



## KBV21i and KBV40i Key Operated Boiler Blowdown Valves

### Description

The key operated boiler blowdown valve consists of a carbon steel reduced bore ball valve with carbon reinforced PTFE seats and a key operated mechanism in stainless steel. Two types of key are sold as optional extras and are available as follows:

- **Standard length key.**
- **Extended length 'T' bar type key** for use where access to the valve is limited.

**To ensure compliance with boiler regulations** the key cannot be removed when the valve is open.

**Note:** The standard length key and extended length 'T' bar type key are sold separately. It is recommended that an extended length 'T' bar type key is purchased for valve sizes DN50 and DN65 (2" - 2½").

### Standards

These products comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and carries the  mark when so required.

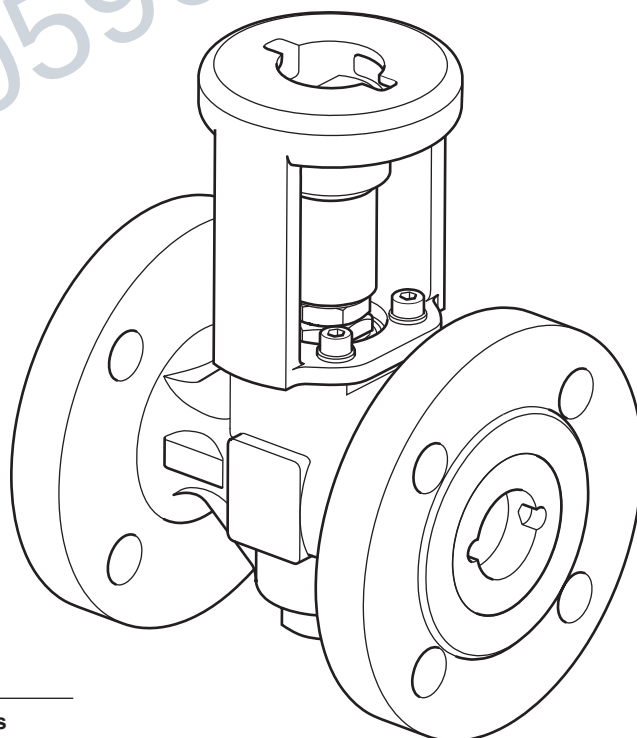
ISO mounting in accordance with ISO 5211.

Antistatic device complying with ISO 7121 and BS 5351.

### 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 and DN65

(1", 1¼", 1½", 2" and 2½")

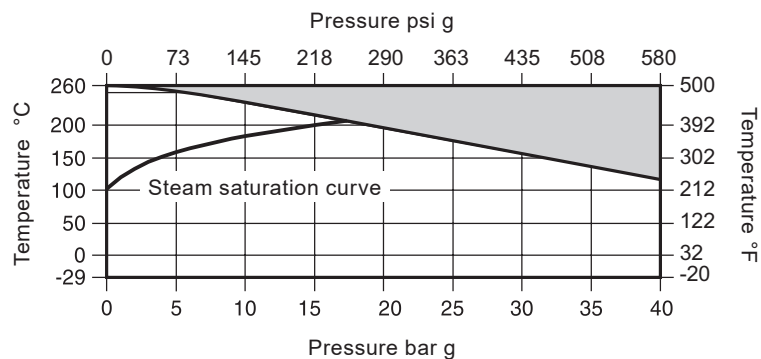
Flanged PN40 (F4), PN40 (BS) or ASME (ANSI) B 16.5 Class 300.

### Available flange options:

| Flange          | Face-to-face | Flange thickness |
|-----------------|--------------|------------------|
| PN40 (F4)       | DIN 3002 F4  | EN 1092 Part 1   |
| PN40 (BS)       | BS 2080      | EN 1092 Part 1   |
| ASME (ANSI) 300 | ASME B 16.10 | ASME B 16.5      |

## Pressure / temperature limits

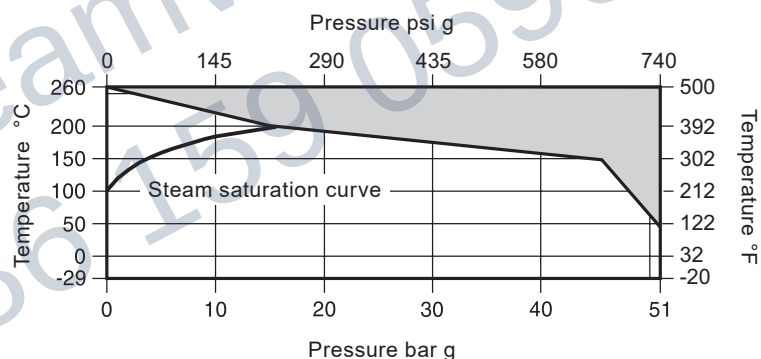
### KBV21i



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

|                                                                    |                                                        |                   |                    |
|--------------------------------------------------------------------|--------------------------------------------------------|-------------------|--------------------|
| Body design conditions                                             |                                                        | PN40              |                    |
| PMA                                                                | Maximum allowable pressure                             | 40 bar g @ 120 °C | 580 psi g @ 248 °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 | 17.25 bar g       | 250 psi g          |
| TMO                                                                | Maximum operating temperature                          | 260 °C @ 0 bar g  | 500 °F @ 0 psi g   |
| Minimum operating temperature.                                     |                                                        | -29 °C            | -20 °F             |
| <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          | 870 psi g          |

### KBV40i



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

|                                                                    |                                                        |                  |                    |
|--------------------------------------------------------------------|--------------------------------------------------------|------------------|--------------------|
| Body design conditions                                             |                                                        | ASME 300         |                    |
| PMA                                                                | Maximum allowable pressure                             | 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 | 17.25 bar g      | 250 psi g          |
| TMO                                                                | Maximum operating temperature                          | 260 °C @ 0 bar g | 500 °F @ 0 psi g   |
| Minimum operating temperature.                                     |                                                        | -29 °C           | -20 °F             |
| <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 :           |                                                        | 76.5 bar g       | 1110 psi g         |

## Materials

|                        |                       |                                     |               |
|------------------------|-----------------------|-------------------------------------|---------------|
| <b>Body and insert</b> |                       | Zinc plated carbon steel            | ASTM A216 WCB |
| <b>Stem seals</b>      |                       | Antistatic R-PTFE                   |               |
| <b>Vented ball</b>     |                       | Austenitic stainless steel          | AISI 316      |
| <b>Stem</b>            | DN65 (2½")            | Austenitic stainless steel          | AISI 316      |
|                        | DN25 - DN50 (1" - 2") | Martensitic stainless steel         | AISI 420      |
| <b>Seats</b>           |                       | Carbon and graphite reinforced PTFE | PDR 0.8       |

## Valve coefficients

| Size            | DN25 (1") | DN32 (1¼") | DN40 (1½") | DN50 (2") | DN65 (2½") |
|-----------------|-----------|------------|------------|-----------|------------|
| <b>Kv value</b> | 30        | 40         | 81         | 103       | 197        |

For conversion:

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

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

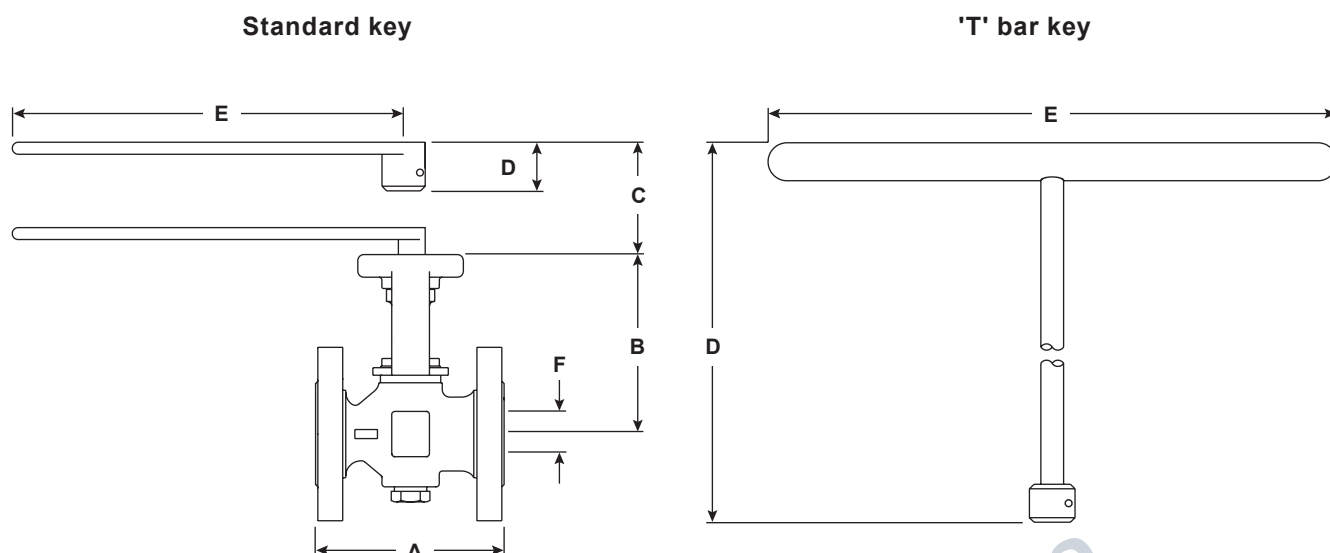
## How to specify

DN40 key operated boiler blowdown valve, flanged PN40 with carbon reinforced seats and stainless steel key.

## How to order

**Example:** 1 off Spirax Sarco DN40 KBV21i key operated boiler blowdown valve having PN40 (F4) flanged connections.

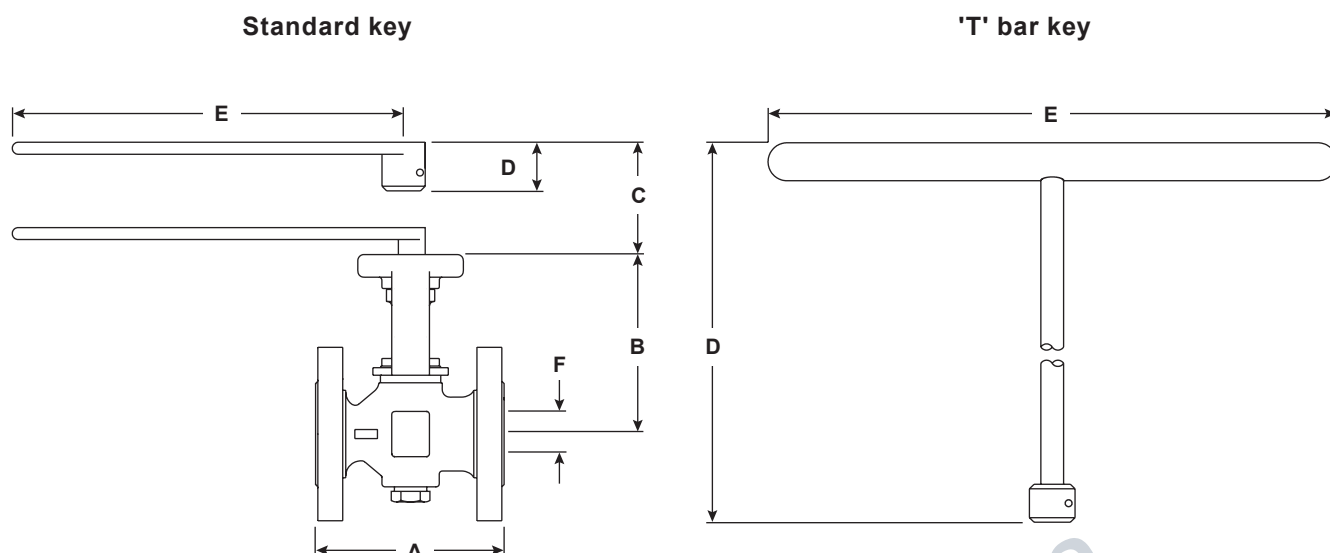
**Dimensions/weights** (approximate) in mm (in) and kg (lb)



| Valve size                  | Flange    | A            | B            | C           | D             | E             | F            | Weight        |
|-----------------------------|-----------|--------------|--------------|-------------|---------------|---------------|--------------|---------------|
| DN25 (1")                   | PN40 (F4) | 125<br>(4.9) | 119<br>(4.7) | 35<br>(1.4) |               |               | 19<br>(0.75) | 3.9<br>(8.6)  |
|                             | PN40 BS   | 165<br>(6.5) | 119<br>(4.7) | 35<br>(1.4) |               |               | 19<br>(0.75) | 4.1<br>(9)    |
|                             | Class 300 | 165<br>(6.5) | 119<br>(4.7) | 35<br>(1.4) |               |               | 19<br>(0.75) | 4.3<br>(9.5)  |
| DN32 (1¼")                  | PN40 (F4) | 130<br>(5.1) | 130<br>(5.1) | 35<br>(1.4) |               |               | 25<br>(0.9)  | 5.3<br>(11.7) |
|                             | PN40 BS   | 178<br>(7)   | 130<br>(5.1) | 35<br>(1.4) |               |               | 25<br>(0.9)  | 5.7<br>(12.6) |
|                             | Class 300 | 178<br>(7)   | 130<br>(5.1) | 35<br>(1.4) |               |               | 25<br>(0.9)  | 5.5<br>(12.1) |
| DN40 (1½")                  | PN40 (F4) | 140<br>(5.5) | 131<br>(5.2) | 35<br>(1.4) |               |               | 30<br>(1.2)  | 6.7<br>(14.8) |
|                             | PN40 BS   | 190<br>(7.5) | 131<br>(5.2) | 35<br>(1.4) |               |               | 30<br>(1.2)  | 7.1<br>(15.7) |
|                             | Class 300 | 190<br>(7.5) | 131<br>(5.2) | 35<br>(1.4) |               |               | 30<br>(1.2)  | 8.0<br>(17.6) |
| Standard length key         |           |              |              |             | 32<br>(1.3)   | 258<br>(10.2) |              | 0.4<br>(0.9)  |
| Extended length 'T' bar key |           |              |              |             | 500<br>(19.7) | 375<br>(14.8) |              | 0.9<br>(2)    |

Dimensions/weights continued on next page

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



| Valve size                  | Flange    | A            | B            | C           | D             | E             | F           | Weight         |
|-----------------------------|-----------|--------------|--------------|-------------|---------------|---------------|-------------|----------------|
| DN50 (2")                   | PN40 (F4) | 150<br>(5.5) | 139<br>(5.4) | 35<br>(1.4) |               |               | 37<br>(1.5) | 9.0<br>(19.8)  |
|                             | PN40 BS   | 216<br>(8.5) | 139<br>(5.4) | 35<br>(1.4) |               |               | 37<br>(1.5) | 9.9<br>(21.8)  |
|                             | Class 300 | 216<br>(8.5) | 139<br>(5.4) | 35<br>(1.4) |               |               | 37<br>(1.5) | 10.1<br>(22.3) |
| DN65 (2½")                  | PN40 (F4) | 170<br>(6.7) | 140<br>(5.5) | 35<br>(1.4) |               |               | 50<br>(1.9) | 12.4<br>(27.3) |
|                             | PN40 BS   | 241<br>(9.5) | 140<br>(5.5) | 35<br>(1.4) |               |               | 50<br>(1.9) | 13.9<br>(30.6) |
|                             | Class 300 | 241<br>(9.5) | 140<br>(5.5) | 35<br>(1.4) |               |               | 50<br>(1.9) | 15.0<br>(33.1) |
| Standard length key         |           |              |              |             | 32<br>(1.3)   | 258<br>(10.2) |             | 0.4<br>(0.9)   |
| Extended length 'T' bar key |           |              |              |             | 500<br>(19.7) | 375<br>(14.8) |             | 0.9<br>(2)     |

## Spare parts - DN25 to DN50 (1" to 2")

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

To ensure correct operation and maintain the warranty, use only Spirax Sarco original parts.

Before actioning any maintenance programme observe the 'Safety Information' in Section 1 of the Information and Maintenance Instructions IM-P405-48 supplied with the unit.

### Available spares

|                                                                        |             |
|------------------------------------------------------------------------|-------------|
| Seats, insert 'O' ring and stem seals                                  | 5, 6, 9, 10 |
| Insert tool - Required to aid the removal of the ball valve insert (2) | Not shown   |

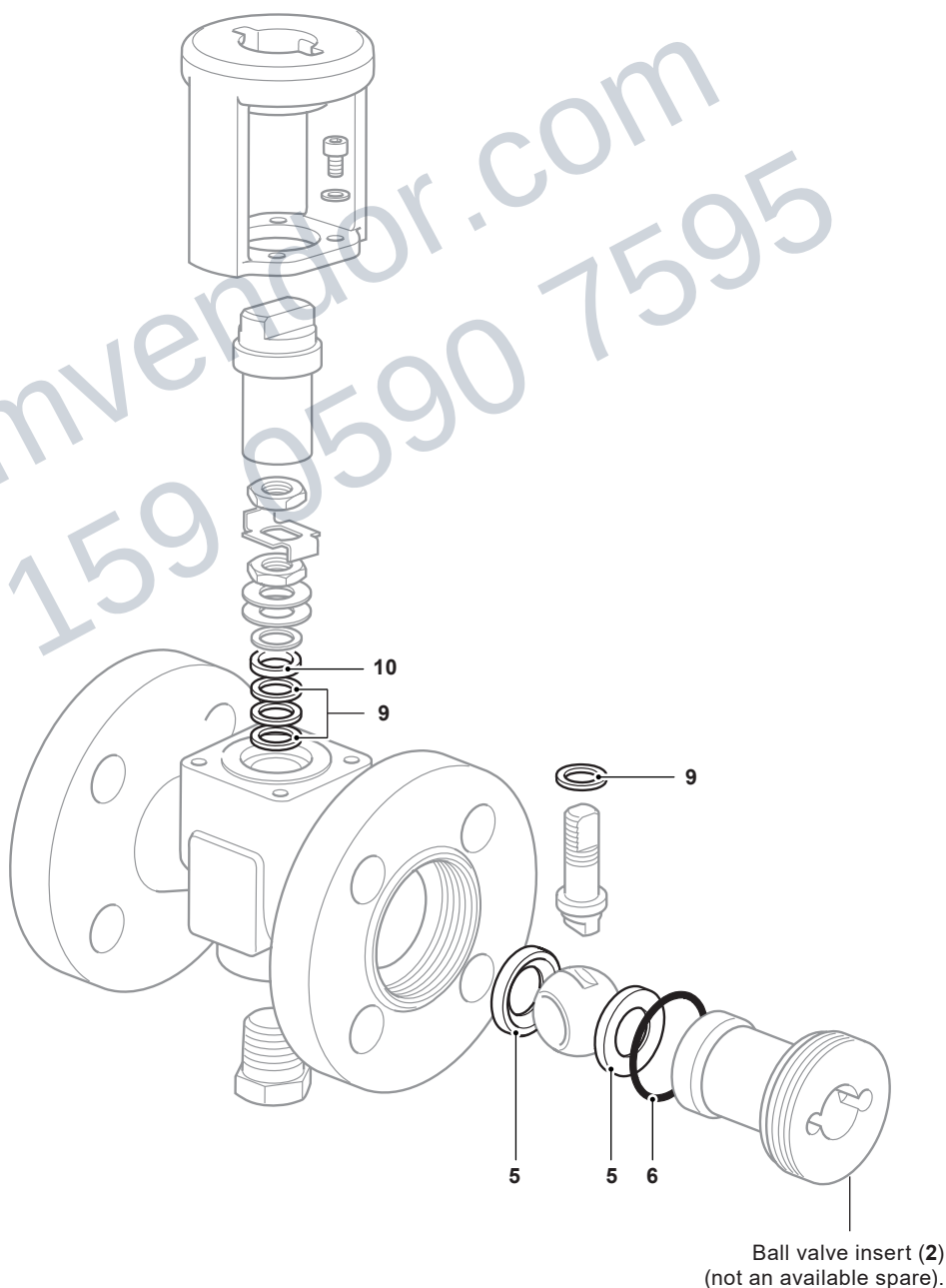
**Please note:** Spare parts are common for both the KBV21i and KBV40i.

**Caution** - The ball must be installed with the vent hole on the upstream side of the valve.

### 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 KBV21i boiler blowdown valve.



**Please note:** You will need to order the **Insert tool** listed in the table above to aid removal.

## Spare parts - DN65 (2½")

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

To ensure correct operation and maintain the warranty, use only Spirax Sarco original parts.

Before actioning any maintenance programme observe the 'Safety Information' in Section 1 of the Information and Maintenance Instructions IM-P405-48 supplied with the unit.

### 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 |
| Insert tool - Required to aid the removal of the ball valve insert (2)                        | Not shown          |

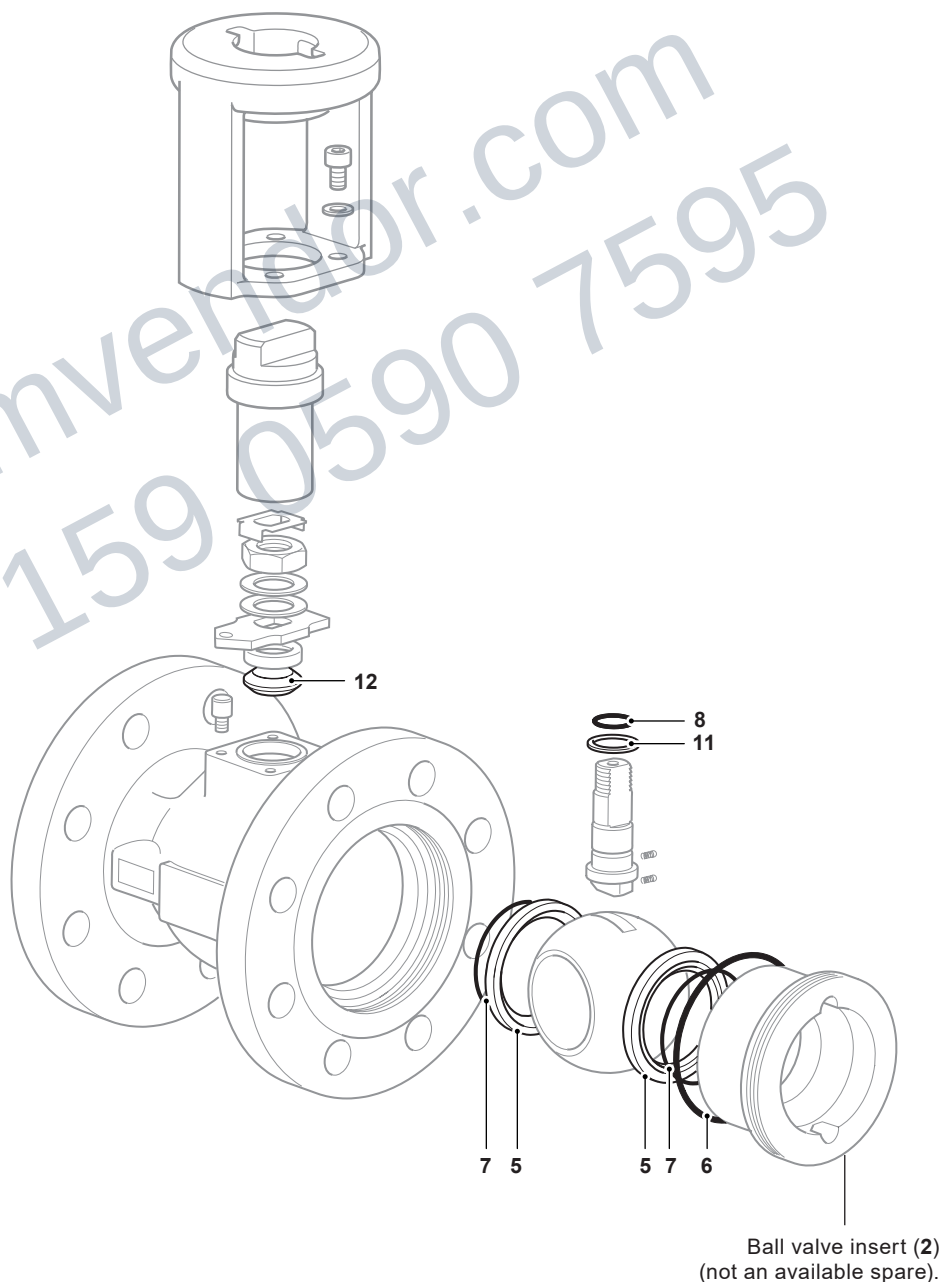
**Please note:** Spare parts are common for both the KBV21i and KBV40i.

**Caution** - The ball must be installed with the vent hole on the upstream side of the valve.

### 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 DN65 KBV40i boiler blowdown valve.



**Please note:** You will need to order the **Insert tool** listed in the table above to aid removal.