



Safety shut-off valve SAV

Direct acting shut-off device with adjustable setpoint springs for overpressure and underpressure monitoring

In compliance with EN 14382

- Input pressures up to 20 bar (2 000 kPa)
- High capacity
- Manual control
- External impulse
- Easy maintenance
- Flange connections DN 65 - DN 80



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SAV

Spring-loaded, shut-off valve with adjustable setpoint springs for limiting upper and lower output pressure. External valve pressure tap.



Applications

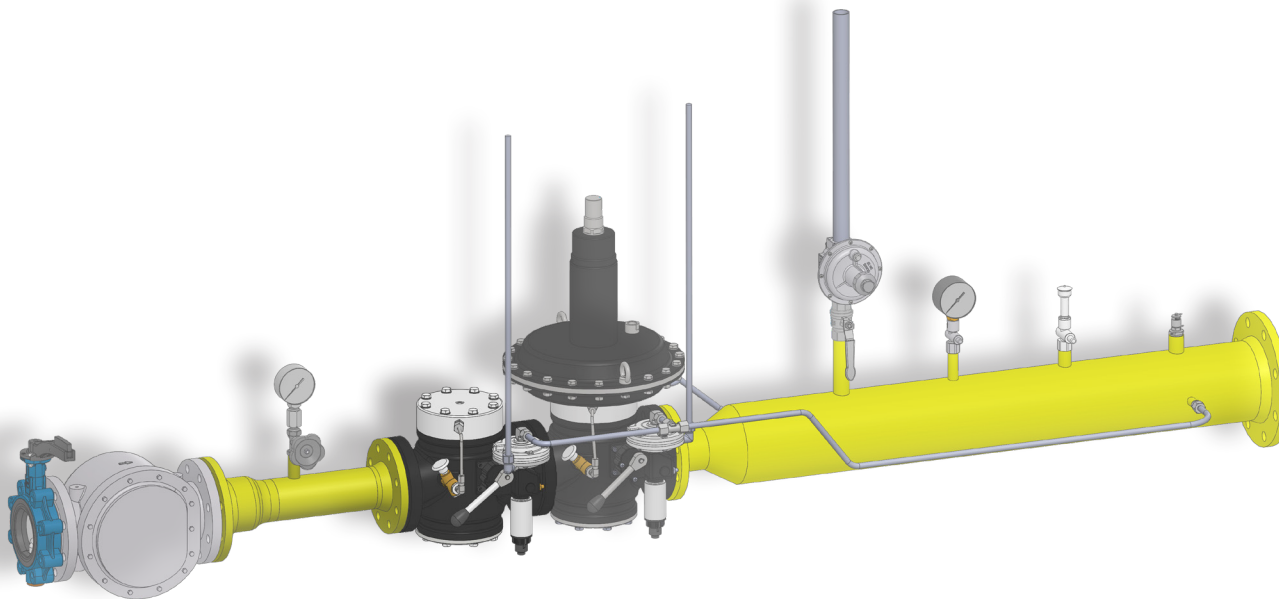
The safety valve closes on overpressure or on insufficient pressure in industrial and heating gas burners. It is also installed in municipal and commercial gas supplies.

It is suitable for gases of gas families 1, 2, 3 and other neutral gases.

Certification

EC type-examination certificate according to:

EC Pressure Equipment Directive



Safety shut-off valve according to EN 14382, class A

Type	SAV 100... IS (integral strength range) / SAV 250... DS (variable strength range)	
Type of gas	Family 1+2+3	
Nominal diameters Flanges	Connecting flanges PN 25 according to EN 1092-1 or ANSI 150 lbs (B16.5) DN 65 - DN 80	
Max. input pressure	SAV 100... 10 bar (1 000 kPa) / SAV 250... 20 bar (2 000 kPa)*	
Response time	< 2 s	
Lower adjustment range W_{du}	35 mbar to 3 000 mbar (3.5-300 kPa)	
Upper adjustment range W_{do}	180 mbar to 5 000 mbar (18-500 kPa)	
Materials	Main housing: Diaphragm case: Diaphragms:	Cast iron GGG 50 Aluminium NBR
Ambient temperature	-20 °C to +60 °C	

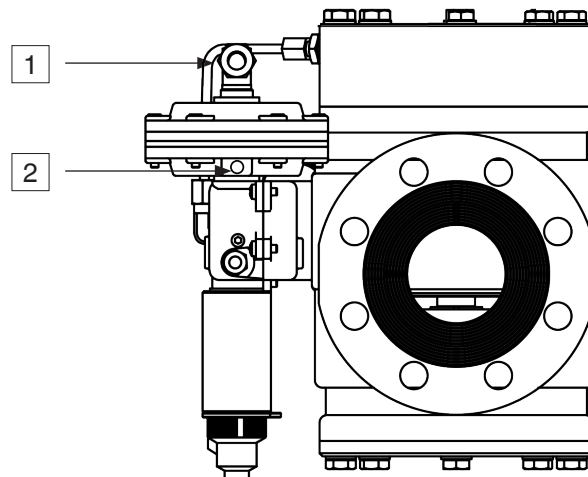
*19 bar (1 900 kPa) with flanges ANSI 150



Pressure taps



- 1 Connection for the SAV's external pulse line, Ermeto screw connection GE 12 - 1/2 for pipes 12x1.5
- 2 SAV vent line connection, G1/4 ISO 228



Nomenclature



Using the SAV 100065 MD as an example	SAV	100	065	MD	ANSI
Type	Safety shut-off valve				
MOP	100 ...	10 000 mbar			
	250 ...	20 000 mbar			
Nominal diameter	065	DN 65			
	080	DN 80			
Pressure range, output pressure	MD	Medium pressure			
	UHD	High and ultra high pressure			
Flange type		With standard flanges PN-25			
	ANSI	With flanges ANSI 150 lbs			

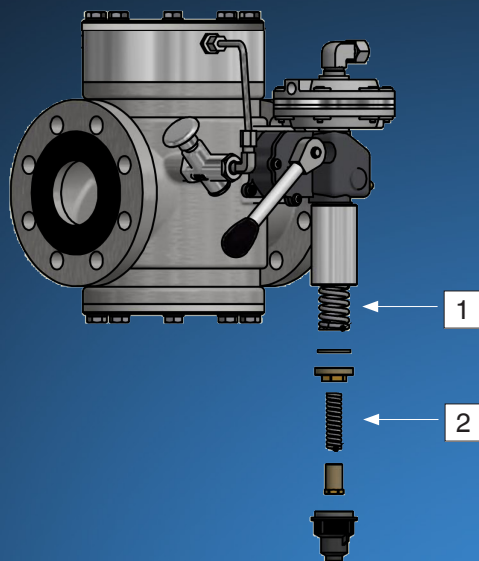
Adjustment range

Type	Connection	Version	Item number	Lower switching point		Upper switching point	
				W _{du}	AG	W _{do}	AG
SAV 100065 MD	DN 65	MD	287898	35-400 mbar	AG 10	180-800 mbar	AG 10
SAV 250065 UHD	DN 65	UHD	279386	150-3 000 mbar	AG 5	500-5 000 mbar	AG 5
SAV 100080 MD	DN 80	MD	287900	35-400 mbar	AG 10	180-800 mbar	AG 10
SAV 250080 UHD	DN 80	UHD	279387	150-3 000 mbar	AG 5	500-5 000 mbar	AG 5
SAV 100065 MD ANSI	ANSI 2½"	MD	287902	35-400 mbar	AG 10	180-800 mbar	AG 10
SAV 250065 UHD ANSI	ANSI 2½"	UHD	287903	150-3 000 mbar	AG 5	500-5 000 mbar	AG 5
SAV 100080 MD ANSI	ANSI 3"	MD	287905	35-400 mbar	AG 10	180-800 mbar	AG 10
SAV 250080 UHD ANSI	ANSI 3"	UHD	287906	150-3 000 mbar	AG 5	500-5 000 mbar	AG 5



SAV spring selection

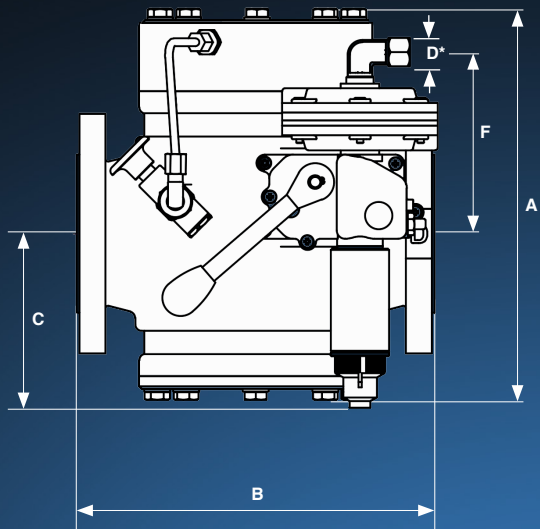
The output pressure results from the adjusting spring installed. The upper response pressure (overpressure) is adjusted on the external **spring 1** of the measurement device. The lower response pressure (underpressure) can be adjusted on the internal **spring 2**. By changing the adjusting springs the response pressures are changed.



Specific adjustment range, underpressure W_{dsu}						
Spring colour	Item number	Wire diameter [mm]	Length [mm]	Diameter [mm]	Setpoint range [mbar]	
					MD	UHD
Blue	270356	2.0	55	12.3	35-110	
Black	270357	2.3	55	12.3	50-250	
Purple	270358	2.5	55	12.3	80-400	150-500
Orange	270359	2.8	55	12.3		300-1 000
Silver	270360	3.0	60	15.0		800-1 400
Pink	276126	3.5	60	15.0		1 200-3 000

Specific adjustment range, overpressure W_{dso}						
Spring colour	Item number	Wire diameter [mm]	Length [mm]	Diameter [mm]	Setpoint range [mbar]	
					MD	UHD
Green	270366	2.5	60	30.0	180-290	
Red	270367	2.7	60	30.0	230-370	
Yellow	270368	3.2	60	30.0	300-500	
Blue	270369	3.5	60	30.0	400-800	500-1 000
Black	270370	3.7	60	30.0		700-1 300
Purple	270371	4.0	60	30.0		1 000-1 800
Orange	270372	4.5	60	30.0		1 300-2 500
Pink	270373	4.8	60	30.0		1 800-3 500
White	271115	5.0	60	30.0		2 500-5 000

SAV dimensions



* Ermeto screw connection 12L: GE 12 - ½ with screw connection M16 for pipes 12x1.5 d

Type	Item number		p max. [bar / kPa]	DN	Dimensions [mm]					Weight [kg]
	DN	ANSI			A	B	C	D	F	
SAV 100065 MD	287898	287902	10 / 1 000	65	300	276	135	12x1.5	138	35.1
SAV 250065 UHD	279386	287903	20 / 2 000	65	300	276	135	12x1.5	142	35.1
SAV 100080 MD	287900	287905	10 / 1 000	80	300	298	135	12x1.5	138	37.9
SAV 250080 UHD	279387	287906	20 / 2 000	80	300	298	135	12x1.5	142	37.9

Function

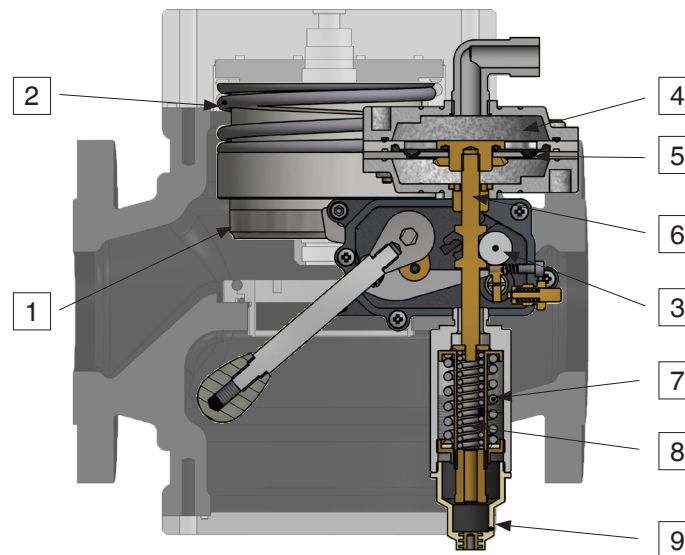
Information

Gas carrying lines, pulse lines and connecting lines must be resistant to thermal, chemical and mechanical stresses. They must also be durable and resistant to deformation and cracks.

⚠ Condensate from pulse lines must not flow into the safety shut-off valve (ASE).

⚠ Burnable gas or gas / air mixtures must not enter the adjusting spring's installation space.

SAV sectional drawing Device in the closed position



Chamber 4 is connected to the output pressure via a pulse line. The pressure to be controlled acts on the working diaphragm 5. The force of setpoint springs 7 and 8 acts as a counterforce. In case of an unbalance of forces (overpressure or underpressure) the SAV is actuated and the gas supply is blocked.

- 1 Regulating cup sleeve
- 2 Closing spring
- 3 Trigger mechanism
- 4 Chamber with the pressure to be monitored
- 5 Working diaphragm
- 6 Push rod
- 7 Setpoint spring for p_{do}
- 8 Setpoint spring for p_{du}
- 9 Protective cap

Device selection

The following flow tables can be used to select the device. With the flow required at a specific input pressure, it is possible to define the corresponding pressure drop. The flows apply to natural gas ($p = 0.81 \text{ kg/m}^3$) or air ($p = 1.24 \text{ kg/m}^3$) at a temperature of 15°C . In case of different types of gases, a conversion of the flow rate is carried out according to the equation on page 14.



Design a straight stabilisation section with a uniform diameter.



Pulse tap at a distance of $> 5 \times \text{DN}$.



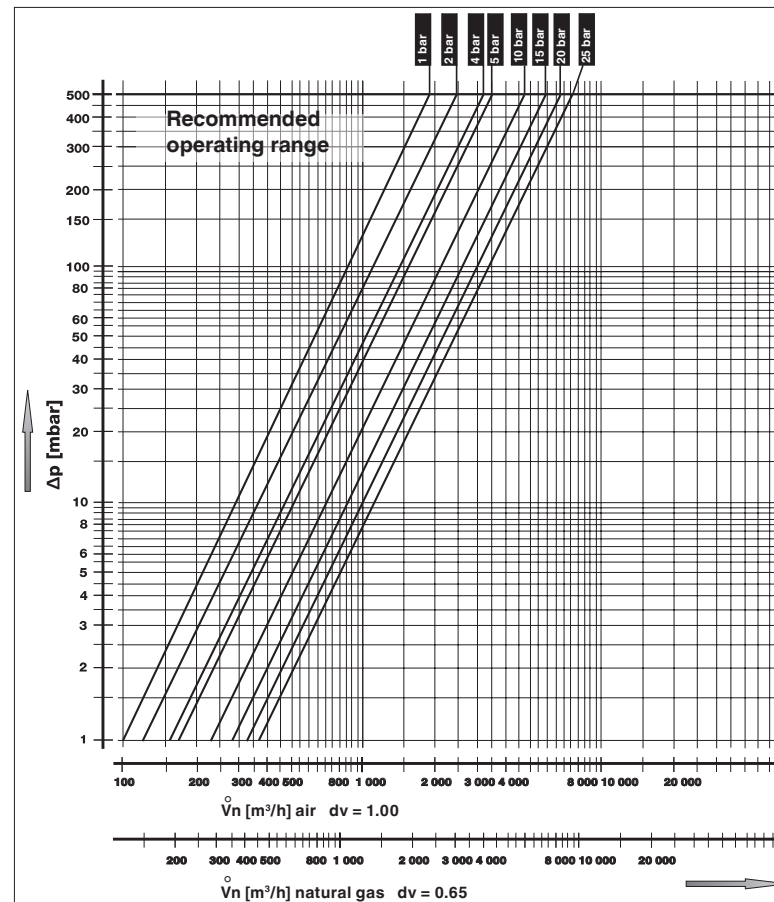
Max. flow velocity = 50 m/s



Max. pressure difference $\Delta p = 500 \text{ mbar}$

Flow tables

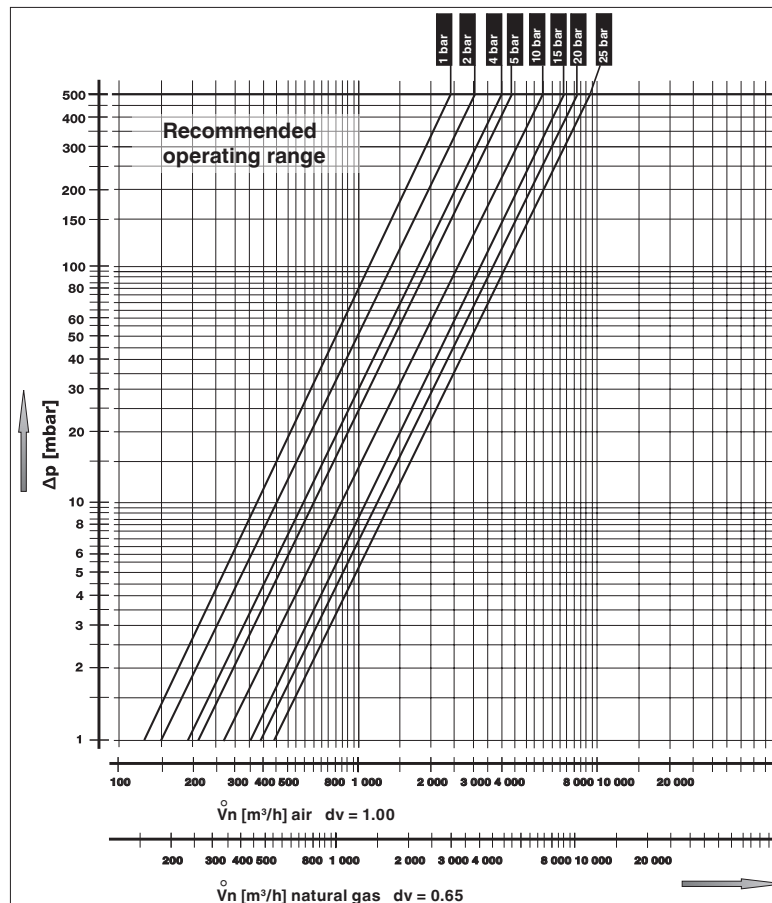
SAV DN 65



Based on $+15^\circ\text{C}$, $1\,013 \text{ mbar}$, dry

Max. pressure difference
 $\Delta p = 500 \text{ mbar}$
Max. flow velocity = 50 m/s

SAV DN 80



Based on +15 °C, 1 013 mbar, dry

Max. pressure difference

$\Delta p = 500$ mbar

Max. flow velocity = 50 m/s

Volume conversion

$$\dot{V}_{\text{gas used}} = \dot{V}_{\text{air}} \times f$$

$$f = \sqrt{\frac{\text{Density of the air}}{\text{Spec. weight of the gas used}}}$$

Type of gas	Spec. weight [kg/m³]	dv	f
Natural gas	0.81	0.65	1.24
City gas	0.58	0.47	1.46
NDG	2.08	1.67	0.77
Air	1.24	1.00	1.00





Subject to technical modifications that are contingent upon technical progress.

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