



TI-P133-77
 ST Issue 3

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

| | |
|-------------------|---|
| M21Si2 ISO | Zinc plated carbon steel body, PDR 0.8 seats. |
| M21Si3 ISO | Stainless steel body, PDR 0.8 seats. |
| M21Vi2 ISO | Zinc plated carbon steel body, PTFE seats. |
| M21Vi3 ISO | Stainless steel body, PTFE seats. |

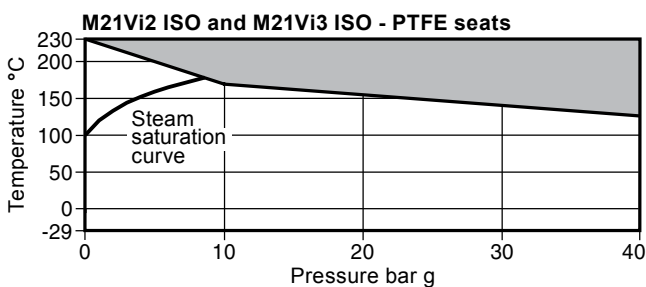
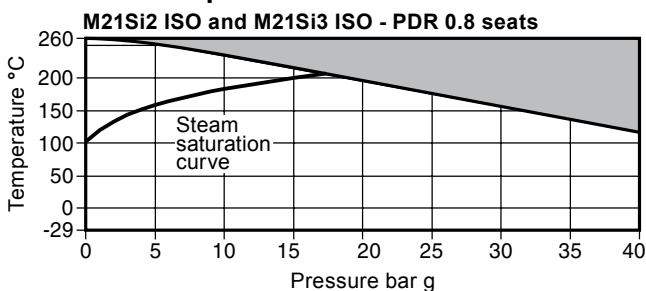
Standards

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 |
| 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 60 bar g | | |

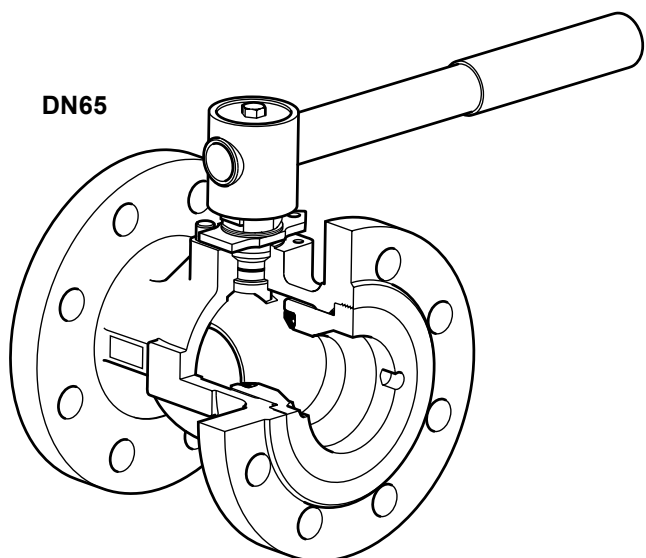
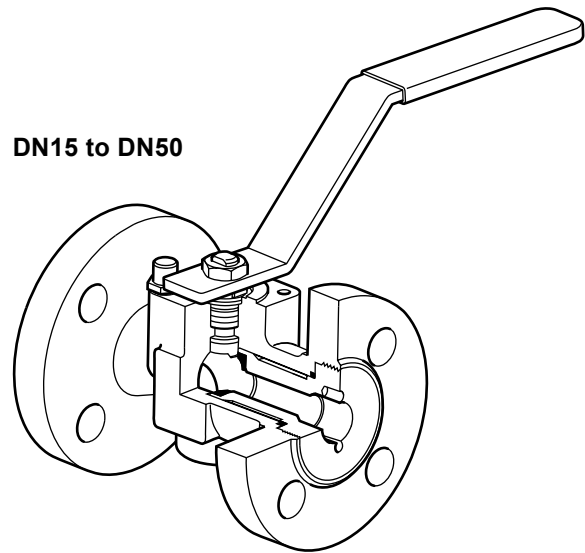
Sizes and pipe connections

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

Standard flange: EN 1092 PN40

Face-to-face dimensions:

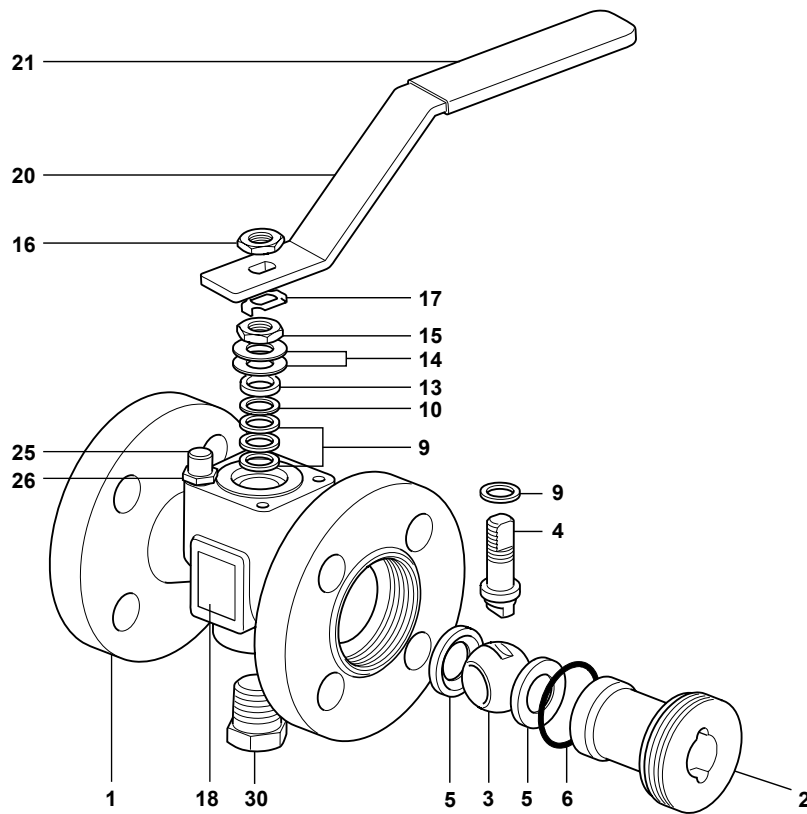
- DN15 to DN100 according to DIN 3202 F4.
- DN25 to DN150 according to BS 2080.



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 |

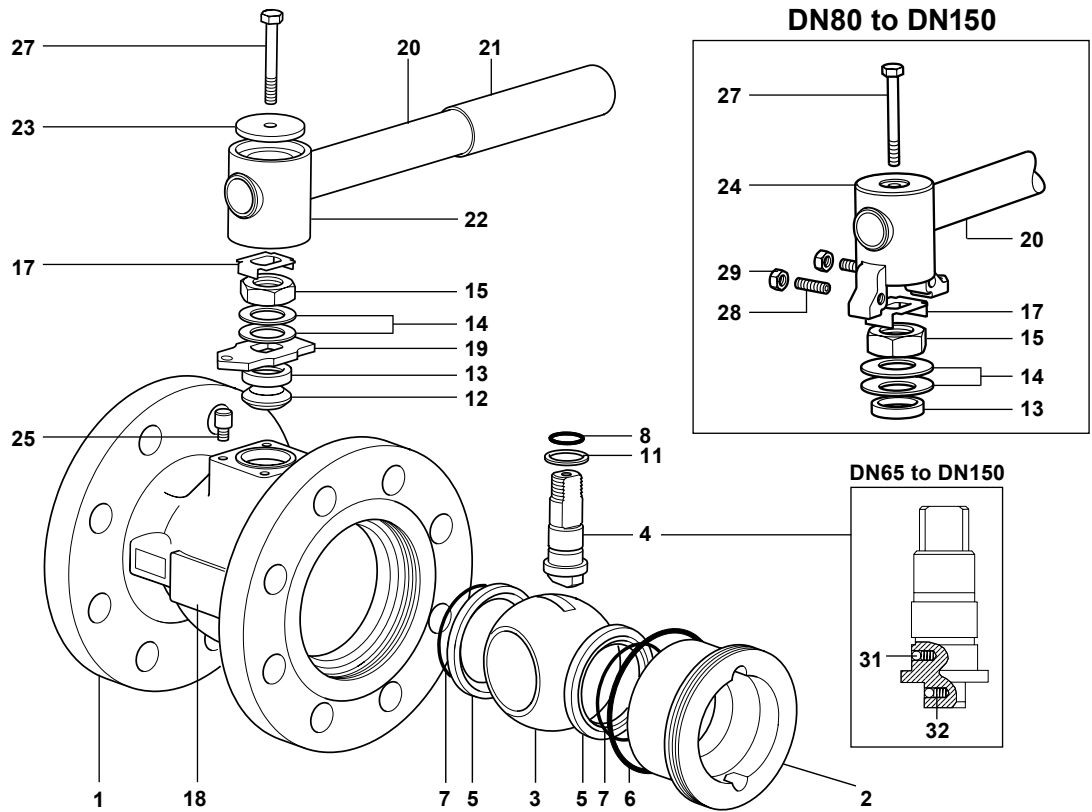
DN15 to DN50



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 |
| 9 | Stem seals | | Antistatic R-PTFE |
| 10 | Stem seals | | Stainless steel |
| 13 | Separator | | Zinc plated carbon steel |
| 14 | Belleville washer | | Stainless steel |
| 15 | Gland nut | | Zinc plated carbon steel |
| 16 | Upper steam nut | | Zinc plated carbon steel |
| 17 | Locking plate | | Stainless steel |
| 18 | Name-plate | | Stainless steel |
| 20 | Lever | | Zinc plated carbon steel |
| 21 | Grip | | Vinyl |
| 25 | Stop screw | | Zinc plated carbon steel |
| 26 | Split locker washer | | Stainless steel |
| 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 | SAE 1040 |
| | | M21Si3 ISO and M21Vi3 ISO | 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 |
| | | M21Vi2 ISO and M21Vi3 ISO | Virgin PTFE |
| 6 | Insert 'O' ring | EPDM | Geothermal |
| 7 | Seat 'O' ring | EPDM | Geothermal |
| 8 | Stem 'O' ring | EPDM | Geothermal |
| 11 | Lower stem seals | Antistatic R-PTFE | |
| 12 | Upper stem packaging | Virgin PTFE | |
| 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 |
| 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 |
| 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 DN150 | Zinc plated SG iron |
| 25 | Stop screw | DN80 to DN150 | Zinc plated carbon steel |
| 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 | |
| 32 | Antistatic device spring | Stainless steel | AISI 301 |

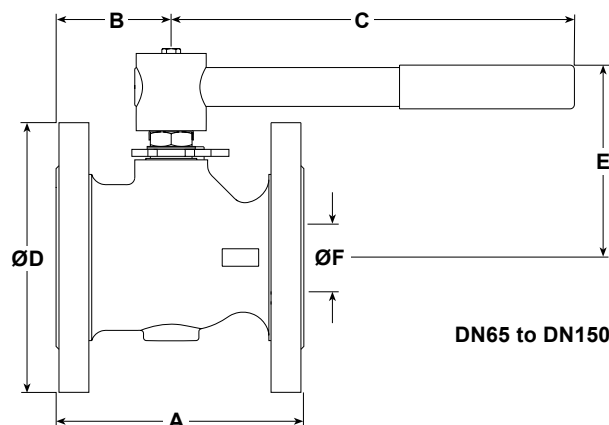
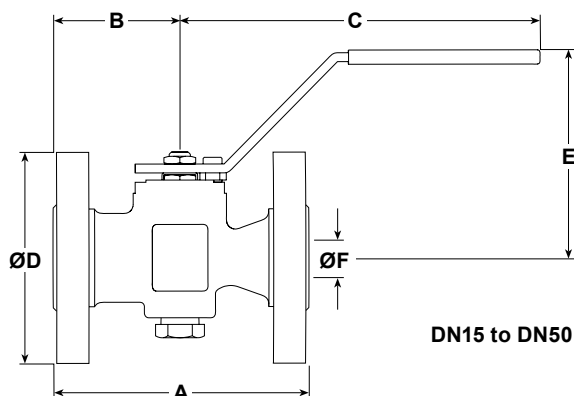
Dimensions/weights (approximate) in mm and kg

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_v values

| DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 150 |
|----------------|----|----|----|----|----|-----|-----|-----|-----|-----|
| K _v | 10 | 10 | 30 | 40 | 81 | 103 | 197 | 248 | 581 | 735 |

For conversion C_v (UK) = $K_v \times 0.963$ C_v (US) = $K_v \times 1.156$

Operating torque (N m)

| DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 | 150 |
|-----|----|----|----|----|----|----|----|-----|-----|-----|
| N m | 15 | 15 | 20 | 25 | 45 | 50 | 55 | 110 | 140 | 155 |

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

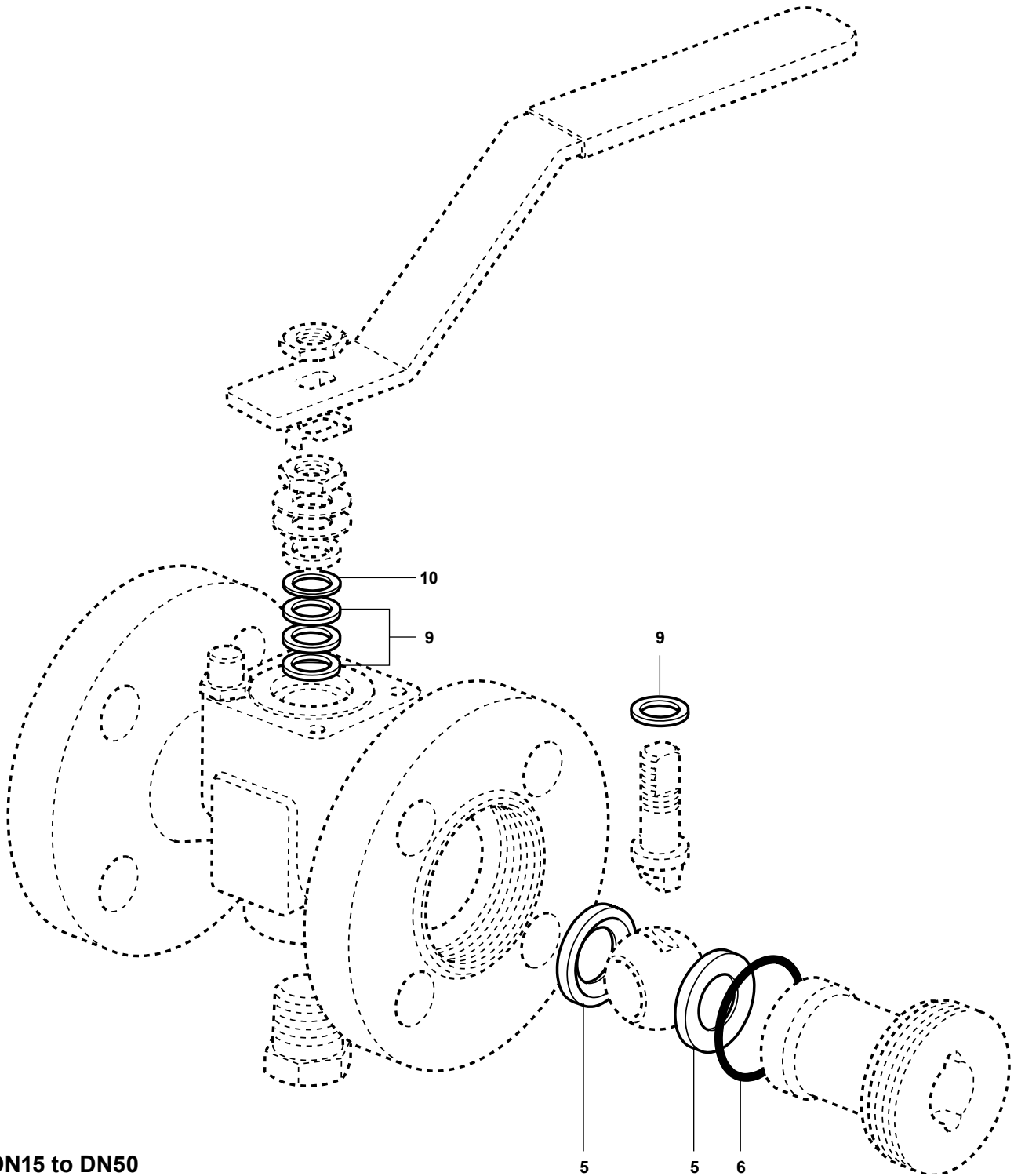
Seats, insert 'O' ring and stem seals

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

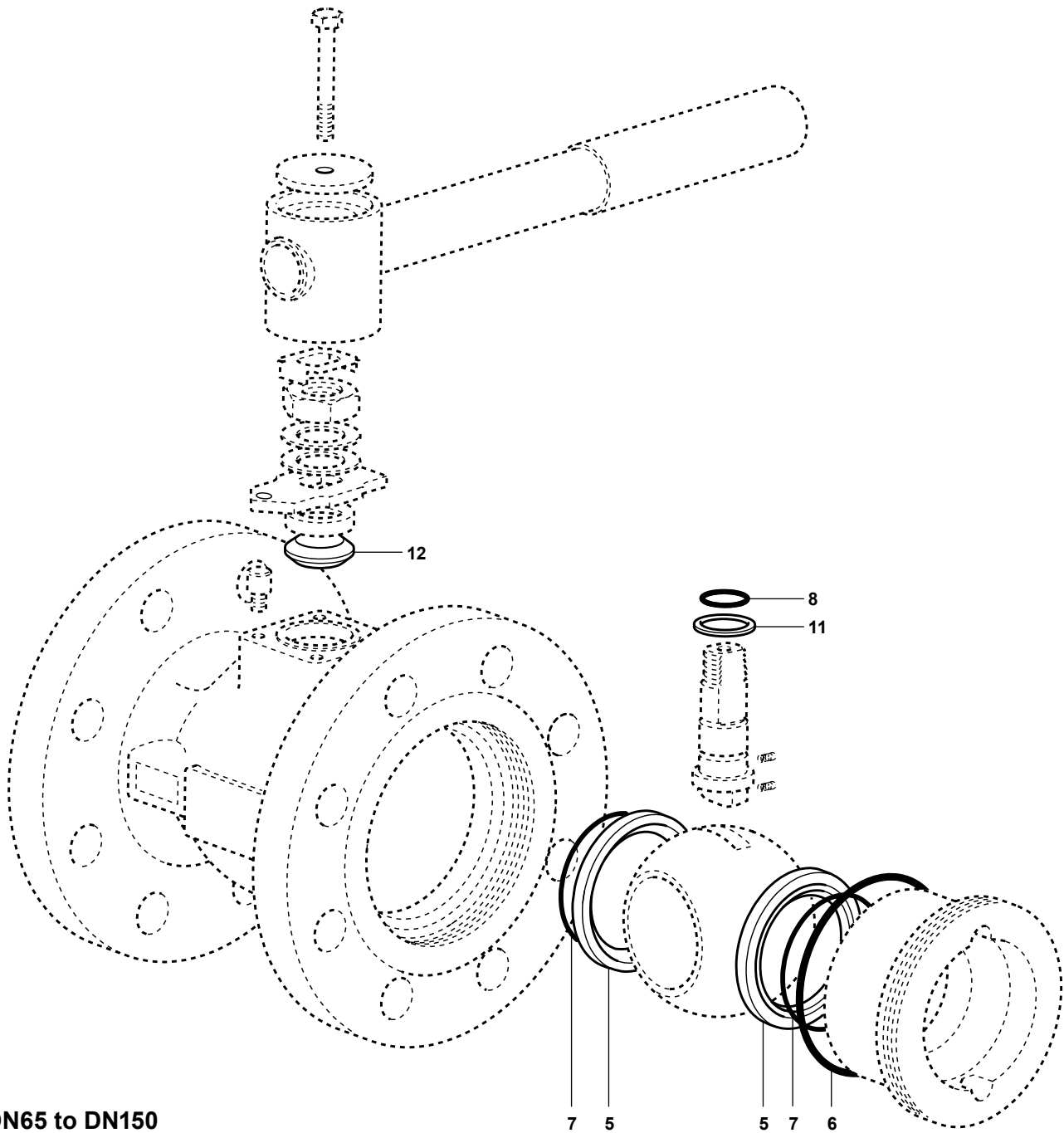
Seats, insert 'O' ring, seat 'O' ring, stem 'O' ring, lower stem seals and upper stem packaging

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