SPO
SPECIJALNA OPREMA LUČKO

Safety relief valve type **SVOP-K**

APPLICATION

Safety relief valve SVON is used for relieving pressure of system in which is beeing installed. It's simplisity and reliability makes it perfect safety valve for almost every system or fluid.

Accuracy and valve performance stays permanent even on heavy duty demands. Due to simple design makes it easy to perform service and calibration.

DESIGN FEATURES

Safety relief valve SVON is angled 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 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.

ON REQUEST:

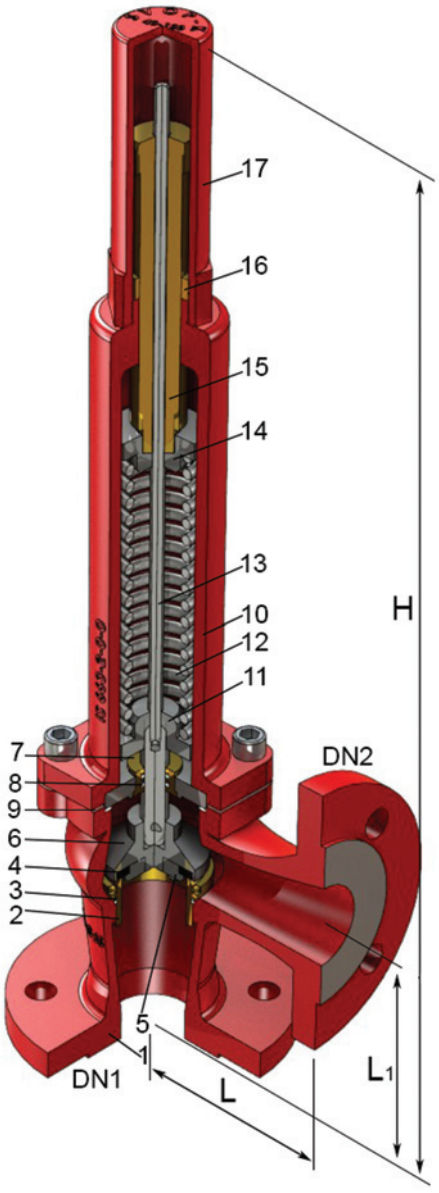
- special "PP" design for back pressure applications
- connections specified by customer
- every part can be produce to meet customer specification requirements
- special modification for aggressive media

TESTING & CALIBRATION

EN ISO/IEC 17025 certified laboratory

APPLIED STANDARDS, CODES & DIRECTIVE

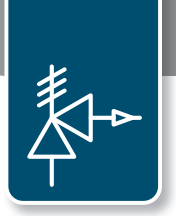
EN ISO 4126-1 "Safety devices for protection against excessive pressure. Safety valves"
EN 12516-3 "Valves-Shell design strenght. Experimental method"
EN 13463-1 "Non-electrical equipment for use in potentially explosive atmospheres. Basic method and requirements"
EN 13463-1 "Non-electrical equipment 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"



Pos.	Part name	Material	Standard
1	Lower housing	GJS-400-15	EN1563
2	Seat	CW614N	EN12164
3	"O" ring	FKM, NBR	
4	Gasket	FKM, NBR	
5	Plate	S355	EN10277-2
6	Plate holder	1.4301	EN10088-3
7	Mid-plate	CW614N	EN12164
8	"O" ring	FKM, NBR	
9	Gasket	tesnit	
10	Upper housing	GJS-400-15	EN1563
11	Spring plate	S355	EN10277-2
12	Spring	SH	EN10270-1
13	Spindle	1.4301	EN10088-3
14	Spring plate	S355	EN10277-2
15	Adjusting screw	CW614N	EN12164
16	Nut	CW614N	EN12164
17	Bonnet	GJS-400-15	EN1563

DN	40 - 100
PN	16, 25, 40
ANSI	150lb, 300lb
p	1 - 25 bar
t	-20°C / +90°C
acceptable media	oil, petrol, natural gas, water, LPG
connections	EN1092, DIN2633-2635, ANSI B 16.5

CODE	DN	L (mm)	L1 (mm)	H (mm)	WEIGHT(kg)
030603	40 (6/4")	115	115	601	12
030604	50 (2")	125	125	611	13
030605	65 (2.5")	145	145	642	20
030607	80 (3")	155	155	705	31
030608	100 (4")	175	175	737	35



SVOP-K

Nominal Diameter, Valve size	DN	-	25	25	32	40	50	50	65	65	80	80	100	100
Nominal Diameter, Outlet	DN	-	25	32	32	40	50	65	65	80	80	100	100	150
Pressure rating Inlet	PN	-	40											
Pressure rating Outlet	PN	-	40											
Max. Set pressure	p_o	bar	22											
Max. allowable pressure	PS	bar	25											
Flow diameter	d_0	mm	20	20	25	40	50	50	50	50	50	50	75	90
Flow area	A_0	mm^2	315	315	491	1257	1964	1964	1964	1964	1964	4418	4418	6362

Symbols and their descriptions:

Mass flow rate for liquids at critical flow:

$$Q_m = 1{,}61 \cdot K_{dr} \cdot K_v \cdot A \sqrt{\frac{p_o - p_b}{v}} \quad [kg/h]$$

Mass flow rate in (kg/h) calculated in accordance with EN ISO 4126-1 at 10% overpressure

p_o(bar)	$q_{m'}$											
1	225.8	225.8	398.3	752.8	1144.3	1141.4	1150.1	1150.1	1150.1	2587.1	2515.4	3641.0
2	319.5	319.5	564.7	1065.1	1619.1	1615.0	1627.3	1627.3	1627.3	3660.5	3559.1	5151.7
3	391.3	391.3	693.1	1304.4	1982.9	1977.9	1992.9	1992.9	1992.9	4483.1	4358.9	6309.4
4	451.8	451.8	801.8	1506.0	2289.3	2283.5	2300.9	2300.9	2300.9	5175.9	5032.5	7284.4
5	505.0	505.0	898.2	1683.6	2559.3	2552.8	2572.3	2572.3	2572.3	5786.3	5625.9	8143.4
6	553.3	553.3	985.9	1844.4	2803.7	2796.6	2817.9	2817.9	2817.9	6338.8	6163.1	8921.0
7	597.7	597.7	1067.2	1992.4	3028.6	3021.0	3044.0	3044.0	3044.0	6847.4	6657.7	9636.9
8	638.8	638.8	1143.0	2129.7	3237.3	3229.1	3253.7	3253.7	3253.7	7319.2	7116.4	10300.9
9	677.6	677.6	1214.7	2258.8	3433.6	3424.9	3451.0	3451.0	3451.0	7763.0	7547.9	10925.4
10	714.3	714.3	1283.2	2381.3	3619.8	3610.6	3638.1	3638.1	3638.1	8183.9	7957.2	11517.8
11	749.2	749.2	1348.5	2497.6	3796.7	3787.1	3815.9	3815.9	3815.9	8583.8	8346.0	12080.6
12	782.4	782.4	1411.1	2608.4	3965.0	3955.0	3985.1	3985.1	3985.1	8964.4	8716.0	12616.3
13	814.4	814.4	1471.8	2715.0	4127.1	4116.7	4148.0	4148.0	4148.0	9331.0	9072.5	13132.2
14	845.2	845.2	1530.4	2817.6	4283.1	4272.2	4304.8	4304.8	4304.8	9683.5	9415.2	13628.3
15	874.9	874.9	1587.3	2916.6	4433.6	4422.4	4456.0	4456.0	4456.0	10023.8	9746.1	14107.2
16	903.5	903.5	1642.5	3012.0	4578.7	4567.1	4601.8	4601.8	4601.8	10351.8	10065.0	14568.8
17	931.4	931.4	1696.5	3104.9	4719.8	4707.9	4743.7	4743.7	4743.7	10671.0	10375.3	15018.1
18	958.3	958.3	1749.0	3194.7	4856.4	4844.1	4881.0	4881.0	4881.0	10979.7	10675.5	15452.5
19	984.7	984.7	1800.6	3282.5	4989.8	4977.2	5015.1	5015.1	5015.1	11281.4	10968.8	15877.1
20	1010.2	1010.2	1851.0	3367.7	5119.4	5106.4	5145.3	5145.3	5145.3	11574.3	11253.6	16289.3
21	1035.2	1035.2	1900.5	3450.9	5245.8	5232.5	5272.4	5272.4	5272.4	11860.2	11531.6	16691.7
22	1059.5	1059.5	1949.0	3532.1	5369.2	5355.6	5396.4	5396.4	5396.4	12139.1	11802.7	17084.2
Kd	0.541	0.541	0.611	0.451	0.439	0.438	0.442	0.442	0.442	0.442	0.428	0.431
Kdr	0.486	0.486	0.55	0.406	0.395	0.394	0.397	0.397	0.397	0.397	0.386	0.388

Mass flow rate for gaseous media at critical flow:

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

Mass flow rate in (kg/h) calculated in accordance with EN ISO 4126-1 at 10% overpressure

p_o(bar)	$q_{m'}$											
1	281.3	281.3	513.4	1120.3	1679.8	1683.1	1710.1	1720.2	1753.8	3968.0	3551.5	4896.1
2	421.9	421.9	770.0	1680.5	2519.7	2524.7	2565.1	2580.3	2630.8	5951.9	5327.2	7344.2
3	562.4	562.4	1026.4	2240.0	3358.6	3365.3	3419.2	3439.4	3506.7	7933.6	7100.9	9789.4
4	703.1	703.1	1283.1	2800.2	4198.5	4206.9	4274.2	4299.4	4383.6	9917.6	8876.6	12237.4
5	843.7	843.7	1539.8	3360.4	5038.4	5048.5	5129.2	5159.5	5260.5	11901.6	10652.4	14685.5
6	984.4	984.4	1796.5	3920.5	5878.3	5890.0	5984.3	6019.6	6137.4	13885.6	12428.1	17133.5
7	1125.0	1125.0	2053.1	4480.7	6718.1	6731.6	6839.3	6879.7	7014.3	15869.5	14203.8	19581.6
8	1265.7	1265.7	2309.8	5040.9	7558.0	7573.2	7694.4	7739.8	7891.3	17853.5	15979.6	22029.6
9	1406.3	1406.3	2566.5	5601.0	8397.9	8414.8	8549.4	8599.9	8768.2	19837.5	17755.3	24477.7
10	1546.9	1546.9	2823.2	6161.2	9237.8	9256.3	9404.4	9460.0	9645.1	21821.5	19531.1	26925.7
11	1687.4	1687.4	3079.6	6720.7	10076.7	10096.9	10258.5	10319.1	10521.0	23803.2	21304.7	29370.9
12	1828.1	1828.1	3336.2	7280.9	10916.6	10938.5	11113.5	11179.1	11397.9	25787.1	23080.5	31819.0
13	1968.9	1968.9	3593.2	7841.7	11757.5	11781.1	11969.6	12040.2	12275.9	27773.4	24858.3	34269.9
14	2109.4	2109.4	3849.6	8401.2	12596.4	12621.6	12823.6	12899.3	13151.8	29755.1	26632.0	36715.1
15	2250.0	2250.0	4106.3	8961.4	13436.3	13463.2	13678.6	13759.4	14028.7	31739.1	28407.7	39163.1
16	2390.7	2390.7	4363.0	9521.6	14276.2	14304.8	14533.7	14619.5	14905.6	33723.1	30183.4	41611.2
17	2531.3	2531.3	4619.6	10081.7	15116.1	15146.4	15388.7	15479.6	15782.5	35707.1	31959.2	44059.2
18	2672.0	2672.0	4876.3	10641.9	15956.0	15987.9	16243.7	16339.7	16659.4	37691.0	33734.9	46507.3
19	2812.6	2812.6	5133.0	11202.1	16795.9	16829.5	17098.8	17199.8	17536.4	39675.0	35510.7	48955.3
20	2953.2	2953.2	5389.7	11762.3	17635.7	17671.1	17953.8	18059.9	18413.3	41659.0	37286.4	51403.4
21	3093.9	3093.9	5646.4	12322.4	18475.6	18512.7	18808.9	18919.9	19290.2	43643.0	39062.1	53851.5
22	3234.5	3234.5	5903.0	12882.6	19315.5	19354.2	19663.9	19780.0	20167.1	45627.0	40837.9	56299.5
Kd	0.579	0.579	0.677	0.578	0.555	0.556	0.564	0.569	0.578	0.582	0.522	0.499
Kdr	0.521	0.521	0.61	0.52	0.499	0.5	0.508	0.511	0.521	0.524	0.469	0.449