



M45i ISO

Reduced Bore Ball Valve

DN25 to DN150 Flanged ASME 150 and ASME 300

Description


The M45i is a reduced bore ball valve, with a single piece body, having ISO mounting as standard. As a main feature the valve has metal seats - The ball and seats are ENP coated and secured in place using Belleville washers making it suitable for use with fluids that contain suspended solids. The M45i ISO has been designed for use in applications that require temperature modulating control.

Available types

M45i2 ISO Zinc plated carbon steel body + Metal seats.

M45i3 ISO Stainless steel body + Metal seats.

Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the  mark when so required.

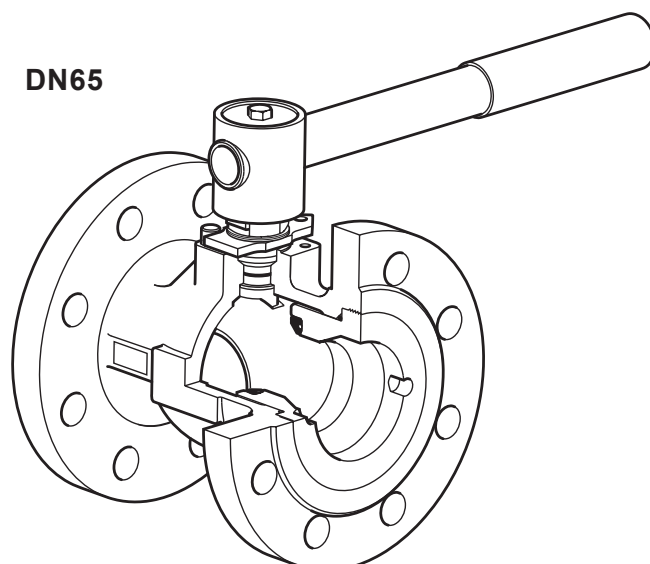
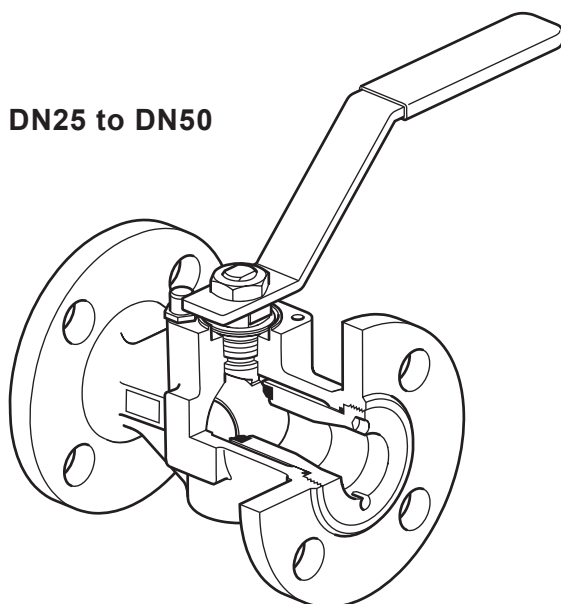
Certification

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.

Sizes and pipe connections

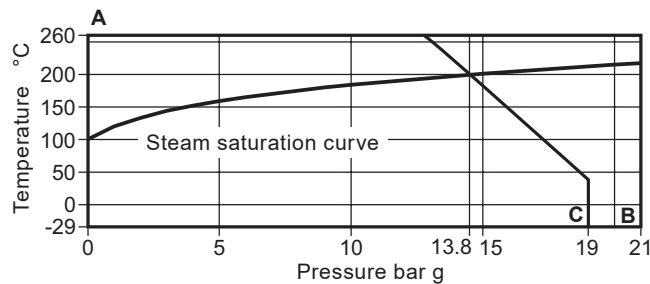
DN25, DN32, DN40, DN50, DN65, DN80, DN100 and DN150.
Standard flanges ASME Class 150 and ASME Class 300.



Technical data

Flow characteristic	Modified linear
Port	Reduced bore
Leakage test procedure to ANSI B16.104 Class IV	
Antistatic device (optional) complies with ISO 7121 and BS 5351	

Pressure/temperature limits

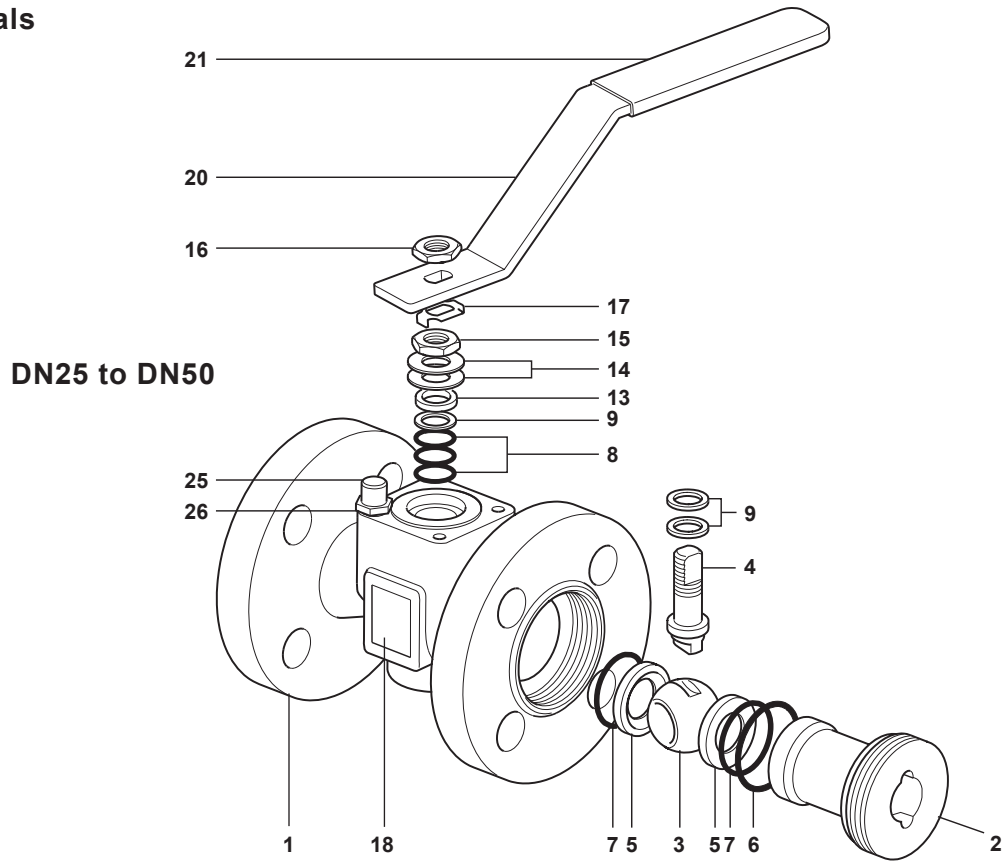


A - B Flanged ASME 300

A - C Flanged ASME 150

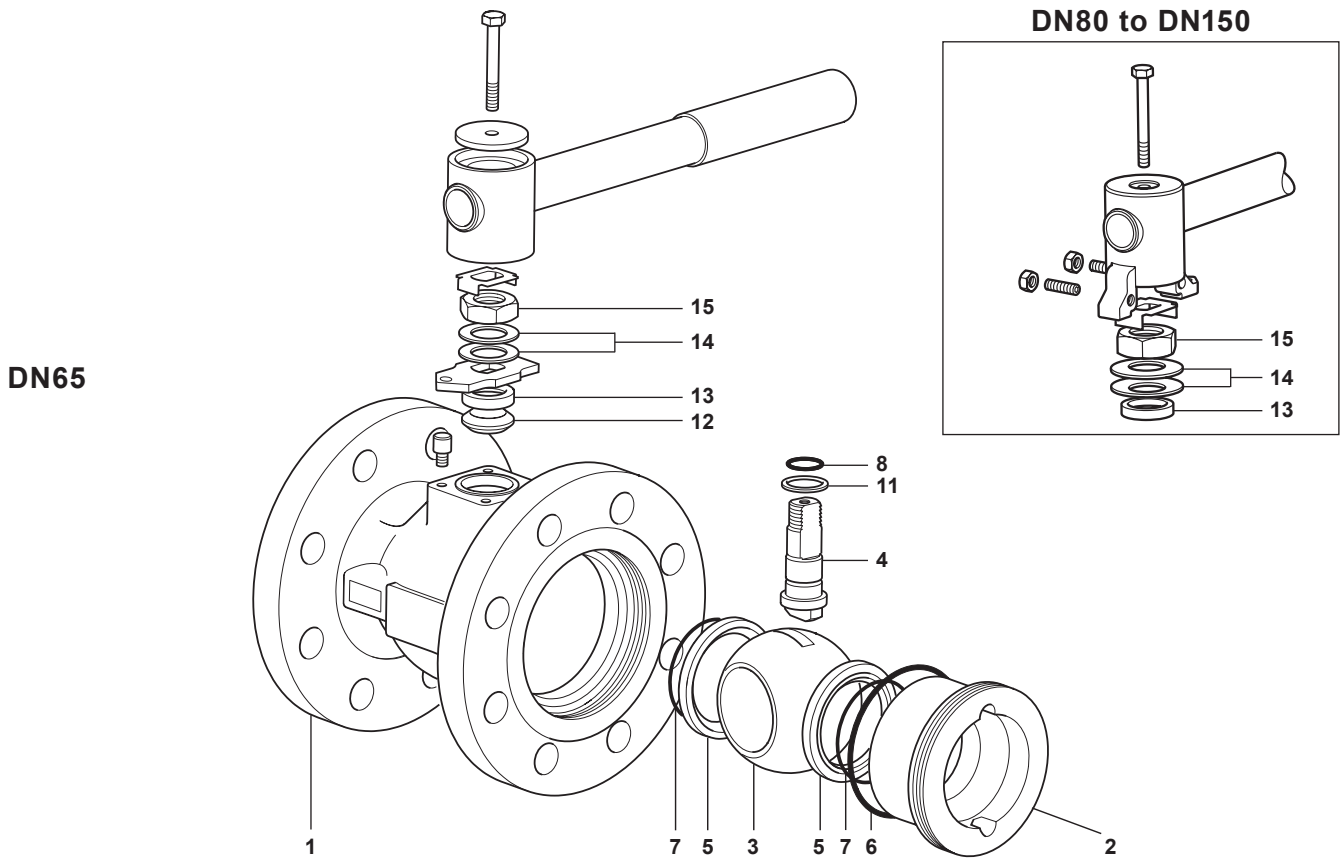
Body design conditions	ASME 150 and ASME 300	
PMA Maximum allowable pressure	ASME 150	19 bar g @ 38 °C
	ASME 300	21 bar g @ 260 °C
TMA Maximum allowable temperature	ASME 150	260 °C @ 11.7 bar g
	ASME 300	260 °C @ 21 bar g
Minimum allowable temperature	-29 °C	
PMO Maximum operating pressure for saturated steam service	ASME 150	13.8 bar g
	ASME 300	21 bar g
TMO Maximum operating temperature	ASME 150	260 °C @ 11.7 bar g
	ASME 300	260 °C @ 21 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

Materials



No.	Part	Material	
1	Body	M452i ISO	Zinc plated carbon steel
		M453i ISO	Stainless steel
2	Insert	M452i ISO	Zinc plated carbon steel
		M453i ISO	Stainless steel
3	Ball	Stainless steel	AISI 316 ENP coated
4	Stem	Duplex stainless steel	AISI 318 LN
5	Seat	Stainless Steel	AISI 316 ENP coated
6	Insert gasket	Graphite	
7	Seat 'O' ring	EPDM	Geothermal
8	Stem seal	Antistatic R-PTFE	
9	Stem seal	PEEK	Reinforced
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
17	Locking plate	Stainless steel	AISI 304
18	Name-plate	Stainless steel	AISI 430
20	Lever	Zinc plated carbon steel	SAE 1010
21	Grip	Vinyl	Blue
25	Stop screw	Zinc plated carbon steel	SAE 12L14
26	Split lock washer	Stainless steel	AISI 304

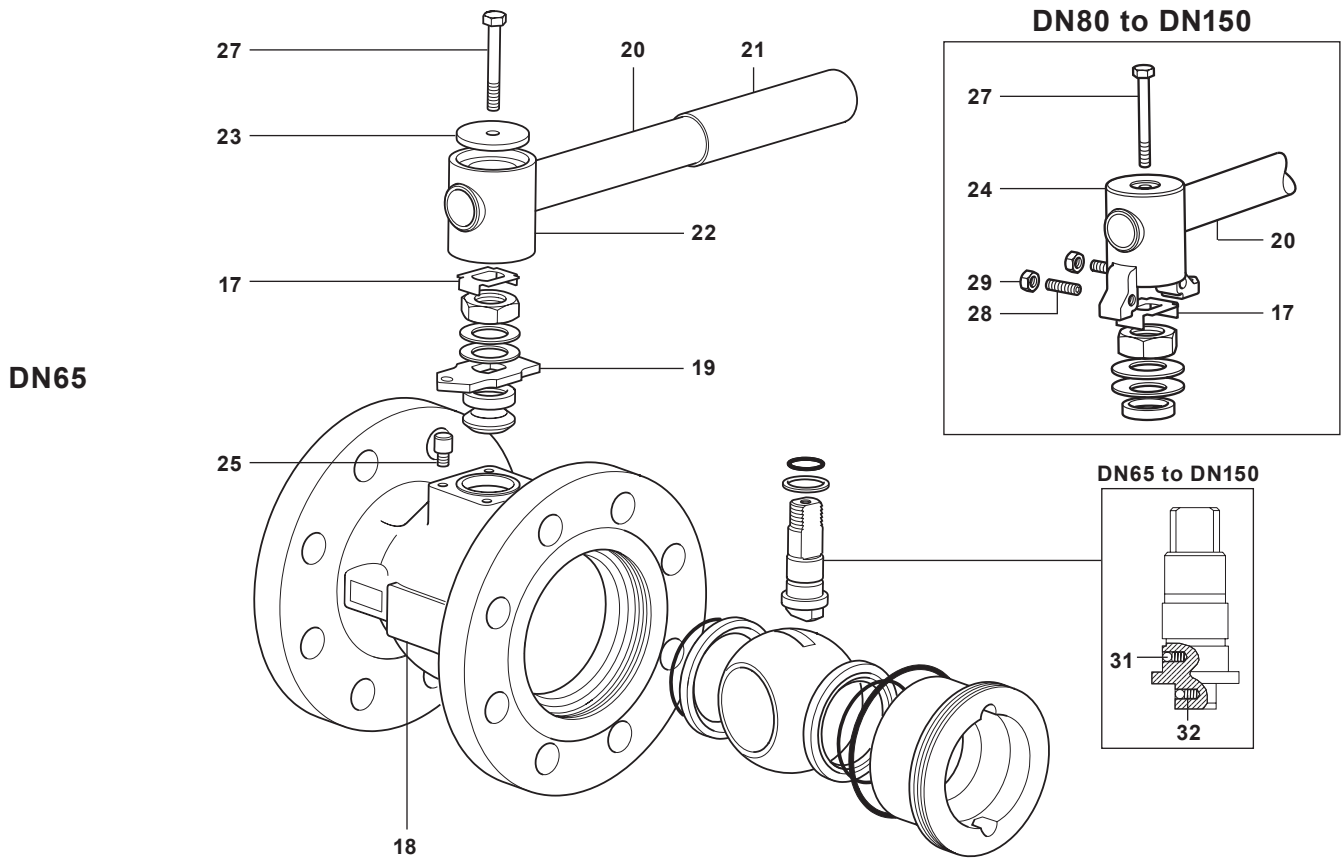
Materials



Materials

No.	Part		Material	
1	Body	M452i ISO	Zinc plated carbon steel	ASTM A216 WCB
		M453i ISO	Stainless steel	ASTM A351 CF8M
2	Insert	M452i ISO	Zinc plated carbon steel	SAE 1040
		M453i ISO	Stainless steel	AISI 316
3	Ball		Stainless steel	AISI 316 ENP coated
4	Stem	DN65 to DN100	Duplex stainless steel	AISI 318 LN
		DN150	Stainless steel	AISI 316 / AISI 420
5	Seat		Stainless steel	AISI 316 ENP coated
6	Insert gasket		Graphite	
7	Seat 'O' ring		EPDM	Geothermal
8	Stem seal		EPDM	Geothermal
11	Lower stem seal		PEEK	Reinforced
12	Upper stem packing		Graphite	
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

Materials (continued)



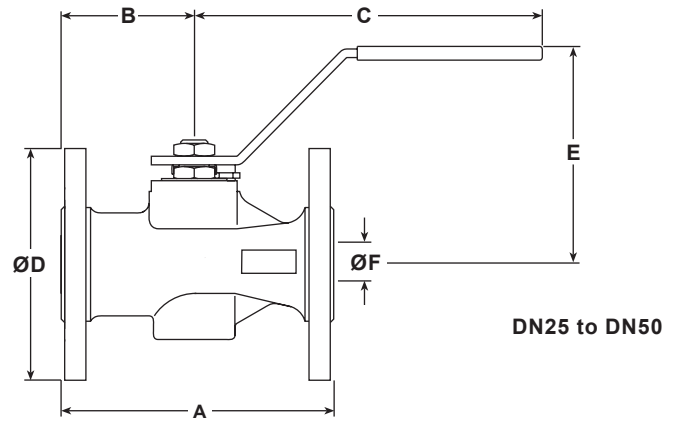
Materials

No.	Part		Material	
17	Locking plate		Stainless steel	AISI 304
18	Name-plate		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	DN65 only	Zinc plated SG iron	
23	Adaptor plate	DN65 only	Zinc plated carbon steel	SAE 1010
24	Adaptor with indicator	DN80 to DN150	Zinc plated SG iron	
25	Stop screw	DN80 to DN150	Zinc plated carbon steel	SAE 12L14
27	Adaptor screw		Zinc plated carbon steel	Grade 5
28	Stop screw	DN80 to DN150	Carbon steel	
29	Adaptor hex. nut	DN80 to DN150	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 and kg

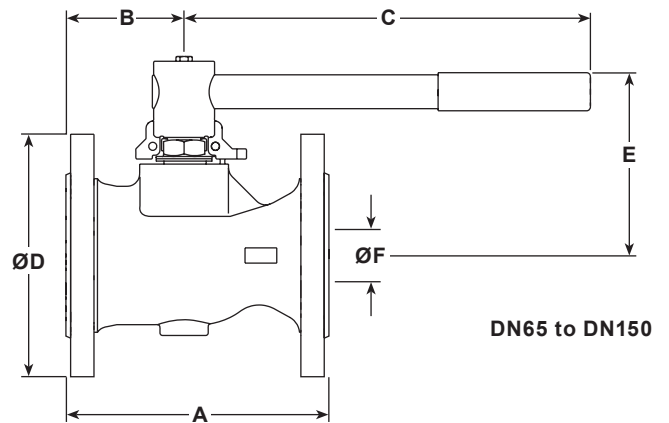
Flanged ASME 150

Size	A	B	C	D	E	F	Weight
DN25	127	62	162	108	101	19	2.9
DN32	140	65	182	118	106	25	3.8
DN40	165	70	186	127	118	30	5.4
DN50	178	75	186	152	123	37	7.9
DN65	190	79	278	178	144	50	12.0
DN80	203	91	417	191	157	57	15.8
DN100	229	98	517	229	172	75	24.8
DN150	267	130	700	279	205	100	43.8



Flanged ASME 300

Size	A	B	C	D	E	F	Weight
DN25	165	62	162	124	101	19	4.5
DN32	178	65	182	134	106	25	5.7
DN40	190	70	186	156	118	30	8.2
DN50	216	75	186	165	123	37	10.3
DN65	241	79	278	190	144	50	16.0
DN80	283	91	417	210	157	57	22.3
DN100	305	98	517	254	172	75	36.1
DN150	403	130	700	318	205	100	66.6



K_v values

DN	25	32	40	50	65	80	100	150
K _v	30	40	81	103	197	248	581	735

For conversion:

$$C_v \text{ (UK)} = K_v \times 0.963$$

$$C_v \text{ (US)} = K_v \times 1.156$$

Operating torques (Nm)

DN	25	32	40	50	65	80	100	150
N m	20	25	35	60	100	120	170	400

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.

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	Body material
	2 = Zinc plated carbon steel
	3 = Stainless steel

Example: 1 off Spirax Sarco DN50 M45i2 ISO ball valve having flanged ASME 150 connections.

Optional extras:

- Self-venting ball.
- Extended stems to allow full insulation: 50 mm (2") for DN25 to DN50 sizes and 100 mm (4") for DN25 to DN150 sizes.
- Lockable handle.
- 100 mm extended stem with lockable handle.

DN25 to DN50 - Spare parts (see page 9 for sizes DN65 - DN150)

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

Available spares

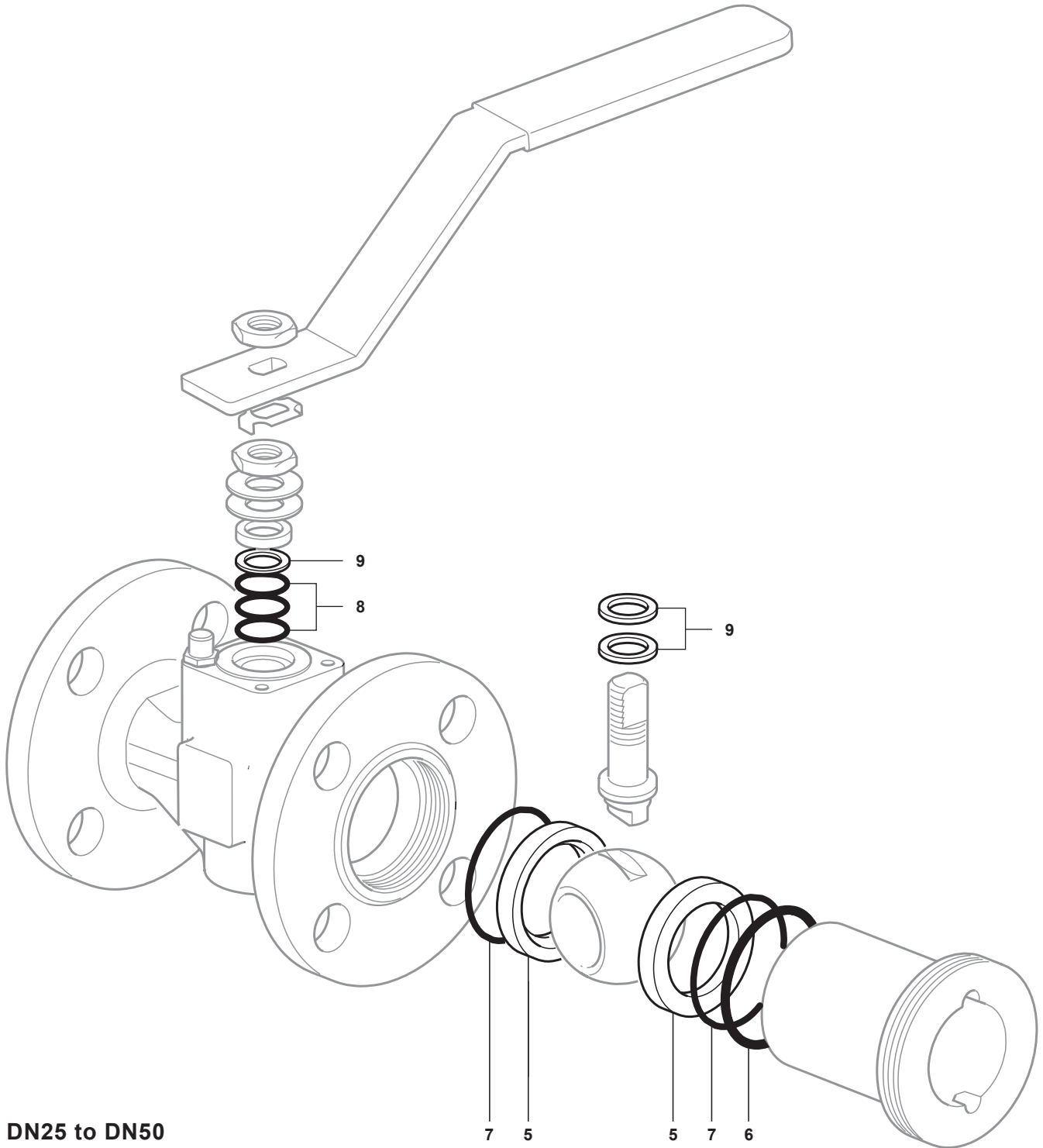
Seats, insert gasket, seat 'O' rings and stem seals

5, 6, 7, 8, 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 gasket, seat 'O' rings and stem seals for a Spirax Sarco DN50 flanged ASME 150 M452i ball valve.



DN25 to DN50

DN65 to DN150 - 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

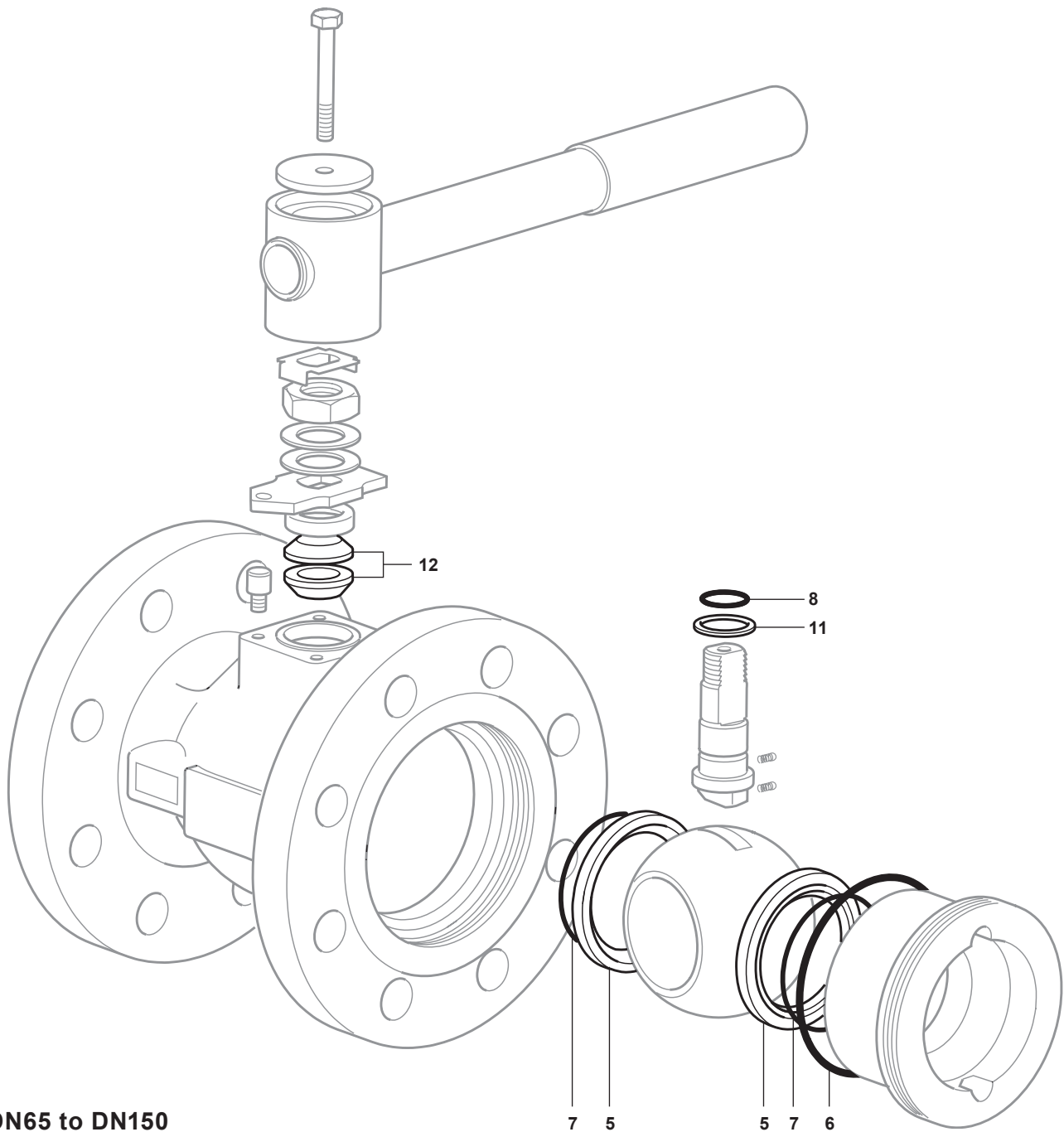
Seats, insert gasket, seat 'O' ring, stem 'O' ring, lower stem seal and upper stem packing

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 gasket, seat 'O' ring, stem 'O' ring, lower stem seal and upper stem packing for a Spirax Sarco DN80 flanged ASME 150 M452i ball valve.



DN65 to DN150