



TI-P210-01
CTLS Issue 5

BRV71 and BRV73

SG Iron

Pressure Reducing Valves

Description

The **BRV71** (screwed) and **BRV73** (flanged) are SG iron bodied direct acting pressure reducing valves designed for applications using steam.

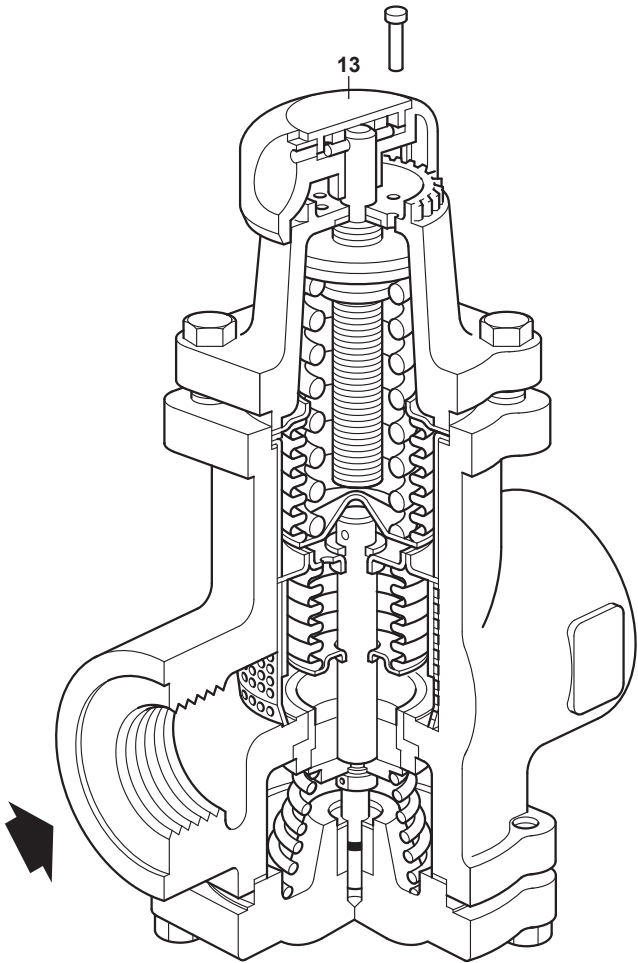
The **BRV71** and **BRV73** pressure reducing valves are supplied with one of three colour coded springs which are identified by the disc (13) located on the adjustment handwheel:

- | | |
|---------------|--|
| Grey | For downstream pressure control: 0.14 to 1.7 bar g |
| Green | For downstream pressure control: 1.40 to 4.0 bar g |
| Orange | For downstream pressure control: 3.50 to 9.0 bar g |

Note: Where control spring ranges overlap always use the lower range to give better control.

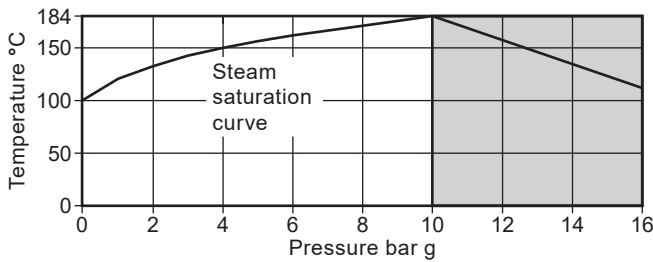
Sizes and pipe connections

1", 1¼", 1½" and 2" screwed BSP and NPT.
DN25, DN32, DN40 and DN50 flanged PN16, JIS 10 and ANSI 150.



Control systems
Pressure reducing/surplussing valves

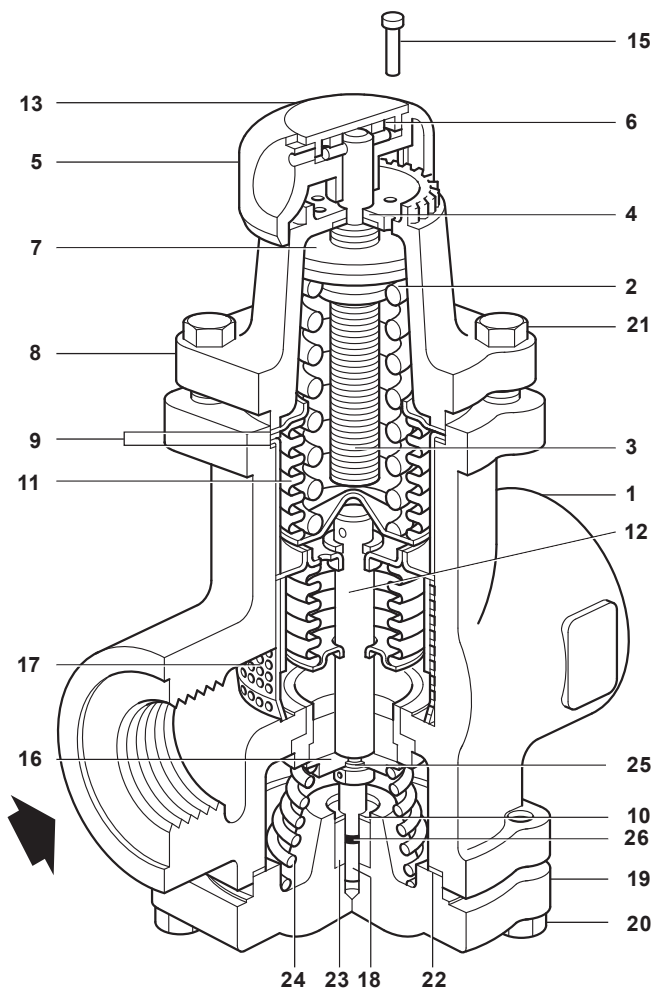
Pressure/temperature limits



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

| | |
|---|-------------------|
| Body design conditions | PN16 |
| Maximum allowable pressure | 16 bar g @ 120 °C |
| Maximum allowable temperature | 184 °C @ 10 bar g |
| Minimum allowable temperature | - 10 °C |
| Maximum operating pressure for saturated steam service | 10 bar g |
| Maximum operating temperature | 184 °C @ 10 bar g |
| Minimum operating temperature | 0 °C |
| Note: For lower operating temperatures consult Spirax Sarco. | |
| Maximum downstream reduced pressure | 9 bar g |
| Maximum differential pressure | 10 bar |
| Designed for a maximum cold hydraulic test pressure of: | 24 bar g |
| Note: With internals fitted, test pressure must not exceed: | 16 bar g |

Materials



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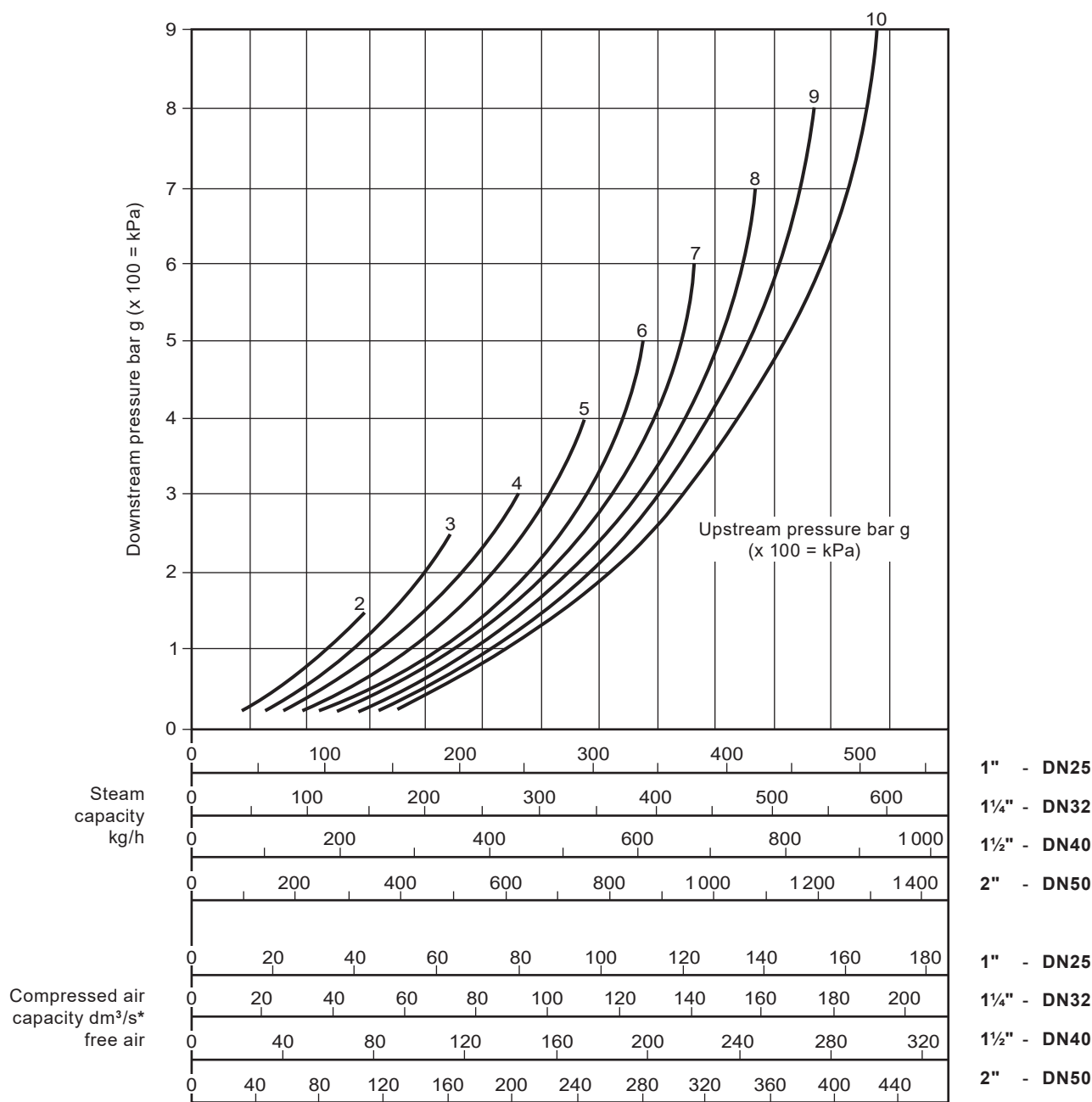
| No. | Part | Material |
|-----|------------------------------------|---|
| 1 | Body assembly | SG iron DIN 1693 GGG 40.3 ELNP coated |
| 2 | Pressure adjustment control spring | Silicon chrome BS 2803 685 A55 |
| 3 | Adjustment screw | Carbon steel BS 970 230 M07 |
| 4 | Plain washer | Stainless steel Gr.18/10/3-4A |
| 5 | Adjustment knob | Mineral filled nylon 66 10B 140 |
| 6 | Spirol pin | Chrome plated stainless steel AISI 420 |
| 7 | Spring plate | Cast iron DIN 1691 GG 20 |
| 8 | Spring housing | Aluminium 2ELNP coated |
| 9 | Upper gasket | Semi-rigid graphite laminated |
| 10 | Lower gasket | Semi-rigid graphite laminated |
| 11 | Bellows assembly | Stainless steel 316L |
| 12 | Bellows/pushrod assembly | Stainless steel/PTFE 15% graphite fill 316L |

| No. | Part | Material |
|-----|------------------------------------|---|
| 13 | Printed cap | Polypropylene |
| 15 | Locking pin | Copper |
| 16* | Head (incorporating seal Pt No.27) | Stainless steel BS 970 431 S29 |
| 17 | Screen | Stainless steel 316L |
| 18 | Lower pushrod | Stainless steel BS 970 431 S29 |
| 19 | End cap | SG iron DIN 1693 GGG 40.3 ELNP coated |
| 20 | Screw | Zinc plated steel BS 3692 Gr. 8.8 |
| 21 | Screw | Zinc plated steel BS 3692 Gr. 8.8 |
| 22 | Washer | Stainless steel BS 1449 304 515 |
| 23 | Guide bush | PTFE 15% graphite filled |
| 24 | Return spring | Stainless steel BS 2056 316 S42 |
| 25 | PTFE washer | Virgin PTFE BS 6564 Type 2 Gr. B |
| 26 | 'O' ring seal | EPDM E 0962-90 |
| 27* | Head 'O' ring seal | EDPM E 0962-90 |

*Note: Parts 16 and 27 are not shown.

Steam and compressed air capacity chart

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* dm³/s = l/s, 1 l/s \approx 2 c.f.m.

How to use the chart

The curved lines labelled 2, 3, 4, 5 etc., represent upstream pressures. Downstream pressures are read along the vertical line on the left hand side of the chart.

How to use the chart is best described by an example:-

Required, a pressure reducing valve to pass 350 kg/h reducing from 8 to 6 bar. From the downstream pressure of 6 bar on the left hand side of the chart extend out horizontally until the line meets the curved 8 bar upstream line. At this point read vertically downwards where it will be seen that DN25 BRV71 or BRV73 will be required.

K_v values

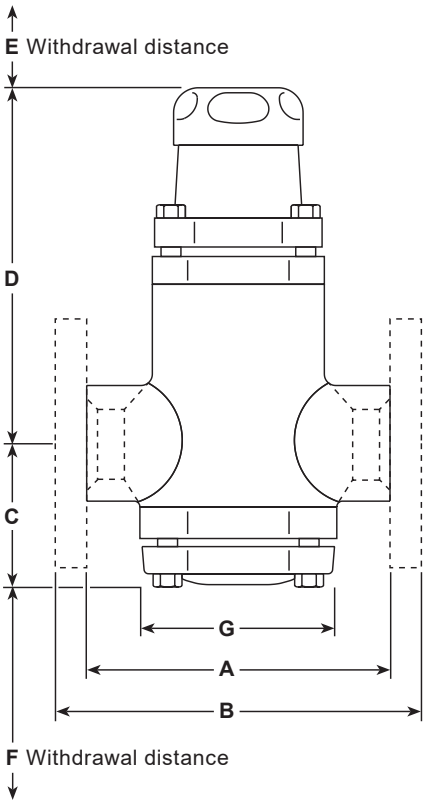
Full lift capacity for safety valve sizing purposes are shown below:

| Size | 1" - DN25 | 1¼" - DN32 | 1½" - DN40 | 2" - DN50 | For conversion: C _v (UK) = K _v x 0.963 C _v (US) = K _v x 1.156 |
|----------------|-----------|------------|------------|-----------|---|
| K _v | 9.3 | 11.1 | 15.7 | 16.2 | |

Dimensions/weights (approximate) in mm and kg

| Size | Scr. BSP/NPT | PN16 | ANSI 150 | JIS 10 | | | | | | | | Weight | |
|------------|--------------|------|----------|--------|----|-----|----|----|----|------|------|--------|--|
| | A | B | B | B | C | D | E | F | G | Scr. | *Flg | | |
| DN25 - 1" | 134 | 174 | 170 | 170 | 67 | 153 | 90 | 25 | 84 | 4.40 | 5.90 | | |
| DN32 - 1¼" | 134 | 179 | 174 | 175 | 67 | 153 | 90 | 25 | 84 | 4.20 | 7.65 | | |
| DN40 - 1½" | 134 | 186 | 183 | 180 | 67 | 153 | 90 | 25 | 84 | 4.95 | 8.55 | | |
| DN50 - 2" | 134 | 186 | 186 | 180 | 67 | 153 | 90 | 25 | 84 | 4.75 | 9.40 | | |

*Note: Flanged weights are typical of the BRV73 model and the figures quoted are based on the PN16 version.



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P210-04) supplied with the product.

Installation note:

The valve should be installed in a horizontal pipeline with the direction of flow as indicated by the arrow on the valve body.

How to order

Example: 1 off Spirax Sarco 1" screwed BSP BRV71 pressure reducing valve with SG iron body, stainless steel bellows and fitted with an orange spring for a downstream pressure control of 3.5 to 9.0 bar g.

Control systems

Pressure reducing/surplussing valves

Spare parts

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

Available spares

Note the spares listed are common to all sizes

| | | | |
|---|----------------|-------------------|---------|
| Pressure adjustment spring | Grey | 0.14 to 1.7 bar g | K, Q |
| | Green | 1.40 to 4.0 bar g | K, Q |
| | Orange | 3.50 to 9.0 bar g | K, Q |
| Control bellows - Stainless steel | | | J |
| Bellows pushrod assembly, (Sub assembly, head, 'O' rings, lower pushrod and balancing bellows) | | | E, C, H |
| Bottom cap | | | B |
| Strainer screen | | | G |
| Return spring and gasket set | | | F |
| Bolt set | Spring housing | (Set of 4) | L |
| | Bottom cap | (Set of 4) | A |
| Return spring | | | D |

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size, type and pressure range of the reducing valve.

Example: 1 off Pressure adjustment spring (orange), having a downstream pressure range of 3.5 to 9.0 bar g for a Spirax Sarco 1" BRV71 pressure reducing valve.

