LESER

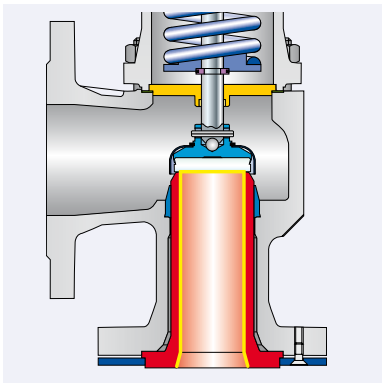
Type 546

Type 546
Packed lever H4
Closed bonnet
Conventional design

Flanged Safety Relief Valves – spring loaded

Contents — Chapter/Page

Design features



Area of application

Developed to protect against inadmissible overpressure in pressure vessels and systems in which the use of high alloyed metals (e.g. nickel-based alloys) is necessary due to the medium properties.

Type 546 is the solution for applications in which activation of the safety valve is very unlikely due to the large difference between the operating and set pressure.

Design features

Nozzle of gas-tight sintered PTFE with low permeability of atoms, molecules and ions (low permeability) for the prevention of corrosion in the inlet of the body.

Metallic support of the nozzle prevents flowing of the PTFE under pressure.

Pore-free surface of the nozzle prevents product build-ups.

Sealing plate of BOROFLOAT glass for high chemical resistance.

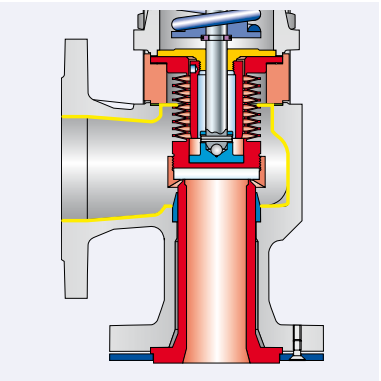
Metallic support of the sealing plate of BOROFLOAT glass for high mechanical strength of the disc.

Coupling of materials PTFE-nozzle – disc with sealing plate of BOROFLOAT glass for high tightness.

Possible to protect the bonnet space and the sliding components against corrosion with balanced bellows.

The nozzle, disc, spindle, and spring plate can be made of alternative materials in order to adapt Type 546 to the service conditions.

Design features



Area of application

Developed to protect against inadmissible overpressure in pressure vessels and systems in which the use of high alloyed metals (e.g. nickel-based alloys) is necessary due to the medium properties.

Type 5466 is the solution for applications in which activation of the safety valve rarely occurs and the protective coating together with the bellows provides adequate corrosion protection on the outlet side.

An electrostatically conductive PTFE-carbon compound with a specific resistance of ≤ 10^6 Ω/cm is recommended for explosion prone areas.

Design features

Nozzle of gas-tight sintered PTFE-carbon compound with low permeability of atoms, molecules and ions (low permeability) for the prevention of corrosion in the inlet of the body.

Metallic support of the nozzle prevents flowing of the PTFE-carbon compound under pressure.
Pore-free surface of the nozzle prevents product build-ups.

Additional corrosion protection through coating of the blow-off chamber of the body with conductive two-component paint SikaCor Zinc ZS.

Conductive PTFE-carbon compound together with the conductive two-component paint SikaCor Ainc ZS in the blow-off chamber prevent sparking from electrostatic discharge.

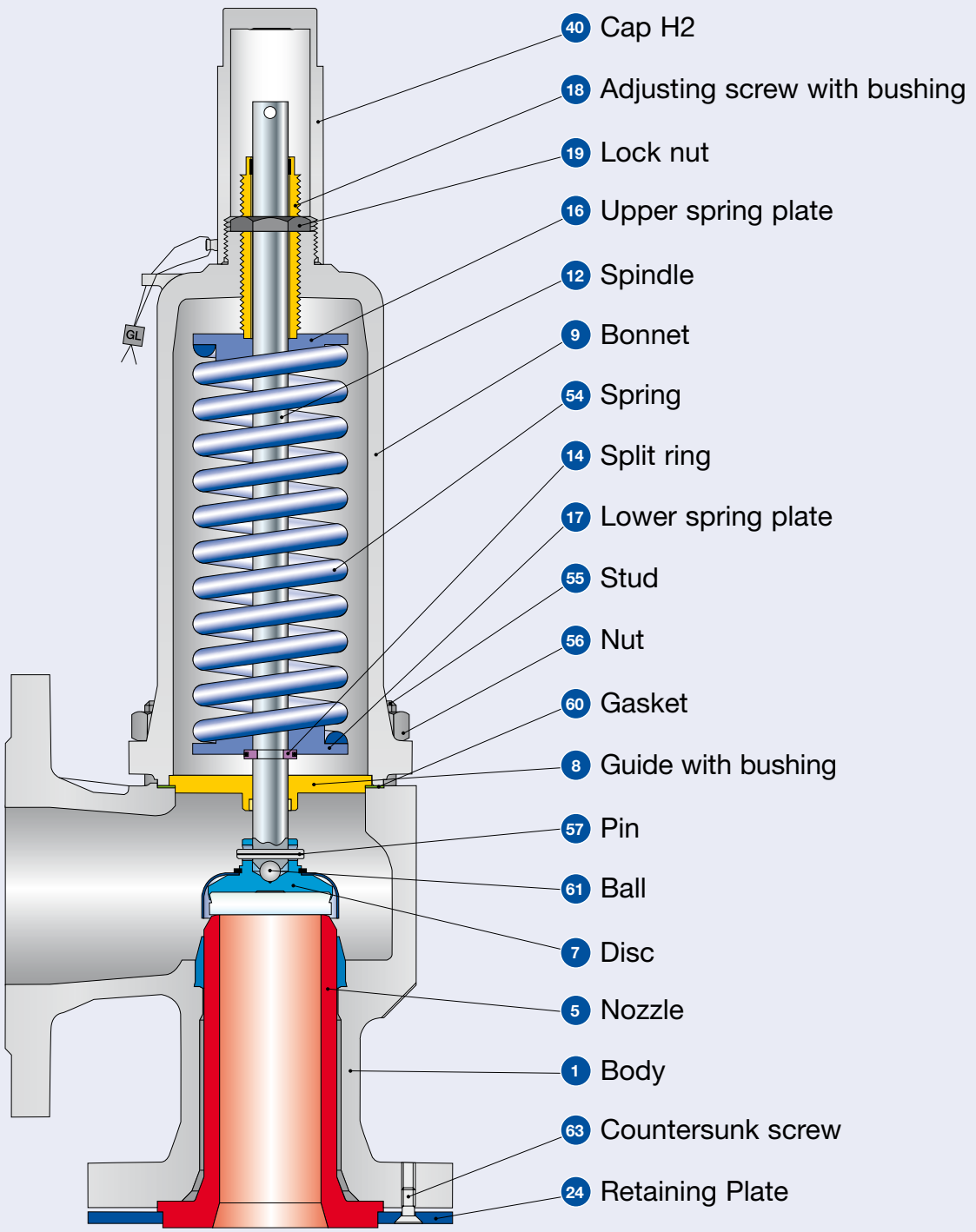
PTFE bellows with integrated plate hermetically seals the bonnet space and that way protects against soiling and corrosion. The set pressure range with the PTFE bellows starts at 0,5 bar.

The sealing plate of PTFE + 25% carbon compound is distinguished against virgin PTFE by its higher temperature and pressure operation limits as well as improved mechanical strength due to the metallic support.

The nozzle, disc, spindle, and spring plate can be made of alternative materials in order to adapt Type 5466 to the service conditions.

LESER

Conventional design



Conventional design

Materials

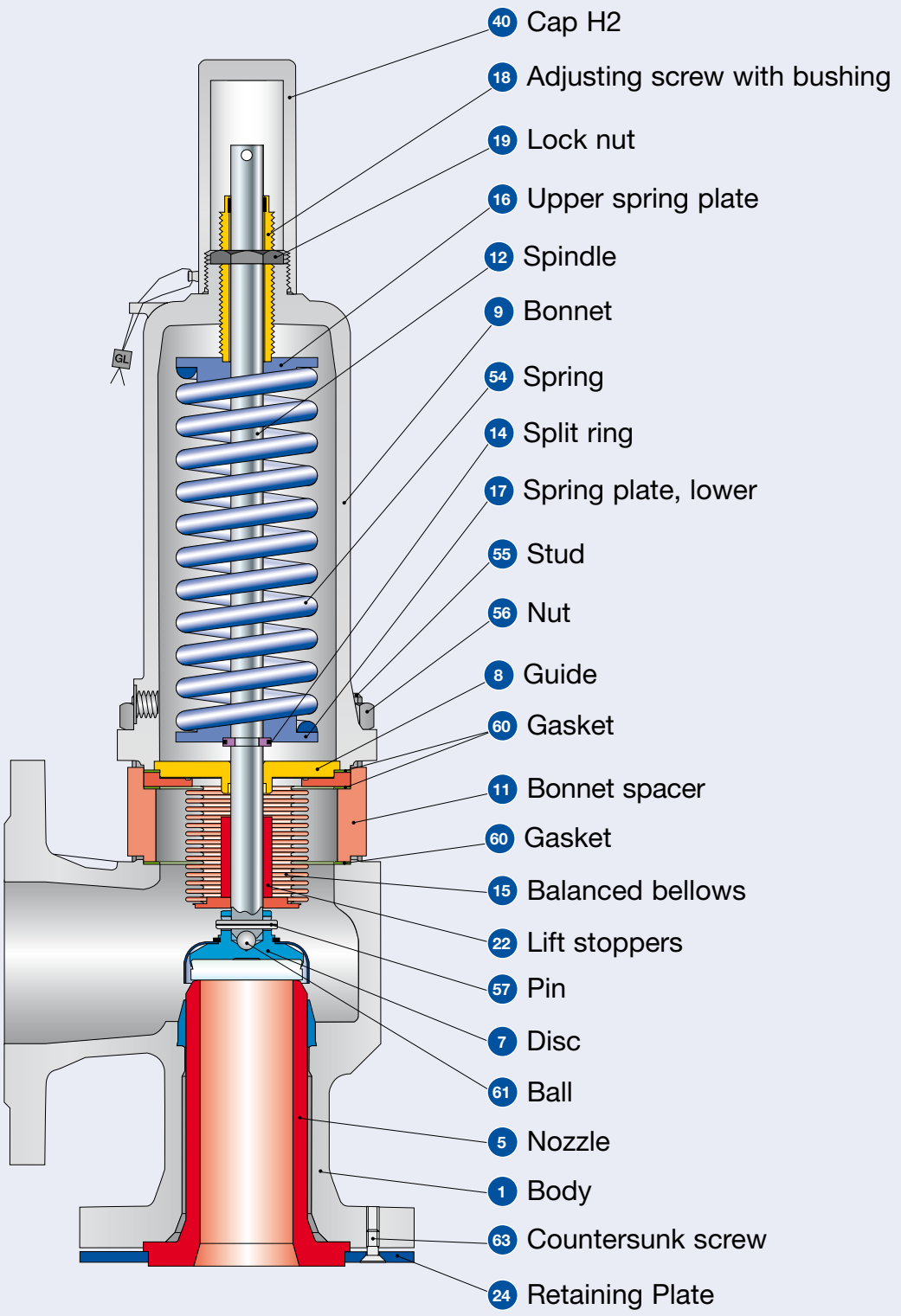
Item.	Component	Type 5462	Type 5465
1	**Body**	1.0619 SA 216 WCB	0.7043 Ductile Gr. 60-40-18
5	Nozzle	Virgin PTFE PTFE-TF	Virgin PTFE PTFE-TF
7	Disc	1.4404 / BOROFLOAT glass 316L / BOROFLOAT glass	1.4404 / BOROFLOAT glass 316L / BOROFLOAT glass
8	Guide	1.4404 Stainless steel	1.4404 Stainless steel
9	**Bonnet**	0.7040 Ductile Gr. 60-40-18	0.7040 Ductile Gr. 60-40-18
12	Spindle	1.4404 Stainless steel	1.4404 Stainless steel
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel
16/17	Spring plate	1.0718 Steel	1.0718 Steel
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE
19	Lock nut	1.0718 Steel	1.0718 Steel
24	Retaining Plate	1.0036 Steel	1.0036 Steel
40	**Cap H2**	1.0718 12L13	1.0718 12L13
54	Spring, standard	1.1200, 1.8159, 1.7102 Steel	1.1200, 1.8159, 1.7102 Steel
	Spring, optional	1.4310 Stainless steel	1.4310 Stainless steel
55	Stud	1.1181 Steel	1.1181 Steel
56	Nut	1.0501 2H	1.0501 2H
57	Pin	1.4310 Stainless steel	1.4310 Stainless steel
60	Gasket	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel
63	Countersunk screw	1.4401 Chrome steel	1.4401 Chrome steel

Please note:

- LESER reserves the right to make changes.
- LESER may use higher quality materials without giving prior notice.
- Each component can be replaced by another material according to the customer's specification.
- All components exposed to pressure are highlighted in bold.

Type 546

Balanced bellows design



Balanced bellows design

Materials

Item.	Components	Type 5462	Type 5465
1	**Body**	1.0619 SA 216 WCB	0.7043 Ductile Gr. 60-40-18
5	Nozzle	Virgin PTFE PTFE-TF	Virgin PTFE PTFE-TF
7	Disc	1.4404 / BOROFLOAT glass 316L / BOROFLOAT glass	1.4404 / BOROFLOAT glass 316L / BOROFLOAT glass
8	Guide	1.4404 Stainless steel	1.4404 Stainless steel
9	**Bonnet**	0.7040 Ductile Gr. 60-40-18	0.7040 Ductile Gr. 60-40-18
11	Bonnet spacer	1.4404 Stainless steel	1.4404 Stainless steel
12	Spindle	1.4404 Stainless steel	1.4404 Stainless steel
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel
15	Stainless steel bellows	1.4571 316Ti	1.4571 316Ti
16	Spring plate	1.0718 Steel	1.0718 Steel
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE
19	Lock nut	1.4104 Chrome steel	1.4104 Chrome steel
22	**Lift stoppers**	1.4404 316L	1.4404 316L
24	Retaining Plate	1.0036 Steel	1.0036 Steel
40	**Cap H2**	1.0718 12L13	1.0718 12L13
54	Spring, standard	1.1200, 1.8159, 1.7102 Steel	1.1200, 1.8159, 1.7102 Steel
	Spring, optional	1.4310 Stainless steel	1.4310 Stainless steel
55	Stud	1.1181 Steel	1.1181 Steel
57	Pin	1.4310 Stainless steel	1.4310 Stainless steel
56	Nut	1.0501 2H	1.0501 2H
60	Gasket	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel
63	Countersunk screw	1.4401 Chrome steel	1.4401 Chrome steel

Please note:
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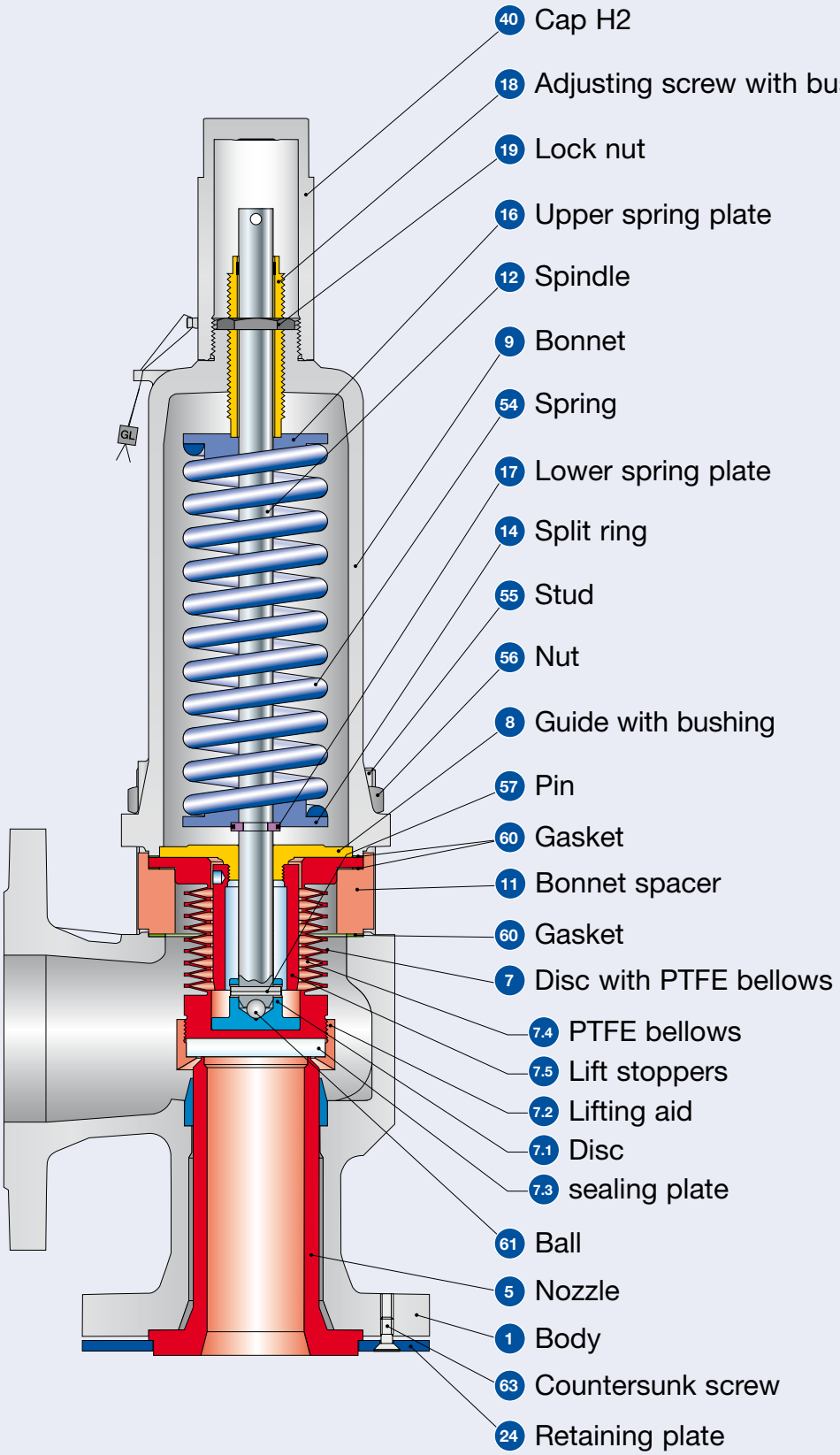
- All components exposed to pressure are highlighted in bold.

LESER

Conventional design



Conventional design

Materials

Item.	Components	Type 5466
1	**Body**	1.0619[1)] SA 216 WCB
5	Nozzle	PTFE + 25% carbon
7	Disc with PTFE bellows	Virgin PTFE / BOROFLOAT glass PTFE (TF) / BOROFLOAT glass
7.1	Disc	1.4404 316L
7.2	Lifting aid	PTFE + 25% glass PTFE (TFM)
7.3	sealing plate	PTFE + 25% carbon
7.4	PTFE bellows	Virgin PTFE PTFE (TF)
7.5	Lift stoppers	1.4404 316L
8	Guide	1.4404 Stainless steel
9	**Bonnet**	0.7043 Ductile Gr. 60-40-18
11	Bonnet spacer	1.4404 316L
12	Spindle	1.4404 Stainless steel
14	Split ring	1.4104 Chrome steel
16/17	Spring plate	1.0718 Steel
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE
19	Lock nut	1.4104 Chrome steel
24	Retaining plate	1.0036 Steel
40	**Cap H2**	1.0718 12L13
54	Spring, standard	1.1200, 1.8159, 1.7102 Steel
	Spring, optional	1.4310 Stainless steel
55	Stud	1.4401 B8M
56	Nut	1.4401 8M
57	Pin	1.4310 Stainless steel
60	Gasket	Graphite / 1.4401 Graphite / 316
61	Ball	1.3541 Hardened stainless steel
63	Countersunk screw	1.4401 Chrome steel

[1)] With SikaCor Zinc ZS coating in the outlet area

Please note:
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- Each component can be replaced by another material according to the customer's specification.
- All components exposed to pressure are highlighted in bold.

How to order – article numbers

Type 546

		DN_i	25	40	50	65	80	100
		DN_O	40	65	80	100	125	150
		Valve size	1" x 1 1/2"	1 1/2" x 2 1/2"	2" x 3"	2 1/2" x 4"	3" x 5SDSq	4" x 6"
		Actual Orifice diameter d_0 [mm]	23	37	46	60	72	87
		Actual Orifice area A_0 [mm²]	416	1075	1662	2827	4072	5945
Body material 0.7043 (Ductile Gr. 60-40-18)								
PTFE nozzle								
Bonnet closed	**H2**	Art. no. **5465.**	**–**	**3722**	**–**	**3742**	**–**	**3762**
	H4	Art. no. **5465.**	**–**	**3724**	**–**	**3744**	**–**	**3764**
Body material 1.0619 (WCB)								
PTFE nozzle								
Bonnet closed	**H2**	Art. no. **5462.**	**3802**	**–**	**3812**	**–**	**3822**	**–**
	H4	Art. no. **5462.**	**3804**	**–**	**3814**	**–**	**3824**	**–**

Type 5466

		DN_i	25	40	50	65	80	100
		DN_O	40	65	80	100	125	150
		Valve size	1" x 1 1/2"	1 1/2" x 2 1/2"	2" x 3"	2 1/2" x 4"	3" x 5"	4" x 6"
		Flow diameter d_0 [mm]	23	37	46	60	72	87
		Narrowest flow area A_0 [mm²]	416	1075	1662	2827	4072	5945
Body material 1.0619 (WCB)								
PTFE-carbon nozzle								
Bonnet closed	**H2**	Art. no. **5466.**	**3832**	**–**	**3842**	**–**	**–**	**–**
	H4	Art. no. **5466.**	**3834**	**–**	**3844**	**–**	**–**	**–**

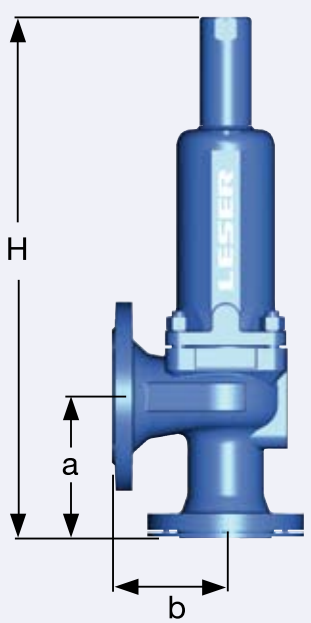
Dimensions and weights

Metric units

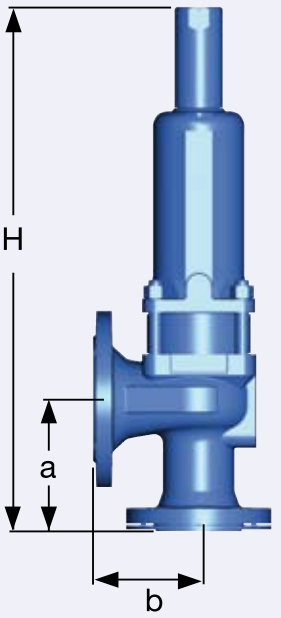
	DN_i	25	40	50	65	80	100
	DN_O	40	65	80	100	125	150
	Valve size	1" x 1 1/2"	1 1/2" x 2 1/2"	2" x 3"	2 1/2" x 4"	3" x 5"	4" x 6"
	Actual Orifice diameter d_0 [mm]	23	37	46	60	72	87
	Actual Orifice area A_0 [mm²]	416	1075	1662	2827	4072	5945
Weight [kg]		9	19	22	27	39	55
	with bellows	10	20	24	31	43	63
Centre to face [mm]	Inlet a	105	140	150	170	195	220
	Outlet b	100	115	120	140	160	180
Height (H4) [mm]	Standard H max.	327	486	538	565	743	796
	Bellows H max.	395	605	590	615	840	885

Body material 0.7043 (Ductile Gr. 60-40-18)		
DIN Flange[1)]	Inlet	PN 16
	Outlet	PN 16
Body material 1.0619 (WCB)		
DIN Flange[1)]	Inlet	PN 16
	Outlet	PN 16

[1)] Standard flange class For other flange drillings, see page 01/16.



Conventional design



Balanced bellows design

Pressure / temperature ratings

Metric units

	DN_I	25	40	50	65	80	100
	DN_O	40	65	80	100	125	150
	Valve size	1" x 1 1/2"	1 1/2" x 2 1/2"	2" x 3"	2 1/2" x 4"	3" x 5"	4" x 6"
	Actual Orifice diameter d_0 [mm]	23	37	46	60	72	87
	Actual Orifice area A_0 [mm²]	416	1075	1662	2827	4072	5945
Body material 0.7043 (Ductile Gr. 60-40-18)				**Type 5465**			
DIN Flange	Inlet	–	**PN 16**	–	**PN 16**	–	**PN 16**
	Outlet	–	**PN 16**	–	**PN 16**	–	**PN 16**
Min. set pressure	p [bar_g] S/G/L	–	0,5	–	0,5	–	0,5
Max. set pressure	p [bar_g] S/G/L	–	10	–	10	–	10
Temperature acc to. DIN EN	min. [°C]	–	-60	–	-60	–	-60
	max. [°C]	–	+200	–	+200	–	+200

Body material 1.0619 (WCB)				**Type 5462**			
DIN Flange	Inlet	**PN 16**	–	**PN 16**	–	**PN 16**	–
	Outlet	**PN 16**	–	**PN 16**	–	**PN 16**	–
Min. set pressure	p [bar_g] S/G/L	0,5	–	0,5	–	0,5	–
Max. set pressure	p [bar_g] S/G/L	10	–	10	–	10	–
Temperature acc to. DIN EN	min. [°C]	-85	–	-85	–	-85	–
	max. [°C]	+200	–	+200	–	+200	–

Body material 1.0619 (WCB)				**Type 5466**			
DIN Flange	Inlet	**PN 16**	–	**PN 16**	–	–	–
	Outlet	**PN 16**	–	**PN 16**	–	–	–
Min. set pressure	p [bar_g] S/G/L	0,1	–	0,1	–	–	–
Max. set pressure	p [bar_g] S/G/L	10	–	10	–	–	–
Temperature acc to. DIN EN	min. [°C]	-85	–	-85	–	–	–
	max. [°C]	+200	–	+200	–	–	–

Available options

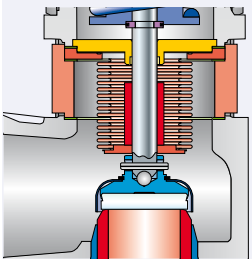
For further information, refer to
"Accessories and Options", page 99/01

Screwed cap H2
H2

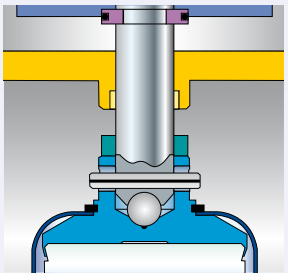
Packed lever H4
H4

Lift indicator
J39: Connection H4
J93: Lift indicator

Balanced bellows
J78: Closed bonnet



Lift stopper
J51



Special material
2.4610 HASTELLOY® C4
2.4360 MONEL® 400
1.4462 DUPLEX