

Type SUL

Pump protection valve for centrifugal pumps



> Type SUL, front view



> Type SUL, sectional view

Product features

- Automatically modulating bypass function
- Cast material, carbon steel, stainless steel
- Single-stage pressure reduction (up to 20 bar)
- Internal operation (no external energy source required)
- Easy to install
- Low maintenance
- Suitable for all liquids

Applications

- Boiler feed water
- Condensate
- Chemical processes
- Extinguishing water

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Technical data

| | |
|------------------------------------|--|
| Nominal diameter | DN 25–250 / NPS 1-10 |
| Pressure class | PN 10–63 / Class 150–300 |
| Temperature (max.) | Up to 230 °C / 446 °F (other temperatures on request) |
| Housing material | 1.0619 / A216WCB 1.4408 / A351CF8M 1.4410 / A9955A 1.4501 / A9956A |
| Housing type | Cast |
| Media | Liquids of all kinds (water, oils, chemicals and others) |
| Flanges | EN 1092-1, ASME B16.5, ISO 7005, JIS, JPI |
| Designs | vertical installation, horizontal installation, drain hole, optional non-return, design for particals (with wiper) |
| Number of stages (max.) | 1 |
| Number of controlled stages (max.) | 1 |
| Operating range (max.) | Delta p up to max. 20 bar (water) |

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Function

The SUL valve design is a further development of the SCHROEDAHL SU valve, an automatic recirculation valve that has been used in ships since 1960.

In addition to the well-known TD series, the SUL series offers effective and cost-effective protection for pumps used in the energy, chemical and petrochemical industries.

The SUL consists of two housing parts (items 01, 02) made of cast steel or stainless steel, a non-return check-valve (item 07) with guide (item 04) and closing spring (item 06) as well as the bypass-inserts (items 10-13) and the damping device (items 14, 15).

Based on long series of tests and operating experience, these parts are matched to each other in such a way that stable operation is guaranteed, even with a slight tendency for the system to vibrate.

The automatic bypass section comprises the vortex bushing (item 10), in which a bushing/stem assembly (item 11/12) follows the movement of the non-return valve plug and the adjustment bolt (item 13).

Special features

- Reliable operation with only a few moving parts
- Easy to install – in a vertical or horizontal position, directly on the pump outlet
- Easy to change flow characteristics (change of one part - item 13 - only).
- Can be used for a wide range of liquids such as water, oil, hydrocarbonates, liquid gas and many other types of chemical media.
- Temperature range -200 °C to +230 °C

Installation information

SUL valves should be installed as close as possible to the pump, preferably at the discharge port of the pump, in a vertical position. Horizontal installation is also possible.

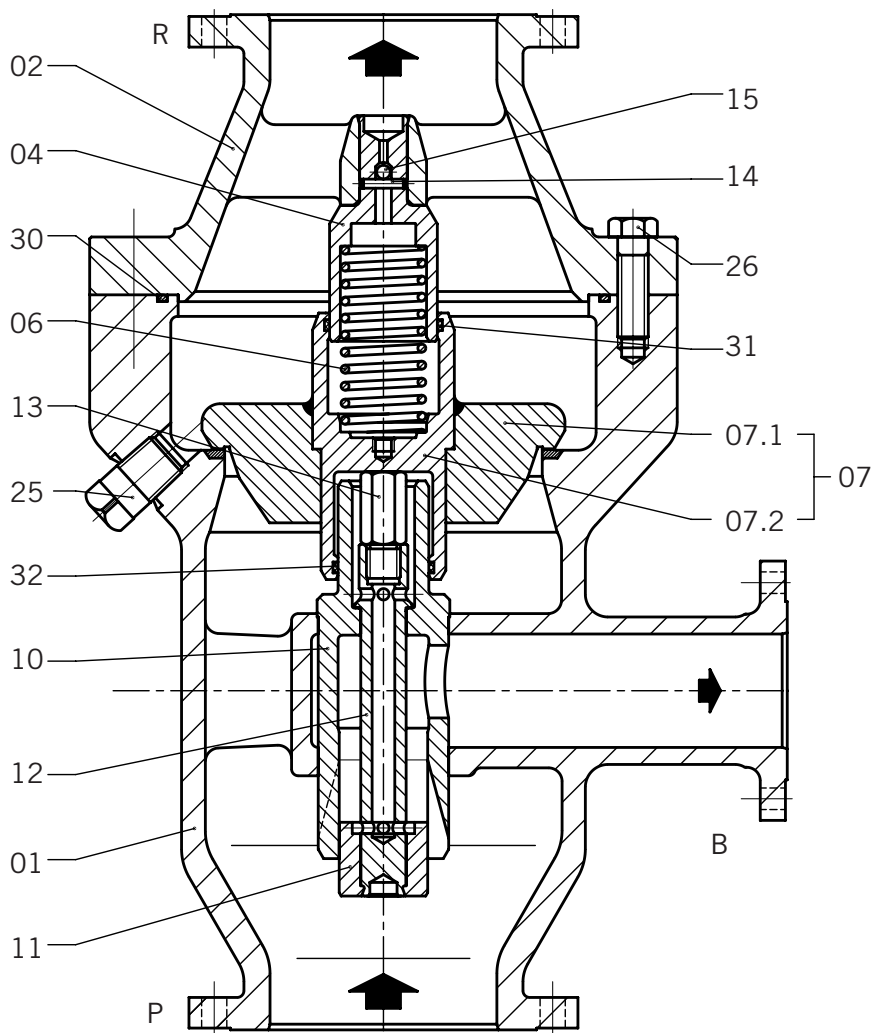
The distance between valve inlet and pump outlet should not exceed 3 m to prevent pressure pulsations caused by the elasticity of the medium.

Ensure that the drain screw (if provided) is at the bottom of the valve in case of horizontal installation.

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Sectional drawing



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Parts list

| Pos. | Item | Material |
|------|------------------|-------------|
| 01 | Lower body | * |
| 02 | Upper body | * |
| 04 | Guide bolt | 1.4301 |
| 06 | Spring | 1.4310 |
| 07 | Check valve cpl. | 1.4404 |
| 10 | Vortex bushing | 1.4542 |
| 11 | Control bushing | 1.4122 |
| 12 | Stem | 1.4122 |
| 13 | Adjustment bolt | 1.4301 |
| 14 | Pin | 1.4301 |
| 15 | Ball | 1.4401 |
| 25 | Drain screw | *** |
| 26 | Hexagon screw | ** |
| 30 | O-Ring | * |
| 31 | Guiding ring | PTFE/Carbon |
| 32 | Guiding ring | PTFE/Carbon |

 Recommended spare/wear parts

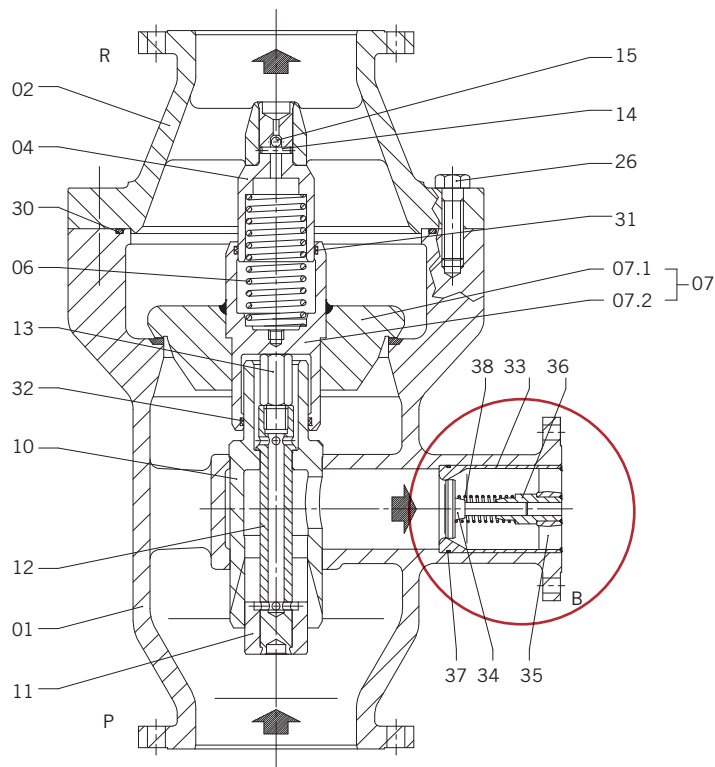
- * Depending on customer requirements
- ** Depending on size and pressure rating
- *** Depending on housing material

Parts list as an example of the standard configuration

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Sectional drawing (non-return function)



Parts list (non-return function)

| Pos. | Item | Material |
|------|---------------------|----------|
| 33 | Check valve housing | 1.4404 |
| 34 | Reaction piston | 1.4122 |
| 35 | Stemguide | 1.4408 |
| 36 | Slide bushing | 1.4404 |
| 37 | O-Ring | * |
| 38 | Spring | 1.4310 |

* Depending on customer requirements

Parts list as an example of the standard configuration

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Dimensions EN

| DN _R / DN _P | PN | DN _B | Type | L (mm) | S (mm) | H (mm) | Weight (kg) PN10/16 | Weight (kg) PN25/40/63 |
|-----------------------------------|-------|-----------------|---------|--------|--------|--------|------------------------|---------------------------|
| 25 | 10-63 | 15 | 051-055 | 267 | 115 | 102 | 12 | 18 |
| 32 | 10-40 | 20 | 061-064 | 267 | 115 | 102 | 15 | 20 |
| 32 | 63 | 15 | 065 | 267 | 115 | 102 | 15 | 20 |
| 40 | 10-40 | 20 | 071-074 | 267 | 115 | 102 | 15 | 20 |
| 40 | 63 | 15 | 075 | 267 | 115 | 102 | 15 | 20 |
| 50 | 10-63 | 25 | 081-085 | 305 | 130 | 108 | 22 | 25 |
| 65 | 10-63 | 40 | 091-095 | 406 | 165 | 136 | 45 | 50 |
| 80 | 10-63 | 40 | 101-105 | 406 | 165 | 136 | 45 | 50 |
| 100 | 10-63 | 50 | 111-115 | 495 | 209 | 159 | 105 | 118 |
| 125 | 10-63 | 80 | 121-125 | 679 | 267 | 228 | 220 | 240 |
| 150 | 10-63 | 80 | 131-135 | 679 | 267 | 228 | 220 | 240 |
| 200 | 10-63 | 100 | 151-155 | 902 | 356 | 305 | 525 | 550 |
| 250 | 10-63 | 100 | 161-165 | 902 | 356 | 305 | 530 | 560 |

Dimensions ASME

| DN _R / DN _P | PN | DN _B | Type | L (mm) | S (mm) | H (mm) | Weight (kg) 150 lbs | Weight (kg) 300 lbs |
|-----------------------------------|---------|-----------------|---------|--------|--------|--------|------------------------|------------------------|
| NPS 1 | 150-300 | NPS 0,5 | 054-055 | 267 | 115 | 102 | 12 | 18 |
| NPS 1,25 | 150-300 | NPS 0,75 | 064-065 | 267 | 115 | 102 | 15 | 20 |
| NPS 1,5 | 150-300 | NPS 0,75 | 074-075 | 267 | 115 | 102 | 15 | 20 |
| NPS 2 | 150-300 | NPS 1 | 084-085 | 305 | 130 | 108 | 22 | 25 |
| NPS 2,5 | 150-300 | NPS 1,5 | 094-095 | 406 | 165 | 136 | 45 | 50 |
| NPS 3 | 150-300 | NPS 1,5 | 104-105 | 406 | 165 | 136 | 45 | 50 |
| NPS 4 | 150-300 | NPS 2 | 114-115 | 495 | 209 | 159 | 105 | 118 |
| NPS 5 | 150-300 | NPS 3 | 124-125 | 679 | 267 | 228 | 220 | 240 |
| NPS 6 | 150-300 | NPS 3 | 134-135 | 679 | 267 | 228 | 220 | 240 |
| NPS 8 | 150-300 | NPS 4 | 154-155 | 902 | 356 | 305 | 525 | 550 |
| NPS 10 | 150-300 | NPS 4 | 163-165 | 902 | 356 | 305 | 530 | 560 |