Type 431, 433 PN 160

Flanged Safety Relief Valves – spring loaded

Metric Units

Facts

LESER

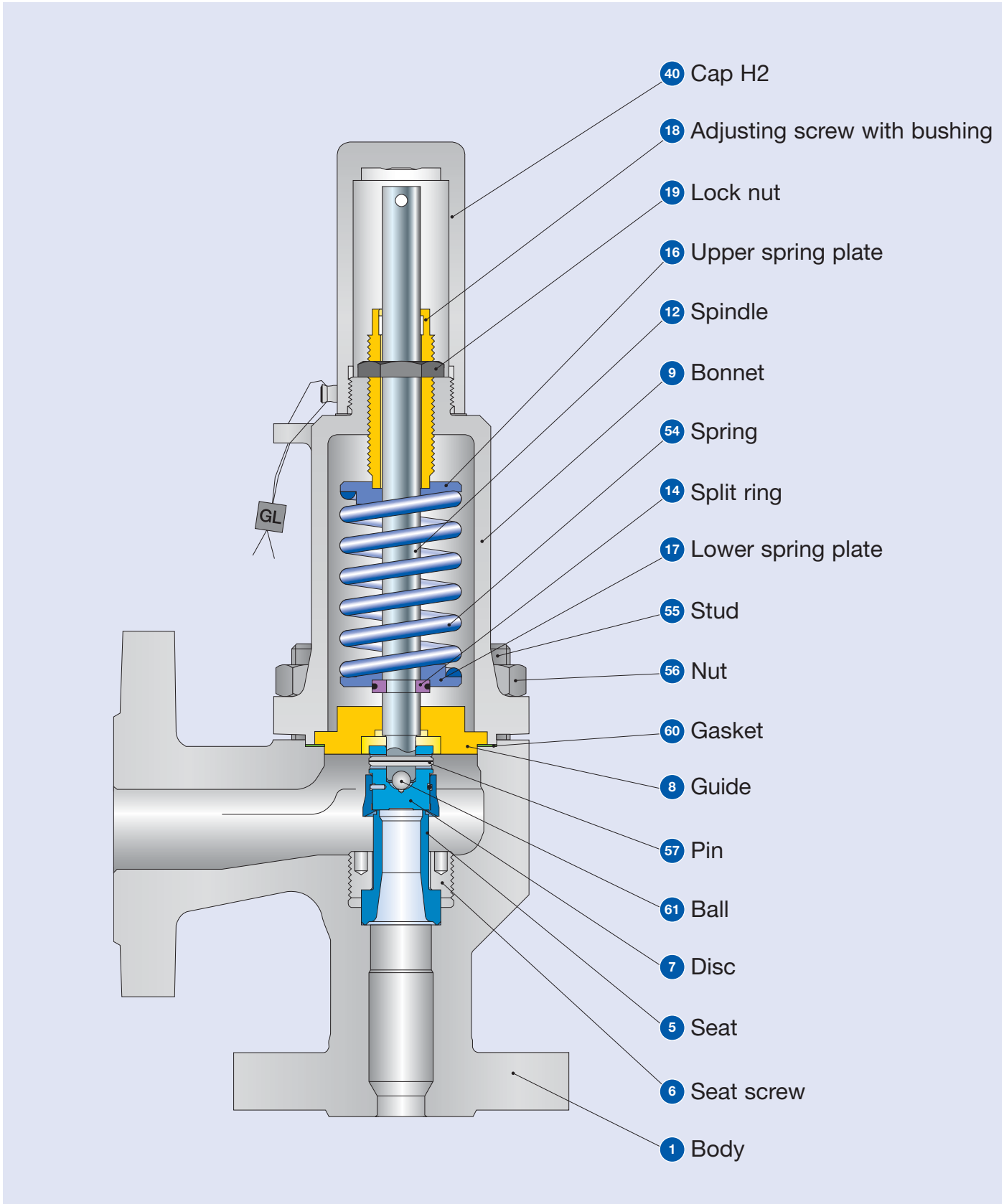
The-Safety-Valve.com

LWN 465.03-E

Type 431, 433 PN 160

LESER

Conventional design



Conventional design

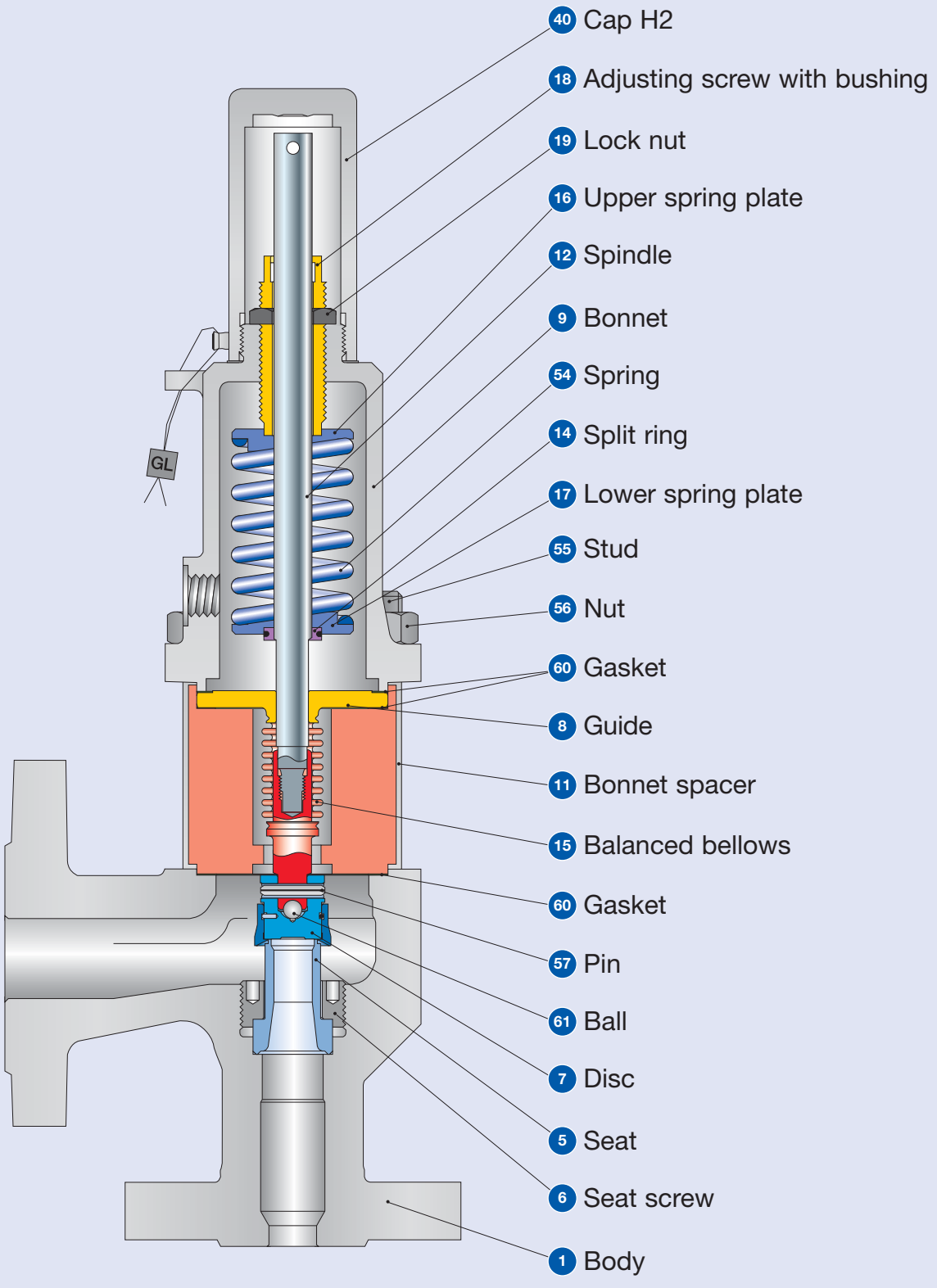
Materials

Item	Component	O-ring disc Type 4312 / 4332	Metal disc Type 4312 / 4332	O-ring disc Type 4334	Metal disc Type 4334
1	**Body**	1.0619 SA 216 WCB	1.0619 SA 216 WCB	1.4408 SA 351 CF8M	1.4408 SA 351 CF8M
5	Seat	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
6	Seat screw	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
7	Disc	1.4404 316L	1.4122 Hardened stainless steel	1.4404 316L	1.4404 316L
8	Guide	1.4104 tenifer Chrome steel tenifer	1.4104, 1.0501, 1.0570 Chrome or stainless steel	1.4404 316L	1.4404 316L
9	**Bonnet**	0.7040 Ductile Gr. 60-40-18	0.7040 Ductile Gr. 60-40-18	1.4408 SA 351 CF8M	1.4408 SA 351 CF8M
12	Spindle	1.4021 420	1.4021 420	1.4404 316L	1.4404 316L
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L	1.4404 316L
16/17	Spring plate	1.0718 Steel	1.0718 Steel	1.4404 316L	1.4404 316L
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE	1.4404 PTFE 316L PTFE	1.4404 PTFE 316L PTFE
19	Lock nut	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L	1.4404 316L
40	Cap H2	1.0718 12L13	1.0718 12L13	1.4404 316L	1.4404 316L
54	Spring, standard	1.1200, 1.8159, 1.7102 Steel	1.1200, 1.8159, 1.7102 Steel	1.4310 Stainless steel	1.4310 Stainless steel
	Spring, optional	1.4310 Stainless steel	1.4310 Stainless steel	– –	– –
55	Stud	1.1181 Steel	1.1181 Steel	1.4401 B8M	1.4401 B8M
56	Nut	1.0501 2H	1.0501 2H	1.4401 8M	1.4401 8M
57	Pin	1.4310 Stainless steel	1.4310 Stainless steel	1.4310 Stainless steel	1.4310 Stainless steel
60	Gasket	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel	1.4401 316	1.4401 316

Note:

- LESER reserves the right to make changes.
- If several materials are specified LESER defines the material.
- LESER may use higher quality materials without giving prior notice.
- Each component can be constructed of another material according to the customer's specification.
- All components exposed to pressure are highlighted in bold. The material will be specified according to DIN and ASTM here.

Balanced bellows design



Balanced bellows design

Materials

		O-ring disc	Metal disc	O-ring disc	Metal disc
Item	**Component**	**Type 4312 / 4332**	**Type 4312 / 4332**	**Type 4334**	**Type 4334**
1	**Body**	1.0619 SA 216 WCB	1.0619 SA 216 WCB	1.4408 SA 351 CF8M	1.4408 SA 351 CF8M
5	Seat	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
6	Seat screw	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
7	Disc	1.4404 316L	1.4122 Hardened stainless steel	1.4404 316L	1.4404 316L
8	Guide Upper connection of balanced bellows	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
9	**Bonnet**	0.7040 Ductile Gr. 60-40-18	0.7040 Ductile Gr. 60-40-18	1.4408 SA 351 CF8M	1.4408 SA 351 CF8M
11	Bonnet spacer	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
12	Spindle	1.4404 316L	1.4404 316L	1.4404 316L	1.4404 316L
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L	1.4404 316L
15	Balanced bellows	1.4571 316Ti	1.4571 316Ti	1.4571 316Ti	1.4571 316Ti
16/17	Spring plate	1.0718 Steel	1.0718 Steel	1.4404 316L	1.4404 316L
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE	1.4404 PTFE 316L PTFE	1.4404 PTFE 316L PTFE
19	Lock nut	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L	1.4404 316L
40	Cap H2	1.0718 12L13	1.0718 12L13	1.4404 316L	1.4404 316L
54	Spring, standard	1.1200, 1.8159, 1.7102 Steel	1.1200, 1.8159, 1.7102 Steel	1.4310 Stainless steel	1.4310 Stainless steel
	Spring, optional	1.4310 Stainless steel	1.4310 Stainless steel	– –	– –
55	Stud	1.4401 8M	1.4401 8M	1.4401 B8M	1.4401 B8M
56	Hex nut	1.4401 8M	1.4401 8M	1.4401 B8M	1.4401 B8M
57	Roll pin	1.4310 Stainless steel	1.4310 Stainless steel	1.4310 Stainless steel	1.4310 Stainless steel
60	Gasket	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316	Graphite / 1.4401 Graphite / 316
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel	1.4401 316	1.4401 316

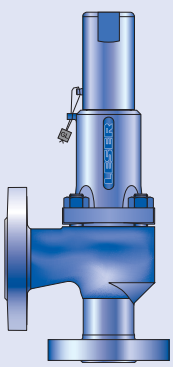
Note:

- LESER reserves the right to make changes.
- If several materials are specified LESER defines the material.
- LESER may use higher quality materials without giving prior notice.
- Each component can be constructed of another material according to the customer's specification.
- All components exposed to pressure are highlighted in bold. The material will be specified according to DIN and ASTM here.

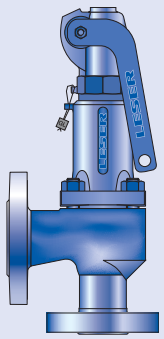
How to order – article numbers

Article numbers

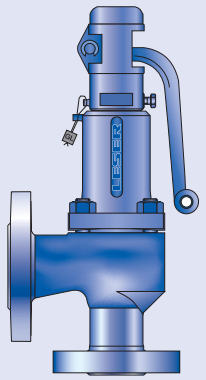
			O-ring disc	Metal disc
		DN_I	15	15
		DN_O	25	25
		Actual orifice diameter d_0 [mm]	12	12
		Actual orifice area A_0 [mm²]	113	113
Body material: 1.0619 (WCB)				
Bonnet closed	**H2**	Art.-No. **4332.**	**8572**	**8552**
	H3	Art.-No. **4332.**	**8573**	**8553**
	H4	Art.-No. **4332.**	**8574**	**8554**
open	**H3**	Art.-No. **4312.**	**8575**	**8555**
Body material: 1.4408 (CF8M)				
Bonnet closed	**H2**	Art.-No. **4334.**	**8582**	**8562**
	H4	Art.-No. **4334.**	**8584**	**8564**



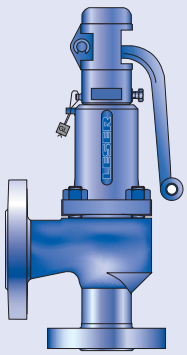
Type 433 PN 160
Cap H2
Closed bonnet
Conventional design



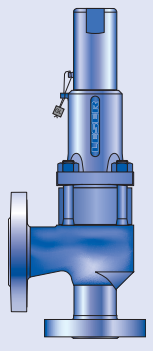
Type 433 PN 160
Packed lever H4
Closed bonnet
Conventional design



Type 433 PN 160
Plain lever H3
Closed bonnet
Conventional design



Type 431 PN 160
Plain lever H3
Open bonnet
Conventional design



Type 431 PN 160
Plain lever H3
Closed bonnet
Balanced bellows design

Pressure temperature ratings

Metric units

		O-ring disc	Metal disc
	DN_I	15	15
	DN_O	25	25
	Actual orifice diameter d_0 [mm]	12	12
	Actual orifice area A_0 [mm^2]	113	113
Body material: 1.0619 (WCB)			
DIN flange	Inlet	**PN 160**	
	Outlet	**PN 40**	
Minimum set pressure	p [bar_g] S/G/L	0.3	0.3
Min. set pressure[1] standard bellows	p [bar_g] S/G/L	3	3
Maximum set pressure	p [bar_g] S/G/L	"K" "D" "L" 142 / "C" 85	144
Max. set pressure with special spring	p [bar_g] S/G/L	"K" "D" "L" 160 / "C" 85	160
Temperature[2] acc. to DIN EN	min. [°C]	-45	-60
	max. [°C]	+150	+450
Body material: 1.4408 (CF8M)			
DIN flange	Inlet	**PN 160**	
	Outlet	**PN 40**	
Minimum set pressure	p [bar_g] S/G/L	0.3	0.3
Min. set pressure[1] standard bellows	p [bar_g] S/G/L	3	3
Max. set pressure	p [bar_g] S/G/L	85	85
Max. set pressure with special spring	p [bar_g] S/G/L	"K" "D" "L" 150 / "C" 85	160
Temperature[2] acc. to DIN EN	min. [°C]	-45	-270
	max. [°C]	+150	+400

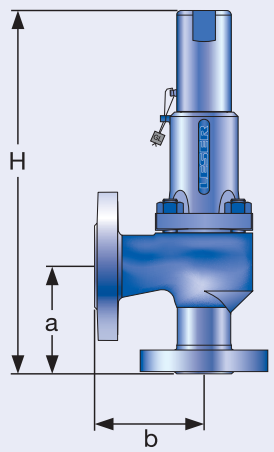
[1] Min. set pressure of standard bellows = max. set pressure of bellows for low set pressure.

[2] The temperature is limited by the soft seal material (see page 99/10). The values given here are valid for EPDM. Between -10°C and the lowest specified application temperature, proceed as per AD 2000-Merkblatt W10.

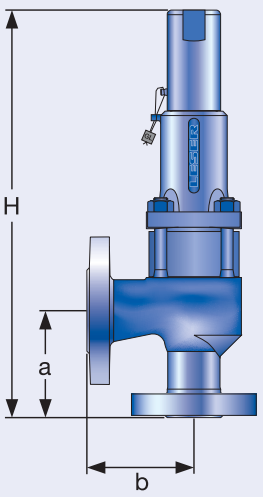
Dimensions and weights

Metric units		
	DN_I	15
	DN_O	25
	Actual orifice diameter d_0 [mm]	12
	Actual orifice area A_0 [mm²]	113
Weight [kg]		7
	with bellows	8.4
Centre to face [mm]	Inlet a	90
	Outlet b	90
Height (H4) [mm]	Standard H max.	307
	Bellows H max.	359
Body material: 1.0619 (WCB)		
DIN flange[1)]	Inlet	PN 160
	Outlet	PN 40
Body material: 1.4408 (CF8M)		
DIN flange[1)]	Inlet	PN 160
	Outlet	PN 40

[1)] Standard flange class. For other flange drillings, see page 02/11.



Conventional design



Balanced bellows design

Flange drillings and facings

Flange drillings

		DN_I	15
		DN_O	25
		Valve size	$^1/_2$" x 1"
		Actual orifice diameter d_0 [mm]	12
		Actual orifice area A_0 [mm²]	113
Body material: 1.0619 (WCB), 1.4408 (CF8M)			
Inlet	**DIN EN 1092**	PN 16	H47
		PN 40	H47
		PN 63	*
		PN 160	*
	ASME B 16.5	CL300	H65
		CL600	H67
Outlet	**DIN EN 1092**	PN 16	*
		PN 40	*
	ASME B16.5[1)]	CL150	H79
		CL300	H80

Flange facings

Information	Standard	Inlet	Outlet	Remark
General				
Flange, undrilled	–	H38	H39	
Linde-V-Nut, Form V48	Linde Standard 420-08 LWN 313.36	J07	J08	Groove: Rz = 16
Linde-V-Nut, Form V48A		J05	J06	Groove: Rz = 4, e.g. for hydrogen
Lens-shape seal form L (without lens-shape seal)	DIN 2696 LWN 313.35	J11	J12	
According to DIN EN 1092				
Flange facings		**Inlet**	**Outlet**	**Remark**
DIN EN 1092 (also see LWN 313.40)		PN 63 – PN 160	PN 40	Rz specification acc. to DIN EN 1092 in µm
Sealing strip	Form B1	–	*	Seal. strip.: Rz = 12.5 – 50
	Form B2	*	L38	Seal. strip.: Rz = 3.2 – 12.5
Tongue, Form C[1)]		H94	H92	only for steel flange
Groove, Form D[1)]		H93	H91	
Male, Form E		H96	H98	
Female, Form F		H97	H99	
O-ring Male, Form G		J01	J02	
O-ring Female, Form H		J03	J04	

According to ASME B16.5

Body material	Inlet	Outlet	Smooth Finish[2)]		Serrated Finish		RTJ-Groove			
			Inlet	Outlet	Inlet	Outlet	Inlet		Outlet	
			Option code		Option code		Pressure level	Option code	Pressure level	Option code
1.0619, 1.4408	all	all	L52	L53	*	*	CL150	H62	CL150	H63

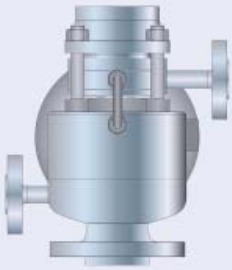
[1)] LESER manufactures the groove at flanged valves by milling. If a customer demands a turned surface in the soil of the groove according to DIN EN 1092-1 an additional option code is necessary: “S01: soil of the groove drilled”.
[2)] Smooth Finish is not defined in the effective standards.

For signs and symbols refer to page 00/07
Note: Flange drillings and facings meet always the requirements of mentioned flange standards.
Flange thickness and outer diameter may vary from flange standard.

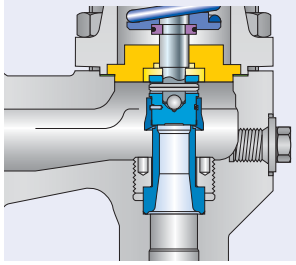
Available options

For more information, also see
“Accessories and Options” as of page 99/01.

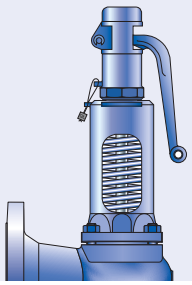
Heating jacket
H29, H30: Coupling G $^{3}/_{8}$, G $^{3}/_{4}$
H31, H32: Flange DN15, DN25



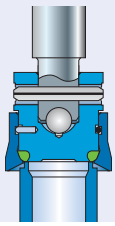
Drain hole
J18: G $^{1}/_{4}$
J19: G $^{1}/_{2}$



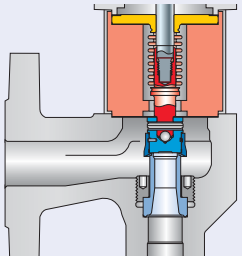
Open bonnet
See Art.-No.



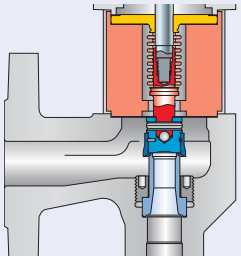
O-ring disc
J20: FFKM “C”
J21: CR “K”
J22: EPDM “D”
J23: FKM “L”



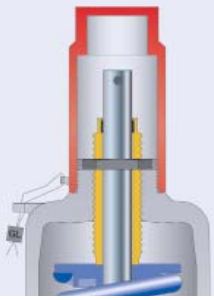
Balanced bellows
J68: Open bonnet
J78: Closed bonnet



Conversion kit for balanced bellows
Art.-No. see page 02/14

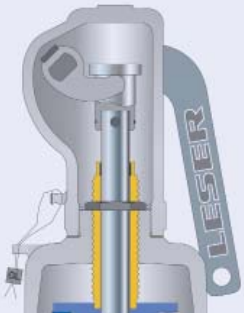


Screwed cap H2
H2

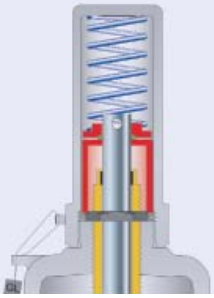


Plain lever H3
H3

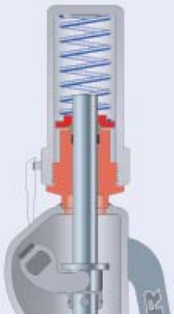
Packed lever H4
H4



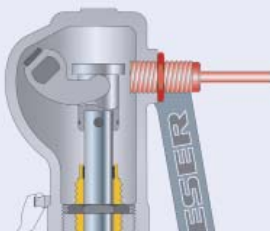
O-ring damper H2
J65



O-ring damper H4
J66



Lift indicator
J39: Adaptor H4
J93: Lift indicator



Test gag
J69: H4
J70: H4