



# GSV

## Gas Solenoid Valve

### Installation and Maintenance Instructions



In this procedure document we have endeavored to make the information as accurate as possible.

We cannot accept any responsibility should it be found that in any respect the information is inaccurate or incomplete or becomes so as a result of further developments or otherwise.

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## INTRODUCTION

The Gold Seal GSV solenoid valves are widely used in gas distribution to provide isolation and emergency shut-off.

The valves can be used on various hydrocarbon gases including natural gas, methane, and liquid petroleum gas.

## OPERATION

The GSV solenoid valves will normally be in the closed position, but when energised will open quickly and a blue indicator light will be lit on the terminal box attached to the coil.

There are G $\frac{1}{4}$  holes on both sides of the valve body and at the bottom (½" to 2" size only. These can be used for various applications but notably a CPI (closed position indicator) or gas proving system.

## TECHNICAL SPECIFICATION

Opening time:	< 1 second	
Closing time:	< 1 second	
Max. operating frequency:	20 time per minute	
Maximum working pressure:	½" to 1"	360 mbar
	1¼" to 2"	200 mbar
		mbar
Integral filter:	DN65 to DN100	200 mbar (DN150 1000mbar) IP54
Protection level:		-15 to 60°C
Working temperature:		65°C
Coil temperature:		BS EN 10226
Body connections – threaded:	½"" to 2" Body	BS EN 1092
connections – flanged PN16:	DN65	BS EN 1092
flanged PN16:	DN80 to DN150	NBR polymer
Seal material:		Aluminium alloy
Body material:		AISI 302 stainless steel
Spring material:		

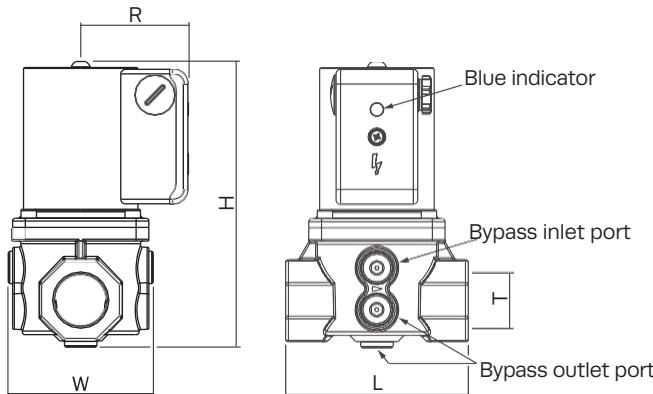
## ELECTRICAL SPECIFICATION

Voltage:	230 V ac
Rating:	50/60 Hz
Coil Level F:	360° rotation
Suitable for:	Permanent excitation

## STANDARDS

According to European Standards:	90/396/EEC
	73/23/EEC
According to standard:	89/336/EEC
	EN 161

**DIMENSIONS - 1/2" to 2" SIZES**



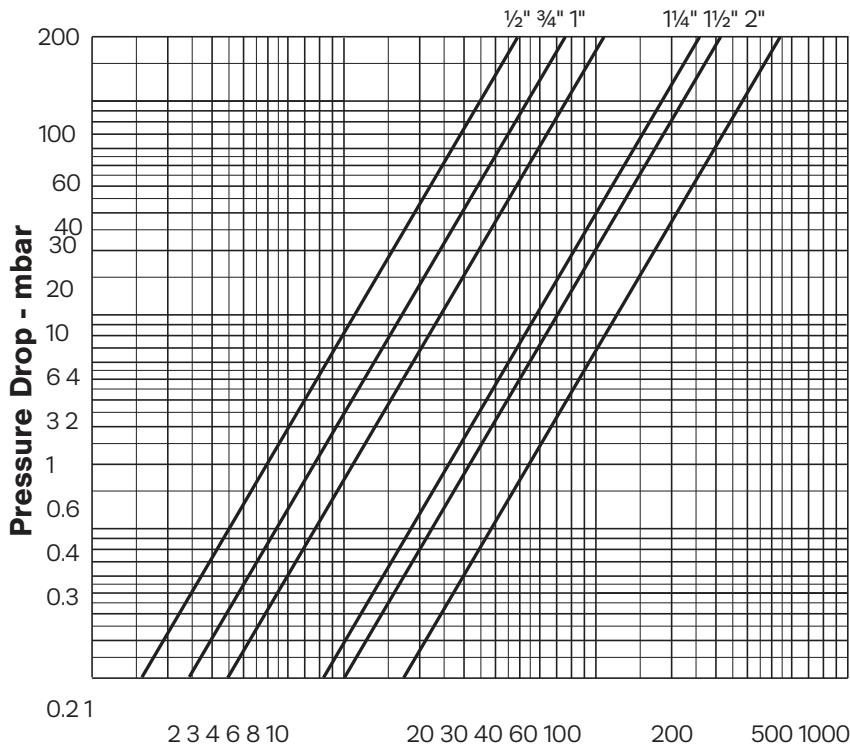
Code	T	L	W	H	R	230V AC Power - W
GSV15	Rp1/2	72	71	115	55	15
GSV20	Rp3/4	92	76	156	59	22
GSV25	Rp1	100	80	158	59	22
GSV32	Rp1 1/4	149	115	216	71	42
GSV40	Rp1 1/2	149	115	216	71	42
GSV50	Rp2	170	142	230	76	50

**CAPACITY**

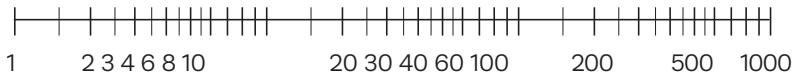
The capacity in m<sub>3</sub>/hr at ~P = 2.5 mbar.

Code	Size	m <sub>3</sub> /hr	Max P
GSV15	1/2"	6.4	360mbar
GSV20	3/4"	14.8	360mbar
GSV25	1"	16.7	360mbar
GSV32	1 1/4"	38.5	200mbar
GSV40	1 1/2"	47.1	200mbar
GSV50	2"	66.7	200mbar

**PRESSURE DROP CHART - 1/2" to 2" SIZES**



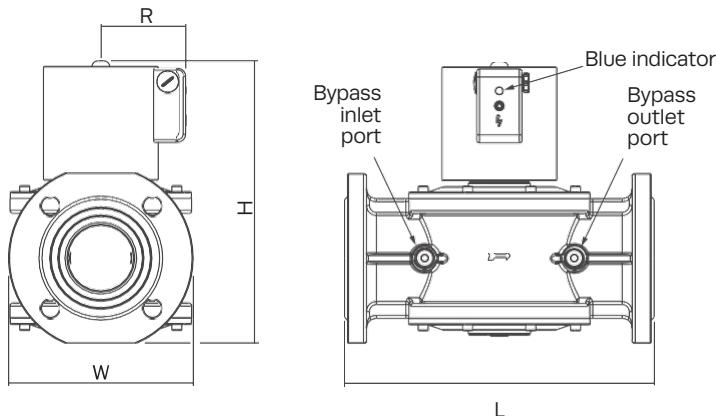
Based on +15°C, 1013 mbar, dry **Air Flow - Nm<sup>3</sup>/h**



Based on  $f = 1.24$  **Natural Gas Flow - Nm<sup>3</sup>**

For Air, Gas and Liquid Gas Density ratios please see page 5

**DIMENSIONS - DN65 to DN100 SIZES**



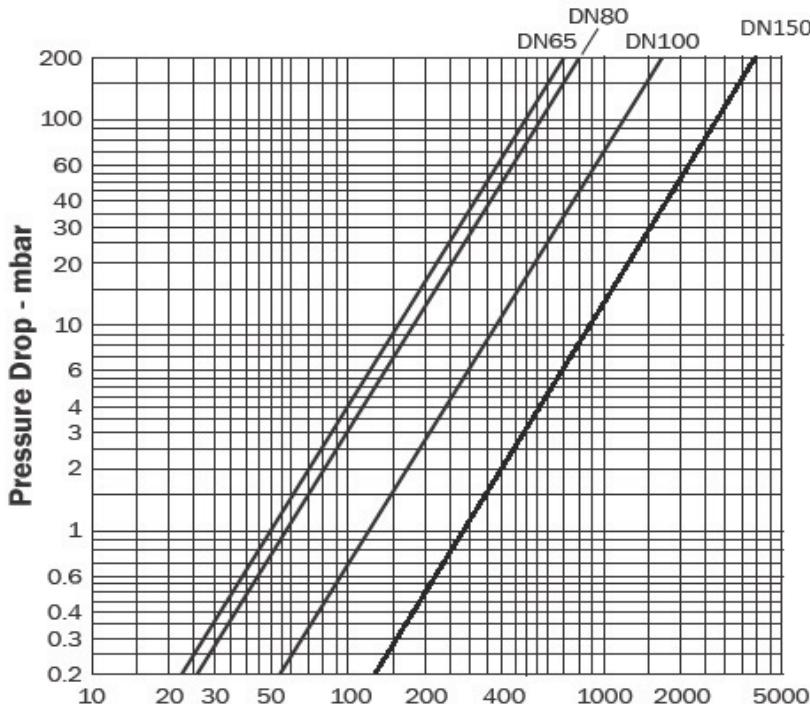
Code	L	W	H	R Coil	230v AC Power W
GSVF65-SO	270mm	180mm	290mm	85mm	75w
GSVF65	310mm	180mm	283mm	85mm	75w
GSVF80-SO	284mm	195mm	341mm	85mm	75w
GSVF80	310mm	195mm	292mm	85mm	75w
GSVF100-SO	350mm	220mm	441mm	130mm	150w
GSVF100	350mm	220mm	383mm	130mm	150w
GSVF150	450mm	312mm	612mm	139mm	62w

**CAPACITY**

The capacity in m<sub>3</sub>/hr at  $\Delta P = 2.5$  mbar.

Code	Size mm	m <sub>3</sub> /hr	Max Pressure
GSVF65	65	79	200mbar
GSVF80	80	90	200mbar
GSVF100	100	190	200mbar
GSVF150	150	1340	1000mbar

**PRESSURE DROP CHART - DN65 -DN150**



Based on +15 °C, 1013 mbar, dry **Air Flow - Nm<sup>3</sup>/h**



Based on  $f = 1.24$  **Natural Gas Flow - Nm<sup>3</sup>/h**

$$dv = \frac{\text{Gas density}}{\text{Air density}}$$

$$f = \sqrt{\frac{\text{Relative density of air}}{\text{Relative density of gas}}}$$

Gas	Density kg/m <sup>3</sup>	dv density ratio	f correction factor
Air	1.29	1.00	1.00
Natural gas	0.84	0.65	1.24
Liquid gas	2.19	1.70	0.77

## ELECTRICAL INSTALLATION

- Turn off power supply before making electrical connections or servicing any part of the system.
- Provide a fused isolation switch for the power supply to the actuator.
- Ensure that wiring is in accordance with local regulations.
- Use wire which can withstand 105°C ambient.
- Follow the instructions supplied by the appliance manufacturer.

## INSTALLATION

If installing the gas solenoid valve into an existing system.

- Turn off the gas supply before starting installation.
- Disconnect power supply to prevent electrical shock and/or equipment damage.
- Take care to ensure that dirt cannot enter the gas valve during handling and installation.

General installation recommendations.

- The GSV gas solenoid valve should be mounted directly in a vertical pipeline or in a horizontal pipeline with the coil uppermost.
- Check that the site conditions comply with the technical specification of the valve.
- The flow direction arrow on the valve body must match the direction of flow.
- Thoroughly purge the pipeline before installing the valve to prevent debris entering the valve and damaging the diaphragm and causing premature failure.
- A gas filter should be installed upstream of the valve to prevent the ingress of debris and prolong the interval between services and the life of the valve.
- **IMPORTANT:** the valve is not explosion proof.
- If installed outdoors or in a harsh environment the valve should be protected accordingly.
- If recommended install a bypass around the gas solenoid valve to aid isolation and future maintenance
- If the valve fails to open or close check that the power supply is connected correctly and turned on. Also check the pressure within the system is within the technical specification of the valve.
- If not installed on the valve, the coil should be stored indoors between 0 to 40°C with a relative humidity of 80% or less. It should not be stored in the open air.

## COIL CARE

The coil can only be powered when attached to the valve. The power must be disconnected if the coil is removed from the valve, failure to do this will result in the coil burning out.

Never energise the coil if not fitted to the valve otherwise this will shorten its life and eventually result in failure.

The coil should be securely fitted to valve, loose fitting will shorten the life of the coil.

Surge/spikes should be prevented from reaching the coil as this will result in failure.

The power supply must be within the tolerance indicated otherwise failure of the capacitor will occur.

The continuous service (100%ED) causes inevitable coil heating.

Depending on working environment the coil surface will be very hot. This situation is absolutely normal.

## DECLARATION OF CONFORMITY

According to European Directive 90/396/EEC -73/23/EEC-89/336/EEC.

KIWA EU type examination certificate (GAR) certificate number 19GR0652/00 - meets the essential requirements as described in regulation (EU) 2016/426 relating to appliances burning gaseous fuels, reference standard EN161:2011+A3:2013.

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