



Type 441 ANSI 442 ANSI

Flanged Safety Relief Valves
- spring loaded

Metric Units



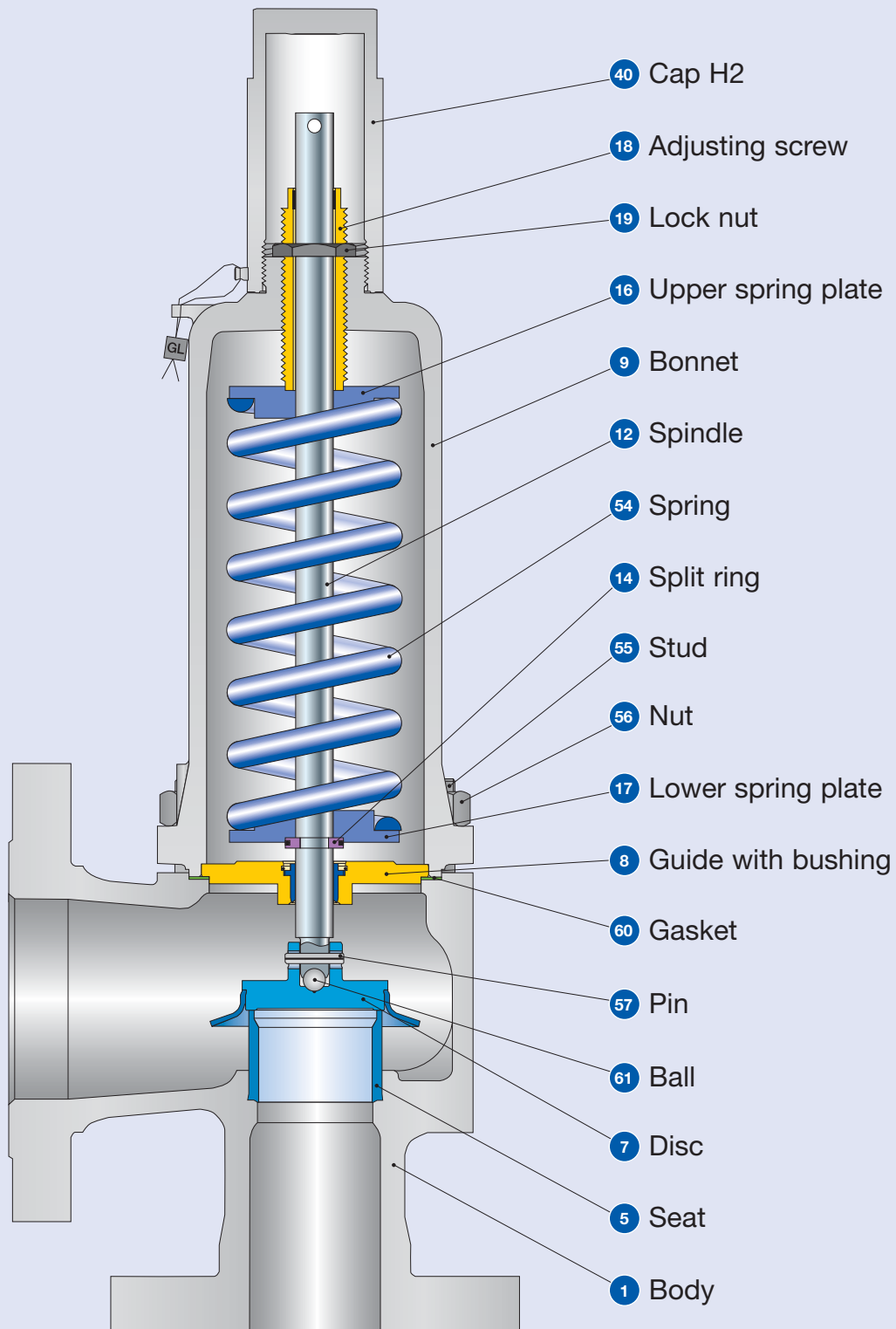
Facts

LESER

The-Safety-Valve.com

Conventional design

Type 441, 442 ANSI



Conventional design

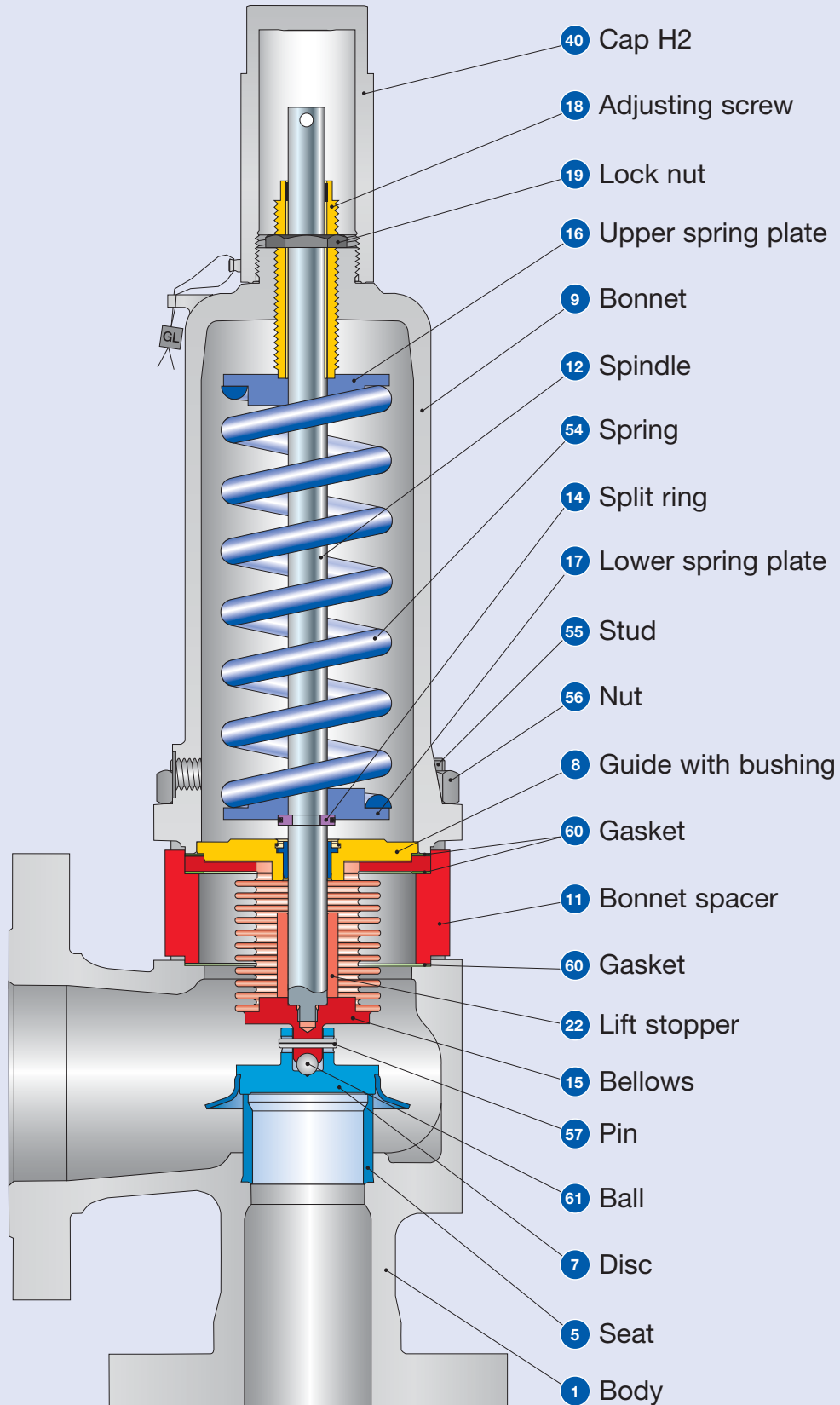
| Materials | | | |
|-----------|---------------------------------|-------------------------------------|---|
| Item | Component | Type 4412 / 4422 ANSI | Type 4414 ANSI |
| 1 | Body | 1.0619 | 1.4408 |
| | | SA 216 WCB | SA 351 CF8M |
| 5 | Seat | 1.4404 | 1.4404 |
| | | 316L | 316L |
| 7 | Disc | 1.4122 | 1.4404 |
| | | Hardened stainless steel | 316L |
| 8 | Guide with bushing | 1.4104, 1.0501, 0.7040 | 1.4404 |
| | | Chrome or carbon steel | 316L |
| | | 1.4104 tenifer | - |
| | | Chrome steel tenifer | - |
| 9 | Bonnet | 0.7040, 0.7043, 1.0619 | 1.4408, 1.4404, 1.4571 |
| | | Ductile Gr. 60-40-18, SA 216 WCB | SA 351 CF8M, SA 479 316L, SA 479 316Ti |
| 12 | Spindle | 1.4021 | 1.4404 |
| | | 420 | 316L |
| 14 | Split ring | 1.4104 | 1.4404 |
| | | Chrome steel | 316L |
| 16/17 | Spring plate | 1.0718 | 1.4404 |
| | | Steel | 316L |
| 18 | Adjusting screw with bushing | 1.4104 PTFE | 1.4404 PTFE |
| | | Chrome steel PTFE | 316L PTFE |
| 19 | Lock nut | 1.0718 | 1.4404 |
| | | Steel | 316L |
| 40 | Cap H2 | 1.0718 or 0.7043 | 1.4404 |
| | | 12L13 or Gr. 60-40-18 | 316L |
| 54 | Spring standard | 1.1200, 1.8159, 1.7102 | 1.4310 |
| | | Carbon steel | Stainless steel |
| 54 | Spring optional | 1.4310 | - |
| | | Stainless steel | - |
| 55 | Stud | 1.1181 | 1.4401 |
| | | Steel | B8M |
| 56 | Nut | 1.0501 | 1.4401 |
| | | 2H | 8M |
| 57 | Pin | 1.4310 | 1.4310 |
| | | Stainless steel | Stainless steel |
| 60 | Gasket | Graphite / 1.4401 | Graphite / 1.4401 |
| | | Graphite / 316 | Graphite / 316 |
| 61 | Ball | 1.3541 | 1.4401 |
| | | Hardened stainless steel | 316 |

Please notice:

- Modifications reserved by LESER.
- If several materials are specified LESER defines the material.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.

Balanced bellows design

Type 441, 442 ANSI



Balanced bellows design

| Materials | | Type 4412 / 4422 ANSI | Type 4414 ANSI |
|-----------|---------------------------------|-------------------------------------|---|
| 1 | Body | 1.0619 | 1.4408 |
| | | SA 216 WCB | SA 351 CF8M |
| 5 | Seat | 1.4404 | 1.4404 |
| | | 316L | 316L |
| 7 | Disc | 1.4122 | 1.4404 |
| | | Hardened stainless steel | 316L |
| 8 | Guide with bushing | 1.4104, 1.0501, 0.7040 | 1.4404 |
| | | Chrome or carbon steel | 316L |
| | | 1.4104 tenifer | - |
| 9 | Bonnet | 0.7040, 0.7043, 1.0619 | 1.4408, 1.4404, 1.4571 |
| | | Ductile Gr. 60-40-18, SA 216 WCB | SA 351 CF8M, SA 479 316L, SA 479 316Ti |
| 11 | Bonnet spacer | 1.4404 | 1.4404 |
| | | 316L | 316L |
| 12 | Spindle | 1.4404 | 1.4404 |
| | | 316L | 316L |
| 14 | Split ring | 1.4104 | 1.4404 |
| | | Chrome steel | 316L |
| 15 | Bellows | 1.4571 | 1.4571 |
| | | 316Ti | 316Ti |
| 16/17 | Spring plate | 1.0718 | 1.4404 |
| | | Steel | 316L |
| 18 | Adjusting screw with bushing | 1.4104 PTFE | 1.4404 PTFE |
| | | Chrome steel PTFE | 316L PTFE |
| 19 | Lock nut | 1.0718 | 1.4404 |
| | | Steel | 316L |
| 22 | Lift stopper | 1.4404 | 1.4404 |
| | | 316L | 316L |
| 40 | Cap H2 | 1.0718 or 0.7043 | 1.4404 |
| | | 12L13 or Gr. 60-40-18 | 316L |
| 54 | Spring standard | 1.1200, 1.8159, 1.7102 | 1.4310 |
| | | Carbon steel | Stainless steel |
| 55 | Stud | 1.4310 | - |
| | | Stainless steel | - |
| 56 | Nut | 1.4401 | 1.4401 |
| | | B8M | B8M |
| 57 | Pin | 1.4401 | 1.4401 |
| | | 8M | 8M |
| 60 | Gasket | 1.4310 | 1.4310 |
| | | Stainless steel | Stainless steel |
| 61 | Ball | Graphite / 1.4401 | Graphite / 1.4401 |
| | | Graphite / 316 | Graphite / 316 |
| 61 | Ball | 1.3541 | 1.3541 |
| | | Hardened stainless steel | 316 |

Please notice:

- Modifications reserved by LESER.
- If several materials are specified LESER defines the material.
- 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 | | | 1" x 2" | 1 1/2" x 2" | 1 1/2" x 2 1/2" | 2" x 3" | 3" x 4" | 4" x 6" |
|--|----|----------------|---------|-------------|-----------------|---------|---------|---------|
| Valve size | | | 1" x 2" | 1 1/2" x 2" | 1 1/2" x 2 1/2" | 2" x 3" | 3" x 4" | 4" x 6" |
| Actual Orifice diameter d_0 [mm] | | | 23 | 29 | 37 | 46 | 60 | 92 |
| Actual Orifice area A_0 [mm ²] | | | 416 | 661 | 1075 | 1662 | 2827 | 6648 |
| Body material: 1.0619 (WCB) | | | | | | | | |
| Bonnet closed | H2 | Art.-No. 4412. | 4812 | 4822 | 4832 | 4842 | 4862 | 4872 |
| | H3 | Art.-No. 4412. | 4813 | 4823 | 4833 | 4843 | 4863 | 4873 |
| | H4 | Art.-No. 4412. | 4814 | 4824 | 4834 | 4844 | 4864 | 4874 |
| open | H3 | Art.-No. 4422. | 4815 | 4825 | 4835 | 4845 | 4865 | 4875 |
| Body material: 1.4408 (CF8M) | | | | | | | | |
| Bonnet closed | H2 | Art.-No. 4414. | 7912 | – | 7932 | 7942 | 7962 | 7972 |
| | H4 | Art.-No. 4414. | 7914 | – | 7934 | 7944 | 7964 | 7974 |

Dimensions and weights

Metric Units

| Valve size | 1" x 2" | 1 1/2" x 2" | 1 1/2" x 2 1/2" | 2" x 3" | 3" x 4" | 4" x 6" |
|--|---------|-------------|-----------------|---------|---------|---------|
| Actual Orifice diameter d_0 [mm] | 23 | 29 | 37 | 46 | 60 | 92 |
| Actual Orifice area A_0 [mm ²] | 416 | 661 | 1075 | 1662 | 2827 | 6648 |
| Weight [lbs] | 10 | 13 | 16 | 22 | 33 | 75 |
| with bellows | 11 | 14 | 17 | 24 | 37 | 83 |
| Center to face [mm] | | | | | | |
| Inlet a | 105 | 124 | 124 | 136 | 156 | 181 |
| Outlet b | 114 | 121 | 121 | 124 | 165 | 229 |
| Height (H4) [mm] | | | | | | |
| Standard H max. | 339 | 455 | 496 | 556 | 685 | 844 |
| Bellows H max. | 378 | 497 | 534 | 602 | 741 | 902 |
| Support brackets [mm] | | | | | | |
| A | | | | | | 280 |
| B | | | | | | 160 |
| (drilled only on request) | | | | | | Ø 18 |
| C | | | | | | 250 |
| D | | | | | | 25 |
| E | | | | | | 25 |

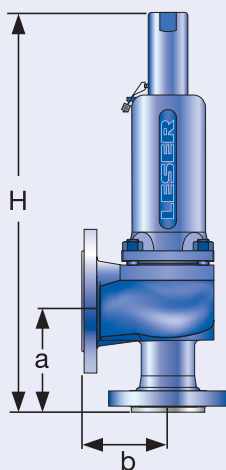
Body material: 1.0619 (WCB)

| | | |
|---------------------------------------|--------|----------------|
| ANSI Flange Class¹⁾ | Inlet | CL150 or CL300 |
| | Outlet | CL150 |

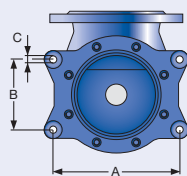
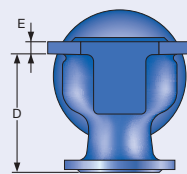
Body material: 1.4408 (CF8M)

| | | | | |
|---------------------------------------|--------|----------------|---|----------------|
| ANSI Flange Class¹⁾ | Inlet | CL150 or CL300 | - | CL150 or CL300 |
| | Outlet | CL150 | - | CL150 |

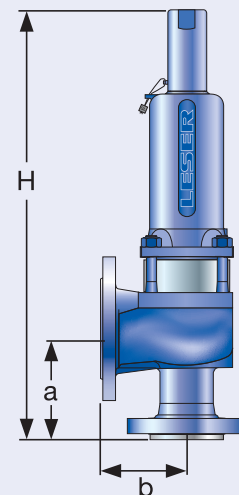
¹⁾ Standard flange rating. For other flange drillings and facings please refer to page 02/14.



Conventional design



Support brackets



Balanced bellows design

Pressure temperature ratings

Metric Units

| Valve size | 1" x 2" | 1 1/2" x 2" | 1 1/2" x 2 1/2" | 2 x 3" | 3 x 4" | 4 x 6" |
|---|---------|-------------|-----------------|--------|--------|--------|
| Actual Orifice diameter d ₀ [mm] | 23 | 29 | 37 | 46 | 60 | 92 |
| Actual Orifice area A ₀ [mm ²] | 416 | 661 | 1075 | 1662 | 2827 | 6648 |

Body material: 1.0619 (WCB)

| ANSI Flange Class ¹⁾ | Inlet | CL150 or CL300 | | | | | |
|--|-----------------------------|----------------|------|------|------|------|------|
| | Outlet | CL150 | | | | | |
| Minimum set pressure | p [bar _g] S/G/L | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Min. set pressure²⁾ standard bellows | p [bar _g] S/G/L | 3 | 3 | 3 | 3 | 3 | 3 |
| Min. set pressure low press. bellows | p [bar _g] S/G/L | 0.98 | 1.41 | 1.11 | 1.81 | 1.50 | 1.18 |
| Maximum set pressure | p [bar _g] S/G/L | 49 | 48 | 46 | 51 | 35 | 34 |
| Max. set pressure with special spring | p [bar _g] S/G/L | 51 | 48 | 46 | 51 | 40 | 34 |
| Temperature³⁾ acc. to DIN EN | min. [°C] | -85 | | | | | |
| | max. [°C] | +450 | | | | | |
| Temperature³⁾ acc. to ASME | min. [°C] | -29 | | | | | |
| | max. [°C] | +427 | | | | | |

Body material: 1.4408 (CF8M)

| ANSI Flange Class ¹⁾ | Inlet | CL150 or CL 300 | - | CL150 or CL300 | | | |
|--|-----------------------------|-----------------|---|----------------|------|------|------|
| | Outlet | CL150 | - | CL150 | | | |
| Minimum set pressure | p [bar _g] S/G/L | 0.1 | - | 0.1 | 0.1 | 0.1 | 0.1 |
| Min. set pressure²⁾ standard bellows | p [bar _g] S/G/L | 3 | - | 3 | 3 | 3 | 3 |
| Min. set pressure low press. bellows | p [bar _g] S/G/L | 0.98 | - | 1.11 | 1.81 | 1.50 | 1.18 |
| Maximum set pressure | p [bar _g] S/G/L | 42.5 | - | 40 | 32 | 27 | 20 |
| Max. set pressure with special spring | p [bar _g] S/G/L | 51 | - | 40 | 40 | 27 | 25 |
| Temperature³⁾ acc. to DIN EN | min. [°C] | -270 | - | -270 | | | |
| | max. [°C] | +400 | - | +400 | | | |
| Temperature³⁾ acc. to ASME | min. [°C] | -268 | - | -268 | | | |
| | max. [°C] | +538 | - | +538 | | | |

¹⁾ For flange rating class 150 the pressure temperature ratings according to ASME ANSI B 16.34 apply.

²⁾ Min. set pressure standard bellows = Max. set pressure low pressure bellows.

³⁾ Between -10 °C and lowest temperature indicated „AD 2000-Merkblatt“ W10 shall be taken into account.

Available Options

For further information refer to
"Accessories and Options", page 99/01

Type 441, 442 ANSI

