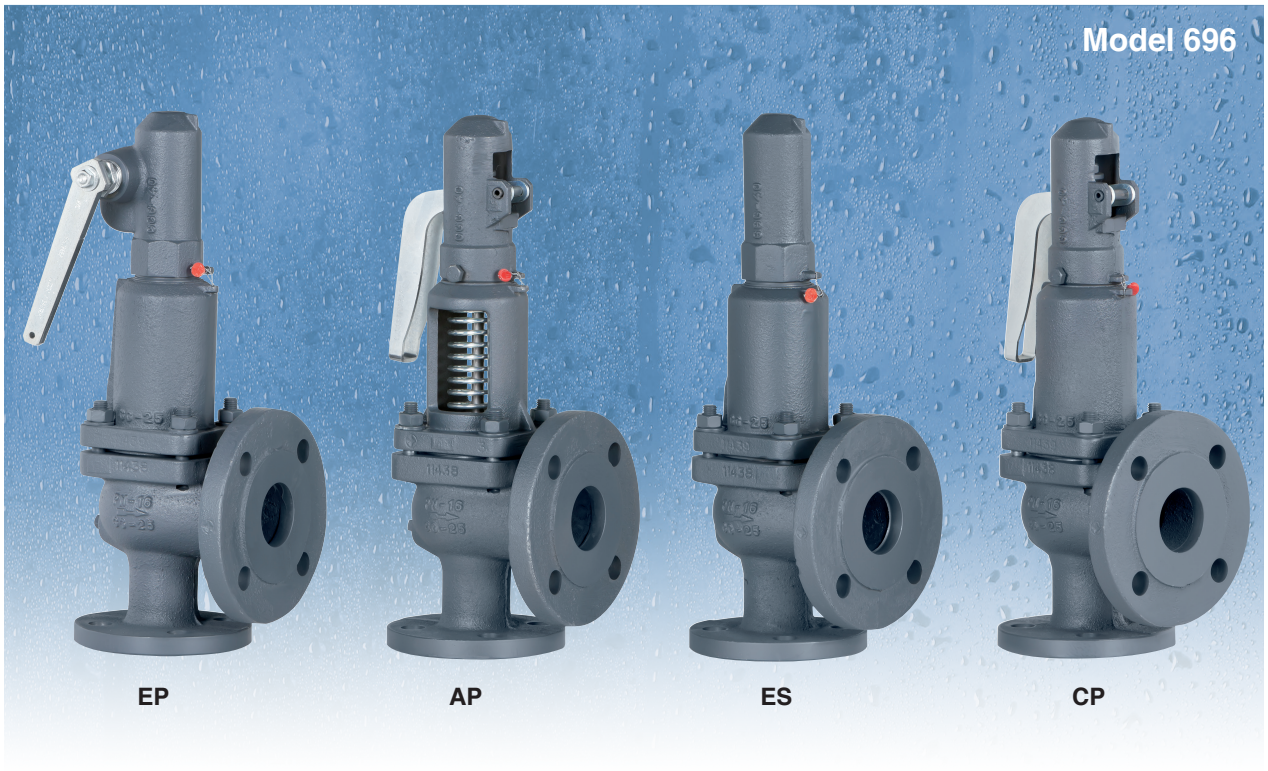
Full lift safety valve with spring loading. (AIT)

EN



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 accordance with “International Standard ISO 4126-1:2004 Safety Valves”.
In accordance with the requirements of the pressure equipment directive 2014/68/EU.
EC valve verification certified by: TÜV Rheinland Industrie Service GmbH, Notified Body for Pressure Equipment ID-No. 0035.
Type (Module B) EC examination report nº 33530455 certified by: TÜV Rheinland Ibérica ICT, S.A.
In compliance with the ATEX 2014/34/EU directive “Protective equipment and systems for use in potentially explosive atmospheres”.
Other authorisations: ISCIR, ITI, NASTHOL,EAC,...etc.

Specifications

— 90° angular flow.
— Activated by direc ed 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 EN 12266-1 requeriments.
— 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, and the instruction manual, in accordance with P.E.D. 2014/68/EU.

IMPORTANT

Depending on demand:

1. Blocking screw which facilitates hydrostatic testing of the container which to beprotected.
2. Rapid limiter to reduce the coefficient of discharge
3. Fluorelastomer (Vitón) seals, Silicone's rubber, PTFE (Teflón)... etc.,achieving leakage levels less than

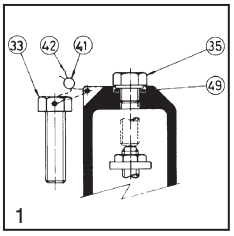
$$0{,}3\text{x}10^{-3}\frac{\text{Pa cm}^3}{\text{seg.}}$$

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

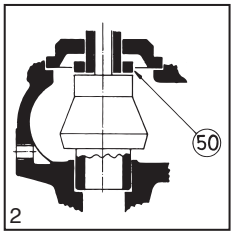
RANGE OF APPLICATION FOR THE SEALS					
FLUID		SET PRESSURE IN bar			
		0,2 / 1,8 / 4,0 / 4,8 / 7,0 / 30,0 / 62,0			
Satured		S	V	T	
Liquids and gases		S		V	T
SEALS		TEMPERATURE IN °C			
		ACCORDING TO MANUFACTURERS		RECOMMENDED BY VYC	
		MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
Silicone's rubber	S	-60	+200	-50	+115
Fluorelastomer (Vitón)	V	-40	+250	-30	+150
PTFE (Teflón)	T	-265	+260	-80	+230 (1)

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

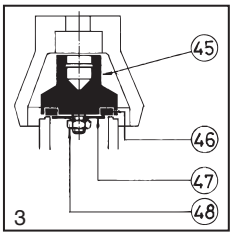
4. Flourelastomer (Vitón) membrane and O-ring isolating the rotating or sliding parts from the working fluid.
5. Electrical contact indicating open/closed.
6. Balance bellows to:
   - ■ Protect the spring from atmospheric influences.
   - ■ Ensure outside of valve body is totally tightness.
   - ■ Level 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.



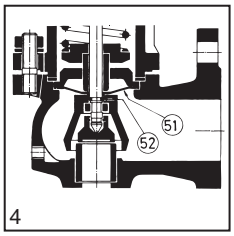
1



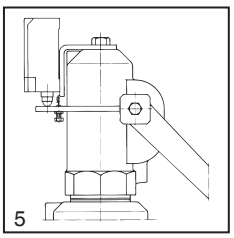
2

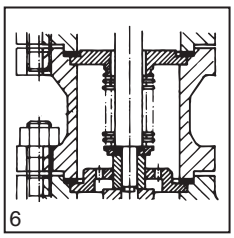


3



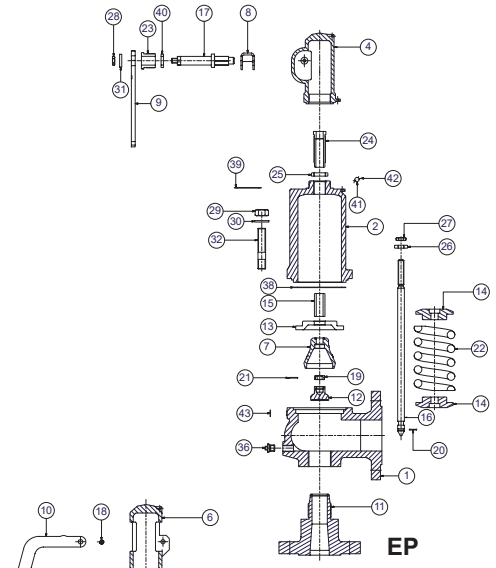
4


5

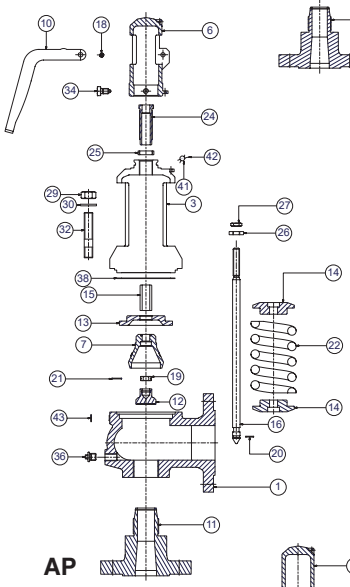

6

N.º PIECE	PIECE	MATERIAL	
		CAST STEEL	STAINLESS STEEL
1	Body	Cast steel (EN-1.0619+N)	Stainless steel (EN-1.4408)
2	Closed bell	Cast steel (EN-1.0619+N)	Stainless steel (EN-1.4408)
3	Open bell	Cast steel (EN-1.0619+N)	Stainless steel (EN-1.4408)
4, 5, 6	Hood	Nodular iron (EN-5.3106)	Stainless steel (EN-1.4408)
7	Elevator	Nodular iron (EN-5.3106) (1)	Stainless steel (EN-1.4408)(2)
8	Cam	Carbon steel (EN-1.0037)	Stainless steel (EN-1.4301)
9, 10	Lever	Carbon steel (EN-1.0037)	Carbon steel (EN-1.0037)
11	Seating	Carbon steel (EN-1.0460) (7)	Stainless steel (EN-1.4571) (8)
12	Plug	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4542)
13	Lead	Stainless steel (EN-1.4028) (3)	Stainless steel (EN-1.4401) (4)
14	Spring press	Carbon steel (EN-1.1191)	Stainless steel (EN-1.4305)
15	Separator	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4401)
16	Rod	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4401)
17	Lever shaft	Carbon steel (EN-1.1191)	Stainless steel (EN-1.4305)
18	Gudgeon	Carbon steel (EN-1.1231)	Stainless steel (EN-1.4310)
19	Ring	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4401)
20, 21	Safety ring	Stainless steel (EN-1.4310)	Stainless steel (EN-1.4310)
22	Spring	Vanadium chrome steel (EN-1.8159) (2)	Stainless steel (EN-1.4310) (6)
23	Gland	Carbon steel (EN-1.1191)	Stainless steel (EN-1.4305)
24	Hollow screw	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)
25	Hollow screw nut	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)
26	Buffer nut	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)
27	Rod check nut	Carbon steel (EN-1.1141)	Stainless steel (EN-1.4401)
28, 29, 48	Nut	Carbon steel (EN-1.1141)	Stainless steel (EN-1.4401)
30, 31	Washer	Carbon steel (EN-1.1141)	Stainless steel (EN-1.4401)
32	Stud	Carbon steel (EN-1.1181)	Stainless steel (EN-1.4401)
33, 34, 35	Screw	Carbon steel (EN-1.1191)	Stainless steel (EN-1.4401)
36	Cap	Carbon steel (EN-1.1181)	Stainless steel (EN-1.4401)
38	Coupling	Graphite	PTFE (Teflon)
39	Coupling	PTFE (Teflon)	PTFE (Teflon)
40	Seal	Graphite	PTFE (Teflon)
41	Seal	Plastic	Plastic
42	Sealing wire	Sealing wire	Sealing wire
43	Characteristic plate	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)
45	Plug	Stainless steel (EN-1.4401)	Stainless steel (EN-1.4401)
46	Sealing disk	PTFE (Teflon)	PTFE (Teflon)
		Silicone's rubber	Silicone's rubber
		Fluorelastomer (Vitón)	Fluorelastomer (Viton)
47	Washer	Stainless steel (EN-1.4401)	Stainless steel (EN-1.4401)
49	Coupling	Copper	Copper
50	Limiter	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4401)
51	Membrane	Fluorelastomer (Viton)	Fluorelastomer (Viton)
52	O-ring	Fluorelastomer (Viton)	Fluorelastomer (Viton)
DN1x DN2		25x32 to 300x400	
PN		160	
OPERATING CONDITIONS	PRESSURE IN bar	95	95
	MAX. TEMP. IN °C	450ºC	400ºC
	MIN. TEMP. IN °C	-10	-60

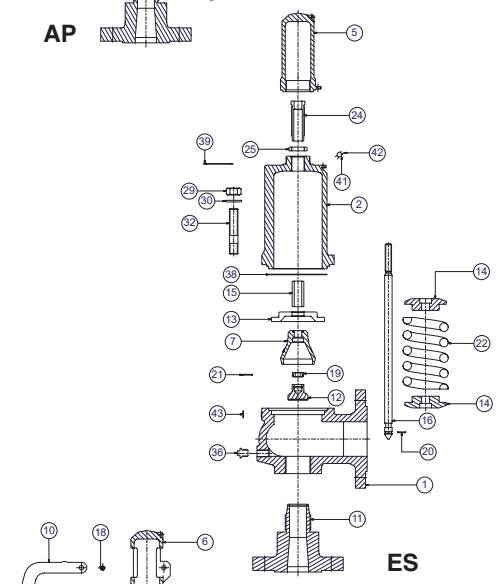
(1) DN-25x40 in stainless steel (1.4408).
(2) DN-32x50 a DN-80x125 in stainless steel (1.4401).
(3) From DN-150x250 to DN-300x400 in stainless steel (DIN-1.4027).
(4) From DN-150x250 to DN-300x400 in stainless steel (1.4408).
(5) DN-25x32 from 30 to 40 and 38 to 50 bar in Spring steel (EN-10270-1-SH), DN-25x40 from 30 to 40 bar in Spring steel (EN 10270-1 SH).Max temp. EP, ES and CP 250ºC / AP 400ºC. Over 400ºC possibility of manufacturing the spring in another material if specified by the customer
(6) DN-25x40 from 60 to 78 , and from 75 to 95 bar in Stainless Steel (EN.1.4310).
(7) From DN-150x250 to DN-300x400 in Carbon steel (1.0619)
(8) From DN-150x250 to DN-300x400 in Stainless steel (1.4408)



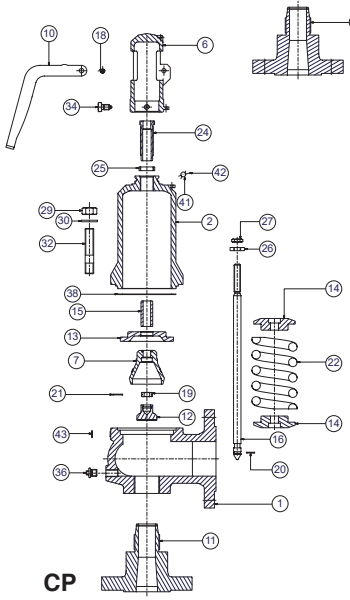
EP



AP



ES



CP

FULL LIFT SAFETY VALVE WITH SPRING LOADING (AIT) MODEL 596 - 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 realeasing 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. Definitively tighten the cap (4).

2. Adjustig 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.

FULL LIFT SAFETY VALVE WITH SPRING LOADING (AIT) MODEL 596 - 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 holow screw (24) until you note a realasing 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). IIntroduce 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 descrobed 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 mrked (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 596 - ES.

1. Disassembly and assembly.

1.1 Disassembly.

To replace the spring (22), or clean any of the internal components of the valve, proceded 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 realeasing 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).

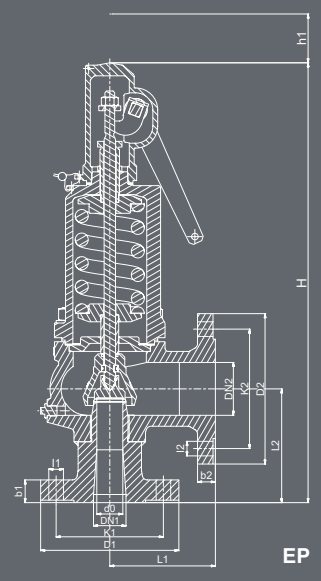
2. Adjusting the firing pressure.

A - Proceed according to points 1.1.A, 1.1.B.

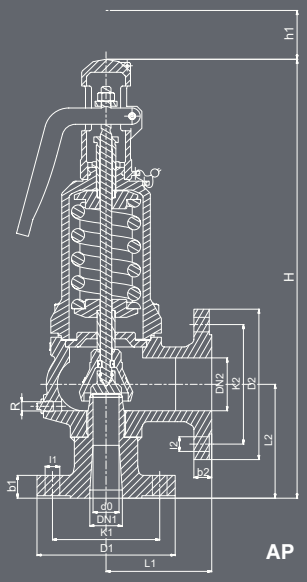
B - Proceed according to points 1.2.F, 1.2.G.B - Proceder conforme al punto 1.2.F, 1.2.G.

DN1x DN2			25x40	32x50	40x65	50x80	65x100	80x125	
do			16	20	25	32	40	50	
Ao			201	314	491	804	1257	1964	
H			420	480	540	650	685	800	
h1			150	175	175	225	225	225	
L1			100	110	130	145	155	190	
L2			120	125	140	150	165	185	
R			¼”	¼”	¼”	¼”	3/8”	3/8”	
			Whitworth gas-tight cylindrical f						
INTAKE FLANGE	PN-160 EN 1092-1 (1) (2) (3) (4)	D1	140	155	170	195	220	230	
		K1	100	110	125	145	170	180	
		I1	18	22	22	26	26	26	
		b1	24	26	28	30	34	36	
		DRILLS Nº	4	4	4	4	8	8	
ESCAPE FLANGE	PN-40 EN 1092-1 (1) (2)	D2	150	165	185	200	235	270	
		K2	110	125	145	160	190	220	
		I2	18	18	18	18	22	26	
		b2	18	20	22	24	24	26	
		DRILLS Nº	4	4	8	8	8	8	

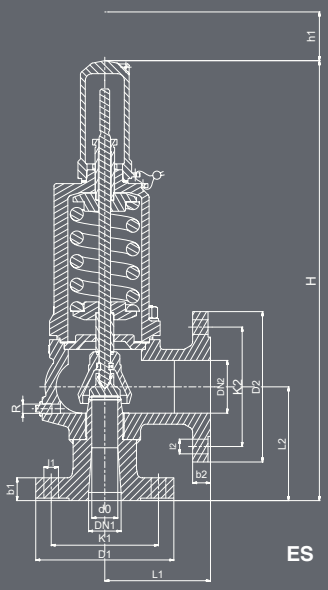
MODEL		EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	
WEIGHT IN kgs.	CAST STEEL STAINLESS STEEL	12,00	11,40	11,60	11,80	14,00	13,40	13,60	13,80	19,00	18,40	18,60	18,80	28,00	27,40	27,60	27,80	40,00	39,40	39,60	39,80	50,00	49,40	49,60	49,80	
CODE	CAST STEEL 2002-696.	0104	01041	01042	01043	0144	01441	01442	01443	0124	01241	01242	01243	0204	02041	02042	02043	0224	02241	02242	02243	0304	03041	03042	03043	
	STAINLESS STEEL 2002-696.	0102	01021	01022	01023	0142	01421	01422	01423	0122	01221	01222	01223	0202	02021	02022	02023	0222	02221	02222	02223	0302	03021	03022	03023	



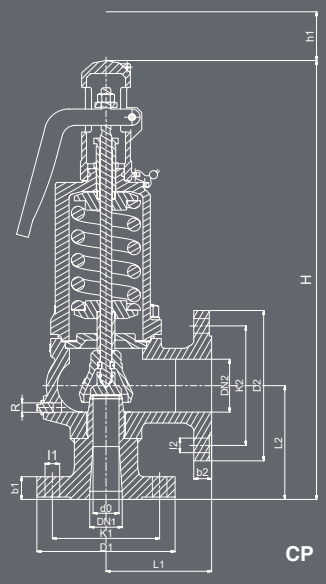
EP



AP



ES



CP

	100x150				125x200				150x250				200x300				250x350				300x400			
	63				77				93				110				155				180			
	3117				4657				6793				9503				18870				25450			
	840				980				1180				1300				1400				1575			
	225				305				400				400				425				520			
	210				215				225				265				300				335			
	200				220				245				290				340				370			
	3/8"				½"				½"				½"				¾"				¾"			
emale thread ISO 228/1 (DIN-259)																								
	265				315				345				375				425				485			
	210				250				280				320				370				430			
	30				33				33				30				30				30			
	40				40				36				34				32				34			
	8				8				8				12				12				16			
	300				360				395				445				505				565			
	250				310				350				400				460				515			
	26				26				22				22				22				26			
	28				30				26				26				26				26			
	8				12				12				12				16				16			
	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP
	80,00	79,40	79,60	79,80	126,00	125,40	125,60	125,80	135,00	134,40	134,60	134,80	170,00	169,40	169,60	169,80	270,00	269,40	269,60	269,80	370,00	369,40	369,60	369,80
	0404	04041	04042	04043	0504	05041	05042	05043	0604	06041	06042	06043	0804	08041	08042	08043	0004	00041	00042	00043	0024	00241	00242	00243
	0402	04021	04022	04023	0502	05021	05022	05023	0602	06021	06022	06023	0802	08021	08022	08023	0002	00021	00022	00023	0022	00221	00222	00223

Escape flange
(1) DN-125x200 PN-25
(2) From DN-150x250 to DN-300x400 PN-10

Intake flange
(1) DN-32x50 y DN-125x200 PN-100
(2) DN-150x250 PN-63
(3) DN-200x300 PN-40
(4) From DN-250x350 to DN-300x400 PN-25

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			

OPENING AND CLOSING PRESSURES IN % OF THE TRIPPING PRESSURE			
FLUID	PRESSURE IN bar	OPENING PRESSURE	CLOSING PRESSURE
SATURATED STEAM GASES	<3	+5%	- 0,3 bar
	≥3	+5%	- 10 %
LIQUIDS	<3	+10%	- 0,6 bar
	≥3	+10%	- 20 %

(1) If external backpressure exists, the AP and CP model cannot be used.
(2) With external constant backpressure, the spring is adjusted deducting the backpressure from the set pressure.
(3) If the set pressure < 3 bar we must consider the total atmospheric pressure (1 bar) as external constant backpressure being freely released.

If pa > 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 d0, in order to remove the necessary volume.

pa = Backpressure permitted [bar] absolute
p = Set pressure [bar] absolute.
kd = Coefficient of discharge.

DISCHARGE CAPACITY

DN1 x DN2	25x40			32x50			40x65			50x80		
do	16			20			25			32		
$Ao=\frac{\pi \cdot do^2}{4}$	201			314			491			804		
p [bar]	I - Saturated steam in Kg/h..											
	II - Air at 0°C and 1,013 bar in [Nm3/h].											
	III - Water at 20°C in l/h..											

$$V_L=\sqrt{\frac{Q_A}{Q_L}}.V_A \text{ ó } V_A=V_L.\sqrt{\frac{Q_L}{Q_A}}$$

V_A = Water flow according to table.
V_L = Liquid flow.
V_A = Water density at a 20°C. (V_A=998 Kg/m3).
V_L = Liquid density.

SET PRESSURE IN bar	I	II	III	I	II	III	I	II	III	I	II	III
0,2												
0,5												
1,0												
1,5												
2,0												
2,5												
3,0												
3,5												
4,0												
4,5												
5,0												
5,5												
6,0												
6,5												
7,0												
7,5												
8,0												
9,0												
10,0												
11,0												
12,0												
13,0												
14,0												
15,0												
16,0												
17,0												
18,0												
20,0												
22,0												
24,0												
25,0												
26,0												
28,0												
30,0												
32,0												
34,0												
36,0												
38,0												
40,0												
42,0												
44,0												
46,0												
48,0												
50,0												
52,0												
54,0												
56,0												
58,0												
60,0												
62,0	3650	6100	33666	5702	9529	52592	8916	14900	82238	14599	24399	134663
64,0	3707	6293	34205	5792	9831	53434	9056	15373	83555	14829	25173	136819
66,0	3764	6487	34735	5880	10134	54263	9194	15846	84850	15056	25948	138940
68,0	3820	6681	35258	5967	10436	55079	9331	16319	86127	15279	26722	141030
70,0	3875	6874	35772	6053	10739	55883	9465	16792	87384	15499	27497	143090
72,0	3929	7068	36280	6138	11041	56676	9597	17265	88624	15715	28271	145120
74,0	3982	7261	36780	6221	11344	57458	9728	17738	89847	15929	29046	147122
76,0	4035	7455	37274	6303	11646	58229	9857	18211	91053	16140	29821	149097
78,0	4087	7649	37762	6385	11949	58991	9984	18684	92244	16348	30595	151046
80,0	4139	7842	38243	6465	12251	59742	10110	19157	93419	16554	31370	152971
82,0	4189	8036	38718		12554	60485	10234	19630	94580	16757	32144	154872
84,0	4239	8230	39187		12856	61218	10356	20103	95726	16958	32919	156749
86,0	4289	8423	39651		13159	61943	10477	20576	96859	17156	33693	158605
88,0	4338	8617	40110		13461	62659	10597	21049	97979	17352	34468	160439
90,0	4387	8811	40563		13764	63367	10715	21522	99087	17546	35242	162252
92,0	4434	9004	41011		14066	64067	10833	21995	100182	17738	36017	164045
94,0	4482	9198	41455		14369	64760	10948	22468	101265	17928	36792	165819
95,0	4505	9295	41675		14520	65104	11006	22705	101802	18022	37179	166698

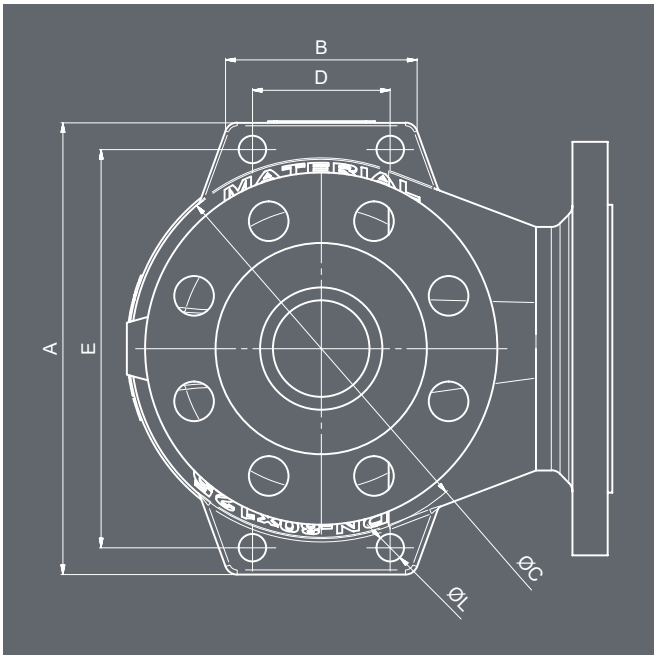
DISCHARGE CAPACITY

DN1 x DN2	65x100			80x125			100x150			125x200		
do	40			50			63			77		
$Ao=\frac{\pi \cdot do^2}{4}$	1257			1964			3117			4657		
p [bar]	I - Saturated steam in Kg/h.. II - Air at 0°C and 1,013 bar in [Nm3/h]. III - Water at 20°C in l/h..			$V_L=\sqrt{\frac{Q_A}{Q_L}}.V_A$ ó $V_A=V_L.\sqrt{\frac{Q_L}{Q_A}}$			V_A = Water flow according to table. V_L = Liquid flow. V_A = Water density at a 20°C. (V_A=998 Kg/m3). V_L = Liquid density.					
SET PRESSURE IN bar	I	II	III	I	II	III	I	II	III	I	II	III
0,2												
0,5												
1,0												
1,5												
2,0												
2,5												
3,0												
3,5												
4,0												
4,5												
5,0												
5,5												
6,0												
6,5												
7,0												
7,5												
8,0												
9,0												
10,0												
11,0												
12,0												
13,0												
14,0												
15,0												
16,0												
17,0												
18,0												
20,0												
22,0										51095	51594	464548
24,0										53270	56081	485217
25,0										54325	58324	495228
26,0										55360	60567	505040
28,0										57374	65054	524115
30,0										59319	69540	542519
32,0										61203	74027	560319
34,0										63030	78513	577571
36,0										64806	83000	594322
38,0							44532	58556	408693	66534	87486	610613
40,0							45660	61559	419313	68219	91973	626482
42,0							46760	64562	429672			
44,0							47835	67564	439786			
46,0							48887	70567	449673			
48,0				31452	46356	289432	49916	73570	459348			
50,0				32087	48248	295402	50925	76573	468822			
52,0				32710	50140	301253	51914	79576	478109			
54,0				33322	52032	306993	52884	82579	487219			
56,0				33922	53924	312628	53837	85582	496162			
58,0				34512	55816	318163	54773	88584	504946			
60,0	22460	36935	207113	35092	57709	323603	55694	91587	513580			
62,0	22825	38146	210537	35663	59601	328954						
64,0	23185	39357	213907	36225	61493	334218						
66,0	23539	40568	217224	36778	63385	339402						
68,0	23887	41779	220491	37323	65277	344507						
70,0	24231	42989	223711	37860	67169	349537						
72,0	24570	44200	226885	38389	69061	354496						
74,0	24904	45411	230015	38912	70953	359387						
76,0	25234	46622	233103	39427	72845	364212						
78,0	25560	47833	236151	39936	74737	368974						
80,0	25881	49044	239160									
82,0	26199	50255	242131									
84,0	26513	51466	245067									
86,0	26823	52677	247968									
88,0	27129	53888	250835									
90,0	27432	55099	253670									
92,0	27732	56310	256473									
94,0	28029	57521	259246									
95,0	28176	58127	260622									

DISCHARGE CAPACITY												
DN1 x DN2	**150x250**			**200x300**			**250x350**			**300x400**		
do	**93**			**110**			**155**			**180**		
$Ao=\frac{\pi \cdot do^2}{4}$	**6793**			**9503**			**18870**			**25450**		
p [bar]	I - Saturated steam in Kg/h.. II - Air at 0°C and 1,013 bar in [Nm3/h]. III - Water at 20°C in l/h..			$V_L=\sqrt{\frac{Q_A}{Q_L}}.V_A$ ó $V_A=V_L.\sqrt{\frac{Q_L}{Q_A}}$						V_A = Water flow according to table. V_L = Liquid flow. V_A = Water density at a 20°C. (V_A=998 Kg/m3). V_L = Liquid density.		
SET PRESSURE IN bar	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
0,2												
0,5												
1,0												
1,5												
2,0												
2,5												
3,0												
3,5												
4,0												
4,5												
5,0												
5,5												
6,0												
6,5												
7,0							61226	68987	919614	82576	93043	1240285
7,5							66031	73299	951951	89056	98858	1283898
8,0							73572	77610	983225	99227	104673	1326077
9,0				44085	45775	525240	83050	86234	1042964	112010	116304	1406647
10,0				49106	50353	553693	92510	94857	1099462	124768	127934	1482846
11,0				54124	54930	580753	101962	103481	1153195			
12,0				59142	59508	606607	111416	112104	1204533			
13,0				64165	64085	631404						
14,0				69194	68663	655262						
15,0				74232	73240	678282						
16,0				79282	77818	700546						
17,0				84345	82395	722124						
18,0	63921	62170	531171	89422	86973	743076						
20,0	69231	68715	559924	96850	96128	783300						
22,0	74530	75259	587271									
24,0	77703	81803	613399									
25,0	79242	85075	626055									
26,0	80751	88347	638460									
28,0	83689	94892	662573									
30,0	86526	101436	685839									
32,0	89274	107980	708342									
34,0												
36,0												
38,0												
40,0												
42,0												
44,0												
46,0												
48,0												
50,0												
52,0												
54,0												
56,0												
58,0												
60,0												
62,0												
64,0												
66,0												
68,0												
70,0												
72,0												
74,0												
76,0												
78,0												
80,0												
82,0												
84,0												
86,0												
88,0												
90,0												
92,0												
94,0												
95,0												

SET PRESSURES AND REGULATING RANGES														
DN1x DN2			25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	250x350	300x400
SET PRESSURES IN bar	MAXIMUM (LIQUIDS AND GASES)	PN-160	95	95	95	95	95	78	62	40	32	20	12	10
	MAXIMUM (SATURATED STEAM)	PN-160	95	80	95	95	95	78	62	40	32	20	12	10
	MINIMUM	STEAM AND GASES	60	60	60	60	60	48	38	23	18	9,5	7,5	7,5
		LIQUIDS	60	60	60	60	60	48	38	23	18	9,5	7,5	7,5
SPRING REGULATING RANGE IN bar	7,50 to 10,00	CODE	-	-	-	-	-	-	-	-	-	-	56617	56619
	9,50 to 12,50	CODE	-	-	-	-	-	-	-	-	-	56614	56618	-
	12,00 to 16,00	CODE	-	-	-	-	-	-	-	-	-	56615	-	-
	15,00 to 20,00	CODE	-	-	-	-	-	-	-	-	-	56616	-	-
	18,00 to 25,00	CODE	-	-	-	-	-	-	-	-	56612	-	-	-
	23,00 to 32,00	CODE	-	-	-	-	-	-	-	56610	56613	-	-	-
	30,00 to 40,00	CODE	-	-	-	-	-	-	-	56611	-	-	-	-
	38,00 to 50,00	CODE	-	-	-	-	-	-	56608	-	-	-	-	-
	48,00 to 62,00	CODE	-	-	-	-	-	56606	56609	-	-	-	-	-
	60,00 to 78,00	CODE	56596 56624	56598	56600	56602	56604	56607	-	-	-	-	-	-
	75,00 to 95,00	CODE	56597 56625	56599	56601	56603	56605	-	-	-	-	-	-	-

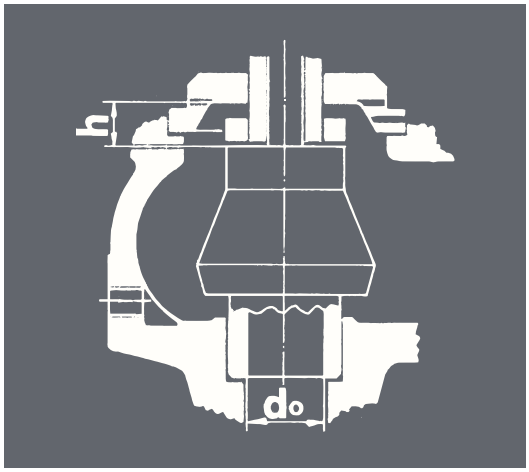
Spring steel EN-10270-1-SH
Vanadium-chrome steel EN-1.8159
Stainless steel EN-1.4310

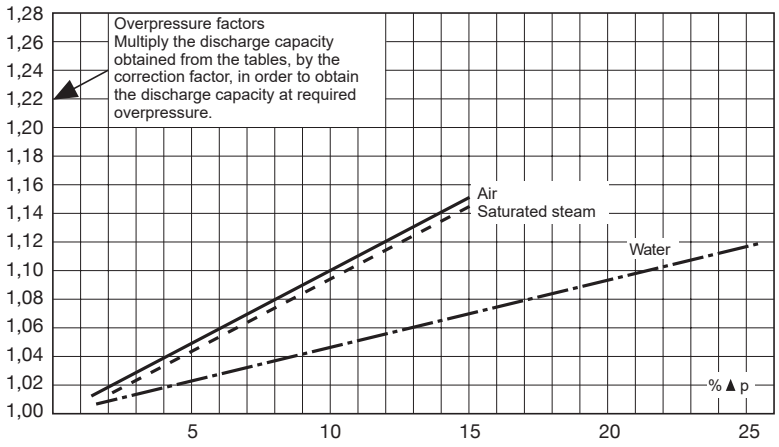


SUPPORT BRACKETS DIMENSIONS								
DN1xDN2	A	B	C	D	E	L	THICKNESS	DRILLS Nº
40x65	186	96	147	70	156	14	13,5	4xM12
50x80	210	98	166	70	180	14	14	4xM12
65x100	250	100	200	70	220	14	14	4xM12
80x125	295	125	248	90	260	18	16	4xM16
100x150	344	129	292	90	309	18	17	4xM16
125x200	374	129	309	90	339	18	17	4xM16
150x250	440	184	370	120	400	18	20	4xM16
200x300	530	188	459	130	494	23	20	4xM20
250x350	664	195	581	160	624	23	20	4xM20
300x400	710	215	616	180	655	23	23	4xM20
400x500	880	238	760	200	820	23	23	4xM20

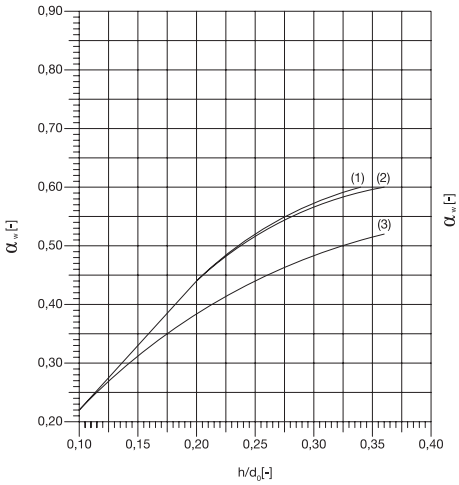
Support brackets will only be drilled if specified by the customer

COEFFICIENT OF DISCHARGE												
DN1x DN2		25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	250x350	300x400
do		16	20	25	32	40	50	63	77	93	110	155	180
h		7	9	12	12	18	18	20	29	34,4	36,8	56,15	64,8
h1		2,6	3,2	4	5,2	6,5	8	10	12,5	16,74	19,8	27,9	32,4
h/do		0,44	0,45	0,48	0,38	0,45	0,36	0,32	0,38	0,37	0,33	0,36	0,36
h1/do (1)		0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,16	0,18	0,18	0,18	0,18
COEFFICIENT OF DISCHARGE kd	SATURATED STEAM GASES	0,78										0,74	
	LIQUIDS	0,60										0,52	
	LIQUIDS WITH RAPID LIMITER(1)	0,36											



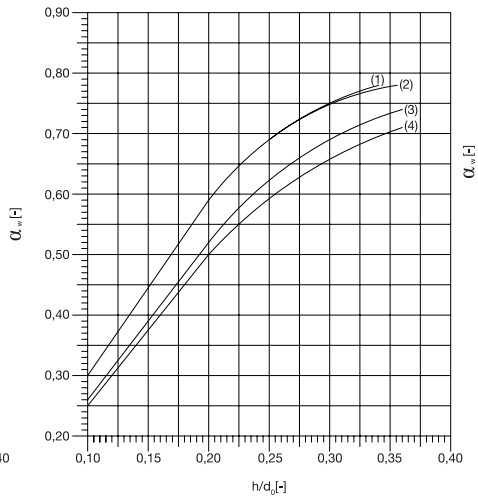


Liquids



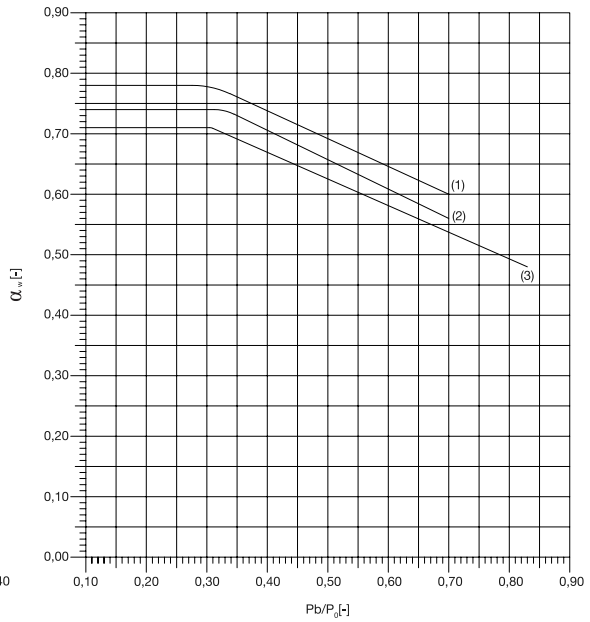
(1) d_0 16-63
(2) d_0 77
(3) d_0 93-155

Saturated steam
Gases



(1) d_0 16-77
(2) d_0 93-110
(3) d_0 155-180
(4) d_0 220-280

Saturated steam
Gases



(1) d_0 16-110
(2) d_0 155-180
(3) d_0 220-280

VYC industrial, sa
Founded in 1914
www.vycindustrial.com
Avenc del Daví, 22 Pol. Ind. Can Petit 08227 TERRASSA (Barcelona) SPAIN
+34 93 735 76 90 119 info@vycindustrial.com

Informative brochure, without obligation and subject to our General Sales Conditions.