

# UNIVERSAL GAS VALVES

# VG SERIES

## SAFETY SOLENOID VALVES

### PRODUCT HANDBOOK



## APPLICATION

These series manually operated safety solenoid valves are used in gas leak detection systems.

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## DESCRIPTION

The VG series safety solenoid valves offer the following functionality:  
Normally closed valve. Manual opening when energized.

The VG series safety solenoid valves are suitable for the control of gaseous fluids in gas consuming appliances according to international standards.

The VG series safety solenoid valves meet the class A specification according EN 161.

The VG series safety solenoid valves cover a wide range of pipe size connections.

From  $\frac{3}{8}$ " (DN 10) upto and including 3" (DN 80).

The VG series safety solenoid valves are available with treaded connection from  $\frac{3}{8}$ " (DN 10) upto and including 3" (DN 80).

The VG series safety solenoid valves are available with  $2\frac{1}{2}$ " (DN 65) and 3" (DN 80) flanged connection.

The VG series safety solenoid valves have 2 auxiliary pressure stops with Rp $\frac{1}{4}$ " threaded connection both at the inlet pressure side of the valve.

The VG series safety solenoid valves have an inlet screen for protecting the valve against ingress of dirt.

## FEATURES

- Class "A" manually operated safety solenoid valves for use in gas leak detection systems.
- The VGxxxxA series safety solenoid valves have a spring loaded valve disc which closes when de-energized.
- All VGxxxx series safety solenoid valves have an internal fine mesh screen.
- Two inlet pressure stops at each side of the valve.
- The VGxxxx series safety solenoid valves have incorporated in the valve body a wrench boss as well at inlet as at outlet side.
- The VGxxxx series safety solenoid valves may be assembled on the pipe line within  $\pm 90$  degrees of the vertical axel.
- The VGxxxxX 3xxx (flanged connection) series safety solenoid valves have at inlet side two 1" ISO 7-1 connection taps.
- The VGxxxx series safety solenoid valves have electrical connection by terminal block with incorporated rectifier board.
- The VGxxxx series safety solenoid valves have a field replacable rectifier board.
- The VGxxxx series safety solenoid valves have coils turnable over 360 °.
- Cable strain relief can be achieved by Pg 11 cable gland.
- The VGxxxx series safety solenoid cover a wide range of pipe sizes from DN 10 up to and including DN 80.

### **Electrical connection**

- Supply voltage 24, 110, 220 and 240 Volt 50/60 Hz.
- Enclosure according to IP 54.

# MODEL CHART

Options	1000 series (internal threaded)	3000 series (flange connection)
Range: DN 10 3/8" DN 15 1/2" DN 20 3/4" DN 25 1" DN 32 1 1/4" DN 40 1 1/2" DN 50 2" DN 65 2 1/2" DN 80 3"	VG.010 VG.015 VG.020 VG.025 VG.032 VG.040 VG.050 VG.065 VG.080	- - - - - - - VGX065 VGX080
Non regulated ON/OFF (VGxxxxA xxxx)	Standard	Standard

# SPECIFICATIONS

## Models

The VG series consists of a series manually operated safety solenoid valves from 3/8" upto and including 3" connection.

## VG series solenoid valves

VG .010A (DN 10)  
 VG .015A (DN 15)  
 VG .020A (DN 20)  
 VG .025A (DN 25)  
 VG .032A (DN 32)  
 VG .040A (DN 40)  
 VG .050A (DN 50)  
 VG .065A (DN 65)  
 VG .080A (DN 80)

## Pipe sizes 1000 series

Inlet and outlet 3/8" up to and including 3" internal parallel pipe thread according to ISO 7-1

## Pipe sizes 3000 series

Flanged connection 2 1/2" and 3" according to PN 16 UNI 2278-67

## Power Consumption (W)

Model number	24 V, 50/60 Hz		110 V, 50/60 Hz		220 V, 50/60 Hz		240 V, 50/60 Hz	
	At nominal voltage	At 110% of nominal voltage	At nominal voltage	At 110% of nominal voltage	At nominal voltage	At 110% of nominal voltage	At nominal voltage	At 110% of nominal voltage
VG .010	4	5	4	6	4,3	5	3	4
VG .015	4	5	4	6	4,3	5	3	4
VG .020	4	5	4	6	4,3	5	3	4
VG .025	4	5	4	6	4,3	5	3	4
VG .032	4	5	4	6	4,3	5	3	4
VG .040	4	5	4	6	4,3	5	3	4
VG .050	12,5	15	13	16	15,3	16	15	18
VG .065	12,5	15	13	16	15,3	16	15	18
VG .080	12,5	15	13	16	15,3	16	15	18

## Torsion and bending stress

Pipe connections meet Group 2 according EN 161 requirements.

## Ambient temperature

-15 °C ... 60 °C

## Supply voltage

24 V, 50/60 Hz  
 110 V, 50/60 Hz  
 220 V, 50/60 Hz  
 240 V, 50/60 Hz

The applicable voltage is led to the solenoid coil via a rectified circuit.

## Dimensions

1000 series: See page 9  
 3000 series: See page 10

## Electrical connection

Wiring on terminal block on box.  
 Cable entry Pg 11.

## Coil insulation safety solenoid valves

Insulation material according class F

## Enclosure

IP 54  
 IP 65 on request

## Capacity

See page 7 and 8

## Maximum operating pressure

Model	Maximum operating pressure (mbar)
VG .010	500
VG .015	500
VG .020	500
VG .025	500
VG .032	500
VG .040	500
VG .050	500
VG .065	350
VG .080	350

# PERFORMANCE CHARACTERISTICS

## Maximum allowable leakage

Model	Test pressure 1 (mbar)	Test pressure 2 (mbar)	Maximum allowable leakage rate (cm <sup>3</sup> /h)	
			Internal	External
VG .010	6	750	40	40
VG .015	6	750	40	40
VG .020	6	750	40	40
VG .025	6	750	60	60
VG .032	6	750	60	60
VG .040	6	750	60	60
VG .050	6	750	60	60
VG .065	6	525	60	60
VG .080	6	525	60	60

### Opening time

Valves are manually opened

### Closing time

Less than 1 second

### Duty cycle

Coil suitable for permanent energization

### Operational voltage range

The safety solenoid valve will function satisfactory between 85% and 110% of the rated voltage.

Rated voltage:

24 V, 50/60 Hz

110 V, 50/60 Hz

220 V, 50/60 Hz

240 V, 50/60 Hz

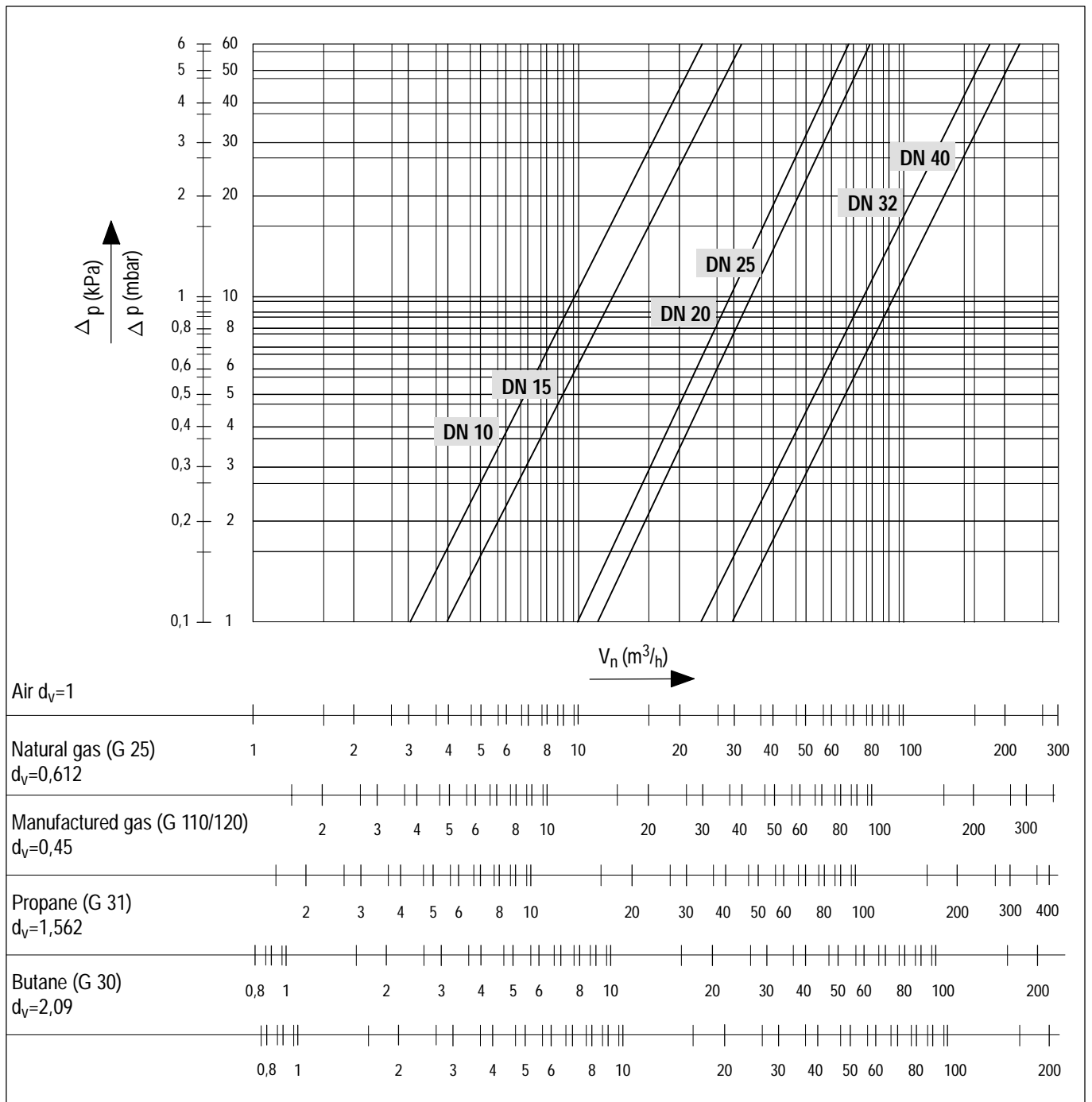
### Design life

5.000 cycles

# CAPACITY CURVE DN 10, DN15, DN 20, DN 25, DN 32 AND DN 40 (THREADED CONNECTION)

Capacity in m<sup>3</sup>/h air at  $\Delta p = 2,5$  mbar

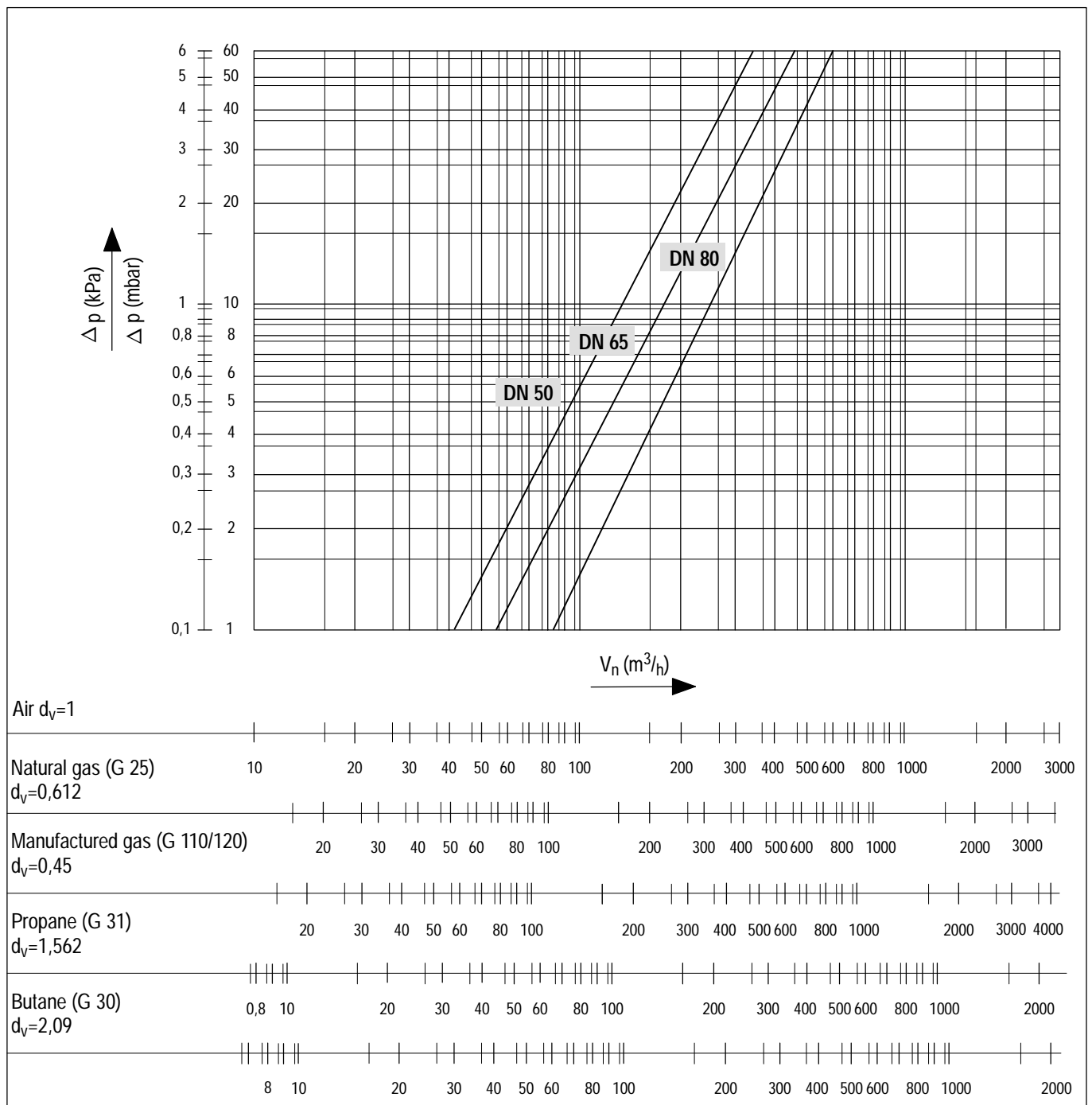
3/8" DN 10	1/2" DN 15	3/4" DN 20	1" DN 25	1 1/4" DN 32	1 1/2" DN 40
5	6,4	14,8	16,7	38,5	47,1



# CAPACITY CURVE DN 50, DN 65, AND 80 (TREADED AND FLANGED CONNECTION)

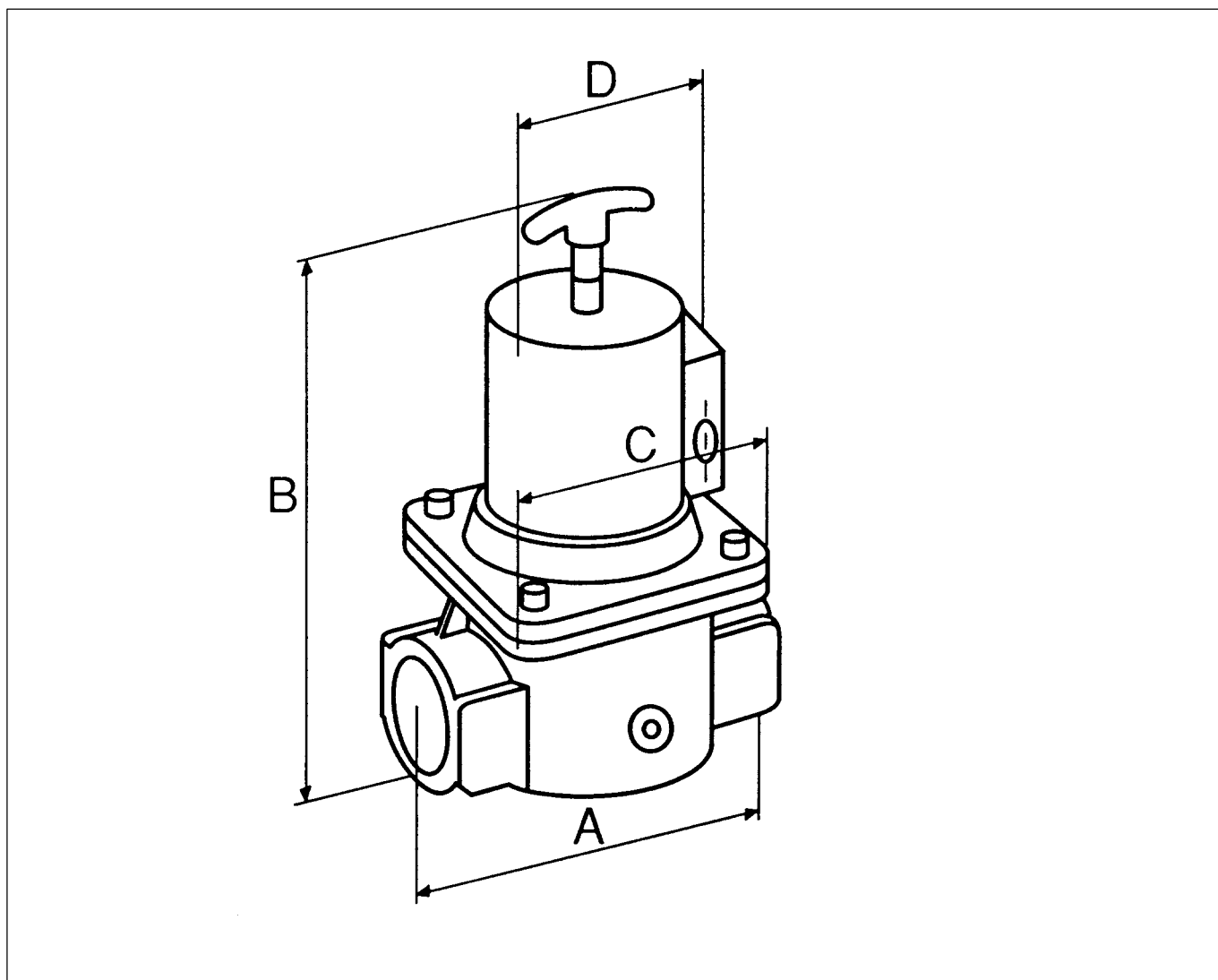
Capacity in m<sup>3</sup>/h air at  $\Delta p = 2,5$  mbar

2" DN 50	2 <sup>1</sup> / <sub>2</sub> " DN 65	3" DN 80
66,7	94,2	131



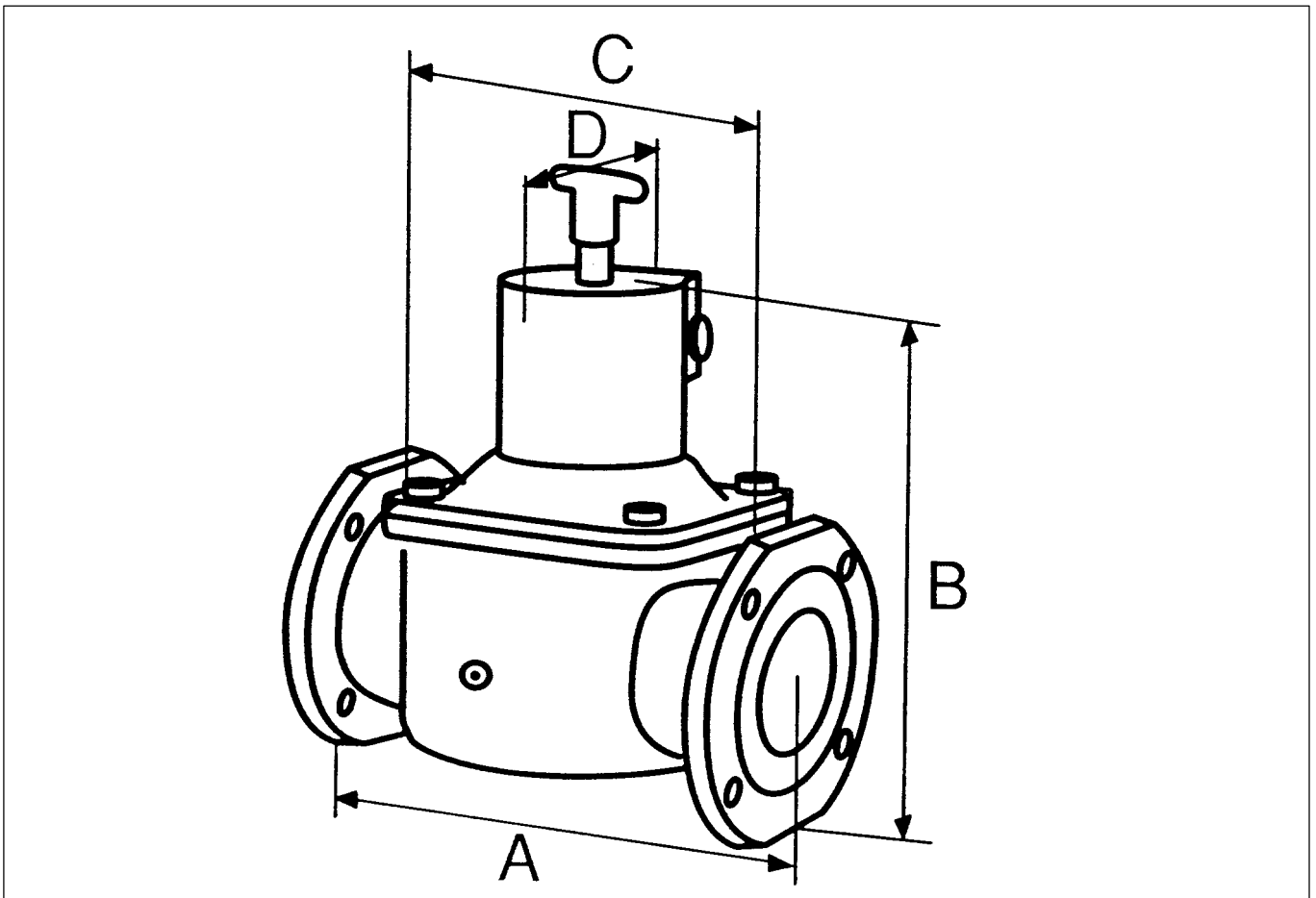


## DIMENSIONAL DRAWING 1000 SERIES



Model	Connection	Dimensions (mm)				Weight (kg)
		A	B	C	D	
VG .010	R <sub>p</sub> 3/8"	72	150	52	85	0,85
VG .015	R <sub>p</sub> 1/2"	72	150	52	85	0,85
VG .020	R <sub>p</sub> 3/4"	86	160	70	85	1
VG .025	R <sub>p</sub> 1"	150	160	75	85	1
VG .032	R <sub>p</sub> 1 1/4"	150	220	110	85	2
VG .040	R <sub>p</sub> 1 1/2"	150	220	110	85	2
VG .050	R <sub>p</sub> 2"	170	285	135	85	4,2
VG .065	R <sub>p</sub> 2 1/2"	225	330	170	120	7,5
VG .080	R <sub>p</sub> 3"	225	330	170	120	7,5

# DIMENSIONAL DRAWING 3000 SERIES



Model	Flanged connection	Dimensions (mm)				Weight (kg)
		A	B	C	D	
VG .065	2 <sup>1</sup> / <sub>2</sub> "	310	360	120	95	11
VG .080	3"	310	360	120	95	11,3

# INSTALLATION AND FINAL CHECKOUT

## Warning

- Take care that installer is a trained experienced service man.
- Turn off gas supply before starting installation.
- Disconnect power supply to prevent electrical shock and/or equipment damage.

## Mounting position

The gas valve can be mounted plus or minus 90 degrees from the vertical.

## Mounting location

The distance between the gas valve and the wall/ground, must be at least 30 cm.

## Main gas connection threaded valves

- Take care that dirt cannot enter the gas valve during handling.
- Ensure the gas flows in the same direction as the arrow on the housing of the gas valve.
- Use a sound taper fitting with thread according to ISO 7-1 (BS 21, DIN 2999) or a piece of new, properly reamed pipe, free from swarf.
- Do not thread or tighten the pipe or pipe fitting too far. Otherwise valve distortion and malfunction could result.
- Apply a moderate amount of good quality thread compound to the pipe or fitting only, leaving the two end

threads bare. PTFE tape may be used as an alternative.

- In order to tighten the pipe in the valve, do not use the actuator as a lever but use a suitable wrench operating on the wrench bosses.

## Main gas connection flanged valves

- Take care that dirt cannot enter the gas valve during handling.
- Ensure the gas flows in the same direction as the arrow on the housing of the gas valve.
- Ensure that inlet and outlet flanges are in line and separated from each other enough to allow the valve to be mounted between them without damaging the gasket.
- Place gasket. If necessary grease it slightly to keep it in place.
- Mount gas valve between flanges using the bolts for each flange.

## Warning

### Tightness test after installation

- Paint all pipe connections and gaskets with a strong soap and water solution.
- Start the appliance and check for bubbles. If a leak is found in a pipe connection, remake the joint. A gasket leak can usually be stopped by tightening the mounting screws. Otherwise, replace the gas valve.

## Electrical connection

### Caution

- Switch off power supply before making electrical connections.
- Take care that wiring is in accordance with local regulations.

Use lead wire which can withstand 105 °C ambient.

The electric on/off operator is provided with a terminal block for electrical connections.

### Wiring

Follow the instructions supplied by the appliance manufacturer.

### Final checkout

Set appliance in operation and observe several complete cycles to ensure that components function correctly

# CONSTRUCTION AND WORKING PRINCIPLES

The VG series safety solenoid valves are class A fail safe shutt-off valves.

The valve can be opened manually after energizing the operator.

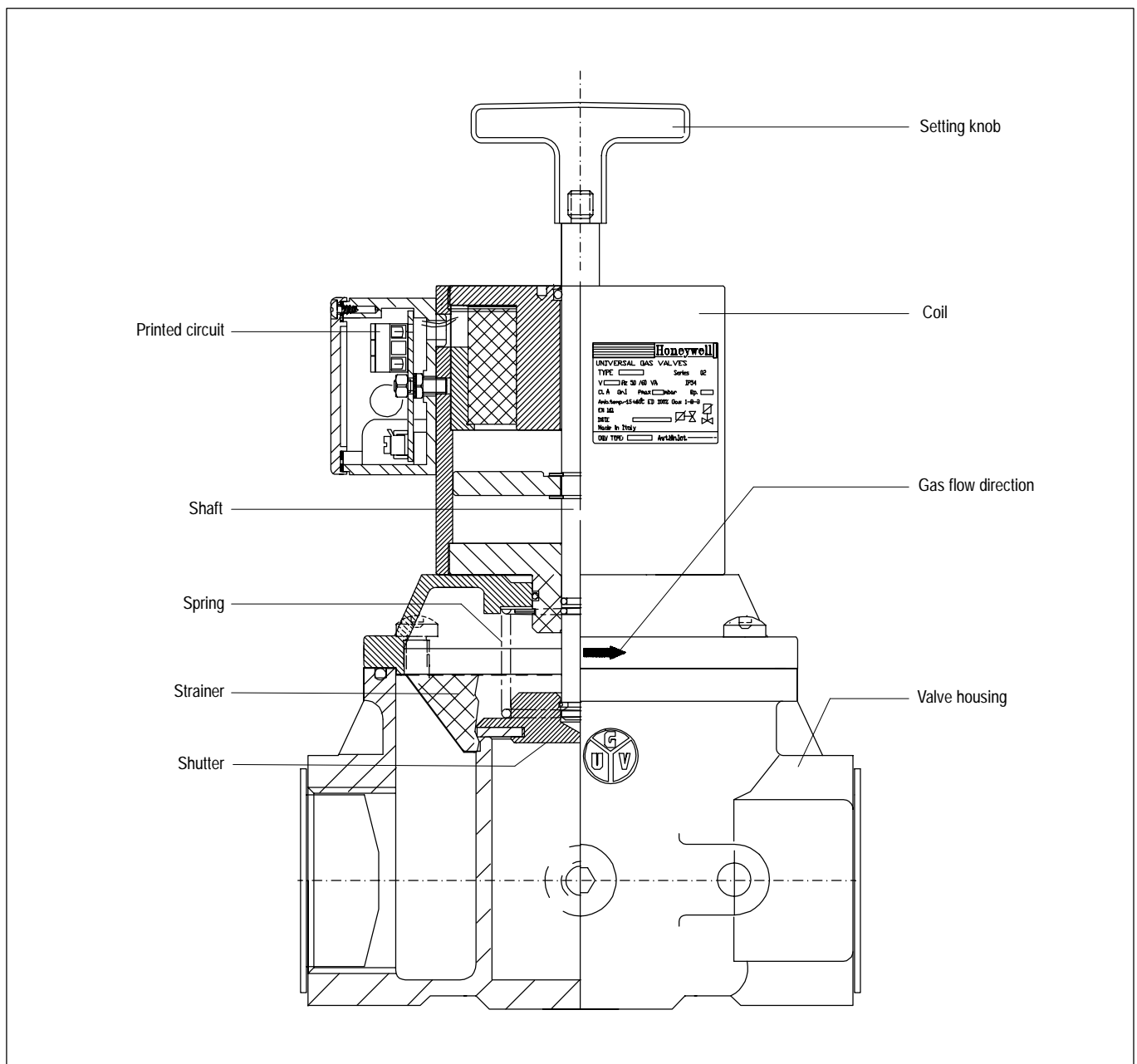
The operator consists of a coil and coil housing. Through this operator moves a shaft which is connected to the closing member. On this shaft a disc is mounted which can be moved towards the coil by pulling the setting knob and will be kept in that position when the operator is energized.

De-energization will cause the spring loaded closing member to close.

A strainer made out of steel according to AISI 303 is incorporated in the valve.

Valve closing spring is made out of steel according to AISI 302.

Seals and gaskets are manufactured out of hydrocarbon NBR resistant are according to DIN 3535 and EN 291.



## STANDARDS AND APPROVALS

### **Standards**

The VG series safety solenoid valves have been designed to meet the European Standard EN 161.

The safety solenoid valve meets class A requirements.

According to bending stress the safety solenoid valve meets the highest requirements.

Regarding electric safety, the VG series safety solenoid valves can be used in appliances according to European Standard for a household electrical requirements EN 60335 series and industrial applications.

The VG series safety solenoid valves also meet all Electro Magnetic Compatibility standards for non-industrial and industrial appliances.

### **Approvals**

The VG series safety solenoid valves confirm with the following EC-directives:

- Gas Appliance Directive (90/396/EEC)
- Low Voltage directive (73/23/EEC)

The fact that the VG series safety solenoid valves are certified to European Standard EN 161 means that this series meets more stringent requirements than laid down in the essential requirements stated in the directives and therefore meets the requirements in all EC and EFTA countries.

Details can be found in the approvals list.

The registration number specific for each O.S. number is mentioned on the label of the safety solenoid valve.

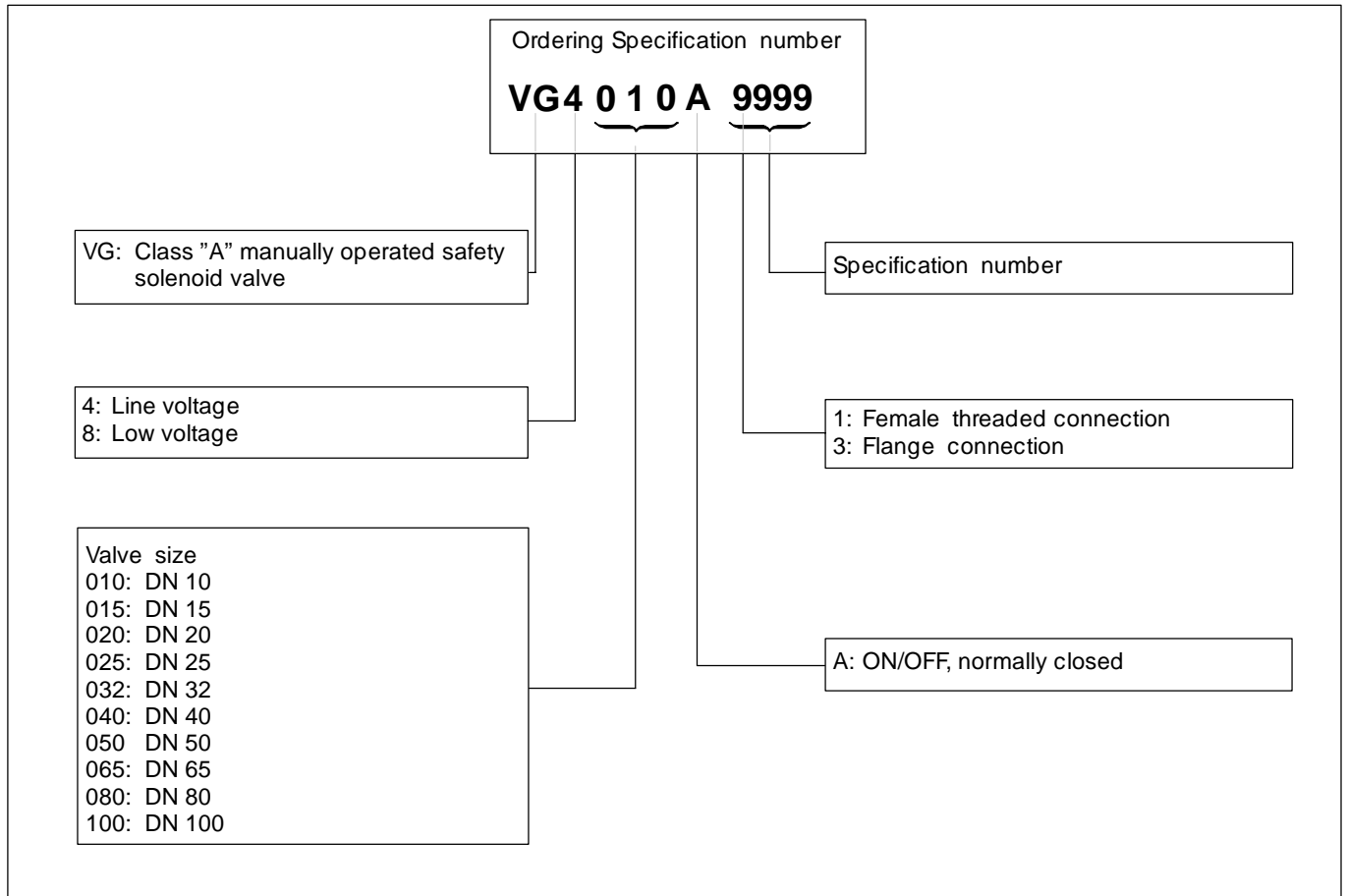
# ORDERING INFORMATION

**When ordering specify:**

- Model number of VG series safety solenoid valve required: see model number chart below.

- Order numbers of replacement parts and accessories required, i.e. flanges, compression fittings: see replacement parts/accessories.

**Note**  
 Most models of valves, replacement parts and accessories will be available under "TRADELINE" label. Ask your wholesaler for details.



Model number chart

## REPLACEMENT PARTS AND ACCESSORIES

### Warning

Take care that only qualified persons carry out the installation of parts, accessories, and add on components.

Follow the installation instructions included in the package.

Check that the selected part, accessory or add on component is the correct one for the application in question. Specification of data is given in the instruction leaflet in the package.

Replace the old gaskets with the new ones supplied in the package and check for leakage when the supply is switched on again.

After installation and/or replacement has been completed, a gas leak test must be carried out.

Also check the gas valve for satisfactory operation after fitting accessories

### Coils

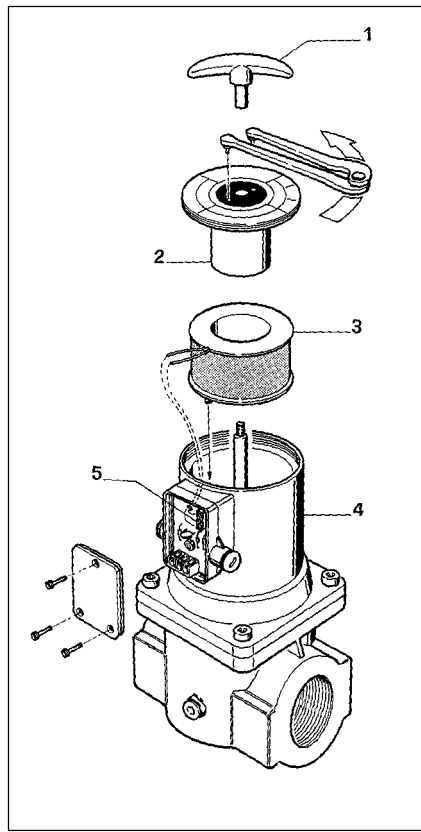
Description	Order number	Packing quantity
<b>Coil for VG .010/.015/.020/.025/.032/.040A:</b>		
24 V, 50/60 Hz	BB 020030	1
110 V, 50/60 Hz	BB 020033	1
220 V, 50/60 Hz	BB 020005	1
240 V, 50/60 Hz	BB 020054	1
<b>Coil for VG .050/.065/.080A:</b>		
24 V, 50/60 Hz	BB 020027	1
110 V, 50/60 Hz	BB 020031	1
220 V, 50/60 Hz	BB 020006	1
240 V, 50/60 Hz	BB 020055	1

### Rectifier boards

<b>Rectifier board for 24/110/220/240 V, 50/60 Hz model:</b>		
VE .010/.015/.020A		
VE .032/.040/.050		
VE .065/.080/4100	CS020065	10

## REPLACEMENT OF COIL

- Remove setting knob (1)
- Unscrew cap (2) with suitable wrench and remove it from the coil assy
- Remove cap of connection box
- Disconnect coil from rectifier board by releasing both wires from connector (5)
- Remove coil from exterior pipe (4)
- Place new coil in exterior pipe (4)
- Connect both wires to connector on rectifier board (5)
- Replace cap of connection box
- Replace cap (2)
- Replace setting knob (1)



## REPLACEMENT OF RECTIFIER BOARD

- Remove cap of connection box.
- Disconnect all electrical connections.
- Remove selflocking nut in the center of the board.
- Remove the rectifier board
- Place new board into the box
- Replace selflocking nut
- Reconnect all electrical connections
- Replace cap of connection box