

Type 481

Safety Relief Valves
– spring loaded

Metric Units + US Units



Facts

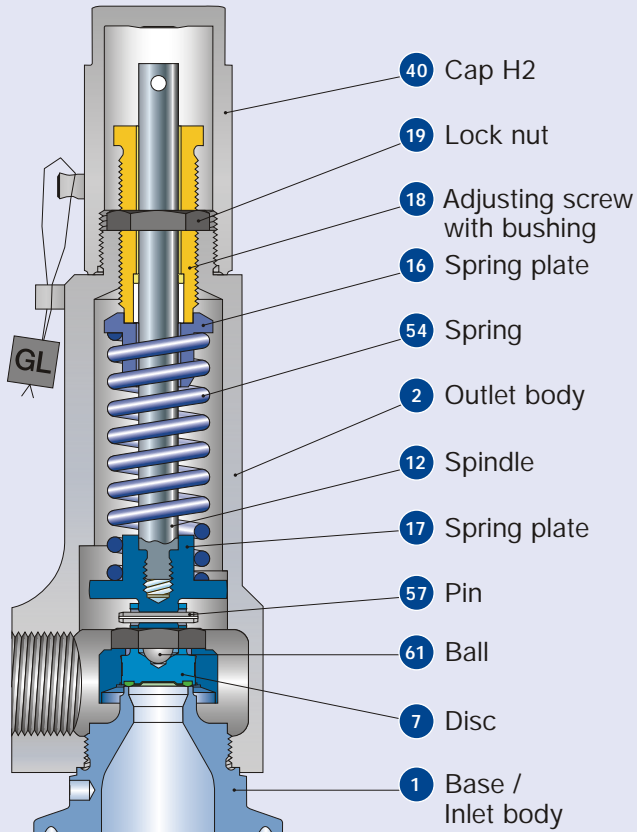
LESER

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Conventional design

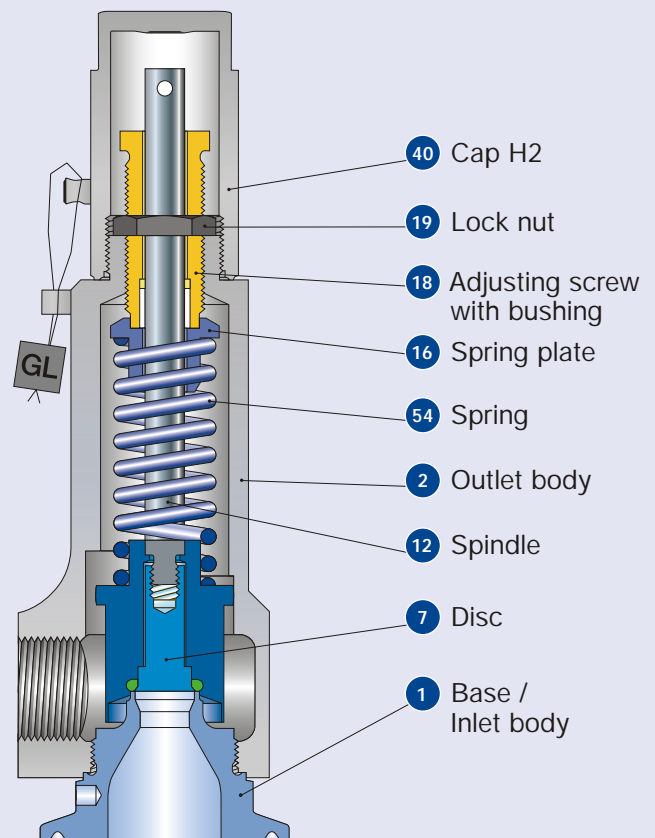
Type 481

Low set pressure








Type 481
with vulcanized soft seal
 Cap H2
 Set pressure: 0,1 – 16 bar
 1,5 – 232 psig
 Inlet: Clamp connection
 Outlet: Threaded connection

High set pressure



Type 481 with O-ring
 Set pressure: 16 – 68 bar
 233 – 986 psig
 Inlet: Clamp connection
 Outlet: Threaded connection

Conventional design

| Materials | | | Type 4814 | |
|-----------|-------------------------------|---|--------------------------------|-------------------------------|
| Item | Component | Remarks | Set pressure | |
| | | | 0,1 – 16 bar 1,5 – 232 psig | 16 – 68 bar 233 – 986 psig |
| 1 | Base / Inlet body | | 1.4404 | 1.4404 |
| | | | SA 479 316L | SA 479 316L |
| 2 | Outlet body | | 1.4404 | 1.4404 |
| | | | SA 479 316L | SA 479 316L |
| 7 | Disc | | 1.4404 | 1.4404 |
| | | | SA 479 316L | SA 479 316L |
| | | | Vulcanized soft seal | O-ring soft seal |
| 7.1 | Soft seal vucanized or O-ring | “D”   | EPDM | EPDM |
| | | “K” | CR | CR |
| | | “L”  | FKM | FKM |
| | | “N” | NBR | NBR |
| | | “C”   | FFKM | FFKM |
| 12 | Spindle | | 1.4571 | 1.4571 |
| | | | 316Ti | 316Ti |
| 16 | Spring plate | | 1.4404 | 1.4404 |
| | | | 316L | 316L |
| 17 | Spring plate | | 1.4404 | – |
| | | | 316L | – |
| 18 | Adjusting screw with bushing | PTFE + 15 % glass | 1.4404 / PTFE | 1.4404 / PTFE |
| | | | 316L / PTFE | 316L / PTFE |
| 19 | Lock nut | | 1.4404 | 1.4404 |
| | | | 316L | 316L |
| 40 | Cap H2 | | 1.4404 | 1.4404 |
| | | | 316L | 316L |
| 54 | Spring | | 1.4310 | 1.4310 |
| | | | Stainless steel | Stainless steel |
| 57 | Pin | | 1.4310 | – |
| | | | Stainless steel | – |
| 61 | Ball | | 1.4401 | – |
| | | | 316 | – |

Please notice:

- Modifications reserved by LESER.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.

How to order – Article numbers

Article numbers

| | | | Vulcanized soft seal | O-ring disc |
|--|-----------|-----------------------|----------------------|------------------|
| Actual Orifice diameter d_0 [mm] | | | 10 | 10 |
| Actual Orifice area A_0 [mm ²] | | | 78,5 | 78,5 |
| Actual Orifice diameter d_0 [inch] | | | 0,394 | 0,394 |
| Actual Orifice area A_0 [inch ²] | | | 0,122 | 0,122 |
| Soft seal material | | | EPDM "D" J22 | EPDM "D" J22 |
| | | | CR "K" J21 | CR "K" J21 |
| | | | FKM "L" J23 | FKM "L" J23 |
| | | | NBR "N" J30 | NBR "N" J30 |
| | | | FFKM "C" J20 | FFKM "C" J20 |
| Base / Inlet body material: 1.4404 (316L) | | | | |
| Bonnet | H2 | Art.-No. 4814. | 7692 | 7682 |
| closed | H4 | Art.-No. 4814. | 7694 | 7684 |
| | H8 | Art.-No. 4814. | 7698 | 7688 |
| | | p [bar] S/G/L | 0,1 – 16 | 16 – 68 |
| | | p [psig] S/G/L | 1,5 – 232 | 233 – 986 |

Pressure temperature ratings

Metric Units

| | | | Vulcanized soft seal | O-ring disc |
|--|-----------------|--|----------------------|-------------|
| Actual Orifice diameter d_0 [mm] | | | 10 | 10 |
| Actual Orifice area A_0 [mm ²] | | | 78,5 | 78,5 |
| Body material: 1.4404 (316L) | | | | |
| Inlet / Outlet body | Pressure rating | For pressure ratings please refer to chapter dimensions and weights (page 01/09) | | |
| Minimum set pressure | p [bar] S/G/L | 0,1 | | 16 |
| Maximum set pressure | p [bar] S/G/L | 16 | | 68 |
| Temperature range¹⁾ | | Minimum | Maximum | Minimum |
| EPDM | [°C] | -45 | +150 | -45 |
| CR | [°C] | -40 | +100 | -40 |
| FKM | [°C] | -20 | +180 | -20 |
| NBR | [°C] | -25 | +110 | -25 |
| FFKM | [°C] | 0 | +250 | 0 |

US Units

| | | | Vulcanized soft seal | O-ring disc |
|--|-----------------|--|----------------------|-------------|
| Actual Orifice diameter d_0 [inch] | | | 0,394 | 0,394 |
| Actual Orifice area A_0 [inch ²] | | | 0,122 | 0,122 |
| Body material: 1.4404 (316L) | | | | |
| Inlet / Outlet body | Pressure rating | For pressure ratings please refer to chapter dimensions and weights (page 01/09) | | |
| Minimum set pressure | p [psig] S/G/L | 1,5 | | 233 |
| Maximum set pressure | p [psig] S/G/L | 232 | | 986 |
| Temperature range¹⁾ | | Minimum | Maximum | Minimum |
| EPDM | [°F] | -49 | +302 | -49 |
| CR | [°F] | -40 | +212 | -40 |
| FKM | [°F] | -4 | +356 | -4 |
| NBR | [°F] | -13 | +230 | -13 |
| FFKM | [°F] | +32 | +482 | +32 |

¹⁾ The temperature is limited by the soft seal material. Refer to table "Soft seal selection" on page 99/11.

Dimensions – Bestseller

For shortest delivery time please select bestsellers. The specified bestsellers can vary depending on different market requirements

For further available connections please refer to page 01/10.

Metric Units

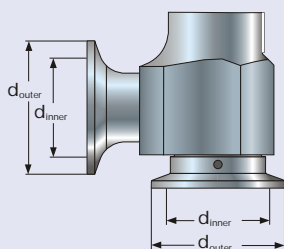
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|--|------------------|----------------|-----------------|
| Actual Orifice diameter d_0 [mm] | | 10 | |
| Actual Orifice area A_0 [mm ²] | | 78,5 | |
| Clamp connections | | Inlet a | Outlet b |
| COCO | | 1" | 1" |
| Option code | | L96I79L97A79 | |
| Center to face | [mm] | 30 | 65 |
| Clamp diameter | d_{inner} [mm] | 23 | 23 |
| | d_{outer} [mm] | 51 | 51 |
| Height – H4 | H max. [mm] | 193 | |
| Clamp / Threaded connections | | Inlet a | Outlet b |
| SOXG | | 15 | G 1/2" |
| Option code | | L79I14V65 | |
| Center to face | [mm] | 30 | 30 |
| Clamp diameter | d_{inner} [mm] | 16 | – |
| | d_{outer} [mm] | 34 | – |
| Height – H4 | H max. [mm] | 193 | |
| COXG | | 1" | G 1/2" |
| Option code | | L96I79V65 | |
| Center to face | [mm] | 33 | 37 |
| Clamp diameter | d_{inner} [mm] | 23 | – |
| | d_{outer} [mm] | 51 | – |
| Height – H4 | H max. [mm] | 193 | |

US Units

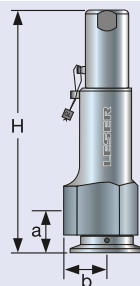
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|--|--------------------|---------------------------------|---------------------------------|
| Actual Orifice diameter d_0 [inch] | | 0,394 | |
| Actual Orifice area A_0 [inch ²] | | 0,122 | |
| Clamp connections | | Inlet a | Outlet b |
| COCO | | 1" | 1" |
| Option code | | L96I79L97A79 | |
| Center to face | [inch] | 1 ³ / ₁₆ | 2 ⁹ / ₁₆ |
| Clamp diameter | d_{inner} [inch] | ⁷ / ₈ | ⁷ / ₈ |
| | d_{outer} [inch] | 2 | 2 |
| Height – H4 | H max. [inch] | 7 ¹⁹ / ₃₂ | |
| Clamp / Threaded connections | | Inlet a | Outlet b |
| SOXG | | 15 | G 1/2" |
| Option code | | L79I14V65 | |
| Center to face | [inch] | 1 ³ / ₁₆ | 1 ³ / ₁₆ |
| Clamp diameter | d_{inner} [inch] | ⁵ / ₈ | – |
| | d_{outer} [inch] | 1 ¹¹ / ₃₂ | – |
| Height – H4 | H max. [inch] | 7 ¹⁹ / ₃₂ | |
| COXG | | 1" | G 1/2" |
| Option code | | L96I79V65 | |
| Center to face | [inch] | 1 ⁵ / ₁₆ | 1 ¹⁵ / ₃₂ |
| Clamp diameter | d_{inner} [inch] | ²⁹ / ₃₂ | – |
| | d_{outer} [inch] | 2 | – |
| Height – H4 | H max. [inch] | 7 ¹⁹ / ₃₂ | |

| | |
|----------------|-----------------|
| 10 | |
| 78,5 | |
| Inlet a | Outlet b |
| – | – |
| – | – |
| – | – |
| Inlet a | Outlet b |
| 25 | G 1/2" |
| L79I16V65 | |
| 33 | 37 |
| 26 | – |
| 51 | – |
| 193 | |
| – | – |
| – | – |
| – | – |
| – | – |

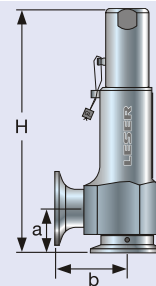
| | |
|---------------------------------|---------------------------------|
| 0,394 | |
| 0,122 | |
| Inlet a | Outlet b |
| – | – |
| – | – |
| – | – |
| Inlet a | Outlet b |
| 25 | G 1/2" |
| L79I16V65 | |
| 1 ⁵ / ₁₆ | 1 ¹⁵ / ₃₂ |
| 1 ¹ / ₃₂ | – |
| 2 | – |
| 7 ¹⁹ / ₃₂ | |
| – | – |
| – | – |
| – | – |
| – | – |



Type 481 – Clamp diameters



Type 481 – Outlet: Threaded connection



Type 481 – Outlet: Clamp connection

Dimensions and weights

| Metric Units | | | |
|--|-------------------|--|------|
| Actual Orifice diameter d_0 [mm] | | 10 | 10 |
| Actual Orifice area A_0 [mm ²] | | 78,5 | 78,5 |
| DN | | 15 | 25 |
| Clamp connections | | Inlet a | |
| PN | | 16 | 16 |
| Center to face | Outlet G 1/2 [mm] | 40 | 30 |
| | Outlet G 3/4 [mm] | 40 | 30 |
| | Outlet G 1 [mm] | 43 | 33 |
| Clamp diameter | d_{inner} [mm] | For varying clamp diameters please refer to page 00/11 | |
| | d_{outer} [mm] | | |
| Height – H4 | H max. [mm] | 203 | 193 |
| Height – H8 double piston design | H max. [mm] | 231 | 221 |
| Threaded connections | | Inlet a | |
| PN | | 16 | 16 |
| Center to face (female thread) | Outlet G 1/2 [mm] | – | 39 |
| | Outlet G 3/4 [mm] | – | 39 |
| | Outlet G 1 [mm] | – | 42 |
| Center to face | Outlet G 1/2 [mm] | – | 39 |
| | Outlet G 3/4 [mm] | – | 39 |
| | Outlet G 1 [mm] | – | 42 |
| Height – H4 | H max. [mm] | – | 202 |
| Height – H8 double piston design | H max. [mm] | – | 230 |
| Weight | | | |
| Weight | max. [kg] | 1,4 | 1,4 |

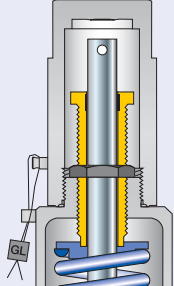
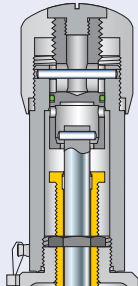
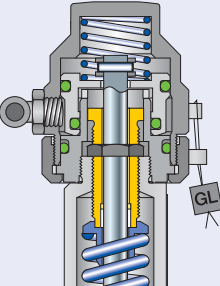
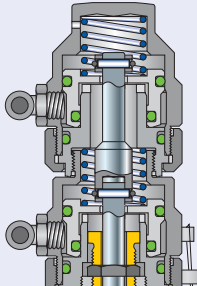







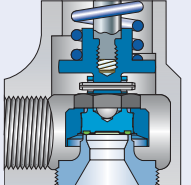







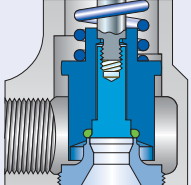
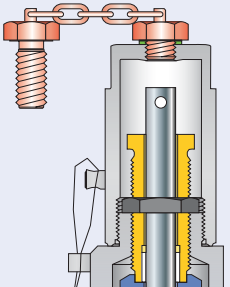
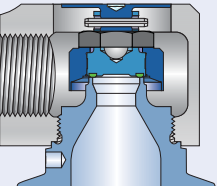
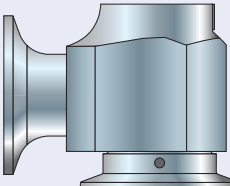
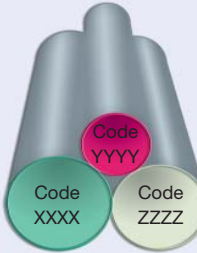
| US Units | | | |
|--|---------------------|--|---------|
| Actual Orifice diameter d_0 [inch] | | 0,394 | 0,394 |
| Actual Orifice area A_0 [inch ²] | | 0,122 | 0,122 |
| DN | | 15 | 25 |
| Clamp connections | | Inlet a | |
| PN | | 16 | 16 |
| Center to face | Outlet G 1/2 [inch] | 1 9/16 | 1 3/16 |
| | Outlet G 3/4 [inch] | 1 9/16 | 1 3/16 |
| | Outlet G 1 [inch] | 1 11/16 | 1 5/16 |
| Clamp diameter | d_{inner} [inch] | For varying clamp diameters please refer to page 00/11 | |
| | d_{outer} [inch] | | |
| Height – H4 | H max. [inch] | 8 | 7 19/32 |
| Height – H8 double piston design | H max. [inch] | 9 3/32 | 8 11/16 |
| Threaded connections | | Inlet a | |
| PN | | 16 | 16 |
| Center to face (female thread) | Outlet G 1/2 [inch] | – | 1 17/32 |
| | Outlet G 3/4 [inch] | – | 1 9/16 |
| | Outlet G 1 [inch] | – | 1 21/32 |
| Center to face | Outlet G 1/2 [inch] | – | 1 17/32 |
| | Outlet G 3/4 [inch] | – | 1 9/16 |
| | Outlet G 1 [inch] | – | 1 21/32 |
| Height – H4 | H max. [inch] | – | 7 15/16 |
| Height – H8 double piston design | H max. [inch] | – | 9 1/16 |
| Weight | | | |
| Weight | max. [lb] | 3,086 | 3,086 |

Option codes for available connections

For detailed information about the available connections please refer to "How to use" on page 00/07.

| Connections | | | | | | | |
|---|-----------------------|--------------------|--------|--------------------|----------|----------|--------|
| | d ₀ [mm] | 10 | | | | | |
| | d ₀ [inch] | 0,394 | | | | | |
| Clamps | | Option code inlet | | | | | |
| | DN | 15 | 25 | | | | |
| For dimensions refer to page 00/07 | SO | L79I14 | L79I16 | | | | |
| | DO | I73I14 | I73I16 | | | | |
| | NPS | 3/4" | 1" | | | | |
| | BO | I75I78 | I75I79 | | | | |
| | CO | - | L96I79 | | | | |
| Clamp connections suitable for NA-Connect available | | | | | | | |
| Threaded connections | | Option code inlet | | | | | |
| | DN | - | | | | | |
| | XG | - | | | | | |
| | XN | - | | | | | |
| Pipe standard | | Option code inlet | | | | | |
| | DN | 25 | | | | | |
| DIN 11850 / DIN 11866 Range A | GS | H85H34I16 | | | | | |
| | BS | H85H36I16 | | | | | |
| | GT | H85H54I16 | | | | | |
| | BT | H85H56I16 | | | | | |
| | GO | H85L75I16 | | | | | |
| | KO | H85L76I16 | | | | | |
| | GD | H85H60I16 | | | | | |
| | BD | H85H58I16 | | | | | |
| Pipe standard | | Option code inlet | | | | | |
| | DN | 25 | | | | | |
| DIN EN ISO 1127 / DIN 11866 Range B | GS | H86H34I16 | | | | | |
| | BS | H86H36I16 | | | | | |
| | GT | H86H54I16 | | | | | |
| | BT | H86H56I16 | | | | | |
| | GD | H86H60I16 | | | | | |
| | BD | H86H58I16 | | | | | |
| Pipe standard | | Option code inlet | | | | | |
| | NPS | 1" | | | | | |
| BS 4825-1 DIN 11866 Range C | GS | H87H34I79 | | | | | |
| | BS | H87H36I79 | | | | | |
| | GT | H87H54I79 | | | | | |
| | BT | H87H56I79 | | | | | |
| | d ₀ [mm] | 10 | | | | | |
| | d ₀ [inch] | 0,394 | | | | | |
| | | Option code outlet | | | | | |
| | DN | - | 25 | | | | |
| | SO | - | L86A16 | | | | |
| | DO | - | I74A16 | | | | |
| | NPS | - | 1" | | | | |
| | BO | - | - | | | | |
| | CO | - | L97A79 | | | | |
| | | Option code outlet | | | | | |
| | DN | G 1/2 | G 3/4 | G 1 | 1/2" NPT | 3/4" NPT | 1" NPT |
| | XG | V65 | V76 | V66 | - | | |
| | XN | - | | V70 | V77 | V71 | |
| Pipe standard | | Option code outlet | | Option code outlet | | | |
| | DN | 25 | | 25 | | | |
| | GS | H85H34I16 | | A85H35A16 | | | |
| | BS | H85H36I16 | | A85H37A16 | | | |
| | GT | H85H54I16 | | A85H55A16 | | | |
| | BT | H85H56I16 | | A85H57A16 | | | |
| | GO | H85L75I16 | | A85L81A16 | | | |
| | KO | H85L76I16 | | A85L82A16 | | | |
| | GD | H85H60I16 | | A85H61A16 | | | |
| | BD | H85H58I16 | | A85H59A16 | | | |
| Pipe standard | | Option code outlet | | Option code outlet | | | |
| | DN | 25 | | 25 | | | |
| | GS | H86H34I16 | | A86H35A16 | | | |
| | BS | H86H36I16 | | A86H37A16 | | | |
| | GT | H86H54I16 | | A86H55A16 | | | |
| | BT | H86H56I16 | | A86H57A16 | | | |
| | GD | H86H60I16 | | A86H61A16 | | | |
| | BD | H86H58I16 | | A86H59A16 | | | |
| Pipe standard | | Option code outlet | | Option code outlet | | | |
| | NPS | 1" | | 1" | | | |
| | GS | H87H34I79 | | A87H35A79 | | | |
| | BS | H87H36I79 | | A87H37A79 | | | |
| | GT | H87H54I79 | | A87H55A79 | | | |
| | BT | H87H56I79 | | A87H57A79 | | | |

Available options

| | | | |
|---|--|---|--|
| <p>Gastight cap H2 H2</p>  | <p>Gastight lifting device H4 Packed knob H4</p>  | <p>Pneumatic lifting device H8 H8 single piston design</p>  | <p>Pneumatic lifting device H8 J41: H8 double piston design</p>  |
| <p>Vulcanized soft seal J22: EPDM "D"   J21: CR "K"  J23: FKM "L"  J30: NBR "N"  J20: FFKM "C"  </p>  | <p>O-ring disc J22: EPDM "D"   J21: CR "K"  J23: FKM "L"  J30: NBR "N"  J20: FFKM "C"  </p>  | | |
| <p>Test gag J70: H2</p>  | | | |
| <p>Female NPT outlet V70: 1/2" V77: 3/4" V71: 1"</p>  | <p>Clamp connection outlet Clamp: 1"</p>  | <p>Special material 2.4610 HASTELLOY C4 2.4360 MONEL 400 1.4462 DUPLEX</p>  | |

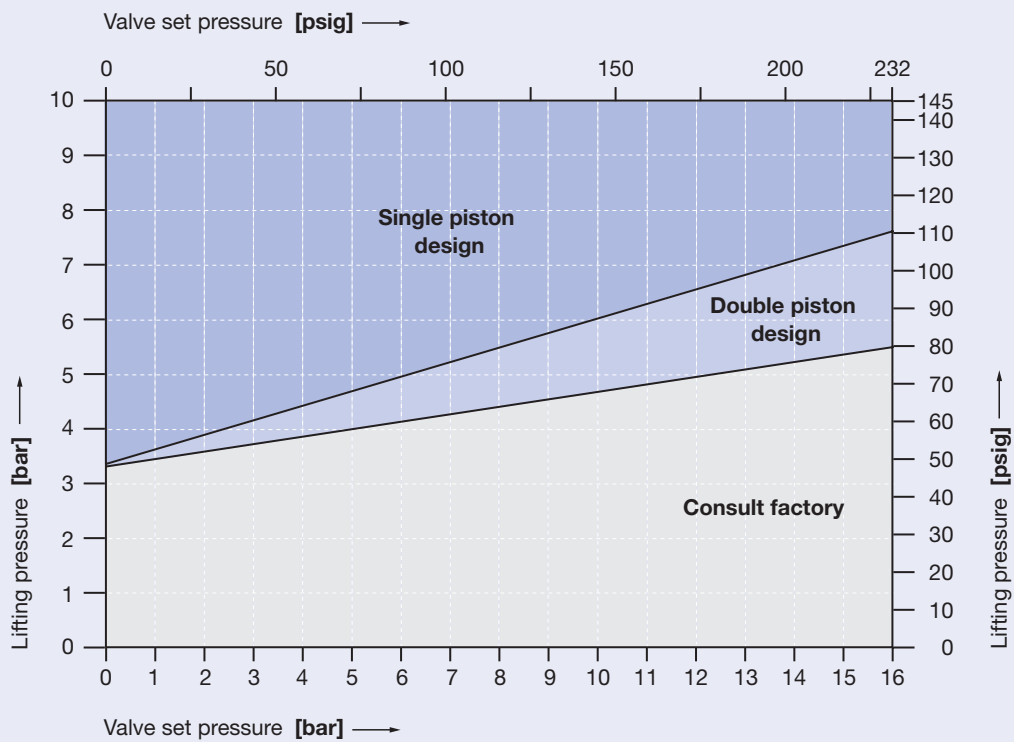
Selection chart H8

Type 481

Depending on the set pressure and lifting pressure (air supply) a double piston lifting device (option code J41) may be required instead of a single piston. The chart below determines the required lifting device.

For information about this chart please refer to "How to use" on page 00/12.

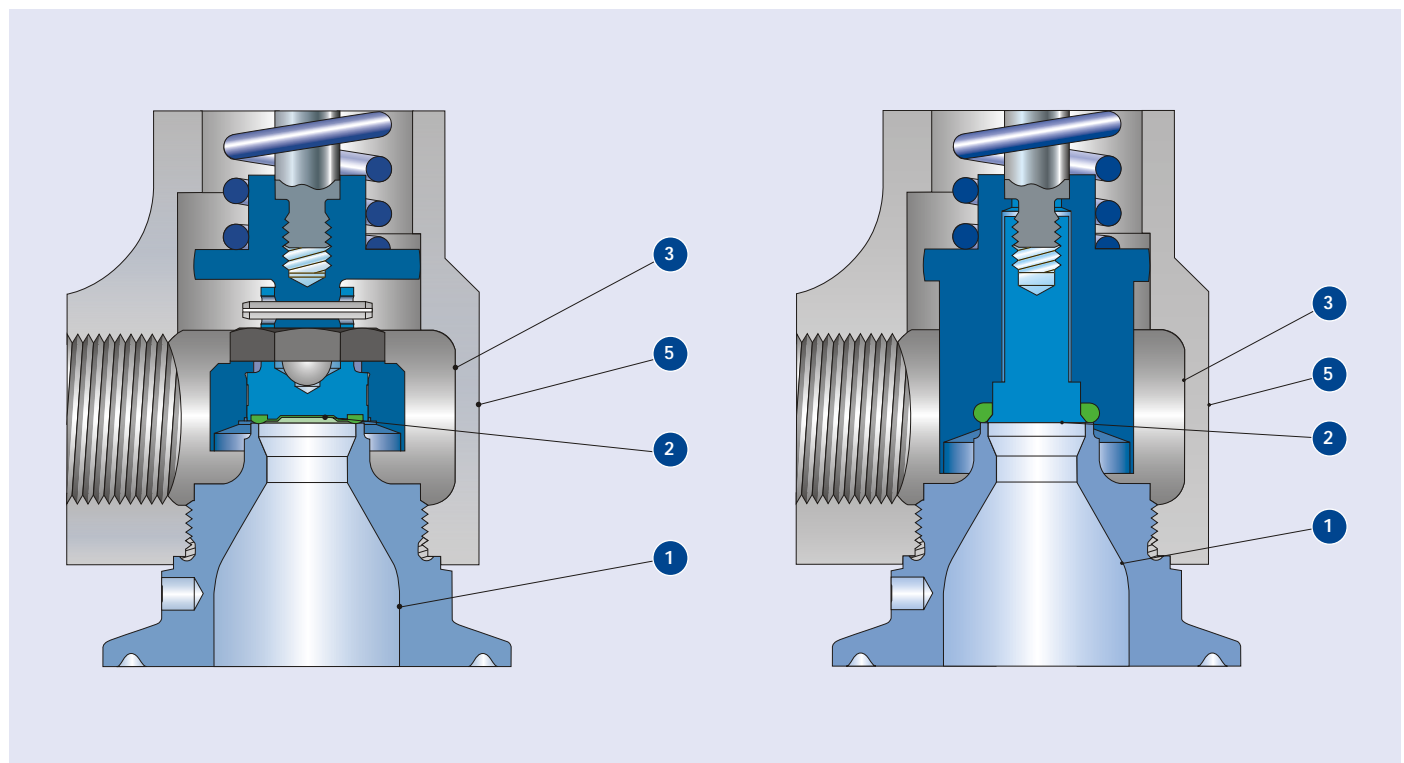
Selection chart lifting device H8, size 0. d₀ 10 mm / 0,394 inch



Surface quality

| Surface quality | | | LESER Surface package | | | |
|--------------------------|--|---------|-----------------------|---------------------|---------------------|---------------------|
| Type of surface | Area | | Option code | Clean finish | HyClean finish | Sterile finish |
| | Description | No. | | B50 | B51 | B52 |
| | | | | R _a max. | R _a max. | R _a max. |
| | | | LESER Surface grade | | | |
| Product contact surface | Inlet | 1 | | M4 | ME4 | ME2 |
| | | | [µm] | 0,750 | 0,750 | 0,500 |
| | | | [µinch] | 30 | 30 | 20 |
| | Bottom side of disc | | | Elastomer surface | | |
| | Soft seal design: Vulcanized | 2 | | M4 | ME4 | ME2 |
| Soft seal design: O-ring | 3 | [µm] | 0,750 | 0,750 | 0,500 | |
| | | [µinch] | 30 | 30 | 20 | |
| Blow off surface | Inside surface of outlet area | 3 | | M6 | ME6 | ME6 |
| | | | [µm] | 3,000 | 3,000 | 3,000 |
| Outer surface | Outside surface of inlet and outlet body, cap/lifting device | 5 | | M6 | ME6 | ME6 |
| | | | [µm] | 3,000 | 3,000 | 3,000 |
| | | | [µinch] | 120 | 120 | 120 |

If required surface deviates from standard specify No. and required LESER Surface Grade.



Type 481 – Vulcanized soft seal

Type 481 – O-ring disc