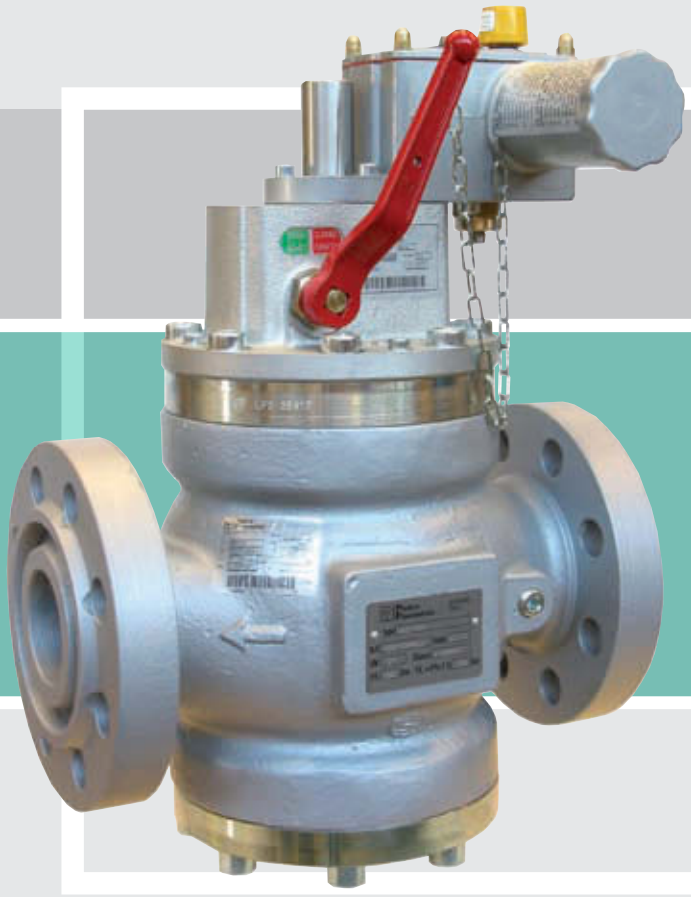
SBC 782

Slam Shut
Valves



Pietro Fiorentini®

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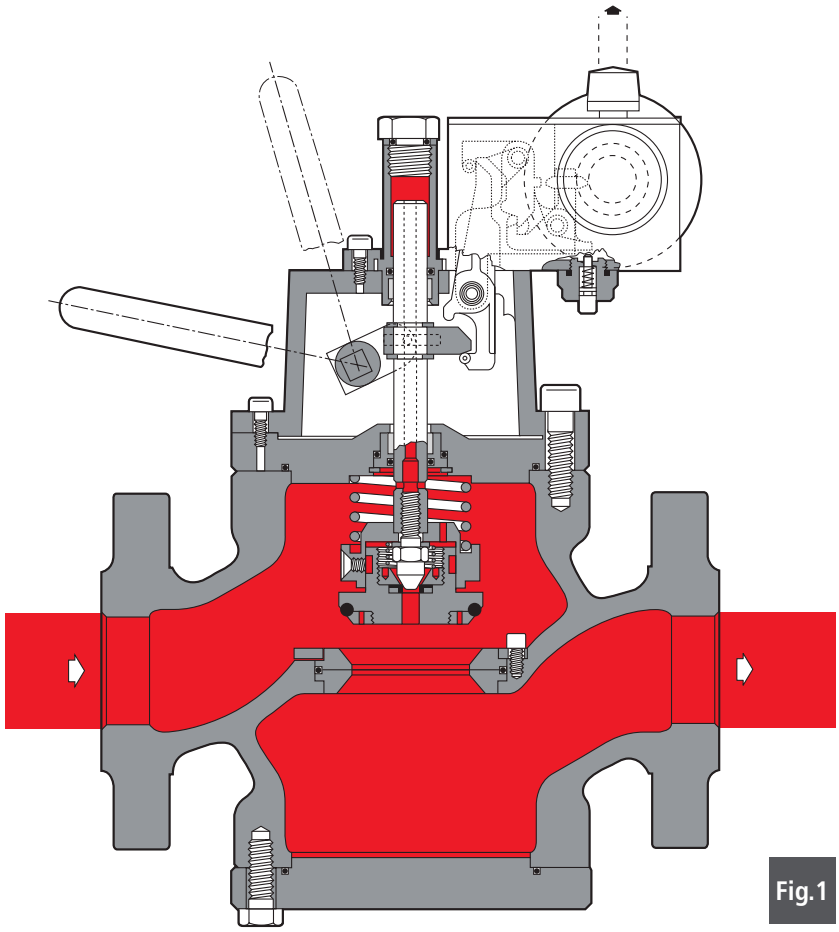
Introduction

SBC 782 is a compact safety device (SAV) which quickly intercepts gas flow whenever the pressure under monitoring reaches pre-set limits, or whenever manually required by operator on site or through a remote command (optional device).



SBC 782

Fig.1

Main Features

SBC 782 is a slam-shut valve with self operated actuation and manual resetting. It is an ideal product for distribution, transmission networks, industrial and chemical engineering applications. **SBC 782** is suitable for natural gas and all non-corrosive gaseous media. Its "top entry" design allows an easy maintenance without removing the body from the pipeline.

Main features:

- Intervention for overpressure and/or underpressure;
- Manual push-button control at installation point;
- 3 way solenoid valve for remote control (available on request);
- Manual re-setting;
- Internal by-pass for pressure equalization before resetting
- Possibility of application of devices for remote signal information (contact switches or proximity switches);

SBC 782

Designed With Your Needs In Mind

- Compact Design
- Easy Maintenance
- Top Entry
- Fast Response Time
- High Accuracy
- Low Operation Cost
- Third Party Certified Safety Device
- Integral By-Pass

Main Features

-Design pressure: 18,9 bar (274 psi) for class 150
51,7 bar (749,6 psi) for class 300 (up to size 4" only)
102 bar (1479 psi) for class 600 (up to size 4" only)
-Design temperature: -20 °C to +60 °C (-14 to + 140 °F)
-Ambient temperature: -20 °C to + 60 °C (-4 to + 140 °F)
-Range of intervention for overpressure Who: 0,02 to 88 bar (8"w.c. to 1276 psi)
-Range of intervention for underpressure Whu: 0,01 to 88 bar (4"w.c. to 1276 psi)
(depending on installed pressure controller)
-Accuracy class AG: ± 5%
-Available size: class 150 DN 1" - 2" - 2"$^{1/2}$ - 3" - 4"- 6" - 8" -10
class 300 & 600 DN 1" - 2" - 3" - 4"
-Flanging: class ANSI 150 - ANSI 300 - ANSI 600 RF or RTJ according to ANSI16.5 and PN16 according to ISO 7005

Materials

Body	Cast steel ASTM A352 LCC for class 300 and 600 ASTM A216 WBC for class 150 and PN16
Valve seat	Steel + rubber
Steam	AISI 416 Stainless steel
Plug	AISI 416 Stainless steel
Diaphragm	Ruberized canvas
Seals	Nitril rubber
Disengagement device	Housing in light alloy, with stainless steel mechanism
Compression fitting	According to DIN 2353 in zinc-plated carbon steel

The characteristics listed above are referred to standard products. Special characteristics and materials for specific applications may be supplied upon request.

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Calculation of the pressure drop

The following formula can be used to calculate pressure losses of the slam shut valve in fully open position:

$$\Delta p = \frac{K_G \times Pu - \sqrt{K_G^2 \times (Pu^2 - 4Q^2)}}{2 \times K_G}$$

Δp = pressure loss in bar
Pu = absolute inlet pressure in bar
Q = flow rate inlet Stm^3/h
K_G = flow coefficient

Pressure loss calculated as above is referred to natural gas with specific gravity of 0.61 (air=1) temperature of 15 °C at valve inlet, for gases with different specific gravity S and temperatures t °C, pressure loss can still be calculated with the above formula, replacing the value of the flow coefficent in the table with:

$$K_G1 = K_G \times \sqrt{\frac{175\ .8}{S\ \times\ (273\ .16\ +\ t)}}$$

Table 1: K_G valve coefficient

Nominal diameter (mm)	25	50	65	80	100	150	200	250
Size (inches)	1"	2"	2"1/2	3"	4"	6"	8"	10"
K_G coefficient	510	1970	3550	4390	7120	14780	23080	32506

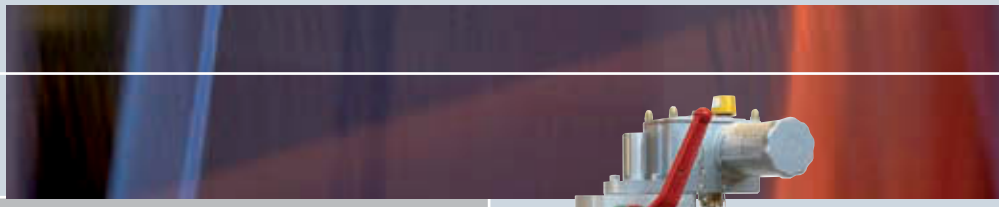

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Table 2 lists the correction factors Fc for a number of gases at 15 °C.

Table 2: Correction factors FC

Type of gas	Relative density	Fc Factor
Air	1.0	0.78
Propane	1.53	0.63
Butane	2.0	0.55
Nitrogen	0.97	0.79
Oxygen	1.14	0.73
Carbon dioxide	1.52	0.63

Caution:
in order to get optimal performance, to avoid premature erosion phenomena and limit noise emissions, it is recommended to check that the gas speed at the outlet flange does not exceed 50 m/sec.
The gas speed at the outlet flange may be calculated by means of the following formula:

$$V = 345.92 \times \frac{Q}{DN^2} \times \frac{1 - 0.002 \times Pd}{1 + Pd}$$

where:
V = gas speed in m/sec
Q = gas flow rate in Stm³/h
DN = nominal size of regulator in mm
Pd = outlet pressure in barg.

Table 3: Pressure switches

Type	101	102	103	104	105	106	107	108	109
Overpressure range (OPSO).	0,02 to 1	0,2 to 5	2 to 22	15 to 44	30 to 88	0,2 to 5	2 to 22	15 to 44	30 to 88
Underpressure range (UPSO).	0,01 to 0,3	0,04 to 0,7	0,2 to 3.5	1,6 to 8	3,2 to16	0,1 to 5	1 to 22	7 to 44	14 to 88
Press. in bar									

Installation

To ensure proper operation and declared performance, the followings should be observed when installing the **SBC782** slam shut valves:

a) filtering: the gas flowing in the piping must be adequately filtered. It is also recommended that the piping upstream the regulator is clean and avoids impurities;
b) sensing line: for correct operation, the sensing line nipple must be appropriately positioned. Between the valve and the downstream take-off there must be a lenght of straight pipe ≥ four times the diameter of the outlet pipe; beyond the take-off, there must be a further lenght of pipe ≥ twice the same diameter.

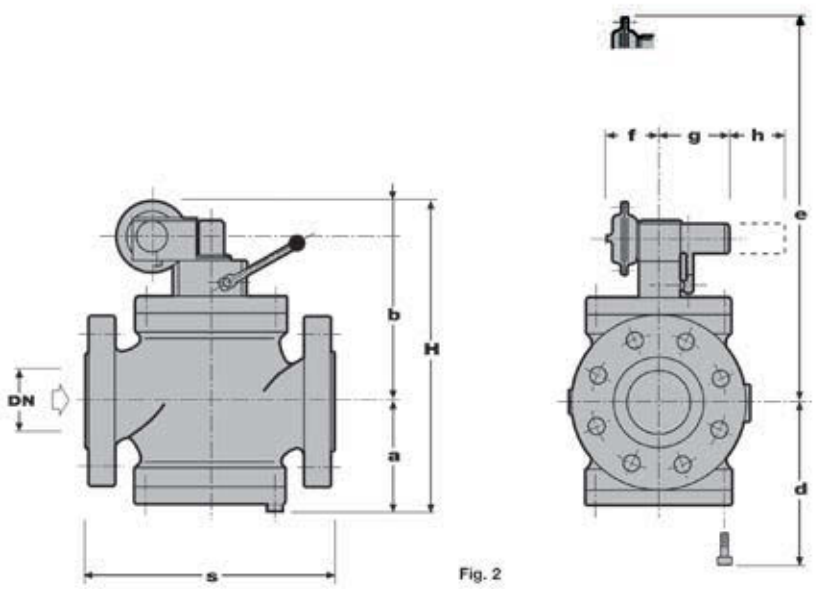

Fig. 2

Overal dimensions in mm

Size (mm)	25	50	65	80	100	150	200	250
Inches	1"	2"	2 "1/2	3"	4"	6"	8"	10"
S - Ansi 150/PN 16	183	254	277	298	352	451	543	673
S - Ansi 300	197	267	-	317	368	-	-	-
S - Ansi 600	210	286	-	336	394	-	-	-
a	100	130	140	150	190	225	265	340
b	215	240	270	315	300	375	450	530
d	130	160	180	200	250	275	320	440
e	280	330	380	425	440	560	625	730
f	75,5	75,5	75,5	75,5	75,5	75,5	75,5	75,5
g	118	118	118	118	118	118	118	118
h	80	80	80	80	80	80	80	80
H	315	370	420	465	490	600	715	870

Weights in Kgf

ANSI 150/PN16	21	37	45	51	79	154	255	430
ANSI 300	22	40	-	54		-	-	-
ANSI 600	23	42	-	57		-	-	-

Face to face dimensions S according to IEC 534-3 and EN 334

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