



M40Si ISO and M40Vi ISO

Reduced Bore Ball Valves

DN25 to DN200 Flanged ASME 150 and ASME 300

Description

Both the M40Si and M40Vi are reduced bore ball valves, with a single piece body, having ISO mounting as standard. They are designed to be isolating valves, which can be used with the majority of industrial fluids, not control valves.

Available types

M40Si2 ISO Zinc plated carbon steel body, PDR 0.8 seats.

M40Si3 ISO Stainless steel body, PDR 0.8 seats.

M40Vi2 ISO Zinc plated carbon steel body, PTFE seats.

M40Vi3 ISO Stainless steel body, PTFE seats.

Standards

These products fully comply with the requirements of the Pressure Equipment Directive (PED) and carry the  mark when so required.

Certification

These products are available with certification to EN 10204 3.1.

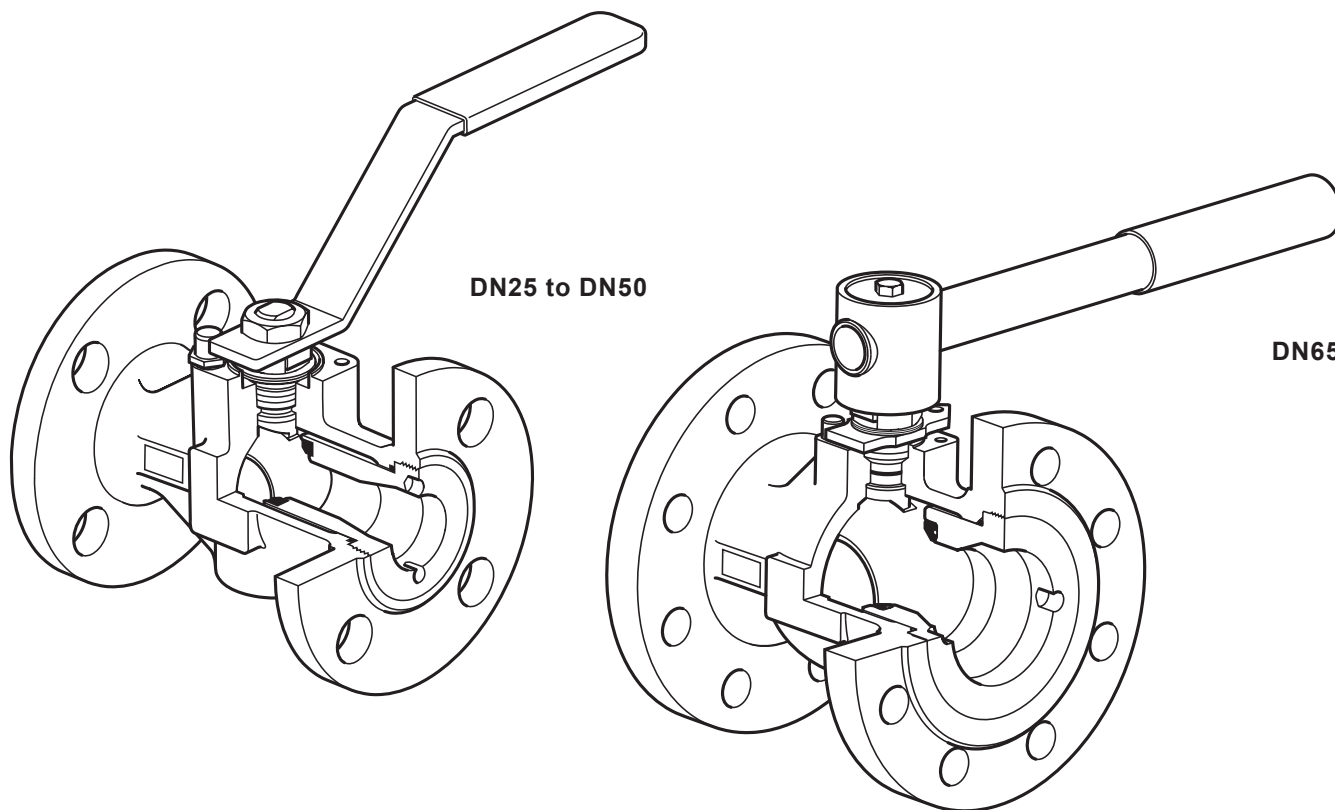
Note: All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

DN25, DN32, DN40, DN50, DN65, DN80, DN100, DN150 and DN200

(1", 1¼", 1½", 2", 2½", 3", 4", 6" and 8").

Standard flanges ASME 150 and ASME 300 with face-to-face dimensions according to ASME B16.10.

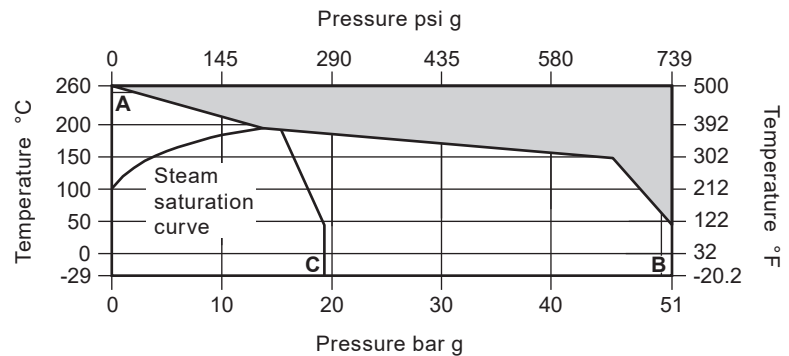


Technical data

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

Pressure/temperature limits

M40Si2 ISO and M40Si3 ISO - PDR 0.8 seats

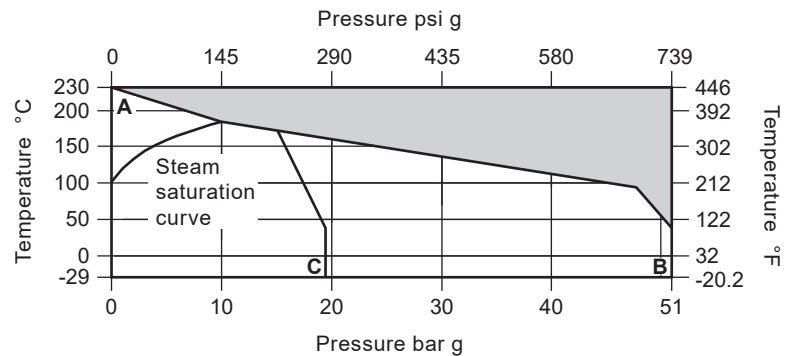


The product **must not** be used in this region.

A - B Flanged ASME 300

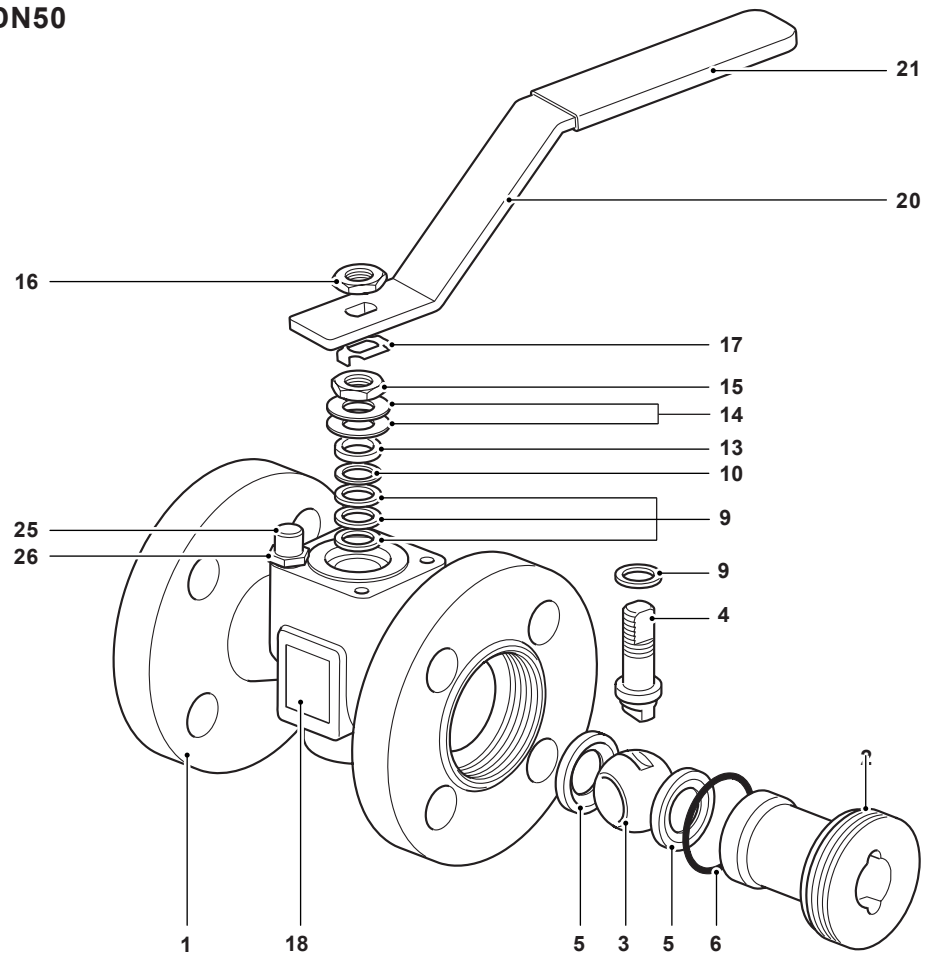
A - C Flanged ASME 150

M40Vi2 ISO and M40Vi3 ISO - PTFE seats



Body design conditions				ASME 150 and ASME 300	
PMA	Maximum allowable pressure		ASME 150	19 bar g @ 38 °C	276 psi g @ 100 °F
			ASME 300	51 bar g @ 38 °C	740 psi g @ 100 °F
TMA	Maximum allowable temperature	M40Si		260 °C @ 0 bar g	500 °F @ 0 psi g
		M40Vi		230 °C @ 0 bar g	446 °F @ 0 psi g
Minimum allowable temperature				-29 °C	-20.2 °F
PMO	Maximum operating pressure for saturated steam service	M40Si	ASME 150	13.8 bar g	200 psi g
			ASME 300	17.5 bar g	254 psi g
		M40Vi		10 bar g	145 psi g
TMO	Maximum operating temperature	M40Si		260 °C @ 0 bar g	500 °F @ 0 psi g
		M40Vi		230 °C @ 0 bar g	446 °F @ 0 psi g
Minimum operating temperature. Note: For lower operating temperatures consult Spirax Sarco				-29 °C	-20.2 °F
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

Materials - DN25 to DN50



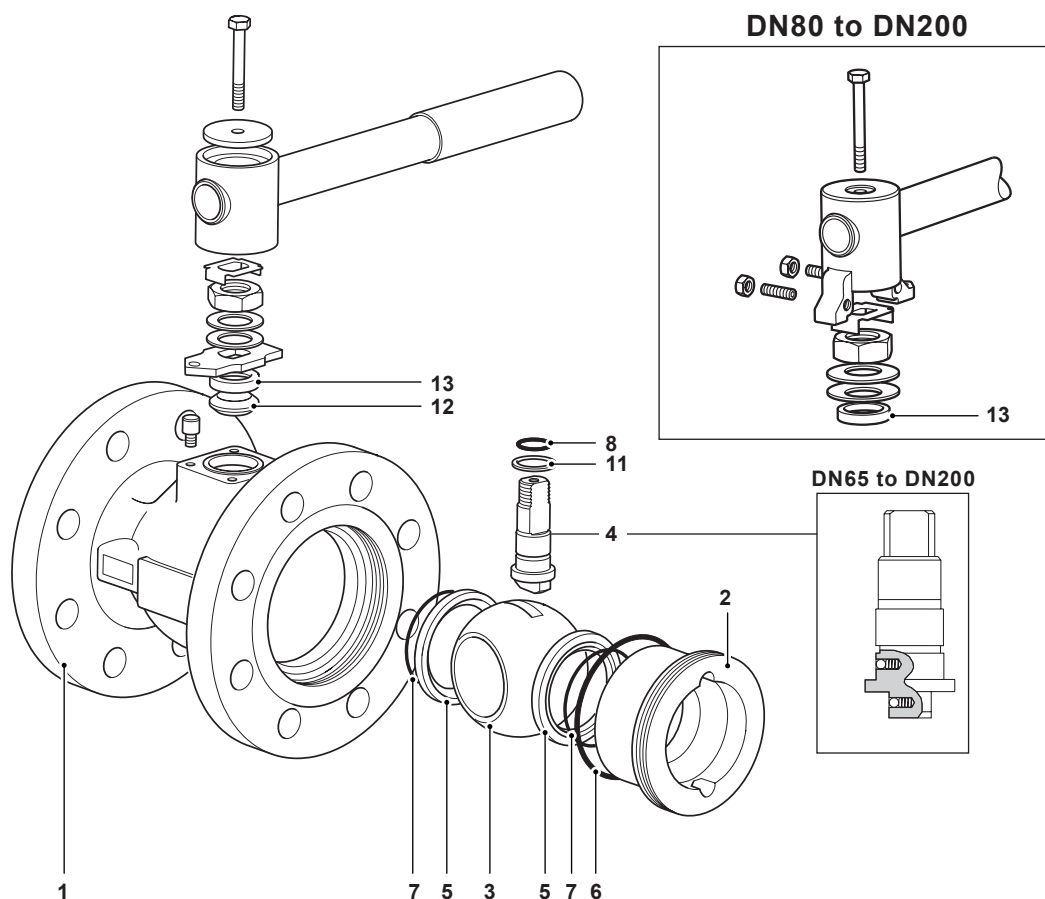
No.	Part	Material		
1	Body	M40Si2 ISO and M40Vi2 ISO	Zinc plated carbon steel	ASTM A216 WCB
		M40Si3 ISO and M40Vi3 ISO	Stainless steel	ASTM A351 CF8M
2	Insert	M40Si2 ISO and M40Vi2 ISO	Zinc plated carbon steel	SAE 1040
		M40Si3 ISO and M40Vi3 ISO	Stainless steel	AISI 316
3	Ball	Stainless steel		AISI 316
4	Stem	Stainless steel		AISI 316
5	Seat	M40Si2 ISO and M40Vi2 ISO	Carbon and graphite reinforced PTFE	PDR 0.8
		M40Si3 ISO and M40Vi3 ISO	Virgin PTFE	
6	Insert 'O' ring	EPDM		Geothermal

No.	Part	Material		
9	Stem seal	Antistatic R-PTFE		
10	Stem seal	Stainless steel		AISI 304
13	Separator	Zinc plated carbon steel		SAE 1010
14	Belleville washer	Stainless steel		AISI 301
15	Gland nut	Zinc plated carbon steel		SAE 1010/ SAE 12L14
16	Upper stem nut	Zinc plated carbon steel		SAE 1010/ SAE 12L14

No.	Part	Material		
17	Locking plate	Stainless steel		AISI 304
18	Nameplate	Stainless steel		AISI 430
20	Lever	Zinc plated carbon steel		SAE 1010
21	Grip	Vinyl		
25	Stop screw	Zinc plated carbon steel		SAE 12L14
26	Split lock washer	Stainless steel		AISI 304

Materials

DN65

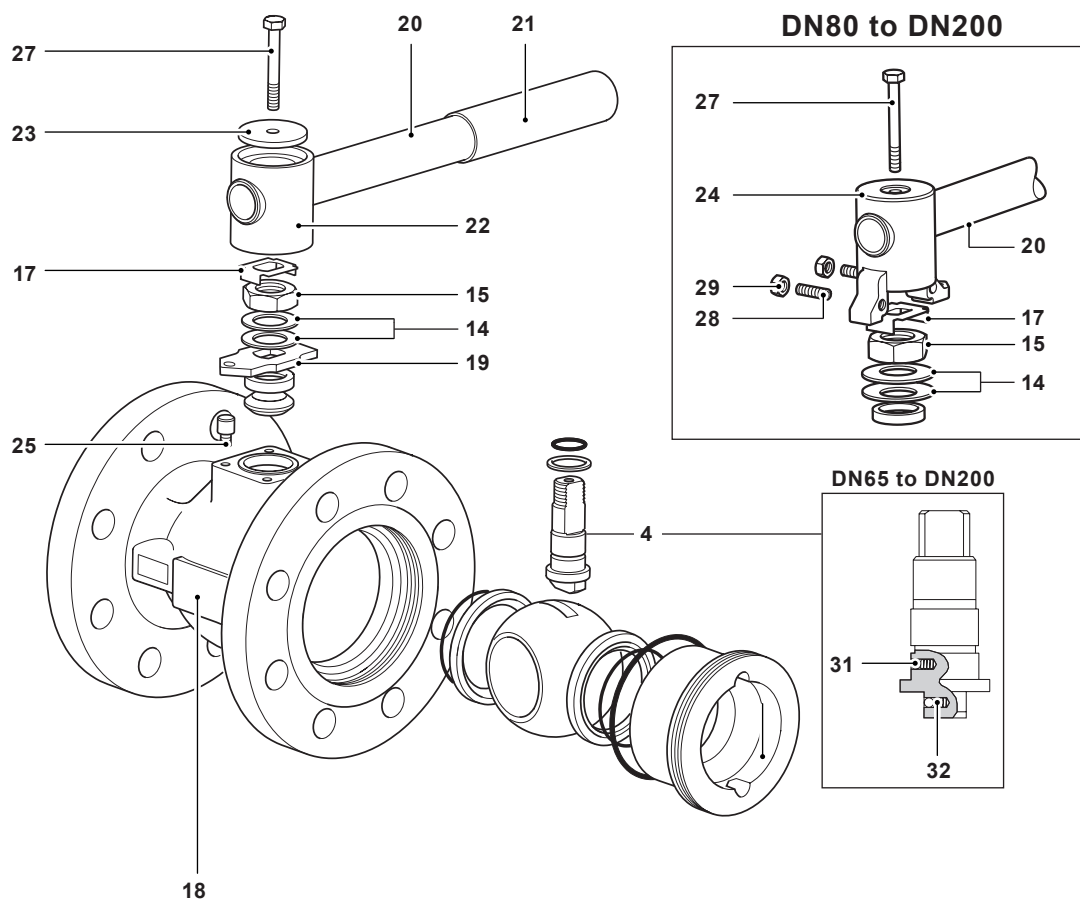


No.	Part	Material		
1	Body	M40Si2 ISO and M40Vi2 ISO	Zinc plated carbon steel	ASTM A216 WCB
		M40Si3 ISO and M40Vi3 ISO	Stainless steel	ASTM A351 CF8M
2	Insert	M40Si2 ISO and M40Vi2 ISO	Zinc plated carbon steel	SAE 1040
		M40Si3 ISO and M40Vi3 ISO	Stainless steel	AISI 316
3	Ball		Stainless steel	AISI 316
4	Stem		Stainless steel	AISI 316/AISI 420
5	Seat	M40Si2 ISO and M40Si3 ISO	Carbon and graphite reinforced PTFE	PDR 0.8
		M40Vi2 ISO and M40Vi3 ISO	Virgin PTFE	
6	Insert 'O' ring		EPDM	Geothermal
7	Seat 'O' ring		EPDM	Geothermal
8	Stem 'O' ring		EPDM	Geothermal
11	Lower stem seal		Antistatic R-PTFE	
12	Upper stem packing		Virgin PTFE	
13	Separator		Zinc plated carbon steel	SAE 1010

Materials continued on the next page

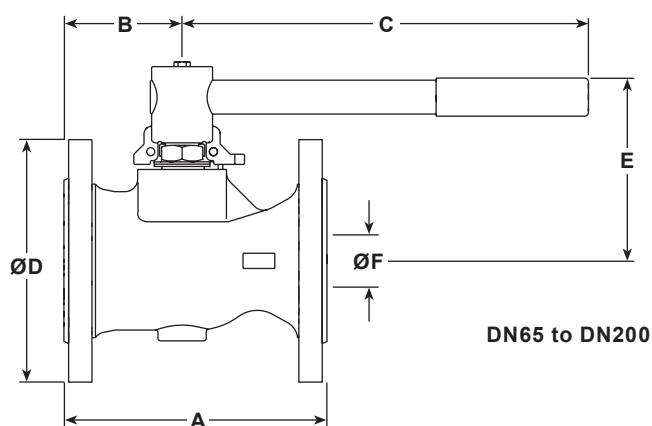
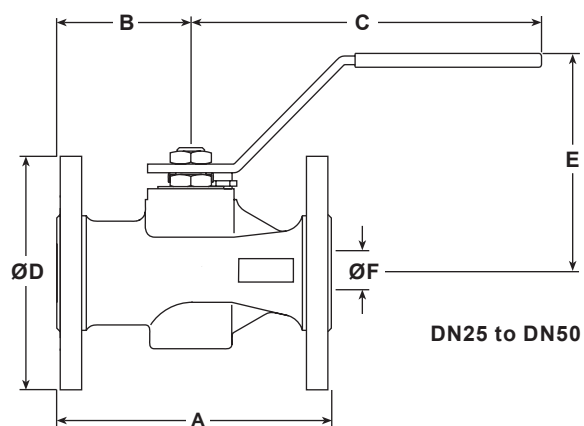
Materials (continued)

DN65



No.	Part		Material	
14	Belleville washer		Carbon steel/stainless steel	
15	Gland nut		Zinc plated carbon steel	SAE 1010/SAE 12L14
17	Locking plate		Stainless steel	AISI 304
18	Nameplate		Stainless steel	AISI 430
19	Stop plate with indicator	DN65 only	Zinc plated carbon steel	SAE 1010
20	Lever		Zinc plated carbon steel	SAE 1010
21	Grip		Vinyl	
22	Adaptor		Zinc plated SG iron	
23	Adaptor plate		Zinc plated carbon steel	SAE 1010
24	Adaptor with indicator	DN80 to DN200	Zinc plated SG iron	
25	Stop screw	DN80 to DN200	Zinc plated carbon steel	SAE 12L14
27	Adaptor screw		Zinc plated carbon steel	Grade 5
28	Stop screw	DN80 to DN200	Carbon steel	
29	Adaptor hex. nut	DN80 to DN200	Zinc plated carbon steel	
31	Antistatic device ball		Stainless steel	AISI 302
32	Antistatic device spring		Stainless steel	AISI 301

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



Flanged ASME 150

Size	A	B	C	D	E	F	Weight
DN25	127 (5)	62 (2.44)	162 (6.38)	108 (4.25)	101 (3.98)	19 (0.7)	2.9 (6.3)
DN32	140 (5.5)	65 (2.6)	182 (7.2)	118 (4.6)	106 (4.2)	25 (0.9)	3.8 (8.3)
DN40	165 (6.5)	70 (2.7)	186 (7.3)	127 (5)	118 (4.6)	30 (1.2)	5.4 (11.9)
DN50	178 (7)	75 (3)	186 (7.3)	152 (5.9)	123 (4.8)	37 (1.5)	7.9 (17.4)
DN65	190 (7.5)	79 (3.1)	278 (10.9)	178 (7)	144 (5.7)	50 (2)	12 (26.4)
DN80	203 (7.9)	91 (3.6)	417 (16.4)	191 (7.5)	157 (6.2)	57 (2.2)	15.8 (34.8)
DN100	229 (9)	98 (3.9)	517 (20.3)	229 (9)	172 (6.8)	75 (3)	24.8 (54.6)
DN150	267 (10.5)	130 (5.1)	700 (27.5)	279 (10.9)	205 (8.1)	100 (3.9)	43.8 (96.6)
DN200	292 (11.4)	146 (5.74)	850 (33.4)	343 (13.5)	286 (11.25)	200 (7.87)	82.6 (182.1)

Flanged ASME 300

Size	A	B	C	D	E	F	Weight
DN25	165 (6.5)	62 (2.4)	162 (6.4)	124 (4.9)	101 (3.9)	19 (0.7)	4.5 (9.9)
DN32	178 (7)	65 (2.6)	182 (7.2)	134 (5.3)	106 (4.2)	25 (0.9)	5.7 (12.5)
DN40	190 (7.5)	70 (2.7)	186 (7.3)	156 (6.1)	118 (4.6)	30 (1.2)	8.2 (18.1)
DN50	216 (8.5)	75 (3)	186 (7.3)	165 (6.5)	123 (4.8)	37 (1.5)	10.3 (22.7)
DN65	241 (9.5)	79 (3.1)	278 (10.9)	190 (7.5)	144 (5.7)	50 (2)	16 (35.2)
DN80	283 (11.1)	91 (3.6)	417 (16.4)	210 (8.3)	157 (6.2)	57 (2.2)	22.3 (49.1)
DN100	305 (12)	98 (3.9)	517 (20.3)	254 (10)	172 (6.8)	75 (3)	36.1 (79.6)
DN150	403 (15.9)	130 (5.1)	700 (27.5)	318 (12.5)	205 (8.1)	100 (3.9)	66.6 (146.8)
DN200	419 (16.4)	146 (5.74)	850 (33.4)	381 (15)	286 (11.25)	200 (7.87)	117.5 (259)

Kv values

DN	25	32	40	50	65	80	100	150	200
Kv	30	40	81	103	197	248	581	735	1600

For conversion:

C_v (UK) = $K_v \times 0.963$

C_v (US) = $K_v \times 1.156$

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	Model	Seat material	S = Carbon and graphite reinforced PTFE - PDR 0.8
			V = Virgin PTFE
	Material	Body material	2 = Carbon steel
			3 = Stainless steel

Example: 1 off Spirax Sarco DN50 M40Vi2 ISO ball valve having flanged ASME 150 connections.

Operating torques

DN	25	32	40	50	65	80	100	150	200
Nm (lbf ft)	10 (7.4)	15 (11)	20 (14.8)	25 (18.4)	50 (36.9)	70 (51.6)	100 (73.8)	155 (114.3)	720 (531)

Note: The torque figures shown are for a valve that is frequently operated at the maximum operating pressure. Valves that are subject to long static periods, may require a greater break-out torque.

Optional extras:

- Self-venting ball.
- Extended stems to allow full insulation:
50 mm (2") for DN25 (1") and DN50 (2") sizes and 100 mm (4") for DN25 (1") to DN200 (8") sizes.
- Lockable handle.
- 100 mm extended stem with lockable handle.

DN25 to DN50 - Spare parts (see page 9 for sizes DN65 - DN200)

The spare parts available are shown in solid outline. Parts drawn in a grey line are not supplied as spares.

Available spares

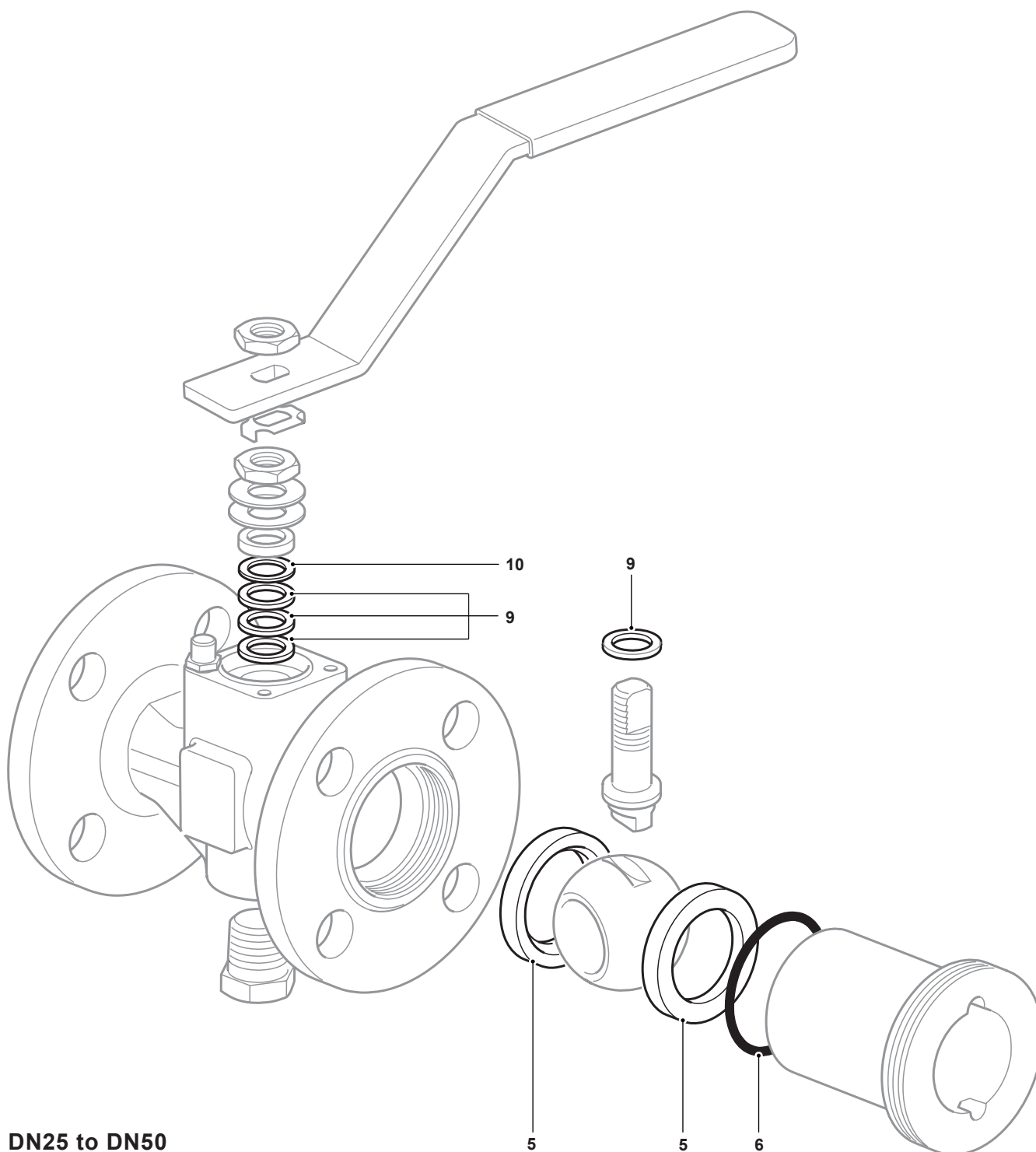
Seats, insert 'O' ring and stem seals

5, 6, 9, 10

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 set of seats, insert 'O' ring and stem seals for a Spirax Sarco DN50 flanged ASME 150 M40Si2 ball valve.



DN25 to DN50

DN65 to DN200 - Spare parts (see page 8 for sizes DN25 - DN50)

The spare parts available are shown in solid outline. Parts drawn in a grey line are not supplied as spares.

Available spares

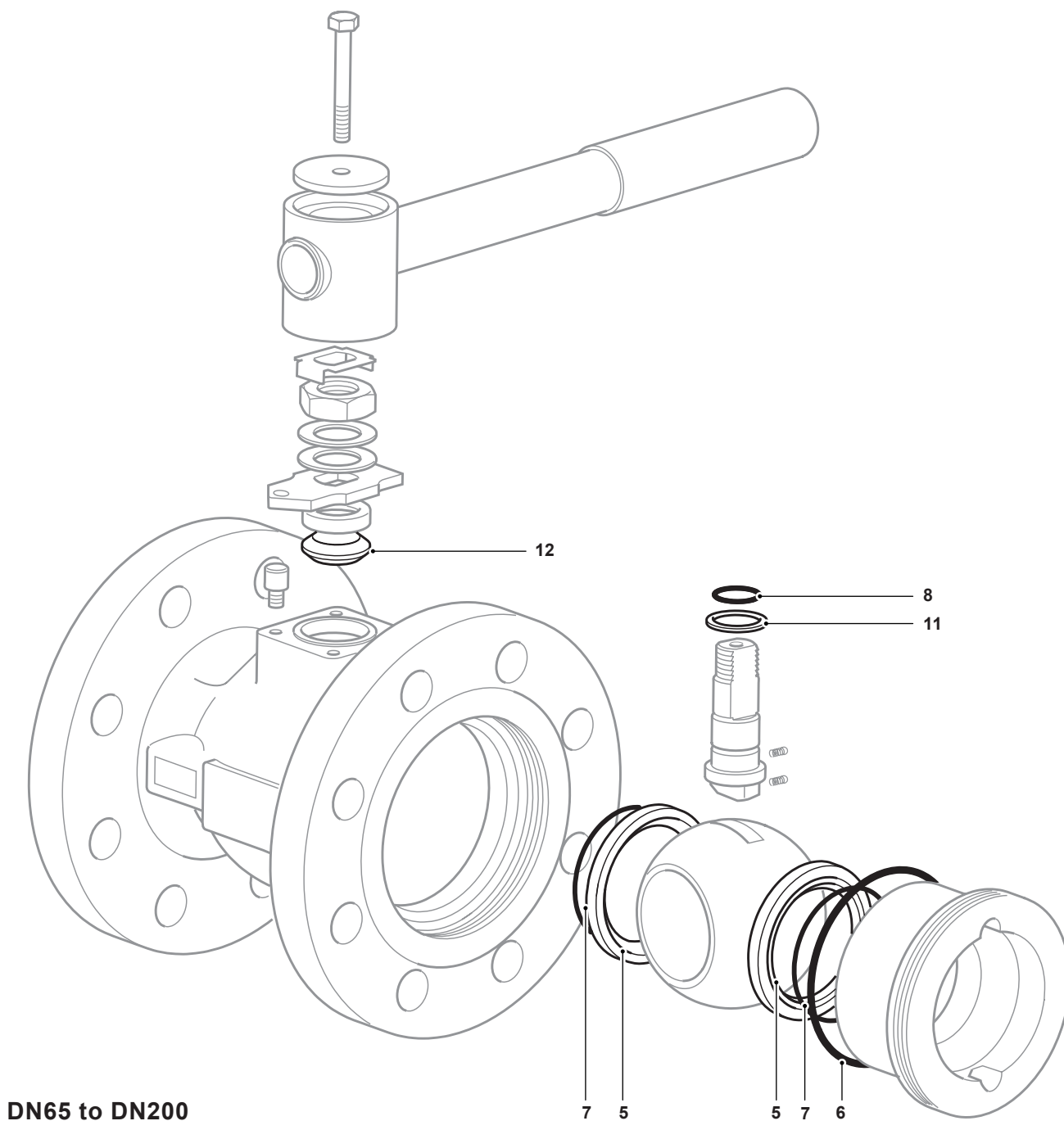
Seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packing

5, 6, 7, 8, 11, 12

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 set of seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packing for a Spirax Sarco DN80 flanged ASME 150 M40Si2 ball valve.



DN65 to DN200