

# spirax sarco

TI-P133-77  
ST Issue 1

## M21Si ISO and M21Vi ISO Ball Valves DN15 to DN150

### Description

Both the M21Si and M21Vi 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

<b>M21Si2 ISO</b>	Zinc plated carbon steel body, PDR 0.8 seats.
<b>M21Si3 ISO</b>	Stainless steel body, PDR 0.8 seats.
<b>M21Vi2 ISO</b>	Zinc plated carbon steel body, PTFE seats.
<b>M21Vi3 ISO</b>	Stainless steel body, PTFE seats.

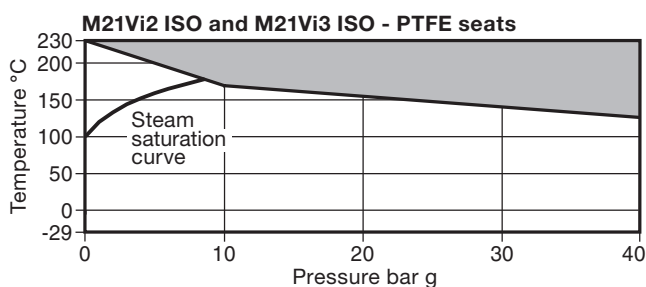
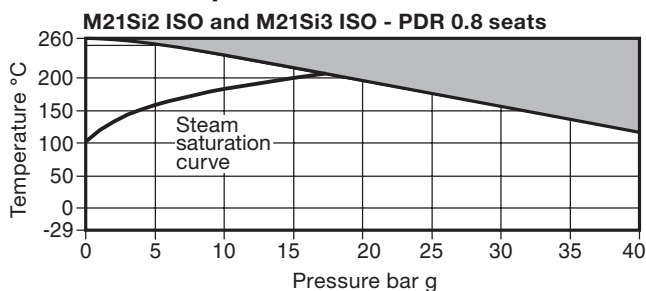
### Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the **CE** mark when so required.

### Certification

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

### Pressure / temperature limits



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

Body design conditions		PN40
PMA	Maximum allowable pressure	M21Si 40 bar g @ 120°C
		M21Vi 40 bar g @ 120°C
TMA	Maximum allowable temperature	M21Si 260°C @ 0 bar g
		M21Vi 230°C @ 0 bar g
Minimum allowable temperature		-29°C
PMO	Maximum operating pressure for saturated steam service	M21Si 17.5 bar g
		M21Vi 10.0 bar g
TMO Maximum operating temperature		260°C @ 0 bar g
Minimum operating temperature		-29°C
<b>Note:</b> 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 60 bar g		

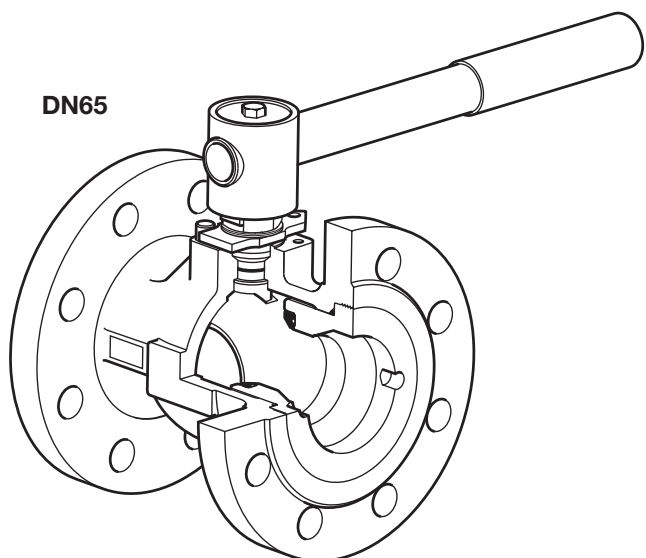
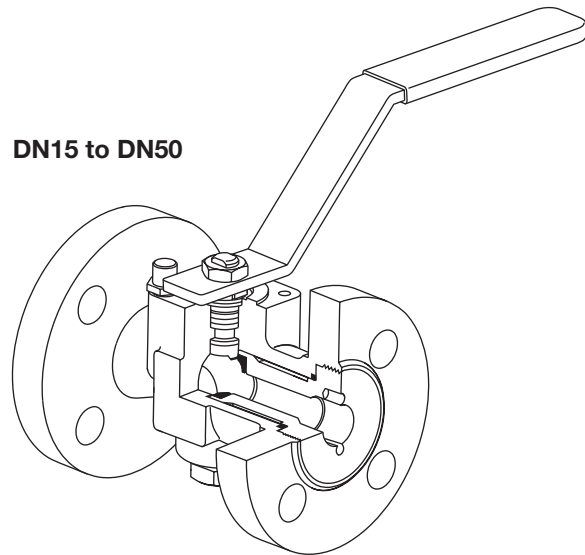
### Sizes and pipe connections

DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80, DN100 and DN150

**Standard flange:** EN 1092 PN40

**Face-to-face dimensions:**

- DN15 to DN100 according to DIN 3202 F4.
- DN25 to DN150 according to BS 2080.



### Technical data

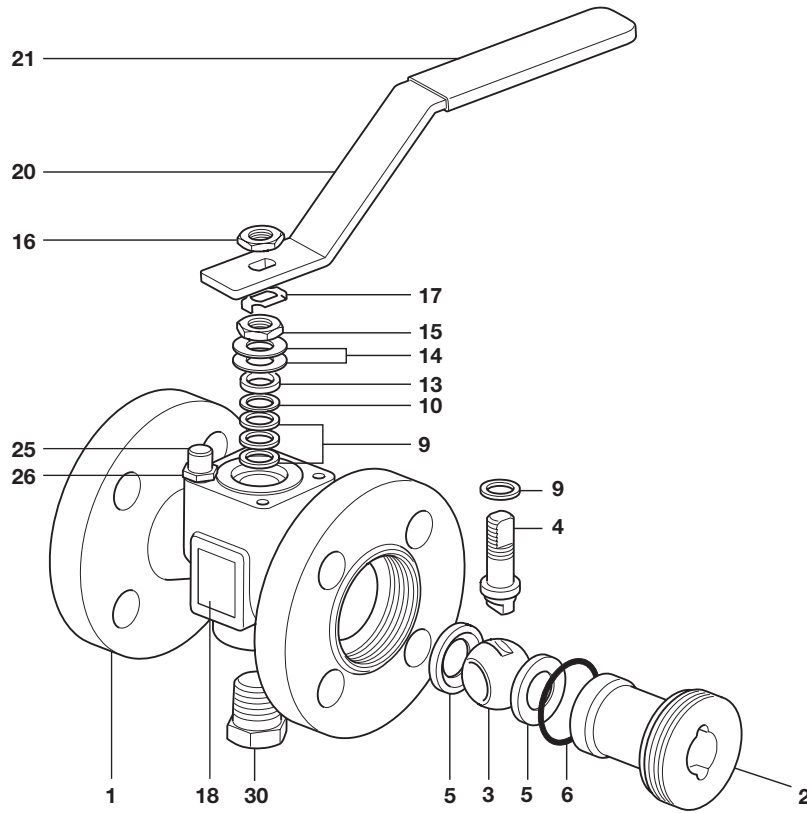
Flow characteristic	Modified linear
Port	Reduced bore
Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A)	
Antistatic device	Complies with ISO 7121 and BS 5351

Local regulations may restrict the use of this product to below the conditions quoted.

In the interests of development and improvement of the product, we reserve the right to change the specification without notice.

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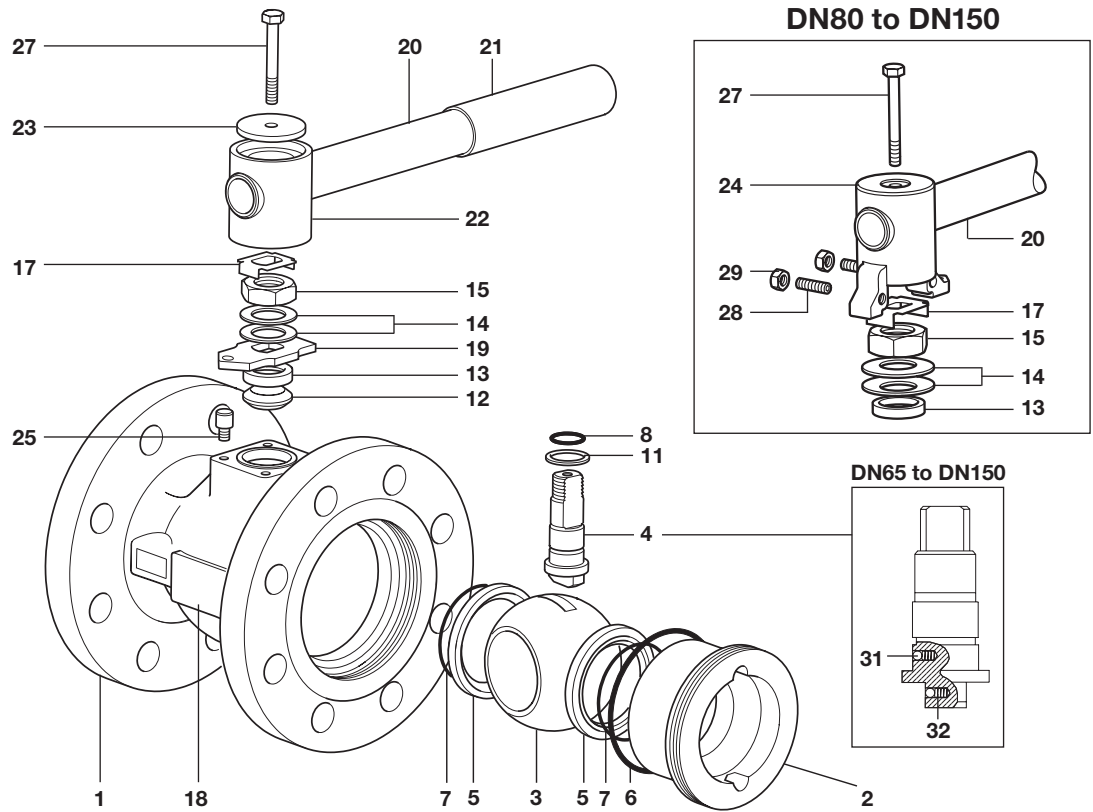
DN15 to DN50



Materials

No.	Part		Material	
1	Body	M21Si2 ISO and M21Vi2 ISO	Zinc plated carbon steel	ASTM A216 WCB
		M21Si3 ISO and M21Vi3 ISO	Stainless steel	ASTM A351 CF8M
2	Insert	M21Si2 ISO and M21Vi2 ISO	Zinc plated carbon steel	SAE 1040
		M21Si3 ISO and M21Vi3 ISO	Stainless steel	AISI 316
3	Ball		Stainless steel	AISI 316
4	Stem		Stainless steel	AISI 316/AISI 420
5	Seats	M21Si2 ISO and M21Si3 ISO	Carbon and graphite reinforced PTFE	PDR 0.8
		M21Vi2 ISO and M21Vi3 ISO	Virgin PTFE	
6	Insert 'O' ring		EPDM	Geothermal
9	Stem seals		Antistatic R-PTFE	
10	Stem seals		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 steam 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	
25	Stop screw		Zinc plated carbon steel	SAE 12L14
26	Split locker washer		Stainless steel	AISI 304
30	Plug	DN15 to DN25 only	Carbon steel / stainless steel	

## DN65



## Materials

No.	Part	Material	
1	Body	M21Si2 ISO and M21Vi2 ISO	Zinc plated carbon steel
		M21Si3 ISO and M21Vi3 ISO	Stainless steel
2	Insert	M21Si2 ISO and M21Vi2 ISO	Zinc plated carbon steel
		M21Si3 ISO and M21Vi3 ISO	Stainless steel
3	Ball		Stainless steel
4	Stem		Stainless steel
5	Seats	M21Si2 ISO and M21Si3 ISO	Carbon and graphite reinforced PTFE
		M21Vi2 ISO and M21Vi3 ISO	Virgin PTFE
6	Insert 'O' ring		EPDM
7	Seat 'O' ring		EPDM
8	Stem 'O' ring		EPDM
11	Lower stem seals		Antistatic R-PTFE
12	Upper stem packaging		Virgin PTFE
13	Separator		Zinc plated carbon steel
14	Belleville washer		Stainless steel
15	Gland nut		Zinc plated carbon steel
17	Locking plate		Stainless steel
18	Name-plate		Stainless steel
19	Stop plate with indicator	DN65 only	Zinc plated carbon steel
20	Lever		Zinc plated carbon steel
21	Grip		Vinyl
22	Adaptor		Zinc plated SG iron
23	Adaptor plate		Zinc plated carbon steel
24	Adaptor with indicator	DN80 to DN150	Zinc plated SG iron
25	Stop screw	DN80 to DN150	Zinc plated carbon steel
27	Adaptor screw		Zinc plated carbon steel
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
32	Antistatic device spring		Stainless steel

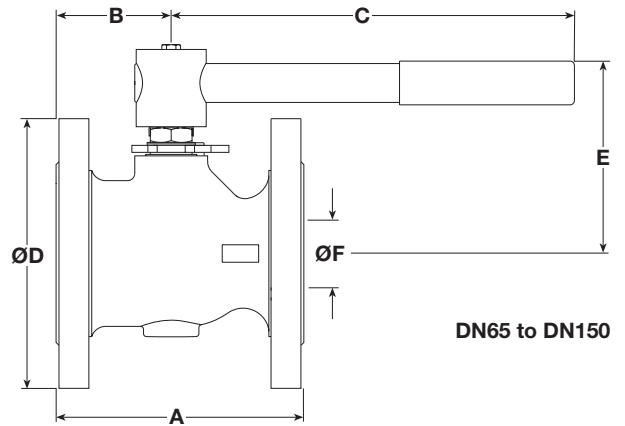
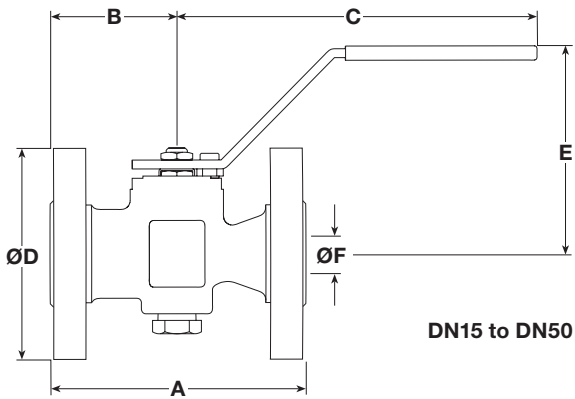
**Dimensions/weights (approximate) in mm and kg**

**PN40 DIN 3202 F4 flanges**

Size	A	B	C	D	E	F	Weight
DN15	115	57	162	95	95	13	2.5
DN20	120	60	162	105	95	13	3.2
DN25	125	62	162	115	101	19	4.0
DN32	130	65	182	140	106	25	5.5
DN40	140	70	186	150	118	30	6.9
DN50	150	75	186	165	123	37	9.3
DN65	170	79	278	185	144	50	13.4
DN80	180	91	417	200	157	57	17.7
DN100	190	98	517	235	172	75	25.0
DN150	-	-	-	-	-	-	-

**PN40 BS 2080 flanges**

Size	A	B	C	D	E	F	Weight
DN15	-	-	-	-	-	-	-
DN20	-	-	-	-	-	-	-
DN25	165	62	162	115	101	19	4.2
DN32	178	65	182	140	106	25	5.9
DN40	190	70	186	150	118	30	7.4
DN50	216	75	186	165	123	37	10.2
DN65	241	79	278	185	144	50	14.9
DN80	283	91	417	200	157	57	20.2
DN100	305	98	517	235	172	75	29.4
DN150	403	130	700	300	205	100	56.9



**K<sub>v</sub> values**

DN	15	20	25	32	40	50	65	80	100	150
K <sub>v</sub>	10	10	30	40	81	103	197	248	581	735

For conversion C<sub>v</sub> (UK) = K<sub>v</sub> x 0.963 C<sub>v</sub> (US) = K<sub>v</sub> x 1.156

**Operating torque (N m)**

DN	15	20	25	32	40	50	65	80	100	150
N m	15	15	20	25	35	45	55	90	120	140

**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.

**How to order**

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

**Example:** 1 off Spirax Sarco DN50 M21Si2 ISO ball valve having flanged EN 1092 PN40 connections.

**Optional extras:**

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

**DN15 to DN50 - Spare parts** (see page 6 for sizes DN65 - DN150)

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

**Available spares**

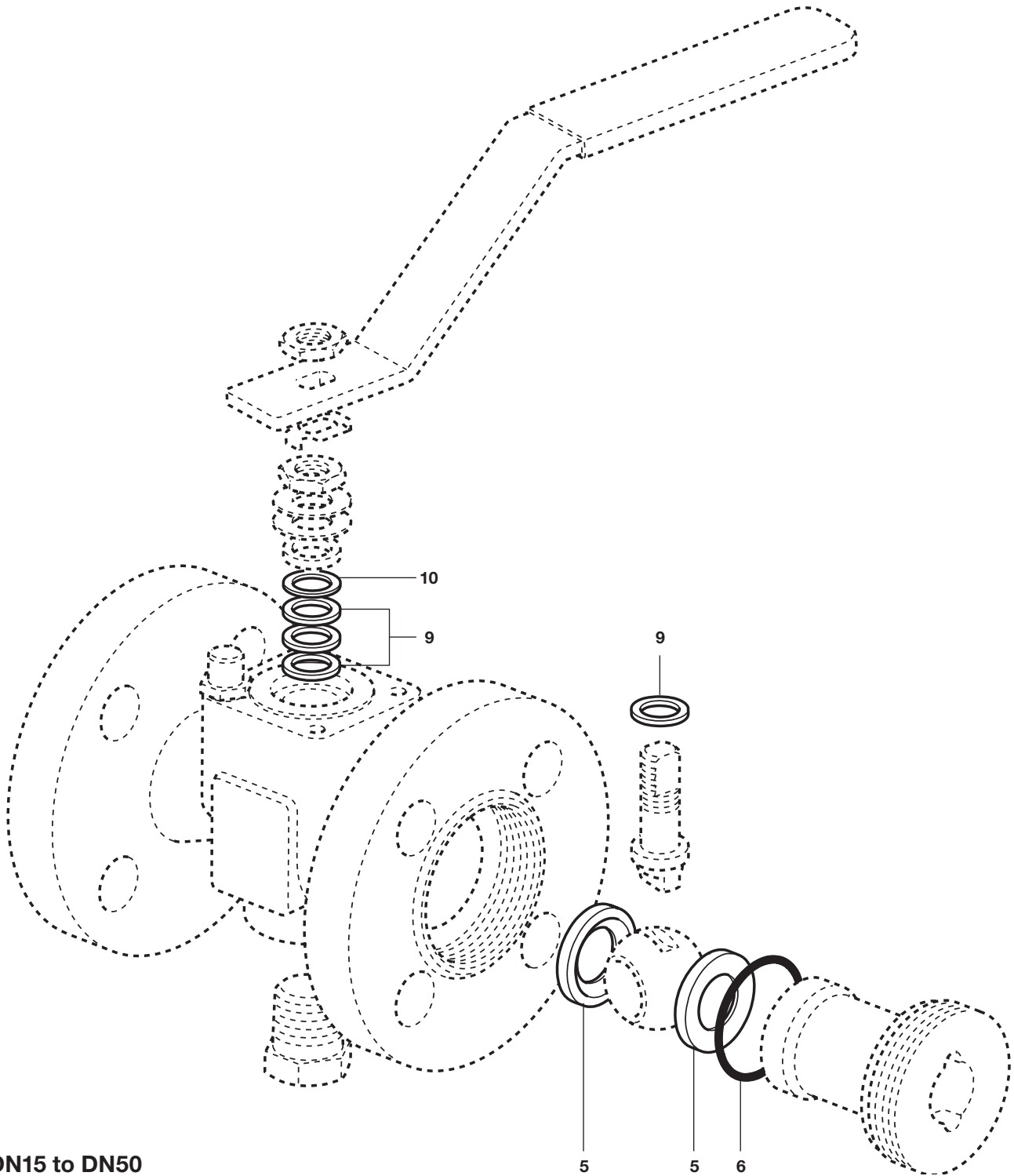
Seats, insert 'O' ring and stem seals

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 PN40 M21Si2 ball valve.



DN15 to DN50

**DN65 to DN150 - Spare parts** (see page 5 for sizes DN15 - DN50)

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

**Available spares**

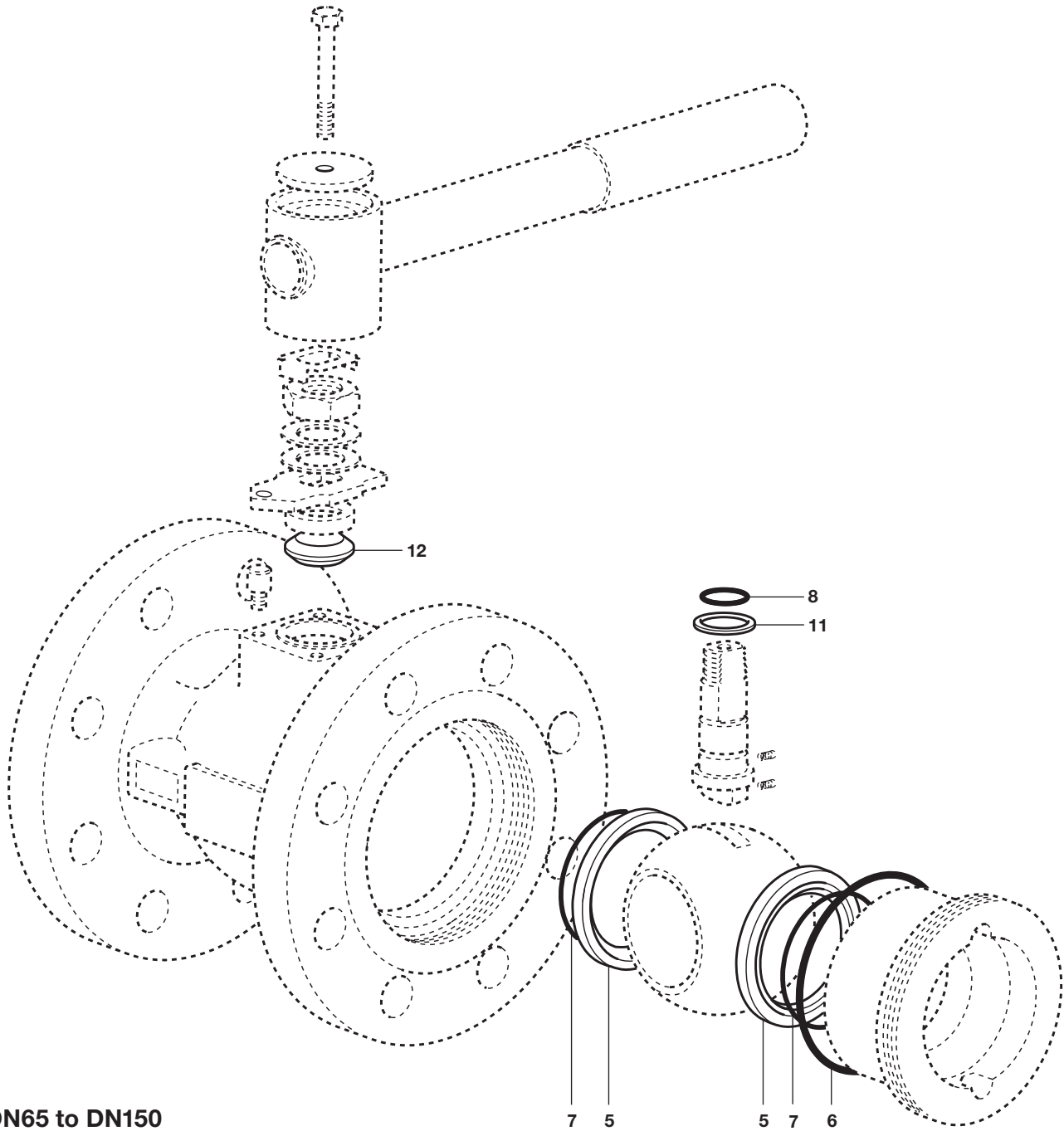
Seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packaging

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 packaging for a Spirax Sarco DN50 flanged PN40 M21Si2 ball valve.



DN65 to DN150