

#### APPLICATION

"Safety relief valve SVN is primary designed for instalation on propane, butane and LPG storage vessels, although it can be equally efficient installed on all other gas instalations"

High discharge flow makes this valve ideal for a quick overpressure relief caused by temperature increase

#### DESIGN FEATURES

"Safety relief valve SVN is vertically straight exhaust type of valve, with thread end connection for exhaust pipeline. It automatically opens and relief limited volume of gas, and automatically closes when pressure normalizes in the system it secures."

"Safety valve SVN acts directly according to the developed force, as a result of gas pressure on the plate the set force of the spring is resised. With the adequate increase of pressure, the seat is lifted up to max. 1/4 seat diameter and with this the exiting conduit is opened."

#### TESTING & CALIBRATION

EN ISO/IEC 17025 certified laboratory

#### APPLIED STANDARDS, CODES & DIRECTIVES

EN ISO 4126-1 "Safety devices for protection against excessive pressure. Safety valves"

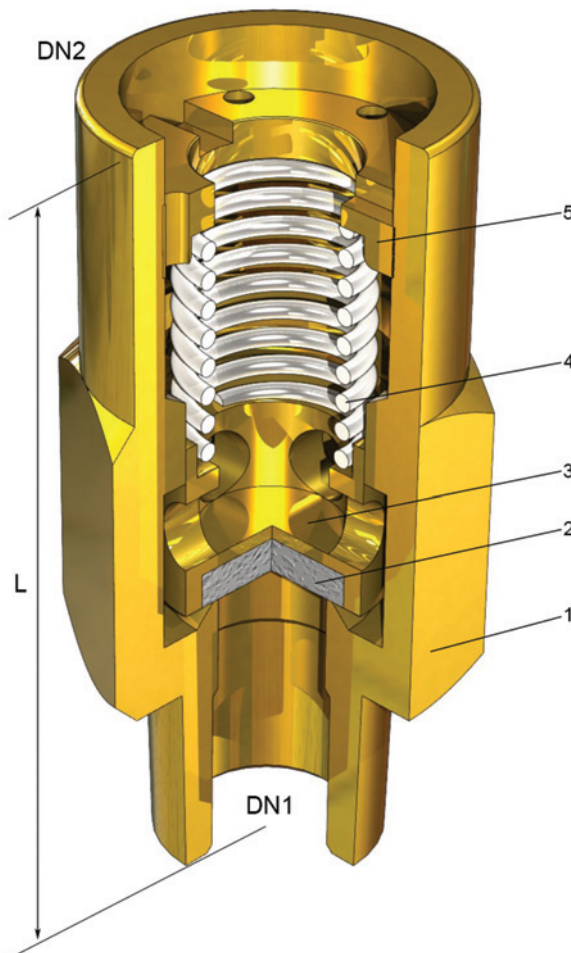
EN 12516-3 "Valves-Shell design strenght. Experimental method"

EN 13463-1 "Non-electrical equipment for use in potentially explosive atmospheres. Basic method and requirements"

EN 13463-1 "Non-electrical equipment for use in potentially explosive atmospheres. Protection by constructional safety 'c'"

94/9 EC (ATEX) "Equipment and protective systems intended for use in potentially explosive atmospheres"

97/23 EC (PED) "Pressure equipment directive"



<b>DN</b>	1/2" - 5/4"
<b>PN</b>	25
<b>p</b>	1 - 25 bar
<b>t</b>	-20°C / +90°C
<b>acceptable media</b>	propane, butane, LPG, natural gas
<b>connections</b>	ANSI B1 20.1, ISO 7-1

Pos.	Part name	Material	Standard
1	Housing	CW614N	EN12164
2	Seal	FKM	
3	Plate	CW614N	EN12164
4	Spring	1.4301	EN10270-3
5	Adjusting screw	CW614N	EN12164

CODE	DN1	DN2	L (mm)	⊘	WEGHT(kg)
030301	1/2"NPT	3/4"	67	30	0.35
030302	3/4"NPT	3/4"	100	36	0.75
030308	1"NPT	5/4"	110	50	1.6
030312	5/4"NPT	6/4"	160	60	3.2



## SVN

Nominal Diameter, Valve size	DN	-	1/2"NPT	3/4"NPT	1"NPT	5/4"NPT
Nominal Diameter, Outlet	DN	-	3/4"	1"	5/4"	6/4"
Pressure rating	PN	-	25			
Max. relieving pressure	p <sub>o</sub>	bar	22			
Max. allowable pressure	PS	bar	25			
Flow diameter	d <sub>o</sub>	mm	10	12	20	31
Flow area	A <sub>o</sub>	mm <sup>2</sup>	78.54	113,09	314.16	754.77

### Symbols and their descriptions:

Theoretical specific discharge capacity for any gas under critical flow:

$$q_m = p_o \cdot C \cdot \sqrt{\frac{M}{Z \cdot T_o}} \left[ \frac{\text{kg}}{\text{h} \cdot \text{mm}^2} \right]$$

Specific discharge capacity determined by tests:

$$q'_m \left[ \frac{\text{kg}}{\text{h} \cdot \text{mm}^2} \right]$$

Coefficient of discharge:

$$K_d = \frac{\sum_i^n \left( \frac{q'_m}{q_m} \right)}{n}$$

Certified derated coefficient of discharge:

$$K_{dr} = 0,9 \cdot K_d$$

Test has been done with air at 15°C and 1,013bar (ρ=1,293kg/m<sup>3</sup>):

### Discharge capacities in (kg/h mm<sup>2</sup>) calculated in accordance with EN ISO 4126-1 at 10% overpressure

p <sub>o</sub> (bar)	q <sub>m</sub>	q <sub>m'</sub>			
1	1.714	0.915	0.931	0.929	0.944
2	2.571	1.222	1.360	1.351	1.401
3	3.427	1.666	1.900	1.801	1.923
4	4.284	2.000	2.480	2.499	2.470
5	5.141	2.223	2.952	2.999	2.965
6	5.998	2.781	3.332	3.455	3.459
7	6.855	3.015	3.611	3.948	3.953
8	7.712	3.526	3.906	4.442	4.447
9	8.569	4.019	4.326	4.936	4.941
10	9.426	4.631	4.995	5.509	5.436
11	10.282	5.556	5.506	5.964	5.929
12	11.139	6.525	6.913	6.529	6.424
13	11.997	7.652	7.122	7.012	6.918
14	12.853	8.003	7.777	7.512	7.412
15	13.710	8.647	8.261	8.013	7.906
16	14.567	9.313	9.054	8.514	8.400
17	15.424	9.989	9.642	9.015	8.895
18	16.281	10.600	10.020	9.515	9.389
19	17.138	11.064	10.489	10.016	9.883
20	17.995	12.287	11.103	10.517	11.022
21	18.852	13.123	12.313	11.018	11.366
22	19.709	14.521	13.022	11.519	11.789
K <sub>d</sub>		0.565	0.58	0.575	0.577
K <sub>dr</sub>		0.508	0.522	0.517	0.519

### Discharge capacities in (kg/h) calculated in accordance with EN ISO 4126-1 at 10% overpressure

p <sub>o</sub> (bar)	Q <sub>m'</sub>			
1	68.4	101.2	278.4	671.4
2	102.6	151.8	417.6	1007.1
3	136.7	202.3	556.6	1342.4
4	170.9	252.9	695.8	1678.2
5	205.1	303.5	835.0	2013.9
6	239.3	354.1	974.2	2349.6
7	273.5	404.7	1113.4	2685.3
8	307.7	455.3	1252.6	3021.0
9	341.9	505.9	1391.8	3356.7
10	376.1	556.4	1531.0	3692.4
11	410.2	607.0	1670.0	4027.7
12	444.4	657.6	1809.2	4363.4
13	478.7	708.2	1948.6	4699.5
14	512.8	758.8	2087.6	5034.8
15	547.0	809.3	2226.8	5370.6
16	581.2	859.9	2366.0	5706.3
17	615.4	910.5	2505.2	6042.0
18	649.6	961.1	2644.4	6377.7
19	683.8	1011.7	2783.6	6713.4
20	718.0	1062.3	2922.8	7049.1
21	752.2	1112.9	3062.0	7384.8
22	786.4	1163.5	3201.1	7720.5

Mass flow rate for gaseous media at critical flow:

$$Q_m = p_o \cdot C \cdot A \cdot K_{dr} \sqrt{\frac{M}{Z T_o}} \quad [\text{kg/h}]$$