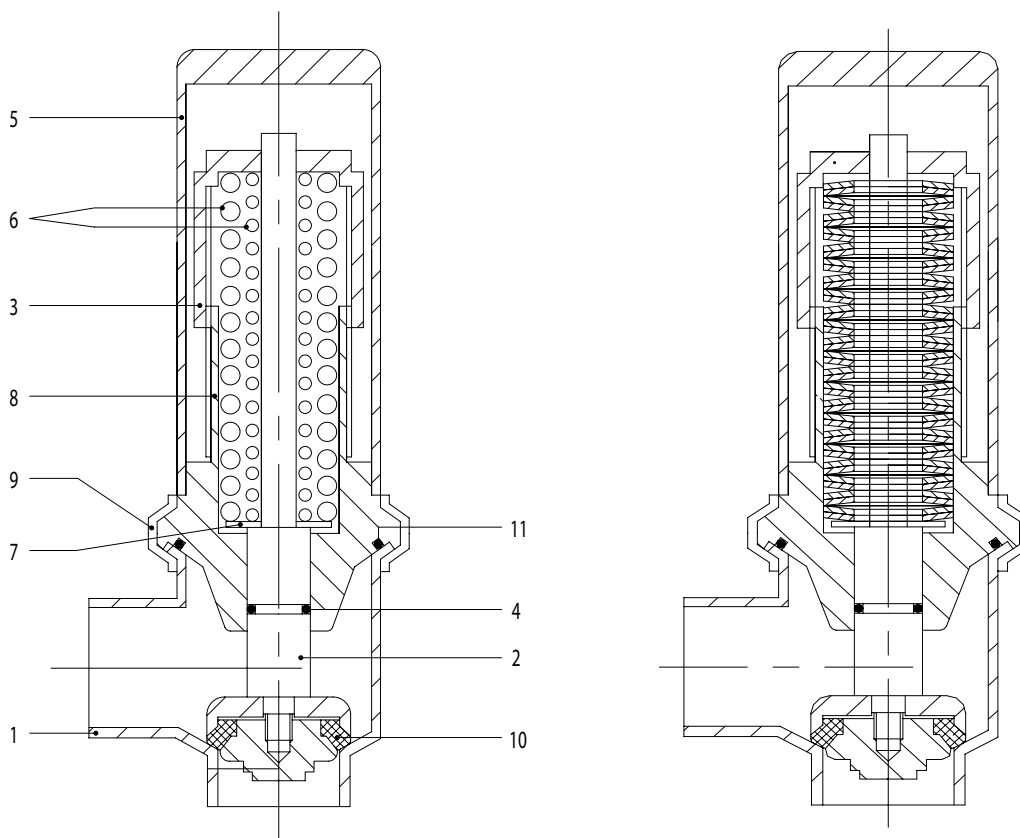




- Pressure control element located inside valve body to prevent accidental operation.
- Standard finish: 120 grain external polishing and internal glazing. Other finishes on request.
- Adjustable from 0 to 5 bars. On request, adjustable up to 12 bars.
- 2", 52, and 2 1/2" valves are adjustable up to 12 bars using disc springs.
- Pressure tested with cold water. Other fluids may react differently (It is advisable to test and set valve pressure using a pressure gauge).

1. Valve casing
2. Head seal
3. Adjusting cup
4. OR seal ring
5. Cover
6. Spring
7. Washer
8. Main assembly
9. Collar
10. Seal
11. OR seal ring



No.	Code	Norm	1" 25	D25 28	D32 34	1 1/2" 38	D40 40	2" 51	D50 52	2 1/2" 63	D65 70	3" 76	D80 85	Material
1	630	L	25	28	34	38	40	51	52	63	70	76	85	4L/6L
2	630	L	25/40	25/40	25/40	25/40	25/40	51/52	51/52	63	70	76	85	4L/6L
3	630		25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	OT
4	OR		117	117	117	117	117	117	117	117	117	117	117	EPDM
5	630		25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	4L
6	630		25/28	25/28	34/40	34/40	34/40	51/52	51/52	63/70	63/70	76/85	76/85	4L
7	630		25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	25/85	4L
8	630		25/40	25/40	25/40	25/40	25/40	51/52	51/52	63/76	63/76	63/76	85	4L/6L
9	630		25/40	25/40	25/40	25/40	25/40	51/52	51/52	63/76	63/76	63/76	85	4L
10	800		25/28	25/28	34/40	34/40	34/40	51/52	51/52	63	70	76	85	T/S/V/E
11	OR		3225	3225	3225	3225	3225	3268	3268	4362	4362	4362	4362	EPDM



**Operating pressure table:
DIN standards relief valves:**

Spring code	Valve size					
	28	34	40	52	70	85
630 25/28 06	0 - 5 bars	0 - 3 bars	0 - 3 bars	0 - 1,5 bars	0 - 0,9 bars	0 - 0,4 bars
630 34/40 06	0 - 8 bars	0 - 5 bars	0 - 5 bars	0 - 3 bars	0 - 1,8 bars	0 - 0,9 bars
630 51/52 06	0 - 15 bars	0 - 7 bars	0 - 7 bars	0 - 5 bars	0 - 3,1 bars	0 - 2,2 bars
630 63/85 06	0 - 25 bars	0 - 12 bars	0 - 12 bars	0 - 7 bars	0 - 4,5 bars	0 - 3,5 bars

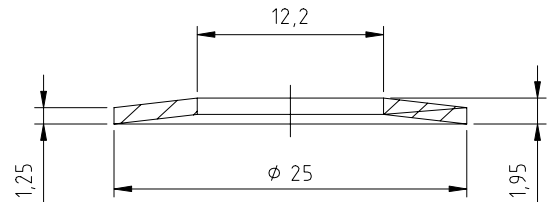
SMS and CLAMP standards relief valves:

Spring code	Valve size				
	1"	1 1/2"	2"	2 1/2"	3"
630 25/28 06	0 - 5 bars	0 - 3 bars	0 - 1,5 bars	0 - 1 bars	0 - 0,5 bars
630 34/40 06	0 - 8 bars	0 - 5 bars	0 - 3 bars	0 - 2 bars	0 - 1 bars
630 51/52 06	0 - 15 bars	0 - 7 bars	0 - 5 bars	0 - 3,5 bars	0 - 2,5 bars
630 63/85 06	0 - 25 bars	0 - 12 bars	0 - 7 bars	0 - 5 bars	0 - 4 bars

Standard springs operating pressure range

Disc springs:

No. spring	Valve size		
	2"	52	2 1/2"
46	8 bars	8 bars	
56	9 - 12 bars	9 - 12 bars	8 - 10 bars
60			11 - 12 bars



Valve DN 2"

Pressure	Spring assembly	No. springs used	Spring compression
8 bars		46	24 mm
9 bars		54	5 mm
10 bars		54	9 mm
11 bars		54	10 mm
12 bars		54	11,5 mm

Valve DN 2 1/2"

Pressure	Spring assembly	No. springs used	Spring compression
8 bars		54	11 mm
9 bars		54	13 mm
10 bars		54	14 mm
11 bars		60	7,6 mm
12 bars		60	8,5 mm

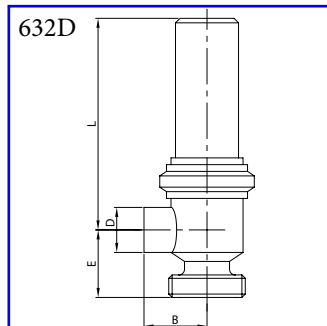
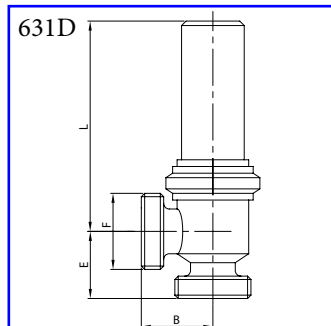
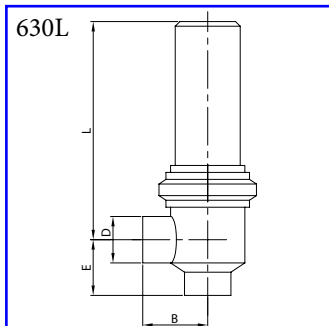


Relief valve
plain ends
AISI 304L, AISI 316L

Relief valve
male ends
AISI 304L, AISI 316L

Relief valve
plain end / male end
AISI 304L, AISI 316L

DIN



DN	B	D	E	L	Kg
28	60,0	28,0	38,0	158,0	2,185
34	60,0	34,0	43,0	163,0	2,16
40	60,0	40,0	45,0	165,0	2,28
52	70,0	52,0	51,0	175,0	2,91
70	80,0	70,0	65,0	200,0	4,65
85	82,0	85,0	83,0	210,0	6,20

DN	B	E	F	L	Kg
25	74,0	52,0	52-6	158,0	2,445
32	74,0	57,0	58-6	163,0	2,50
40	73,0	58,0	65-6	165,0	3,30
50	83,0	64,0	78-6	175,0	3,47
65	95,0	80,0	95-6	200,0	5,51
80	99,0	99,0	110-4	210,0	7,40

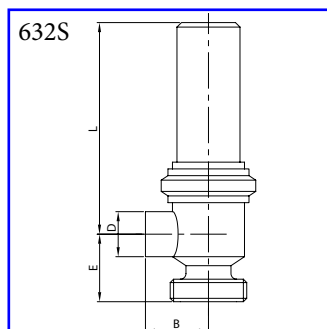
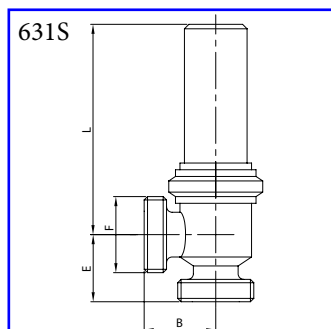
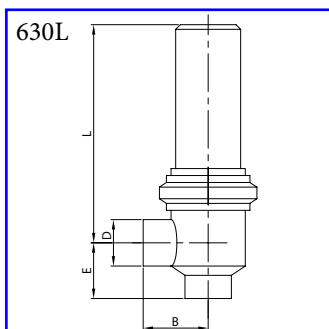
DN	B	D	E	L	Kg
25	60,0	28,0	52,0	158,0	2,315
32	60,0	34,0	57,0	163,0	2,33
40	60,0	40,0	58,0	165,0	3,02
50	70,0	52,0	64,0	175,0	3,19
65	80,0	70,0	80,0	200,0	5,03
80	82,0	85,0	99,0	210,0	6,80

Relief valve
plain ends
AISI 304L, AISI 316L

Relief valve
male ends
AISI 304L, AISI 316L

Relief valve
plain end / male end
AISI 304L, AISI 316L

SMS



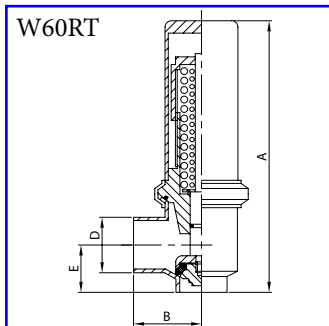
DN	B	D	E	L	Kg
25	60,0	25,4	43,0	163,0	2,185
38	60,0	38,1	48,5	168,5	2,27
51	70,0	50,8	54,0	178,0	2,91
63	80,0	63,5	72,0	207,0	4,55
76	90,0	76,2	90,0	210,0	6,10

DN	B	E	F	L	Kg
25	75,0	58,0	40-60	163,0	2,325
38	80,0	68,5	60-6	168,5	2,65
51	90,0	74,0	70-6	178,0	3,31
63	104,0	96,0	85-6	207,0	5,29
76	114,0	114,0	98-6	210,0	7,06

DN	B	D	E	L	Kg
25	60,0	25,4	58,0	163,0	2,255
38	60,0	38,1	68,5	168,5	2,46
51	70,0	50,8	74,0	178,0	3,11
63	80,0	63,5	96,0	207,0	4,92
76	90,0	76,2	114,0	210,0	6,58

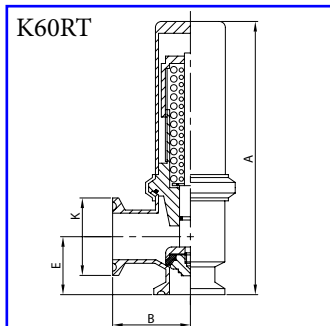


Relief valve
plain ends
AISI 316L



DN	A	B	D	E	Kg
1"	25	206,0	60,0	25,4	43,0 2,185
1 1/2"	38	217,0	60,0	38,1	48,5 2,27
2"	51	232,0	70,0	50,8	54,0 2,91
2 1/2"	63	279,0	80,0	63,5	72,0 4,55
3"	76	300,0	90,0	76,2	90,0 6,10

Relief valve
end ferrule CLAMP
AISI 316L

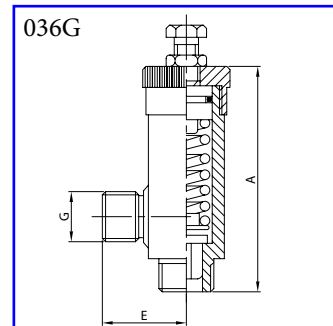


DN	A	B	E	K	Kg
1"	25	218,7	72,7	55,7	50,5 2,30
1 1/2"	38	229,7	72,7	61,2	50,5 2,35
2"	51	244,7	82,7	66,7	64,0 3,03
2 1/2"	63	291,7	92,7	84,7	77,5 4,71
3"	76	312,7	102,7	91,0	6,28

CLAMP

GAS

Relief valve
male ends
AISI 316L

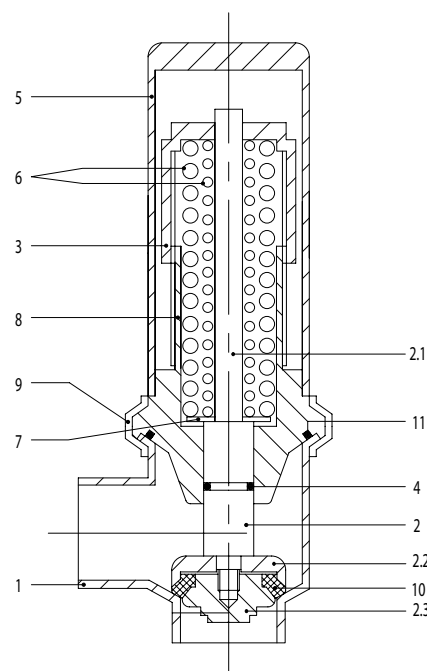


DN	A	E	G	Kg
14	105,0	34,0	1/4"	0,45
38	115,0	43,0	3/8"	0,47
12	133,0	52,0	1/2"	0,50
34	145,0	63,0	3/4"	0,53
100	165,0	70,0	1"	0,60

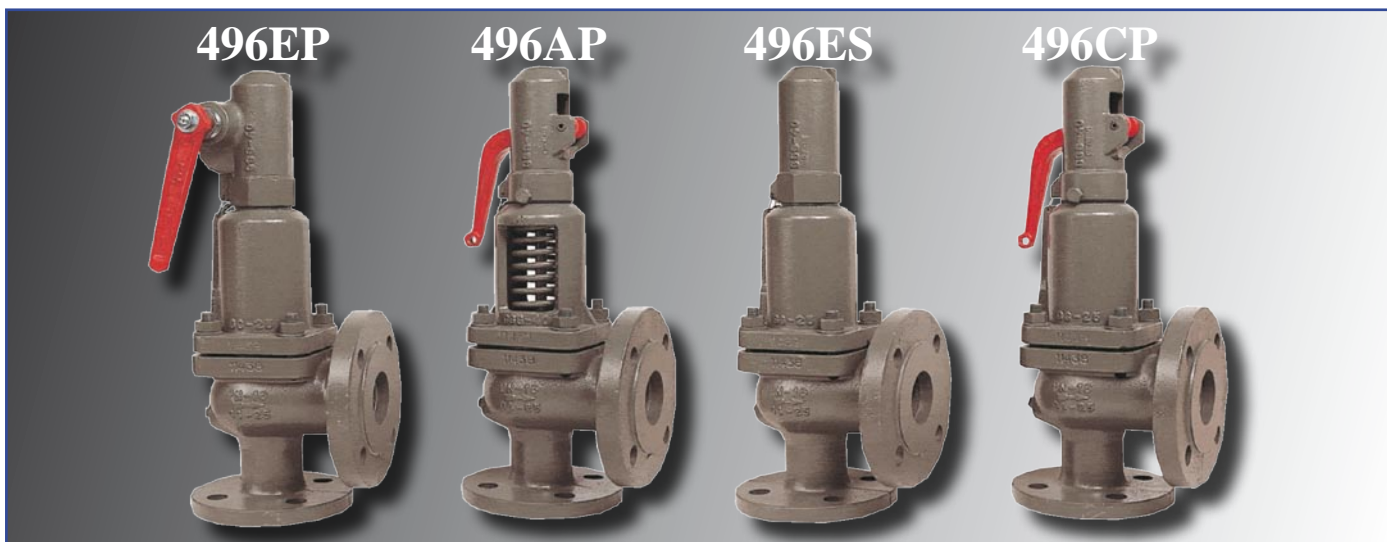
	OR seal ring (pos. 4)	OR seal ring (pos. 11)	PTFE seal (pos. 10)
Preventative maintenance	Replace after 12 month	Replace after 12 month	Replace after 12 month

Maintenance:

- Lay the valve on a flat clean surface.
- Rotate cover (pos. 5) anticlockwise and remove it from valve.
- Rotate adjusting cap (pos. 3) anticlockwise and remove it. [Inside spring is at end of travel and not compressed].
- Remove spring (pos. 6).
- Remove washer (pos. 7).
- Unscrew collar (pos. 9) and remove it.
- Separate valve body (pos. 1) from main assembly (pos. 8) and head seal (pos. 2).
- Proceed to head seal maintenance:
 - remove OR seal ring (pos. 4) and replace it;
 - turn head seal upside down and lock head seal shaft (pos. 2.1) in a vice;
 - unscrew locking nut (pos. 2.3);
 - remove PTFE seal (pos. 10) and replace it;
 - reassemble head seal into main assembly (pos. 8).
- Proceed to main assembly maintenance:
 - remove OR seal ring (pos. 11) and replace it;
 - Reassemble main assembly (pos. 8) into valve body (pos. 1). [Make sure OR seal ring (pos. 11) is perfectly aligned into its seat].
 - Tighten collar (pos. 9) around valve body (pos. 1).
 - Reassemble following components in this sequence:
 - washer (pos. 7) into main assembly (pos. 8);
 - spring (pos. 6) into main assembly (pos. 8);
 - adjusting cap (pos. 3) onto main assembly (pos. 8).
- Rotate cover (pos. 5) clockwise and tighten it onto valve.



1. Valve casing
2. Head seal
 - 2.1 Head seal shaft
 - 2.2 Seal holder
 - 2.3 Locking nut
3. Adjusting cup
4. OR seal ring
5. Cover
6. Spring
7. Washer
8. Main assembly
9. Collar
10. Seal
11. OR seal ring



Full lift safety valve with spring loading (AIT):

- The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open instantly and totally.
- Design in line with the „AD-MERKBLATT A2 Specifications sheet“ and „Technical safety instructions for TRD-421 steam boilers“.
- In accordance with UNE 9-100-86 „Safety valves“ (Steam boilers).
- Component test stamp: TÜV Rheinland (German technical supervision authority).

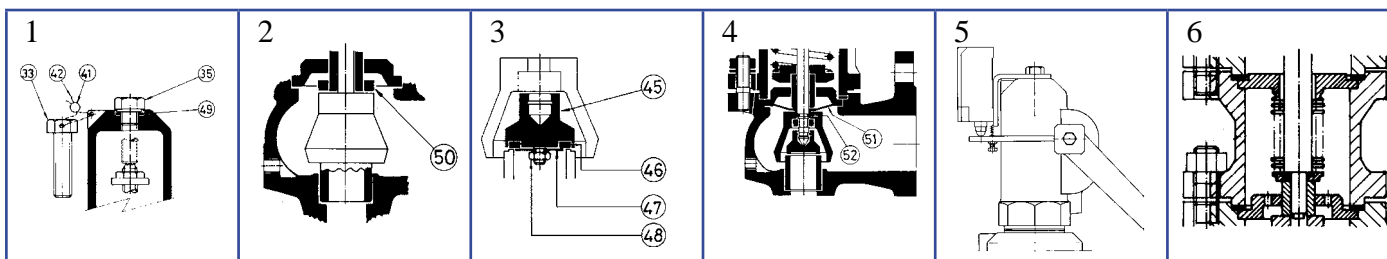
Specifications:

- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion. With the exception of washers and couplings, the valves are free of non-ferric materials.
- Internal body designed to offer favourable flow profile.
- Sealing surfaces treated and balanced, making them extremely tightness, even exceeding DIN-3230 requirements. Page 3.
- Great discharge capacity. For liquids typically used with openings similar to proportional safety valves.
- Equipped with draining screws for removing condensation.
- Auto-centering plug.
- Threaded shaft with lever positioner facilitating immediate manual action.
- Elevator, independent of the seal, designed facilitate sudden opening when the steam expands and, with any fluid, guarantees absolute opening and closing precision.
- All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve.

IMPORTANT

Depending on demand:

- 1) Blocking screw which facilitates hydrostatic testing of the container which to be protected.
- 2) Rapid limiter to reduce the coefficient of discharge.
- 3) Fluorelastomer (Vitón) seals, Silicone's rubber, PTFE (Teflón)... etc., achieving leakage levels less than: $0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{sec}}$.
- 4) Fluorelastomer (Vitón) membrane and O-ring isolating the rotating or sliding parts from the working fluid.
- 5) Electrical contact indicating open/closed.
- 6) Balance bellows to:
 - Protect the spring from atmospheric influences.
 - Ensure outside of valve body is totally tightness.
 - Level out external or self-generated back pressure.
- 7) Possibility of manufacture in other types of material, for special operating conditions (high temperatures, fluids, etc.).
- 8) Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV-Oxygen-VBG 62).
- 9) Special springs for critical temperatures.





- The ranges of application allow certain flexibility although we recommend limiting them to:

RANGE OF APPLICATION FOR THE SEALS										
FLUID		Set pressure (bar)								
		0,2	1,8	4,0	4,8	7,0	30,0	40,0		
Saturated steam		S	V			T				
Liquids and gases		S			V			T		
SEALS		Temperature °C								
		ACCORDING TO MANUFACTURERS				WE RECOMMEND				
		Minimum		Maximum		Minimum		Maximum		
Silicone's rubber		S	-60		+200		-50		+115	
Fluorelastomer (VITON)		V	-40		+250		-30		+150	
PTFE (teflon)		T	-265		+260		-80		+230 (1)	

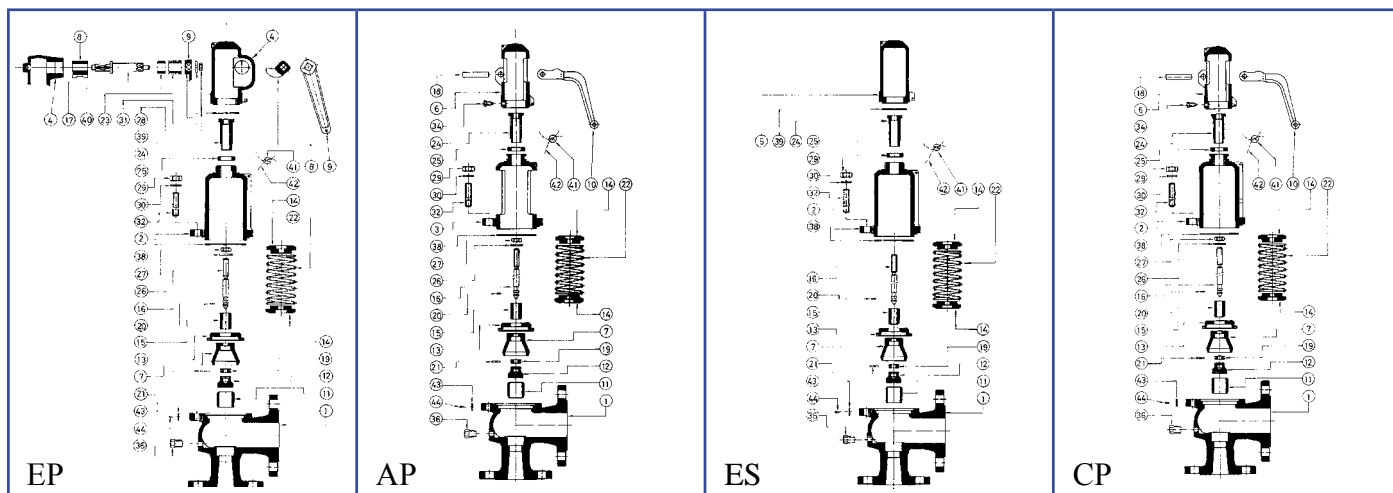
(1) For temperatures exceeding 230°C apply metallic seal only

		Material																			
No.	Piece	CAST IRON				NODULAR IRON				CAST STEEL				STAINLESS STEEL							
1	Body	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Cast steel (DIN-1.0619.01 GS-C 25N)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
2	Closed bell	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
3	Open bell	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Cast steel (DIN-1.0619.01 GS-C 25N)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
4,5,6	Hood	Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
7	Elevator	Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
8	Cam	Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Stainless st. (DIN-1.4408)(ASTMA351 CF8M)							
9,10	Lever	Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)							
11	Seating	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless st. (DIN-1.4542) (AISI-630) (17-4PH)							
12	Plug	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless st. (DIN-1.4542) (AISI-630) (17-4PH)							
13	Lead	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
14	Spring press	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
15	Separator	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
16	Rod	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
17	Lever shaft	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
18	Gudgeon	Carbon steel (DIN-1.1231 Ck-67)				Carbon steel (DIN-1.1231 Ck-67)				Carbon steel (DIN-1.1231 Ck-67)				Stainless steel (DIN-1.4310) (AISI-301)							
19	Ring	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
20,21	Safety ring	Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)							
22	Spring	Vanad-chrome st.(DIN-1.8159 50CrV4) (2)				Vanad-chrome st. (DIN-1.8159 50CrV4)(2)				Vanadium chrome st. (DIN-1.8159 50CrV4)(2)				Stainless steel (DIN-1.4300) (AISI-302) (3)							
23	Gland	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
24	Hollow screw	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
25	Hollow screw nut	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
26	Buffer nut	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
27	Rod check nut	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
28,29,48	Nut	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
30,31	Washer	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
32	Stud	Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Stainless steel (DIN-1.4401) (AISI-316)							
33,34,35	Screw	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4401) (AISI-316)							
36	Cap	Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Stainless steel (DIN-1.4401) (AISI-316)							
38	Coupling	Klingerit cardboard				Klingerit cardboard				Klingerit cardboard				PTFE (Teflón)							
39,49	Coupling	Copper				Copper				Copper				PTFE (Teflón)							
40	Seal	Graphite				Graphite				Graphite				PTFE (Teflón)							
41	Seal	Lead				Lead				Lead				Lead							
42	Sealing wire	Sealing wire				Sealing wire				Sealing wire				Sealing wire							
43	Characteristic plate	Aluminium				Aluminium				Aluminium				Aluminium							
44	Rivets	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)							
45	Plug	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)							
46	Sealing disk	PTFE (Teflón)				PTFE (Teflón)				PTFE (Teflón)				PTFE (Teflón)							
		Silicone's rubber				Silicone's rubber				Silicone's rubber				Silicone's rubber							
		Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
47	Washer	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)							
50	Limitter	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
51	Membrane	Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
52	O-ring	Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
DN1 x DN2		20 x 32 to 100 x 150																			
PN		16				40				40				40							
Operating conditions	Pressure (bar)	16	13	13	13	40	35	32	28	24	40	35	32	28	24	21	20	40	34	32	29
	Max. temp. (°C)	120	200	250	300	120	200	250	300	350	120	200	250	300	350	400	450	120	200	300	400
	Min. temp. (°C)	-10				-10				-10				-60							

(1) DN-20 x 32 in stainless steel (DIN-1.4408) (ASTM A351 CF8M).

(2) Spring steel (DIN-1.0600 GRADE-B) for wire spring $\varnothing < 8$ mm. Maximum temperature 250°C.

(3) Vanadium chrome steel (DIN-1.8159 50CrV4) for wire spring $\varnothing > 10$ mm.



Full lift safety valve with spring loading (AIT) model 496 - AP and CP.

1. Disassembly and assembly

1.1 Disassembly

To replace the spring (22) or clean any of the internal components of the valve, proceed in the following manner:

- A) Withdraw the clip (18), using a punching tool, until the lever (10) comes free.
- B) Loosen the screws (34) and take the cap (6) off.
- C) Holding the spindle (16) steady, loosen the hollow screw nut (25) and the hollow screw (24) until you note a releasing of the spring (22).
- D) Mark on the spindle (16) the position of the spindle lock-nut (27) and the adjusting nut (26). Loosen them and remove them.
- E) Unscrew the nuts (29) and remove them, together with the studs (32) and their washers (30).
- F) Lift the cover (3) or (2) and you will have access to all of the components.

1.2 Assembly

- A) Place the safety-ring (20) on the spindle (16) and press it against the gasket (12).
- B) In the spindle channel (16) connect the ring (19) and fix it to the security-ring (21). Introduce the elevator (7) into the upper part of the spindle (16) and press this against the previously described pieces.
- C) Enter the guide (13), the separator (15), the spring-press (14), the spring (22), the spring-press (14) through the upper part of the spindle (16) and press this against the previously described pieces.
- D) Replace the assembly (38) and the cover (3) or (2).
- E) Place the washers (30) on the studs (32) and make up the nuts (29) diagonally, checking the correct alignment of the cover (3) or (2).
- F) Adjust the firing pressure with the hollow screw (24) and fix the adjustment position with the hollow screw nut (25).
- G) Turn the spindle lock-nut (27) and the adjusting nut (26) to the position marked (see 1.1.D) and make up against each other.
- H) Introduce the cap (6) and tighten the screws (34).
- I) Place the lever (10) and fix it with the fastener (18).

2. Adjusting the firing pressure

- A) Proceed according to points 1.1.A, 1.1.B, 1.1.C.
- B) Proceed according to points 1.2.F, 1.2.H, 1.2.I.

Full lift safety valve with spring loading (AIT) model 496 - EP.

1. Disassembly and assembly

1.1 Disassembly

To replace the spring (22), or clean any of the internal components of the valve, proceed in the following manner:

- A) Move the lever (9) in direction C as far as the constructive catcher.
- B) Unscrew the cap (4) and remove.
- C) Holding the spindle (16) steady, loosen the hollow screw nut (25) and the hollow screw (24) until you note a releasing of the spring (22).
- D) Mark on the spindle (16) the position of the spindle lock-nut (27) and the adjusting nut (26). Loosen them and remove them.
- E) Unscrew the nuts (29) and remove them, together with the studs (32) and their washers (30).
- F) Lift the cover (2) and you will have access to all of the components.

1.2 Assembly

- A) Place the safety-ring (20) on the spindle (16) and press it against the gasket (12).
- B) In the spindle channel (16) connect the ring (19) and fix it to the security-ring (21). Introduce the elevator (7) into the upper part of the spindle (16) and press this against the previously described pieces.
- C) Enter the guide (13), the separator (15), the spring-press (14), the spring (22), the spring-press (14) through the upper part of the spindle (16) in a correlative manner.
- D) Replace the assembly (38) and the cover (2).
- E) Place the washers (30) on the studs (32) and make up the nuts (29) diagonally, checking the correct alignment of the cover (2).
- F) Adjust the firing pressure with the hollow screw (24) and fix the adjustment position with the hollow screw nut (25).
- G) Turn the spindle lock-nut (27) and the adjusting nut (26) to the position marked (see 1.1.D) and make up against each other.
- H) Change the coupling (39) and lightly tighten the cap (4). Move the lever (9) towards position A as far as the constructive catcher. Definitely tighten the cap (4).

2. Adjusting the firing pressure

- A) Proceed according to points: 1.1A, 1.1B, 1.1C.
- B) Proceed according to points: 1.2F, 1.2H.



Full lift safety valve with spring loading (AIT) model 496 - ES.

1. Disassembly and assembly

1.1 Disassembly

To replace the spring (22), or clean any of the internal components of the valve, proceed in the following manner:

- A) Unscrew the cap (5) and remove.
- B) Holding the spindle (16) steady, loosen the hollow screw nut (25) and the hollow screw (24) until you note a releasing of the spring (22).
- C) Unscrew the nuts (29) and remove them, together with the studs (32) and their washers (30).
- F) Lift the cover (2) and you will have access to all of the components.

1.2 Assembly

- A) Place the safety-ring (20) on the spindle (16) and press it against the gasket (12).
- B) In the spindle channel (16) connect the ring (19) and fix it to the security-ring (21). Introduce the elevator (7) into the upper part of the spindle (16) and press this against the previously described pieces.
- C) Enter the guide (13), the separator (15), the spring-press (14), the spring (22), the spring-press (14) through the upper part of the spindle (16) in a correlative manner.
- D) Replace the washers (38) and the cover (2).
- E) Place the washers (30) on the studs (32) and make up the nuts (29) diagonally, checking the correct alignment of the cover (2).
- F) Adjust the firing pressure with the hollow screw (24) and fix the adjustment position with the hollow screw nut (25).
- G) Change the coupling (39) and tighten the cap (5).

2. Adjusting the firing pressure

- A) Proceed according to points 1.1.A, 1.1.B
- B) Proceed according to points 1.2.F, 1.2.G

DN1 x DN2	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100 x 150																									
d0	16	20	25	32	40	50	63	77																									
$A_0 = \frac{\pi \cdot d_0^2}{4}$	201	314	491	804	1257	1964	3117	4657																									
H	350	395	415	500	555	660	710	810																									
h ¹	112	129	129	148	148	191	191	191																									
L ₁	85	95	100	115	125	140	155	175																									
L ₂	95	105	110	130	145	150	170	180																									
R	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"																									
Whitworth gas-tight cylindrical female thread ISO 228/1 1978 (DIN-259)																																	
Intake flange	PN10-16 DIN 2532/2533	D ₁	105	115	140	150	165	185	200	220																							
		K ₁	75	85	100	110	125	145	160	180																							
		I ₁	14	14	18	18	18	18	18	18																							
		b ₁	16	16	18	18	20	20	22	24																							
		Drills no.	4	4	4	4	4	4	8	8																							
	DIN 280607 DIN 2544/2545	D ₁	105	115	140	150	165	185	200	235																							
		K ₁	75	85	100	110	125	145	160	190																							
		I ₁	14	14	18	18	18	18	18	22																							
		b ₁	18	18	18	18 (20)*	20	22	24	24																							
		Drills no.	4	4	4	4	4	8	8	8																							
Escape flange	PN10-16 DIN2532-2533 DIN28605/DIN 2544/2545	D ₂	140	150	165	185	200	220	250	285																							
		K ₂	100	110	125	145	160	180	210	240																							
		I ₂	18	18	18	18	18	18	18	22																							
		b ₂	18	18	20	20 (18)*	22 (20)**	24 (20)**	26 (22)**	26 (22)**																							
		Drills no.	4	4	4	4	8	8	8	8																							
Weight (kg)	Model	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP				
	Cast iron	8,00	7,40	7,60	7,80	9,60	8,88	9,12	9,38	13,87	12,82	13,17	13,43	20,27	18,74	19,25	19,68	26,68	24,67	25,34	25,77	39,48	36,52	37,50	38,10	55,48	51,32	52,70	53,30	82,15	75,98	78,04	78,64
	Nodular iron	8,73	8,07	8,29	8,49	10,47	9,68	9,94	10,20	15,13	13,99	14,37	14,63	22,11	20,45	21,00	21,43	29,11	26,92	27,65	28,08	43,08	39,84	40,92	41,52	60,54	55,99	57,51	58,11	89,64	82,91	85,15	85,75
Cast/stainless st.	8,50	7,86	8,07	8,27	10,60	9,80	10,07	10,33	14,87	13,75	14,12	14,38	21,27	19,67	20,20	20,63	28,68	26,52	27,24	27,67	41,48	38,36	39,40	40,00	58,48	54,09	55,55	56,15	87,15	80,61	82,79	83,39	
CODE	Cast iron 2002-496.	5346	5346	5346	5346	5106	5106	5106	5106	5146	5146	5146	5126	5126	5126	5126	5206	5206	5206	5206	5226	5226	5226	5226	5306	5306	5306	5306	5406	5406	5406	5406	
	Nodular iron 2002-496.	8346	8346	8346	8346	8106	8106	8106	8106	8146	8146	8146	8126	8126	8126	8126	8206	8206	8206	8206	8226	8226	8226	8226	8306	8306	8306	8306	8406	8406	8406	8406	
	Cast steel 2002-496.	8344	8344	8344	8344	8104	8104	8104	8104	8144	8144	8144	8124	8124	8124	8124	8204	8204	8204	8204	8224	8224	8224	8224	8304	8304	8304	8304	8404	8404	8404	8404	
	Stainless steel 2002-496.	8342	8342	8342	8342	8102	8102	8102	8102	8142	8142	8142	8122	8122	8122	8122	8202	8202	8202	8202	8222	8222	8222	8222	8302	8302	8302	8302	8402	8402	8402	8402	

* Cast steel (GS-C 25N) and Stainless steel (1.4408).

* Nodular iron (GGG-40).

ARMAT spol. s r. o.

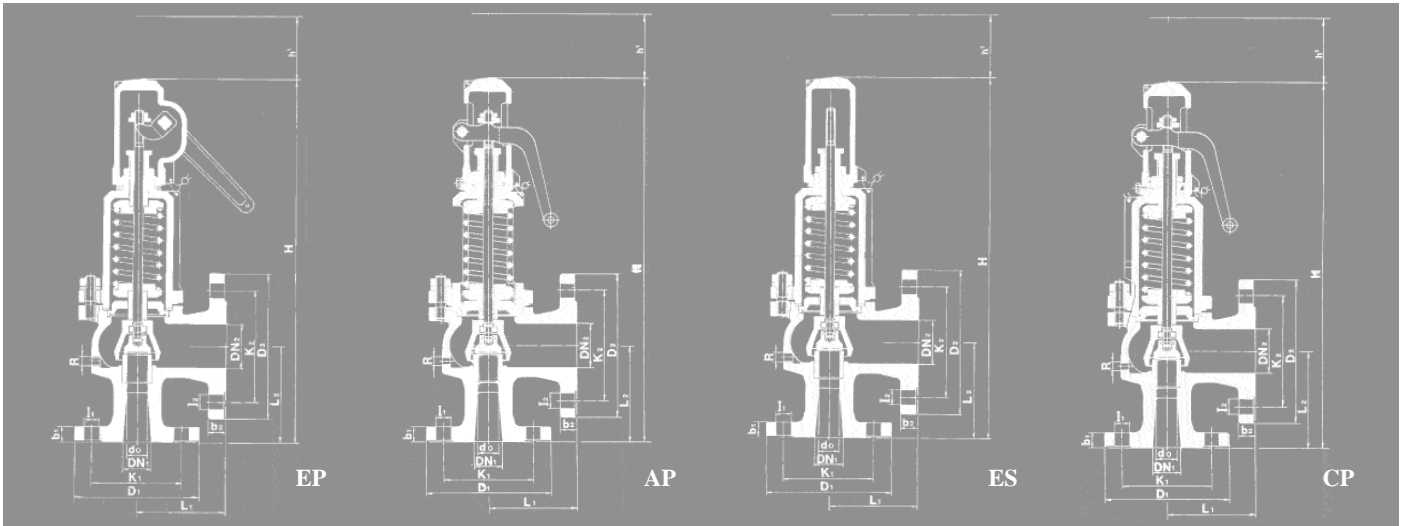
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SET PRESSURES AND REGULATING RANGES

DN1 x DN2		20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100 x 150	
Set pressures (bar)	Maximum (Liquids & gases)	PN 16	16	16	16	16	16	16	16	
		PN 40	40	40	40	32	32	32	25	20
	Maximum (Saturated steam)	PN 16	13	13	13	13	13	13	13	13
		PN 40	32	32	30	24	22	24	20	18
Minimum	Steam and gases	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	
	Liquids	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
Spring regulating range (bar)	0,20 to 0,68	Code 56210 56390	56226 56406	56242 56422	56258 56438	56273 56453	56288 56468	56303 56483	56317 56497	
	0,66 to 1,00	Code 56211 56391	56227 56407	56243 56423	56259 56439	56274 56454	56289 56469	56304 56484	56318	
	0,95 to 1,40	Code 56212 56392	56228 56408	56244 56424	56260 56440	56275 56455	56290 56470	56305 56485	56319	
	1,30 to 1,90	Code 56213 56393	56229 56409	56245 56425	56261 56441	56276 56456	56291 56471	56306 56486	56320	
	1,80 to 2,60	Code 56214 56394	56230 56410	56246 56426	56262 56442	56277 56457	56292 56472	56307	56321	
	2,50 to 3,60	Code 56215 56395	56231 56411	56247 56427	56263 56443	56278 56458	56293 56473	56308	56322	
	3,50 to 5,00	Code 56216 56396	56232 56412	56248 56428	56264 56444	56279 56459	56294	56309	56323	
	4,80 to 6,30	Code 56217 56397	56233 56413	56249 56429	56265 56445	56280 56460	56295	56310	56324	
	6,00 to 8,00	Code 56218 56398	56234 56414	56250 56430	56266 56446	56281 56461	56296	56311	56325	
	7,50 to 10,00	Code 56219 56399	56335 56415	56251 56431	56267 56447	56282 56462	56297	56312	56326	
	9,50 to 12,50	Code 56220 56400	56236 56416	56252 56432	56268 56448	56283	56298	56313	56327	
	12,00 to 16,00	Code 56221 56401	56237 56417	56253 56433	56269 56449	56284	56299	56314	56328	
	15,00 to 20,00	Code 56222 56402	56238 56418	56254 56434	56270	56285	56300	56315	56329	
	18,00 to 25,00	Code 56223 56403	56239 56419	56255 56435	56271	56286	56301	56316		
	23,00 to 32,00	Code 56224 56404	56240 56420	56256 56436	56272	56287	56302			
30,00 to 40,00	Code 56225 56405	56241 56421	56257 56437							

- Spring steel (DIN-1.0600 GRADE-B). Maximum temperature for EP, ES and CP models 250°C.
- Vanadium-chrome steel (DIN-1.8159 50 CrV4).
- Stainless steel (DIN-1.4300) (AISI-302).

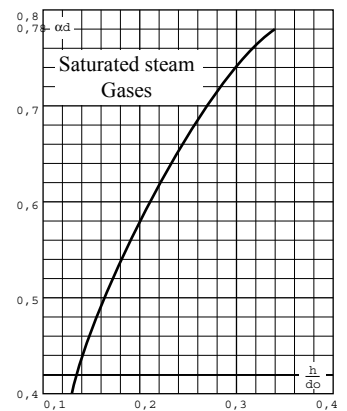
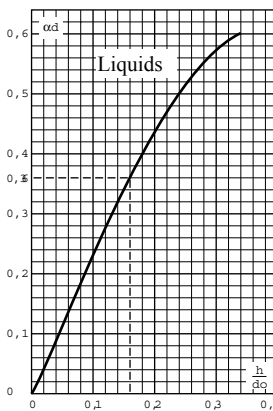


Recommended ranges of application					
Model		EP	AP (1)	ES	CP (1)
Fluid	Saturated steam	*	*		*
	Gases	*		*	
	Liquids	*		*	
Permissible back pressure in % of set pressure	Internal or generated	Saturated steam/gases	15		
		Liquids	-		
	External variable (1)	Saturated steam/gases	5		
		Liquids	-		
	External constant (1)(2)(3)	Saturated steam/gases	50		
		Liquids	90		
Overpressure %	Saturated steam/gases	10			
	Liquids	25			

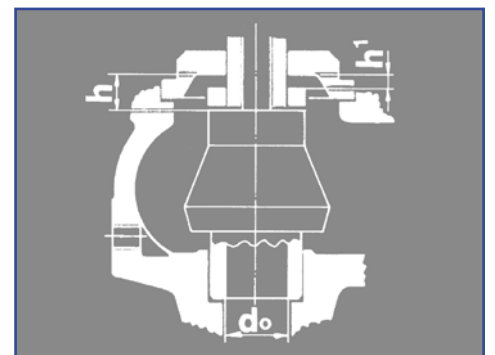
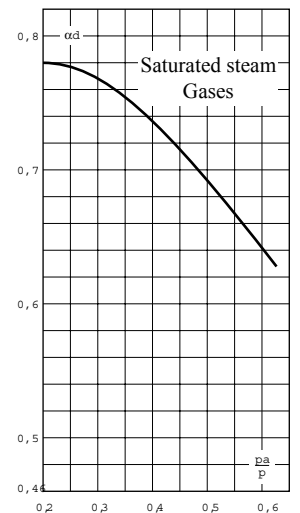
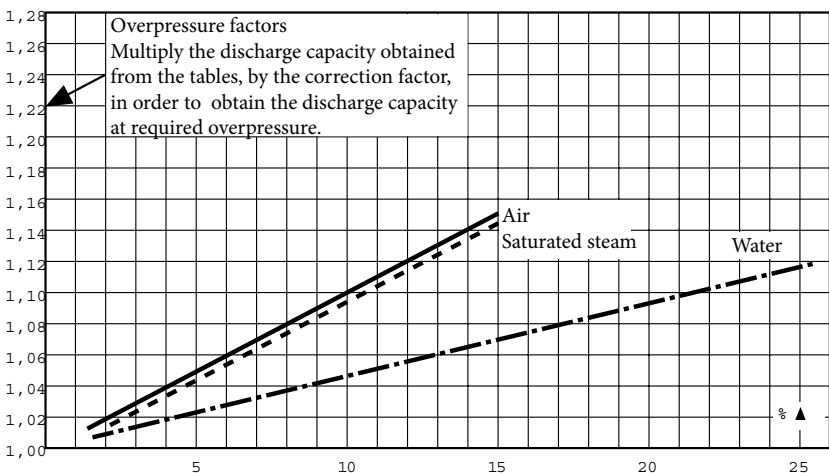
Open and closed pressures in % of set pressure			
Fluid	Pressure (bar)	Opening pressure	Closing pressure
Saturated steam	< 3	+ 5 %	- 0,3 bar
	≥ 3	+ 5 %	- 10 %
Liquids	< 3	+ 10 %	- 0,6 bar
	≥ 3	+ 10 %	- 20 %

(1) If external overpressure exists, the AP and CP model cannot be used.
 (2) With external constant overpressure, the spring is adjusted deducting the overpressure from the set pressure.
 (3) If the set pressure < 3 bar we must consider the total atmospheric pressure (1 bar) as external constant overpressure being freely released.
 If $p_a > 0,25p$, we must limit plug speed with the consequent reduction of the ad coefficient of discharge.
 With the new reduced coefficient we determine the d_0 , in order to remove the necessary volume.
 p_a = Overpressure permitted [bar] absolute
 p = Set pressure [bar] absolute
 ad = Coefficient of discharge

Coefficient of discharge								
DN1 x DN2	20x32	25x40	32x50	40x65	50x80	65x100	80x100	100x150
d_0	16	20	25	32	40	50	63	77
h	7,00	9,00	12,00	12,00	18,00	18,00	20,00	29,00
h'	2,60	3,20	4,00	5,20	6,50	8,00	10,00	12,50
h/d_0	0,44	0,45	0,48	0,38	0,45	0,36	0,32	0,38
h'/d_0 (1)	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16
Coefficient of discharge ad	Saturated steam	0,78						
	Gases	0,78						
	Liquids	0,60						
	Liquids with rapid limiter (1)	0,36						



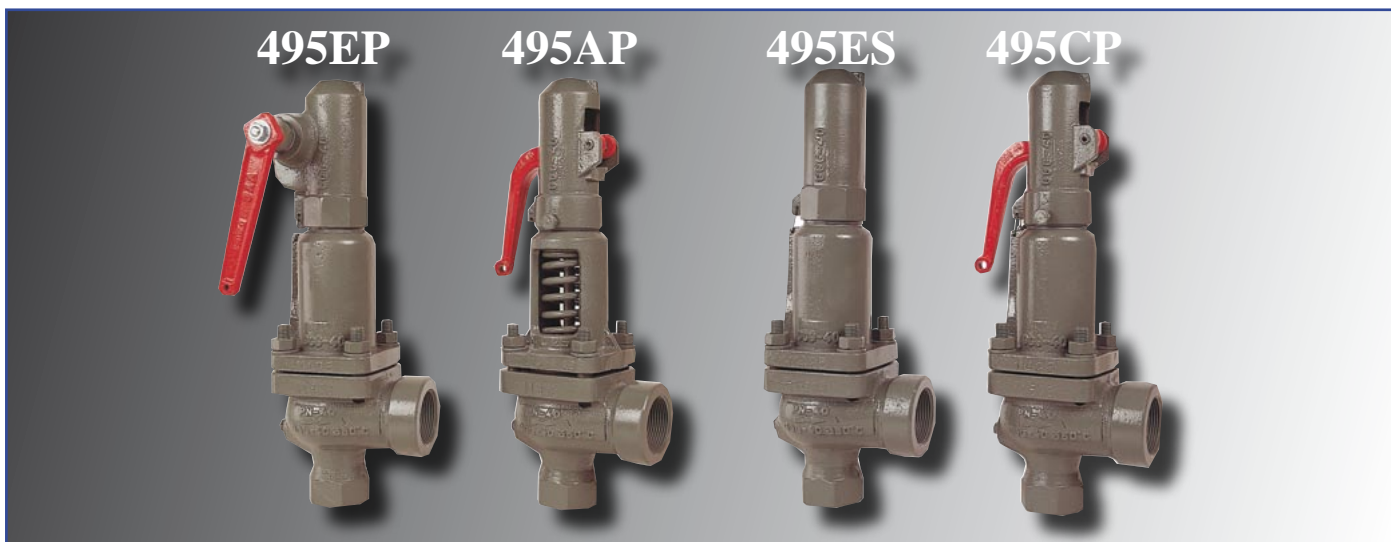
Overpressure in %





DISCHARGE CAPACITY																									
DN1 x DN2	20 x 32			25 x 40			32 x 50			40 x 65			50 x 80			65 x 100			80 x 125			100 x 150			
d0	16			20			25			32			40			50			63			77			
$A_0 = \frac{\pi \cdot d_0^2}{4}$	201			314			491			804			1257			1964			3117			4657			
p (bar)	I Saturated steam (kg/h) II Air at 0 °C and 1,013 bar (Nm ³ /h) III Water at 20 °C (l/h)																								
	For other, not so dense liquids, other than water at 20 °C apply:												$V_L = \sqrt{(Q_A/Q_L)} * V_A$ or $V_A = \sqrt{(Q_L/Q_A)} * V_L$												
	V_A Water flow acc. to table V_L Liquid flow Q_A Water density at 20 °C (Q _A = 998 Kg/m ³) Q_L Liquid density																								
Set pressure (bar)	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III				
0,5	101	121	4310	157	200	6734	246	294	10530	402	482	17243	629	738	26958	982	1168	42120	1559	1845	66848	2330	2773	99876	
1,0	151	182	6096	236	285	9523	369	435	14892	604	724	24385	945	1134	38125	1476	1771	59568	2343	2811	94538	3500	4200	141246	
1,5	200	244	7466	312	380	11664	488	590	18239	799	960	29866	1249	1498	46693	1952	2342	72955	3097	3716	115785	4628	5431	172990	
2,0	246	300	8621	385	469	13468	602	728	21060	986	1191	36686	1541	1863	53916	2408	2913	84241	3821	4622	133697	5709	6907	199752	
2,5	290	356	9639	453	569	15058	708	857	23546	1160	1415	38556	1813	2194	60280	2833	3429	94185	4496	5444	149478	6717	8134	223329	
3,0	334	414	10559	522	648	16495	817	1017	25793	1337	1664	42236	2090	2605	66034	3266	4070	103174	5184	6376	163746	7745	9526	244645	
3,5	375	466	11405	585	730	17817	916	1145	27860	1499	1872	45620	2343	2931	71325	3661	4579	111441	5811	7260	176865	8682	10820	264247	
4,0	415	518	12192	648	811	19047	1014	1272	29784	1660	2080	48770	2596	3256	76249	4056	5088	119136	6437	8066	189077	9617	12023	282492	
4,5	455	570	12932	711	892	20202	1112	1399	31590	1821	2288	51729	2847	3582	80874	4449	5596	126362	7060	8873	200547	10548	13225	299628	
5,0	496	622	13632	774	973	21295	1210	1526	33299	1982	2496	54527	3099	3908	85249	4842	6105	133198	7684	9680	211394	11481	14427	615835	
6,0	576	725	14933	899	1135	23328	1406	1780	36477	2303	2913	59731	3600	4559	93386	5625	7123	145911	8928	11293	231571	13339	16832	345980	
7,0	656	829	16129	1024	1298	25197	1602	2035	39400	2623	3329	64517	4100	5210	100868	6406	8140	157602	10167	12907	250125	15190	19236	373701	
8,0	736	933	17243	1149	1460	26936	1797	2289	42121	2942	3745	68972	4600	5862	107833	7187	9158	168483	11406	14520	267395	17041	21641	399504	
9,0	815	1036	18288	1273	1622	28570	1991	2544	44676	3261	4161	73156	5098	6513	114374	7965	10176	178704	12641	16133	283615	18887	24045	423738	
10,0	894	1140	19278	1397	1784	30116	2185	2798	47092	3578	4577	77113	5594	7164	120561	8740	11193	188370	13871	17747	298957	20724	26450	446659	
12,0	1053	1347	21118	1645	2109	32990	2572	3307	51587	4212	5410	84473	6585	8467	132068	10289	13228	206349	16329	20974	327491	24396	31259	489290	
14,0	1211	1555	22810	1891	2433	35634	2958	3816	55720	4843	6242	91241	7572	9770	142650	11830	15264	222883	18775	24201	353731	28052	36068	528494	
16,0	1369	1762	24385	2139	2758	38094	3344	4324	59568	5476	7074	97541	8561	11073	152490	13376	17299	238272	21229	27427	378154	31718	40877	564984	
18,0	1526	1969	25864	2384	3082	40405	3727	4833	63181	6103	7907	103458	9542	12375	161750	14909	19334	252725	23661	30654	401093	35352	45687	599256	
20,0	1684	2177	27263	2631	3407	42590	4113	5342	66599	6736	8739	109054	10531	13678	170499	16454	21369	266396	26113	33881	422790		50496	631671	
22,0	1841	2384	28594	2876	3731	44669	4497	5851	69850	7364	9571	114377	11514	14981	178821	17989	23404	279398		37108	443425				
24,0	2000	2592	29865	3124	4056	46656	4884	6360	72956	7998	10400	119463		16284	186772	19537	25440	291822		40334	463142				
26,0	2157	2799	31085	3370	4380	48561	5269	6868	75934		11236	124341		17586	194399		27475	303738		41948	482054				
28,0	2316	3006	32258	3618	4705	50394	5657	7377	78801		12068	129035		18889	201737		29510	315204							
30,0	2472	3214	33390	3861	5029	52163	6038	7886	81567		12900	133563		20192	208818		31545	326267							
32,0	2630	3421	34486	4109	5353	53873		8395	84242		13733	137944		21494	215665		33580	336967							
34,0		3628	35547		5678	55531		8904	86834																
36,0		3836	36578		6002	57141		9412	89352																
38,0		4043	37580		6327	58707		9667	91800																
40,0		4250	38556		6651	60232		10430	94185																

Calculus acc. to „AD-Merkblatt A2“



Full lift safety valve with spring loading (AIT):

- The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open instantly and totally.
- Design in line with the „AD-MERKBLATT A2 Specifications sheet“ and „Technical safety instructions for TRD-421 steam boilers“.
- In accordance with UNE 9-100-86 „Safety valves“ (Steam boilers).
- Component test stamp: TÜV Rheinland (German technical supervision authority).

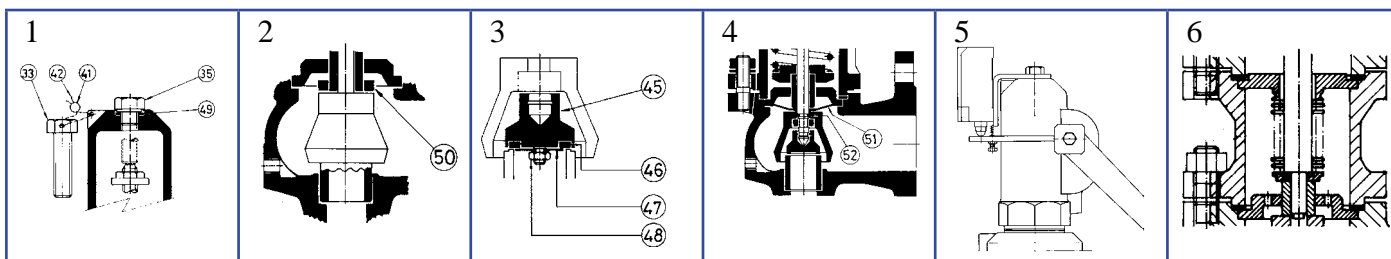
Specifications:

- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion. With the exception of washers and couplings, the valves are free of non-ferric materials.
- Internal body designed to offer favourable flow profile.
- Sealing surfaces treated and balanced, making them extremely tightness, even exceeding DIN-3230 requirements. Page 3.
- Great discharge capacity. For liquids typically used with openings similar to proportional safety valves.
- Equipped with draining screws for removing condensation.
- Auto-centering plug.
- Threaded shaft with lever positioner facilitating immediate manual action.
- Elevator, independent of the seal, designed facilitate sudden opening when the steam expands and, with any fluid, guarantees absolute opening and closing precision.
- All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
- všechny komponenty jsou očíslovány, zaregistrovány a prověřeny.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve.

IMPORTANT

Depending on demand:

- 1) Blocking screw which facilitates hydrostatic testing of the container which to be protected.
- 2) Rapid limiter to reduce the coefficient of discharge.
- 3) Fluorelastomer (Vitón) seals, Silicone's rubber, PTFE (Teflón)... etc., achieving leakage levels less than: $0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{sec}}$
- 4) Fluorelastomer (Vitón) membrane and O-ring isolating the rotating or sliding parts from the working fluid.
- 5) Electrical contact indicating open/closed.
- 6) Balance bellows to:
 - Protect the spring from atmospheric influences.
 - Ensure outside of valve body is totally tightness.
 - Level out external or self-generated back pressure.
- 7) Possibility of manufacture in other types of material, for special operating conditions (high temperatures, fluids, etc.).
- 8) Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV- Oxygen-VBG 62).
- 9) Special springs for critical temperatures.





- The ranges of application allow certain flexibility although we recommend limiting them to:

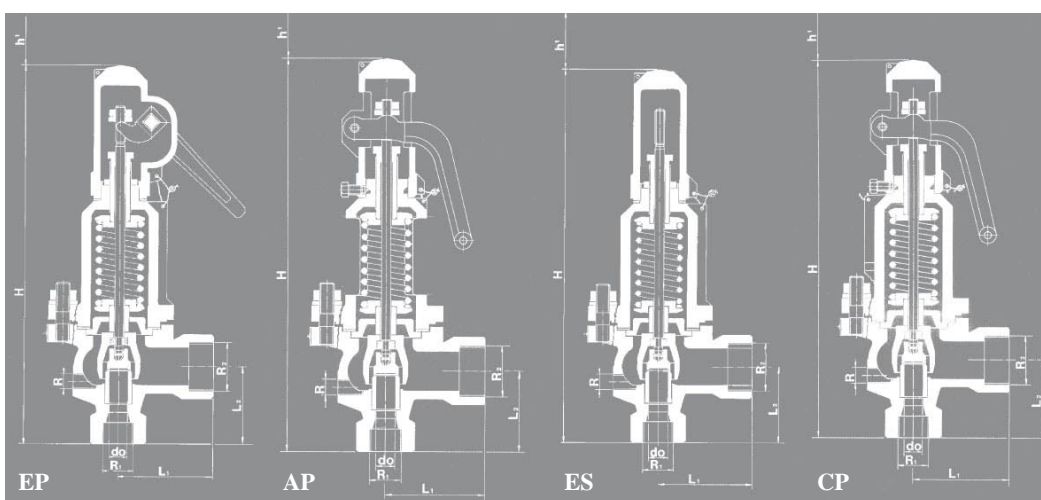
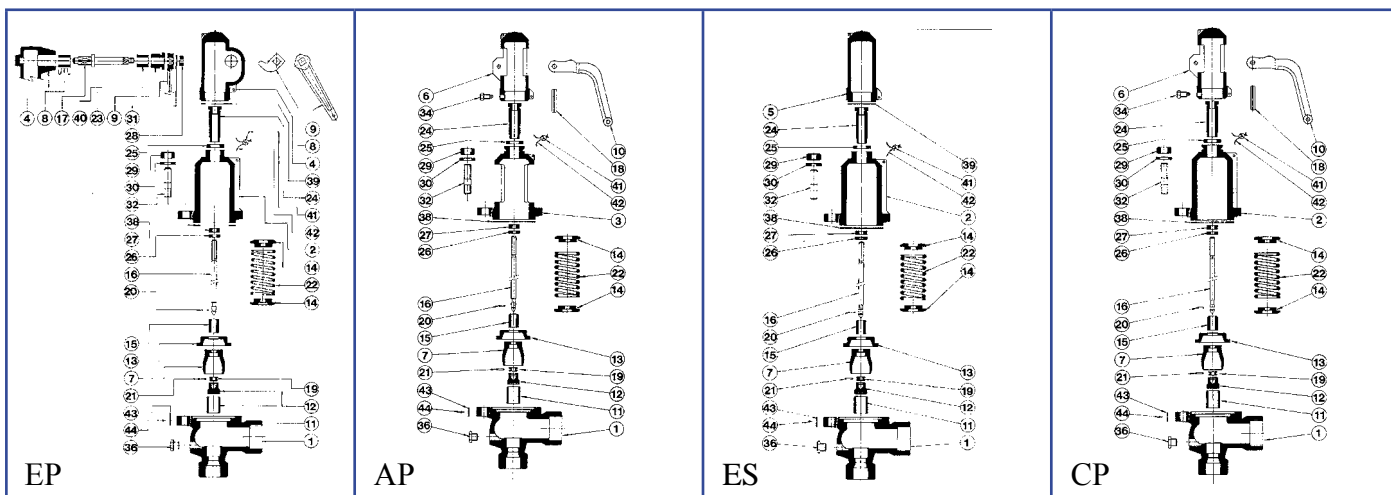
RANGE OF APPLICATION FOR THE SEALS											
FLUID	Set pressure (bar)										
	0,2	1,8	4,0	4,8	7,0	30,0	40,0				
Saturated steam	S	V			T						
Liquids and gases	S			V			T				
SEALS	Temperature °C										
	ACCORDING TO MANUFACTURERS					WE RECOMMEND					
	Minimum		Maximum			Minimum		Maximum			
	Silicone's rubber	S	-60			+200			-50		+115
Fluorelastomer (VITON)	V	-40			+250			-30		+150	
PTFE (teflon)	T	-265			+260			-80		+230 (1)	

(1) For temperatures exceeding 230°C apply metallic seal only.

No.	Piece	Material																			
		CAST IRON				NODULAR IRON				CAST STEEL				STAINLESS STEEL							
1	Body	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Cast steel (DIN-1.0619.01 GS-C 25N)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
2	Closed bell	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
3	Open bell	Cast iron (DIN-0.6025 GG-25)				Nodular iron (DIN-0.7040 GGG-40)				Cast steel (DIN-1.0619.01 GS-C 25N)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
4,5,6	Hood	Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
7	Elevator	Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
8	Cam	Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Nodular iron (DIN-0.7040 GGG-40) (1)				Stainless st. (DIN-1.4408) (ASTMA351 CF8M)							
9,10	Lever	Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)				Nodular iron (DIN-0.7040 GGG-40)							
11	Seating	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4542) (AISI-630) (17-4PH)							
12	Plug	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4542) (AISI-630) (17-4PH)							
13	Lead	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
14	Spring press	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
15	Separator	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
16	Rod	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
17	Lever shaft	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
18	Gudgeon	Carbon steel (DIN-1.1231 Ck-67)				Carbon steel (DIN-1.1231 Ck-67)				Carbon steel (DIN-1.1231 Ck-67)				Stainless steel (DIN-1.4310) (AISI-301)							
19	Ring	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
20,21	Safety ring	Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)				Stainless steel (DIN-1.4300) (AISI-302)							
22	Spring	Vanad-chrome st. (DIN-1.8159 50CrV4)(2)				Vanad-chrome st. (DIN-1.8159 50CrV4)(2)				Vanad-chrome st. (DIN-1.8159 50CrV4)(2)				Stainless steel (DIN-1.4300) (AISI-302)							
23	Gland	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4305) (AISI-303)							
24	Hollow screw	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
25	Hollow screw nut	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
26	Buffer nut	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4305) (AISI-303)							
27	Rod check nut	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
28,29,48	Nut	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
30,31	Washer	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Stainless steel (DIN-1.4401) (AISI-316)							
32	Stud	Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Stainless steel (DIN-1.4401) (AISI-316)							
33,34,35	Screw	Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Carbon steel (DIN-1.1191 Ck-45)				Stainless steel (DIN-1.4401) (AISI-316)							
36	Cap	Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Carbon steel (DIN-1.1181 Ck-35)				Stainless steel (DIN-1.4401) (AISI-316)							
38	Coupling	Klingerit cardboard				Klingerit cardboard				Klingerit cardboard				PTFE (Teflón)							
39,49	Coupling	Copper				Copper				Copper				PTFE (Teflón)							
40	Seal	Graphite				Graphite				Graphite				PTFE (Teflón)							
41	Seal	Lead				Lead				Lead				Lead							
42	Sealing wire	Sealing wire				Sealing wire				Sealing wire				Sealing wire							
43	Characteristic plate	Aluminium				Aluminium				Aluminium				Aluminium							
44	Rivets	Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)				Carbon steel (DIN-1.1141 Ck-15)							
45	Plug	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)							
46	Sealing disk	PTFE (Teflón)				PTFE (Teflón)				PTFE (Teflón)				PTFE (Teflón)							
		Silicone's rubber				Silicone's rubber				Silicone's rubber				Silicone's rubber							
		Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
47	Washer	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4401) (AISI-316)							
50	Limitter	Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4028) (AISI-420)				Stainless steel (DIN-1.4401) (AISI-316)							
51	Membrane	Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
52	O-ring	Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)				Fluorelastomer (Vitón)							
R1 x R2		3/4" x 1 1/4" to 1" x 1 1/2"																			
PN		16				40				40				40							
Operating conditions	Pressure (bar)	16	13	13	13	40	35	32	28	24	40	35	32	28	24	21	20	40	34	32	29
	max. temp. (°C)	120	200	250	300	120	200	250	300	350	120	200	250	300	350	400	450	120	200	300	400
	min. temp. (°C)	-10				-10				-10				-60							

(1) R.3/4 x 1 1/4 in stainless steel (DIN-1.4408) (ASTM A351 CF8M).

(2) Spring steel (DIN-1.0600 GRADE B) for wire spring Ø < 8 mm. Maximum temperature 250°C.

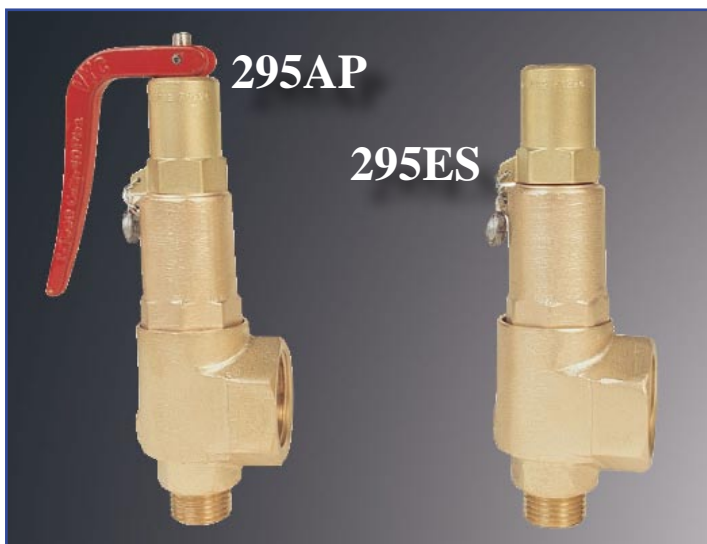


R1 x R2	3/4" x 1 1/4"	1" x 1 1/2"							
Connections	Whitworth cylindrical female thread ISO 228/1 of 1978 (DIN-259)								
d0	16	20							
$A_0 = \frac{\pi \cdot d_0^2}{4}$	201	314							
H	320	370							
h ¹	112	129							
L ₁	80	85							
L ₂	65	80							
R	1/4"	1/4"							
	Whitworth cylindrical female thread ISO 228/1 of 1978 (DIN-259)								
Model	EP	AP	ES	CP	EP	AP	ES	CP	
Weight (kg)	Cast iron	5,24	4,64	4,84	5,04	6,60	5,88	6,12	6,32
	Nodular iron	5,97	5,31	5,53	5,73	7,47	6,68	6,94	7,14
	Cast&stainless st.	5,65	5,01	5,22	5,42	7,50	6,70	6,97	7,19
Code	Cast iron 2002-495.	8346	83461	83462	83463	8106	81061	81062	81063
	Nadular iron 2002-495.	8346	83461	83462	83463	8106	81061	81062	81063
	Cast steel 2002-495.	8344	83441	83442	83443	8104	81041	81042	81043
	Stainless steel 2002-495.	8342	83421	83422	83423	8102	81021	81022	81023

Recommended ranges of application.
 Open and closed pressures in % of set pressure.
 Set pressures and regulating ranges.
 Coefficient of discharge.
 Discharge capacity.

See brochure Model 496.

Model 495 R 3/4" x 1 1/4" = Model 496 DN 20 x 32 d0 = 16
 Model 495 R 1" x 1 1/2" = Model 496 DN 25 x 40 d0 = 20



Normal safety valve with spring loading:

- The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open, at the first proportional to the pressure increase, and after instantly and totally.
- Desing in line with the "AD-MERKBLATT A2 Specifications shet" and "Technical safety instructions for TRD-421 steam boilers".
- In accordance with UNE 9-100-86 "Safety valve" (Steam boilers).
- Complies with the requirements of "Regulation for pressurised equipment ITC-MIE-AP.." (Safety valve).
- Component test stamp: TÜV Rheinland (German technical supervision authority).

Specifications:

- Model AP open cap with lever.
- Model ES closed cap without lever.
- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion.
- Internal body designed to offer favourable flow profile.
- Seat and sealing disk balanced, making them extremely tightness, even exceeding DIN-3230 requeriments. Page 3.
- Great discharge capacity.
- Deflector nut designed to make easier the steam expansion, a sudden opening and to measure the blowdown of any fluid.
- Guarantees absolute opening and closing precision.
- Equipped with draining screws for removing condensation.
- Orientation of the lever by rotation.
- All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve.

IMPORTANT

- Silicone's rubber, Fluorelastomer (Vitón) seals, PTFE (Teflón)... etc., achieving leakage levels less than:

$$0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{sec}}$$

- The ranges of application allow certain flexibility although we recommend limiting them to:

RANGE OF APPLICATIONS OF THE SEALS						
Fluid	Set pressure (bar)					
	0,2	1,5	3,5	4,0	8,0	25,0
Saturate steam	S	V			T	
Liquids and gases	S		V		T	
Seals	Temperature °C					
	ACCORDING TO MANUFACTURERS			WE RECOMMEND		
	Minimum	Maximum		Minimum	Maximum	
Silicone's rubber	S	-60	+200		-50	+115
Fluorelastomer (Vitón)	V	-40	+250		-30	+150
PTFE (teflon)	T	-265	+260		-80	+230 (1)

(1) For temperatures exceeding 230°C apply metallic seal only.



Depending on demand:

- Buna-nitrils seals, Butyl, Natural rubber, E.P.D.M., Chlorosulphonate polyethylene (Hypalon), Neoprene, etc.
- Seal metal by metal
- Electrical contact indicating open/closed.
- Other connections.
- Possibility of manufacture in other types of material, for special operating conditions (high temperatures, fluids, etc.).
- Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV-Oxygen-VBG62).

No.	Piece	Material		
		Bronze		
1	Body	Bronze (DIN-2.1096.01 G-Cu Sn 5 Zn Pb)		
2	Bell	Bronze (DIN-2.1096.01 G-Cu Sn 5 Zn Pb)		
3	Lever	Stainless steel (DIN-1.4301)(AISI-304)		
4	Cap	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
5	Hollow screw	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
6	Hollow screw nut	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
7,24	Rod	Stainless steel (DIN-1.4401) (AISI-316)		
8	Ring	Stainless steel (DIN-1.4300) (AISI-302) (1)		
9	Lead	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
10	Plug	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
11	Deflector	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
12	Stud	Stainless steel (DIN-1.4401) (AISI-316)		
13	Sealing nut	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
14	Cap	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
15	Sealing wire	Sealing wire		
16	Characteristic plate	Aluminium		
17	Seal	Lead		
18	Sealing disk	PTFE (Teflón) Silicone's rubber Fluorelastomer (Vitón)		
19	Spring press	Brass (DIN-1.7660 Cu Zn 40 Pb2)		
20	Spring	Stainless steel (DIN-1.4300) (AISI-302)		
21	Clip	Stainless steel (DIN-1.4310) (AISI-301)		
22	Joint	Klingerit cardboard		
23	Washer	Copper		
		R1 x R2	1/2" x 1" and 3/4" x 1 1/4"	
		PN	PMS . 25 bar	
Operating conditions		Pressure (bar)	25	
		Max. temperature (°C)	225	
		Min. tempearture (°C)	-60	

(1) R. 1/2" x 1" in Phosphorous bronze (Cu Sn 6).



Disassembly and assembly:

1. Disassembly:

To replace the spring (20), or clean any of the internal components of the valve, proceed in the following manner:

- A – Withdraw the clip (21), using a punching tool, and lift the lever (3).
- B – Unscrew the cap (4) and remove.
- C – Holding the rod (7) (24) steady, loosen the hollow screw nut (6), until the constructive limit, and the hollow screw (5) until you note a releasing of the spring (20).
- D – Unscrew the bell (2) holding the rod (7) (24) and the body (1) steady.
- E – Lift the bell (2) and you will have access to all the components.

2. Assembly:

- A – Enter the bell (2) and the joint (22) through the upper part the rod (7) (24).
- B – Turn the bell (2) holding the rod (7) (24) and the body (1) steady.
- C – Replace the hollow screw (5) with the hollow screw nut (6).
- D – Adjust the set pressure with the hollow screw (5) and fix the adjustment position with the hollow screw nut (6).
- E – Change the washer (23) and lightly tighten the cap (4).
- F – Place the lever (3) and fix it with the clip (21).

Adjusting the set pressure:

- A – Proceed according to DISASSEMBLY A, B, C.
- B – Proceed according to ASSEMBLY D, E, F.

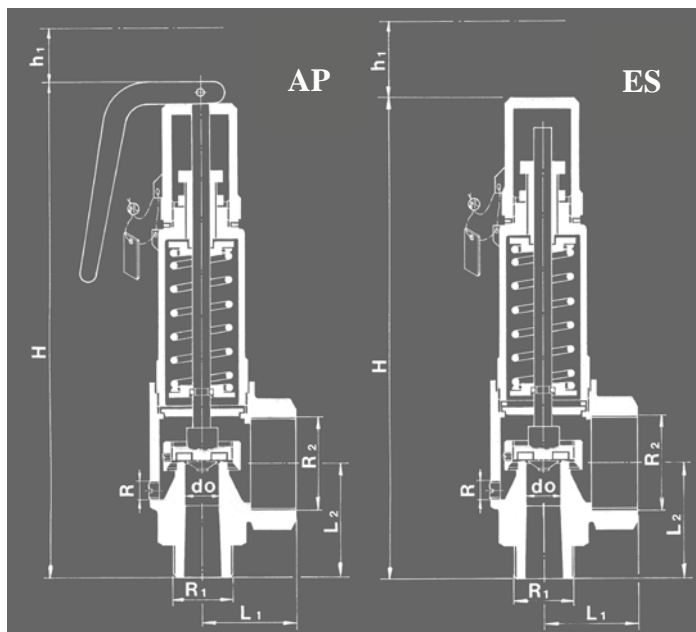
Adjustment of the blowdown:

- A – Slack the stud (12).
- B – Twist or untwist the deflector (11) according the difference in the wished locking pressure (blowdown).
- C – Fix the deflector position screwing the stud (12).

WARNING

In case to do the change of the sealing disc (18) make sure that the surface of this as well as the one of the seat into the body (1) the correctly rectified and free of impurities.

R1 x R2	1/2" x 1"		3/4" x 1 1/4"	
Connections	Whitworth cylindrical Male x Female thread ISO 228/1 1978 (DIN-259)			
Model	AP	ES	AP	ES
d ₀	15		15	
$A = \frac{\pi \cdot d_0^2}{4} \cdot s$	176,7		176,7	
H	161	150	212	199
h ¹	50	39	60	46
L ₁	34	34	41	41
L ₂	41	41	49	49
R	1/8"			
	Whitworth cylindrical Female thread ISO 228/1 1978 (DIN-259)			
Weight (kg)	0,71	0,64	1,50	1,43
Code 2002-295.	60211	60212	63411	63412



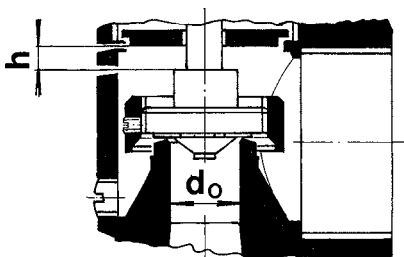
SET PRESSURES AND REGULATING RANGES				
R1 x R2		1/2" x 1"	3/4" x 1 1/4"	
Set pressures (bar)	Maximum	Liquids and gases	25	25
		Saturated steam	25	25
	Minimum	Steam and gases	0,5	0,5
		Liquids (1)	0,2	0,2
Spring regulation range (bar)	0,20 to 0,70	Code	56341	56348
	0,50 to 1,60	Code	56342	56349
	1,40 to 3,50	Code	56343	56350
	3,00 to 5,50	Code	56344	56351
	5,00 to 10,00	Code	56345	56352
	9,00 to 15,00	Code	56346	56353
	14,00 to 20,00	Code		56354
19,00 to 25,00	Code	56347	56355	

(1) For set pressures less than 0,5 bar previous consult with our technical department.



RECOMMENDED RANGES OF APPLICATION			
Model		AP	ES
FLUID	Saturated steam	*	
	Gases	*(1)	*
	Liquids	*(1)	*

(1) With noxious or expensive fluids apply only ES model. If external overpressure exists, the AP model cannot be used. With external constant overpressure, the spring is adjusted deducting the overpressure from the set pressure.

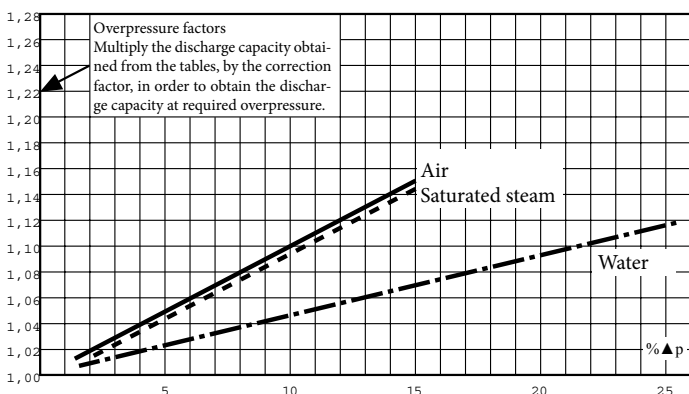


Coefficient of discharge for saturated steam and gases					
R1 x R2		1/2" x 1"	3/4" x 1 1/4"		
d0		15	15		
h		2,20	3,75		
h/d0		0,14	0,25		
Coefficient of discharge ad	Set pressure (bar)	0,5 to 1,00	0,29	0,55	
		1,00 to 25,00	0,35	0,62	

p_a = Overpressure (bar) absolute.

p = Set pressure (bar) absolute.

Overpressure in %



Discharge capacity						
R1 x R2	1/2" x 1"			3/4" x 1 1/4"		
d0	15			15		
$A = \frac{\pi \cdot d_0^2}{4} \cdot S$	176.7			176.7		
p (bar)	I Saturated steam (kg/h). II Air at 0 °C and 1,013 bar (Nm³/h). III Water at 20 °C (l/h). $V_L = \sqrt{(Q_A/Q_L)} \cdot V_A$ nebo $V_A = \sqrt{(Q_L/Q_A)} \cdot V_L$ V_A Water flow according to table. V_L Liquid flow. Q_A Water density at 20 °C. $(Q_A = 998 \text{ Kg/m}^3)$ Q_L Liquid density.					
	Set pressure (bar)	I	II	III	I	II
0,5	40	50	1780	76	92	3435
1,0	54	68	2517	102	128	4858
1,5	74	101	3082	137	160	5959
2,0	98	122	3560	175	220	6877
2,5	113	143	3980	202	255	7588
3,0	128	162	4360	229	290	8299
3,5	144	183	4709	257	328	9010
4,0	160	204	5034	285	360	9720
4,5	176	231	5339	323	395	10306
5,0	192	258	5628	361	430	10870
6,0	225	286	6165	400	510	11908
7,0	255	327	6659	452	580	12859
8,0	285	368	7119	505	650	13745
9,0	315	409	7551	560	723	14576
10,0	346	450	7959	615	800	15370
12,0	407	530	8719	720	940	16828
14,0	468	612	9417	880	1090	18185
16,0	525	694	10068	935	1230	19440
18,0	588	775	10678	1045	1380	20610
20,0	647	857	11256	1150	1520	21725
22,0	709	940	11805	1260	1665	22786
24,0	770	1020	12330	1370	1810	23799
25,0	810	1060	12535	1470	1881	24290

Calculus according „AD-Merkblatt A2“



Proportional safety valve with spring loading:

- The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open proportional to the pressure increase.
- Desing in line with the "AD-MERKBLATT A2 Specifications sheet" and "Technical safety instructions for TRD-421 steam boilers".
- In accordance with UNE 9-100-86 "Proportional safety valve" (Steam boilers).
- Complies with the requirements of "Regulation for pressurised equipment ITC-MIE-AP.." (Proportional safety valve).
- Component test stamp: TÜV Rheinland (German technical supervision authority).

Specifications:

- Model AP open cap with lever.
- Model ES closed cap without lever.
- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion.
- Internal body designed to offer favourable flow profile.
- Seat and sealing disk balanced, making them extremely tightness, even exceeding DIN-3230 requeriments. Page 3.
- Great discharge capacity.
- Guarantees absolute opening and closing precision.
- Equipped with draining screws for removing condensation. (For d0 > 45,20 mm.)
- Orientation of the lever by rotation.
- All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve.

IMPORTANT

- Silicone's rubber, Fluorelastomer (Vitón) seals, PTFE (Teflón)... etc., achieving leakage levels less than:

$$0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{sec.}}$$

- The ranges of application allow certain flexibility although we recommend limiting them to:

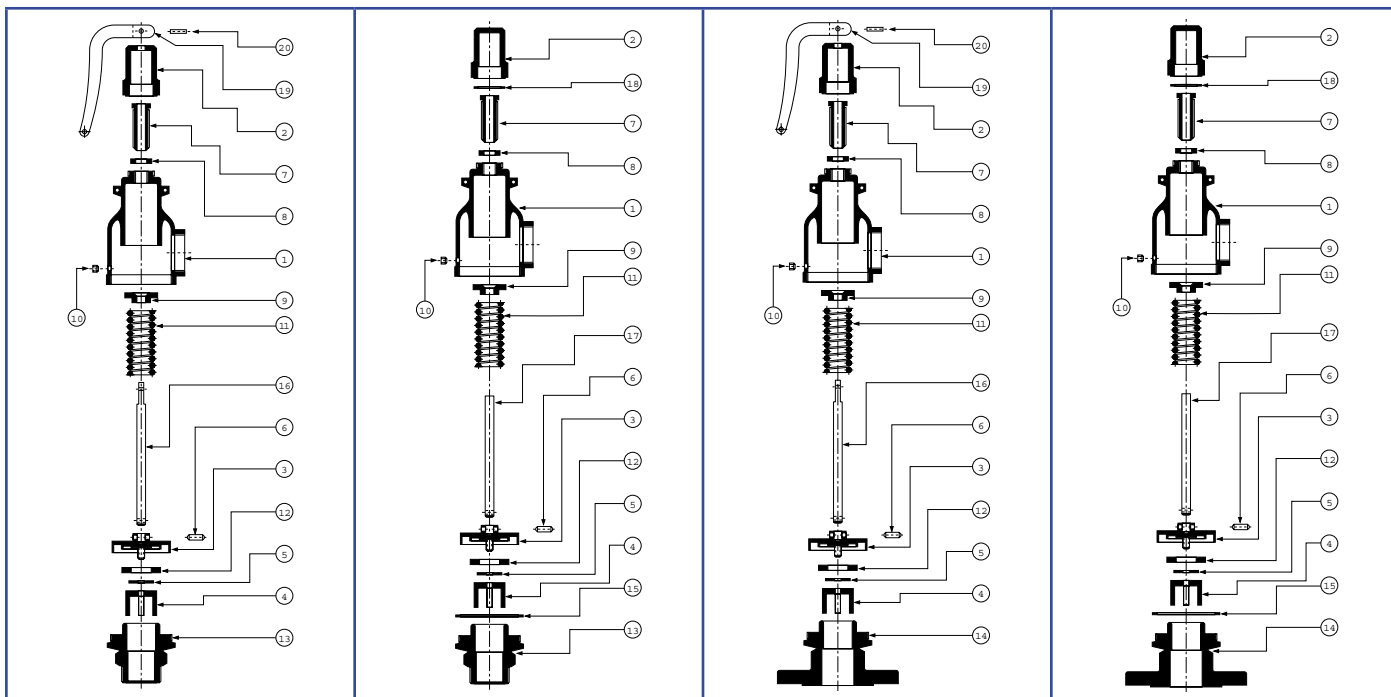
RANGE OF APPLICATIONS OF THE SEALS						
FLUID	SET PRESSURE (bar)					
	0,2	1,5	3,5	4,0	6,0	25,0
Saturated steam	S	V				T
Liquid and gases	S		V		T	
SEALS	Temperature °C					
	ACCORDING TO MANUFACTURERS			WE RECOMMEND		
	Minimum	Maximum		Minimum	Maximum	
Silicone's rubber	S	-60	+200		-50	+115
Fluorelastomer (Vitón)	V	-40	+250		-30	+150
PTFE (Teflon)	T	-265	+260		-80	+230 (1)

1) For temperatures exceeding 230°C apply metallic seal only.



Depending on demand:

- Buna-nitrils seals, Butyl, Natural rubber, E.P.D.M., Chlorosulphonate polyethylene (Hypalon), Neoprene, etc.
- Seal metal by metal.
- Electrical contact indicating open/closed.
- Other connections.
- Possibility of manufacture in other types of material, for special operating conditions (high temperatures, fluids, etc.).
- Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV-Oxygen-VBG62).



Disassembly and assembly:

1) Disassembly:

To replace the spring (11), or clean any of the internal components of the valve, proceed in the following manner:

- A - Withdraw the clip (20), using a punching tool, and lift the lever (19).
- B - Unscrew the cap (2) and remove.
- C - Holding the rod (16) (17) steady, loosen the hollow screw nut (8), until the constructive limit, and the hollow screw (7) until you note a releasing of the spring (11).
- D - Unscrew the body (1) holding the rod (16) (17) and the seat (13) (14) steady.
- E - Lift the body (1) and you will have acces to all the components.

2) Assembly:

- A - Enter the body (1) and the joint (15) through the upper part the rod (16) (17).
- B - Turn the body (1) holding the rod (16) (17) and the seat (13) (14) steady.
- C - Replace the hollow screw (7) with the hollow screw nut (8).
- D - Adjust the set pressure with the hollow screw (7) and fix the adjustment position with the hollow screw nut (8).
- E - Change the coupling (18) and lightly tighten the cap (2).
- F - Place the lever (19) and fix it with the clip (20).

ADJUSTING THE SET PRESSURE

- A - Proceed according to DISASSEMBLY A, B, C.
- B - Proceed according to ASSEMBLY D, E, F.

WARNING

In case to do the change of the sealing disc (12) make sure that the surface of this as well as the one of the seat (13) (14) the correctly rectified and free of impurities.



Type	No.	Piece	R ₁ xR ₂												PN	Operating conditions			
			D ₁ xD ₂	1/4" x 1/4"	3/8" x 3/8"	1/2" x 1/2"	3/4" x 3/4"	1" x 1"	1 1/4" x 1 1/4"	1 1/2" x 1 1/2"	2" x 2"	2 1/2" x 2 1/2"	3" x 3"	4" x 4"		A	B	C	
Bronze / Brass	1	Body	Brass (DIN-1.7660 CuZn 40Pb2)									*	Bronze (DIN-20492.01 G-CuZn 15Si4)			16	16	200	-60
	2	Cap	Brass (DIN-1.7660 CuZn 40Pb2)									*	Bronze (DIN-20492.01 G-CuZn 15Si4)						
	3	Coupling	Brass (DIN-1.7660 CuZn 40Pb2)										Bronze (DIN-20492.01 G-CuZn 15Si4)						
	4	Lead	Brass (DIN-1.7660 Cu Zn 40Pb2)										Bronze (DIN-20492.01 G-CuZn 15Si4)						
	7	Hollow screw	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	8	Hollow screw nut	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	9	Spring press	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	10	Cap											Brass (DIN-1.7660 Cu Zn 40Pb2)						
	13	Screwed seat	Brass (DIN-1.7660 Cu Zn 40Pb2)									*	Bronze (DIN-2.0492.01 G-CuZn 15Si4)						
	14	Flanged seat	Bronze (DIN-2.0492.01 G-CuZn 15Si4)																
15	Body coupling	Klingerit cardboard																	
18	Hood coupling	Copper																	
Mixed	1	Body	Brass (DIN-1.7660 Cu Zn 40Pb2)									*	Bronze (DIN-20492.01 G-CuZn 15Si4)			25	25	200	-60
	2	Cap	Brass (DIN-1.7660 Cu Zn 40Pb2)									*	Bronze (DIN-20492.01 G-CuZn 15Si4)						
	3	Coupling	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4408) (ASTM-A351 CF8M)												
	4	Lead	Stainless steel (DIN-1.4408) (ASTM-A351 CF8M)																
	7	Hollow screw	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	8	Hollow screw nut	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	9	Spring press	Brass (DIN-1.7660 Cu Zn 40Pb2)																
	10	Cap											Brass (DIN-1.7660 Cu Zn 40Pb2)						
	13	Screwed seat	Stainless steel (DIN-1.4408) (ASTM-A351 CF8M)																
	14	Flanged seat	Stainless steel (DIN-1.4408) (ASTM-A351 CF8M)																
15	Body coupling	PTFE (teflón)																	
18	Hood coupling	Copper																	
Stainless steel	1	Body	Stainless steel (DIN-1.4408) (ASTM A351 CF8M)													25	25	250	-60
	2	Cap	Stainless steel (DIN-1.4305) (AISI-303)				Stainless steel (DIN-1.4408) (ASTM A351 CF8M)												
	3	Coupling	Stainless steel (DIN-1.4401) (AISI-316)				Stainless steel (DIN-1.4408) (ASTM A351 CF8M)												
	4	Lead	Stainless steel (DIN-1.4408) (ASTM A351 CF8M)																
	7	Hollow screw	Stainless steel (DIN-1.4305) (AISI-303)																
	8	Hollow screw nut	Stainless steel (DIN-1.4305) (AISI-303)																
	9	Spring press	Stainless steel (DIN-1.4301) (AISI-304)																
	10	Cap											Stainless steel (DIN-1.4401) (AISI-316)						
	13	Screwed seat	Stainless steel (DIN-1.4408) (ASTM A351 CF8M)																
	14	Flanged seat	Stainless steel (DIN-1.4408) (ASTM A351 CF8M)																
	15	Body coupling	PTFE (teflón)																
	18	Hood coupling	PTFE (teflón)																
	5	Washer	Stainless steel (DIN-1.4401) (AISI-316)																
	6	Clip	Stainless steel (DIN-1.4310) (AISI-301)																
	11	Spring	Stainless steel (DIN-1.4300) (AISI-302) (1)																
	12	Sealing disk	PTFE (teflón)																
			Silicone's rubber																
			Fluorelastomer (Vitón)																
	16	Rod	Stainless steel (DIN-1.4301) (AISI-304)																
	17	Rod	Stainless steel (DIN-1.4301) (AISI-304)																
19	Lever	Stainless steel (DIN-1.4301) (AISI-304)				•	*				Brass (DIN-2.0290.01 G-Cu65Zn)								
20	Spring	Stainless steel (DIN-1.4301) (AISI-304)																	

(1) Spring steel (DIN-1.0600 GRADO B) for wide spring Ø > 10 mm. but < 14 mm. Vanadium chrome steel (DIN-1.8159 50Cr V4) for wide spring Ø > 13 mm.

* Brass (DIN-2.0340.02 GK-Cu60Zn).

• Brass (DIN-1.7660 CuZn 40Pb2).

A PRESSURE IN bar

B MAX. TEMP. IN °C

C MIN. TEMP. IN °C



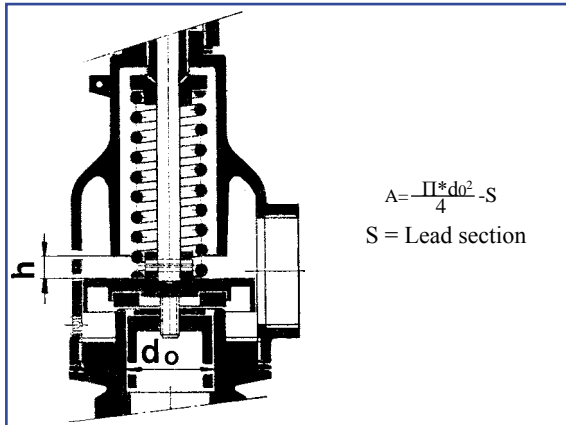
Set pressures and regulating ranges								
R1 x R2 DN1 x R2	Spring regulating range (bar)	Code	Maximum (bar) (liquids and gases)		Maximum (saturated steam)		Minimum	
			PN-16	PN-25	PN-16	PN-25	Steam&gases	Liquids (1)
1/4" x 1/4" 3/8" x 3/8" 8 x 1/4" 10 x 3/8"	0,5 at 1,0 1,1 at 1,9 2,0 at 3,9 4,0 at 7,9 8,0 at 13,4 13,5 at 19,8 19,9 at 25,0	56024 ● 56025 ● 56026 ● 56027 ● 56028 ● 56029 ● 56030 ●	16	25	13	20	0,5	0,2
1/2" x 1/2" 15 x 1/2"	0,5 at 1,0 1,1 at 2,0 2,1 at 4,0 4,1 at 8,0 8,1 at 12,0 12,1 at 19,0 19,1 at 25,0	56033 ● 56034 ● 56035 ● 56036 ● 56037 ● 56038 ● 56039 ●	16	25	13	20	0,5	0,2
3/4" x 3/4" 20 x 3/4"	0,5 at 1,0 1,1 at 2,0 2,1 at 4,0 4,1 at 6,0 6,1 at 10,0 10,1 at 13,2 13,3 at 17,5 17,6 at 25,0	56043 ● 56044 ● 56045 ● 56046 ● 56047 ● 56048 ● 56049 ● 56050 ●	16	25	13	20	0,5	0,2
1" x 1" 25 x 1"	0,5 at 1,5 1,6 at 2,6 2,7 at 4,0 4,1 at 7,5 7,6 at 11,0 11,1 at 14,5 14,6 at 20,0 20,1 at 25,0	56053 ● 56054 ● 56055 ● 56056 ● 56057 ● 56058 ● 56059 ● 56060 ●	16	25	13	20	0,5	0,2
1 1/4" x 1 1/4" 32 x 1 1/4"	0,5 at 1,5 1,6 at 2,6 2,7 at 4,0 4,1 at 7,5 7,6 at 10,0 10,1 at 12,5 12,6 at 15,5 15,6 at 19,5 19,6 at 25,0	56062 ● 56063 ● 56064 ● 56065 ● 56066 ● 56067 ● 56068 ● 56069 ● 56070 ●	16	25	13	20	0,5	0,2
1 1/2" x 1 1/2" 40 x 1 1/2"	0,5 at 0,8 0,9 at 2,0 2,1 at 4,0 4,1 at 5,5 5,6 at 8,0 8,1 at 11,5 11,6 at 15,7 15,8 at 25,0	56073 ● 56074 ● 56075 ● 56076 ● 56077 ● 56078 ● 56079 ● 56080 ●	16	25	13	20	0,5	0,2
2" x 2" 50 x 2"	0,5 at 1,0 1,1 at 2,0 2,1 at 5,2 5,3 at 6,7 6,8 at 11,0 11,1 at 13,8 13,9 at 18,9 19,0 at 25,0	56083 ● 56084 ● 56085 ● 56086 ● 56087 ● 56088 ● 56089 ● 56090 -	16	25	13	20	0,5	0,2
2 1/2" x 2 1/2" 65 x 2 1/2"	0,5 at 1,5 1,6 at 5,0 5,1 at 9,0 9,1 at 11,8 11,9 at 15,0 15,1 at 19,0 19,1 at 25,0	56092 ● 56093 ● 56094 ● 56095 - 56096 - 56097 - 56098 ▲	16	25	13	20	0,5	0,2
3" x 3" 80 x 3"	0,5 at 2,0 2,1 at 6,0 6,1 at 8,8 8,9 at 12,0 12,1 at 18,5 18,6 at 21,5 21,6 at 25,0	56099 ● 56100 ● 56101 - 56102 ▲ 56103 ▲ 56104 ▲ 56105 ▲	16	25	13	20	0,5	0,2
4" x 4" 100 x 4"	0,5 at 2,0 2,1 at 6,0 6,1 at 9,0 9,1 at 14,0 14,1 at 19,0 19,1 at 25,0	56106 ● 56107 - 56108 ▲ 56109 ▲ 56110 ▲ 56111 ▲	16	25	13	20	0,5	0,2

- Stainless steel (DIN- 1.4300) (AISI 302)
 - Sprin steel with Epoxi coating (DIN-1.0600 GRADE B).
 - ▲ Vanadium chrome steel with Epoxi coating (DIN-1.8159 50CrV4).
- (1) For set pressures less than 0,5 bar previous consult with our technical department.



COEFFICIENT OF DISCHARGE

R1 x R2 DN1 x R2	1/4" x 1/4" 8 x 1/4"	3/8" x 3/8" 10 x 3/8"	1/2" x 1/2" 15 x 1/2"	3/4" x 3/4" 20 x 3/4"	1" x 1" 25 x 1"	1 1/4" x 1 1/4" 32 x 1 1/4"	1 1/2" x 1 1/2" 40 x 1 1/2"	2" x 2" 50 x 2"	2 1/2" x 2 1/2" 65 x 2 1/2"	3" x 3" 80 x 3"	4" x 4" 100 x 4"
d ₀	10,20	10,20	16,20	20,80	25,20	32,20	38,20	45,20	60,20	75,20	95,20
h	2,50	2,50	3,00	5,00	6,00	8,50	11,00	12,00	15,00	19,00	28,00
h/d ₀	0,25	0,25	0,19	0,24	0,24	0,26	0,29	0,27	0,25	0,25	0,29
$A = \frac{\pi \cdot d_0^2}{4} \cdot S$	29,50	29,50	120,30	207,50	347,10	543,00	780,40	1157,60	2155,60	3161,40	5452,10



RECOMMENDED RANGES OF APPLICATION

Model		AP	ES
FLUID	Saturated steam	*	
	Gases	* (1)	*
	Liquids	* (1)	*

- (1) With noxious or expensive fluids apply only ES model.
 If external overpressure exists, the AP model cannot be used.
 With external constant overpressure, the spring is adjusted deducting the overpressure from the set pressure.

DISCHARGE CAPACITY

R1 x R2 DN1 x R2	1/4" x 1/4" 8 x 1/4"	3/8" x 3/8" 10 x 3/8"	1/2" x 1/2" 15 x 1/2"	3/4" x 3/4" 20 x 3/4"	1" x 1" 25 x 1"	1 1/4" x 1 1/4" 32 x 1 1/4"
d ₀	10,2	10,2	16,2	20,8	25,2	32,2
$A = \frac{\pi \cdot d_0^2}{4} \cdot S$	29,50	29,50	120,3	207,5	347,1	543

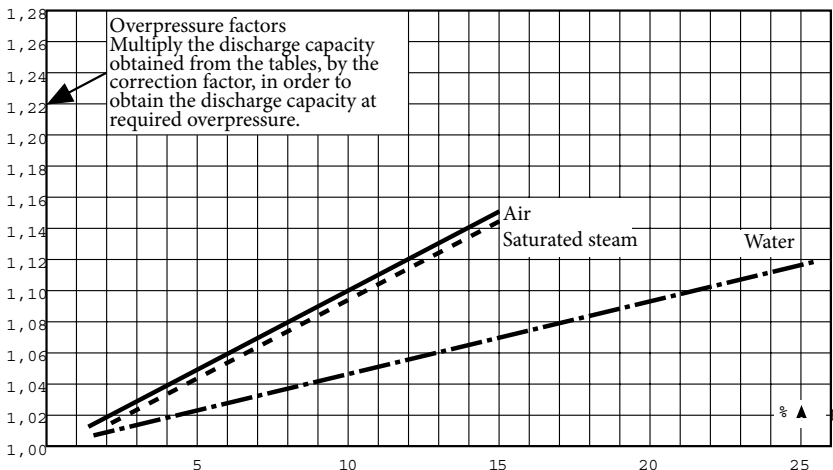
p (bar)	For other, not so dense liquids, other than water at 20 °C apply:																	
	I Saturated steam (kg/h)			II Air at 0 °C and 1,013 bar (Nm ³ /h)			III Water at 20 °C (l/h)			$V_L = \sqrt{\frac{Q_A}{Q_L}} \cdot V_A$ nebo $V_A = \sqrt{\frac{Q_L}{Q_A}} \cdot V_L$								
Set pressure (bar)	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
0,5	25	30	342	25	30	342	42	53	514	51	62	737	58	88	1036	65	123	1290
1,0	39	45	489	39	45	489	63	80	735	77	94	1053	88	133	1480	99	185	1844
1,5	42	51	582	42	51	582	68	94	857	86	106	1228	95	147	1674	114	227	2015
2,0	45	57	675	45	57	675	74	108	980	96	119	1403	102	161	1869	130	270	2187
2,5	50	66	768	50	66	768	83	120	1100	113	131	1590	121	180	2020	152	310	2707
3,0	54	75	861	54	75	861	91	133	1221	130	143	1778	140	199	2170	175	350	3227
3,5	60	85	955	60	85	955	110	145	1342	136	159	1944	154	233	2350	223	387	3468
4,0	66	96	1050	66	96	1050	129	157	1463	143	175	2110	168	268	2530	272	425	3710
4,5	70	106	1127	70	106	1127	137	173	1619	155	197	2282	195	282	2802	288	461	4130
5,0	75	117	1204	75	117	1204	146	190	1775	167	219	2455	222	296	3075	305	497	4551
5,5	79	127	1281	79	127	1281	155	206	1931	179	241	2627	249	310	3347	322	533	4971
6,0	84	138	1359	84	138	1359	164	223	2088	192	264	2800	276	325	3620	339	570	5392
6,5	87	148	1428	87	148	1428	171	255	2191	208	289	2902	300	341	3780	361	606	5690
7,0	91	159	1497	91	159	1497	178	287	2294	224	314	3004	324	358	3940	383	642	5988
7,5	95	169	1566	95	169	1566	185	319	2397	240	339	3106	348	375	4100	405	678	6286
8,0	99	180	1635	99	180	1635	192	352	2500	256	365	3208	372	392	4260	427	715	6584
9,0	107	204	1740	107	204	1740	226	376	2670	296	417	3404	412	442	4588	491	767	7292
10,0	115	228	1845	115	228	1845	260	400	2840	336	470	3600	453	493	4916	556	820	8000
11,0	123	252	1957	123	252	1957	300	426	3000	387	517	3780	506	541	5142	622	890	9010
12,0	132	276	2070	132	276	2070	340	452	3160	439	565	3960	560	590	5368	689	960	10020
13,0	139	301	2167	139	301	2167	372	476	3324	482	607	4102	602	655	5820	732	1042	10535
14,0	147	327	2265	147	327	2265	405	500	3488	526	650	4244	645	720	6272	776	1125	11050
15,0	154	349	2341	154	349	2341	442	526	3624	548	697	4402	683	760	6481	838	1202	11525
16,0	162	372	2418	162	372	2518	480	552	3760	570	745	4560	721	800	6690	900	1280	12000
17,0	169	396	2521	169	396	2521	520	572	3890	610	832	4750	796	883	6945	970	1360	12330
18,0	177	420	2625	177	420	2625	560	592	4020	650	920	4940	872	967	7200	1040	1440	12660
20,0	192	465	2629	192	465	2829	640	644	4360	725	1016	5076	956	1180	7740	1180	1600	13316
22,0		510	3036		510	3036		696	4652		1112	5092		1310	8216		1772	13976
24,0		544	3190		544	3190		750	4808		1184	5416		1415	8598		1896	14560
25,0		579	3345		579	3345		805	4964		1256	5740		1520	8980		2020	15144



DISCHARGE CAPACITY															
R1 x R2 DN1 x R2	1 1/2" x 1 1/2" 40 x 1 1/2"			2" x 2" 50 x 2"			2 1/2" x 2 1/2" 65 x 2 1/2"			3" x 3" 80 x 3"			4" x 4" 100 x 4"		
d0	38,2			45,2			60,2			75,2			95,2		
$A = \frac{\pi \cdot d_0^2}{4} \cdot S$	780,4			1157,6			2155,6			3161,4			5452,1		
p (bar)	I Saturated steam (kg/h) II Air at 0 °C and 1,013 bar (Nm ³ /h) III Water at 20 °C (l/h)									For other, not so dense liquids, other than water at 20 °C apply: $V_L = \sqrt{(Q_A/Q_L)} \cdot V_A$ nebo $V_A = \sqrt{(Q_L/Q_A)} \cdot V_L$			V _A Water flow acc. to table V _L Liquid flow Q _A Water density at 20 °C (Q _A = 998 Kg/m ³) Q _L Liquid density		
Set pressure (bar)	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
0,5	104	176	1930	146	225	2898	188	272	4130	272	335	5201	484	656	6472
1,0	157	266	2758	220	339	4140	284	410	5900	410	505	7430	729	987	9247
1,5	176	310	3242	250	385	4628	318	458	6765	455	557	8307	850	1050	10141
2,0	196	353	3727	280	430	5117	351	507	7630	500	609	9184	972	1113	11035
2,5	234	391	4148	308	475	5540	385	565	8490	554	705	9992	1087	1202	11320
3,0	273	430	4570	336	521	5964	419	623	9350	609	802	10800	1203	1292	11604
3,5	308	463	4931	375	586	6788	454	686	11315	667	861	12453	1326	1376	13742
4,0	343	497	5292	415	652	7612	490	749	13280	725	920	14107	1449	1460	15880
4,5	364	557	5941	444	709	9134	532	809	14685	786	1024	15610	1567	1586	17756
5,0	385	618	6591	473	766	10656	575	870	16090	847	1128	17113	1686	1712	19632
5,5	406	679	7240	502	823	12178	617	931	17495	908	1232	18616	1804	1838	21508
6,0	427	740	7890	532	880	13700	660	992	18900	969	1336	20120	1923	1964	23384
6,5	452	786	8224	570	919	14687	681	1030	19338	1027	1420	20852	2042	2056	23910
7,0	478	832	8559	609	958	15674	702	1068	19776	1086	1504	21585	2161	2148	24437
7,5	503	878	8893	648	997	16661	723	1106	20214	1144	1588	22317	2280	2240	24963
8,0	529	925	9228	687	1036	17648	744	1145	20653	1203	1672	23050	2400	2332	25490
9,0	564	1014	10958	711	1106	19539	802	1215	22812	1327	1854	24373	2641	2414	26081
10,0	600	1104	12688	735	1176	21430	860	1285	24972	1452	2036	25696	2883	2496	26672
11,0	675	1188	13374	807	1258	22365	923	1388	25311	1576	2213	25968	3121	2714	27464
12,0	750	1272	14060	879	1340	23300	987	1492	25650	1700	2390	26240	3360	2932	28256
13,0	806	1358	14715	957	1430	24070	1056	1586	26525	1822	2577	27305	3601	3144	29108
14,0	862	1445	15370	1036	1520	24840	1125	1680	27400	1944	2765	28370	3843	3356	29960
15,0	957	1530	16310	1104	1615	25684	1190	1836	27915	2076	2948	29033	4086	3604	30950
16,0	1052	1615	17250	1172	1710	26528	1256	1992	28430	2209	3132	29697	4329	3852	31940
17,0	1124	1703	17945	1251	1877	27300	1374	2186	29575	2325	3294	31032	4566	4222	32592
18,0	1196	1792	18640	1330	2045	28072	1493	2380	30720	2442	3456	32368	4803	4592	33244
20,0	1292	1995	20230	1452	2385	29870	1590	2512	32459	2685	3812	33030	5295	5162	34936
22,0		2232	21968		2556	31296		2952	35200		4156	36616		5750	38120
24,0		2374	22090		2766	32590		3188	38088		4404	42400		6103	46320
25,0		2516	22212		2976	33885		3424	40976		4652	48184		6456	54520

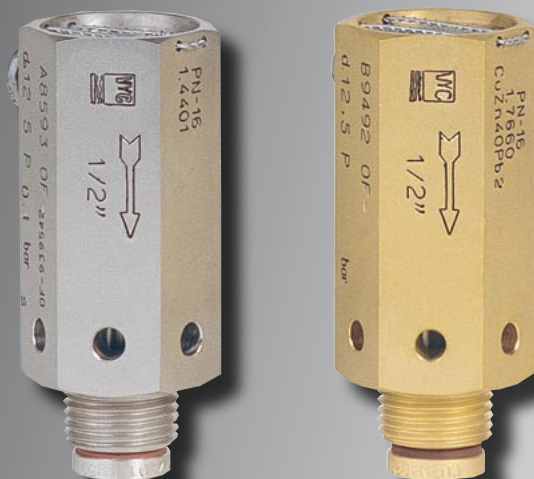
Calculus and measurement according to „DIN-A4-109268/69/70“

Overpressure in %





Model 795



Vacuum breaker safety valve:

The valve acts as an automatic regulator of pressure drops and prevents the creation of a vacuum inside pressurised installations or vessels.

Specifications:

- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Internal body designed to offer favourable flow profile.
- Soft seals giving greater tightness than that required by DIN-3230. Sheet 3, as long as the valve, in non operating conditions, is under equal or greater pressure than atmospheric pressure.
- Great discharge capacity.
- All the valves are supplied sealed at the set depressurising requested, simulating operational conditions, and are vigorously tested.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve.

IMPORTANT

1. Fluorelastomer (Vitón) seals or Silicone's rubber, achieving leakage levels less than:

$$0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{sec.}}$$

as long as the valve, in non operating conditions, is under equal or greater pressure than atmospheric pressure.

Depending on demand:

1. Buna-nitrils seals, Butyl, Natural rubber, E.P.D.M., Chlorosulphonate polyethylene (Hypalon), Neoprene, ...etc.
2. The intake deflector prevents the entry of foreign bodies in the valve which will affect later operation. (Specially designed for moving transport).
3. Possibility of manufacture in other types of material, for use in special working conditions (high temperatures, fluids,... etc.).

No.	Piece	Material	
		Brass	Stainless steel
1	Body	Brass (DIN-1.7660 CuZn40Pb2)	S. steel (DIN-1.4401) (AISI-316)
2	Spring press	Brass (DIN-1.7660 CuZn40Pb2)	S. steel (DIN-1.4305) (AISI-303)
3	Spring	S. steel (DIN-1.4300) (AISI-302)	S. steel (DIN-1.4300) (AISI-302)
4	Shaft	S. steel (DIN-1.4305) (AISI-303)	S. steel (DIN-1.4305) (AISI-303)
5	Plug	Brass (DIN-1.7660 CuZn40Pb2)	S. steel (DIN-1.4401) (AISI-316)
6,8,15	Washer	S. steel (DIN-1.4401) (AISI-316)	S. steel (DIN-1.4401) (AISI-316)
7	Seal	Fluorelastomer (Vitón) (2) Silicone's rubber (3)	Fluorelastomer (Vitón) (2) Silicone's rubber (3)
9	Nut	S. steel (DIN-1.4401) (AISI-316)	S. steel (DIN-1.4401) (AISI-316)
10	Sealing wire	Sealing wire	Sealing wire
11	Characteristic plate	Aluminium	Aluminium
12	Seal	Lead	Lead
13	Deflector	S. steel (DIN-1.4401) (AISI-316)	S. steel (DIN-1.4401) (AISI-316)
14	Screw	S. steel (DIN-1.4401) (AISI-316)	S. steel (DIN-1.4401) (AISI-316)
DN		3/8" to 1"	
PN		16	16
Operating conditions	Pressure (bar)	16	12
	Max. temp. (°C)	120	150
	Min. temp. (°C)	-50	-50

(1) For temperatures upper 150°C special seal. For temperatures upper 300°C special seal and spring.

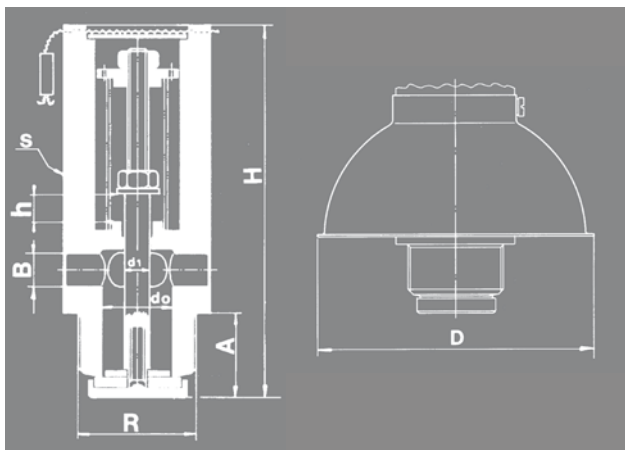
(2) Recommended temperature field -30°C to + 150°C. Maximum pressure of service 12 bar.

(3) Recommended temperature field -50°C to + 115°C. Maximum pressure of service 9 bar.



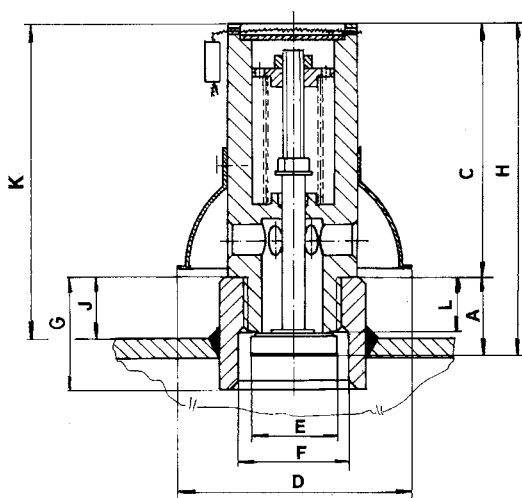
R	3/8"	1/2"	3/4"	1"	
Connections	Whitworth gas-tight cylindrical male thread ISO 228/1 1978 (DIN-259)				
d ₀	9,50	12,50	16,50	20,00	
$A_0 = \frac{\pi * (d_0^2 - d_i^2)}{4}$	51,25	89,53	180,64	275,68	
H	64	81	90	105	
A	13,00	16,50	21,00	24,00	
B	4,25	5,50	8,00	9,50	
D	40	65	65	65	
S	24	32	35 (36)	40 (41)	
Weight (kg)	Brass	0,15	0,36	0,46	0,78
	Stainless steel	0,19	0,34	0,51	0,80
Code	Brass 2002-795	5381	5021	5341	5101
	Stainless steel 2002-795	5382	5022	5342	5102

• Stainless steel (DIN-1.4401) (AISI-316).



Example of installation:

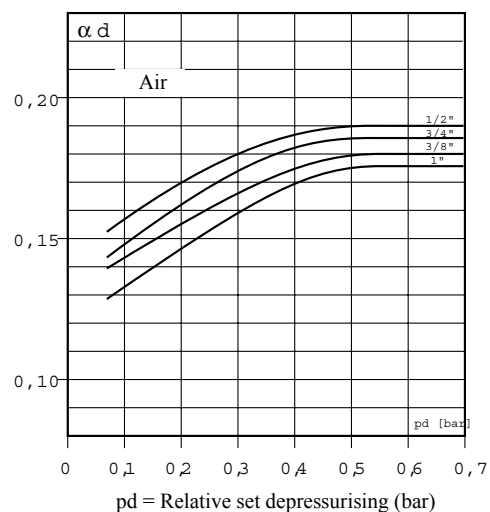
R	H	A	C	L	E	F	D	K	G	J
3/8"	64	13,00	51,00	9	13,90	20,00	40	63	24	12,00
1/2"	81	16,50	64,50	12	17,80	25,50	65	80	32	15,50
3/4"	90	21,00	69,00	15	22,00	34,00	65	95	40	20,00
1"	105	24,00	81,00	18	27,50	42,00	65	106	50	25,00



R	Set depressurising (bar)	Maximum	3/8"	1/2"	3/4"	1"
			0,40	0,40	0,40	0,40
Spring regulating range (bar)	0,05 to 0,10	Code	56187	56191	56195	56199
		Code	56188	56192	56196	56200
	0,09 to 0,20	Code	56189	56193	56197	56201
		Code	56190	56194	56198	56202
Intake coefficients	d ₀		9,50	12,50	16,50	20,00
	h		3,42	4,50	5,94	7,20
	h/d ₀		0,36	0,36	0,36	0,36

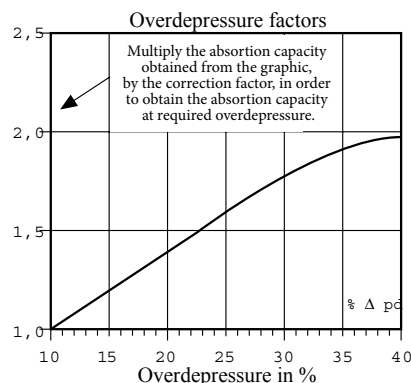
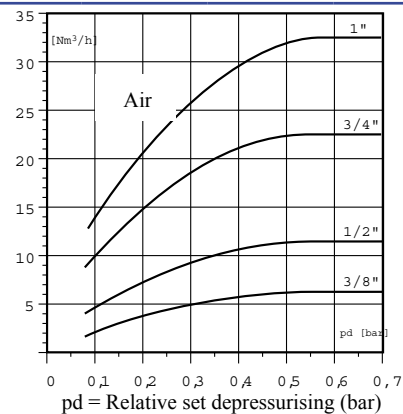
Intake coefficients

Intake coefficients αd for air



Intake capacity

pd (bar)
Air at 0 °C and 1,013 bar (Nm³/h)
Calculus according „AD-Merkblatt A2“





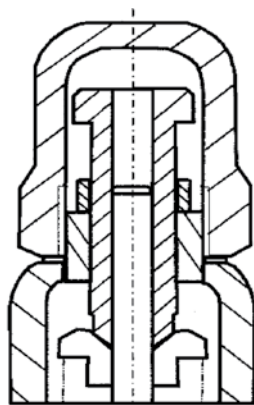
Model 800

Technical data

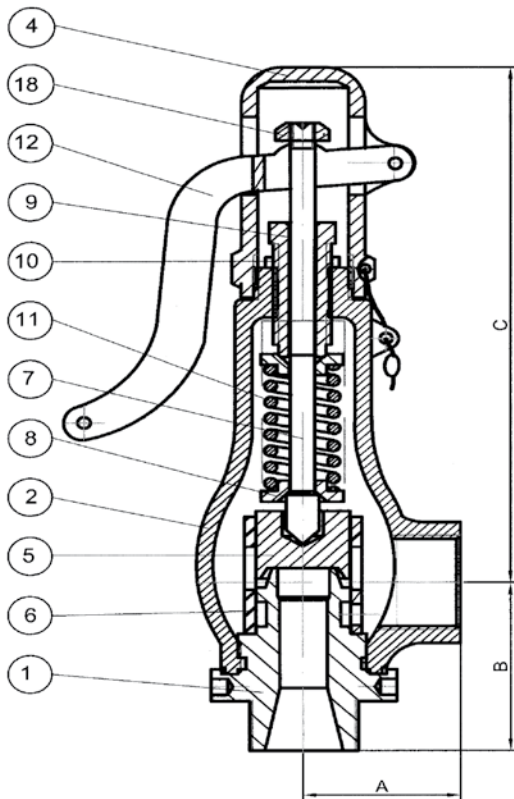
Connections	Threaded DIN 259 or ANSI B-2.1		
Material	Bronze		
Nominal pressure (bar)	25		
Temperature min. (°C)	-10		
Temperature max. (°C)	120	200	230
Pressure acc. EN 1092 (bar)	25	22	18

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 230
Liquid / Gas	Viton (FPM)	-10 to 150
Liquid / Gas	PTFE (teflon)	-10 to 230



Gastight cap



Lifting device

No.	Piece	Material
1	Nozzle	Bronze Rg-5
2	Body	Bronze Rg-5
4	Cap	Brass
5	Disc	AISI 316L
	O-ring	Viton/PTFE
6	Guide	Bronze Rg-5
7	Push road	Brass
8	Spring button	Carbon steel zn.
9	Adjusting screw	Brass
10	Tensor nut	Brass
11	Spring	C. S. DIN 1.7223
12	Lever	Brass
14	Elastic pin	AISI 304
15	Adjusting ring	AISI 304
16	Gasket	PTFE
17	Elastic pin	Carbon steel
18	Release nut	Carbon steel
20	Gasket	PTFE
21	Elastic pin	Carbon steel

Inlet	Outlet	Orif mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
1/2"	3/4"	11,5	104	38	50	143	118	1,2	1,1
1/2"	1"	13	133	45	57	154	134	1,6	1,5
3/4"	3/4"	11,5	104	38	50	143	118	1,2	1,1
3/4"	1"	14	154	45	57	154	134	1,6	1,5
3/4"	1 1/4"	14	154	45	66	148	128	1,6	1,5
1"	1"	16	201	45	60	154	134	1,6	1,5
1"	1 1/4"	16	201	45	66	148	128	1,7	1,6
1 1/4"	1 1/4"	18	254	45	66	148	128	1,8	1,7
1 1/2"	2"	28	616	62	89	234	198	3,7	3,5
2"	2"	32	804	62	93	234	198	3,8	3,6



Water capacity Valve Model 800 PN-25

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Size threaded BSP / NPT									
	1/2" x 3/4"	3/4" x 3/4"	1/2" x 1"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"	1 1/2" x 2"	2" x 2"
	Orifice (mm)									
	11,5	11,5	13	14	14	16	16	18	28	32
	Area (mm ²)									
	104	104	133	154	154	201	201	254	616	804
0,5	1.961	1.961	2.506	2.906	2.906	3.796	3.796	4.804	11.625	15.183
1	2.773	2.773	3.544	4.110	4.110	5.368	5.368	6.794	16.440	21.472
1,5	3.396	3.396	4.340	5.034	5.034	6.575	6.575	8.321	20.135	26.298
2	3.922	3.922	5.012	5.812	5.812	7.592	7.592	9.608	23.249	30.367
2,5	4.385	4.385	5.603	6.498	6.498	8.488	8.488	10.742	25.994	33.951
3	4.803	4.803	6.138	7.119	7.119	9.298	9.298	11.768	28.475	37.191
3,5	5.188	5.188	6.630	7.689	7.689	10.043	10.043	12.710	30.756	40.171
4	5.546	5.546	7.088	8.220	8.220	10.736	10.736	13.588	32.880	42.945
4,5	5.883	5.883	7.518	8.719	8.719	11.387	11.387	14.412	34.874	45.550
5	6.201	6.201	7.924	9.190	9.190	12.003	12.003	15.192	36.761	48.014
5,5	6.504	6.504	8.311	9.639	9.639	12.589	12.589	15.933	38.555	50.357
6	6.793	6.793	8.680	10.067	10.067	13.149	13.149	16.642	40.269	52.597
6,5	7.070	7.070	9.035	10.478	10.478	13.686	13.686	17.321	41.914	54.744
7	7.337	7.337	9.376	10.874	10.874	14.203	14.203	17.975	43.496	56.811
7,5	7.595	7.595	9.705	11.256	11.256	14.701	14.701	18.606	45.022	58.805
8	7.844	7.844	10.023	11.625	11.625	15.183	15.183	19.216	46.499	60.733
8,5	8.085	8.085	10.332	11.982	11.982	15.651	15.651	19.808	47.930	62.602
9	8.320	8.320	10.631	12.330	12.330	16.104	16.104	20.382	49.320	64.417
9,5	8.548	8.548	10.923	12.668	12.668	16.546	16.546	20.941	50.671	66.183
10	8.770	8.770	11.206	12.997	12.997	16.975	16.975	21.485	51.987	67.902
11	9.198	9.198	11.753	13.631	13.631	17.804	17.804	22.533	54.525	71.216
12	9.607	9.607	12.276	14.237	14.237	18.596	18.596	23.535	56.949	74.383
13	9.999	9.999	12.777	14.819	14.819	19.355	19.355	24.496	59.275	77.420
14	10.376	10.376	13.260	15.378	15.378	20.086	20.086	25.421	61.512	80.343
15	10.740	10.740	13.725	15.918	15.918	20.791	20.791	26.313	63.671	83.162
16	11.093	11.093	14.175	16.440	16.440	21.472	21.472	27.176	65.759	85.890
17	11.434	11.434	14.611	16.946	16.946	22.133	22.133	28.012	67.783	88.533
18	11.766	11.766	15.035	17.437	17.437	22.775	22.775	28.825	69.748	91.100
19	12.088	12.088	15.447	17.915	17.915	23.399	23.399	29.614	71.660	93.596
20	12.402	12.402	15.848	18.380	18.380	24.007	24.007	30.384	73.521	96.028
21	12.708	12.708	16.240	18.834	18.834	24.600	24.600	31.134	75.337	98.399
22	13.007	13.007	16.622	19.277	19.277	25.179	25.179	31.867	77.110	100.715
23	13.300	13.300	16.995	19.711	19.711	25.745	25.745	32.583	78.843	102.978
24	13.586	13.586	17.361	20.135	20.135	26.298	26.298	33.284	80.538	105.193
25	13.866	13.866	17.719	20.550	20.550	26.841	26.841	33.970	82.199	107.362

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Valve Model 800 PN-25

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Size threaded BSP / NPT									
	1/2" x 3/4"	3/4" x 3/4"	1/2" x 1"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"	1 1/2" x 2"	2" x 2"
	Orifice (mm)									
	11,5	11,5	13	14	14	16	16	18	28	32
	Area (mm ²)									
	104	104	133	154	154	201	201	254	616	804
0,5	69	69	88	102	102	133	133	169	408	533
1	93	93	119	138	138	180	180	228	552	721
1,5	117	117	150	174	174	227	227	287	695	908
2	142	142	181	210	210	274	274	347	839	1.096
2,5	166	166	212	246	246	321	321	406	982	1.283
3	190	190	243	282	282	368	368	465	1.126	1.471
3,5	214	214	274	317	317	415	415	525	1.270	1.658
4	238	238	305	353	353	461	461	584	1.413	1.846
4,5	263	263	336	389	389	508	508	643	1.557	2.033
5	287	287	367	425	425	555	555	703	1.700	2.221
5,5	311	311	397	461	461	602	602	762	1.844	2.408
6	335	335	428	497	497	649	649	821	1.988	2.596
6,5	360	360	459	533	533	696	696	881	2.131	2.784
7	384	384	490	569	569	743	743	940	2.275	2.971
7,5	408	408	521	605	605	790	790	999	2.418	3.129
8	432	432	552	640	640	837	837	1.059	2.562	3.346
8,5	456	456	583	676	676	883	883	1.118	2.706	3.534
9	481	481	614	712	712	930	930	1.177	2.849	3.721
9,5	505	505	645	748	748	977	977	1.237	2.993	3.909
10	529	529	676	784	784	1.024	1.024	1.296	3.136	4.096
11	578	578	738	856	856	1.118	1.118	1.415	3.424	4.472
12	626	626	800	928	928	1.212	1.212	1.534	3.711	4.847
13	674	674	862	999	999	1.305	1.305	1.652	3.998	5.222
14	723	723	924	1.071	1.071	1.399	1.399	1.771	4.285	5.597
15	771	771	986	1.143	1.143	1.493	1.493	1.890	4.572	5.972
16	820	820	1.048	1.215	1.215	1.587	1.587	2.008	4.859	6.347
17	868	868	1.109	1.287	1.287	1.681	1.681	2.127	5.147	6.722
18	917	917	1.171	1.358	1.358	1.774	1.774	2.246	5.434	7.097
19	965	965	1.233	1.430	1.430	1.868	1.868	2.364	5.721	7.472
20	1.014	1.014	1.295	1.502	1.502	1.962	1.962	2.483	6.008	7.847
21	1.062	1.062	1.357	1.574	1.574	2.056	2.056	2.602	6.295	8.223
22	1.110	1.110	1.419	1.646	1.646	2.149	2.149	2.720	6.583	8.598
23	1.159	1.159	1.481	1.717	1.717	2.243	2.243	2.839	6.870	8.973
24	1.207	1.207	1.543	1.789	1.789	2.337	2.337	2.958	7.157	9.348
25	1.256	1.256	1.605	1.861	1.861	2.431	2.431	3.076	7.444	9.723

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Steam capacity Valve Model 800 PN-25

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Size threaded BSP / NPT									
		1/2" x 3/4"	3/4" x 3/4"	1/2" x 1"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"	1 1/2" x 2"	2" x 2"
		Orifice (mm)									
		11,5	11,5	13	14	14	16	16	18	28	32
Area (mm ²)											
		104	104	133	154	154	201	201	254	616	804
0,5	111	46	46	59	68	68	89	89	113	273	356
1	120	62	62	80	92	92	120	120	152	369	482
1,5	127	78	78	100	116	116	152	152	192	465	607
2	134	95	95	121	140	140	183	183	232	561	733
2,5	138	111	111	142	164	164	214	214	271	657	858
3	144	127	127	162	188	188	246	246	311	753	983
3,5	147	143	143	183	212	212	277	277	351	849	1.109
4	153	159	159	204	236	236	309	309	391	945	1.234
4,5	155	176	176	224	260	260	340	340	430	1.041	1.360
5	159	192	192	245	284	284	371	371	470	1.137	1.485
5,5	161	208	208	266	308	308	403	403	510	1.233	1.610
6	165	224	224	286	332	332	434	434	549	1.329	1.736
6,5	167	240	240	307	356	356	465	465	589	1.425	1.861
7	170	257	257	328	380	380	497	497	629	1.521	1.987
7,5	172	273	273	349	404	404	528	528	668	1.617	2.112
8	175	289	289	369	428	428	559	559	708	1.713	2.237
8,5	177	305	305	390	452	452	591	591	748	1.809	2.363
9	180	321	321	411	476	476	622	622	787	1.905	2.488
9,5	181	338	338	431	500	500	653	653	827	2.001	2.614
10	184	354	354	452	524	524	685	685	867	2.097	2.739
11	187	386	386	493	572	572	747	747	946	2.289	2.990
12	192	419	419	535	620	620	810	810	1.025	2.481	3.241
13	194	451	451	576	668	668	873	873	1.105	2.673	3.491
14	198	483	483	618	716	716	936	936	1.184	2.865	3.742
15	201	516	516	659	764	764	998	998	1.263	3.057	3.993
16	204	548	548	700	812	812	1.061	1.061	1.343	3.249	4.244
17	207	580	580	742	860	860	1.124	1.124	1.422	3.441	4.495
18	209	613	613	783	908	908	1.186	1.186	1.501	3.633	4.745

Calculation acc.: ISO EN 4126-1 and EN 1092-1
lbs/h = kg/h x 2,2046



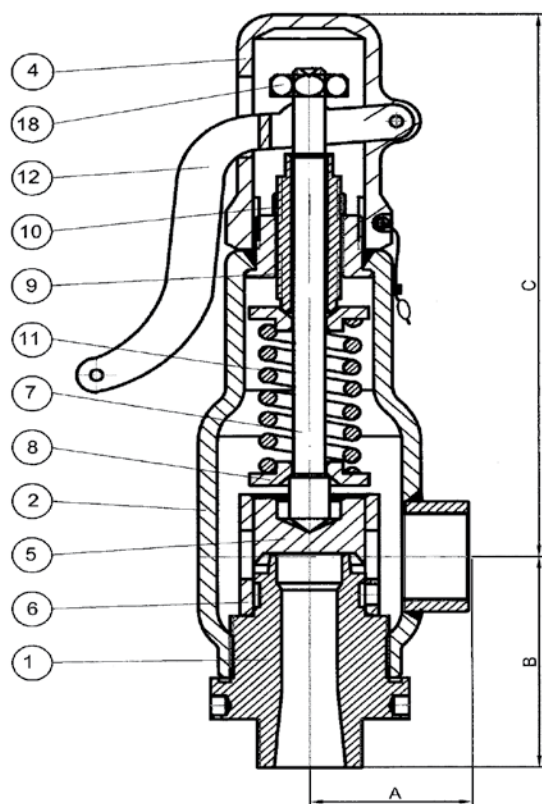
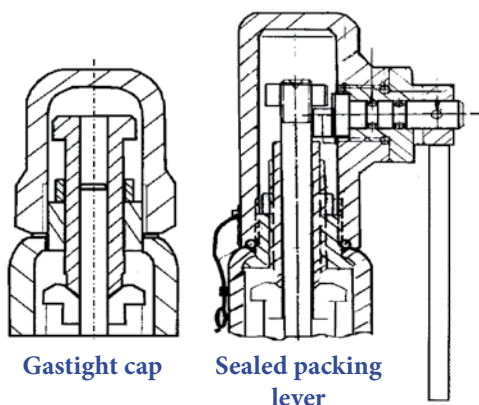
Model 1216 - 1216SS

Technical data:

Connections:	Threaded DIN 259 or ANSI B-2.1				
Material	Carbon or stainless steel				
Nominal pressure (bar)	16 - 40				
Temp. min. (°C)	-10				
Temp. max. (°C)	120	200	250	300	350
Pressure EN 1092 (bar) PN16	16	13	11	10	-
Pressure EN 1092 (bar) PN40	40	35	32	28	24

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 až 250
Liquid / Gas	Viton (FPM)	-10 až 150
Liquid / Gas	PTFE (teflon)	-10 až 230



Lifting device

No.	Piece	Model 1216 Carbon steel	Model 1216SS Stainless steel
1	Nozzle	AISI 316L	AISI 316L
2	Body	ASTM A106 Gr. b	AISI 316L
4	Open cap	Brass	Brass zn.
	Closed cap	Brass	AISI 316L
5	Disc	AISI 316L	AISI 316L
	O-ring	Viton/PTFE	Viton/PTFE
6	Guide	AISI 316L	AISI 316L
7	Push road	AISI 316L	AISI 316L
8	Spring button	Carbon steel zn.	AISI 303
9	Adjusting screw	Brass / AISI 303	AISI 303
10	Tensor nut	Brass / AISI 303	AISI 303
11	Spring	C. S. DIN 1.7223	AISI 302
12	Lever	Brass	Brass zn.
14	Elastic pin	AISI 316	AISI 316
15	Adjusting ring	AISI 316	AISI 316
16	Gasket	PTFE	PTFE
17	Elastic pin	Carbon steel	AISI 304
18	Release nut	Carbon steel	AISI 316
20	Gasket	PTFE	PTFE
21	Gasket	Carbon steel	AISI 316

Inlet	Outlet	Orif mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
1/2"	3/4"	13	133	37	60	150	136	1,9	1,8
1/2"	1"	13	133	40	62	152	138	2	1,9
3/4"	3/4"	14	154	37	61	150	136	1,9	1,8
3/4"	1"	14	154	40	63	152	138	2	1,9
3/4"	1 1/4"	14	154	42	68	147	133	2,1	2
1"	1"	16	201	40	65	152	138	2	1,9
1"	1 1/4"	16	201	42	68	147	133	2,1	2
1 1/4"	1 1/4"	18	254	42	69	147	133	2,1	2



Water capacity Valve Model 1216 PN16/40

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Size threaded BSP / NPT							
	1/2" x 3/4"	1/2" x 1"	3/4" x 3/4"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"
	Orifice (mm)							
	13	13	14	14	14	16	16	18
	Area (mm ²)							
	133	133	154	154	154	201	201	254
0,5	2.506	2.506	2.906	2.906	2.906	3.796	3.796	4.804
1	3.544	3.544	4.110	4.110	4.110	5.368	5.368	6.794
1,5	4.340	4.340	5.034	5.034	5.034	6.575	6.575	8.321
2	5.012	5.012	5.812	5.812	5.812	7.592	7.592	9.608
2,5	5.603	5.603	6.498	6.498	6.498	8.488	8.488	10.742
3	6.138	6.138	7.119	7.119	7.119	9.298	9.298	11.768
3,5	6.630	6.630	7.689	7.689	7.689	10.043	10.043	12.710
4	7.087	7.088	8.220	8.220	8.220	10.736	10.736	13.588
4,5	7.517	7.518	8.719	8.719	8.719	11.387	11.387	14.412
5	7.624	7.624	9.190	9.190	9.190	12.003	12.003	15.192
5,5	8.311	8.311	9.639	9.639	9.639	12.589	12.589	15.933
6	8.680	8.680	10.067	10.067	10.067	13.149	13.149	16.642
6,5	9.035	9.035	10.478	10.478	10.478	13.686	13.686	17.321
7	9.376	9.376	10.874	10.874	10.874	14.203	14.203	17.975
7,5	9.705	9.705	11.256	11.256	11.256	14.701	14.701	18.606
8	10.023	10.023	11.625	11.625	11.625	15.183	15.183	19.216
8,5	10.332	10.332	11.982	11.982	11.982	15.651	15.651	19.808
9	10.631	10.631	12.330	12.330	12.330	16.104	16.104	20.382
9,5	10.922	10.923	12.668	12.668	12.668	16.546	16.546	20.941
10	11.206	11.206	12.997	12.997	12.997	16.975	16.975	21.485
11	11.753	11.753	13.631	13.631	13.631	17.804	17.804	22.533
12	12.276	12.276	14.237	14.237	14.237	18.596	18.596	23.535
13	12.777	12.777	14.819	14.819	14.819	19.355	19.355	24.496
14	13.259	13.260	15.378	15.378	15.378	20.086	20.086	25.421
15	13.725	13.725	15.918	15.918	15.918	20.791	20.791	26.313
16	14.175	14.175	16.440	16.440	16.440	21.472	21.472	27.176
17	14.611	14.611	16.946	16.946	16.946	22.133	22.133	28.012
18	15.035	15.035	17.437	17.437	17.437	22.775	22.775	28.825
19	15.447	15.447	17.915	17.915	17.915	23.399	23.399	29.614
20	15.848	15.848	18.380	18.380	18.380	24.007	24.007	30.384
21	16.239	16.240	18.834	18.834	18.834	24.600	24.600	31.134
22	16.621	16.622	19.277	19.277	19.277	25.179	25.179	31.867
23	16.995	16.995	19.711	19.711	19.711	25.745	25.745	32.583
24	17.360	17.361	20.135	20.135	20.135	26.298	26.298	33.284
25	17.718	17.719	20.550	20.550	20.550	26.841	26.841	33.970
26	18.069	18.070	20.957	20.957	20.957	27.372	27.372	34.643
27	18.414	18.414	21.356	21.356	21.356	27.894	27.894	35.303
28	18.751	18.752	21.748	21.748	21.748	28.405	28.405	35.951
29	19.083	19.084	22.133	22.133	22.133	28.908	28.908	36.587
30	19.410	19.410	22.511	22.511	22.511	29.402	29.402	37.212
31	19.730	19.731	22.883	22.883	22.883	29.888	29.888	37.827
32	20.046	20.047	23.249	23.249	23.249	30.367	30.367	38.433
33	20.357	20.358	23.610	23.610	23.610	30.837	30.837	39.029
34	20.663	20.664	23.965	23.965	23.965	31.301	31.301	39.616
35	20.965	20.965	24.315	24.315	24.315	31.758	31.758	40.194
36	21.262	21.263	24.660	24.660	24.660	32.209	32.209	40.764
37	21.555	21.556	25.000	25.000	25.000	32.653	32.653	41.326
38	21.845	21.845	25.336	25.336	25.336	33.091	33.091	41.881
39	22.130	22.131	25.667	25.667	25.667	33.524	33.524	42.429
40	22.412	22.413	25.994	25.994	25.994	33.951	33.951	42.969

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Valve Model 1216 PN 16/40

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Size threaded BSP / NPT							
	1/2" x 3/4"	1/2" x 1"	3/4" x 3/4"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"
	Orifice (mm)							
	13	13	14	14	14	16	16	18
	Area (mm ²)							
	133	133	154	154	154	201	201	254
0,5	88	88	102	102	102	133	133	169
1	119	119	138	138	138	180	180	228
1,5	150	150	174	174	174	227	227	287
2	181	181	210	210	210	274	274	347
2,5	212	212	246	246	246	321	321	406
3	243	243	282	282	282	368	368	465
3,5	274	274	317	317	317	415	415	525
4	305	305	353	353	353	461	461	584
4,5	336	336	389	389	389	508	508	643
5	367	367	425	425	425	555	555	703
5,5	397	397	461	461	461	602	602	762
6	428	428	497	497	497	649	649	821
6,5	459	459	533	533	533	696	696	881
7	490	490	569	569	569	743	743	940
7,5	521	521	605	605	605	790	790	999
8	552	552	640	640	640	837	837	1.059
8,5	583	583	676	676	676	883	883	1.118
9	614	614	712	712	712	930	930	1.177
9,5	645	645	748	748	748	977	977	1.237
10	676	676	784	784	784	1.024	1.024	1.296
11	738	738	856	856	856	1.118	1.118	1.415
12	800	800	928	928	928	1.212	1.212	1.534
13	862	862	999	999	999	1.305	1.305	1.652
14	924	924	1.071	1.071	1.071	1.399	1.399	1.771
15	986	986	1.143	1.143	1.143	1.493	1.493	1.890
16	1.047	1.048	1.215	1.215	1.215	1.587	1.587	2.008
17	1.109	1.109	1.287	1.287	1.287	1.681	1.681	2.127
18	1.171	1.171	1.358	1.358	1.358	1.774	1.774	2.246
19	1.233	1.233	1.430	1.430	1.430	1.868	1.868	2.364
20	1.295	1.295	1.502	1.502	1.502	1.962	1.962	2.483
21	1.357	1.357	1.574	1.574	1.574	2.056	2.056	2.602
22	1.419	1.419	1.646	1.646	1.646	2.149	2.149	2.720
23	1.481	1.481	1.717	1.717	1.717	2.243	2.243	2.839
24	1.543	1.543	1.789	1.789	1.789	2.337	2.337	2.958
25	1.605	1.605	1.861	1.861	1.861	2.431	2.431	3.076
26	1.667	1.667	1.933	1.933	1.933	2.525	2.525	3.195
27	1.728	1.728	2.005	2.005	2.005	2.618	2.618	3.314
28	1.790	1.790	2.076	2.076	2.076	2.712	2.712	3.432
29	1.852	1.852	2.148	2.148	2.148	2.806	2.806	3.551
30	1.914	1.914	2.220	2.220	2.220	2.900	2.900	3.670
31	1.976	1.976	2.292	2.292	2.292	2.993	2.993	3.789
32	2.038	2.038	2.364	2.364	2.364	3.087	3.087	3.907
33	2.100	2.100	2.435	2.435	2.435	3.181	3.181	4.026
34	2.162	2.162	2.507	2.507	2.507	3.275	3.275	4.145
35	2.224	2.224	2.579	2.579	2.579	3.368	3.368	4.263
36	2.286	2.286	2.651	2.651	2.651	3.462	3.462	4.382
37	2.347	2.347	2.723	2.723	2.723	3.556	3.556	4.501
38	2.409	2.409	2.794	2.794	2.794	3.650	3.650	4.619
39	2.471	2.471	2.866	2.866	2.866	3.744	3.744	4.738
40	2.533	2.533	2.938	2.938	2.938	3.837	3.837	4.857

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Steam capacity Valve Model 1216 PN 16/40

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Size threaded BSP / NPT							
		1/2" x 3/4"	1/2" x 1"	3/4" x 3/4"	3/4" x 1"	3/4" x 1 1/4"	1" x 1"	1" x 1 1/4"	1 1/4" x 1 1/4"
		Orifice (mm)							
		13	13	14	14	14	16	16	18
		Area (mm ²)							
133	133	154	154	154	201	201	254		
0,5	111	59	59	68	68	68	89	89	113
1	120	80	80	92	92	92	102	102	152
1,5	127	100	100	116	116	116	152	152	192
2	134	121	121	140	140	140	183	183	232
2,5	138	142	142	164	164	164	214	214	271
3	144	162	162	188	188	188	246	246	311
3,5	147	183	183	212	212	212	277	277	351
4	153	204	204	236	236	236	309	309	391
4,5	155	224	224	260	260	260	340	340	430
5	159	245	245	284	284	284	371	371	470
5,5	161	266	266	308	308	308	403	403	510
6	165	286	286	332	332	332	434	434	549
6,5	167	307	307	356	356	356	465	465	589
7	170	328	328	380	380	380	497	497	629
7,5	172	349	349	404	404	404	528	528	668
8	175	369	369	428	428	428	559	559	708
8,5	177	390	390	452	452	452	591	591	748
9	180	411	411	476	476	476	622	622	787
9,5	181	431	431	500	500	500	653	653	827
10	184	452	452	524	524	524	685	685	867
11	187	493	493	572	572	572	747	747	946
12	192	535	535	620	620	620	810	810	1.025
13	194	576	576	668	668	668	873	873	1.105
14	198	618	618	716	716	716	936	936	1.184
15	201	659	659	764	764	764	998	998	1.263
16	204	700	700	812	812	812	1.061	1.061	1.343
17	207	742	742	860	860	860	1.124	1.124	1.422
18	209	783	783	908	908	908	1.186	1.186	1.501
19	212	825	825	956	956	956	1.249	1.249	1.581
20	215	866	866	1.004	1.004	1.004	1.312	1.312	1.660
21	217	907	907	1.052	1.052	1.052	1.374	1.374	1.740
22	220	949	949	1.100	1.100	1.100	1.437	1.437	1.819
23	222	990	990	1.148	1.148	1.148	1.500	1.500	1.898
24	224	1.032	1.032	1.196	1.196	1.196	1.563	1.563	1.978
25	226	1.073	1.073	1.244	1.244	1.244	1.625	1.625	2.057
26	228	1.114	1.114	1.292	1.292	1.292	1.688	1.688	2.136
27	230	1.156	1.156	1.340	1.340	1.340	1.751	1.751	2.216
28	232	1.197	1.197	1.388	1.388	1.388	1.813	1.813	2.295
29	234	1.238	1.238	1.436	1.436	1.436	1.876	1.876	2.374
30	236	1.280	1.280	1.484	1.484	1.484	1.939	1.939	2.454
31	238	1.321	1.321	1.532	1.532	1.532	2.001	2.001	2.533
32	240	1.363	1.363	1.580	1.580	1.580	2.064	2.064	2.612

Calculation acc.: ISO EN 4126-1 and EN 1092-1
lbs/h = kg/h x 2,2046



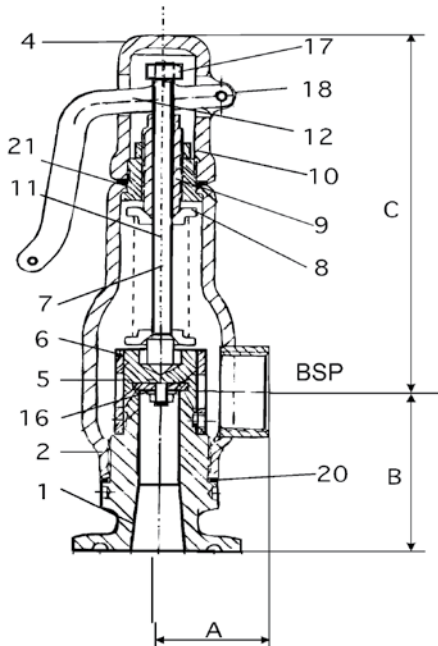
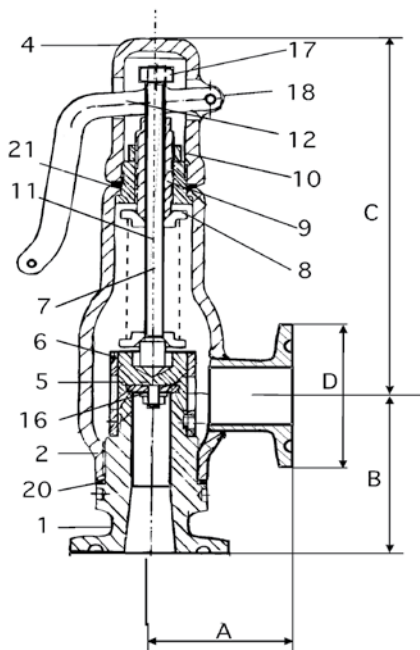
Model 1216C SS

Technical data

Material:	Stainless steel AISI 316L		
Connections:	Inlet:	CLAMP ISO 2852	
	Outlet:	CLAMP nebo DIN 259	
Nominal pressure (bar)	10		
Temperature min. (°C)	-10		
Temperature max. (°C)	120	200	250
Pressure DIN 2401(bar) PN16	10	8	7

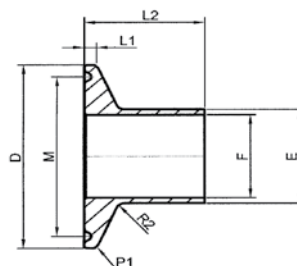
Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 250
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



No.	Piece	Material
1	Nozzle	AISI 316L
2	Body	AISI 316L
4	Open cap	Brass zn.
	Closed cap	AISI 316L
5	Disc	AISI 316L
	O-ring	Viton / PTFE
6	Guide	AISI 316L
7	Push road	AISI 316L
8	Spring button	AISI 303
9	Adjusting screw	AISI 303
10	Tensor nut	AISI 303
11	Spring	AISI 302
12	Lever	Brass zn.
14	Elastic pin	AISI 316L
15	Adjusting ring	AISI 316L
16	Gasket	PTFE
17	Elastic pin	AISI 304
18	Release nut	AISI 316L
20	Gasket	PTFE
21	Elastic pin	AISI 316L

Inlet CLAMP	Outlet CLAMP BSP	Orif mm	A	B	C		D	Weight (kg)	
					With lever	Without lever		With lever	Without lever
15	25	9,5	60	68	150	136	25,4	1,7	1,6
15	1"	9,5	37	68	150	136	25,4	1,7	1,6
20	25	16	60	68	150	136	25,4	1,7	1,6
20	1"	16	37	68	150	136	25,4	1,7	1,6
25	25	18	60	70	150	136	50,4	1,9	1,8
25	1"	18	37	70	150	136	50,4	1,9	1,8



CLAMP ISO 2852

	D	M	E	L1	L2
15	25	19	12,7	2,85	12,7
20	25	19	19	2,85	12,7
25	50,5	43,5	25,6	2,85	21,5



Water capacity Valve Model 1216C & 1416C PN10

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP	
	Model 1216C			Model 1416C		Model 1216C			Model 1416C	
	15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"
	Orifice (mm)									
	9,5	16	18	22,5	32	9,5	16	18	22,5	32
	Area (mm ²)									
71	201	254	398	804	71	201	254	398	804	
0,5	1.338	3.796	4.804	7.506	15.183	1.338	3.796	4.804	7.506	15.183
1	1.892	5.368	6.794	10.616	21.472	1.892	5.368	6.794	10.615	21.472
1,5	2.318	6.574	8.321	13.001	26.298	2.318	6.574	8.321	13.001	26.298
2	2.676	7.591	9.608	15.013	30.367	2.676	7.591	9.608	15.012	30.366
2,5	2.992	8.487	10.742	16.785	33.951	2.992	8.487	10.742	16.784	33.950
3	3.278	9.298	11.767	18.387	37.191	3.278	9.298	11.767	18.386	37.190
3,5	3.540	10.043	12.710	19.860	40.171	3.540	10.043	12.710	19.860	40.170
4	3.785	10.736	13.588	21.231	42.945	3.785	10.736	13.588	21.231	42.944
4,5	4.014	11.387	14.412	22.519	45.550	4.015	11.387	14.412	22.519	45.549
5	4.232	12.003	15.191	23.737	48.014	4.232	12.003	15.191	23.737	48.012
5,5	4.438	12.589	15.933	24.896	50.357	4.438	12.589	15.933	24.895	50.356
6	4.635	13.149	16.641	26.003	52.597	4.636	13.149	16.641	26.002	52.595
6,5	4.825	13.686	17.321	27.065	54.744	4.825	13.686	17.321	27.064	54.743
7	5.007	14.202	17.975	28.086	56.811	5.007	14.202	17.975	28.086	56.809
8	5.353	15.183	19.216	30.026	60.733	5.353	15.183	19.216	30.025	60.732
8,5	5.517	15.650	19.807	30.950	62.602	5.517	15.650	19.807	30.949	62.601
9	5.677	16.104	20.381	31.847	64.417	5.677	16.104	20.381	31.846	64.416
10	5.984	16.975	21.484	33.570	67.902	5.985	16.975	21.484	33.569	67.900

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Ventil Model 1216C & 1416C PN10

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP	
	Model 1216C			Model 1416C		Model 1216C			Model 1416C	
	15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"
	Orifice (mm)									
	9,5	16	18	22,5	32	9,5	16	18	22,5	32
	Area (mm ²)									
	71	201	254	398	804	71	201	254	398	804
0,5	47	133	169	263	533	47	133	169	263	533
1	64	180	228	356	721	64	180	228	356	721
1,5	80	227	287	449	908	80	227	287	449	908
2	97	274	347	542	1.096	97	274	347	542	1.096
2,5	113	321	406	634	1.283	113	321	406	634	1.283
3	130	368	465	727	1.471	130	368	465	727	1.471
3,5	146	415	525	820	1.658	146	415	525	820	1.658
4	163	461	584	913	1.846	163	461	584	913	1.846
4,5	179	508	643	1.005	2.033	179	508	643	1.005	2.033
5	196	555	703	1.098	2.221	196	555	703	1.098	2.221
5,5	212	602	762	1.191	2.408	212	602	762	1.191	2.408
6	229	649	821	1.283	2.596	229	649	821	1.283	2.596
6,5	245	696	881	1.376	2.784	245	696	881	1.376	2.784
7	262	743	940	1.469	2.971	262	743	940	1.469	2.971
8	295	837	1.059	1.654	3.346	295	837	1.059	1.654	3.346
8,5	311	883	1.118	1.747	3.534	311	883	1.118	1.747	3.534
9	328	930	1.177	1.840	3.721	328	930	1.177	1.840	3.721
10	361	1.024	1.296	2.025	4.096	361	1.024	1.296	2.025	4.096

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046



Steam capacity Valve Model 1216 PN 16/40

Steam capacity chart (kg/h)
10% přetlak

Set gauge pressure (barg)	Saturated steam capacity (°C)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP	
		Model 1216C			Model 1416C		Model 1216C			Model 1416C	
		15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"
		Orifice (mm)									
		9,5	16	18	22,5	32	9,5	16	18	22,5	32
		Area (mm ²)									
71	201	254	398	804	71	201	254	398	804		
0,5	111	31	89	113	176	356	31	89	113	176	356
1	120	42	120	152	238	482	42	120	152	238	482
1,5	127	54	152	192	300	607	54	152	192	300	607
2	134	65	183	232	362	733	65	183	232	362	733
2,5	138	76	214	271	424	858	76	214	271	424	858
3	144	87	246	311	486	983	87	246	311	486	983
3,5	147	98	27	351	548	1.109	98	277	351	548	1.109
4	153	109	309	390	610	1.234	109	309	390	610	1.234
4,5	155	120	340	430	672	1.360	120	340	430	672	1.360
5	159	131	371	470	734	1.485	131	371	470	734	1.485
5,5	161	142	403	510	796	1.610	142	403	510	796	1.610
6	165	153	434	549	858	1.736	153	434	549	858	1.736
6,5	167	164	465	589	920	1.861	164	465	589	920	1.861
7	170	175	497	629	982	1.987	175	497	629	982	1.987
7,5	172	186	528	668	1.044	2.112	186	528	668	1.044	2.112
8	175	197	559	708	1.106	2.237	197	559	708	1.106	2.237

Calculation acc.: ISO EN 4126-1 and EN 1092-1
lbs/h = kg/h x 2,2046



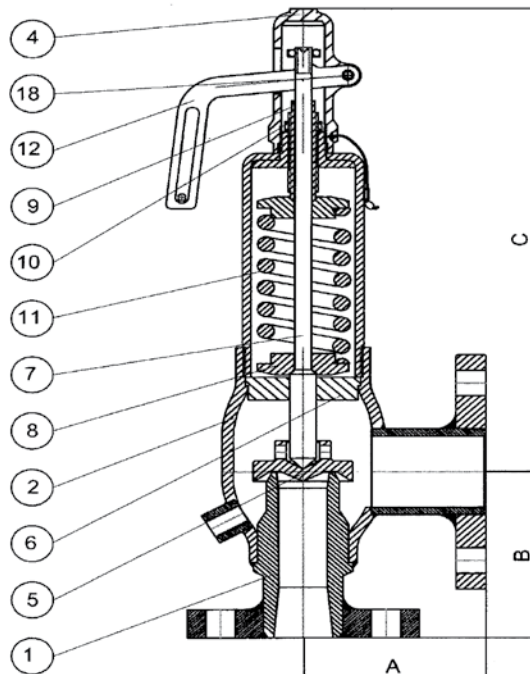
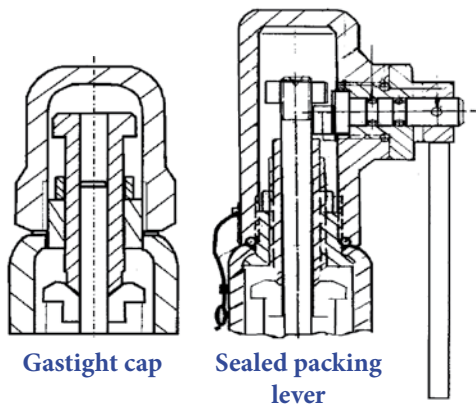
Model 1400D - 1400D SS

Technical data:

Flanged:	EN 1092-1				
Flanged facing:	EN 1092 typ A				
Material:	Carbon and stainless steel				
Nominal pressure (bar)	16 - 25 - 40				
Temperature min. (°C)	-10				
Temperature max. (°C)	120	200	250	300	350
Pressure EN 1092 (bar) PN16	16	13	11	10	-
Pressure EN 1092 (bar) PN25	25	22	20	17	16
Pressure EN 1092 (bar) PN40	40	35	32	28	24

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 230
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



Lifting device

No.	Piece	Model 1400D PN-16/25/40	Model 1400D SS Stainless steel
1	Nozzle	C. Steel +AISI-308L	AISI 316L
2	Body	ASTM A106 Gr. b	AISI 316L
3	Open bonnet	GGG40	AISI 316L
	Closed bonnet	ASTM A106Gr. b	
4	Open cap	Brass	Brass zn.
	Closed cap	Brass / Carbon steel	AISI 316L
5	Disc	AISI 420	AISI 303
	O-rin	AISI 316L+Viton/PTFE	Viton / PTFE
6	Guide	Carbon steel zn.	AISI 316L
7	Push road	AISI 420	AISI 316L
8	Spring button	Carbon steel zn.	AISI 303
9	Adjusting screw	Brass	AISI 303
10	Tensor nut	Brass	AISI 303
11	Spring	DIN 1.7221 51 CrV 4	AISI 302
12	Lever	Brass	Brass zn.
14	Elastic pin	Carbon steel	AISI 304
17	Release nut	Carbon steel	AISI 316
18	Elastic pin	Carbon steel	AISI 304
20	Gasket	PTFE	PTFE
21	Gasket	PTFE	PTFE
25	Flanged	AC F 111	AISI 316L
26	Flanged	AC F 111	AISI 316L

Inlet	Outlet	Orif mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
15	25	16	201	85	95	253	214	7	6,8
20	32	18	254	85	95	253	214	7,5	7,3
25	40	23,8	445	100	105	275	232	8	7,8
32	50	29,5	683	110	115	308	266	11,5	11,3
40	65	36	1018	115	140	310	268	12,5	12,3
50	80	46	1662	120	150	343	300	14	13,8
65	100	59,5	2781	140	170	384	331	27	25



Water capacity Valve Model 1400 PN-16/25/40

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Flanges EN 1092-1											
	15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
	Orifice (mm)											
	16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
	Area (mm ²)											
	201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385
0,5	4.099	5.188	9.071	13.936	20.754	33.885	56.692	83.015	129.711	176.551	250.213	374.864
1	5.798	7.338	12.828	19.708	29.350	47.920	80.15	117.401	183.439	249.680	353.855	530.137
1,5	7.101	8.987	15.711	24.138	35.946	58.690	98.194	143.786	224.665	305.795	433.382	649.283
2	8.199	10.377	18.142	27.872	41.507	67.770	113.385	166.030	259.421	353.101	500.427	749.727
2,5	9.167	11.602	20.283	31.162	46.407	75.769	126.768	185.627	290.042	394.779	559.494	838.221
3	10.042	12.709	22.219	34.136	50.836	83.001	138.867	203.344	317.725	432.459	612.895	918.225
3,5	10.846	13.727	23.999	36.871	54.909	89.651	149.994	219.636	343.182	467.109	662.002	991.796
4	11.595	14.675	25.656	39.417	58.700	95.841	160.350	234.801	366.877	499.360	707.710	1.060.275
4,5	12.298	15.565	27.212	41.808	62.261	101.655	170.077	249.044	389.132	529.652	750.640	1.124.591
5	12.964	16.407	28.684	44.069	65.629	107.153	179.277	262.516	410.181	558.302	791.244	1.185.423
5,5	13.596	17.208	30.084	46.220	68.832	112.383	188.027	275.329	430.201	585.552	829.864	1.243.282
6	14.201	17.973	31.422	48.275	71.893	117.381	196.388	287.572	449.331	611.589	866.765	1.298.566
6,5	14.781	18.707	32.705	50.247	74.829	122.174	204.407	299.314	467.678	636.562	902.157	
7	15.339	19.413	33.940	52.143	77.653	126.786	212.123	310.613	485.333	660.592	936.213	
7,5	15.877	20.095	35.131	53.973	80.379	131.236	219.569	321.515	502.367	683.777	969.072	
8	16.398	20.754	36.293	55.744	83.015	135.540	226.769	332.059	518.842	706.202	1.000.854	
8,5	16.903	21.392	37.400	57.459	85.570	139.711	233.749	342.279	534.811	727.937	1.031.656	
9	17.393	22.013	38.484	59.125	88.050	143.761	240.525	352.202	550.316	749.041	1.061.565	
9,5	17.869	22.616	39.539	60.745	90.463	147.701	247.116	361.853	565.395	769.566	1.090.655	
10	18.334	23.203	40.566	62.323	92.813	151.538	253.536	371.253	580.083	789.558	1.118.988	
11	19.228	24.336	42.546	65.365	97.343	158.934	265.911	389.374	608.397	828.096		
12	20.083	25.418	44.438	68.272	101.672	166.001	277.735	406.688	635.450	864.918		
13	20.903	26.456	46.252	71.059	105.824	172.780	289.075	423.294	661.397	900.235		
14	21.692	27.455	47.998	73.742	109.818	179.302	299.988	439.273	686.364	934.218		
15	22.454	28.418	49.683	76.330	113.673	185.595	310.517	454.691	710.454	967.007		
16	23.190	29.350	51.312	78.833	117.401	191.682	320.700	469.603	733.754	998.721		
17	23.904	30.253	52.891	81.259	121.014	197.581	330.570	484.055	756.336			
18	24.597	31.161	54.425	83.615	124.522	203.309	340.154	498.089	778.264			
19	25.271	31.984	55.916	85.907	127.934	208.881	349.475	511.738	799.590			
20	25.927	32.814	57.369	88.138	131.258	214.307	358.554	525.032	820.362			
21	26.568	33.625	58.785	90.315	134.499	219.599	367.408	537.997	840.621			
22	27.193	34.416	60.169	92.440	137.664	224.767	376.054	550.658	860.403			
23	27.804	35.190	61.521	94.518	140.758	229.819	384.506	563.034	879.740			
24	28.402	35.946	62.844	96.551	143.786	234.761	392.776	575.143	898.661			
25	28.988	36.688	64.140	98.542	146.751	239.602	400.875	587.003				
26	29.562	37.414	65.410	100.493	149.657	244.347	408.814	598.628				
27	30.125	38.127	66.656	102.407	152.508	249.002	416.602	610.032				
28	30.678	38.827	67.879	104.287	155.306	253.571	424.247	621.226				
29	31.221	39.514	69.081	106.133	158.055	258.060	431.756	632.222				
30	31.755	40.189	70.262	107.947	160.757	262.471	439.137	643.030				
31	32.279	40.854	71.423	109.731	163.415	266.810	446.396	653.659				
32	32.796	41.507	72.566	111.487	166.030	271.079	453.539	664.118				
33	33.304	42.151	73.691	113.216	168.604	275.282	460.571					
34	33.805	42.785	74.800	114.918	171.139	279.422	467.497					
35	34.299	43.409	75.892	116.596	173.638	283.501	474.322					
36	34.785	44.025	76.968	118.250	176.101	287.523	481.051					
38	35.739	45.232	79.077	121.490	180.927	295.402	494.232					
40	36.667	46.407	81.131	124.646	185.627	303.076	507.072					

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Air capacity Valve Model 1400 PN-16/25/40

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Flanges EN 1092-1											
	15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
	Orifice (mm)											
	16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
	Area (mm ²)											
	201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385
0,5	171	216	377	580	863	1.410	2.359	3.454	5.396	7.345	10.410	15.596
1	231	292	510	784	1.167	1.906	3.189	4.669	7.295	9.930	14.073	21.084
1,5	291	368	643	988	1.471	2.402	4.019	5.884	9.194	12.515	17.736	26.572
2	351	444	776	1.192	1.775	2.898	4.849	7.100	11.093	15.099	21.399	32.060
2,5	411	520	909	1.396	2.079	3.394	5.678	8.315	12.992	17.684	25.062	37.548
3	471	596	1.041	1.600	2.383	3.890	6.508	9.530	14.891	20.269	28.725	430.36
3,5	531	672	1.174	1.804	2.686	4.386	7.338	10.746	16.790	22.853	32.388	48.524
4	591	748	1.307	2.008	2.990	4.882	8.168	11.961	18.689	25.438	36.052	54.011
4,5	651	824	1.440	2.212	3.294	5.378	8.998	13.176	20.588	28.023	39.715	59.499
5	711	899	1.573	2.416	3.598	5.874	9.828	14.392	22.487	30.607	43.378	64.987
5,5	771	975	1.705	2.620	3.902	6.370	10.658	15.607	24.386	33.192	47.041	70.475
6	831	1.051	1.838	2.824	4.206	6.867	11.488	16.822	26.285	35.777	50.704	75.963
6,5	891	1.127	1.971	3.028	4.509	7.363	12.318	18.038	28.184	38.361	54.367	
7	951	1.203	2.104	3.232	4.813	7.859	13.148	19.253	30.083	40.946	58.030	
7,5	1.011	1.279	2.237	3.436	5.117	8.355	13.978	20.468	31.982	43.531	61.693	
8	1.071	1.355	2.369	3.640	5.421	8.851	14.808	21.684	33.881	46.115	65.356	
8,5	1.131	1.431	2.502	3.844	5.725	9.347	15.638	22.899	35.780	48.700	69.019	
9	1.191	1.507	2.635	4.048	6.029	9.843	16.468	24.114	37.679	51.285	72.682	
9,5	1.251	1.583	2.768	4.252	6.332	10.339	17.298	25.330	39.548	53.869	76.346	
10	1.311	1.659	2.900	4.456	6.636	10.835	18.128	26.545	41.476	56.454	80.009	
11	1.431	1.811	3.166	4.864	7.244	11.827	19.788	28.976	45.274	61.623		
12	1.551	1.963	3.432	5.272	7.852	12.819	21.448	31.406	49.072	66.793		
13	1.671	2.115	3.697	5.680	8.459	13.812	23.108	33.837	52.870	71.962		
14	1.791	2.267	3.963	6.088	9.067	14.804	24.768	36.268	56.668	77.132		
15	1.911	2.419	4.228	6.496	9.675	15.796	26.428	38.698	60.466	82.301		
16	2.031	2.571	4.494	6.904	10.282	16.788	28.088	41.129	64.264	87.470		
17	2.151	2.722	4.760	7.312	10.890	17.780	29.748	43.560	68.062			
18	2.271	2.874	5.025	7.720	11.498	18.772	31.408	45.990	71.860			
19	2.391	3.026	5.291	8.129	12.105	19.764	33.067	48.421	75.658			
20	2.511	3.178	5.556	8.537	12.713	20.757	34.727	50.851	79.455			
21	2.631	3.330	5.822	8.945	13.321	21.749	36.387	53.282	83.253			
22	2.751	3.482	6.088	9.353	13.928	22.741	38.047	55.713	87.051			
23	2.871	3.634	6.353	9.761	14.536	23.733	39.707	58.143	90.849			
24	2.991	3.786	6.619	10.169	15.144	24.725	41.367	60.574	94.647			
25	3.111	3.938	6.884	10.577	15.751	25.717	43.027	63.005				
26	3.231	4.090	7.150	10.985	16.359	26.709	44.687	65.435				
27	3.351	4.242	7.416	11.393	16.967	27.701	46.347	67.866				
28	3.471	4.394	7.681	11.801	17.574	28.694	48.007	70.297				
29	3.591	4.545	7.947	12.209	18.182	29.686	49.667	72.727				
30	3.712	4.697	8.212	12.617	18.790	30.678	51.327	75.158				
31	3.832	4.849	8.478	13.025	19.397	31.670	52.987	77.589				
32	3.952	5.001	8.743	13.433	20.008	32.662	54.647					
33	4.072	5.153	9.009	13.841	20.612	33.654	56.307					
34	4.192	5.305	9.275	14.249	21.220	34.646	57.967					
35	4.312	5.457	9.540	14.657	21.828	35.639	59.626					
36	4.432	5.609	9.806	15.065	22.435	36.631	61.286					
38	4.672	5.913	10.337	15.881	23.651	38.615	64.606					
40	4.912	6.217	10.868	16.697	24.866	40.599	67.926					

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Steam capacity Valve Model 1400 PN-16/25/40

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Flanges EN 1092-1											
		15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
		Orifice (mm)											
		16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
Area (mm ²)													
		201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385
0,5	111	106	134	234	359	535	873	1.460	2.138	2.138	3.341	6.445	9.655
1	120	143	181	316	485	723	1.180	1.974	2.891	2.891	4.517	8.713	13.053
1,5	127	180	228	398	612	911	1.487	2.488	3.643	3.643	5.692	10.980	16.451
2	134	217	275	480	738	1.099	1.794	3.002	4.395	4.395	6.868	13.248	19.848
2,5	138	254	32	562	864	1.287	2.101	3.516	5.148	5.148	8.044	15.516	23.246
3	144	291	369	645	990	1.475	2.408	4.029	5.900	5.900	9.219	17.784	26.643
3,5	147	329	416	727	1.117	1.663	2.715	4.543	6.653	6.653	10.395	20.052	30.041
4	153	366	463	809	1.243	1.851	3.023	5.057	7.405	7.405	11.570	22.320	33.439
4,5	155	403	510	891	1.369	2.039	3.330	5.571	8.158	8.158	12.746	24.587	36.836
5	159	440	557	974	1.496	2.227	3.637	6.085	8.910	8.910	13.922	26.855	40.234
5,5	161	477	604	1.056	1.622	2.416	3.944	6.599	9.662	9.662	15.097	29.123	43.632
6	165	514	651	1.138	1.748	2.604	4.251	7.112	10.415	10.415	16.273	31.397	47.029
6,5	167	551	698	1.220	1.875	2.792	4.558	7.626	11.167	11.167	17.449	33.659	
7	170	589	745	1.302	2.001	2.980	4.865	8.140	11.920	11.920	18.624	35.927	
7,5	172	626	792	1.385	2.127	3.168	5.172	8.654	12.672	12.672	19.800	38.194	
8	175	663	839	1.467	2.254	3.356	5.480	9.168	13.424	13.424	20.976	40.462	
8,5	177	700	886	1.549	2.380	3.544	5.787	9.682	14.177	14.177	22.151	42.730	
9	180	737	933	1.631	2.506	3.732	6.084	10.195	14.929	14.929	23.327	44.998	
9,5	181	774	980	1.713	2.633	3.920	6.401	10.709	15.682	15.682	24.503	47.266	
10	184	812	1.027	1.796	2.759	4.109	6.708	11.223	16.434	16.434	25.678	49.534	
11	187	886	1.121	1.960	3.011	4.485	7.322	12.251	17.939	17.939	28.030		
12	192	960	1.215	2.125	3.264	4.861	7.937	13.278	19.444	19.444	30.381		
13	194	1.034	1.309	2.287	3.517	5.237	8.551	14.306	20.949	20.949	32.732		
14	198	1.109	1.403	2.453	3.769	5.613	9.165	15.334	22.453	22.453	35.083		
15	201	1.183	1.497	2.618	4.022	5.990	9.779	16.362	23.958	23.958	37.435		
16	204	1.257	1.591	2.782	4.275	6.366	10.393	17.389	25.463	25.463	39.786		
17	207	1.332	1.685	2.947	4.527	6.742	11.008	18.417	26.968	26.968	42.137		
18	209	1.406	1.780	3.111	4.780	7.118	11.622	19.445	28.473	28.473	44.489		
19	212	1.480	1.874	3.276	5.032	7.494	12.236	20.472	29.978	29.978	46.840		
20	215	1.555	1.968	3.440	5.285	7.871	12.850	21.500	31.482	31.482	49.191		
21	217	1.629	2.062	3.604	5.538	8.247	13.465	22.528	32.987	32.987	51.542		
22	220	1.703	2.156	3.769	5.790	8.623	14.079	23.555	34.492	34.492	53.894		
23	222	1.778	2.250	3.933	6.043	8.999	14.693	24.583	35.997	35.997	56.245		
24	224	1.852	2.344	4.098	6.295	9.375	15.307	25.611	37.502	37.502	58.596		
25	226	1.926	2.438	4.262	6.548	9.752	15.922	26.638	39.006	39.006			
26	228	2.001	2.532	4.427	6.801	10.128	16.536	27.666	40.511	40.511			
27	230	2.075	2.626	4.591	7.053	10.504	17.150	28.694	42.016	42.016			
28	232	2.149	2.720	4.755	7.306	10.880	17.764	29.721	43.521	43.521			
29	234	2.223	2.814	4.920	7.559	11.256	18.379	30.749	45.026	45.026			
30	236	2.298	2.908	5.084	7.811	11.633	18.993	31.777	46.531	46.531			
31	238	2.372	3.002	5.249	8.064	12.009	19.607	32.804	48.035	48.035			
32	240	2.446	3.096	5.413	8.316	12.385	20.221	33.832	49.540	49.540			

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



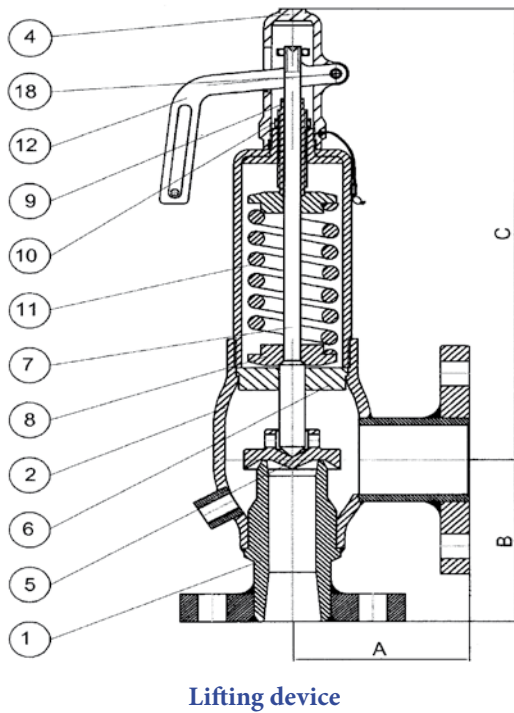
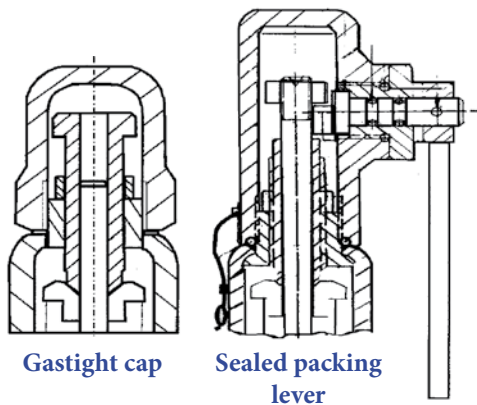
Model 1400 - 1400 SS PN 63/100

Technical data

Flanged:	EN 1092-1				
Flanged facing:	EN 1092 typ A				
Material:	Carbon steel and stainless steel				
Nominal pressure (bar)	63 - 100				
Temperature min. (°C)	-10				
Temperature max. (°C)	120	200	250	300	350
Pressure EN 1092 (bar) PN63	63	50	45	40	36
Pressure EN 1092 (bar) PN100	100	80	70	60	56

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 230
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



No.	Piece	Model 1400 PN 63/100	Model 1400 SS PN 63/100
1	Nozzle	AISI 316L + Stellite	AISI 316L + Stellite
2	Body	ASTM A106 Gr. b	AISI 316L
3	Open bonnet	GGG 40	AISI 316L
	Closed bonnet	ASTM A106 Gr. b	
4	Open cap	Brass	Brass
	Closed cap	Carbon steel	AISI 316L
5	Disc	AISI 316L	AISI 316L
	O-ring	AISI 316L+Viton/PTFE	Viton / PTFE
6	Guide	Carbon steel zn.	AISI 316L
7	Push road	AISI 420	AISI 316L
8	Spring button	Carbon steel zn.	AISI 303
9	Adjusting screw	AISI 303	AISI 303
10	Tensor nut	AISI 303	AISI 303
11	Spring	DIN 1.7233 41 Cr Mo	AISI 302
12	Lever	Brass	Brass
14	Elastic pin	Carbon steel	AISI 316
17	Release nut	Carbon steel	AISI 316
18	Elastic pin	Carbon steel	AISI 304
20	Gasket	PTFE	PTFE
21	Gasket	PTFE	PTFE
25	Flanged	AC / F 111	AISI 316L
26	Flanged PN-16	AC / F 111	AISI 316L

Inlet	Outlet	Orifice		A	B	C		Weight (kg)	
		PN 63	PN 100			With lever	Without lever	With lever	Without lever
15	25	13	13	75	95	255	220	7	6,8
20	32	13	13	100	95	255	220	7,5	7,3
25	50	20	16	100	114	255	220	8	7,8
32	50	23,8	20	110	115	305	270	11,5	11,3
40	65	26	23,8	115	140	305	270	12,5	12,3
50	80	32	32	120	150	305	270	14	13,8
65	100	48	39	140	170	377	329	27	25



Water capacity Valve Model 1400 PN-63/100

Set gauge pressure (kg/h)
10% Overpressure

Set gauge pressure (barg)	Flanges EN 1092-1 PN63						Flanges EN 1092-1 PN 100					
	15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100	15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100
	Orifice (mm)						Orifice (mm)					
	13	20	23,8	26	32	48	13	16	20	23,8	32	39
	Area (mm ²)						Area (mm ²)					
	133	314	445	531	804	1.810	133	201	314	445	804	1.195
33	21.986	52.038	73.691	87.945	133.218	299.740	21.986	33.304	52.038	73.691	133.218	197.875
34	22.317	52.821	74.800	89.267	135.221	304.248	22.317	33.805	52.821	74.800	135.221	200.851
35	22.643	53.592	75.892	90.570	137.195	308.690	22.643	34.299	53.592	75.892	137.195	203.783
36	22.964	54.352	76.968	91.855	139.142	313.068	22.964	34.785	54.352	76.968	139.142	206.674
37	23.281	55.102	78.030	93.122	141.061	317.387	23.281	35.265	55.102	78.030	141.061	209.525
38	23.593	55.842	79.077	94.372	142.954	321.647	23.593	35.739	55.842	79.077	142.954	212.337
39	23.901	56.572	80.111	95.606	144.823	325.852	23.901	36.206	56.572	80.111	144.823	215.113
40	24.206	57.292	81.131	96.824	146.668	330.003	24.206	36.667	57.292	81.131	146.668	217.854
42	24.804	58.707	83.135	99.215	150.290	338.153	24.804	37.573	58.707	83.135	150.290	223.233
44	25.387	60.089	85.091	101.550	153.827	346.110	25.387	38.457	60.089	85.091	153.827	228.487
46	25.958	61.439	87.004	103.832	157.284	353.889	25.958	39.321	61.439	87.004	157.284	233.622
48	26.516	62.760	88.875	106.065	160.667	361.500	26.516	40.167	62.760	88.875	160.667	238.647
50	27.063	64.055	90.708	108.252	163.980	368.955	27.063	40.995	64.055	90.708	163.980	243.568
52	27.599	65.323	92.504	110.396	167.227	376.261	27.599	41.807	65.323	92.504	167.227	248.391
54	28.125	66.568	94.266	112.499	170.413	383.429	28.125	42.603	66.568	94.266	170.413	253.123
56	28.641	67.789	95.996	114.563	173.540	390.465	28.641	43.385	67.789	95.996	173.540	257.768
58	29.148	68.989	97.695	116.591	176.612	397.376	29.148	44.153	68.989	97.695	176.612	262.330
60	29.646	70.168	99.365	118.584	179.631	404.170	29.646	44.908	70.168	99.365	179.631	266.815
62	30.136	71.328	101.008	120.545	182.600	410.850	30.136	45.650	71.328	101.008	182.600	271.226
64							30.618	46.381	72.470	102.624	185.522	275.565
66							31.093	47.100	73.593	104.215	188.398	279.838
68							31.561	47.808	74.700	105.783	191.232	284.046
70							32.021	48.506	75.790	107.327	194.024	288.193
72							32.476	49.194	76.866	108.849	196.776	292.281
74							32.924	49.873	77.926	110.351	199.490	296.313
76							33.366	50.542	78.972	111.832	202.168	300.290
78							33.802	51.203	80.004	113.294	204.811	304.216
80							24.232	51.855	81.023	114.737	207.420	308.091
82							34.658	52.499	82.030	116.163	209.997	311.919
84							35.078	53.136	83.024	117.571	212.542	315.700
86							35.493	53.764	84.007	118.962	215.058	319.436
88							35.903	54.386	84.978	120.337	217.544	323.129
90							36.309	55.001	85.938	121.697	220.002	326.780
92							36.710	55.608	86.888	123.042	222.433	330.391
94							37.107	56.209	87.827	124.372	224.838	333.963
96							37.500	56.804	88.757	125.688	227.217	337.497
98							37.888	57.393	89.676	126.991	229.572	340.995
100							38.273	57.976	90.587	128.280	231.903	344.457

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Valve Model 1400 PN-63/100

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Flanges EN 1092-1 PN63						Flanges EN 1092-1 PN 100					
	15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100	15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100
	Orifice (mm)						Orifice (mm)					
	13	20	23,8	26	32	48	13	16	20	23,8	32	39
	Area (mm ²)						Area (mm ²)					
	133	314	445	531	804	1.810	133	201	314	445	804	1.195
33	2.688	6.362	9.009	10.752	16.286	36.644	2.688	4.072	6.362	9.009	16.286	24.191
34	2.767	6.549	9.275	11.069	16.767	37.725	2.767	4.192	6.549	9.275	16.767	24.904
35	2.846	6.737	9.540	11.385	17.247	38.805	2.846	4.312	6.737	9.540	17.247	25.617
36	2.926	6.925	9.806	11.702	17.727	39.885	2.926	4.432	6.925	9.806	17.727	26.331
37	3.005	7.112	10.071	12.019	18.207	40.966	3.005	4.552	7.112	10.071	18.207	27.044
38	3.084	7.300	10.337	12.336	18.687	42.046	3.084	4.672	7.300	10.337	18.687	27.757
39	3.163	7.487	10.603	12.653	19.167	43.126	3.163	4.792	7.487	10.603	19.167	28.470
40	3.243	7.675	10.868	12.970	19.647	44.206	3.243	4.912	7.675	10.868	19.647	29.183
42	3.401	8.050	11.399	13.604	20.608	46.367	3.401	5.152	8.050	11.399	20.608	30.609
44	3.560	8.425	11.931	14.238	21.568	48.528	3.560	5.392	8.425	11.931	21.568	32.036
46	3.718	8.800	12.462	14.872	22.528	50.688	3.718	5.632	8.800	12.462	22.528	33.462
48	3.876	9.175	12.993	15.506	23.488	52.849	3.876	5.872	9.175	12.993	23.488	34.888
50	4.035	9.550	13.524	16.140	24.449	55.009	4.035	6.112	9.550	13.524	24.449	36.515
52	4.193	9.925	14.055	16.774	25.409	57.170	4.193	6.352	9.925	14.055	25.409	37.741
54	4.352	10.300	14.586	17.408	26.369	59.331	4.352	6.592	10.300	14.586	26.369	39.167
56	4.510	10.676	15.118	18.042	27.329	61.491	4.510	6.832	10.676	15.118	27.329	40.594
58	4.669	11.051	15.649	18.676	28.290	63.652	4.669	7.072	11.051	15.649	28.290	42.020
60	4.827	11.426	16.180	19.310	29.250	65.812	4.827	7.312	11.426	16.180	29.250	43.446
62	4.986	11.801	16.711	19.943	30.210	67.973	4.986	7.553	11.801	16.711	30.210	44.873
64							5.144	7.793	12.176	17.242	31.170	46.299
66							5.303	8.033	12.551	17.774	32.131	47.725
68							5.461	8.273	12.926	18.305	33.091	49.152
70							5.620	8.513	13.301	17.836	34.051	50.578
72							5.778	8.753	13.676	19.367	35.011	52.004
74							5.937	8.993	14.051	19.898	35.972	53.431
76							6.095	9.233	14.427	20.429	36.932	54.857
78							6.254	9.473	14.802	20.961	37.892	56.283
80							6.412	9.713	15.177	21.492	38.852	57.710
82							6.571	9.953	15.552	22.023	39.813	59.136
84							6.729	10.193	15.927	22.554	40.773	60.562
86							6.888	10.433	16.302	23.085	41.733	61.989
88							7.046	10.673	16.677	23.617	42.694	63.415
90							7.205	10.913	17.052	24.148	43.654	64.841
92							7.363	11.154	17.427	24.679	44.614	66.268
94							7.522	11.394	17.802	25.210	45.574	67.694
96							7.680	11.634	18.178	25.741	46.535	69.120
98							7.838	11.874	18.553	26.272	47.495	70.546
100							7.997	12.114	18.928	26.804	48.455	71.973

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Steam capacity Valve Model 1400 PN-63/100

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Flanges EN 1092-1 PN63						Flanges EN 1092-1 PN 100					
		15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100	15 x 25 20 x 32	25 x 50	32 x 50	40 x 65	50 x 80	65 x 100
		Orifice (mm)						Orifice (mm)					
		13	20	23,8	26	32	48	13	16	20	23,8	32	39
		Area (mm ²)						Area (mm ²)					
		133	314	445	531	804	1.810	133	201	314	445	804	1.195
33	241	1.664	3.939	5.578	6.656	10.083	22.687	1.664	2.521	3.939	5.578	10.083	14.977
34	242	1.713	4.055	5.742	6.853	10.380	23.356	1.713	2.595	4.055	5.742	10.380	15.418
35	243	1.762	4.171	5.906	7.049	10.677	24.024	1.762	2.669	4.171	5.906	10.677	15.860
36	244	1.811	4.287	6.071	7.245	10.975	24.693	1.811	2.744	4.287	6.071	10.975	16.301
37	245	1.860	4.403	6.235	7.441	11.272	25.362	1.860	2.818	4.403	6.235	11.272	16.743
38	247	1.909	4.519	6.400	7.637	11.569	26.031	1.909	2.892	4.519	6.400	11.569	17.184
39	248	1.958	4.635	6.564	7.834	11.866	26.700	1.958	2.967	4.635	6.564	11.866	17.626
40	250	2.007	4.751	6.729	8.030	12.164	27.368	2.007	3.041	4.751	6.729	12.164	18.067
42	254	2.106	4.984	7.057	8.422	12.758	28.706	2.106	3.190	4.984	7.057	12.758	18.950
44	257	2.204	5.216	7.386	8.815	13.353	30.044	2.204	3.338	5.216	7.386	13.353	19.833
46	259	2.302	5.448	7.715	9.207	13.947	31.381	2.302	3.487	5.448	7.715	13.947	20.717
48	261							2.400	3.635	5.680	8.044	14.542	21.600
50	264							2.498	3.784	5.913	8.383	15.136	22.483
52	265							2.596	3.933	6.145	8.702	15.731	23.366
54	266							2.694	4.081	6.377	9.031	16.325	24.249
56	269							2.792	4.230	6.609	9.359	16.920	
58	273							2.891	4.379	6.841	9.688	17.514	
60	275							2.989	4.527	7.074	10.017	18.109	
62	278							3.087	4.676	7.306	10.346		
64	280							3.185	4.824	7.538	10.675		
66	281							3.283	4.973	7.770			
68	283							3.381	5.122	8.003			
70	286							3.479	5.270	8.235			

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



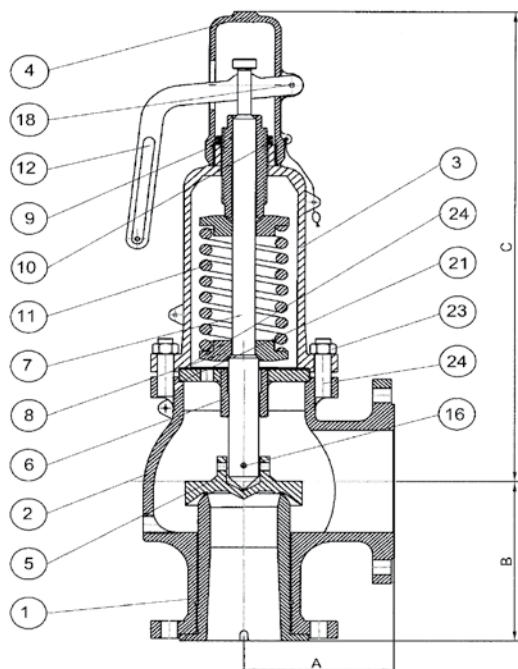
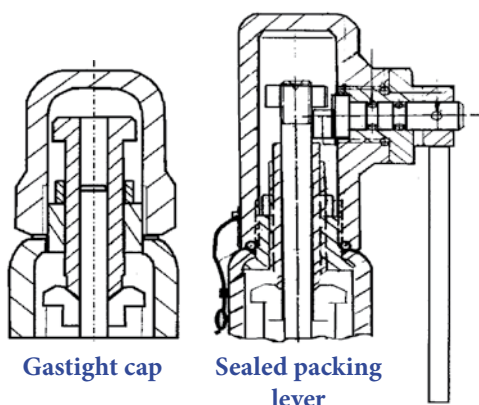
Model 1400F - 1400F SS

Technical data:

Flanged:	EN 1092-1				
Flanged facing:	EN 1092 typ B				
Material:	Fund. nodular, carbon and stainless steel				
Nominal pressure (bar)	16 - 25 - 40				
Temperature min. (°C)	-10				
Temperature max. (°C)	120	200	250	300	350
Pressure EN 1092 (bar) PN16	16	13	11	10	-
Pressure EN 1092 (bar) PN25	25	22	20	17	16
Pressure EN 1092 (bar) PN40	40	35	32	28	24

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 230
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



Lifting device

No.	Piece	Model 1400F PN 16/25	Model 1400F PN 40	Model 1400F SS PN 40
1	Nozzle	C. Steel+AISI 308L	C. Steel+AISI 308L	AISI 316L
2	Body	GGG40	1.0619	DIN 1.4408
3	Bonnet	GGG40	1.0619	DIN 1.4408
4	Open cap	Brass	Brass	Brass zn.
	Closed cap	GGG40	Carbon steel	DIN 1.4408
5	Disc	C. Steel+AISI 308L	C. Steel+AISI 308L	AISI 316L
6	Guide	C. Steel+AISI 304	C. Steel+AISI 304	AISI 316L
7	Push road	AISI 420	AISI 420	AISI 316L
8	Spring button	Carbon steel zn.	Carbon steel zn.	AISI 304
9	Adjusting screw	AISI 420	AISI 420	AISI 431
10	Tensor nut	Carbon steel zn.	Carbon steel zn.	AISI 304
11	Spring	DIN 1.7223 50 CrV Mo4	DIN 1.7223 50 CrV Mo4	AISI 302
12	Lever	Brass	Brass	Brass zn.
14	Elastic pin	Carbon steel	Carbon steel	AISI 304
17	Release nut	AISI 420	AISI 420	AISI 316L
18	Elastic pin	Carbon steel	Carbon steel	AISI 304
20	Gasket	PTFE	PTFE	PTFE
21	Gasket	PTFE	PTFE	PTFE
23	Screw	Carbon steel	Carbon steel	AISI 316
24	Screw nut	Carbon steel	Carbon steel	AISI 316
25	Flanged	GGG40	10.619	AISI 316L
26	Flanged PN 16	GGG40	10.619	AISI 316L

Inlet	Outlet	Orif mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
80	125	72	4072	160	195	595	545	58	55
100	150	90	6362	210	197	663	585	84	80
125	200	105	8659	242	240	760	680	140	136
150	200	125	12272	242	240	760	680	150	146
200	250	153	18385	280	276	795	715	180	175



Water capacity Valve Model 1400 PN-16/25/40

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Flanges EN 1092-1											
	15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
	Orifice (mm)											
	16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
	Area (mm ²)											
	201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385
0,5	4.099	5.188	9.071	13.936	20.754	33.885	56.692	83.015	129.711	176.551	250.213	374.864
1	5.798	7.338	12.828	19.708	29.350	47.920	80.15	117.401	183.439	249.680	353.855	530.137
1,5	7.101	8.987	15.711	24.138	35.946	58.690	98.194	143.786	224.665	305.795	433.382	649.283
2	8.199	10.377	18.142	27.872	41.507	67.770	113.385	166.030	259.421	353.101	500.427	749.727
2,5	9.167	11.602	20.283	31.162	46.407	75.769	126.768	185.627	290.042	394.779	559.494	838.221
3	10.042	12.709	22.219	34.136	50.836	83.001	138.867	203.344	317.725	432.459	612.895	918.225
3,5	10.846	13.727	23.999	36.871	54.909	89.651	149.994	219.636	343.182	467.109	662.002	991.796
4	11.595	14.675	25.656	39.417	58.700	95.841	160.350	234.801	366.877	499.360	707.710	1.060.275
4,5	12.298	15.565	27.212	41.808	62.261	101.655	170.077	249.044	389.132	529.652	750.640	1.124.591
5	12.964	16.407	28.684	44.069	65.629	107.153	179.277	262.516	410.181	558.302	791.244	1.185.423
5,5	13.596	17.208	30.084	46.220	68.832	112.383	188.027	275.329	430.201	585.552	829.864	1.243.282
6	14.201	17.973	31.422	48.275	71.893	117.381	196.388	287.572	449.331	611.589	866.765	1.298.566
6,5	14.781	18.707	32.705	50.247	74.829	122.174	204.407	299.314	467.678	636.562	902.157	
7	15.339	19.413	33.940	52.143	77.653	126.786	212.123	310.613	485.333	660.592	936.213	
7,5	15.877	20.095	35.131	53.973	80.379	131.236	219.569	321.515	502.367	683.777	969.072	
8	16.398	20.754	36.293	55.744	83.015	135.540	226.769	332.059	518.842	706.202	1.000.854	
8,5	16.903	21.392	37.400	57.459	85.570	139.711	233.749	342.279	534.811	727.937	1.031.656	
9	17.393	22.013	38.484	59.125	88.050	143.761	240.525	352.202	550.316	749.041	1.061.565	
9,5	17.869	22.616	39.539	60.745	90.463	147.701	247.116	361.853	565.395	769.566	1.090.655	
10	18.334	23.203	40.566	62.323	92.813	151.538	253.536	371.253	580.083	789.558	1.118.988	
11	19.228	24.336	42.546	65.365	97.343	158.934	265.911	389.374	608.397	828.096		
12	20.083	25.418	44.438	68.272	101.672	166.001	277.735	406.688	635.450	864.918		
13	20.903	26.456	46.252	71.059	105.824	172.780	289.075	423.294	661.397	900.235		
14	21.692	27.455	47.998	73.742	109.818	179.302	299.988	439.273	686.364	934.218		
15	22.454	28.418	49.683	76.330	113.673	185.595	310.517	454.691	710.454	967.007		
16	23.190	29.350	51.312	78.833	117.401	191.682	320.700	469.603	733.754	998.721		
17	23.904	30.253	52.891	81.259	121.014	197.581	330.570	484.055	756.336			
18	24.597	31.161	54.425	83.615	124.522	203.309	340.154	498.089	778.264			
19	25.271	31.984	55.916	85.907	127.934	208.881	349.475	511.738	799.590			
20	25.927	32.814	57.369	88.138	131.258	214.307	358.554	525.032	820.362			
21	26.568	33.625	58.785	90.315	134.499	219.599	367.408	537.997	840.621			
22	27.193	34.416	60.169	92.440	137.664	224.767	376.054	550.658	860.403			
23	27.804	35.190	61.521	94.518	140.758	229.819	384.506	563.034	879.740			
24	28.402	35.946	62.844	96.551	143.786	234.761	392.776	575.143	898.661			
25	28.988	36.688	64.140	98.542	146.751	239.602	400.875	587.003				
26	29.562	37.414	65.410	100.493	149.657	244.347	408.814	598.628				
27	30.125	38.127	66.656	102.407	152.508	249.002	416.602	610.032				
28	30.678	38.827	67.879	104.287	155.306	253.571	424.247	621.226				
29	31.221	39.514	69.081	106.133	158.055	258.060	431.756	632.222				
30	31.755	40.189	70.262	107.947	160.757	262.471	439.137	643.030				
31	32.279	40.854	71.423	109.731	163.415	266.810	446.396	653.659				
32	32.796	41.507	72.566	111.487	166.030	271.079	453.539	664.118				
33	33.304	42.151	73.691	113.216	168.604	275.282	460.571					
34	33.805	42.785	74.800	114.918	171.139	279.422	467.497					
35	34.299	43.409	75.892	116.596	173.638	283.501	474.322					
36	34.785	44.025	76.968	118.250	176.101	287.523	481.051					
38	35.739	45.232	79.077	121.490	180.927	295.402	494.232					
40	36.667	46.407	81.131	124.646	185.627	303.076	507.072					

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Air capacity Valve Model 1400 PN-16/25/40

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Flanges EN 1092-1											
	15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
	Orifice (mm)											
	16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
Area (mm ²)												
201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385	
0,5	171	216	377	580	863	1.410	2.359	3.454	5.396	7.345	10.410	15.596
1	231	292	510	784	1.167	1.906	3.189	4.669	7.295	9.930	14.073	21.084
1,5	291	368	643	988	1.471	2.402	4.019	5.884	9.194	12.515	17.736	26.572
2	351	444	776	1.192	1.775	2.898	4.849	7.100	11.093	15.099	21.399	32.060
2,5	411	520	909	1.396	2.079	3.394	5.678	8.315	12.992	17.684	25.062	37.548
3	471	596	1.041	1.600	2.383	3.890	6.508	9.530	14.891	20.269	28.725	430.36
3,5	531	672	1.174	1.804	2.686	4.386	7.338	10.746	16.790	22.853	32.388	48.524
4	591	748	1.307	2.008	2.990	4.882	8.168	11.961	18.689	25.438	36.052	54.011
4,5	651	824	1.440	2.212	3.294	5.378	8.998	13.176	20.588	28.023	39.715	59.499
5	711	899	1.573	2.416	3.598	5.874	9.828	14.392	22.487	30.607	43.378	64.987
5,5	771	975	1.705	2.620	3.902	6.370	10.658	15.607	24.386	33.192	47.041	70.475
6	831	1.051	1.838	2.824	4.206	6.867	11.488	16.822	26.285	35.777	50.704	75.963
6,5	891	1.127	1.971	3.028	4.509	7.363	12.318	18.038	28.184	38.361	54.367	
7	951	1.203	2.104	3.232	4.813	7.859	13.148	19.253	30.083	40.946	58.030	
7,5	1.011	1.279	2.237	3.436	5.117	8.355	13.978	20.468	31.982	43.531	61.693	
8	1.071	1.355	2.369	3.640	5.421	8.851	14.808	21.684	33.881	46.115	65.356	
8,5	1.131	1.431	2.502	3.844	5.725	9.347	15.638	22.899	35.780	48.700	69.019	
9	1.191	1.507	2.635	4.048	6.029	9.843	16.468	24.114	37.679	51.285	72.682	
9,5	1.251	1.583	2.768	4.252	6.332	10.339	17.298	25.330	39.548	53.869	76.346	
10	1.311	1.659	2.900	4.456	6.636	10.835	18.128	26.545	41.476	56.454	80.009	
11	1.431	1.811	3.166	4.864	7.244	11.827	19.788	28.976	45.274	61.623		
12	1.551	1.963	3.432	5.272	7.852	12.819	21.448	31.406	49.072	66.793		
13	1.671	2.115	3.697	5.680	8.459	13.812	23.108	33.837	52.870	71.962		
14	1.791	2.267	3.963	6.088	9.067	14.804	24.768	36.268	56.668	77.132		
15	1.911	2.419	4.228	6.496	9.675	15.796	26.428	38.698	60.466	82.301		
16	2.031	2.571	4.494	6.904	10.282	16.788	28.088	41.129	64.264	87.470		
17	2.151	2.722	4.760	7.312	10.890	17.780	29.748	43.560	68.062			
18	2.271	2.874	5.025	7.720	11.498	18.772	31.408	45.990	71.860			
19	2.391	3.026	5.291	8.129	12.105	19.764	33.067	48.421	75.658			
20	2.511	3.178	5.556	8.537	12.713	20.757	34.727	50.851	79.455			
21	2.631	3.330	5.822	8.945	13.321	21.749	36.387	53.282	83.253			
22	2.751	3.482	6.088	9.353	13.928	22.741	38.047	55.713	87.051			
23	2.871	3.634	6.353	9.761	14.536	23.733	39.707	58.143	90.849			
24	2.991	3.786	6.619	10.169	15.144	24.725	41.367	60.574	94.647			
25	3.111	3.938	6.884	10.577	15.751	25.717	43.027	63.005				
26	3.231	4.090	7.150	10.985	16.359	26.709	44.687	65.435				
27	3.351	4.242	7.416	11.393	16.967	27.701	46.347	67.866				
28	3.471	4.394	7.681	11.801	17.574	28.694	48.007	70.297				
29	3.591	4.545	7.947	12.209	18.182	29.686	49.667	72.727				
30	3.712	4.697	8.212	12.617	18.790	30.678	51.327	75.158				
31	3.832	4.849	8.478	13.025	19.397	31.670	52.987	77.589				
32	3.952	5.001	8.743	13.433	20.008	32.662	54.647					
33	4.072	5.153	9.009	13.841	20.612	33.654	56.307					
34	4.192	5.305	9.275	14.249	21.220	34.646	57.967					
35	4.312	5.457	9.540	14.657	21.828	35.639	59.626					
36	4.432	5.609	9.806	15.065	22.435	36.631	61.286					
38	4.672	5.913	10.337	15.881	23.651	38.615	64.606					
40	4.912	6.217	10.868	16.697	24.866	40.599	67.926					

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Steam capacity Valve Model 1400 PN-16/25/40

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Flanges EN 1092-1											
		15 x 25	20 x 32	25 x 40	32 x 50	40 x 65	50 x 80	65 x 100	80 x 125	100x150	125x200	150x200	200x250
		Orifice (mm)											
		16	18	23,8	29,5	36	46	59,5	72	90	105	125	153
		Area (mm ²)											
		201	254	445	683	1.018	1.662	2.781	4.072	6.362	8.659	12.272	18.385
0,5	111	106	134	234	359	535	873	1.460	2.138	2.138	3.341	6.445	9.655
1	120	143	181	316	485	723	1.180	1.974	2.891	2.891	4.517	8.713	13.053
1,5	127	180	228	398	612	911	1.487	2.488	3.643	3.643	5.692	10.980	16.451
2	134	217	275	480	738	1.099	1.794	3.002	4.395	4.395	6.868	13.248	19.848
2,5	138	254	32	562	864	1.287	2.101	3.516	5.148	5.148	8.044	15.516	23.246
3	144	291	369	645	990	1.475	2.408	4.029	5.900	5.900	9.219	17.784	26.643
3,5	147	329	416	727	1.117	1.663	2.715	4.543	6.653	6.653	10.395	20.052	30.041
4	153	366	463	809	1.243	1.851	3.023	5.057	7.405	7.405	11.570	22.320	33.439
4,5	155	403	510	891	1.369	2.039	3.330	5.571	8.158	8.158	12.746	24.587	36.836
5	159	440	557	974	1.496	2.227	3.637	6.085	8.910	8.910	13.922	26.855	40.234
5,5	161	477	604	1.056	1.622	2.416	3.944	6.599	9.662	9.662	15.097	29.123	43.632
6	165	514	651	1.138	1.748	2.604	4.251	7.112	10.415	10.415	16.273	31.397	47.029
6,5	167	551	698	1.220	1.875	2.792	4.558	7.626	11.167	11.167	17.449	33.659	
7	170	589	745	1.302	2.001	2.980	4.865	8.140	11.920	11.920	18.624	35.927	
7,5	172	626	792	1.385	2.127	3.168	5.172	8.654	12.672	12.672	19.800	38.194	
8	175	663	839	1.467	2.254	3.356	5.480	9.168	13.424	13.424	20.976	40.462	
8,5	177	700	886	1.549	2.380	3.544	5.787	9.682	14.177	14.177	22.151	42.730	
9	180	737	933	1.631	2.506	3.732	6.084	10.195	14.929	14.929	23.327	44.998	
9,5	181	774	980	1.713	2.633	3.920	6.401	10.709	15.682	15.682	24.503	47.266	
10	184	812	1.027	1.796	2.759	4.109	6.708	11.223	16.434	16.434	25.678	49.534	
11	187	886	1.121	1.960	3.011	4.485	7.322	12.251	17.939	17.939	28.030		
12	192	960	1.215	2.125	3.264	4.861	7.937	13.278	19.444	19.444	30.381		
13	194	1.034	1.309	2.287	3.517	5.237	8.551	14.306	20.949	20.949	32.732		
14	198	1.109	1.403	2.453	3.769	5.613	9.165	15.334	22.453	22.453	35.083		
15	201	1.183	1.497	2.618	4.022	5.990	9.779	16.362	23.958	23.958	37.435		
16	204	1.257	1.591	2.782	4.275	6.366	10.393	17.389	25.463	25.463	39.786		
17	207	1.332	1.685	2.947	4.527	6.742	11.008	18.417	26.968	26.968	42.137		
18	209	1.406	1.780	3.111	4.780	7.118	11.622	19.445	28.473	28.473	44.489		
19	212	1.480	1.874	3.276	5.032	7.494	12.236	20.472	29.978	29.978	46.840		
20	215	1.555	1.968	3.440	5.285	7.871	12.850	21.500	31.482	31.482	49.191		
21	217	1.629	2.062	3.604	5.538	8.247	13.465	22.528	32.987	32.987	51.542		
22	220	1.703	2.156	3.769	5.790	8.623	14.079	23.555	34.492	34.492	53.894		
23	222	1.778	2.250	3.933	6.043	8.999	14.693	24.583	35.997	35.997	56.245		
24	224	1.852	2.344	4.098	6.295	9.375	15.307	25.611	37.502	37.502	58.596		
25	226	1.926	2.438	4.262	6.548	9.752	15.922	26.638	39.006	39.006			
26	228	2.001	2.532	4.427	6.801	10.128	16.536	27.666	40.511	40.511			
27	230	2.075	2.626	4.591	7.053	10.504	17.150	28.694	42.016	42.016			
28	232	2.149	2.720	4.755	7.306	10.880	17.764	29.721	43.521	43.521			
29	234	2.223	2.814	4.920	7.559	11.256	18.379	30.749	45.026	45.026			
30	236	2.298	2.908	5.084	7.811	11.633	18.993	31.777	46.531	46.531			
31	238	2.372	3.002	5.249	8.064	12.009	19.607	32.804	48.035	48.035			
32	240	2.446	3.096	5.413	8.316	12.385	20.221	33.832	49.540	49.540			

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



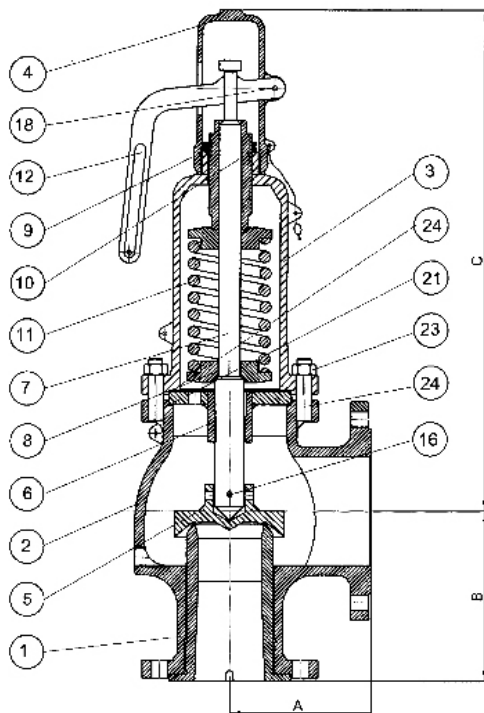
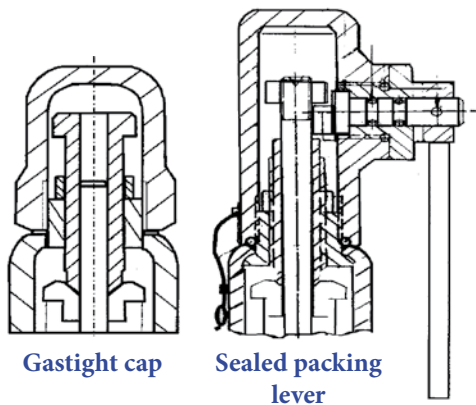
Model 1415F

Technical data

Connections:	Flanged ANSI B 16.5			
Material:	Carbon steel			
Nominal pressure:	150 Lbs			
Temperature min. (°C)	-10			
Temperature max. (°C)	100	200	300	400
Pressure API 526 (bar)	17,7	14	10,2	6,5

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 400
Liquid / Gases	Metal	-10 to 400



Lifting device

No.	Piece	Material
1	Nozzle	AISI 304
2	Body	ASTM A216 WCB
3	Bonnet	GGG40
4	Open cap	Brass
	Closed cap	GGG40
5	Disc	AISI 316L
6	Guide	AISI 316L
7	Push road	AISI 316L
8	Spring button	Carbon steel zn.
9	Adjustin screw	AISI 420
10	Tensor nut	Carbon steel. zn.
11	Spring	DIN 1.7223 50 Cr Mov 4
12	Lever	Brass
14	Elastic pin	Carbon steel
17	Release nut	AISI 316L
18	Elastic pin	Carbon steel
20	Gasket	PTFE
21	Gasket	PTFE
23	Screw	Carbon steel
24	Screw-nut	Carbon steel
25	Flanged	ASTM A216 WCB
26	Flanged 150#RF	ASTM A216 WCB

Inlet	Outlet	Nozzle	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
4"	6"	M	2376	184	178	605	540	86	84
4"	6"	N	2827	210	197	605	540	86	84
4"	6"	P	4185	229	181	605	540	86	84
6"	8"	Q	7238	241	240	642	562	154	150
6"	8"	R	10387	241	240	642	562	154	150
8"	10"	T	16742	279	276	795	715	186	180



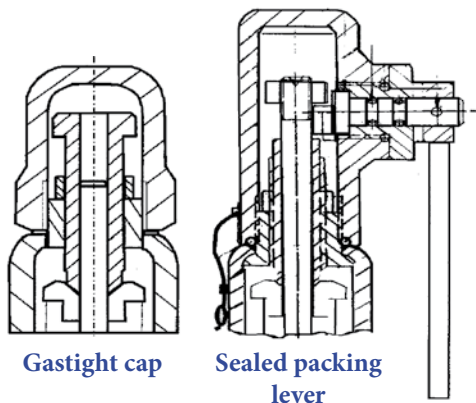
Model 1416 - 1416SS

Technical data

Connections:	Threaded DIN 259 or ANSI B-2.1				
Material:	Carbon and Stainless steel				
Nominal pressure (bar)	16 - 40				
Temperature min. (°C)	-10				
Temperature max. (°C)	120	200	250	300	350
Pressure EN 1092 (bar) PN16	16	13	11	10	-
Pressure EN 1092 (bar) PN40	40	35	32	28	24

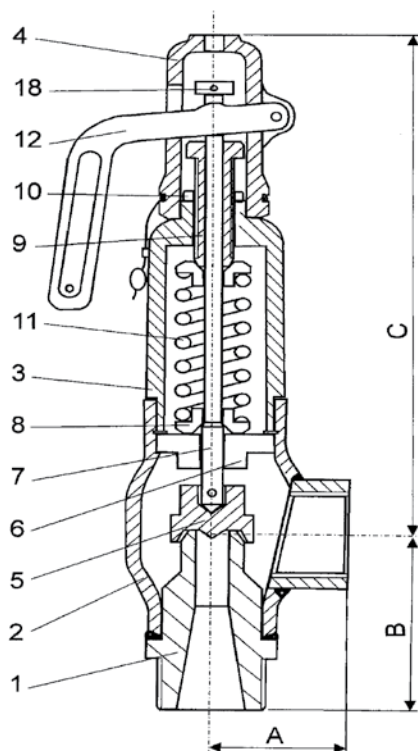
Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 230
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



Gastight cap

Sealed packing lever



Lifting device

No.	Piece	Model 1416 Carbon steel	Model 1416 SS Stainless steel
1	Nozzle	C. Steel+AISI 308L	AISI 316L
2	Body	ASTM A106 Gr. b	AISI 316L
3	Open bonnet	GGG40	AISI 316L
	Closed bonnet	ASTM A106 Gr. b	
4	Open cap	Brass	Brass zn.
	Closed cap	Brass / C. Steel	AISI 303
5	Disc	AISI 420	AISI 316L
	O-ring	AISI 316L+Viton/PTFE	Viton/PTFE
6	Guide	Carbon steel zn.	AISI 316L
7	Push road	AISI 420	AISI 316L
8	Spring button	Carbon steel zn.	AISI 303
9	Adjusting screw	Brass / AISI 303	AISI 303
10	Tensor nut	Brass / AISI 303	AISI 303
11	Spring	DIN 1.7221 51 CrV4	AISI 302
12	Lever	Brass	Brass zn.
14	Elastic pin	Carbon steel	AISI 304
17	Release nut	Carbon steel	AISI 304
18	Elastic pin	Carbon steel	AISI 304
20	Gasket	PTFE	PTFE
21	Gasket	Buna / Viton	PTFE

Inlet	Outlet	Orifice mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
1"	1 1/2"	22	380	55	93	271	232	5,5	5,5
1 1/4"	1 1/2"	23,8	445	55	93	271	232	5,5	5,3
1 1/2"	1 1/2"	23,8	445	55	93	271	232	5,7	5,5
1 1/2"	2"	36	1018	65	98	308	266	10	10,2
2"	2"	46	1662	65	98	308	266	10,2	10
2"	2 1/2"	46	1662	100	115	310	266	10,7	10,5
2 1/2"	2 1/2"	46	1662	100	115	310	268	10,7	10,5
3"	3"	46	1662	77	112	270	305	12,3	12
3"	4"	60	2827	116	148	384	331	15,8	15
4"	4"	60	2827	116	154	384	331	17,3	17



Water capacity Valve Model 1416 PN-16/40

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Size threaded EN 1092-1									
	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"	1 1/2" x 2"	2" x 2"	2" x 2 1/2"	2 1/2" x 2 1/2"	3" x 3"	3" x 4"	4" x 4"
	Orifice (mm)									
	22	23,8	23,8	36	46	46	46	46	60	60
	Area (mm ²)									
	380	445	445	1.018	1.662	1.662	1.662	1.662	2.827	2.827
0,5	7.751	9.071	9.071	20.754	33.885	33.885	33.885	33.885	57.649	57.649
1	10.961	12.828	12.828	29.350	47.920	47.920	47.920	47.920	81.528	81.528
1,5	13.424	15.711	15.711	35.946	58.690	58.690	58.690	58.690	99.851	99.851
2	15.501	18.142	18.142	41.507	67.770	67.770	67.770	67.770	115.298	115.298
2,5	17.331	20.283	20.283	46.407	75.769	75.769	75.769	75.769	128.907	128.907
3	18.985	22.219	22.219	50.836	83.001	83.001	83.001	83.001	141.211	141.211
3,5	20.506	23.999	23.999	54.909	89.651	89.651	89.651	89.651	152.525	152.525
4	21.922	25.656	25.656	58.700	95.841	95.841	95.841	95.841	163.056	163.056
4,5	23.252	27.212	27.212	62.261	101.655	101.655	101.655	101.655	172.947	172.947
5	24.510	28.684	28.684	65.629	107.153	107.153	107.153	107.153	182.303	182.303
5,5	25.706	30.084	30.084	68.832	112.383	112.383	112.383	112.383	191.201	191.201
6	26.849	31.422	31.422	71.893	117.381	117.381	117.381	117.381	199.703	199.703
6,5	27.945	32.705	32.705	74.826	122.174	122.174	122.174	122.174	207.857	207.857
7	29.000	33.940	33.940	77.653	126.786	126.786	126.786	126.786	215.703	215.703
7,5	30.018	35.131	35.131	80.379	131.236	131.236	131.236	131.236	223.274	223.274
8	31.002	36.283	36.283	83.015	135.540	135.540	135.540	135.540	230.597	230.597
8,5	31.957	37.400	37.400	85.570	139.711	139.711	139.711	139.711	237.694	237.694
9	32.883	38.484	38.484	88.050	143.761	143.761	143.761	143.761	244.585	244.585
9,5	33.784	39.539	39.539	90.463	147.701	147.701	147.701	147.701	251.287	251.287
10	34.662	40.566	40.566	92.813	151.538	151.538	151.538	151.538	257.815	257.815
11	36.354	42.546	42.546	97.343	158.934	158.934	158.934	158.934	270.399	270.399
12	37.970	44.438	44.438	101.672	166.001	166.001	166.001	166.001	282.422	282.422
13	39.521	46.252	46.252	105.824	172.780	172.780	172.780	172.780	293.954	293.954
14	41.012	47.998	47.998	109.818	179.302	179.302	179.302	179.302	305.051	305.051
15	42.452	49.683	49.683	113.673	185.595	185.595	185.595	185.595	315.757	315.757
16	43.844	51.312	51.312	117.401	191.682	191.682	191.682	191.682	326.113	326.113
17	45.193	52.891	52.891	121.014	197.581	197.581	197.581	197.581	336.149	336.149
18	46.504	54.425	54.425	124.522	203.309	203.309	203.309	203.309	345.895	345.895
19	47.778	55.916	55.916	127.934	208.881	208.881	208.881	208.881	355.373	355.373
20	49.019	57.369	57.369	131.258	214.307	214.307	214.307	214.307	364.605	364.605
21	50.230	58.785	58.785	134.499	219.599	219.599	219.599	219.599	373.609	373.609
22	51.412	60.169	60.169	137.664	224.767	224.767	224.767	224.767	382.401	382.401
23	52.567	61.521	61.521	140.758	229.819	229.819	229.819	229.819	390.996	390.996
24	53.698	62.844	62.844	143.786	234.761	234.761	234.761	234.761	399.405	399.405
25	54.805	64.140	64.140	146.751	239.602	239.602	239.602	239.602	407.641	407.641
26	55.890	65.410	65.410	149.657	244.347	244.347	244.347	244.347	415.714	415.714
27	56.955	66.656	66.656	152.508	249.002	249.002	249.002	249.002	423.633	423.633
28	58.000	67.879	67.879	155.306	253.571	253.571	253.571	253.571	431.407	431.407
29	59.027	69.087	69.081	158.055	258.060	258.060	258.060	258.060	439.043	439.043
30	60.036	70.262	70.262	160.757	262.471	262.471	262.471	262.471	446.548	446.548
31	61.028	71.423	71.423	163.415	266.810	266.810	266.810	266.810	453.930	453.930
32	62.008	72.566	72.566	166.030	271.079	271.079	271.079	271.079	461.193	461.193
33	62.966	73.691	73.691	168.604	275.282	275.282	275.282	275.282	468.344	468.344
34	63.913	74.800	74.800	171.139	279.422	279.422	279.422	279.422	475.387	475.387
35	94.846	75.892	75.892	173.638	283.501	283.501	283.501	283.501	482.327	482.327
36	65.766	76.968	76.968	176.101	287.523	287.523	287.523	287.523	489.169	489.169
37	66.673	78.030	78.030	178.530	291.489	291.489	291.489	291.489	495.917	495.917
38	67.568	79.077	79.077	180.927	295.402	295.402	295.402	295.402	502.574	502.574
39	68.452	80.111	80.111	183.292	299.262	299.263	299.263	299.263	509.144	509.144
40	69.324	81.131	81.131	185.627	303.076	303.076	303.076	303.076	515.630	515.630

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Valve Model 1416 PN-16/40

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set gauge pressure (barg)	Size threaded EN 1092-1									
	1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"	1 1/2" x 2"	2" x 2"	2" x 2 1/2"	2 1/2" x 2 1/2"	3" x 3"	3" x 4"	4" x 4"
	Orifice (mm)									
	22	23,8	23,8	36	46	46	46	46	60	60
	Area (mm ²)									
	380	445	445	1.018	1.662	1.662	1.662	1.662	2.827	2.827
0,5	322	377	377	863	1.410	1.410	1.410	1.410	2.398	2.398
1	436	510	510	1.167	1.906	1.906	1.906	1.906	3.242	3.242
1,5	549	643	643	1.471	2.402	2.402	2.402	2.402	4.086	4.086
2	663	776	776	1.775	2.898	2.898	2.898	2.898	4.930	4.930
2,5	776	909	909	2.079	3.394	3.394	3.394	3.394	5.774	5.774
3	890	1.041	1.041	2.383	3.890	3.890	3.890	3.890	6.618	6.618
3,5	1.003	1.174	1.174	2.686	4.386	4.386	4.386	4.386	7.462	7.462
4	1.117	1.307	1.307	2.990	4.882	4.882	4.882	4.882	8.306	8.306
4,5	1.230	1.440	1.440	3.294	5.378	5.378	5.378	5.378	9.150	9.150
5	1.344	1.573	1.573	3.598	5.874	5.874	5.874	5.874	9.994	9.994
5,5	1.457	1.705	1.705	3.902	6.370	6.370	6.370	6.370	10.838	10.838
6	1.571	1.838	1.838	4.206	6.867	6.867	6.867	6.867	11.682	11.682
6,5	1.684	1.971	1.971	4.509	7.363	7.363	7.363	7.363	12.526	12.526
7	1.798	2.104	2.104	4.813	7.859	7.859	7.859	7.859	13.370	13.370
7,5	1.911	2.237	2.237	5.117	8.355	8.355	8.355	8.355	14.214	14.214
8	2.024	2.369	2.369	5.421	8.851	8.851	8.851	8.851	15.058	15.058
8,5	2.138	2.502	2.502	5.725	9.347	9.347	9.347	9.347	15.902	15.902
9	2.251	2.635	2.635	6.029	9.843	9.843	9.843	9.843	16.746	16.746
9,5	2.362	2.768	2.768	6.332	10.339	10.339	10.339	10.339	17.590	17.590
10	2.478	2.900	2.900	6.636	10.835	10.835	10.835	10.835	18.434	18.434
11	2.705	3.166	3.166	7.244	11.827	11.827	11.827	11.827	20.122	20.122
12	2.932	3.432	3.432	7.852	12.819	12.819	12.819	12.819	21.810	21.810
13	3.159	3.697	3.697	8.459	13.812	13.812	13.812	13.812	23.498	23.498
14	3.386	3.963	3.963	9.067	14.804	14.804	14.804	14.804	25.186	25.186
15	3.613	4.228	4.228	9.675	15.796	15.796	15.796	15.796	26.874	26.874
16	3.840	4.494	4.494	10.282	16.788	16.788	16.788	16.788	28.562	28.562
17	4.067	4.760	4.760	10.890	17.780	17.780	17.780	17.780	30.250	30.250
18	4.294	5.025	5.025	11.498	18.772	18.772	18.772	18.772	31.938	31.938
19	4.521	5.291	5.291	12.105	19.764	19.764	19.764	19.764	33.626	33.626
20	4.748	5.556	5.556	12.713	20.757	20.757	20.757	20.757	35.314	35.314
21	4.975	5.822	5.822	13.321	21.749	21.749	21.749	21.749	37.001	37.001
22	5.202	6.088	6.088	13.928	22.741	22.741	22.741	22.741	38.689	38.689
23	5.429	6.353	6.353	14.536	23.733	23.733	23.733	23.733	40.377	40.377
24	5.655	6.619	6.619	15.144	24.725	24.725	24.725	24.725	42.065	42.065
25	5.882	6.884	6.884	15.751	25.717	25.717	25.717	25.717	43.753	43.753
26	6.109	7.150	7.150	16.359	26.709	26.709	26.709	26.709	45.441	45.441
27	6.336	7.416	7.416	16.967	27.701	27.701	27.701	27.701	47.129	47.129
28	6.563	7.681	7.681	17.574	28.694	28.694	28.694	28.694	48.817	48.817
29	6.790	7.947	7.947	18.182	29.686	29.686	29.686	29.686	50.505	50.505
30	7.017	8.212	8.212	18.790	30.678	30.678	30.678	30.678	52.193	52.193
31	7.244	8.478	8.478	19.397	31.670	31.670	31.670	31.670	53.881	53.881
32	7.471	8.743	8.743	20.005	32.662	32.662	32.662	32.662	55.569	55.569
33	7.698	9.009	9.009	20.612	33.654	33.654	33.654	33.654	57.257	57.257
34	7.925	9.275	9.275	21.220	34.646	34.646	34.646	34.646	58.945	58.945
35	8.152	9.540	9.540	21.828	35.639	35.639	35.639	35.639	60.633	60.633
36	8.379	9.806	9.806	22.435	36.631	36.631	36.631	36.631	62.321	62.321
37	8.606	10.071	10.071	23.043	37.623	37.623	37.623	37.623	64.009	64.009
38	8.833	10.337	10.337	23.651	38.615	38.615	38.615	38.615	65.697	65.697
39	9.059	10.603	10.603	24.258	39.607	39.607	39.607	39.607	67.385	67.385
40	9.286	10.868	10.868	24.866	40.599	40.599	40.599	40.599	69.073	69.073

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046

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Steam capacity Valve Model 1416 PN-16/40

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	Size threaded EN 1092-1									
		1" x 1 1/2"	1 1/4" x 1 1/2"	1 1/2" x 1 1/2"	1 1/2" x 2"	2" x 2"	2" x 2 1/2"	2 1/2" x 2 1/2"	3" x 3"	3" x 4"	4" x 4"
		Orifice (mm)									
		22	23,8	23,8	36	46	46	46	46	60	60
Area (mm ²)											
		380	445	445	1.018	1.662	1.662	1.662	1.662	2.827	2.827
0,5	111	200	234	234	535	873	873	873	873	1.485	1.485
1	120	270	316	316	723	1.180	1.180	1.180	1.180	2.007	2.007
1,5	127	340	398	398	911	1.487	1.487	1.487	1.487	2.530	2.530
2	134	410	480	480	1.099	1.794	1.794	1.794	1.794	3.052	3.052
2,5	138	481	562	562	1.287	2.101	2.101	2.101	2.101	3.575	3.575
3	144	551	645	645	1.475	2.408	2.408	2.408	2.408	4.097	4.097
3,5	147	621	727	727	1.662	2.715	2.715	2.715	2.715	4.620	4.620
4	153	691	809	809	1.851	3.023	3.023	3.023	3.023	5.142	5.142
4,5	155	762	891	891	2.039	3.330	3.330	3.330	3.330	5.665	5.665
5	159	832	974	974	2.227	3.637	3.637	3.637	3.637	6.187	6.187
5,5	161	902	1.056	1.056	2.416	3.944	3.944	3.944	3.944	6.710	6.710
6	165	972	1.138	1.138	2.604	4.251	4.251	4.251	4.251	7.232	7.232
6,5	167	1.043	1.220	1.220	2.792	4.558	4.558	4.558	4.558	7.755	7.755
7	170	1.113	1.302	1.302	2.980	4.865	4.865	4.865	4.865	8.277	8.277
7,5	172	1.183	1.385	1.385	3.168	5.172	5.172	5.172	5.172	8.800	8.800
8	175	1.253	1.467	1.467	3.356	5.480	5.480	5.480	5.480	9.323	9.323
8,5	177	1.324	1.549	1.549	3.544	5.787	5.787	5.787	5.787	9.845	9.845
9	180	1.394	1.631	1.631	3.732	6.094	6.094	6.094	6.094	10.368	10.368
9,5	181	1.464	1.713	1.713	3.920	6.401	6.401	6.401	6.401	10.890	10.890
10	184	1.534	1.796	1.796	4.109	6.708	6.708	6.708	6.708	11.413	11.413
11	187	1.675	1.960	1.960	4.485	7.322	7.322	7.322	7.322	12.458	12.458
12	192	1.815	2.125	2.125	4.861	7.937	7.937	7.937	7.937	13.503	13.503
13	194	1.956	2.289	2.289	5.237	8.551	8.551	8.551	8.551	14.548	14.548
14	198	2.096	2.453	2.453	5.613	9.165	9.165	9.165	9.165	15.593	15.593
15	201	2.237	2.618	2.618	5.990	9.779	9.779	9.779	9.779	16.638	16.638
16	204	2.377	2.782	2.782	6.366	10.393	10.393	10.393	10.393	17.683	17.683
17	207	2.518	2.947	2.947	6.742	11.008	11.008	11.008	11.008	18.728	18.728
18	209	2.658	3.111	3.111	7.118	11.622	11.622	11.622	11.622	19.773	19.773
19	212	2.799	3.276	3.276	7.494	12.236	12.236	12.236	12.236	20.818	20.818
20	215	2.939	3.440	3.440	7.871	12.850	12.850	12.850	12.850	21.863	21.863
21	217	3.080	3.604	3.604	8.247	13.465	13.465	13.465	13.465	22.908	22.908
22	220	3.220	3.769	3.769	8.623	14.079	14.079	14.079	14.079	23.953	23.953
23	222	3.361	3.933	3.933	8.999	14.693	14.693	14.693	14.693	24.998	24.998
24	224	3.501	4.098	4.098	9.375	15.307	15.307	15.307	15.307	26.043	26.043
25	226	3.642	4.262	4.262	9.752	15.922	15.922	15.922	15.922	27.088	27.088
26	228	3.782	4.427	4.427	10.128	16.536	16.536	16.536	16.536	28.133	28.133
27	230	3.923	4.591	4.591	10.504	17.150	17.150	17.150	17.150	29.178	29.178
28	232	4.063	4.755	4.755	10.880	17.764	17.764	17.764	17.764	30.223	30.223
29	234	4.204	4.920	4.920	11.256	18.379	18.379	18.379	18.379	31.268	31.268
30	236	4.344	5.084	5.084	11.633	18.993	18.993	18.993	18.993	32.313	32.313
31	238	4.485	5.249	5.249	12.009	19.607	19.607	19.607	19.607	33.358	33.358
32	240	4.625	5.413	5.413	12.385	20.221	20.221	20.221	20.221	34.403	34.403

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



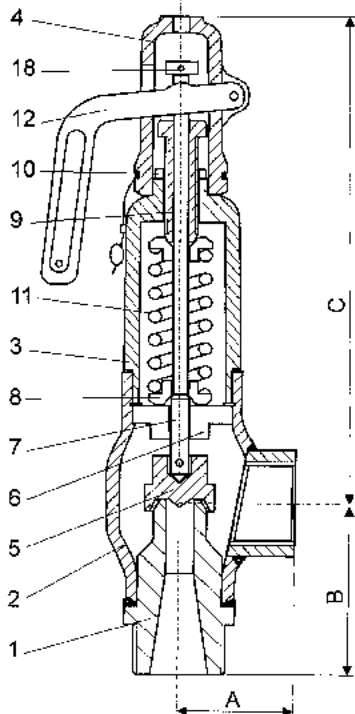
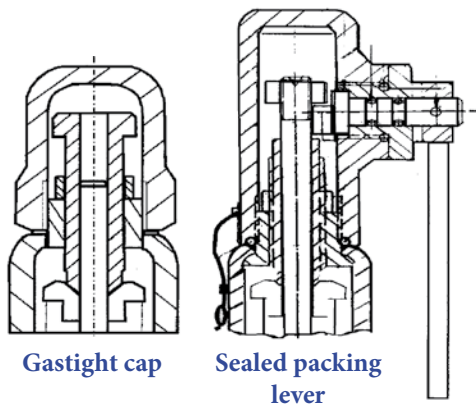
Model 1416SS PN 100

Technical data:

Connections:	Threaded DIN 259 or ANSI B-2.1				
Material:	Stainless steel AISI 316L				
Nominal pressure (bar)	100				
Temperature min. (°C)	-10				
Temperature max. (°C)	120	200	250	300	350
Pressure acc.: EN 1092 (bar)	100	80	70	60	56

Seating surface

Fluid	Type	Temp. (°C)
Steam	Metal	-10 to 350
Liquid / Gases	Viton	-10 to 150
Liquid / Gases	PTFE	-10 to 230



Lifting device

No.	Piece	Material
1	Nozzle	AISI 316L
2	Body	AISI 316L
3	Open bonnet	AISI 316L
4	Open cap	Brass zn.
	closed cap	AISI 303
5	Disc	AISI 316L
	O-ring	Viton / PTFE
6	Guide	AISI 316L
7	Push road	AISI 316L
8	Spring button	AISI 303
9	Adjusting screw	AISI 303
10	Tensor nut	AISI 303
11	Spring	AISI 302
12	Lever	Brass zn.
14	Elastic pin	AISI 304
17	Release nut	AISI 316
18	Elastic pin	AISI 304
20	Gasket	PTFE
21	Gasket	Buna / Viton

Inlet	Outlet	Orif mm	Area mm ²	A	B	C		Weight (kg)	
						With lever	Without lever	With lever	Without lever
1/2"	1"	13	133	49	76	250	218	4,8	4,6
3/4"	1"	14	154	49	76	250	218	4,8	4,6
1"	1"	14	154	49	78	250	218	4,8	4,6
1"	1 1/2"	16	201	55	103	250	218	5,5	5,3
1 1/4"	2"	18	254	65	89	305	270	9,7	9,5
1 1/2"	2 1/2"	23,8	445	100	113	305	270	10,7	10,5
2"	3"	26	531	110	121	305	270	11,3	11
2 1/2"	4"	36	1018	116	240	377	329	14,3	14



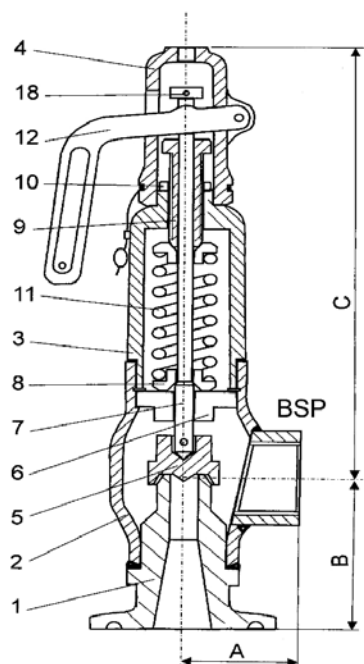
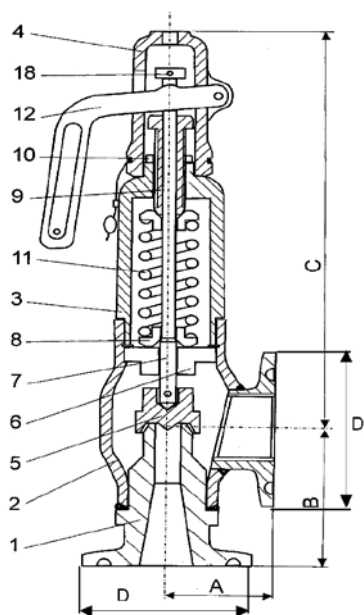
Model 1416C SS

Technical data

Material:	Stainless steel AISI 316L			
Connections:	Inlet:	CLAMP ISO 2852		
	Outlet:	CLAMP or BSP		
Nominal pressure (bar)	10			
Temperature min. (°C)	-10			
Temperature max. (°C)	120	200	250	300
Pressure DIN 2401(bar) PN40	10	8	7	6

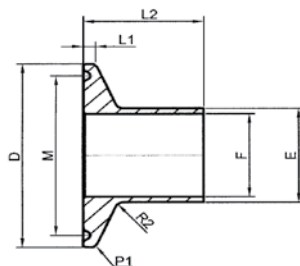
Seating surface

Liquid	Type	Temp. (°C)
Steam	Metal	-10 to 250
Liquid / Gases	Viton (FPM)	-10 to 150
Liquid / Gases	PTFE (teflon)	-10 to 230



No.	Piece	Material
1	Nozzle	AISI 316L
2	Body	AISI 316L
3	Bonnet	AISI 316L
4	Open cap	Mosaz zn.
	Closed cap	AISI 316L
5	Disc	AISI 316L
	O-ring	Viton / PTFE
6	Guide	AISI 316L
7	Push road	AISI 316L
8	Spring button	AISI 303
9	Adjusting screw	AISI 303
10	Tensor nut	AISI 303
11	Spring	AISI 302
12	Lever	Mosaz zn.
14	Elastic pin	AISI 304
17	Elastic pin	AISI 304
18	Release nut	AISI 304
20	Gasket	PTFE
21	Gasket	Buna / Viton

Inlet CLAMP	Outlet CLAMP BSP	Orif mm	A	B	C		D	Weight (kg)	
					With lever	Without lever		With lever	Without lever
25	25	22,5		77	250	218	50,4	6	5,5
25	1 1/2"	22,5	55	77	250	218	50,4	6	5,5
40	40	32		95	305	270	50,4	9	8,2
40	2"	32	65	95	305	270	50,4	9	8,2



CLAMP ISO 2852

	D	M	E	L1	L2
25	50,5	43,5	25,6	2,85	21,5
40	50,5	43,5	38,6	2,85	21,5



Water capacity Valve Model 1216C & 1416C PN10

Water capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP	
	Model 1216C			Model 1416C		Model 1216C			Model 1416C	
	15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"
	Orifice (mm)									
	9,5	16	18	22,5	32	9,5	16	18	22,5	32
	Area (mm ²)									
71	201	254	398	804	71	201	254	398	804	
0,5	1.338	3.796	4.804	7.506	15.183	1.338	3.796	4.804	7.506	15.183
1	1.892	5.368	6.794	10.616	21.472	1.892	5.368	6.794	10.615	21.472
1,5	2.318	6.574	8.321	13.001	26.298	2.318	6.574	8.321	13.001	26.298
2	2.676	7.591	9.608	15.013	30.367	2.676	7.591	9.608	15.012	30.366
2,5	2.992	8.487	10.742	16.785	33.951	2.992	8.487	10.742	16.784	33.950
3	3.278	9.298	11.767	18.387	37.191	3.278	9.298	11.767	18.386	37.190
3,5	3.540	10.043	12.710	19.860	40.171	3.540	10.043	12.710	19.860	40.170
4	3.785	10.736	13.588	21.231	42.945	3.785	10.736	13.588	21.231	42.944
4,5	4.014	11.387	14.412	22.519	45.550	4.015	11.387	14.412	22.519	45.549
5	4.232	12.003	15.191	23.737	48.014	4.232	12.003	15.191	23.737	48.012
5,5	4.438	12.589	15.933	24.896	50.357	4.438	12.589	15.933	24.895	50.356
6	4.635	13.149	16.641	26.003	52.597	4.636	13.149	16.641	26.002	52.595
6,5	4.825	13.686	17.321	27.065	54.744	4.825	13.686	17.321	27.064	54.743
7	5.007	14.202	17.975	28.086	56.811	5.007	14.202	17.975	28.086	56.809
8	5.353	15.183	19.216	30.026	60.733	5.353	15.183	19.216	30.025	60.732
8,5	5.517	15.650	19.807	30.950	62.602	5.517	15.650	19.807	30.949	62.601
9	5.677	16.104	20.381	31.847	64.417	5.677	16.104	20.381	31.846	64.416
10	5.984	16.975	21.484	33.570	67.902	5.985	16.975	21.484	33.569	67.900

Calculation acc.: ISO EN 4126-1
lbs/h = kg/h x 2,2046



Air capacity Valve Model 1216C & 1416C PN10

Air capacity chart (kg/h)

10% Overpressure, temperature 20 °C

Set pressure gauge (barg)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP	
	Model 1216C			Model 1416C		Model 1216C			Model 1416C	
	15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"
	Orifice (mm)									
	9,5	16	18	22,5	32	9,5	16	18	22,5	32
	Area (mm ²)									
	71	201	254	398	804	71	201	254	398	804
0,5	47	133	169	263	533	47	133	169	263	533
1	64	180	228	356	721	64	180	228	356	721
1,5	80	227	287	449	908	80	227	287	449	908
2	97	274	347	542	1.096	97	274	347	542	1.096
2,5	113	321	406	634	1.283	113	321	406	634	1.283
3	130	368	465	727	1.471	130	368	465	727	1.471
3,5	146	415	525	820	1.658	146	415	525	820	1.658
4	163	461	584	913	1.846	163	461	584	913	1.846
4,5	179	508	643	1.005	2.033	179	508	643	1.005	2.033
5	196	555	703	1.098	2.221	196	555	703	1.098	2.221
5,5	212	602	762	1.191	2.408	212	602	762	1.191	2.408
6	229	649	821	1.283	2.596	229	649	821	1.283	2.596
6,5	245	696	881	1.376	2.784	245	696	881	1.376	2.784
7	262	743	940	1.469	2.971	262	743	940	1.469	2.971
8	295	837	1.059	1.654	3.346	295	837	1.059	1.654	3.346
8,5	311	883	1.118	1.747	3.534	311	883	1.118	1.747	3.534
9	328	930	1.177	1.840	3.721	328	930	1.177	1.840	3.721
10	361	1.024	1.296	2.025	4.096	361	1.024	1.296	2.025	4.096

Calculation acc.: ISO EN 4126-1

lbs/h = kg/h x 2,2046



Steam capacity Valve Model 1216C & 1416C PN10

Steam capacity chart (kg/h)
10% Overpressure

Set gauge pressure (barg)	Saturated steam temp. (°C)	CLAMP / CLAMP			CLAMP/CLAMP		CLAMP/BSP			CLAMP/BSP		
		Model 1216C			Model 1416C		Model 1216C			Model 1416C		
		15 x 25	20 x 25	25 x 25	25 x 25	40 x 40	15 x 1"	20 x 1"	25 x 1"	25 x 1 1/2"	40 x 2"	
		Orifice (mm)										
		9,5	16	18	22,5	32	9,5	16	18	22,5	32	
		Area (mm ²)										
71	201	254	398	804	71	201	254	398	804			
0,5	111	31	89	113	176	356	31	89	113	176	356	
1	120	42	120	152	238	482	42	120	152	238	482	
1,5	127	54	152	192	300	607	54	152	192	300	607	
2	134	65	183	232	362	733	65	183	232	362	733	
2,5	138	76	214	271	424	858	76	214	271	424	858	
3	144	87	246	311	486	983	87	246	311	486	983	
3,5	147	98	27	351	548	1.109	98	277	351	548	1.109	
4	153	109	309	390	610	1.234	109	309	390	610	1.234	
4,5	155	120	340	430	672	1.360	120	340	430	672	1.360	
5	159	131	371	470	734	1.485	131	371	470	734	1.485	
5,5	161	142	403	510	796	1.610	142	403	510	796	1.610	
6	165	153	434	549	858	1.736	153	434	549	858	1.736	
6,5	167	164	465	589	920	1.861	164	465	589	920	1.861	
7	170	175	497	629	982	1.987	175	497	629	982	1.987	
7,5	172	186	528	668	1.044	2.112	186	528	668	1.044	2.112	
8	175	197	559	708	1.106	2.237	197	559	708	1.106	2.237	

Calculation acc.: ISO EN 4126-1 and EN 1092-1
lbs/h = kg/h x 2,2046