

Type 462

Safety Relief Valves
– spring loaded

Metric Units

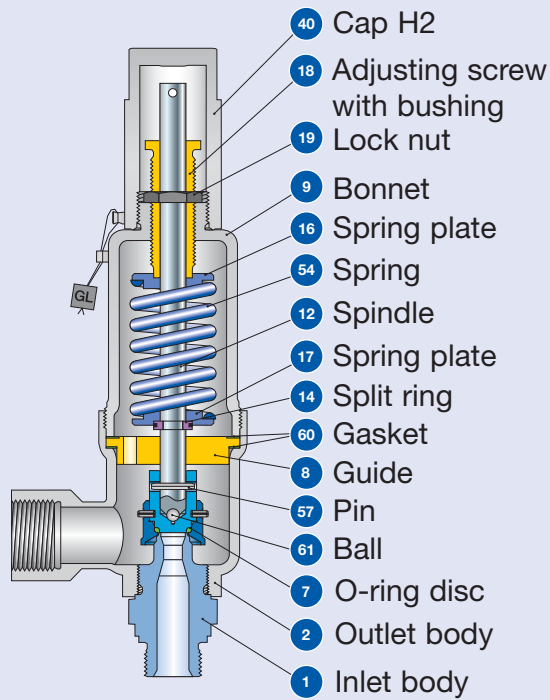


Facts

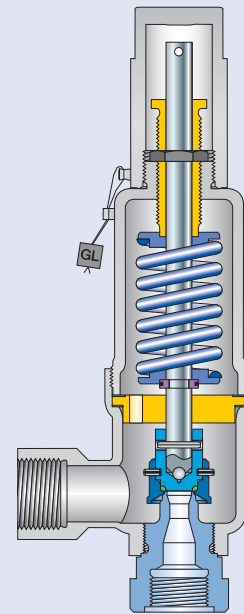
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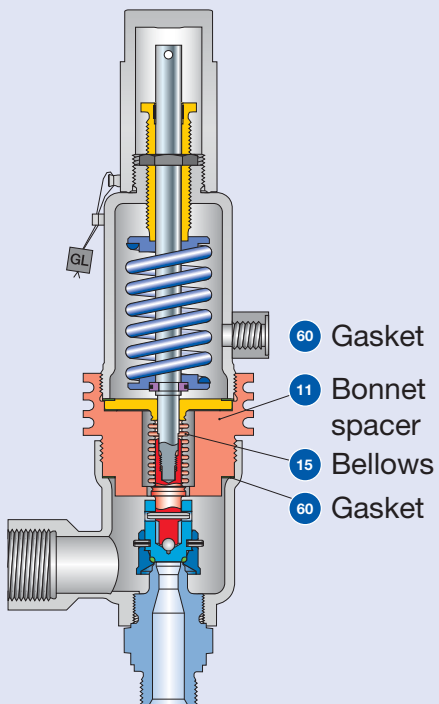
Available designs



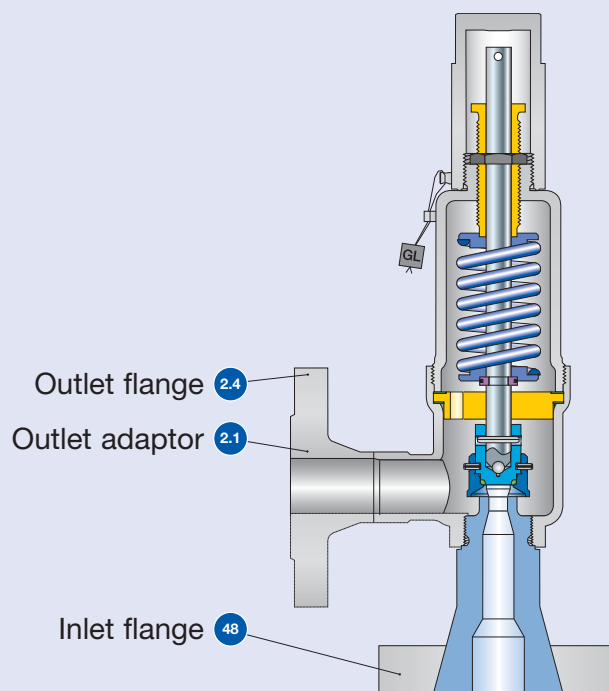
Conventional design
Threaded connection



Conventional design
Threaded connection



Balanced bellows
Threaded connection



Conventional design
Flange connection

Available designs – materials

Materials					
Item	Component	Remarks	Type 4623	Type 4622	Type 4624
1	Base / Inlet body	Threaded connection	1.4104	1.4404 SA 479 316L	1.4404 SA 479 316L
		Flange connection	1.4404 SA 479 316L	1.4404 SA 479 316L	1.4404 SA 479 316L
2	Outlet body		0.7043 Ductile Gr. 60-40-18	1.0619 WCB	1.4408 ¹⁾ CF8M ¹⁾
2.1	Outlet adaptor	Flange connection	1.4404 316L	1.4404 316L	1.4404 316L
2.4	Outlet flange	Flange connection	1.4404 316L	1.4404 316L	1.4404 316L
7	O-ring disc		1.4404 SA 479 316L	1.4404 SA 479 316L	1.4404 SA 479 316L
7.4	Soft seal O-ring	“N”	NBR Nitrile-Butadiene	NBR Nitrile-Butadiene	NBR Nitrile-Butadiene
		“K”	CR Chloroprene	CR Chloroprene	CR Chloroprene
		“D”	EPDM Ethylen-Propylene-Diene	EPDM Ethylen-Propylene-Diene	EPDM Ethylen-Propylene-Diene
		“L”	FPM Fluorocarbon	FPM Fluorocarbon	FPM Fluorocarbon
		“C”	FFKM Perfluor	FFKM Perfluor	FFKM Perfluor
8	Guide		1.4104 tenifer Chrome steel tenifer	1.4104 tenifer Chrome steel tenifer	1.4404 316L
		Balanced bellows design	1.4404 / SA 316L Upper connection of balanced bellows	1.4404 / SA 316L Upper connection of balanced bellows	1.4404 / SA 316L Upper connection of balanced bellows
9	Bonnet		0.7043 Ductile Gr. 60-40-18	1.0460 Steel	1.4404 316L
		Balanced bellows design	1.4404 316L	1.4404 316L	1.4404 316L
11	Bonnet spacer	Balanced bellows design	1.4404 316L	1.4404 316L	1.4404 316L
12	Spindle		1.4021 420	1.4404 316L	1.4404 316L
		Balanced bellows design	1.4404 316L	1.4404 316L	1.4404 316L
14	Split ring		1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L
15	Bellows	Balanced bellows design	1.4571 316Ti	1.4571 316Ti	1.4571 316Ti
16/17	Spring plate		1.0718 Steel	1.0718 Steel	1.4404 316L
18	Adjusting screw with bushing		1.4104 / PTFE Chrome steel / PTFE	1.4104 / PTFE Chrome steel / PTFE	1.4104 / PTFE Chrome steel / PTFE
19	Lock nut		1.4104 430	1.4104 430	1.4404 316L
40	Cap H2		1.0718 Steel	1.0718 Steel	1.4404 316L
48	Inlet flange	Flange connection	1.4404 316L	1.4404 316L	1.4404 316L
54	Spring	Standard	1.1200 / 1.8159 / 1.7107 Carbon steel	1.1200 / 1.8159 / 1.7107 Carbon steel	1.4310 Stainless steel
		Optional	1.4310 Stainless steel	1.4310 Stainless steel	- -
57	Pin		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
			1.3541 Hardened stainless steel	1.3541 Hardened stainless steel	1.4401 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.

¹⁾Type 4624 with outlet body deep-drawn: outlet body material 1.4404 / 316L

How to order – Article numbers

Article numbers						
Actual Orifice diameter d_0 [mm]				9	13	17.5
Actual Orifice area A_0 [mm ²]				63.6	133	241
Actual Orifice diameter d_0 [inch]				0.354	0.512	0.689
Actual Orifice area A_0 [inch ²]				0.099	0.206	0.374
O-ring material					NBR "N" J30	
					CR "K" J21	
					EPDM "D" J22	
					FKM "L" J23	
					FFKM "C" J20	
Outlet body casted						
Inlet body	1.4104	H2	Art.-No. 4623.	2902	2912	2922
Outlet body	0.7043	H3	Art.-No. 4623.	2903	2913	2923
Bonnet	0.7043	H4	Art.-No. 4623.	2904	2914	2924
p [bar _g]				0.5 – 250	0.5 – 180	0.5 – 92.5
p [psig]		S/G/L		7.3 – 3626	7.3 – 2611	7.3 – 1342
Outlet body investment casted						
Inlet body	1.4404	H2	Art.-No. 4622.	3772	3782	3792
Outlet body	1.0619 (WCB)	H3	Art.-No. 4622.	3773	3783	3793
Bonnet	1.0460	H4	Art.-No. 4622.	3774	3784	3794
p [bar _g]				0.5 – 250	0.5 – 180	0.5 – 92.5
p [psig]		S/G/L		7.3 – 3626	7.3 – 2611	7.3 – 1342
Outlet body investment casted						
Inlet body	1.4404					
Outlet body	1.4408 (CF8M)	H2	Art.-No. 4624.	2192	2202	2212
Bonnet	1.4404	H4	Art.-No. 4624.	2194	2204	2214
p [bar _g]				0.5 – 250	0.5 – 180	0.5 – 92.5
p [psig]		S/G/L		7.3 – 3626	7.3 – 2611	7.3 – 1342
Outlet body deep-drawn						
All body and trim parts		H2	Art.-No. 4624.	2952	2962	2972
	1.4404	H4	Art.-No. 4624.	2954	2964	2974
p [bar _g]				0.5 – 250	0.5 – 180	0.5 – 92.5
p [psig]		S/G/L		7.3 – 3626	7.3 – 2611	7.3 – 1342

For selection of inlet and outlet connection please refer to page 09/06 – 09/07.

Dimensions and weights – Metric Units

Threaded connections

		1/2" x 1"	3/4" x 1"	1" x 1"	1/2" x 1"	3/4" x 1"	1" x 1"	3/4" x 1 1/2"	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"
Size Outlet body		1/2" x 1"	3/4" x 1"	1" x 1"	1/2" x 1"	3/4" x 1"	1" x 1"	3/4" x 1 1/2"	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"
Actual Orifice diameter d ₀ [mm]		9	9	9	13	13	13	17.5	17.5	17.5	17.5
Actual Orifice area A ₀ [mm ²]		63.6	63.6	63.6	133	133	133	241	241	241	241
Weight	[kg]	2.6	2.6	2.6	2.6	2.6	2.6	3.0	3.0	3.0	3.0
Balanced bellows	[kg]	3.4	3.4	3.4	3.4	3.4	3.4	3.8	3.8	3.8	3.8
Required installation diameter	[mm]	165	165	165	165	165	165	165	165	165	165

Inlet thread "Female"

		1/2" x 1"	3/4" x 1"	1" x 1"	1/2" x 1"	3/4" x 1"	1" x 1"	3/4" x 1 1/2"	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"
Size Outlet body		1/2" x 1"	3/4" x 1"	1" x 1"	1/2" x 1"	3/4" x 1"	1" x 1"	3/4" x 1 1/2"	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"
Actual Orifice diameter d ₀ [mm]		9	9	9	13	13	13	17.5	17.5	17.5	17.5
Center to face / Height											
DIN ISO 228-1 G	Inlet a	53	56	62	53	56	62	60	66	67	73
ASME B1.20.1 NPT	Outlet b	75	75	75	75	75	75	75	75	75	75
Center to face [mm]	H max.	283	286	292	283	286	292	287	293	294	300
Height [mm]	Balanced bellows H max.	315	318	324	315	318	324	319	325	326	332
ISO 7-1/BS 21 Rc	Inlet a	53	56	64	53	56	64	60	68	–	77
Center to face [mm]	Outlet b	75	75	75	75	75	75	75	75	–	75
Height [mm]	H max.	283	286	294	283	286	294	287	295	–	304
	Balanced bellows H max.	315	318	326	315	318	326	319	327	–	336

Inlet thread "Male"

		1"	1 1/2"
Size outlet body		1"	1 1/2"
Actual Orifice diameter d ₀ [mm]		9	13
Center to face [mm]			
DIN ISO 228-1 G	Inlet 1/2" – 1" a	52	–
	Inlet 1" – 2" a	–	56
	Outlet b	75	75
ISO 7-1/BS 21 R	Inlet 1/2" – 1" a	49	–
ASME B1.20.1 NPT	Inlet 1" – 2" a¹⁾	–	53
	Outlet b	75	75

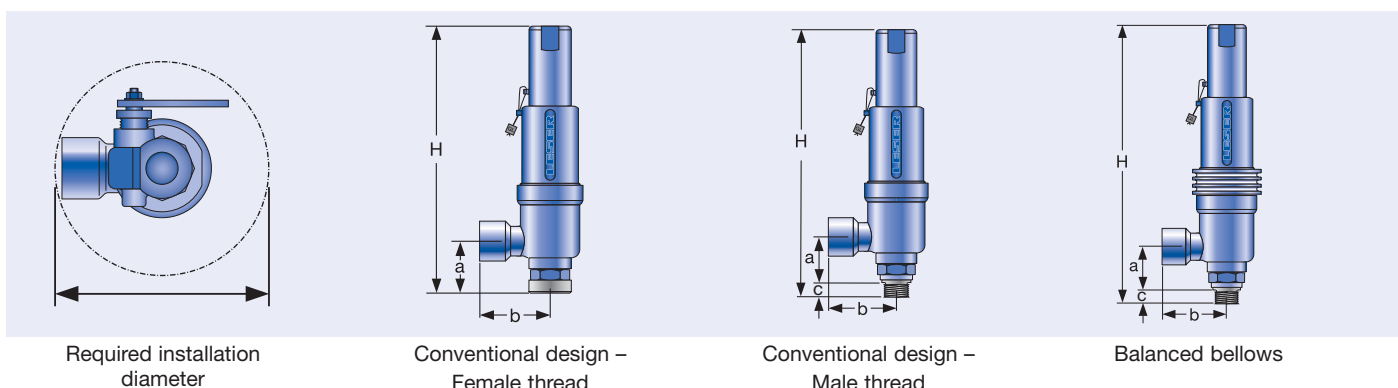
Height [mm]

		Conventional design							Balanced bellows					
Size inlet thread		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
DIN ISO 228-1 G	H max.	296	298	301	303	305	–	328	330	333	335	337	–	
ISO 7-1/BS 21 R	H max.	298	299	303	–	305	–	330	331	335	–	337	–	
ASME B1.20.1 NPT	H max.	301	301	307	307	308	309	333	333	339	340	340	341	

Length of screwed end "c" [mm]

		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
DIN ISO 228-1 G	c	14	16	18	20	22	24
ISO 7-1/BS 21 R	c	19	20	23	25	25	–
ASME B1.20.1 NPT	c	22	22	27	28	28	29

Available threaded connections refer to page 09/06. ¹⁾Inlet thread R only up to 1 1/2".



Dimensions and weights – Metric Units

Flanged connection

	Conventional design			Balanced bellows		
Actual Orifice diameter d_0 [mm]	9	13	17.5	9	13	17.5
Actual Orifice area A_0 [mm ²]	63.6	133	241	63.6	133	241

DIN EN 1092-1 (Available flange sizes refer to page 09/07)

Flange rating PN 40 – 400

Center to face	[mm]	Inlet a	Conventional design			Balanced bellows		
			100	100	105	100	100	105
		Outlet b	100	100	100	100	100	100
Height	[mm]	H max.	330	330	333	375	375	378

ASME B 16.5 (Available flange sizes refer to page 09/07)

Flange rating class 150 – 2500

Center to face	[mm]	Inlet a	Conventional design			Balanced bellows		
			100	100	105	100	100	105
		Outlet b	100	100	100	100	100	100
Height	[mm]	H max.	330	330	333	375	375	378

Note The outlet dimension b can differ at special combinations of nominal diameter and pressure range if flanged connections are used at the inlet and outlet. Special dimensions are possible. More information at sales@leser.com.

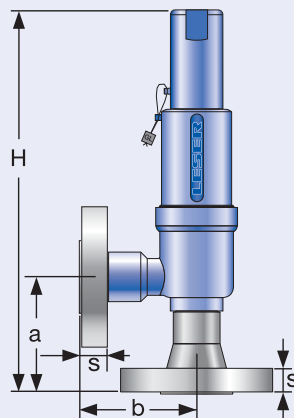
Weight

For the calculation of the total weight please use the Formular: $W_T = W_N + W_F$ (Inlet) + W_F (Outlet)

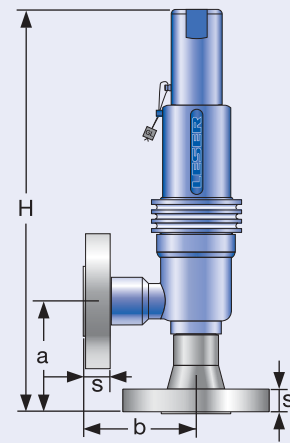
Weight net	[kg]	m_N	2.6	2.6	3	3.8	3.8	4.2
(without inlet and outlet flange)								

Flange dimensions

	Size	DIN EN 1092-1 / Flange rating PN							ASME B16.5 / Flange rating class						
		40	100	160	250	320	400	150	300	600	900	1500	2500		
DN 15		NPS 1/2"													
Flange thickness [mm]	s	18	–	22	28	28	30	14	18	18	26	26	30.2		
Weight slip on flange [kg]	m_F	0.8	–	1.2	2.5	2.5	3.6	0.6	0.9	0.9	2.1	2.1	3		
DN 20		NPS 3/4"													
Flange thickness [mm]	s	20	22	–	–	–	–	15	18	18	25.4	25.4	32		
Weight slip on flange [kg]	m_F	1.1	1.3	–	–	–	–	0.8	1.4	1.4	2.3	2.3	3.5		
DN 25		NPS 1"													
Flange thickness [mm]	s	22	–	26	30	36	40	17	21.5	21.5	32.5	32.5	40		
Weight slip on flange [kg]	m_F	1.3	–	2.6	3.5	5	7.5	1	2.1	2.1	4.1	4.1	5.1		
DN 40		NPS 1 1/2"													
Flange thickness [mm]	s	21	–	23	32	–	–	22	24	24	32	–	–		
Weight slip on flange [kg]	m_F	2.1	–	2.9	4.3	–	–	1.4	2.2	2.2	3.9	–	–		



Conventional design



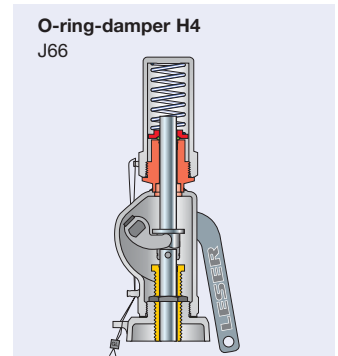
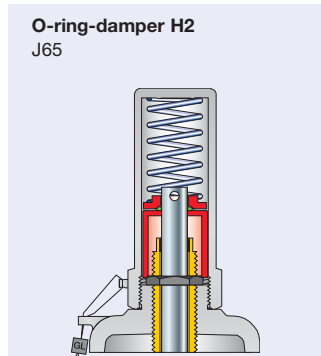
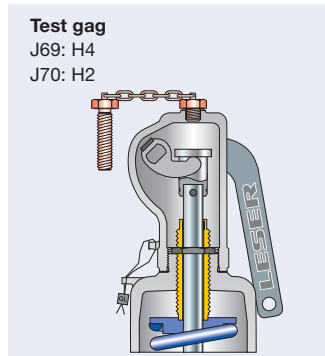
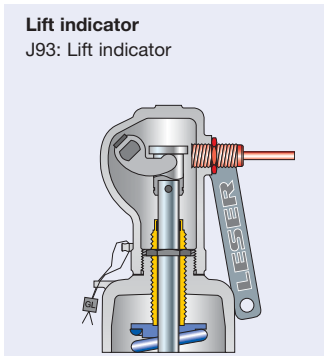
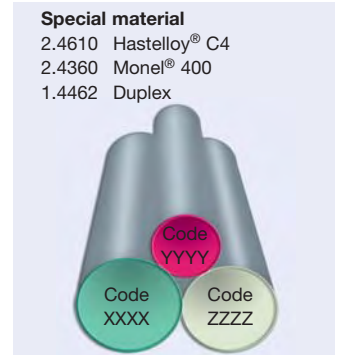
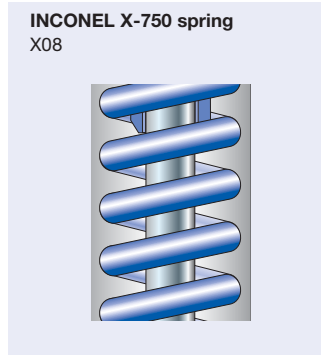
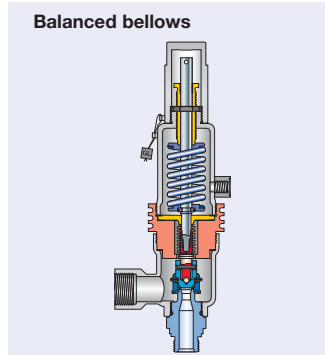
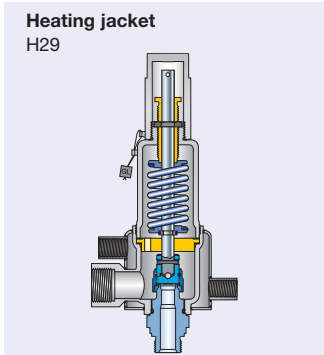
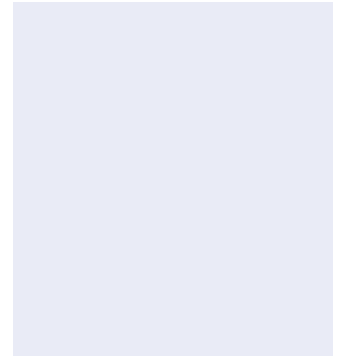
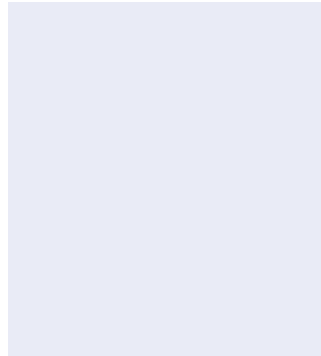
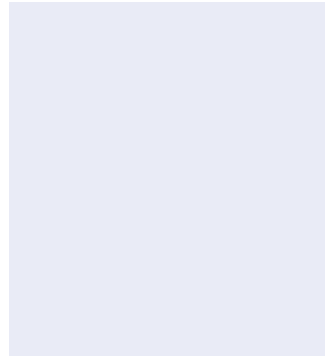
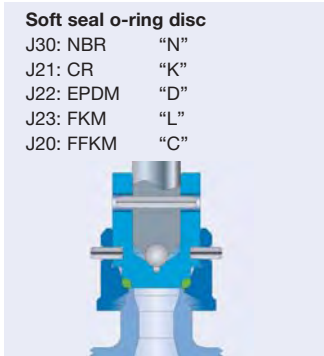
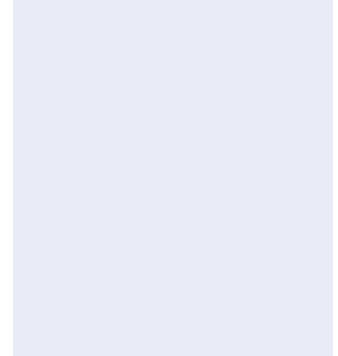
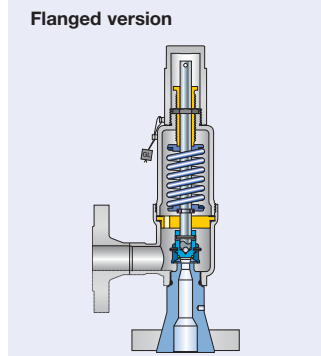
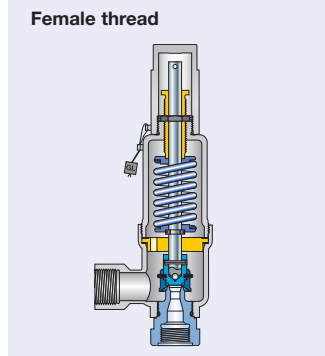
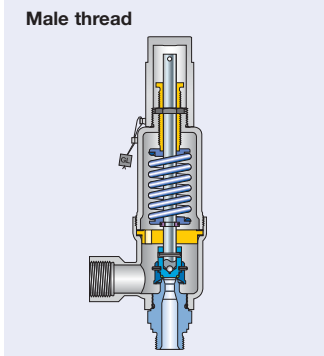
Balanced bellows

Pressure temperature ratings – Metric Units

Metric Units												
Actual Orifice diameter d_0 [mm]		9			13			17.5				
Actual Orifice Area A_0 [mm ²]		63.6			133			241				
Body material: 1.4104 (430F)						Type 4623						
Base / Inlet Body	Connection size	1/2"	3/4"	1"	1/2"	3/4"	1"	3/4"	1"	1 1/4"	1 1/2"	2"
	Pressure rating	PN 400			PN 250			PN 160				
Outlet body	Pressure rating	PN 40			PN 40			PN 40				
Minimum set pressure	p [bar _g] S/G/L	0.5			0.5			0.5				
Min. set pressure low press. bellows	p [bar _g] S/G/L	3			3			3				
Min. set pressure ¹⁾ standard bellows	p [bar _g] S/G/L	40			40			40				
Maximum set pressure	p [bar _g] S/G/L	250			180			92.5				
Temperature acc. to DIN EN	min. [°C]				-10							
	max. [°C]				+150							
Temperature acc. to ASME	min. [°C]				-29							
	max. [°C]				+150							
Body material: 1.4404 (316L)						Type 4622						
Base / Inlet Body	Connection size	1/2"	3/4"	1"	1/2"	3/4"	1"	3/4"	1"	1 1/4"	1 1/2"	2"
	Pressure rating	PN 250			PN 160			PN 160				
Outlet Body	Pressure rating	PN 40			PN 40			PN 40				
Minimum set pressure	p [bar _g] S/G/L	0.5			0.5			0.5				
Min. set pressure low press. bellows	p [bar _g] S/G/L	3			3			3				
Min. set pressure ¹⁾ standard bellows	p [bar _g] S/G/L	40			40			40				
Maximum set pressure	p [bar _g] S/G/L	250			180			92.5				
Temperature acc. to DIN EN	min. [°C]				-45							
	max. [°C]				+150							
Temperature acc. to ASME	min. [°C]				-29							
	max. [°C]				+150							
Body material: 1.4404 (316L)						Type 4624						
Base / Inlet Body	Connection size	1/2"	3/4"	1"	1/2"	3/4"	1"	3/4"	1"	1 1/4"	1 1/2"	2"
	Pressure rating	PN 250			PN 160			PN 160				
Outlet Body	Pressure rating	PN 40			PN 40			PN 40				
Minimum set pressure	p [bar _g] S/G/L	0.5			0.5			0.5				
Min. set pressure low press. bellows	p [bar _g] S/G/L	3			3			3				
Min. set pressure ¹⁾ standard bellows	p [bar _g] S/G/L	40			40			40				
Maximum set pressure	p [bar _g] S/G/L	250			180			92.5				
Temperature acc. to DIN EN	min. [°C]				-45							
	max. [°C]				+150							
Temperature acc. to ASME	min. [°C]				-45							
	max. [°C]				+150							

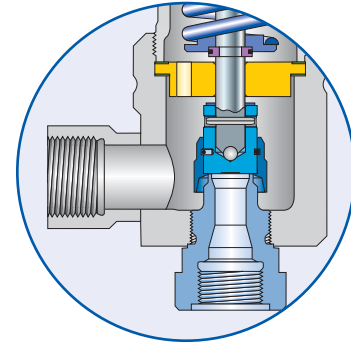
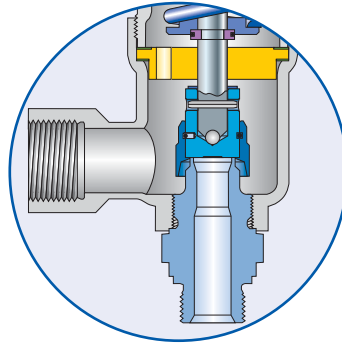
¹⁾ Min. set pressure standard bellows = Max. pressure low pressure bellows.
The temperature is limited by soft seal material. The stated values are valid for EPDM.

Available Options



Available connections

For dimensions and weights refer to:
 Type 459 – page 05/08 + 05/10
 Type 459 HDD – page 06/08 + 06/10
 Type 462 – page 07/08 + 07/10
 Type 462 HDD – page 08/08 + 08/10



Threaded connections

Male thread

Female thread

		Male thread		Female thread			
Actual Orifice diameter d_0 [mm]		6		9 / 13		17.5	
Actual Orifice area A_0 [mm ²]		28.3		63.9 / 133		241	
Actual Orifice diameter d_0 [inch]		0.236		0.345 / 0.512		0.689	
Actual Orifice area A_0 [inch ²]		0.044		0.099 / 0.206		0.374	
	Valve size	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Male thread DIN ISO 228-1							
G	1/2"	V54	–	V54 ¹⁾	–	–	–
	3/4"	V55	–	V55	–	–	–
	1"	V56	V68	V56	V68	V56	–
	1 1/4"	–	V79	–	V79	V83	V79
	1 1/2"	–	V69	–	V69	V57	V69
Female thread DIN ISO 228-1							
G	1/2"	V50	–	V50	–	–	–
	3/4"	V51	–	V51	–	V51	–
	1"	–	V66	V52 ²⁾	V66	V52	–
	1 1/4"	–	V81	–	V81	V84	V81
	1 1/2"	–	V67	–	V67	V53	V67
Male thread DIN ISO 7-1/BS 21							
R/BSPT	1/2"	V30 ³⁾	–	V30	–	–	–
	3/4"	V31	–	V31	–	–	–
	1"	V32	V42	V32	V42	V32	–
	1 1/2"	–	V43	–	V43	V33	V43
Female thread DIN ISO 7-1/BS 21							
Rc/BSPT	1/2"	V38	–	V38	–	–	–
	3/4"	V39	–	V39	–	V39	–
	1"	V40	V36	V40	V36	V40	–
	1 1/2"	–	V37	–	V37	V41	V37
Male thread ANSI/ASME B1.20.1							
NPT	1/2"	V61	–	V61 ⁴⁾	–	–	–
	3/4"	V62	–	V62	–	–	–
	1"	V63	V73	V63	V73	V63	–
	1 1/4"	–	V82	–	V82	V85	V82
	1 1/2"	–	V74	–	V74	V64	V74
	2"	–	–	–	–	V86	–
Female thread ANSI/ASME B1.20.1							
NPT	1/2"	V58	–	V58	–	–	–
	3/4"	V59	–	V59	–	V59	–
	1"	V60	V71	V60	V71	V60	–
	1 1/4"	–	V80	–	V80	V87	V80
	1 1/2"	–	V72	–	V72	V75	V72
	2"	–	–	–	–	–	V88

Flanged and threaded connections can be combined.

Threads according to other standards are available, Please specify in writing (diameter, pressure rating, standard).

¹⁾ Only for d_0 9 mm

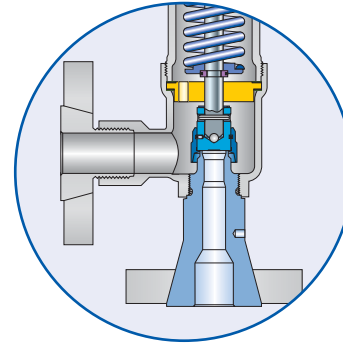
²⁾ d_0 9 mm: up to PN 420

³⁾ Only as special design

⁴⁾ d_0 13 mm: up to 125 bar and 455 °C

Available connections

For dimensions and weights refer to:
 Type 459 – page 05/09 + 05/11
 Type 459 HDD – page 06/09 + 06/11
 Type 462 – page 07/09 + 07/11
 Type 462 HDD – page 08/09 + 08/11



Flanged version

Flanged connections		Pressure rating	d ₀ 6 mm		d ₀ 9 mm		d ₀ 13 mm		d ₀ 17.5 mm	
DIN EN 1092-1 (PN > 100: DIN 2501)										
Valve size	Pressure rating	Option code		Option code		Option code		Option code		
DN	PN	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
15	40	I21	-	I21	-	I21	-	-	-	
	160	I22	-	I22	-	I22	-	-	-	
	250	I23	-	I23	-	I23	-	-	-	
	320	I24	-	I24	-	I24	-	-	-	
	400	I25	-	I25	-	I25	-	-	-	
20	40	I26	-	I26	-	I26	-	I26	-	
	100	I27	-	I27	-	I27	-	I27	-	
25	40	I31	I46	I31	I46	I31	I46	I31	-	
	160	I32	I47	I32	I47	I32	I47	I32	-	
	250	I33	I48	I33	I48	I33	I48	I33	-	
	320	I34	-	I34	-	I34	-	I34	-	
	400	I35	-	I35	-	I35	-	I35	-	
40	40	-	-	-	I49	-	I49	-	I49	
	160	-	-	-	I50	-	I50	-	I50	
	250	-	-	-	I51	-	I51	-	I51	
ANSI/ASME B 16.5										
NPS	CL	Option code		Option code		Option code		Option code		
NPS	CL	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
1/2"	150	V01	-	V01	-	V01	-	-	-	
	300	V02	-	V02	-	V02	-	-	-	
	600	V02	-	V02	-	V02	-	-	-	
	900	V03	-	V03	-	V03	-	-	-	
	1500	V03	-	V03	-	V03	-	-	-	
	2500	V04	-	V04	-	V04	-	-	-	
3/4"	150	V05	-	V05	-	V05	-	V05	-	
	300	V06	-	V06	-	V06	-	V06	-	
	600	V06	-	V06	-	V06	-	V06	-	
	900	V07	-	V07	-	V07	-	V07	-	
	1500	V07	-	V07	-	V07	-	V07	-	
	2500	V08	-	V08	-	V08	-	V08	-	
1"	150	V09	V18	V09	V18	V09	V18	V09	-	
	300	V10	V19	V10	V19	V10	V19	V10	-	
	600	V10	V19	V10	V19	V10	V19	V10	-	
	900	V11	V20	V11	V20	V11	V20	V11	-	
	1500	V11	-	V11	-	V11	-	V11	-	
	2500	V12	-	V12	-	V12	-	V12	-	
1 1/2"	150	-	-	-	V21	-	V21	-	V21	
	300	-	-	-	V22	-	V22	-	V22	
	600	-	-	-	V22	-	V22	-	V22	
	900	-	-	-	V23	-	V23	-	V23	

Flanged and threaded connections can be combined.

Threads according to other standards are available. Please specify in writing (diameter, pressure rating, standard).