Safety solenoid valve
Nominal width Rp 1/2 - Rp 2

SV
SV-D
SV-DLE

DUNGS®
Combustion Controls

6.01

Technical Description

The Dungs safety solenoid valve SV is a single-stage automatic shut-off valve to EN 161 for gas burners and gas burning appliances:

- Double-disc valves
- Max. operating pressure up to 0.5 bar
- Standard IP 65
- zero current shutoff
- SV, SV-D: fast-open
- SV-DLE: slow-open with adjustable fast stroke for starting gas flow
- DC solenoid
- SV-… 505 - 520: closed position signal contact retrofittable
- Pipe thread on inlet side, threaded flange on outlet side
- Threaded flange on inlet side retrofittable
- High flow rates
- Free of non-ferrous metals, suitable for gases up to 0.1 vol. % H_2S, dry

Application

The solenoid valve is used for securing, limiting, shutting off and releasing the gas supply to gas burners and gas burning appliances.
The DUNGS SV-… safety solenoid valve is suitable for gases of gas families 1, 2, 3 and other inert gaseous media.

Approvals

EC type test approval as per EC Gas Appliance Directive:
SV-… CE-0085 BM0332
EC type test approval as per EC Pressure Equipment Directive:
SV-… CE0036
Approvals in other important gas consuming countries.

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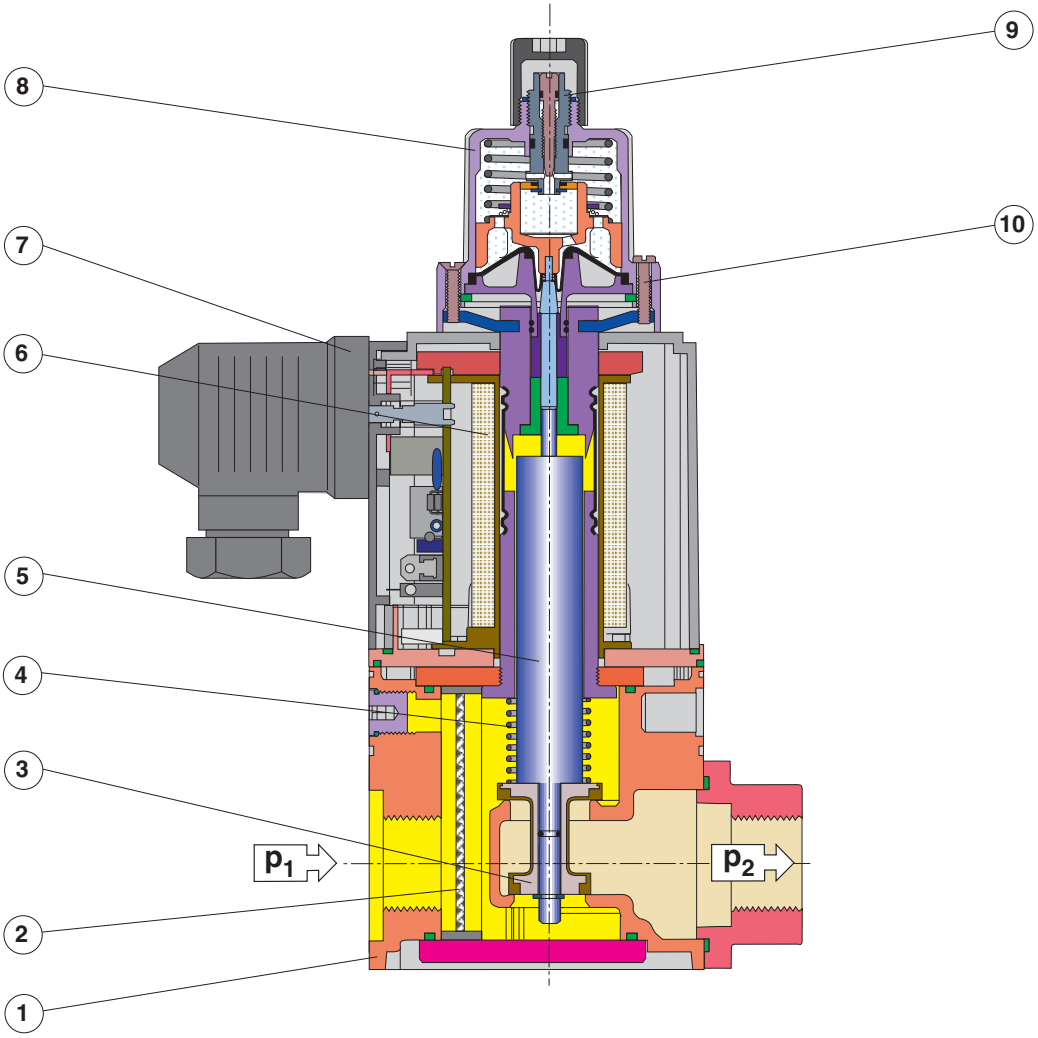
SV	Single-stage solenoid valve zero current shutoff, fast-opening, fast-closing.
SV-D	Single-stage solenoid valve zero current shutoff, fast-opening, fast-closing. Manual limitation of gas flow by regulation (D).
SV-DLE	Single-stage solenoid valve zero current shutoff, slow-opening (L), fast-closing. With adjustable fast stroke (E) and manual limitation of gas flow by regulation (D).

Technical Data

Size Flange and pipe thread to ISO 7-1	SV 505 | SV 507 | SV 510 | SV 515 | SV 520 Rp 1/2 | Rp 3/4 | Rp 1 | Rp 1 1/2 | Rp 2 Pipe thread on inlet side, threaded flange on outlet side
Max. operating pressure	500 mbar (50 kPa)
Solenoid valve	Automatic shutoff valve as per EN 161: Class A, Group 2
Closing time	< 1 s
Opening time	SV…, SV-D…: < 1 s SV-DLE…: approx. 20 s at room temperature + 20 °C and without fast stroke
Fast stroke	adjustable on SV-DLE…
Flow restrictor	adjustable on SV-D… and SV-DLE…
Materials of gas-conveying parts	Housing: aluminium, steel, free of non-ferrous metals Seals in valve seat: NBR based, suitable for gases as per G260/I
Ambient temperature	-15 °C to +60 °C
Installation position	Solenoid arranged vertically to horizontally
Dirt trap	Integrated strainer. To protect the entire gas train, we recommend installing an upstream gas filter.
Measuring gas connection	G 1/8 DIN ISO 228: SV-… at valve inlet, in the centre; at output flange for SV-… 510 - 520; on both sides in front of and behind the valve seat, at the valve outlet in the centre. Pressure switch retrofittable: to the side, at the inlet and outlet flanges. Fitting a pressure switch can exclude measuring gas/ignition gas connection.
Voltage / frequency	~(AC) 50 - 60 Hz 230 V -15 % + 10 %, other voltages on request. Standard voltages: ~(AC) 50 - 60 Hz 24 V, 110 V, 120 V, =(DC) 24 V - 28 V
Rating / power consumption	at ~(AC) 230 V, + 20 °C: see type summary
Degree of protection	IP 65
Switch-on duration	100 % ED
Electrical connection	Plug-in connection to DIN EN 175 301-803
Switching rate	SV-D: max. 1000/h SV-DLE: max. 100/h
Radio interference suppression	Interference level N
Closed position signal contact	Type K01/1 (DIN tested) retrofittable, on SV-… 505 - 520
Valve proving system	Type VPS 504 S... retrofittable, on SV-… 510 - 520

Type SV-DLE 507



1	Housing	5	Plunger	Adjustment:	
2	Strainer	6	Solenoid coil	9	Fast stroke
3	Valve disc	7	Electrical connection	10	Main flow
4	Closing spring	8	Hydraulic brake		

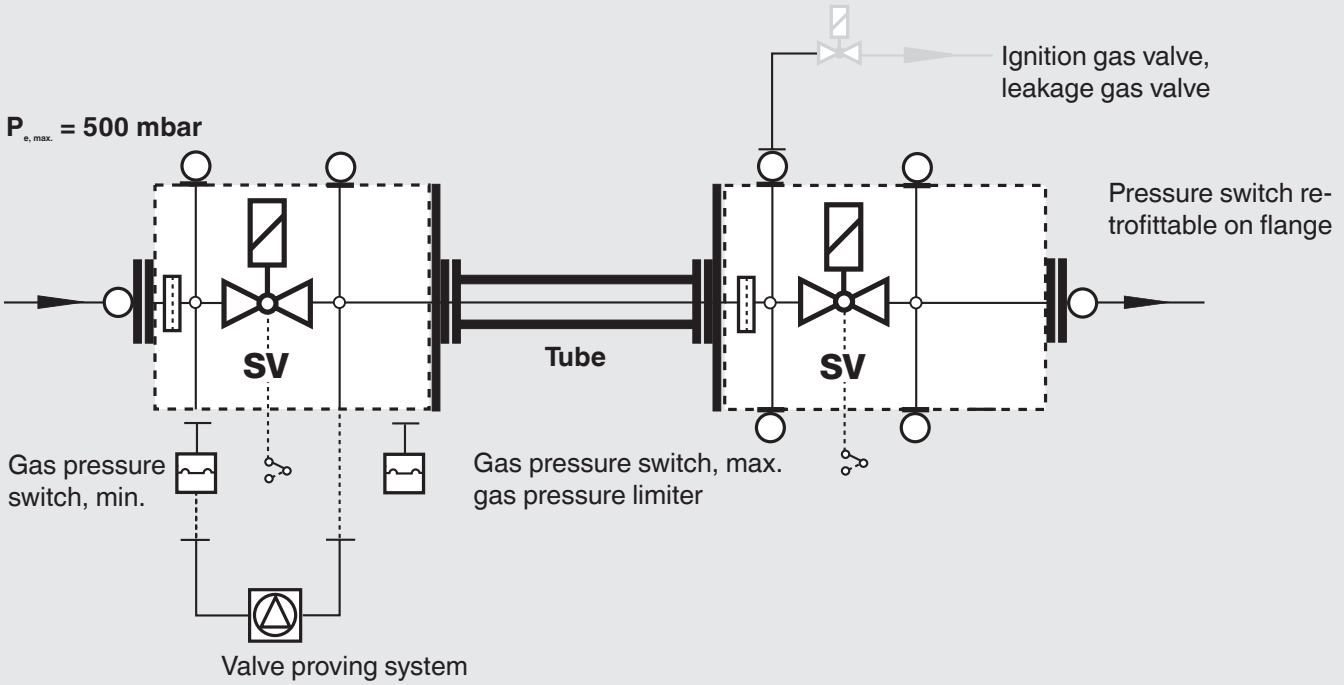
Functional Description

The DUNGS safety solenoid valve is an automatic shut-off valve powered by emergency current.

The electromagnetic drive opens against closing spring 4.

The stroke of plunger 5 can be limited. The hydraulic brake 8 permits slow opening. The fast stroke 9 is adjustable. If the power supply (operating voltage) is interrupted, the closing spring 4 closes the valve within < 1 s. The closed position of the valve can be monitored by a retrofittable closed position signal contact.

Safety solenoid valve modular system



System accessory information

Compact pressure switch for multiple actuators GW…A5
Data Sheet 5.02

Pressure switch GW...A6
Data Sheet 5.01

Valve proving system VPS 504
Data Sheet 8.10

Closed position indicator K01/1 for checking closed position of valves
Data sheet 12.01

⚠ Mounting a system accessory may exclude the fitting of another device.

Equipment variants SV-… single-stage operating mode	SV...			SV-D...			SV-DLE...		
	505/507	510/515	520	505/507	510/515	520	505/507	510/515	520
Flow restrictor	-	-	-	◆	◆	◆	◆	◆	◆
Opening delay	-	-	-	-	-	-	◆	◆	◆
Strainer	◆	◆	◆	◆	◆	◆	◆	◆	◆
Gas pressure switch retrofittable:									
GW...A6 valve inlet, central	◆	◆	◆	◆	◆	◆	◆	◆	◆
GW...A5 valve inlet, central	-	◆	◆	-	◆	◆	-	◆	◆
GW...A5 on outlet flange	-	◆	◆	-	◆	◆	-	◆	◆
GW...A5 on both sides before valve seat	◆	◆	◆	◆	◆	◆	◆	◆	◆
GW...A5 on both sides after valve seat	-	◆	◆	-	◆	◆	-	◆	◆
GW…A6 valve outlet central	◆	◆	◆	◆	◆	◆	◆	◆	◆
GW…A5 valve outlet central	-	◆	◆	-	◆	◆	-	◆	◆
Flange									
Rp 1/2	◆	◆	-	◆	◆	-	◆	◆	-
Rp 3/4	◆	◆	-	◆	◆	-	◆	◆	-
Rp 1	◆	◆	◆	◆	◆	◆	◆	◆	◆
Rp 1 1/4	-	◆	◆	-	◆	◆	-	◆	◆
Rp 1 1/2	-	◆	◆	-	◆	◆	-	◆	◆
Rp 2	-	-	◆	-	-	◆	-	-	◆
Flange retrofittable at inlet	◆	◆	◆	◆	◆	◆	◆	◆	◆
Ignition gas flange G 1/2 retrofittable	-	◆	◆	-	◆	◆	-	◆	◆
Closed position signal contact retrofittable	(◆)	◆	◆	(◆)	◆	◆	(◆)	◆	◆
Valve proving system directly retrofittable	-	◆	◆	-	◆	◆	-	◆	◆
Rectifier in terminal box	◆	◆	◆	◆	◆	◆	◆	◆	◆

◆ = Standard (◆) = on request - = not available

Version	Order Number	$p_{max.}$ [bar]	Connection Rp	Dimensions in [mm] a	b	c	d	e	g*	g_1*	Rating [VA]	Solenoid No.	Switching ops/h[1)]	Weight [kg]
SV 505	231 488	**0.5**	Rp 1/2	156	96	62	200	75	23	38	20	020	1000	1.6
SV 507	240 315	**0.5**	Rp 3/4	156	96	62	200	75	23	38	20	020	1000	1.6
SV 510	231 489	**0.5**	Rp 1	219	119	87	277	95	40	40	25	030	1000	4.2
SV 515	243 818	**0.5**	Rp 1 1/2	219	119	87	277	95	40	40	25	030	1000	4.2
SV 520	240 318	**0.5**	Rp 2	238	165	114	370	126	47	47	50	040	1000	6.9
SV-D 505	240 321	**0.5**	Rp 1/2	156	96	62	200	75	23	38	20	020	1000	1.6
SV-D 507	240 324	**0.5**	Rp 3/4	156	96	62	200	75	23	38	20	020	1000	1.6
SV-D 510	240 326	**0.5**	Rp 1	219	119	87	277	95	40	40	25	030	1000	4.2
SV-D 515	243 820	**0.5**	Rp 1 1/2	219	119	87	277	95	40	40	25	030	1000	4.2
SV-D 520	240 332	**0.5**	Rp 2	238	165	114	370	126	47	47	50	040	1000	6.9
SV-DLE 505	240 334	**0.5**	Rp 1/2	205	96	62	215	75	23	38	20	020	100	1.7
SV-DLE 507	240 337	**0.5**	Rp 3/4	205	96	62	215	75	23	38	20	020	100	1.7
SV-DLE 510	240 339	**0.5**	Rp 1	266	119	87	277	95	40	40	25	030	100	4.3
SV-DLE 515	243 821	**0.5**	Rp 1 1/2	266	119	87	277	95	40	40	25	030	100	4.3
SV-DLE 520	240 345	**0.5**	Rp 2	284	165	114	370	126	47	47	50	040	100	7.0

[1)] Switching frequency on SV-DLE... also dependent on opening time setting
g* = Standard
g_1* = Mounting of the limit stop contact

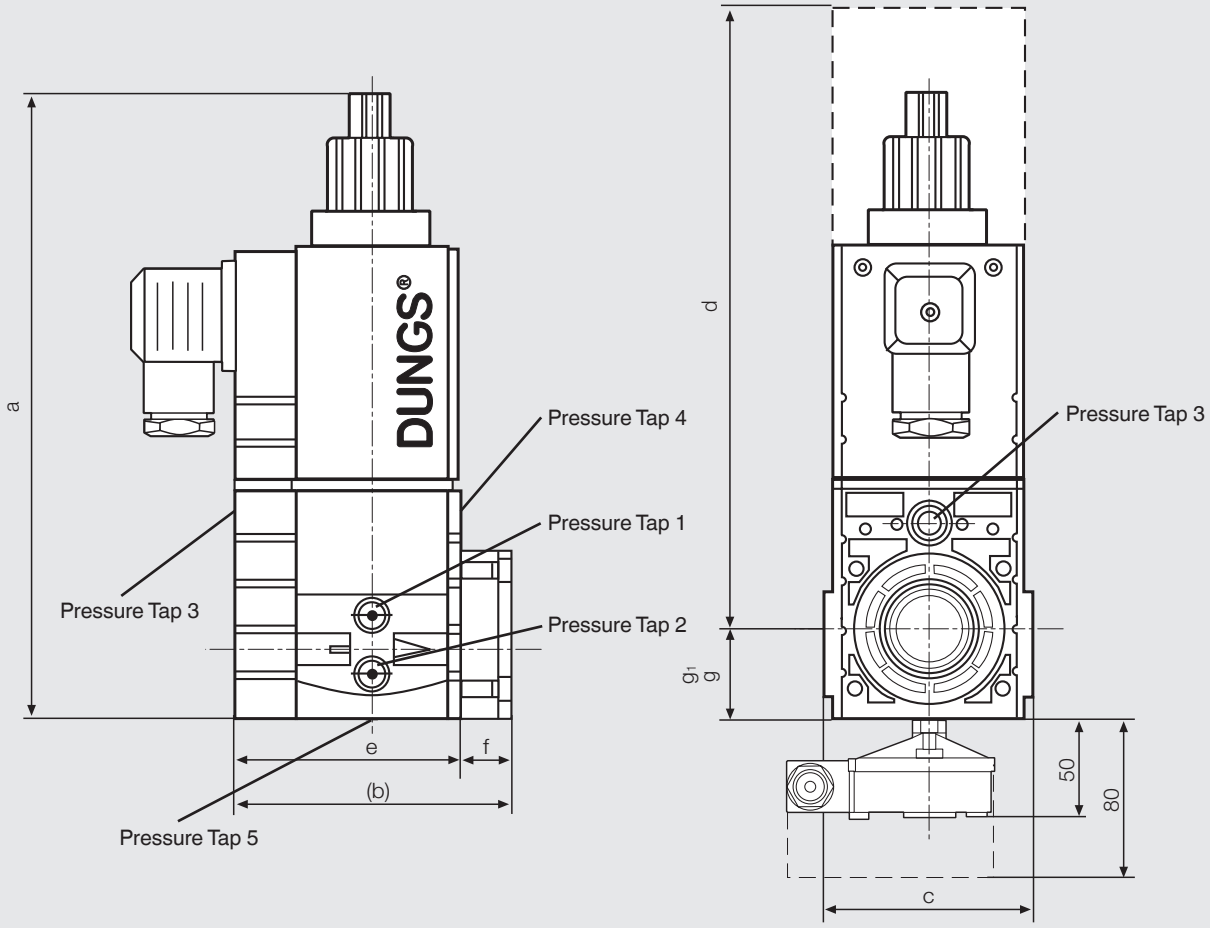
Supply schedule **1 valve**
1 threaded flange, included
4 screws
1 O-Ring

Flange for	Rp	Dimensions [mm] f	Order No.
SV-… 505 / 507	Rp 1/2	21	242 220
SV-… 505 / 507	Rp 3/4	21	242 221
SV-… 505 / 507	Rp 1	23	242 222
SV-… 510 / 515	Rp 1/2	24	242 223
SV-… 510 / 515	Rp 3/4	24	242 224
SV-… 510 / 515	Rp 1	24	242 225
SV-… 510 / 515	Rp 1 1/4	24	242 226
SV-… 510 / 515	Rp 1 1/2	24	243 817
SV-… 520	Rp 1	25	242 227
SV-… 520	Rp 1 1/4	25	242 228
SV-… 520	Rp 1 1/2	39	242 229
SV-… 520	Rp 2	39	242 230

2nd Flange, plug-in connection and system accessories must be ordered separately.

Electrical connection	Order No.
Line socket, black 3-pole + PE	210 319

Mounting dimensions for SV ..., SV-D ... and SV-DLE …



	Pressure tap 1*	Pressure tap 2*	Pressure tap 3	Pressure tap 4*	Pressure tap 5* K01/1 retrofittable	VPS directly retrofittable
SV- … 505/507	p_e (p_1)	p_a (p_2)	p_e (p_1)	p_a (p_2)	**yes***	**no**
SV- … 510/515	p_a (p_2)	p_e (p_1)	p_e (p_1)	p_a (p_2)	**yes**	**yes***
SV- … 520	p_a (p_2)	p_e (p_1)	p_e (p_1)	p_a (p_2)	**yes**	**yes***

*** depending on the equipment variant selected**

d = Space required for replacing solenoid

Safety solenoid valve
Flow diagram
Nominal width Rp 1/2 - Rp 2

SV
SV-D
SV-DLE

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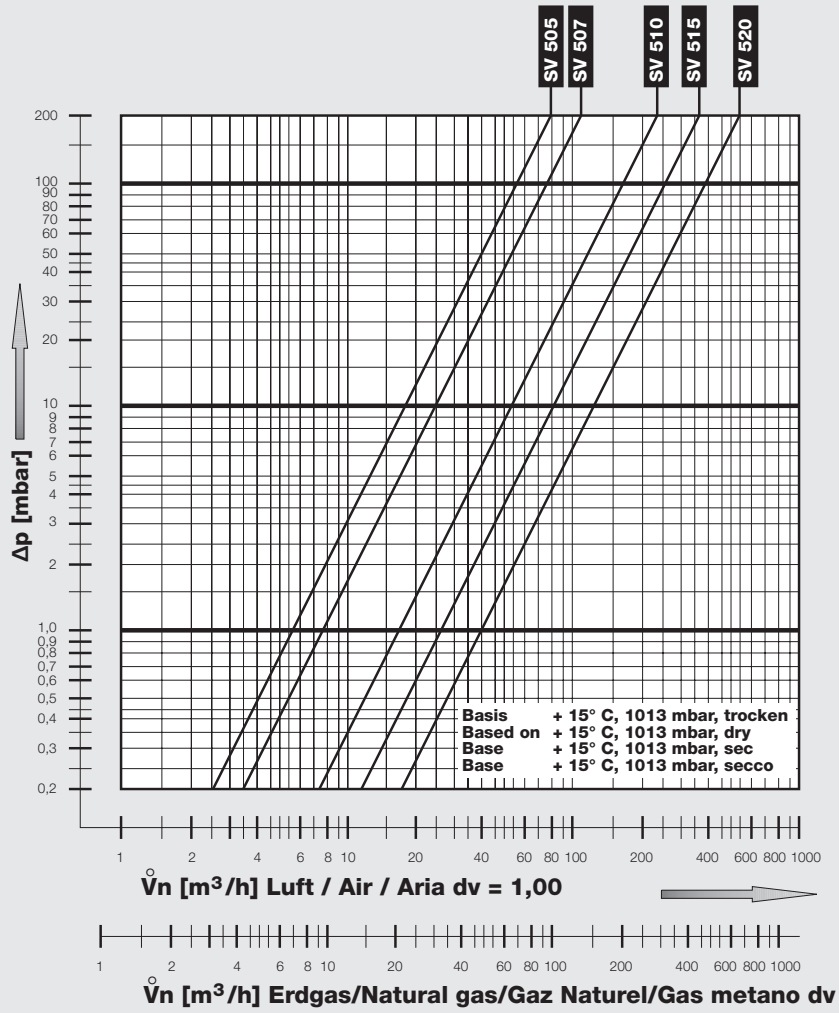
Flow diagram



$$f = \sqrt{\frac{\text{Air density}}{\text{Density of gas used}}}$$

$$\mathring{V}_{\text{gas used}} = \mathring{V}_{\text{Air}} \times f$$

Gas type	Density [kg/m³]	dv	f
Natural gas	0.81	0.65	1.24
Town gas	0.58	0.47	1.46
Liquid gas	2.08	1.67	0.77
Air	1.24	1.00	1.00

We reserve the right to make any changes in the interests of technical progress.