

## Two Stage Solenoid Valves, Type SGZ

### FEATURES

- Two stage operation with lower firing rate
- Robust & long life construction,
- Suitable for maximum pressure 360 millibar

### OPERATING PRINCIPLE

Two stages operated solenoid valve for on- off control of air and gas used in gas burning systems or gas burners. In order to save energy, this two-stage valve is used for atmospheric boilers having capacity less than 120 Kw.

### CONSTRUCTION

- Valve Body : Aluminium Silicon Alloy Castings
- Valve Disc Seal : Perbunan
- Inbuilt Strainer : Brass ( Size 15-40/32 mm ) Stainless Steel ( 40-65mm )
- End Connection : Screwed to BSP / NPT ( F )  
Or Flanged to ANSI B16.5 Class 150 RF
- Working Temperature :  $-15^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$
- Working Pressure : 360 millibar maximum
- Pressure Test Points : 1/4" NPT on inlet and outlet of the valve.
- Voltage : 230 VAC (+10/-15%), 50 / 60 Hz Standard  
via protective circuit rectifiers
- Cable Gland : Pg11 (upto 40mm size), & Pg13.5 (from 50 - 65mm)
- Coil Protection : As per IP-54 ( According to IS 2147 ) Class "F" insulated
- Switching Frequency : Universal with full reproducibility of instant passage of gas 5 seconds waiting period between 2 operations.
- Opening Time : 0.5 to 5 seconds for 1<sup>st</sup> stage ( adjustable )  
10 seconds for 2<sup>nd</sup> stage (fixed)
- Closing time : Less than 1 second, with flow restrictor.
- Fluids : Natural Gas, LPG in gaseous form, Town Gas, Bio-gas etc.

### APPLICATION

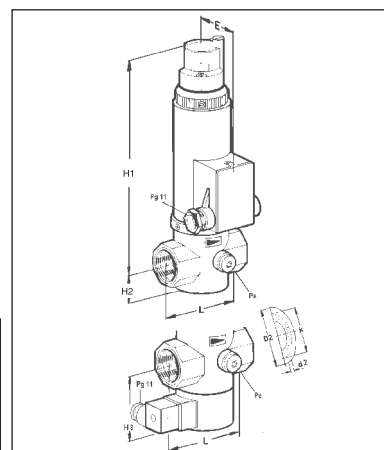
For the protection, Shut-Off and release of the air and gas supply to gas burners and gas devices with two-step operation.

The two-step operation allows an improvement of the efficiency at low fire.

The regulations for heating plant specify a two-step operation for atmospheric boilers with a capacity > 120kW, in order to save energy. A two-step operation is also practical for capacities < 120kW.

### DIMENSIONAL DETAILS

| Type           | Size | Flow Factor KV     | Dimensions |       |     |      |       |    | Working Pressure | Volume with $\Delta P = 1\text{mbar}$ | Coil Load |     | Weight |
|----------------|------|--------------------|------------|-------|-----|------|-------|----|------------------|---------------------------------------|-----------|-----|--------|
|                |      |                    | L          | D     | H1  | H2   | H3    | E  |                  |                                       | VA        | W   |        |
|                | mm   | m <sup>3</sup> /hr | mm         | mm    | mm  | mm   | mm    | mm | millibar         | m <sup>3</sup> / hr                   |           |     | Kgs.   |
| SG 15 R 03 Z   | 15   | 4.3                | 71         | -     | 235 | 24.0 | 62.0  | 61 | 360              | 3.8                                   | 39        | 47  | 3.3    |
| SG 20 R 03 Z   | 20   | 9.1                | 91         | -     | 249 | 33.0 | 70.0  | 66 | 360              | 8.0                                   | 52        | 62  | 3.8    |
| SG 25 R 03 Z   | 25   | 11.4               | 91         | -     | 249 | 33.0 | 70.0  | 66 | 360              | 10.0                                  | 52        | 62  | 3.8    |
| SG 40/32 R 01Z | 40   | 18.0               | 128        | -     | 268 | 39.0 | 76.0  | 66 | 130              | 18.0                                  | 52        | 62  | 4.4    |
| SG 40 R 01 Z   | 40   | 24.0               | 150        | 128.5 | 372 | 50.5 | 86.0  | -  | 130              | 24.0                                  | 75        | 90  | 8.8    |
| SG 40 F 01 Z   | 40   | 24.0               | 200        | 128.5 | 372 | 50.5 | 86.0  | -  | 130              | 24.0                                  | 75        | 90  | 10.5   |
| SG 50 R 01 Z   | 50   | 37.0               | 180        | 156.5 | 383 | 62.0 | 97.5  | -  | 130              | 37.0                                  | 80        | 96  | 11.0   |
| SG 50 F 01 Z   | 50   | 37.0               | 230        | 156.5 | 38  | 62.0 | 97.5  | -  | 130              | 37.0                                  | 80        | 96  | 13.0   |
| SG 65 F 01 Z   | 65   | 57.0               | 290        | 183.5 | 395 | 74.0 | 109.5 | -  | 130              | 57.0                                  | 87        | 104 | 22.0   |



## FUNCTION OF DUAL STAGE

After applying the mains voltage to LV1 terminal, the valve starts opening up to the adjustable 1<sup>st</sup> stage. When the voltage is applied to LV2 terminal, the valve opens completely and releases gas to the pre-adjusted gas flow. When LV2 is disabled, the valve comes back to the 1<sup>st</sup> stage. The valve closes fully when LV1 is disabled.

## SGZ WITH CLOSED POSITION INDICATOR

An inbuilt micro switch is provided in the device for indicating close or open position depending upon the wiring of the contact sequence and standard adjustment at factory.

## FLOW ADJUSTMENT

Flow can be adjusted from 20 to 40 % of the maximum flow.

## FACTORY SETTING

Maximum adjustment of first and second stages by adjusting the flow restrictor.

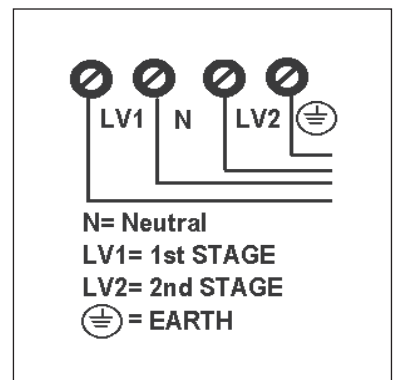
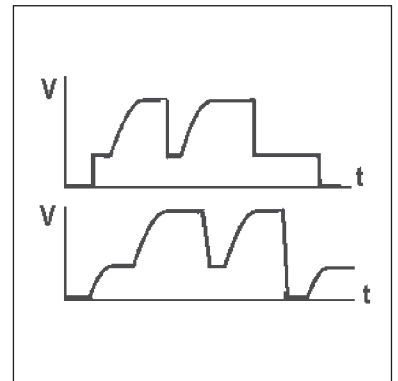
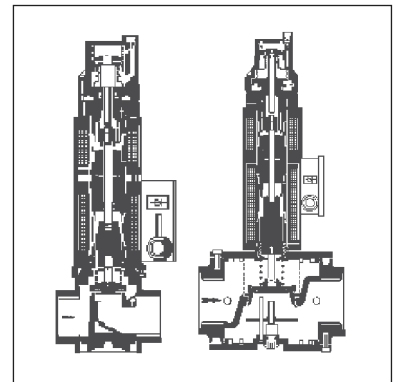
## ADJUSTING INITIAL

Adjustable from 0 to 70 % of throughput having  $\Delta p = \text{mbar}$ .  
Gas flow with help of damping device, the user can do initial adjustment.

## SELECTION CHART FOR TWO STAGE SOLENOID VALVES (SGZ)

| SGZ   | Type                        | Two Stage Solenoid Valve   |
|-------|-----------------------------|--|
| 50    | Size mm                     | 15, 20, 25, 40, 50, 65   |
| F     | End Connections             | R = Flanged to DIN PN16<br>F = Flanged to ANSI B 16.5, Class150 RF |
| 01    | Inlet pressure              | 01 = 130 mbar      03 = 360 mbar                                   |
| L     | Type of Opening             | L = Slow Opening      N = Fast Opening                             |
| T     | Mains Voltage               | T = 220/ 240 V, 50/ 60 Hz  |
| 3     | Connection Box              | 3 = With IP54 terminal      6 = With Standard Socket               |
| 1     | Screw at the inlet & outlet | 1 = Screw at the inlet      3 = Screw at inlet & outlet            |
| D (*) | With flow adjuster          | D = Flow adjuster      S = Position Indicator                      |
| V (*) | With Viton Seal             |  |

(\*) Optional Feature, when ( ) this letter is dropped, the next letter moves up.



### Note:

Technical specifications and dimensions are subject to change without prior notice.  
Dimensions in the table are approximate subject to final confirmation by AVCON.

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Manufactured by:

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