



# Type 441 DIN 442 DIN

Flanged Safety Relief Valves  
– spring loaded

Metric Units



## Facts

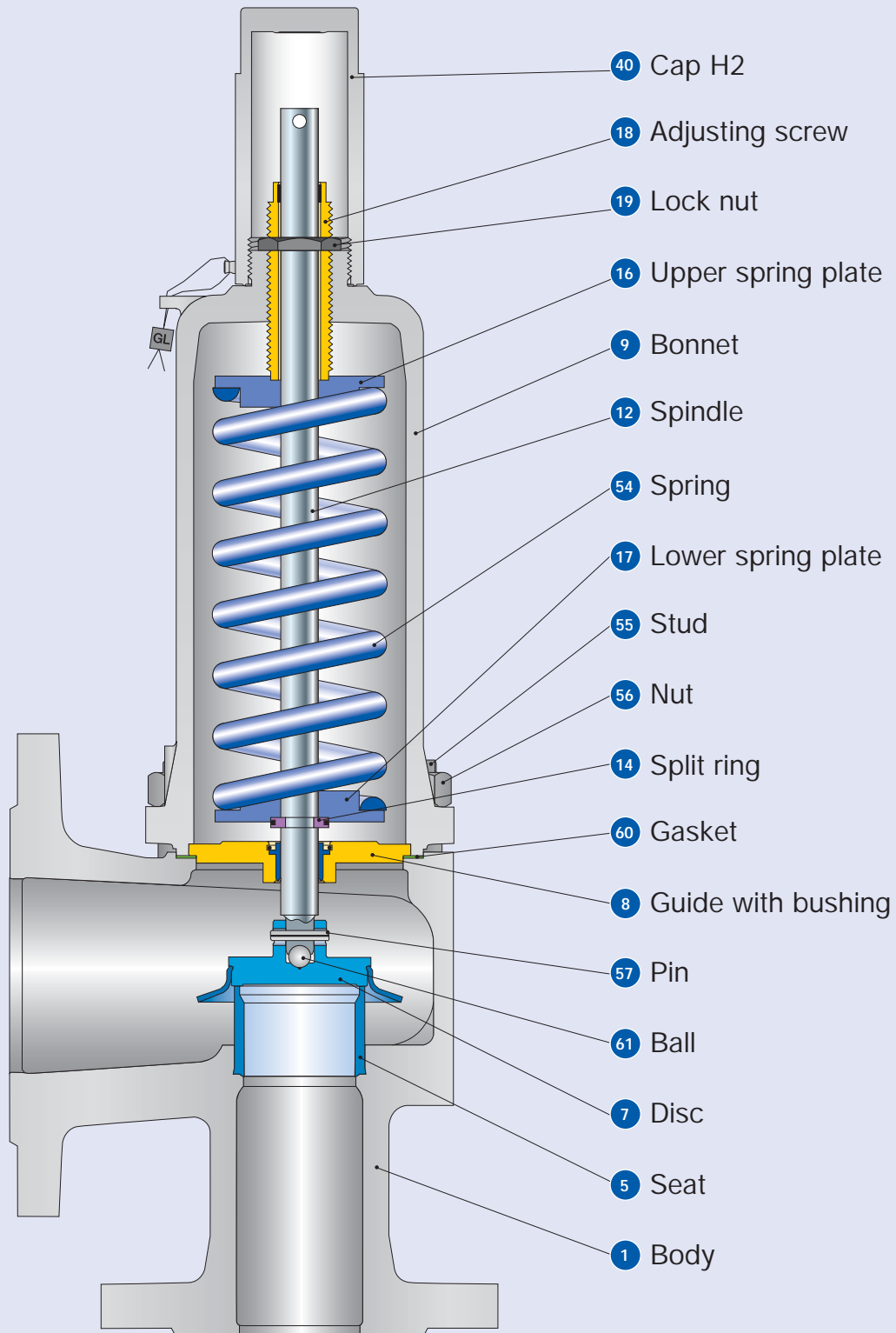
**LESER**

[The-Safety-Valve.com](http://The-Safety-Valve.com)

# Type 441, 442 DIN

## Conventional design

Type 441, 442 DIN



## Conventional design

Materials		Type 4411 / 4421 DIN	Type 4415 / 4425 DIN	Type 4412 / 4422 DIN	Type 4414 DIN
1	Body	0.6025	0.7043	1.0619	1.4408
		Cast iron	Ductile Gr. 60-40-18	SA 216 WCB	SA 351 CF8M
5	Seat	1.4404	1.4404	1.4404	1.4404
		316L	316L	316L	316L
7	Disc	1.4122	1.4122	1.4122	1.4404
		Hardened stainless steel	Hardened stainless steel	Hardened stainless steel	316L
8	Guide with bushing	1.4104, 1.0501, 0.7040	1.4104, 1.0501, 0.7040	1.4104, 1.0501, 0.7040	1.4404
		Chrome or carbon steel	Chrome or carbon steel	Chrome or carbon steel	316L
		1.4104 tenifer	1.4104 tenifer	1.4104 tenifer	-
		Chrome steel tenifer	Chrome steel tenifer	Chrome steel tenifer	-
9	Bonnet	0.7040, 0.7043, 1.0619	0.7040, 0.7043, 1.0619	0.7040, 0.7043, 1.0619	1.4408, 1.4404, 1.4571
		Ductile Gr. 60-40-18, SA 216 WCB	Ductile Gr. 60-40-18, SA 216 WCB	Ductile Gr. 60-40-18, SA 216 WCB	SA 351 CF8M, SA 479 316L, SA 479 316Ti
12	Spindle	1.4021	1.4021	1.4021	1.4404
		420	420	420	316L
14	Split ring	1.4104	1.4104	1.4104	1.4404
		Chrome steel	Chrome steel	Chrome steel	316L
16/17	Spring plate	1.0718	1.0718	1.0718	1.4404
		Steel	Steel	Steel	316L
18	Adjusting screw with bushing	1.4104 PTFE	1.4104 PTFE	1.4104 PTFE	1.4404 PTFE
		Chrome steel PTFE	Chrome steel PTFE	Chrome steel PTFE	316L PTFE
19	Lock nut	1.0718	1.0718	1.0718	1.4404
		Steel	Steel	Steel	316L
40	Cap H2	1.0718 or 0.7043	1.0718 or 0.7043	1.0718 or 0.7043	1.4404
		12L13 or Gr. 60-40-18	12L13 or Gr. 60-40-18	12L13 or Gr. 60-40-18	316L
54	Spring standard	1.1200, 1.8159, 1.7102	1.1200, 1.8159, 1.7102	1.1200, 1.8159, 1.7102	1.4310
		Carbon steel	Carbon steel	Carbon steel	Stainless steel
54	Spring optional	1.4310	1.4310	1.4310	-
		Stainless steel	Stainless steel	Stainless steel	-
55	Stud	1.1181	1.1181	1.1181	1.4401
		Steel	Steel	Steel	B8M
56	Nut	1.0501	1.0501	1.0501	1.4401
		2H	2H	2H	8M
57	Pin	1.4310	1.4310	1.4310	1.4310
		Stainless steel	Stainless steel	Stainless steel	Stainless steel
60	Gasket	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401
		Graphite / 316	Graphite / 316	Graphite / 316	Graphite / 316
61	Ball	1.3541	1.3541	1.3541	1.4401
		Hardened stainless steel	Hardened stainless steel	Hardened stainless steel	316

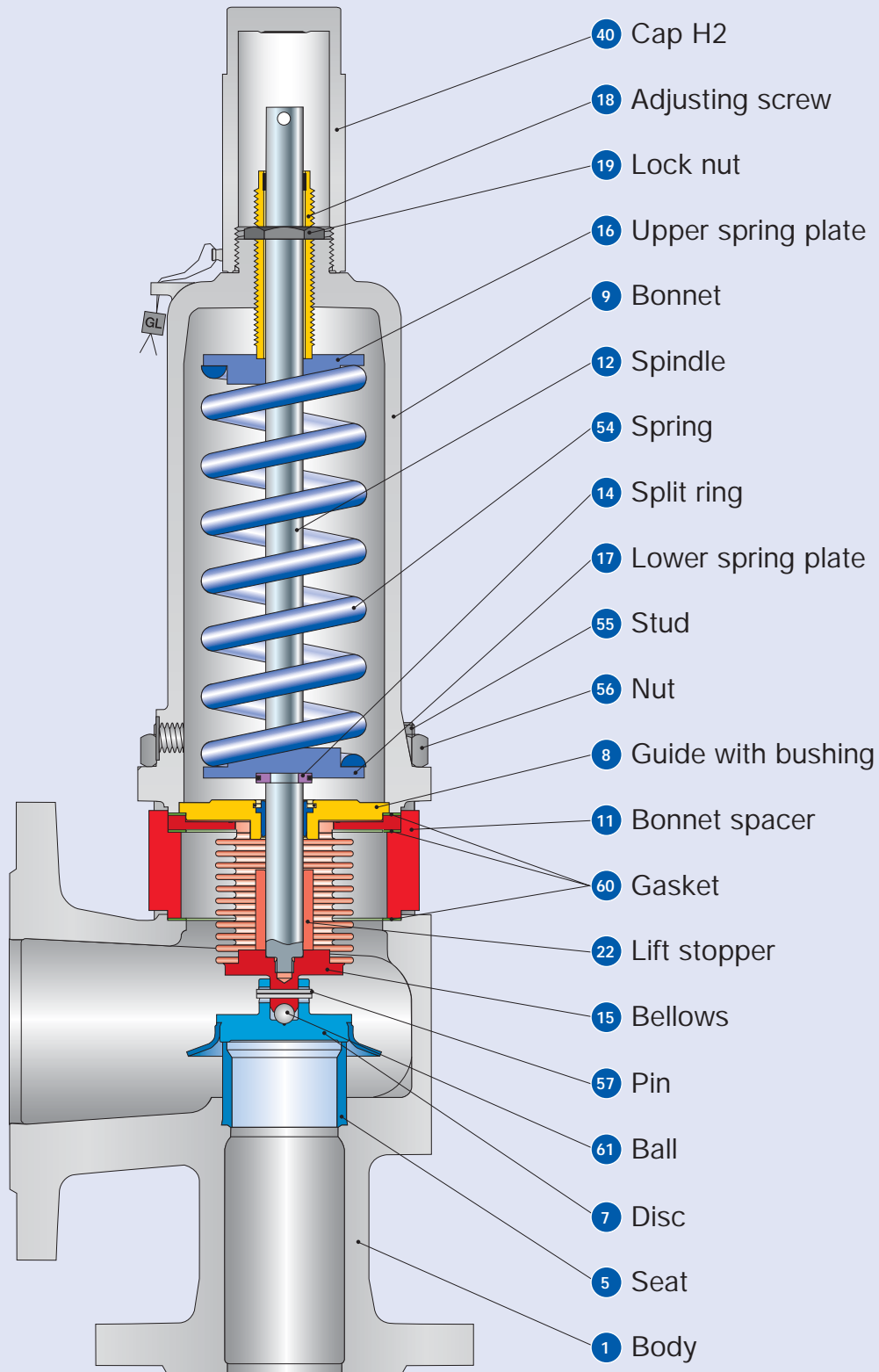
**Please notice:**

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

# Type 441, 442 DIN

## Balanced bellows design

Type 441, 442 DIN



## Balanced bellows design

Materials					
Item	Component	Type 4411 / 4421 DIN	Type 4415 / 4425 DIN	Type 4412 / 4422 DIN	Type 4414 DIN
1	Body	0.6025	0.7043	1.0619	1.4408
		Cast iron	Ductile Gr. 60-40-18	SA 216 WCB	SA 351 CF8M
5	Seat	1.4404	1.4404	1.4404	1.4404
		316L	316L	316L	316L
7	Disc	1.4122	1.4122	1.4122	1.4404
		Hardened stainless steel	Hardened stainless steel	Hardened stainless steel	316L
8	Guide with bushing	1.4104, 1.0501, 0.7040	1.4104, 1.0501, 0.7040	1.4104, 1.0501, 0.7040	1.4404
		Chrome or carbon steel	Chrome or carbon steel	Chrome or carbon steel	316L
		1.4104 tenifer	1.4104 tenifer	1.4104 tenifer	-
		Chrome steel tenifer	Chrome steel tenifer	Chrome steel tenifer	-
9	Bonnet	0.7040, 0.7043, 1.0619	0.7040, 0.7043, 1.0619	0.7040, 0.7043, 1.0619	1.4408, 1.4404, 1.4571
		Ductile Gr. 60-40-18, SA 216 WCB	Ductile Gr. 60-40-18, SA 216 WCB	Ductile Gr. 60-40-18, SA 216 WCB	SA 351 CF8M, SA 479 316L, SA 479 316Ti
11	Bonnet spacer	1.0460	1.0460	1.0460	1.4404
		Carbon steel	Carbon steel	Carbon steel	316L
12	Spindle	1.4404	1.4404	1.4404	1.4404
		316L	316L	316L	316L
14	Split ring	1.4104	1.4104	1.4104	1.4404
		Chrome steel	Chrome steel	Chrome steel	316L
15	Bellows	1.4571	1.4571	1.4571	1.4571
		316Ti	316Ti	316Ti	316Ti
16/17	Spring plate	1.0718	1.0718	1.0718	1.4404
		Steel	Steel	Steel	316L
18	Adjusting screw with bushing	1.4104 PTFE	1.4104 PTFE	1.4104 PTFE	1.4404 PTFE
		Chrome steel PTFE	Chrome steel PTFE	Chrome steel PTFE	316L PTFE
19	Lock nut	1.0718	1.0718	1.0718	1.4404
		Steel	Steel	Steel	316L
22	Lift stopper	1.4404	1.4404	1.4104	1.4404
		316L	316L	Chrome steel	316L
40	Cap H2	1.0718 or 0.7043	1.0718 or 0.7043	1.0718 or 0.7043	1.4404
		12L13 or Gr. 60-40-18	12L13 or Gr. 60-40-18	12L13 or Gr. 60-40-18	316L
54	Spring standard	1.1200, 1.8159, 1.7102	1.1200, 1.8159, 1.7102	1.1200, 1.8159, 1.7102	1.4310
		Carbon steel	Carbon steel	Carbon steel	Stainless steel
54	Spring optional	1.4310	1.4310	1.4310	-
		Stainless steel	Stainless steel	Stainless steel	-
55	Stud	1.4401	1.4401	1.4401	1.4401
		B8M	B8M	B8M	B8M
56	Nut	1.4401	1.4401	1.4401	1.4401
		8M	8M	8M	8M
57	Pin	1.4310	1.4310	1.4310	1.4310
		Stainless steel	Stainless steel	Stainless steel	Stainless steel
60	Gasket	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401
		Graphite / 316	Graphite / 316	Graphite / 316	Graphite / 316
61	Ball	1.3541	1.3541	1.3541	1.4401
		Hardened stainless steel	Hardened stainless steel	Hardened stainless steel	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			20	20	25	32	40	50	65	80	100	125	150	200
		DN <sub>i</sub>	20	20	25	32	40	50	65	80	100	125	150	200
		DN <sub>o</sub>	32	40	40	50	65	80	100	125	150	200	250	300
		Actual Orifice diameter d <sub>0</sub> [mm]	18	18	23	29	37	46	60	74	92	98	125	165
		Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]	254	254	416	661	1075	1662	2827	4301	6648	7543	12272	21382
<b>Body material: 0.6025 (cast iron)</b>														
<b>Bonnet</b>	<b>H2</b>	Art.-No. 4411.	4372	–	4382	4392	4402	4412	4422	4432	4442	4452	4462	–
closed	<b>H3</b>	Art.-No. 4411.	4373	–	4383	4393	4403	4413	4423	4433	4443	4453	–	–
	<b>H4</b>	Art.-No. 4411.	4374	–	4384	4394	4404	4414	4424	4434	4444	4454	4464	–
open	<b>H3</b>	Art.-No. 4421.	4375	–	4385	4395	4405	4415	4425	4435	4445	4455	4465	–
<b>Body material: 0.7043 (ductile Gr. 60-40-18)</b>														
<b>Bonnet</b>	<b>H2</b>	Art.-No. 4415.	–	–	7382	7392	7402	7412	7422	7432	7442	7452	7462	7472
closed	<b>H3</b>	Art.-No. 4415.	–	–	7383	7393	7403	7413	7423	7433	7443	7453	–	–
	<b>H4</b>	Art.-No. 4415.	–	–	7384	7394	7404	7414	7424	7434	7444	7454	7464	7474
open	<b>H3</b>	Art.-No. 4425.	–	–	7385	7395	7405	7415	7425	7435	7445	7455	7465	7475
<b>Body material: 1.0619 (WCB)</b>														
<b>Bonnet</b>	<b>H2</b>	Art.-No. 4412.	–	4502	4512	4522	4532	4542	4552	4562	4572	4582	4592	4612
closed	<b>H3</b>	Art.-No. 4412.	–	4503	4513	4523	4533	4543	4553	4563	4573	4583	–	–
	<b>H4</b>	Art.-No. 4412.	–	4504	4514	4524	4534	4544	4554	4564	4574	4584	4594	4614
open	<b>H3</b>	Art.-No. 4422.	–	4505	4515	4525	4535	4545	4555	4565	4575	4585	4595	4615
<b>Body material: 1.4408 (CF8M)</b>														
<b>Bonnet</b>	<b>H2</b>	Art.-No. 4414.	–	–	4642	4652	4662	4672	4682	4692	4702	4712	4722	–
closed	<b>H4</b>	Art.-No. 4414.	–	–	4644	4654	4664	4674	4684	4694	4704	4714	4724	–

## Dimensions and weights

### Metric Units

	DN <sub>i</sub>	20	20	25	32	40	50	65	80	100	125	150	200
	DN <sub>o</sub>	32	40	40	50	65	80	100	125	150	200	250	300
	Actual Orifice diameter d <sub>0</sub> [mm]	18	18	23	29	37	46	60	74	92	98	125	165
	Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]	254	254	416	661	1075	1662	2827	4301	6648	7543	12272	21382
<b>Weight</b> [kg]		9	9	9	12	16	22	32	56	75	85	131	285
	with bellows	9,4	9,4	10	13	17	24	36	60	83	93	142	289
<b>Center to face</b> [mm]	Inlet a	85	85	105	115	140	150	170	195	220	250	285	400
	Outlet b	95	95	100	110	115	120	140	160	180	200	225	477
<b>Height (H4)</b> [mm]	Standard H max.	304	304	339	446	512	569	699	801	883	913	1083	1380
	Bellows H max.	337	337	378	488	550	615	769	860	939	969	1141	1380
<b>Support brackets</b> [mm]  (drilled only on request)	A									277	277	320	490
	B									160	160	185	1)
	C									Ø 18	Ø 18	Ø 18	Ø 18
	D									293	318	392	1)
	E									21	21	28	1)

### Body material: 0.6025 (cast iron)

<b>DIN Flange<sup>2)</sup></b>	Inlet	PN 16	-										PN 16
	Outlet	PN 16	-										PN 16

### Body material: 0.7043 (ductile Gr. 60-40-18)

<b>DIN Flange<sup>2)</sup></b>	Inlet	-	-					PN 40					PN 16	PN 25
	Outlet	-	-						PN 16					PN 10

### Body material: 1.0619 (WCB)

<b>DIN Flange<sup>2)</sup></b>	Inlet	-	-					PN 40						PN 25
	Outlet	-	-						PN 16					

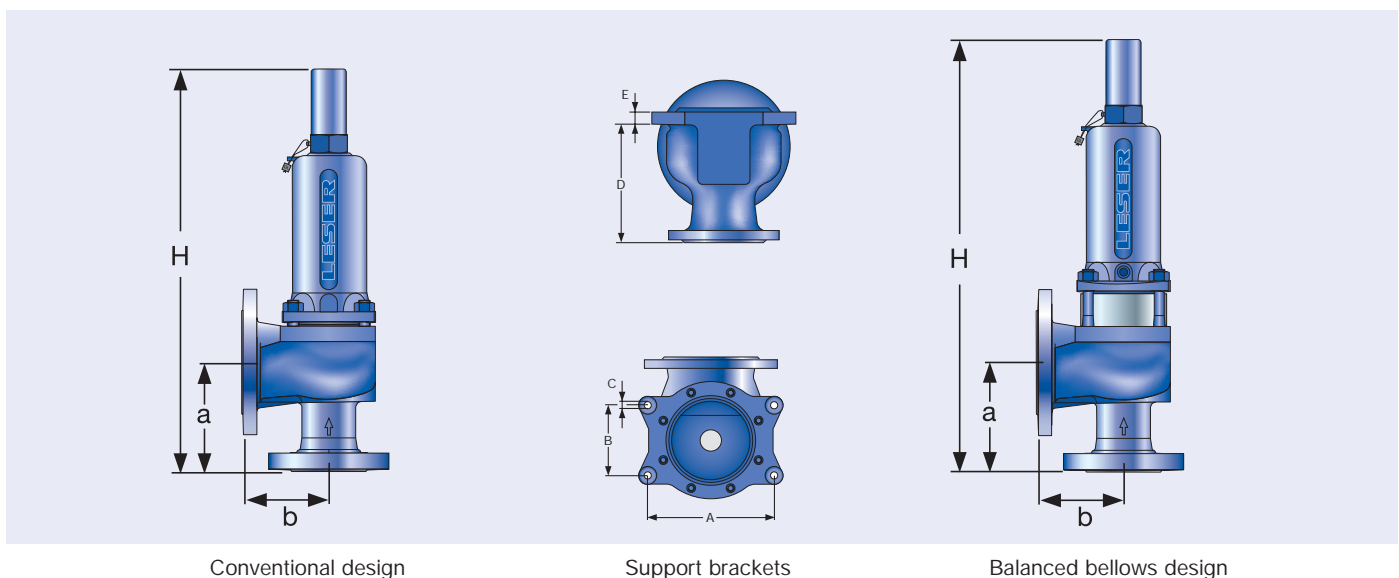
### Body material: 1.4408 (CF8M)

<b>DIN Flange<sup>2)</sup></b>	Inlet	-	-					PN 40						
	Outlet	-	-						PN 16					

1)

Body material	B	D	E
	[mm]	[mm]	[mm]
0.6025	150	290	16
0.7043	150	489	25
1.0619	160	489	25
1.4408	150	489	25

<sup>2)</sup> Standard flange rating. For other flange drillings and facings please refer to page 01/16 and 01/17.



## Pressure temperature ratings

### Metric Units

	DN <sub>I</sub>	20	20	25	32	40	50	65	80	100	125	150	200	
	DN <sub>O</sub>	32	40	40	50	65	80	100	125	150	200	250	300	
	Actual Orifice diameter d <sub>0</sub> [mm]	18	18	23	29	37	46	60	74	92	98	125	165	
	Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]	254	254	416	661	1075	1662	2827	4301	6648	7543	12272	21382	
<b>Body material: 0.6025 (cast iron)</b>														
<b>DIN Flange</b>	Inlet	<b>PN 16</b>	-	<b>PN 16</b>										-
	Outlet	<b>PN 16</b>	-	<b>PN 16</b>										-
<b>Minimum set pressure</b>	p [bar <sub>g</sub> ] S/G/L	0,1	-	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	-	
<b>Min. set pressure<sup>1)</sup> standard bellows</b>	p [bar <sub>g</sub> ] S/G/L	3	-	3	3	3	3	3	3	3	3	3	-	
<b>Min. set pressure low press. bellows</b>	p [bar <sub>g</sub> ] S/G/L	2,00	-	0,98	1,41	1,11	1,81	1,50	1,05	1,18	1,41	-	-	
<b>Maximum set pressure</b>	p [bar <sub>g</sub> ] S/G/L	16	-	16	16	16	16	16	16	16	16	16	-	
<b>Max. set pressure with special spring</b>	p [bar <sub>g</sub> ] S/G/L	16	-	16	16	16	16	16	16	16	16	16	-	
<b>Temperature acc. to DIN EN</b>	min. [°C]	-10	-	-10										-
	max. [°C]	+300	-	+300										-
<b>Temperature acc. to ASME</b>	min. [°C]	-	-	-										-
	max. [°C]	-	-	-										-

<b>Body material: 0.7043 (ductile Gr. 60-40-18)</b>														
<b>DIN Flange</b>	Inlet	-	-	<b>PN 40</b>							<b>PN 16</b>		<b>PN 25</b>	
	Outlet	-	-	<b>PN 16</b>							<b>PN 16</b>		<b>PN 10</b>	
<b>Minimum set pressure</b>	p [bar <sub>g</sub> ] S/G/L	-	-	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	
<b>Min. set pressure<sup>1)</sup> standard bellows</b>	p [bar <sub>g</sub> ] S/G/L	-	-	3	3	3	3	3	3	3	3	3	3	
<b>Min. set pressure low press. bellows</b>	p [bar <sub>g</sub> ] S/G/L	-	-	0,98	1,41	1,11	1,81	1,50	1,05	1,18	1,41	-	-	
<b>Maximum set pressure</b>	p [bar <sub>g</sub> ] S/G/L	-	-	40	40	40	40	40	32	40	16	16	20	
<b>Max. set pressure with special spring</b>	p [bar <sub>g</sub> ] S/G/L	-	-	40	40	40	40	40	40	40	16	16	25	
<b>Temperature acc. to DIN EN</b>	min. [°C]	-	-	-60							-60			
	max. [°C]	-	-	+350							+350			
<b>Temperature acc. to ASME</b>	min. [°C]	-	-	-10							-10			
	max. [°C]	-	-	+350							+350			

<sup>1)</sup> Min. set pressure standard bellows = Max. set pressure low pressure bellows.



## Pressure temperature ratings

Metric Units														
	DN <sub>I</sub>	20	20	25	32	40	50	65	80	100	125	150	200	
	DN <sub>O</sub>	32	40	40	50	65	80	100	125	150	200	250	300	
	Actual Orifice diameter d <sub>0</sub> [mm]	18	18	23	29	37	46	60	74	92	98	125	165	
	Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]	254	254	416	661	1075	1662	2827	4301	6648	7543	12272	21382	
Body material: 1.0619 (WCB)														
DIN Flange	Inlet	-	PN 40										PN 25	
	Outlet	-	PN 16											
Minimum set pressure	p [bar <sub>g</sub> ] S/G/L	-	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	
Min. set pressure <sup>1)</sup> standard bellows	p [bar <sub>g</sub> ] S/G/L	-	3	3	3	3	3	3	3	3	3	3	3	
Min. set pressure low press. bellows	p [bar <sub>g</sub> ] S/G/L	-	2,00	0,98	1,41	1,11	1,81	1,50	1,05	1,18	1,41	-	-	
Maximum set pressure	p [bar <sub>g</sub> ] S/G/L	-	40	40	40	40	40	40	32	40	28	17	20	
Max. set pressure with special spring	p [bar <sub>g</sub> ] S/G/L	-	40	40	40	40	40	40	40	40	28	25	25	
Temperature acc. to DIN EN	min. [°C]	-	-85											
	max. [°C]	-	+450											
Temperature acc. to ASME	min. [°C]	-	-29											
	max. [°C]	-	+427											
Body material: 1.4408 (CF8M)														
DIN Flange	Inlet	-	-	PN 40										-
	Outlet	-	-	PN 16										-
Minimum set pressure	p [bar <sub>g</sub> ] S/G/L	-	-	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	-	
Min. set pressure <sup>1)</sup> standard bellows	p [bar <sub>g</sub> ] S/G/L	-	-	3	3	3	3	3	3	3	3	3	-	
Min. set pressure low press. bellows	p [bar <sub>g</sub> ] S/G/L	-	-	0,98	1,41	1,11	1,81	1,50	1,05	1,18	1,41	-	-	
Maximum set pressure	p [bar <sub>g</sub> ] S/G/L	-	-	40	40	40	33	28	13,6	15	15	7	-	
Max. set pressure with special spring	p [bar <sub>g</sub> ] S/G/L	-	-	40	40	40	37	28	25	26	24	10	-	
Temperature acc. to DIN EN	min. [°C]	-	-	-270										
	max. [°C]	-	-	+400										
Temperature acc. to ASME	min. [°C]	-	-	-268										
	max. [°C]	-	-	+538										

<sup>1)</sup> Min. set pressure standard bellows = Max. set pressure low pressure bellows.

# Type 441, 442 DIN

**LESER**

## Available Options

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

Type 441, 442 DIN

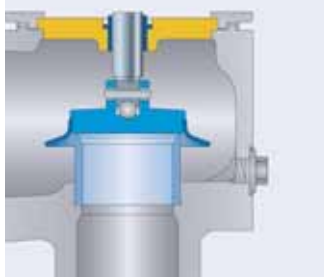
### Heating jacket

H29, H30: Couplings G  $\frac{3}{8}$ , G  $\frac{3}{4}$   
H31, H32: Flanges DN 15, DN 25



### Drain hole

J18: G  $\frac{1}{4}$   
J19: G  $\frac{1}{2}$



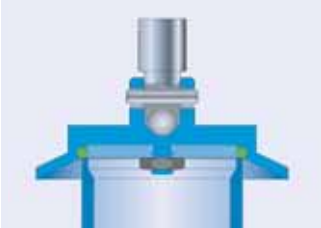
### Open bonnet

See Art.-No.



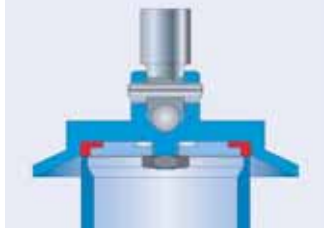
### O-ring-disc

J20: FFKM "C"  
J21: CR "K"  
J22: EPDM "D"  
J23: FKM "L"



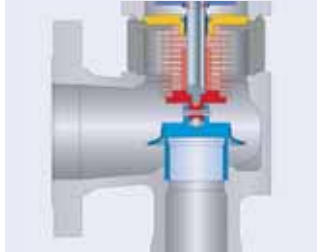
### Disc with inserted sealing plate

J44: PTFE-FDA  
J48: PCTFE  
J49: SP



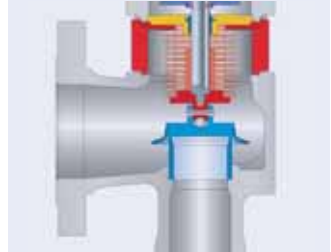
### Stainless steel bellows

J68: Open bonnet  
J78: Closed bonnet



### Conversion kit for stainless steel bellows

See Art.-No. page 06/15



### Screwed cap H2



### Plain lever H3

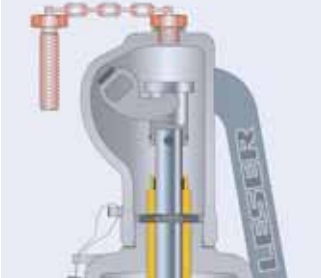


### Packed lever H4



### Test gag

J69: H4  
J70: H2



### Lift indicator

J39: Adaptor H4  
J93: Lift indicator



### O-ring-damper H2

J65



### O-ring-damper H4

J66

