



TI-P133-64
CMGT Issue 5

M33F ISO Full Bore Ball Valve API 6D Firesafe API 607 DN50 to DN200 ANSI 150 and ANSI 300

Description

Produced in accordance with API 6D the M33F ISO full bore two-piece body ball valve with floating ball, has an API 607 firesafe proof design. It is designed for use as an isolating valve, not a control valve. It can be used with the majority of industrial fluids on applications, which include steam, condensate, water, oil, and other fluids within its operating range. It is not recommended for gases applications. The M33F ISO ANSI has as standard an ISO mounting pad in accordance with ISO 5211.

Firesafe design


In normal working conditions, the ball rests against two PDR 0.8 seats ensuring total closure. When the valve is submitted to temperature above the limits the seats can withstand, the seat becomes deformed and renders to extrusion. When the seats have been totally destroyed, the ball will come to rest firmly against the metal seat in the cap, producing a metal-to-metal closing. This secondary seat in the valve cap ensures the valve will operate to international API 607 standards.

Available types

M33F2 ISO Zinc plated carbon steel body, PDR 0.8 seats (for high temperatures) and ISO mounting.

M33F3 ISO Stainless steel body, PDR 0.8 seats (for high temperatures) and ISO mounting.

Standards

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

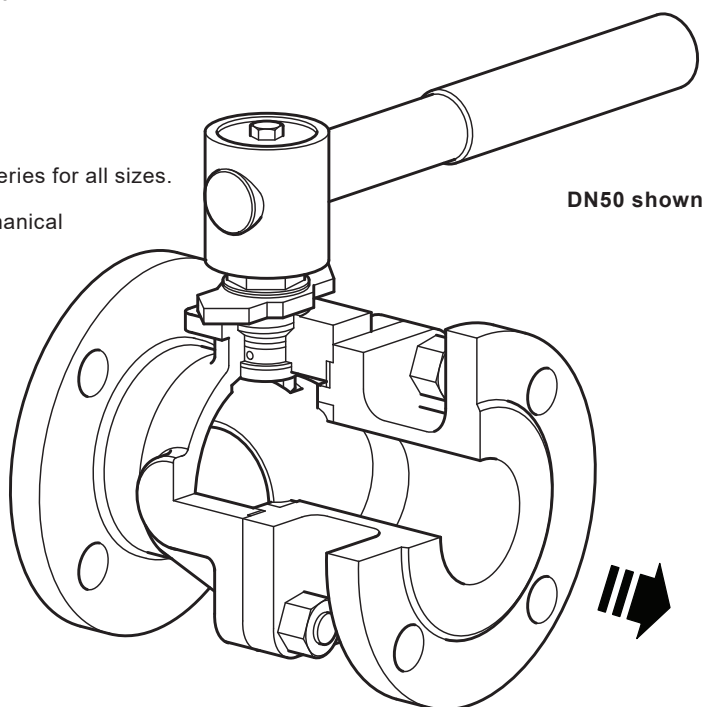
Certification

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 (6") and DN200 (8") sizes - Not API 6D rated.
- Self-venting ball.
- Ring joint flanges.
- Extended stems to allow full insulation.
- Operation by mechanical or pneumatic actuator BVA300 series for all sizes.
- Operation by pneumatic actuator BVA300 series and mechanical declutchable actuator.
- Lockable handle.
- Materials according to NACE MR 0175.
- Surge valve.
- Drain plug.



Sizes and pipe connections

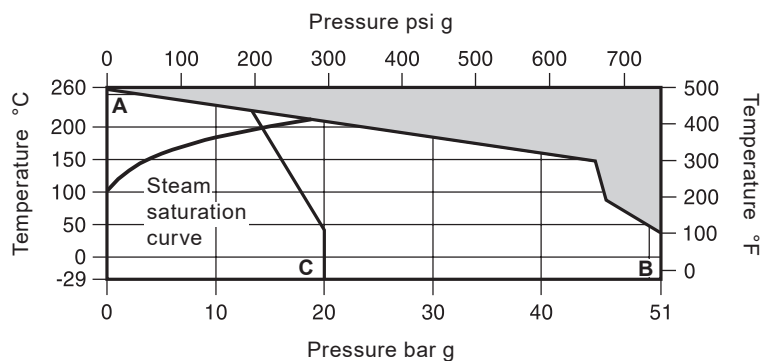
DN50, DN65, DN80, DN100, DN150 and DN200 (2", 2½", 3", 4", 6", and 8").

Standard flange ANSI B 16.5 Class 150 and 300 with face-to-face dimensions according to B 16.10.

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

Pressure/temperature limits



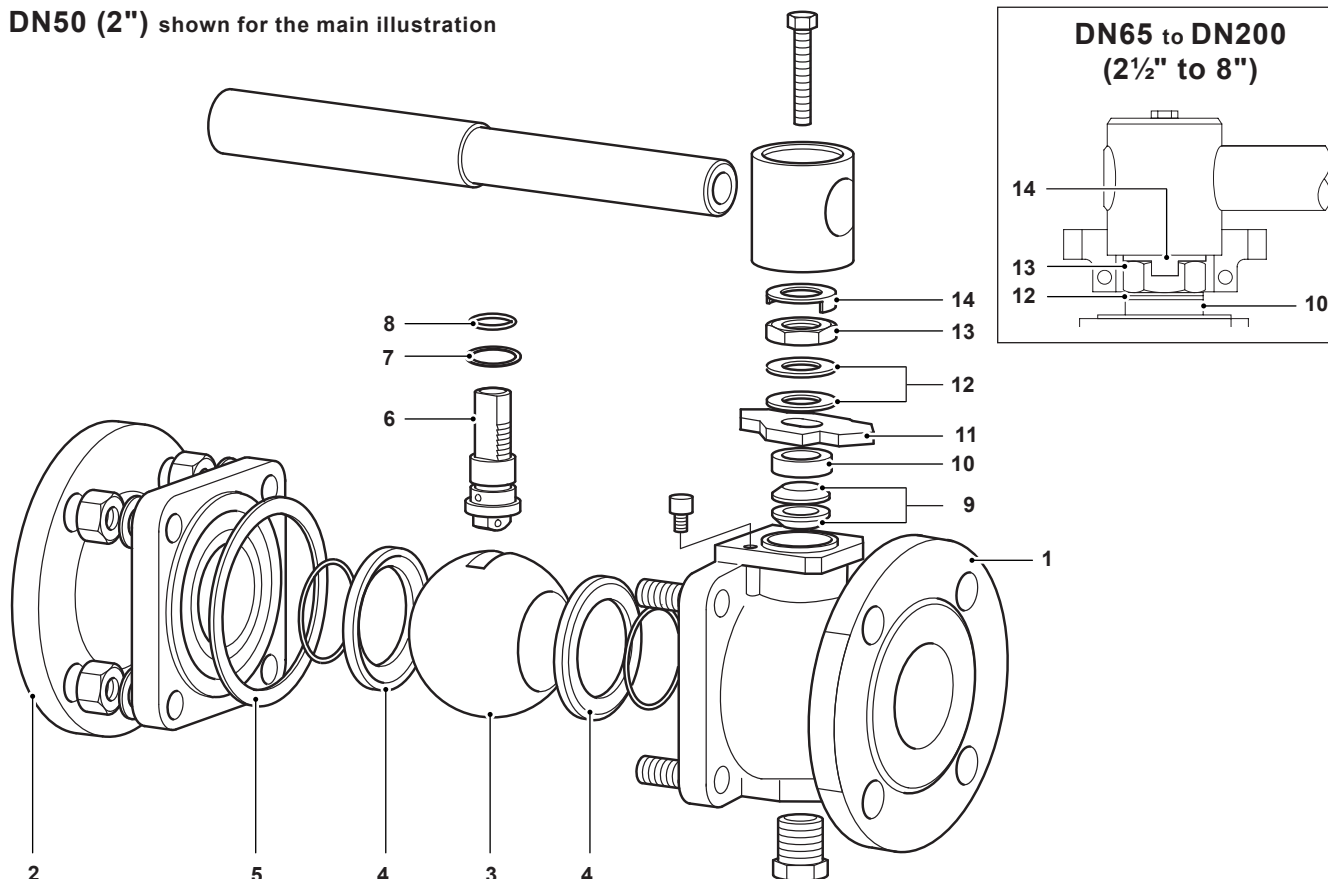
The product **must not** be used in this region.

A - B Flanged ASME 300.

A - C Flanged ASME 150.

Body design conditions		ASME B 16.34	
PMA	Maximum allowable pressure	ASME 150	20 bar g @ 38 °C 290 psi g @ 100 °F
		ASME 300	51 bar g @ 38 °C 740 psi g @ 100 °F
TMA	Maximum allowable temperature		260 °C @ 0 bar g 500 °F @ 0 psi g
Minimum allowable temperature			-29 °C -20 °F
PMO	Maximum operating pressure for saturated steam service	17.5 bar g	254 psi g
TMO	Maximum operating temperature	260 °C @ 0 bar g	500 °F @ 0 psi g
Minimum operating temperature		-29 °C	-20 °F
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 413 psi g
		ASME 300	76.5 bar g 1110 psi g

DN50 (2") shown for the main illustration

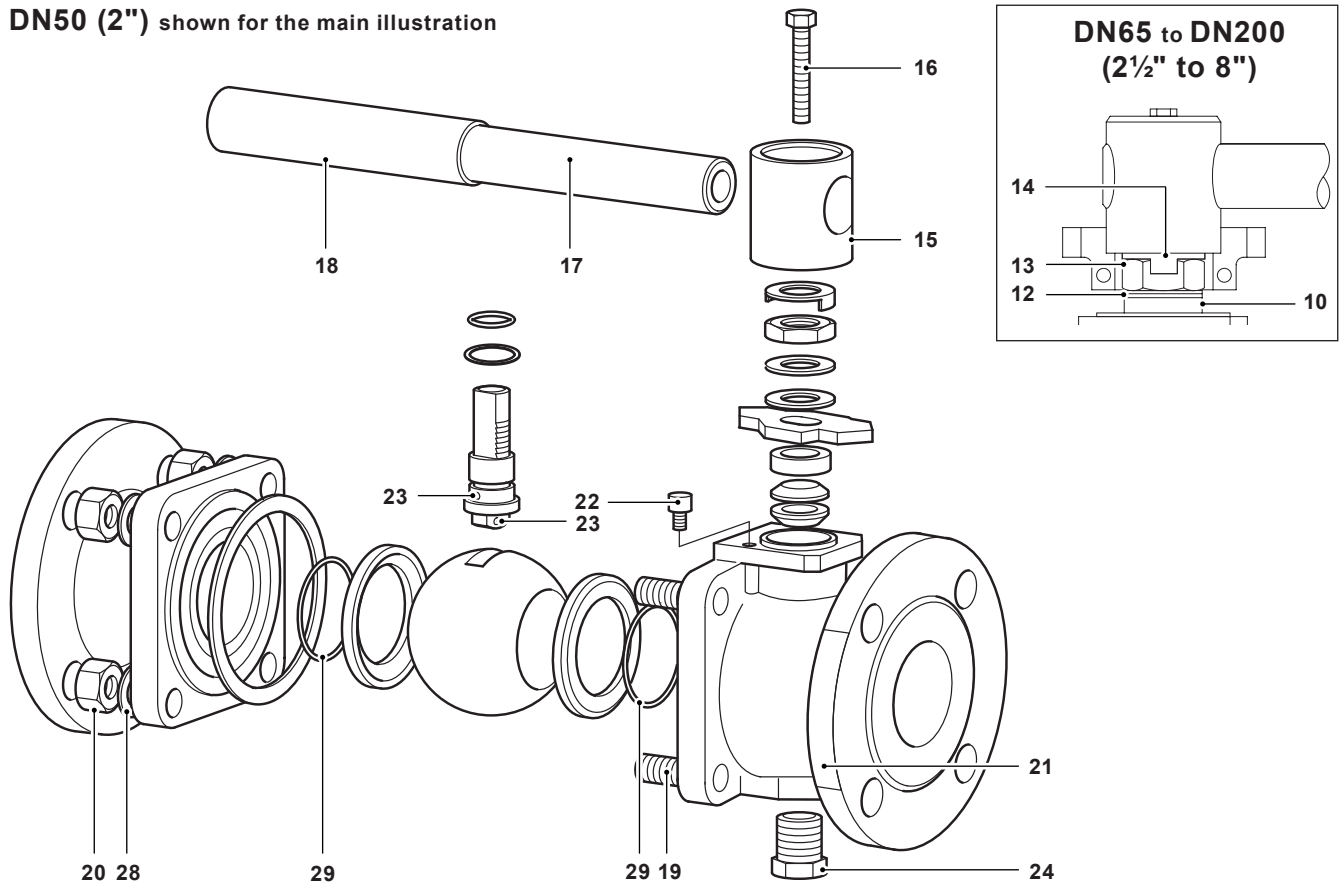


Materials

No.	Part	Material		
1	Body	M33F2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33F3 ISO	Stainless steel	ASTM A 351 CF8M
2	Insert	M33F2 ISO	Zinc plated carbon steel	ASTM A 21 6 WCB
		M33F3 ISO	Stainless steel	ASTM A 351 CF8M
3	Solid ball		Stainless steel	AISI 316
4	Seats		Carbon and graphite R-PTFE	PDR 0.8
5	Body gasket		Graphoil with metal insert	
6	Stem		Stainless steel	AISI 316/AISI 420
7	Lower stem seal		Carbon and graphite R-PTFE	
8	'O' ring		Viton	
9	Upper stem packing		Graphoil	
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		Carbon steel	SAE 12L14
14	Locking plate		Stainless steel	AISI 304

For parts 15 to 29 see page 4

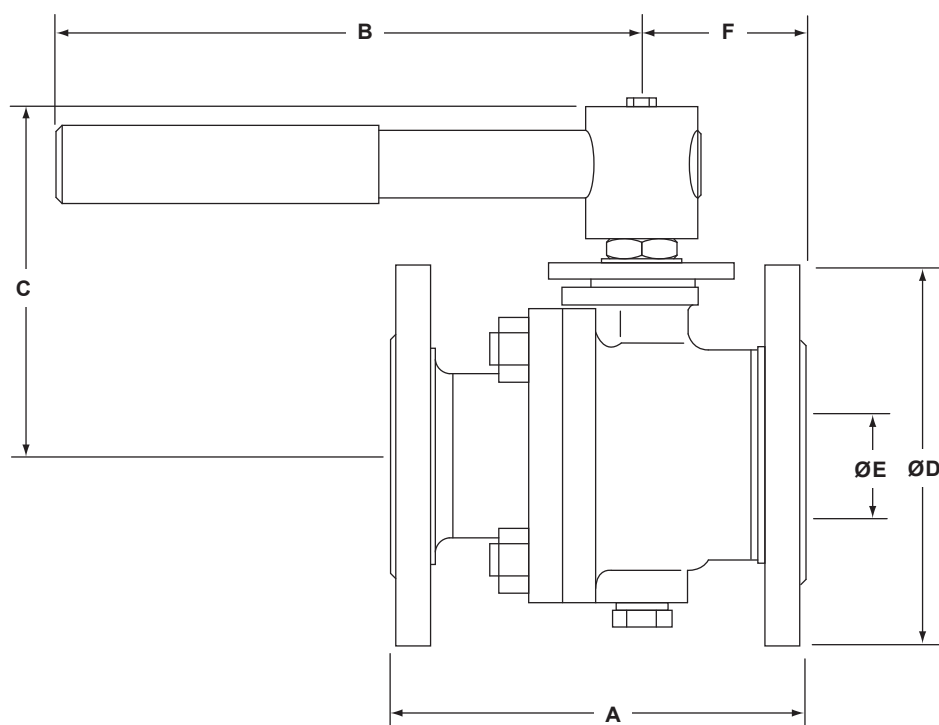
DN50 (2") shown for the main illustration



No.	Part	Material	
15	Adaptor DN50	Zinc plated SG iron	
16	Screw	Carbon steel	Grade 5
17	Handle	Zinc plated carbon steel	SAE 1010
18	Grip	Vinyl (Red)	
19	Stud	Stainless steel	A193-B8
20	Nut	Stainless steel	A194-8MA
21	Photochemical name-plate	Stainless steel	AISI 304
22	Stop screw	Zinc plated carbon steel	SAE 12L14
23	Antistatic device ball	Stainless steel	AISI 304
24	Drain plug (optional)	Carbon steel	
25	Adaptor with indicator for DN65 to DN200	Zinc plated SG iron	
26	Stop screw for DN65 to DN200	Carbon steel	
27	Lifting eye (DN200 only) - not shown	Zinc plated carbon steel	SAE 1010
28	Belleville stud washer	Stainless steel	
29	'O' ring	Viton	

For parts 1 to 14 see page 3

Dimensions/weights (approximate) in mm (inches) and kg (lbs)



Flanged ANSI 150							
Size	A	B	C	D	E	F	Weight
DN50 2"	178 (7)	275 (10.8)	140 (5.5)	152 (6)	50 (2)	70 (2.8)	10.8 (24)
DN65 2½"	190 (7.5)	415 (16.3)	160 (6.3)	178 (7)	63 (2.5)	82.5 (3.2)	16.2 (36)
DN80 3"	203 (8)	515 (20.3)	168 (6.6)	191 (7.5)	74 (2.9)	87 (3.4)	20 (44)
DN100 4"	229 (9)	700 (27.5)	202 (8)	229 (9)	100 (3.9)	106 (4.2)	35.3 (78)
DN150 6"	394 (15.5)	850 (33.5)	283 (11.1)	279 (10.9)	150 (5.9)	197 (7.8)	80.2 (177)
DN200 8"	457 (18)	950 (37.4)	317 (12.5)	343 (13.5)	201 (7.9)	228 (9)	140 (309)
Flanged ANSI 300							
Size	A	B	C	D	E	F	Weight
DN50 2"	216 (8.5)	275 (10.8)	140 (5.5)	165 (6.5)	50 (2)	85.5 (3.4)	14.8 (33)
DN65 2½"	241 (9.5)	415 (16.3)	160 (6.3)	191 (7.5)	63 (2.5)	90.5 (3.6)	22.8 (50)
DN80 3"	283 (11.1)	515 (20.3)	168 (6.6)	210 (8.3)	74 (2.9)	99 (3.9)	30 (66)
DN100 4"	305 (12)	700 (27.5)	202 (8)	254 (10)	100 (3.9)	122 (4.8)	50 (110)
DN150 6"	403 (15.8)	850 (33.5)	283 (11.1)	318 (12.5)	150 (5.9)	179 (7)	111.2 (245)
DN200 8"	502 (19.7)	950 (37.4)	317 (12.5)	381 (15)	201 (7.9)	213 (8.4)	185.3 (409)

Kv values

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

For conversion:

Cv (UK) = Kv x 0.963

Cv (US) = Kv x 1.156

Operating torque (N m)

DN	50	65	80	100	150	200
Nm (lbf ft)	75 (55)	120 (89)	190 (140)	250 (184)	720 (531)	1150 (848)

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.

How to order

	Size	DN50, DN65, DN80, DN100, DN150, DN200
	Model	M33F_ISO
Specify:	Body material	2 = Carbon steel 3 = Stainless steel
	Flanges	ANSI 150 or ANSI 300

Example: 1 off Spirax Sarco DN50 flanged ANSI 150 M33F2 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, stem seals, stem 'O' ring and seat 'O' ring set	4, 5, 7, 8, 9, 29
---	-------------------

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, stems seals and stem 'O' ring set for a Spirax Sarco DN80 flanged ANSI M33F2 ISO ball valve

