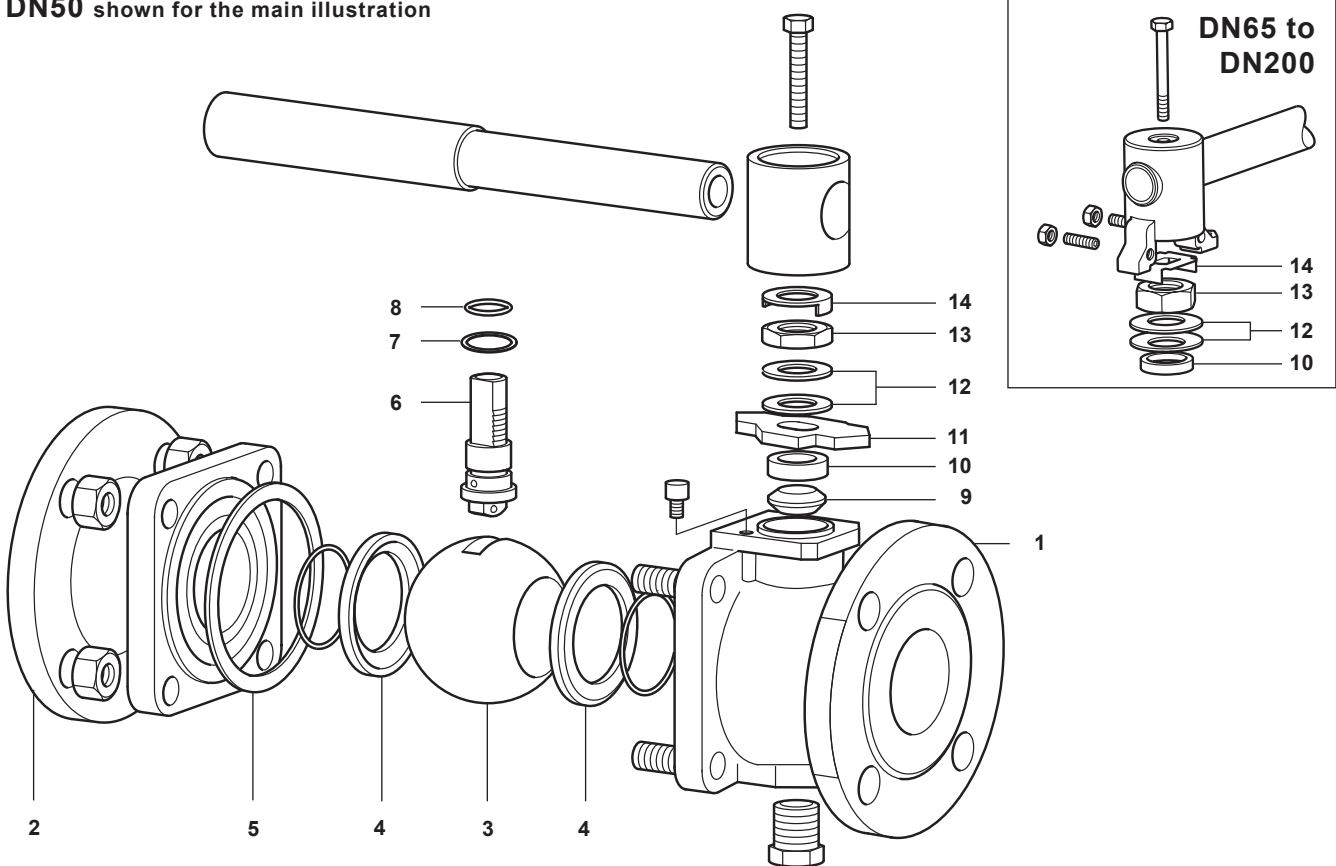
The product **must not** be used in this region.

A - B Flanged ASME 300

A - C Flanged ASME 150

Body design conditions		ASME 150 and ASME 300	
PMA	Maximum allowable pressure	ASME 150	19 bar g @ 38 °C
		ASME 300	51 bar g @ 38 °C
TMA	Maximum allowable temperature	ASME 150	70 °C @ 18 bar g
		ASME 300	70 °C @ 48 bar g
Minimum allowable temperature			-29 °C
PMO	Maximum operating pressure	ASME 150	19 bar g @ 38 °C
		ASME 300	51 bar g @ 38 °C
TMO	Maximum operating temperature	ASME 150	70 °C @ 18 bar g
		ASME 300	70 °C @ 48 bar g
Minimum operating temperature			-29 °C
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:		ASME 150	28.5 bar g
		ASME 300	76.5 bar g

DN50 shown for the main illustration



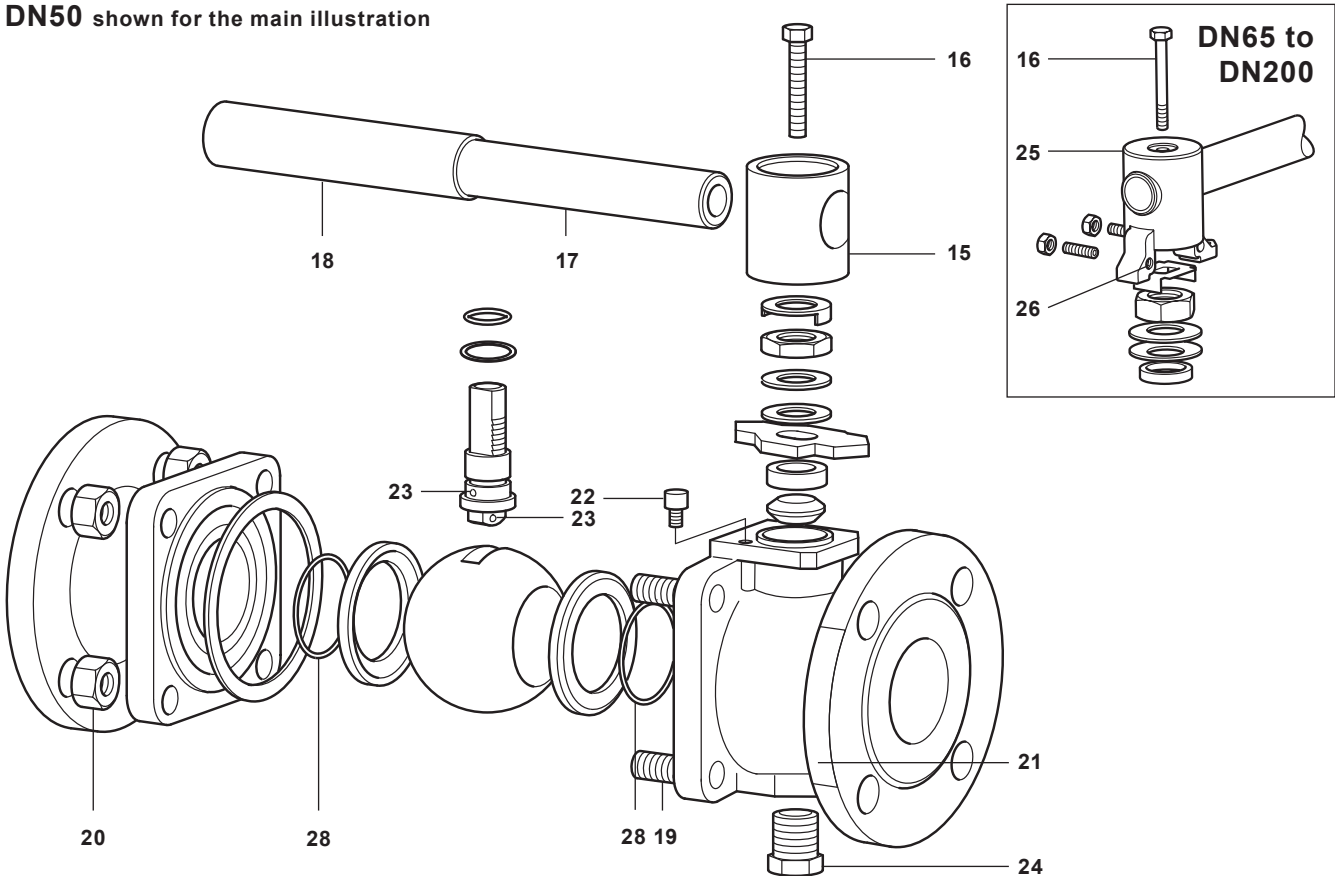
Materials

No.	Part	Material		
1	Body	M33T2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33T3 ISO	Stainless steel	ASTM A 351 CF8M
2	Insert	M33T2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33T3 ISO	Stainless steel	ASTM A 351 CF8M
3	Solid ball	Stainless steel		AISI 316
4	Seats	UHMWPE		
5	Body gasket	Graphite with metal insert		
6	Stem	Stainless steel		AISI 316/AISI 420
7	Lower stem seal	UHMWPE		
8	Stem 'O' ring	EPDM		Geothermal
9	Upper stem packing	UHMWPE		
10	Separator	Zinc plated carbon steel		SAE 1010
11	Stop plate with indicator for DN50	Zinc plated carbon steel		SAE 1010
12	Belleville stem washer	Carbon steel/stainless steel		
13	Gland nut	Zinc plated carbon steel		SAE 1010/SAE 12L14
14	Locking plate	Stainless steel		AISI 304

For parts 15 to 28, go to page 4

Pipeline ancillaries
Ball valves

DN50 shown for the main illustration



Materials

No.	Part	Material	
15	Adaptor DN50	Zinc plated SG iron	
16	Adaptor screw	Zinc plated carbon steel	Grade 5
17	Handle	Zinc plated carbon steel	SAE 1010
18	Grip	Vinyl	Light blue
19	Stud	Zinc plated alloy steel	A193-B7
20	Nut	Zinc plated carbon steel	A194-2H
21	Nameplate	Stainless steel	AISI 430
22	Stop screw	Zinc plated carbon steel	SAE 12L14
23	Antistatic device ball	Stainless steel	AISI 302
24	Drain plug (optional)	M33T2 ISO	Carbon steel
		M33T3 ISO	Stainless steel
25	Adaptor with indicator for DN65 to DN200	Zinc plated SG iron	
26	Stop screw for DN65 to DN200	Zinc plated carbon steel	SAE 12L14
27	Lifting eye (DN200 only) - not shown	Zinc plated carbon steel	SAE 1010
28	Seat 'O' ring	EPDM	Geothermal

For parts 1 to 14, go to page 3

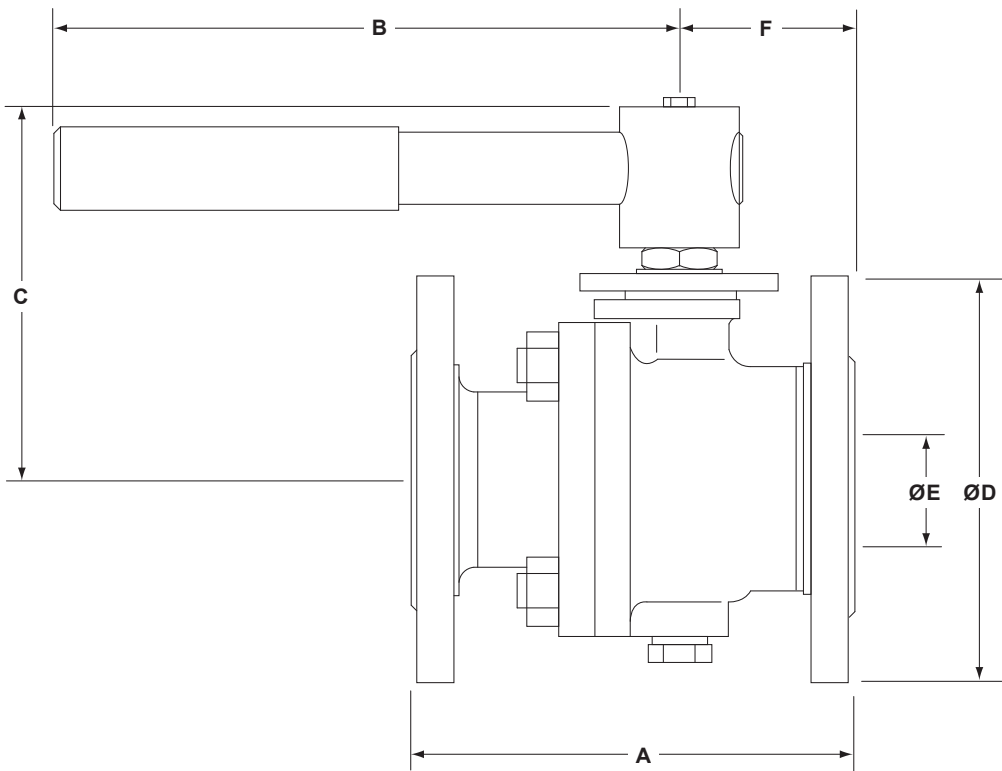
Dimensions/weights (approximate) in mm and kg

Flanged ASME 150

Size	A	B	C	D	E	F	Weight
DN50	178	275	140	152	50	70	10.8
DN65	190	415	160	178	63	82.5	16.2
DN80	203	515	168	191	74	87	20.0
DN100	229	700	202	229	100	106	35.3
DN150	394	850	283	279	150	197	80.2
DN200	457	950	317	343	201	228	140.0

Flanged ASME 300

Size	A	B	C	D	E	F	Weight
DN50	216	275	140	165	50	85.5	14.8
DN65	241	415	160	191	63	90.5	22.8
DN80	283	515	168	210	74	99	30.0
DN100	305	700	202	254	100	122	50.0
DN150	403	850	283	318	150	179	111.2
DN200	502	950	317	381	201	213	185.3



Pipeline ancillaries

Ball valves

K_v values

DN	50	65	80	100	150	200
K _v	300	430	750	1030	2410	4800

For conversion:
C_v (UK) = K_v x 0.963
C_v (US) = K_v x 1.156

Operating torque (N m)

DN	50	65	80	100	150	200
N m	75	120	190	250	720	1150

The torque figures shown are for a valve at maximum operating pressure that is operated frequently. 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.

Welding

Only the models that have connections designed for welding (SW, BW, Imperial Tube connections) should be welded. Valves with flanged connections must not be welded to avoid damages to the valve and/or injury to personnel.

How to order

Specify:	Size	DN50, DN65, DN80, DN100, DN150, DN200
	Model	M33T_ISO
	Body material	2 = Carbon steel
		3 = Stainless steel
	Flanges	ASME 150 or ASME 300

Example: 1 off Spirax Sarco DN50 flanged ASME 150 M33T2 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 spares

Seats, body gasket, lower stem seal, upper stem packing, stem 'O' ring and seat 'O' ring set	4, 5, 7, 8, 9, 28
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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 - Seats, body gasket, lower stem seal, upper stem packing, stem 'O' ring and seat 'O' ring set for a Spirax Sarco DN80 flanged ASME 150 M33T2 ISO ball valve.

