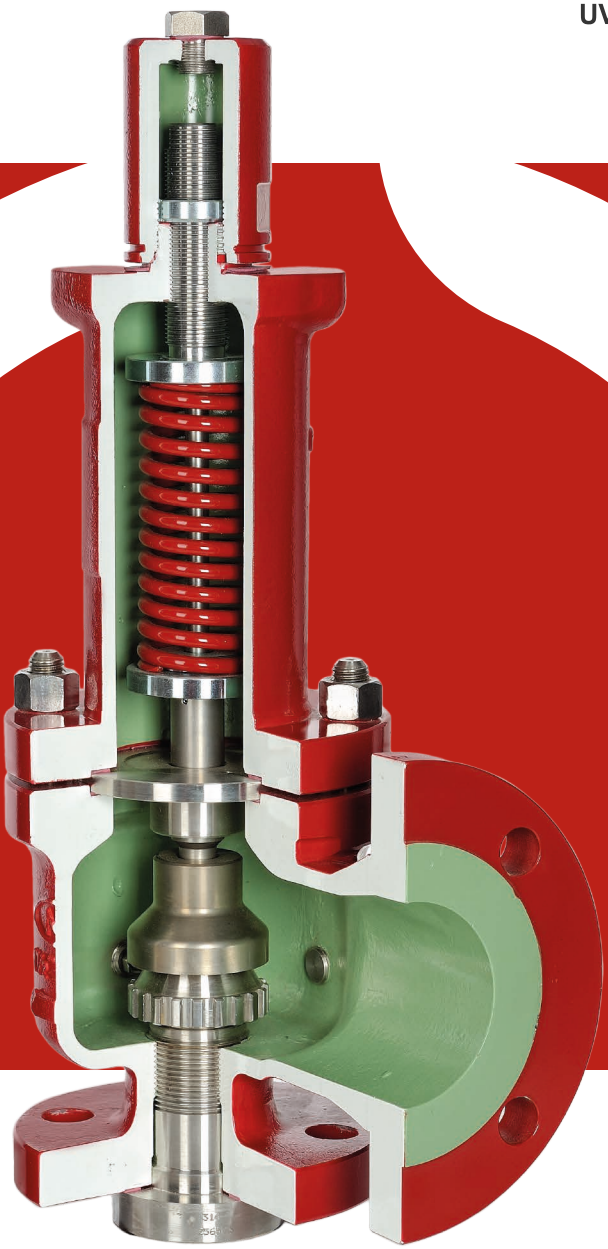
ValNac

Safety Valves

www.valnacsafety.com

6400

ASME UV



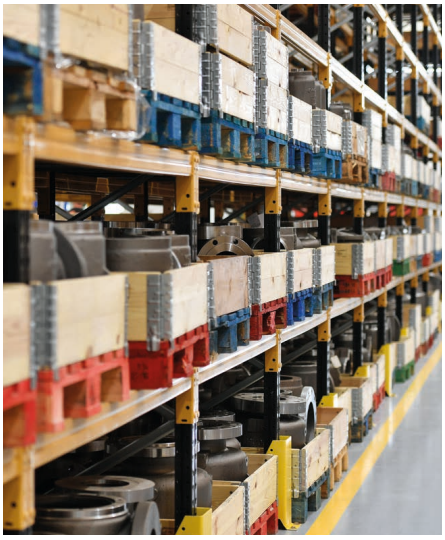
Making excellence
something personal

Production, R+D+I, Evolution

ValNac, Safety Valves was established in Spain in 1976. The main target was to assist the petrochemical and chemical industries emerging in Spain at that time. Right from the start ValNac, Safety Valves , has been designing and producing safety valves according to most recognized international standards and norms: API, ASME, ASTM and the European directives 2014/68/UE and 2014/34/UE. Our production process is accredited by an ISO 9001-2016 certification.

Our know how and capacity to adapt to the constantly changing demands of the market, made possible the introduction of new products designed for new applications on the market, like THERMOSOLAR PLANTS, where ValNac, Safety Valves has supplied safety valves to more than 31 complete plants all over the world, while at the same time continuously supplying to all main players of the Spanish petrochemical, chemical and refining industries.

Production capacity



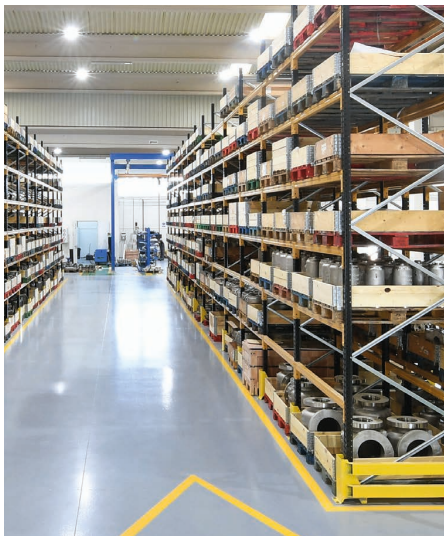
ValNac, Safety Valves valves' have their discharge coefficients approved in laboratory tests, in order to guarantee and assure that correct values are being used for every sizing process.

In our Technical sales department we count with a modern software which allows us to verify all the possibilities, and to assure strict fulfillment of all international standards.

ValNac, Safety Valves has established representation agreements with the most important O.E.M. companies in the safety sector of the industry, consolidating us as one of the main companies by product range; design and consulting in new plants or in new process.

Our continuous growth, shows a clear trend, which confirms the integration of our workers to provide first class service to our customers and partners.

Factory & Location



Our facilities in Rubí (Barcelona - Spain), with more than 3.000 Sq m are fully prepared for our production activities: machining with modern CNC, assembling and testing. We also have long term agreements with approved workshops, which provides us with flexibility and fast feedback to customers demands, with full quality guarantee which has always been our main target.

Strategic alliances

Nowadays ValNac, Safety Valves starts an internationalization process, establishing representation agreements in different countries and continents all over the world, with specialized companies that will provide added value in our service towards the end user.

ValNac, Safety Valves Making safety since 1976!

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General Features

Model 6400, is an angular type safety valve at 90° between the inlet and the outlet connections, with flanged connections, full nozzle, direct action and spring loaded. Subdivided into three types: Conventional, Balanced (with bellows) and Balanced-Piston. All three are designed with specific trims to work with gases and vapours or liquids.

Design

- Valve body is angular type at 90° between inlet and outlet flanges. Its large internal capacity and smooth section changes help reducing turbulences. Therefore, fluid evacuation on discharge is improved.
- Full nozzle type, guided and screwed to body, enabling perfect alignment and easy disassembling.
- Disc is separate from disc-holder, for that reason its repair or change is improved and a better selection of materials can be performed.
- Stem-push rod design in two parts, enables push rod material to be hardened to withstand high charges, facilitating displacement, avoiding seizure with guide.
- Guide has a large push rod guide area to prevent premature damage, ensuring perfect alignment with all internals.
- Bellows are performed so its average area is equal to orifice area thus achieving perfect valve balance and consequently perfect operation before variable back pressures. Its meticulous design enables maximum pressures and temperatures to be supported achieving a high degree of elasticity.
- Springs are designed with an experimented highly reliable calculation software and manufactured with the ideal material qualities for the process conditions, ensuring elasticity and accurate repetition of valve opening.
- For design of the different valve types has taken into account standardisation, enabling a conventional type valve to be converted into balanced with minimum parts change.

Codes and Standards

Valves have been designed and manufactured in compliance with the following directives, codes and standards:

European Directive	2014/68/UE (PED) 2014/34/UE (ATEX)
Design	EN ISO 4126-1 / ASME XIII / ASME VIII
Certifications	PED MODULE B+D / ASME “UV” and NB”
Pressure and Temperature Ratings	API-526 / ASME B16.34 / EN 12516-1
Tests	API-527 / ASME B16.34 / ASME XIII
Quality System	EN ISO 9001:2015
Materials	ASME/ASTM and EN

Sizes and ratings*

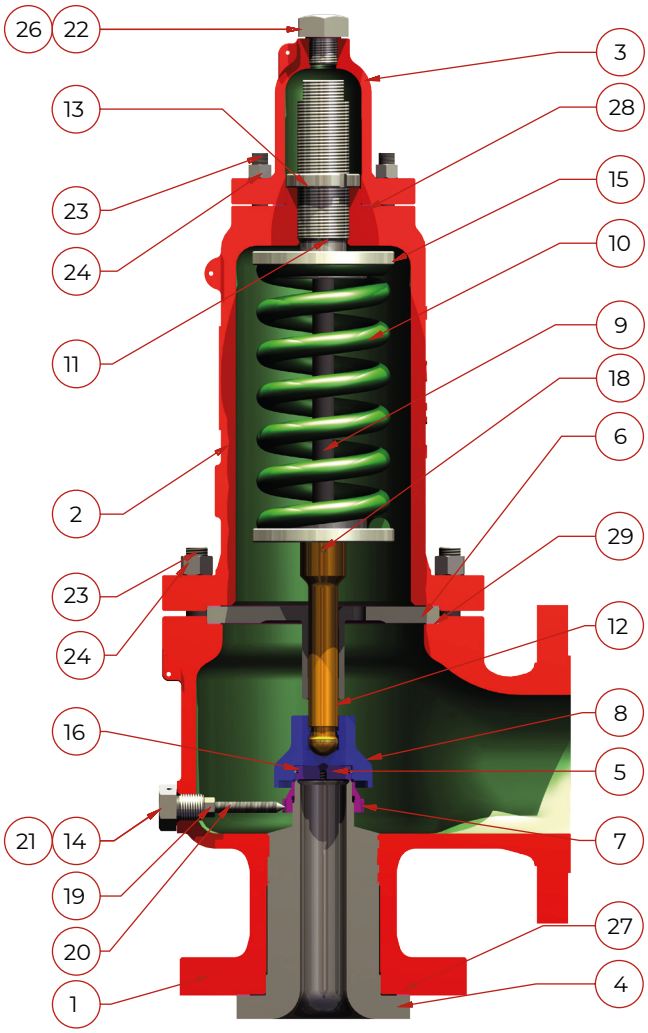
Standard sizes and ratings:

ASME	
Sizes	1”x2” up to 12”x16”
Rating	150# up to 2500#

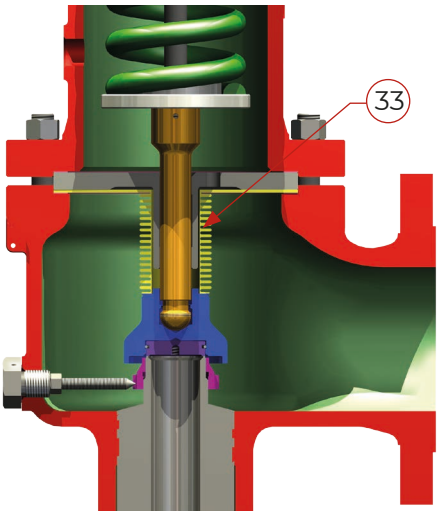
*EN/ISO Flanges available upon request

Parts list

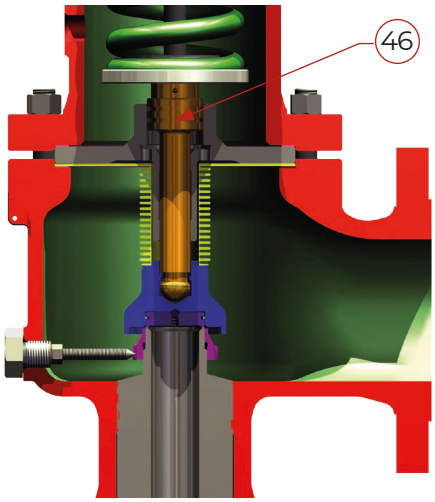
CONVENTIONAL VALVE



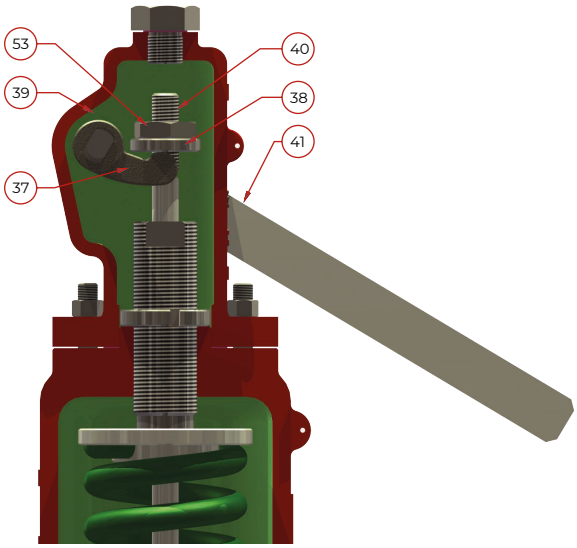
BELLOWS VALVE

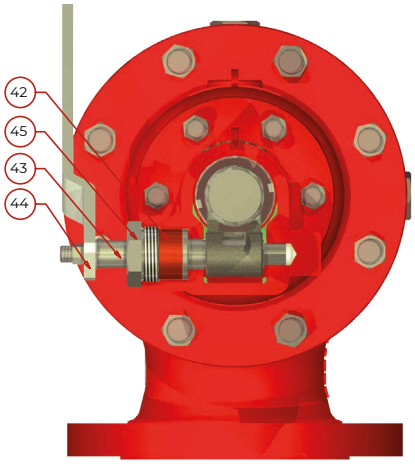


BELLOWS-PISTON VALVE



LEVER OPTION





Bill of materials

CLASS		H	C	E	N1 (Duplex)	O (Super Duplex)	NACE - A
ITEM	DENOMINATION	-29 a 425 °C	-29 to 538 °C	-196 to 538 °C	-29 to 260°C	-29 to 316°C	-29 to 425 °C
1	BODY	SA 216 WCB	SA 217 WC6	SA 351 CF8M	SA 995 CD4MCuN	SA 995 CD3MWCuN	SA 216 WCB
2	BONNET	SA 216 WCB	SA 217 WC6	SA 351 CF8M	SA 995 CD4MCuN	SA 995 CD3MWCuN	SA 216 WCB
2a	OPEN BONNET	SA 216 WCB	SA 216 WCB	----	----	----	SA 216 WCB
3	CAP	SA 216 WCB	SA 216 WCB	SA 351 CF8M	SA 351 CF8M	SA 351 CF8M	SA 216 WCB
4	NOZZLE	SEE SUBCLASS					
5	DISC						
6	GUIDE	A 351 CF8M	A 351 CF8M	A 351 CF8M	A 351 CF8M	A 479 S32760	A 351 CF8M
7	ADJUSTING RING	A 351 CF8M	A 351 CF8M	A 351 CF8M	A 351 CF8M	A 479 S32760	A 351 CF8M
8	DISC HOLDER	A 479 431	A 479 431	A 351 CF8M	A 351 CF8M	A 479 S32760	A 351 CF8M
9	STEM	A 479 431	A 479 431	A 479 316	A 479 316	A 479 316	A 479 316
10	SPRING	50CRV4 C.S. (5)	H21 T.S. (4)	A 313 316 (1)	A 313 316 (1)	A 313 316 (1)	INCONEL X-750
11	ADJUSTING SCREW	A 479 431	A 479 431	A564 630	A564 630	A564 630	A564 630
12	PUSH ROD	A 479 431	A 479 431	A 564 630	A 564 630	A 564 630	A 564 630
13	NUT	C.S.	C.S.	A 479 316	A 479 316	A 479 316	C.S.
14	LOCK SCREW	C.S.	C.S.	S.S.	S.S.	A 479 S32760	C.S.
15	SPRING BUTTON	C.S.	C.S.	A 479 316	A 479 316	A 479 316	C.S.
16	ELASTIC RING	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.
17	PLUG	C.S.	C.S.	S.S.	S.S.	A 479 S32760	C.S.
18	ELASTIC PIN	302 S.S.	302 S.S.	302 S.S.	302 S.S.	302 S.S.	302 S.S.
19	NUT	316 S.S.	316 S.S.	316 S.S.	316 S.S.	A 479 S32760	316 S.S.
20	LOCK STUD	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.
21	GASKET	Compressed Fibers	Graphite + 316 S.S.		Compressed Fibers (2)		
22	PLUG	C.S.	C.S.	S.S.	S.S.	S.S.	C.S.
23	STUDS	SA 193 B7	SA 193 B16	SA 193 B8	SA 193 B8	SA 193 B8	SA 193 B7
24	NUTS	SA 194 2H	SA 194 4	SA 194 G8	SA 194 G8	SA 194 G8	SA 194 2H
26	GASKET	Graphite + 316 SS.					
27	GASKET						
28	GASKET						
29	GASKET						
33	BELLOWS	316Ti S.S.	316Ti S.S. (3)	316Ti S.S. (3)	316Ti S.S. (3)	316Ti S.S.	INCONEL 625
34	GASKET	Compressed Fibers	Graphite+316 INOX.		Compressed Fibers (12)		
37	CAM	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.	316 S.S.
38	BRACKET	C.S.	C.S.	316 S.S.	316 S.S.	316 S.S.	C.S.
39	LEVER CAP	SA 216 WCB	SA 216 WCB	SA 351 CF8M	SA 351 CF8M	SA 351 CF8M	SA 216 WCB
40	LEVER STEM	A 479 431	A 479 431	A 479 316	A 479 316	A 479 316	A 479 316
41	LEVER	C.S.	C.S.	C.S.	C.S.	C.S.	C.S.
42	PACKING	Compressed Fibers	Braid Graphite		Compressed Fibers (2)		
43	LEVER SHAFT	A 479 316	A 479 316	A 479 316	A 479 316	A 479 316	A 479 316
44	NUT	C.S.	C.S.	C.S.	C.S.	C.S.	C.S.
45	PACKING GLAND	C.S.	C.S.	S.S.	S.S.	S.S.	S.S.
46	PISTON	A 479 431	A 479 431	A 479 431	A 479 431	A 479 316	A 479 431
47	LOCK WASHER	304 S.S.	304 S.S.	304 S.S.	304 S.S.	304 S.S.	304 S.S.
53	NUT	C.S.	C.S.	S.S.	S.S.	S.S.	S.S.

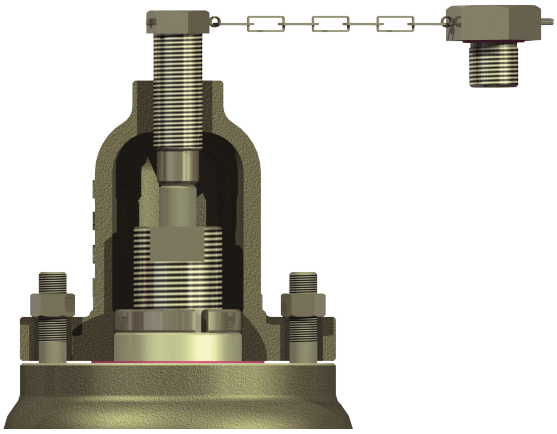
SUBCLASS		1	2	3	4
4	NOZZLE	SA 479 316	SA 479 316+ST.	SA 479 316+ST.	SA 479 316
5	DISC	SA 479 316	SA 564 630	SA 479 316+ST.	SA 564 630

(1) For temperatures > 300°C, material Inconel X-750
(2) For temperatures > 232°C and <-29°C, material Graphite with 316 S.S. reinforcement
(3) For temperatures > 450°C, material Inconel 625
(4) When the spring is unenclosed, carbon or alloy steel is used
(5) For temperatures > 232°C, material T.S.

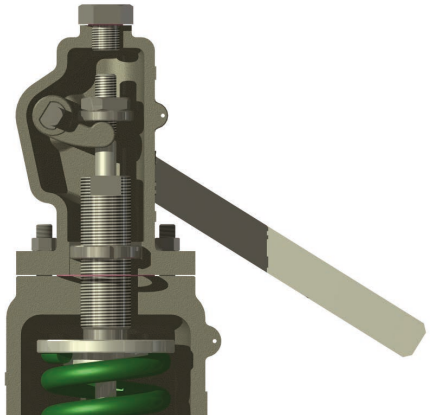
Other material alloys available upon request.

Options

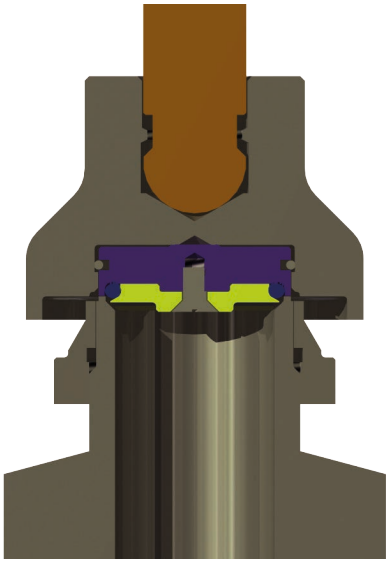
TEST-GAG



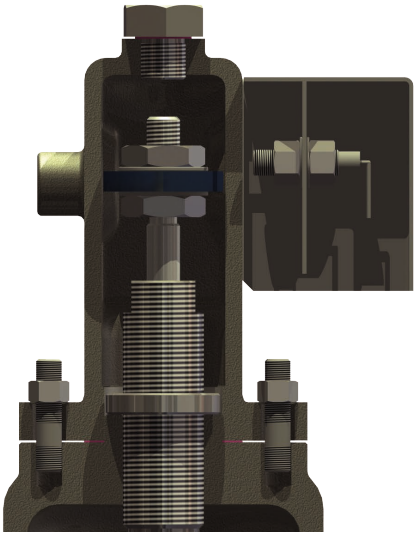
LEVER



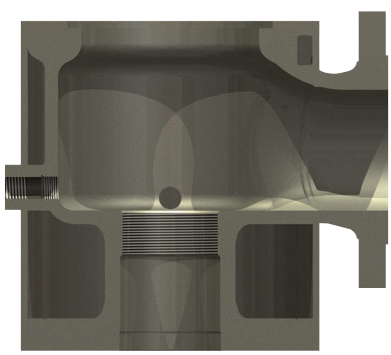
O-RING

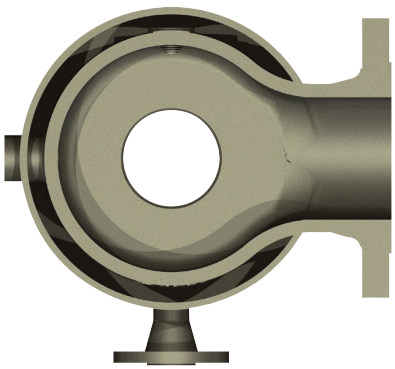


MAGNETIC SENSOR



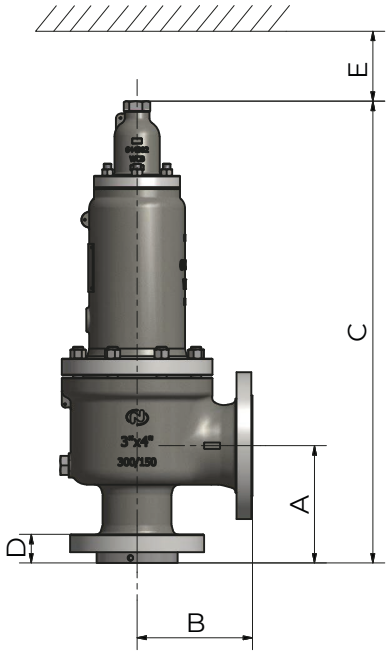
HEATING JACKET

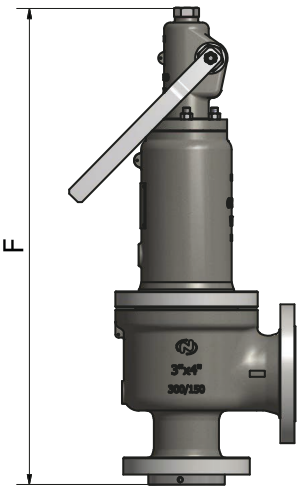




General Dimensions

"Orifice API 526"	Rating	Inlet	Outlet	Flow Area	General Dimensions						Standard	Lever
				(cm²)	A	B	C	D	E	F	Weight - (Kg)	
D	150 x 150	1"	2"	0,78	105	114	422	29	90	490	16	17
	300L x 150											
	300 x 150							32				
	600 x 150							34				
	900 x 300	1½"	2"			140	492	44		556	31	33
	1500 x 300											
	2500 x 300	1½"	3"		140	178	518	60		582	39	41
E	150 x 150	1"	2"	1,43	105	114	422	29	90	490	16	17
	300L x 150											
	300 x 150							32				
	600 x 150							34				
	900 x 300	1½"	2"			140	492	44		556	31	33
	1500 x 300											
	2500 x 300	1½"	3"		140	178	518	60		582	39	41
F	150 x 150	1½"	2"	2,27	124	121	499	34	90	563	26	27
	300L x 150											
	300 x 150					152		37				
	600 x 150							41				
	900 x 300	1½"	3"			165	502	44		566	34	36
	1500 x 300											
	2500 x 300				140	178	518	60		582	40	42
G	150 x 150	1½"	3"	3,63	124	121	499	34	90	563	27	29
	300L x 150											
	300 x 150					152		37				
	600 x 150							41				
	900 x 300					165		44		566	35	37
	1500 x 300	2"	3"		156	172	643	57	100	699	56	59
	2500 x 300							70			59	62
H	150 x 150	1½"	3"	5,72	130	124	505	40	90	569	28	29
	300L x 150											
	300 x 150	2"	3"				616	40	100	672	40	43
	600 x 150				154	162	640	44		696		
	900 x 150						643	57		699	53	56
	1500 x 300										56	59
J	150 x 150	2"	3"	9,07	137	124	623	36	120	679	38	41
	300L x 150											
	300 x 150	3"	4"		184	181	721	45		789	66	69
	600 x 150							50				
	900 x 150						714	65		782	85	87
	1500 x 300											
K	150 x 150	3"	4"	13,2	156	162	693	41	120	761	66	69
	300L x 150											
	300 x 150							45				
	600 x 150				184	181	721	50		789		
	900 x 150		6"		198	216	803	56		871	111	114
	1500 x 300				197		802	66		870		
L	150 x 150	3"	4"	20,4	156	165	693	41	120	761	67	69
	300L x 150											
	300 x 150	4"	6"		179	181	871	50	150	973	117	123
	600 x 150					203	869	54		971	118	124
	900 x 150				197	222	888	60		990	125	131
	1500 x 150							69				
M	150 x 150	4"	6"	26	178	184	871	43	150	974	118	124
	300L x 150											
	300 x 150							50				
	600 x 150					203	869	54		971		
	900 x 150				197	222	888	60		990	125	131
N	150 x 150	4"	6"	32,2	197	210	881	43	150	983	118	124
	300L x 150											
	300 x 150							50				
	600 x 150					222	888	54		990		
	900 x 150							60			60	131
P	150 x 150	4"	6"	46,6	181	229	892	44	150	994	118	124
	300L x 150											
	300 x 150				225	254	916	51		1018		
	600 x 150							59			125	131
	900 x 150							65				
Q	150 x 150	6"	8"	78,5	240	241	1056	45	150	1158	187	193
	300L x 150											
	300 x 150							56				
	600 x 150							69			207	213
R	150 x 150	6"	8"	113	240	241	1056	45	150	1158	191	197
	300L x 150											
	300 x 150	6"	10"			267		56			56	218
	600 x 150							69			234	240
T	150 x 150	8"	10"	184	276	279	1270	51	150	1365	300	314
	300L x 150										315	329
	300 x 150							65				
V	150 x 150	10"	14"	314	330	370	1530	60	220	1555	515	525
	300 x 150										530	540
W	150 x 150	12"	16"	452	380	390	1700	60	220	1725	705	715
	300 x 150										720	730





Technical information / Operating technical characteristics table

SAFETY VALVE MODEL 6400

SERVICE		GAS	LIQUID
REDUCED DISCHARGE COEFFICIENT Kdr (1)		0,873	0,72
BLOWDOWN	MAX.	7% (2)	20% (3)
VARIABLE BACKPRESSURE	AT 10% OVERPRESSURE	50% Built-up 45% Superimposed	35% Built-up 25% Superimposed
SET PRESSURE RANGE	bar g	0,5 ÷ 425	

(1) At 10% Overpressure or 0,1 bar whichever is greater.

(2) 0,2 bar g, the highest value.

(3) 0,6 bar g, the highest value.

Definitions (ASME PTC 25)

Actual discharge area: The measured minimum net area that determines the flow through a valve.

Coefficient of discharge: The ratio of the measured relieving capacity to the theoretical relieving capacity.

Conventional direct spring-loaded PRV: A direct spring-loaded pressure relief valve whose operational characteristics are directly affected by changes in the back pressure.

Back pressure: The static pressure existing at the outlet of a pressure relief device due to pressure in the discharge system.

Balanced direct spring-loaded PRV: A direct spring-loaded pressure relief valve that incorporates means of minimizing the effect of back pressure on the operational characteristics (opening pressure, closing pressure, and relieving capacity).

Blowdown: The difference between actual popping pressure of a pressure relief valve and actual reseating pressure expressed as a percentage of set pressure or in pressure units.

Blowdown pressure: The value of decreasing inlet static pressure at which no further discharge is detected at the outlet of a pressure relief valve after the valve has been subjected to a pressure equal to or above the popping pressure.

Bore area: The minimum cross-sectional flow area of a nozzle.

Bore diameter: The minimum diameter of a nozzle.

Built-up back pressure: Pressure existing at the outlet of a pressure relief device caused by the flow through that particular device into a discharge system.

Cold differential test pressure: The inlet static pressure at which a pressure relief valve is adjusted to open on the test stand. This test pressure includes corrections for service conditions of superimposed back pressure and/or temperature.

Constant back pressure: A superimposed back pressure that is constant with time.

Developed lift: The actual travel of the disk from closed positions to the position reached when the valve is at flow-rating pressure.

Effective discharge area: A nominal or computed area of flow through a pressure relief valve, differing from the actual discharge area, for use in recognized flow formulas to determine the capacity of a pressure relief valve.

Effective seat area: A computed area for use in calculating the set pressure of a given pressure relief valve when tested using an auxiliary lift-assist device.

Flow path: The three-dimensional and geometric characteristics of a device that affects the measured relieving capacity. It is defined from the cross section of the inlet to the cross section of the outlet, including all streamlines in the flow.

Inlet size: The nominal pipe size of the inlet of a pressure relief valve, unless otherwise designated.

Leak test pressure: The specified inlet static pressure at which a quantitative seat leakage test is performed in accordance with a standard procedure.

Lift: The actual travel of the disk away from the closed position when a valve is relieving.

Maximum allowable pressure: The maximum pressure for which the equipment is designed as specified by the manufacturer.

Outlet size: The nominal pipe size of the outlet of a pressure relief valve, unless otherwise designated.

Overpressure: A pressure increase over the set pressure of a pressure relief valve, usually expressed as a percentage of set pressure.

Popping pressure: The value of increasing inlet static pressure at which the disk moves in the opening direction at a faster rate as compared with corresponding movement at higher or lower pressure.

Pressure: The pressure unit used in this standard is the bar (1 bar = 105 Pa). It is quoted as gauge (relative to atmospheric pressure) or absolute as appropriate.

Pressure Relief Valve (PRV): A pressure relief device designed to actuate on inlet static pressure and reclose after normal conditions have been restored.

Re-seating pressure: The value of decreasing inlet static pressure at which the valve disk re-establishes contact with the seat or at which lift becomes zero.

Relieving pressure: Set pressure plus overpressure.

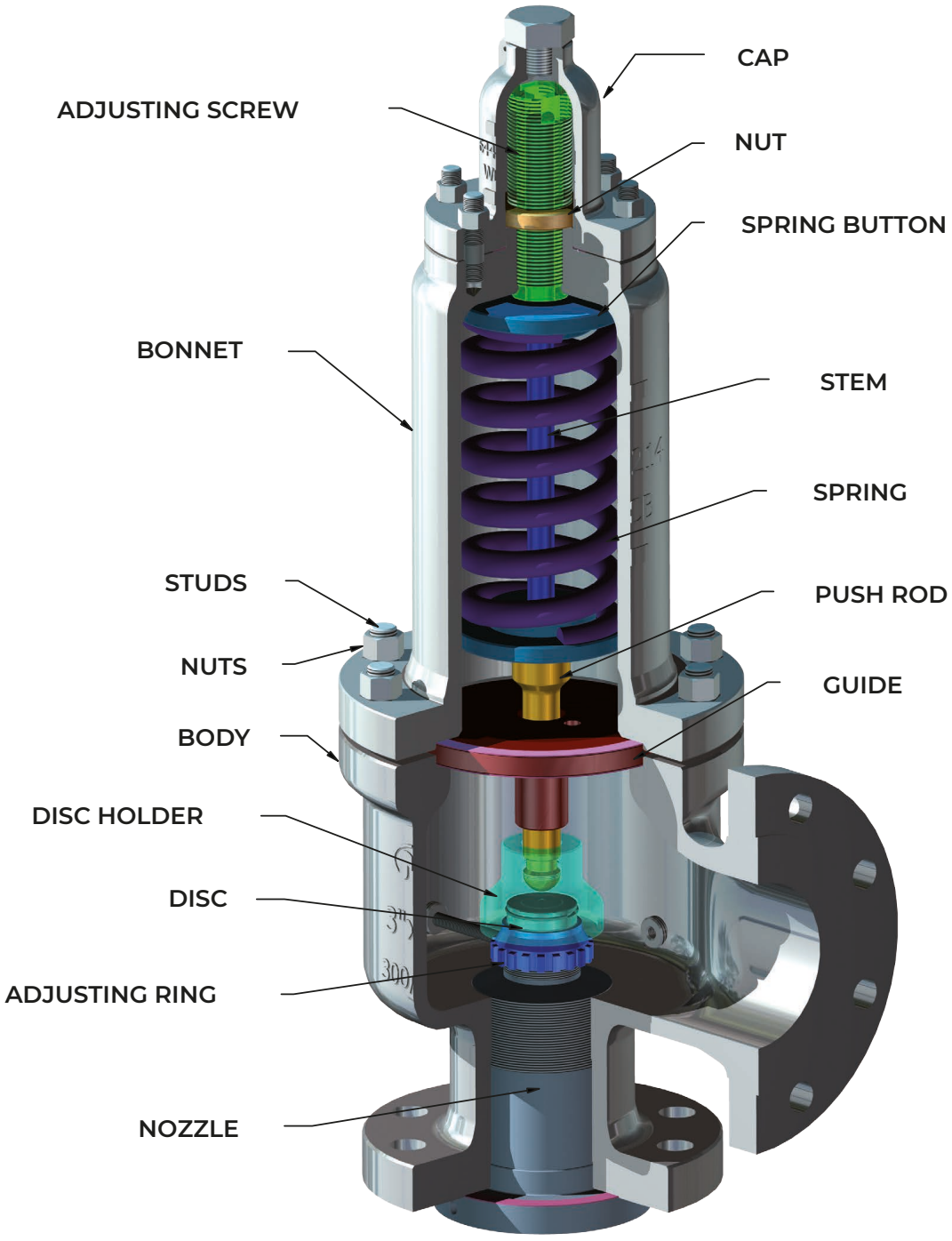
Safety valve: A pressure relief valve characterized by rapid opening and normally used to relieve compressible fluids.

Set pressure: The value of increasing inlet static pressure at which a pressure relief device displays one of the operational characteristics as defined under opening pressure, popping pressure, start-to-leak pressure, burst pressure, or breaking pressure. (The applicable operating characteristic for a specific device design is specified by the device manufacturer).

Safety relief valve: A pressure relief valve characterized by rapid opening or by gradual opening that is generally proportional to the increase in pressure. It can be used for compressible or incompressible fluids.

Superimposed back pressure: The static pressure existing at the outlet of a pressure relief device at the time the device is required to operate. It is the result of pressure in the discharge system from other sources.

Safety valve main components:



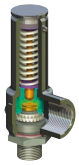
Making safety since 1976

MOD-6400 ASME UV

SAFETY VALVE

MOD-5100 ASME UV

SAFETY VALVE



MOD-3-50

SAFETY VALVE

MOD-3-51

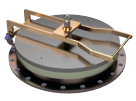
SAFETY VALVE

MOD-5500

SAFETY VALVE

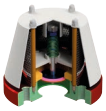
PILOT OPERATED

SAFETY VALVE



MOD-2000

EMERGENCY VALVE



MOD-3400

BREATHER VALVE

VALVE SILENCER

ValNac
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