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**Spring loaded proportional safety valve  
Flanged, with closed bonnet  
Series PV25**



## Series PV 25



### Spring loaded proportional safety valve Flanged, with closed bonnet

#### Application

The safety valve Series PV 25 is certified as Safety device for protection against excessive pressure according to EN ISO 4126-1 standard. The valve is determined for water, steam, air and other liquids and gases. Chemical composition of medium must be in accordance with material of valve's body and inner parts and with execution of valve (standard/gas-tight). Temperature working range is from +5°C to +400°C, if the temperature is higher than +350°C, the execution with cooling spacer is recommended.

In case of higher seat tightness demand, the disc with soft sealing (EPDM, NBR) is recommended. This execution is limited by max. temperature +120°C. Possible combinations (execution, seat material...) see relevant tables and type number specification.

The valve's discharge capacity, based on the data given in this sheet ( $A_0$ ,  $K_{dr}$ ), is guaranteed, if the pressure drop in inlet pipeline doesn't exceed 3% of  $p_{set}$  and simultaneously the pressure drop in outlet pipeline doesn't exceed 15% of  $p_{set}$ .

#### Design

The safety valve Series PV25, pressure ranges PN16 and PN40, is manufactured in sizes and executions according to following tables. The tables contain the detail information about the dimensions, weight, range of set pressure and material of main parts too.

The valve's body is casted, the inlet nozzle is it's integrated part. The seat ring is tightly pressed into it. The flange's

dimensions are according to EN 1092-1, respectively to EN 1092-2.

The flat disc is equipped with lifting bell, which is exposed to pressure of medium when the valve starts to open. The opening force is increased by this way, the result is quick opening of valve.

The spring, which causes the closing/sealing force, is designed for specific range of set pressures, the fine setting is made through adjusting screw.

The valve is equipped with lever, which serves for manual valve opening/test of function under the normal operating conditions of protected equipment.

Thanks to closed bonnet, the valve can be executed as gas-tight too.

#### Installation instructions

- 1) The valve should be installed with spindle in vertical position
- 2) Outlet line must be inclined, the drainage hole must be provided in the lowest point

#### Ordering

The full type number must be given when ordering the valve. Demand for other flanges than according to EN 1092 or for position sensor must be placed in order too. The counter flanges, gaskets and bolts/nuts can be provided on demand too.

## Basic dimensions, weight and range of set pressure

### PV 2501, PN 16, DN 15 x 15 to 200 x 200

Size DN	Seat		Inlet flange	Outlet flange	Center to face		Installation height	Set pressure ( $p_{set}$ )			Weight cca. m [kg]
	dia	area	PN16	PN10	$S_1$	$S_2$		min. <sup>1)</sup>	min. <sup>2)</sup>	max.	
	$d_0$ [mm]	$A_0$ [mm <sup>2</sup> ]	$D_1$ [mm]	$D_2$ [mm]	$S_1$ [mm]	$S_2$ [mm]	H [mm]	[barg]	[barg]	[barg]	
15 x 15	12	113	95	95	90	90	330	0,45	1,00	16,00	6
20 x 20	12	113	105	105	95	95	335	0,45	1,00	16,00	6
25 x 25	16	201	115	115	100	100	350	0,45	1,00	16,00	8
32 x 32	20	314	140	140	105	105	390	0,45	1,00	16,00	10
40 x 40	25	491	150	150	115	115	420	0,45	1,00	16,00	12
50 x 50	32	804	165	165	125	125	485	0,45	1,00	16,00	20
65 x 65	40	1257	185	185	145	145	540	0,45	1,00	16,00	25
80 x 80	50	1964	200	200	155	155	655	0,45	1,00	16,00	36
100 x 100	63	3117	220	220	175	175	705	0,45	1,00	16,00	47
125 x 125	77	4657	250	250	200	200	810	0,45	1,00	16,00	74
150 x 150 <sup>1)</sup>	93	6793	285	285	225	225	850	0,45	---	16,00	100
200 x 200 <sup>1)</sup>	110	9503	340	340	250	250	980	0,45	---	16,00	140

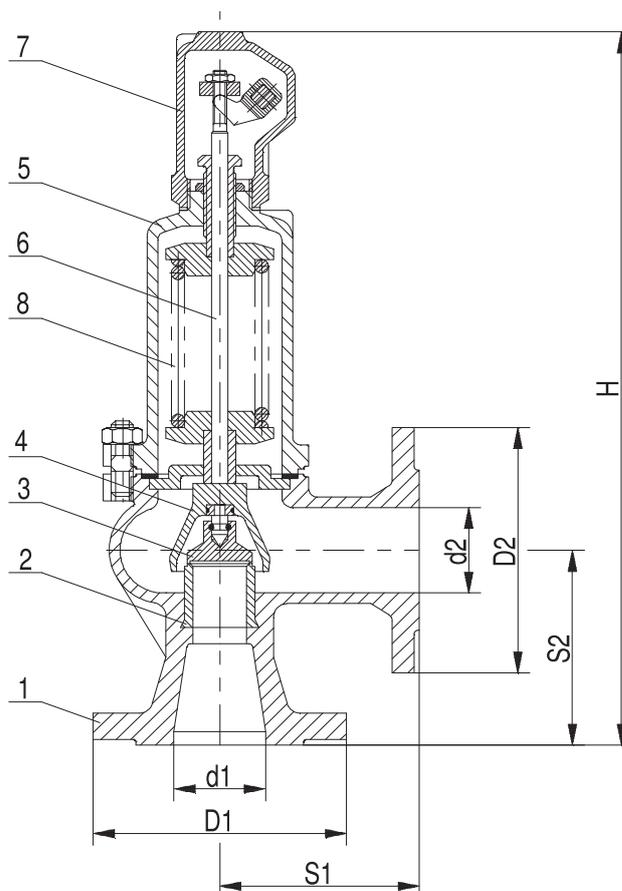
### Material of safety valve PV 2501 main parts

Part	Description	Material
1	Body	EN-GJL-250
2	Seat	X39CrMo17-1
3 <sup>1)</sup>	Disc	X39CrMo17-1
3 <sup>2)</sup>	Disc	X6CrNiTi18-10+EPDM/NBR
4	Bell	EN-GJS-400-15
5	Bonnet	EN-GJS-400-15
6	Spindle	X20Cr13
7	Cap	EN-GJS-400-15
8	Spring	51CrV4

Notes:

1) for metal/metal seat only

2) for soft seat only



## Basic dimensions, weight and range of set pressure

### PV 2502, PN 40, DN 20 x 20 to 200 x 200

Size DN	Seat		Inlet flange		Outlet flange	Center to face		Installation height		Set pressure ( $p_{set}$ )				Weight cca. m
	dia	area	PN 25/40		PN 10	$S_1$	$S_2$	wo cooling spacer	with cooling spacer <sup>1)</sup>	min. <sup>1)</sup> [barg]	min. <sup>2)</sup> [barg]	min. <sup>4)</sup> [barg]	max. [barg]	
	$d_0$ [mm]	$A_0$ [mm <sup>2</sup> ]	$D_1$ [mm]	$D_2$ [mm]	$D_2$ [mm]			$H$ [mm]						
20 x 20	12	113	---	105	105	95	95	335	---	0,45	1,00	0,20	40,00	7
25 x 25	16	201	---	115	115	100	100	350	410	0,45	1,00	0,20	40,00	9
32 x 32	20	314	---	140	140	105	105	390	460	0,45	1,00	0,20	40,00	12
40 x 40	25	491	---	150	150	115	115	420	495	0,45	1,00	0,20	40,00	14
50 x 50	32	804	---	165	165	125	125	485	575	0,45	1,00	0,20	40,00	22
65 x 65	40	1257	---	185	185	145	145	540	645	0,45	1,00	0,20	40,00	28
80 x 80	50	1964	---	200	200	155	155	655	765	0,45	1,00	0,20	40,00	40
100 x 100	63	3117	---	235	220	175	175	705	835	0,45	1,00	0,20	40,00	52
125 x 125	77	4657	---	270	250	200	200	810	955	0,45	1,00	---	40,00	80
150 x 150 <sup>1)</sup>	93	6793	---	300	285	225	225	850	---	0,45	---	---	25,00	110
200 x 200 <sup>1)</sup>	110	9503	360 <sup>5)</sup>	---	340	250	250	980	---	0,45	---	---	16,00	150

### Material of safety valve PV 2502 main parts

Part	Description	Material
1	Body	GP240GH
2	Seat	X39CrMo17-1
3 <sup>1)</sup>	Disc	X39CrMo17-1
3 <sup>2)</sup>	Disc	X6CrNiTi18-10+EPDM/NBR
4	Bell	EN-GJS-400-15
5	Bonnet	EN-GJS-400-15 / GP240GH
6	Spindle	X20Cr13
7	Cap	EN-GJS-400-15
8	Spring	51CrV4
9	Cooling spacer	C22

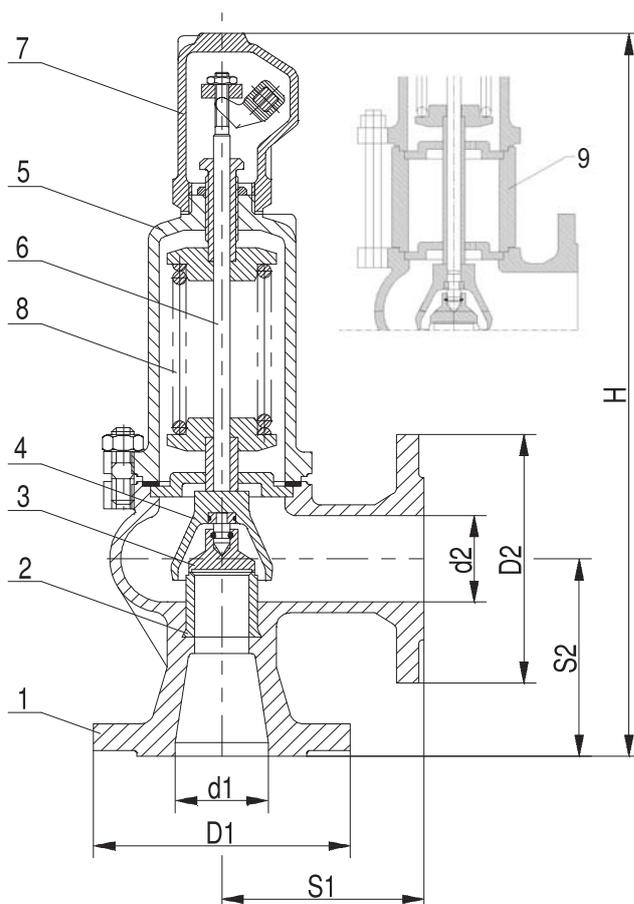
### Material of corrosive service safety valve PV 2502 main parts

Part	Description	Material
1	Body	GX5CrNi19-10
2	Seat	X6CrNiTi18-10
3	Disc	X6CrNiTi18-10
4	Bell	GX5CrNi19-10
5	Bonnet	GX5CrNi19-10
6	Spindle	X6CrNiTi18-10
7	Cap	GX5CrNi19-10
8	Spring	X10CrNi18-8

The stainless steel valve is manufactured in size range from DN 20 x 20 to DN 100 x 100 only. Regarding the fact, that the bonnet is closed and the valve is determined for corrosive service, only the gas-tight execution of valve is available.

#### Notes:

- 1) for metal/metal seat only
- 2) for soft seat only
- 3) valve with cooling spacer on demand
- 4) for stainless steel only
- 5) for size DN 200 x 200, the PN 25 flange only

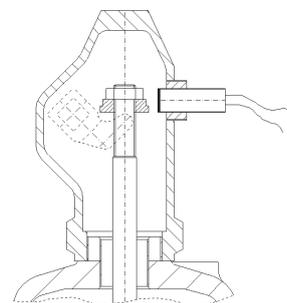


## Accessories

The valve can be provided with CLOSE position sensor (inductive switch) on demand. If not specified, the standard sensor has following parameters:

Working range (sensitivity): 3 mm (M8); 6 mm (M12) resp. 10 mm (M18)  
 Voltage: 20 ± 10 VDC  
 Protection: IP67 (M8); IP68 (M12 a M18)  
 Temperature range: from -25°C to +70°C  
 Length of connecting cable: 2000 mm

If the working condition (temperature) is over the above mentioned limits, the valve can be provided with sensor, suitable for range from -25°C to +230°C



## Value of certified coefficient of discharge $K_{dr}$

DN	Valve type	
	PV 250X	
	$K_{dr}$ for steam and gases	$K_{dr}$ for liquids
	$\Delta p_{max} = 10\%$	$\Delta p_{max} = 10\%$
from 15 x 15 to 200 x 200	0,25	0,006

Note:  $\Delta p_{max}$  is maximal value of overpressure, necessary for full lift of valve

## Series PV 25 valve's type number specification

		XX	XX	XX	XXX	XXX	/	XXX	-	XXX	XX	/	X	-	XXX,X	/	X
1. Valve	spring loaded proportional safety valve with close bonnet	PV	25														
2. Nominal pressure	PN16		01														
	PN40		02														
3. Lift	full lift (only)			S													
4. Seat surface material <small><sup>1)</sup> up to 120°C DN 20x20 to 25x125</small>	metal/metal			M													
	metal/metal + cooling spacer			W													
	EPDM soft seat <sup>1)</sup>			E													
	NBR soft seat <sup>1)</sup>			N													
5. Execution	standard			B													
	gas-tight			G													
6. Size	DN - inlet				XXX												
	DN - outlet					XXX											
	seat dia [mm]							XXX									
7. Connection	flanged (only)										PP						
8. Body material	cast iron (EN-GJL-250), $T_{max}$ 300°C												1				
	cast carbon steel (GP240GH), $T_{max}$ 400°C												2				
	cast stainless steel (GX5CrNi19-10), $T_{max}$ 300°C												3				
9. Set pressure	$p_{set}$ [barg]														XXX,X		
10. Protected medium	gas																G
	steam																S
	liquid																L

**Example of order:** PV 2502 SEG 080/080-050 PP/2-014,5/L i.e. spring loaded proportional safety valve with closed bonnet, nominal pressure PN 40, full lift, EPDM soft seat, gas-tight execution, size DN 80x80, seat dia 50 mm, flanged connection, body made from carbon steel (GP240GH), set pressure  $p_{set} = 14,5$  barg, protected medium liquid.

## Maximal permissible working pressures according to EN 12516-1, respective to EN 1092-2 [barg]

Material	PN	Temperature [ °C ]											
		RT <sup>1)</sup>	50	100	120	150	180	200	250	300	350	375	400
Cast iron EN-GJL 250 (EN-JL-1040)	10	10,0	10,0	10,0	10,0	9,0	8,4	8,0	7,0	6,0	---	---	---
	16	16,0	16,0	16,0	16,0	14,4	13,4	12,8	11,2	9,6	---	---	---
Cast carbon steel GP240GH (1.0619)	10	9,74	9,30	8,53	---	7,92	---	7,11	6,50	5,89	5,48	5,40	5,28
	25	24,4	23,2	21,3	---	19,8	---	17,8	16,2	14,7	13,7	13,5	13,2
	40	39,0	37,2	34,1	33,1	31,7	---	28,4	26,0	23,5	21,9	21,6	21,1
Cast stainless steel GX5CrNi19-10 (1.4308)	10	9,47	8,29	7,34	---	6,63	---	6,02	5,59	5,21	---	---	---
	40	37,9	33,2	29,4	---	26,5	---	24,1	22,4	20,8	---	---	---

<sup>1)</sup> -10°C to 50°C



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