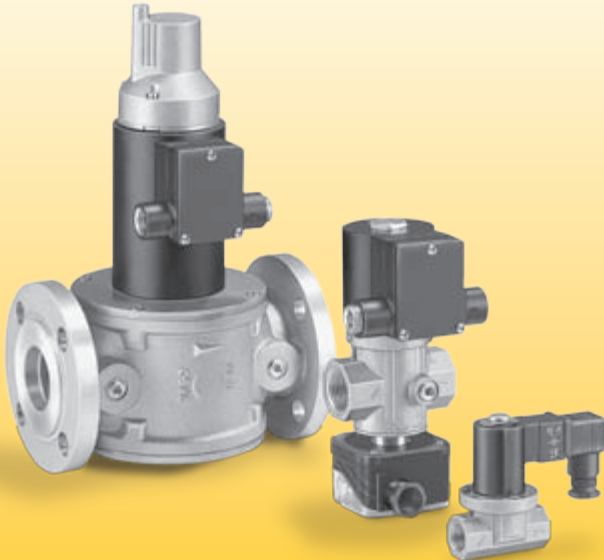


# SOLENOID VALVES FOR GAS VG, VG..OCS, VGP

## Technical Information

T-Product 2005 April



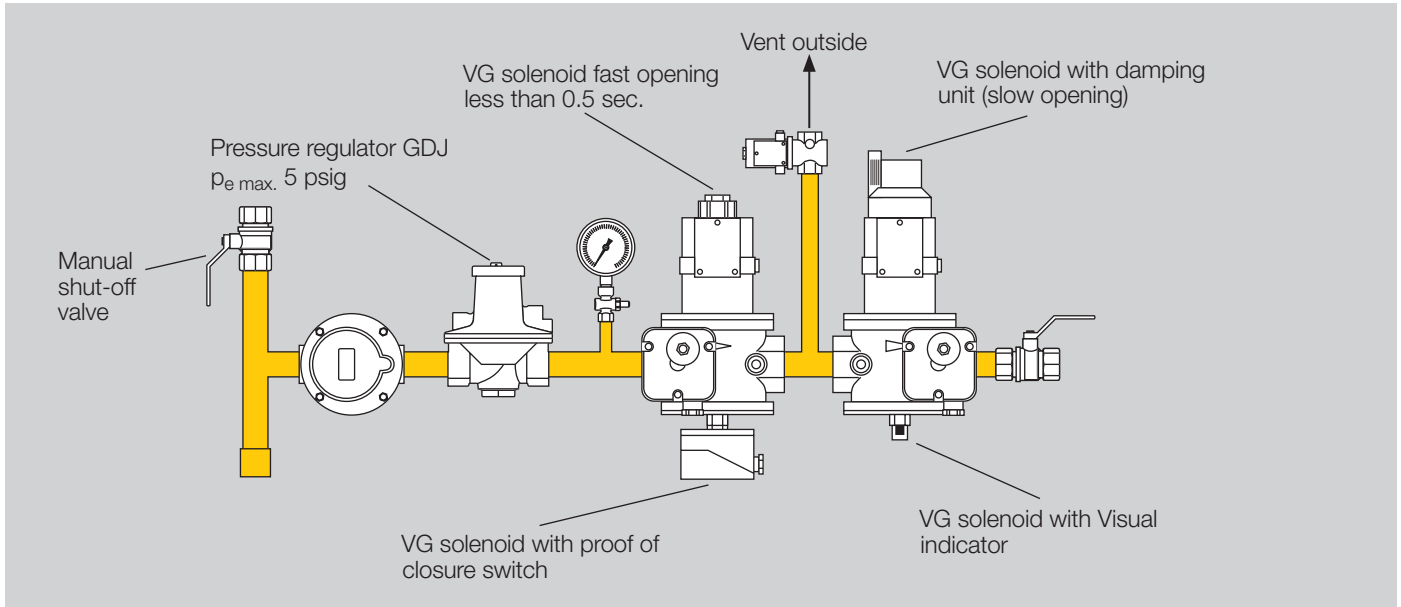
- /// For tight shutoff of gaseous fuel and air on industrial and commercial applications
- /// VG – damper for speed control
- /// VG..OCS – proof of closure switch, no damper for speed control
- /// VGP – no damper for speed control
- /// Designed for continuous on-off cycling
- /// Life expectancy of 2 million cycles
- /// DC system prevents overheating of solenoid coil, eliminates high inrush current
- /// Proof of closure, position indication, and flow adjustment available
- /// Low maintenance
- /// UL-listed, UL-recognized, CSA, FM and CE certified models available

**krom**  
**schroder**

## Table of Contents

<b>Table of Contents</b> .....	<b>2</b>
<b>Application</b> .....	<b>3</b>
<b>Application example</b> .....	<b>3</b>
<b>Certification</b> .....	<b>4</b>
<b>Specifications</b> .....	<b>5</b>
Operating Limits .....	5
Electrical Data .....	6
Materials of Constructions .....	7
<b>Dimensions and Weights</b> .....	<b>8</b>
VG, VG...OCS .....	8
VGP .....	10
<b>Sizing charts</b> .....	<b>11</b>
Flow rate VG, VG..OCS .....	11
Flow rate VGP .....	12
<b>Installation</b> .....	<b>13</b>
Fitting .....	13
Electrical wiring .....	14
VG valves without damping unit .....	14
VG valves with damping unit .....	14
VG..OCS (electrical wiring of the overtravel proof of closure switch) .....	15
VGP Valves .....	15
The tightness test .....	16
<b>Operation</b> .....	<b>17</b>
Initial gas flow VG..L – Option slow opening .....	17
Changing opening time VG..L – Option slow opening .....	17
Setting maximum gas flow VG..D – Option flow adjustment .....	17
<b>Function</b> .....	<b>18</b>
VG..N – fast opening .....	18
VG..L – slow opening .....	19
VG..OCS (with proof of closure switch) .....	20
<b>Accessories VG</b> .....	<b>21</b>

Close Position Indicator Switch – Option CPS-T. ....	21
Installation of CPS for VG10/15 to 40/32 .....	21
Installation of CPS for VG 40 to 100 .....	22
Tightness test .....	22
Wiring CPS switch .....	23
Adjusting CPS switch .....	24
Operating limits .....	24
Materials of construction .....	24
Visual Indicator Switch – Option VI .....	25
Installation of Visual Indicator VG 15–40/32 .....	25
Installation of Visual Indicator VG 40–100 .....	26
Tightness test .....	26
Check Function .....	26
Order Information .....	27
<b>Order Information</b> .....	<b>28</b>
Solenoid Valves for Gas VGP .....	28
Solenoid Valves for Gas VG .....	29
<b>Trouble Shooting</b> .....	<b>34</b>
? Gas valve does not open? .....	34
Replacing a defective coil housing – with option slow opening .....	35
Replacing a defective coil housing – with option fast opening .....	36
? Gas valve with damping unit does not open to 80% of max. flow in 6–10 seconds? .....	37
Replacing a defective damping unit .....	37
? Gas valve does not open? .....	38
Changing a defective rectifier board .....	38
Maintenance of VG and VGP .....	39
<b>Spare Parts</b> .....	<b>40</b>
VG .....	40
VGP .....	41
<b>Contact</b> .....	<b>42</b>



## Application

VG solenoid valves are normally closed solenoid-operated valves for on/off control of natural gas, LP, clean biogas and airflow. They are widely used as gas safety shut-off valves for industrial and commercial combustion systems. They are internationally approved, and have a variety of options: fast opening / fast closing, slow opening/fast closing with adjustable initial opening, flow rate adjustable. The damping units are also suitable for high cycle operation.

## Application example

Pre piped gas train – with proof of closure switch  $p_e$  max. 15 psig

## Certification

Model	Option	Approvals
VG..N	Fast opening	UL, CSA, FM
VG..L	Slow opening	UL, CSA, FM
VG..D	Flow adjustment	UL, CSA, FM
VG..VI	Visual indicator	UL, CSA, FM
VG..CPS	Close position indication	USUR <sub>C</sub> , FM
VG..OCS	Valve stem overtravel	USUL <sub>C</sub> , FM
VGP	Fast opening	USUL <sub>C</sub> , FM

## Specifications

Selection	VG	VGP
Fast opening	VG..N	Standard
Slow opening	VG..L	Not available
Adjustable high flow rate	Option D	Not available
Visual indicator	Option VI	Not available
Valve closed position indicator	Option CPS	Not available
Valve stem overtravel (proof-of-closure)	Option OCS	Not available

## Operating Limits

Ambient temperature range:

-4° F to 140° F (-20° C to 60° C)

UL up to 104° F (40° C)

Maximum inlet pressure:

VG–2 psig (130 mbar) or 5 psig (360 mbar)

VG..OCS–2 psig (130 mbar) or 5 psig (360 mbar)

VGP– 2.2 psig (150 mbar) or 3 psig (200 mbar).

Maximum static line pressure:

30 psig (2.1 bar) (with valve closed)

Opening time:

VG..N fast opening–less than 0.5 seconds

VG..L slow opening–0.5 to approximately 10 seconds

VGP fast opening–less than 0.5 seconds

Closing time: Less than 1 second

Operating life: 2 million cycles



## Power Consumption at 120 Vac, VA or watts

Valve Size, VG..	15	20	25	40/32	40	50	65	80	100
Pressure Rating 2 psig (130 mbar)	31	31	31	36	64	74	80	110	160
Pressure Rating 5 psig (360 mbar)	31	36	36	NA	74	80	110	160	NA
Valve Size, VGP	10	15	20	25					
Pressure Rating 2.2 psig (150 mbar)			35	35					
Pressure Rating 3 psig (200 mbar)	26	26							

A full wave rectifier located in the terminal box converts incoming AC current to DC. Inrush and holding current are identical.

## Electrical Data

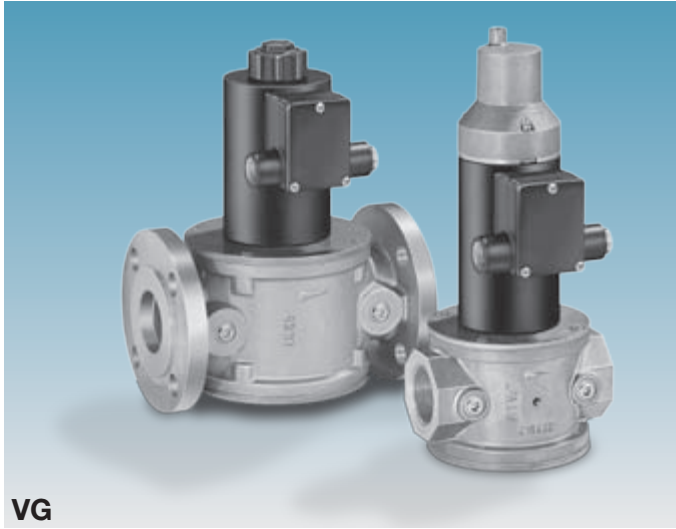
Supply voltage: 120 Vac; +10/-15%; 50/60 Hz

Duty cycle: Continuous

Type of enclosure: NEMA 3 (IP 54)

Solenoid coil insulation: Class F

Solenoid coil power factor:  $\cos \varphi = 1$



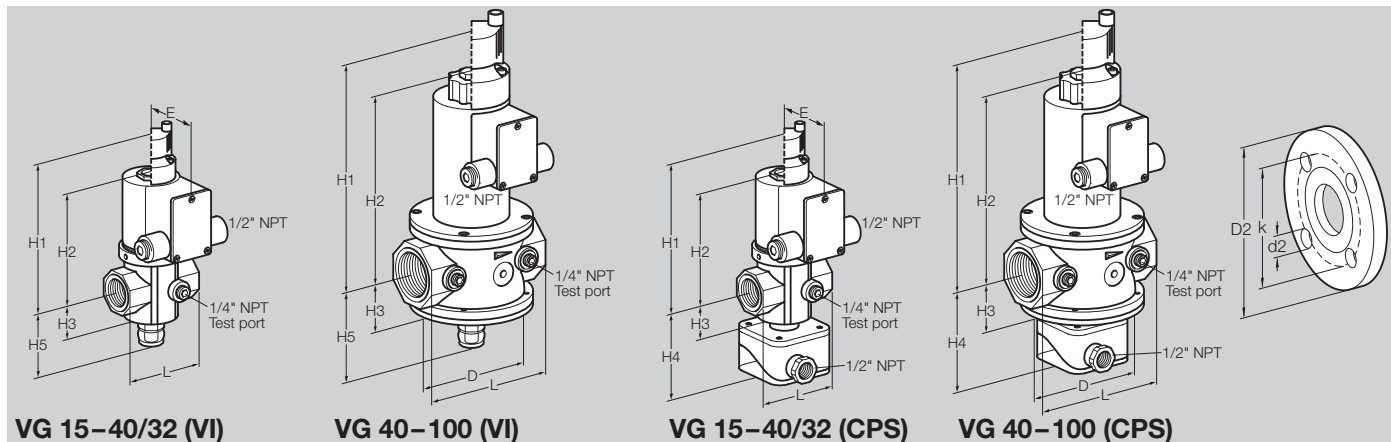
## Materials of Constructions

VG Solenoid Valves have pressure die-cast aluminum bodies and solenoid housings and nitrile rubber o-ring seals and valve disc facings. VG 15 through 40/32 sizes have 1/4" NPT pressure taps on both sides of the valve outlet, built-in brass mesh strainers and polyacetate flow limiting orifices. VG 40 through 100 sizes have 1/4" NPT pressure taps on both sides of the valve inlet and outlet, built-in stainless steel strainers and galvanized steel flow limiting orifices. Electrical terminal boxes have two (2) 1/2" NPT connections and two (2) grounding screws. Terminals will accept 14-gauge wire maximum. VGP Solenoid Valves have pressure die-cast aluminum bodies and nitrile rubber o-ring seals and valve disc facings.

VG available sizes: 1/2" to 4"

VGP available sizes: 3/8" to 1"



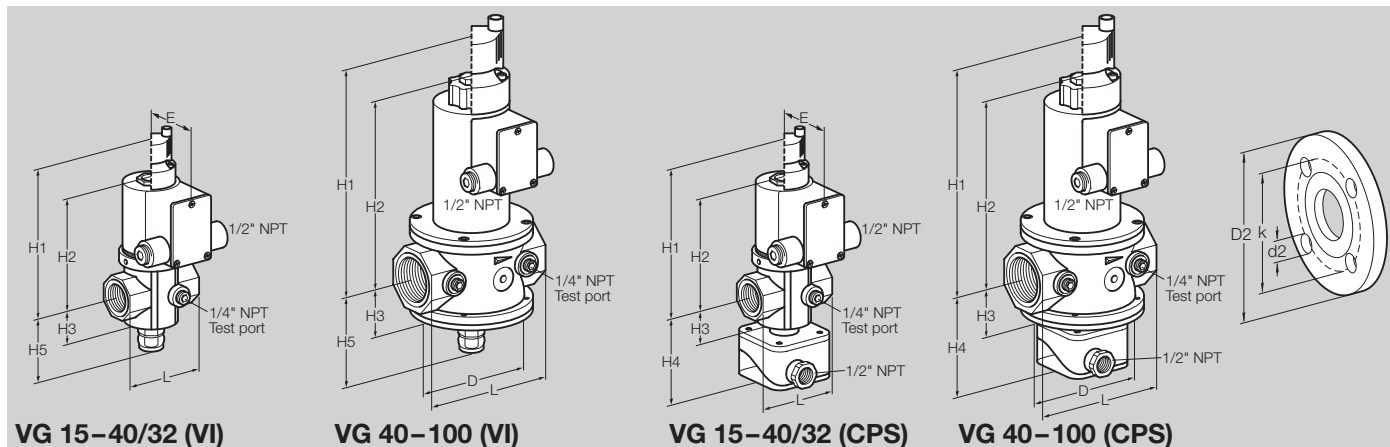


## Dimensions and Weights

### VG, VG...OCS

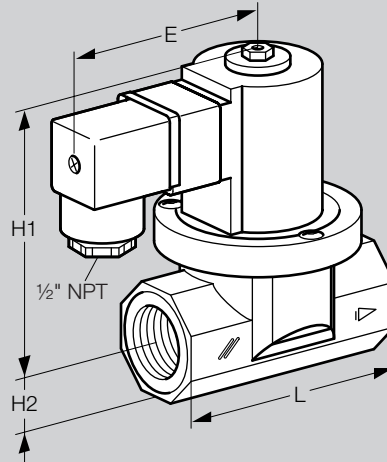
Type	Connection		Dimensions															
	NPT ANSI	DN	L		E		Ø D		H1		H2		H3		H4		H5	
			IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
VG 15TN02	1/2	15	2.81	71	2.53	64			6.34	161	4.41	112	0.94	24	3.90	99	2.36	60
VG 15TN03	1/2	15	2.81	71	2.53	64			6.34	161	4.41	112	0.94	24	3.90	99	2.36	60
VG 20TN02	3/4	20	3.59	91	2.72	69			6.84	174	4.97	126	1.31	33	3.90	99	2.72	69
VG 20TN03	3/4	20	3.59	91	2.72	69			6.84	175	4.97	126	1.31	33	3.90	99	2.72	69
VG 25TN02	1	25	3.59	91	2.72	69			6.84	175	4.97	126	1.31	33	3.90	99	2.72	69
VG 25TN03	1	25	3.59	91	2.72	69			6.84	175	4.97	126	1.31	33	3.90	99	2.72	69
VG 40/32TN02	1 1/2	40	5.06	128	2.94	74			7.63	194	5.72	145	1.56	39	4.13	105	2.95	75
VG 40TN01	1 1/2	40	5.90	150			5.06	129	11	280	8.35	212	2	51	4.72	120	3.31	84
VG 40TN03	1 1/2	40	5.90	150			5.06	129	11	280	8.35	212	2	51	4.72	120	3.31	84
VG 50TN01	2	50	7.09	180			6.16	157	11.47	291	8.78	223	2.44	62	5.16	131	3.74	95
VG 50TA01	2	50	9.05	230			6.16	157	11.47	291	8.78	223	2.44	62	5.16	131	3.74	95
VG 50TN03	2	50	7.09	180			6.16	157	11.47	291	8.78	223	2.44	62	5.16	131	3.74	95
VG 50TA03	2	50	9.05	230			6.16	157	11.47	291	8.78	223	2.44	62	5.16	131	3.74	95
VG 65TN01	2 1/2	65	8.59	218			7.22	184	11.94	303	9.25	235	2.91	74	5.63	143	4.21	107
VG 65TA01	2 1/2	65	11.41	290			7.22	184	11.94	303	9.25	235	2.91	74	5.63	143	4.21	107
VG 65TN03	2 1/2	65	8.59	218			7.22	184	15.47	393	12.80	325	2.91	74	5.63	143	4.21	107
VG 65TA03	2 1/2	65	11.41	290			7.22	184	15.47	393	12.80	325	2.91	74	5.63	143	4.21	107
VG 80TA01	3	80	12.19	310			8.22	210	15.94	404	13.23	336	4.06	103	6.77	172	5.35	136
VG 80TA03	3	80	12.19	310			8.22	210	15.91	404	13.23	336	4.06	103	6.77	172	5.35	136
VG 100TA01	4	100	13.78	350			8.28	210	-	-	14.17	360	4.38	110	7.05	179	5.63	143 ▼





Type	Flange ANSI				Bore			Max. operating pressure		V air [SCFH] with $\Delta p = 1$ "WC	P		Weight	
	IN	mm	IN	mm	IN	mm	holes	psig	mbar		120 Vac VAW	LBS	kg	
VG 15TN02								2	130	187	31/31	3.1 (3.5)	1.4 (1.6)	
VG 15TN03								5	360	187	31/31	3.1 (3.5)	1.4 (1.6)	
VG 20TN02								2	130	374	31/31	4.5 (4.9)	2.0 (2.2)	
VG 20TN03								5	360	374	36/36	5.3 (5.8)	2.4 (2.6)	
VG 25TN02								2	130	495	31/31	4.4 (4.8)	2.0 (2.2)	
VG 25TN03								5	360	495	36/36	5.2 (5.7)	2.4 (2.6)	
VG 40/32TN02								2	130	853	36/36	6.5 (6.9)	2.9 (3.1)	
VG 40TN01								2	130	1166	64/64	13.0 (14.1)	5.9 (6.4)	
VG 40TN03								5	360	1166	74/74	15.9 (17.0)	7.2 (7.7)	
VG 50TN01								2	130	1870	74/74	17.0 (18.1)	7.7 (8.2)	
VG 50TA01	6	152	3.63	92.1	0.75	19	4	2	130	1870	74/74	21.3 (22.4)	9.7 (10.2)	
VG 50TN03								5	360	1870	80/80	27.3 (28.4)	12.4 (12.9)	
VG 50TA03	6	152	3.63	92.1	0.75	19	4	2	130	1870	80/80	31.7 (32.8)	14.4 (14.9)	
VG 65TN01								2	130	3014	80/80	30.6 (31.7)	13.9 (14.4)	
VG 65TA01	7	178	4.13	104.8	0.75	19	4	2	130	3014	80/80	35.0 (36.1)	15.9 (16.4)	
VG 65TN03								5	360	3014	110/110	43.2 (44.3)	19.6 (20.1)	
VG 65TA03	7	178	4.13	104.8	0.75	19	4	5	360	3014	110/110	47.5 (48.6)	21.6 (22.1)	
VG 80TA01	7.5	191	6	152.4	0.75	19	4	2	130	4048	110/110	55.1 (56.2)	25.0 (25.5)	
VG 80TA03	7.5	191	6	152.4	0.75	19	4	5	360	4048	160/160	79.4 (80.5)	36.0 (36.5)	
VG 100TA01	9	229	7.5	190.5	0.75	19	8	2	130	6094	160/60	90.4 (-)	41.0 (-)	

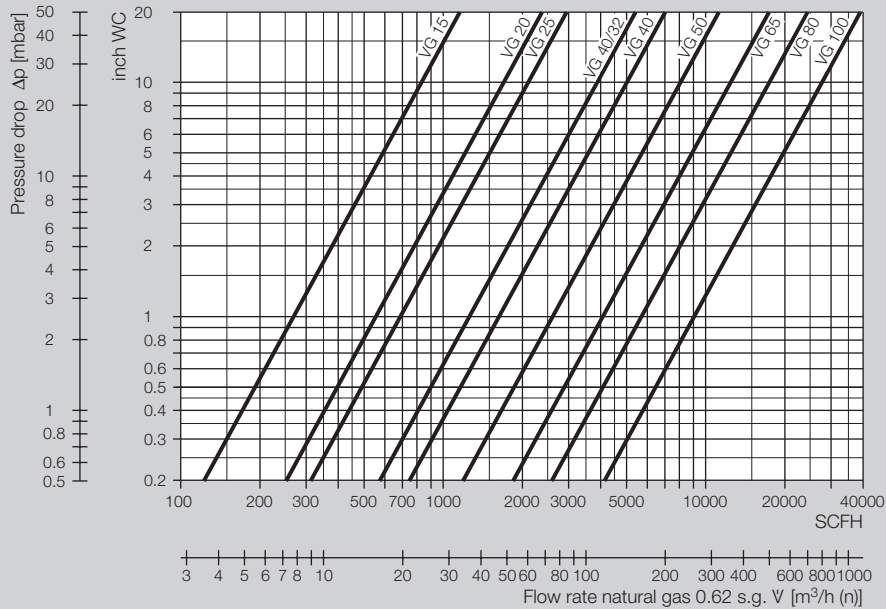
(-) = VG..L damping unit



## VGP

### VGP

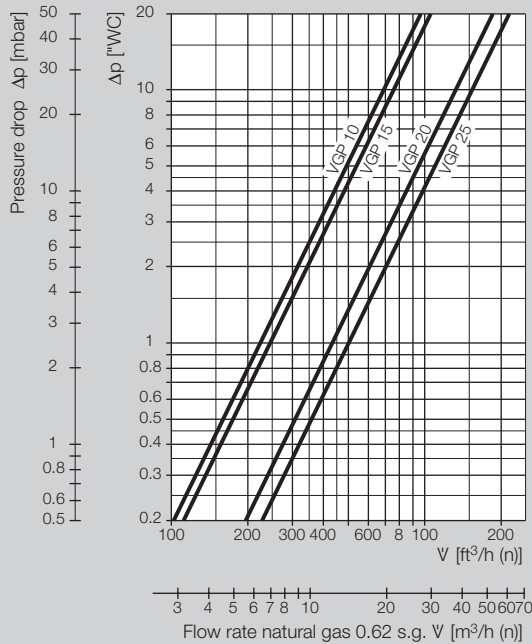
Type	Connection		Dimensions								P <sub>e</sub> max.		P	Weight	
			L		H1		H2		E		psig	mbar	VA/W	LBS	kg
	NPT	DN	IN	mm	IN	mm	IN	mm	IN	mm					
VGP 10	3/8	10	2.79	71	3.50	89	0.63	16	2.36	60	3	200	26	1.1	0.50
VGP 15	1/2	15	2.79	71	3.50	89	0.63	16	2.36	60	3	200	26	1.1	0.50
VGP 20	3/4	20	3.58	91	4.13	105	0.91	23	3.35	85	2.2	150	35	1.8	0.80
VGP 25	1	25	3.58	91	4.13	105	0.91	23	3.35	85	2.2	150	35	1.8	0.80



## Sizing charts

### Flow rate VG, VG..OCS

Flow Rate will decrease approx. 5% with the option OCS (Proof of Closure), CPS (Close Position Indicator Switch) and VI (Visual Indicator) compared to the Flow Curves shown.



## Flow rate VGP

### To correct for any conditions:

Flows in the diagram are at 60°F, sea level (14.7 psig), with a supply pressure to the valve of 1 PSIA + PSIG, to correct for other conditions, use the following formula.

$$\text{Flow factor} = \sqrt{\frac{0.62}{\text{S.G.}} \times \frac{520}{460 + ^\circ\text{F}} \times \frac{\text{PSIA} + \text{PSIG}}{15.7}}$$

Where

°F = Gas temperature through regulator

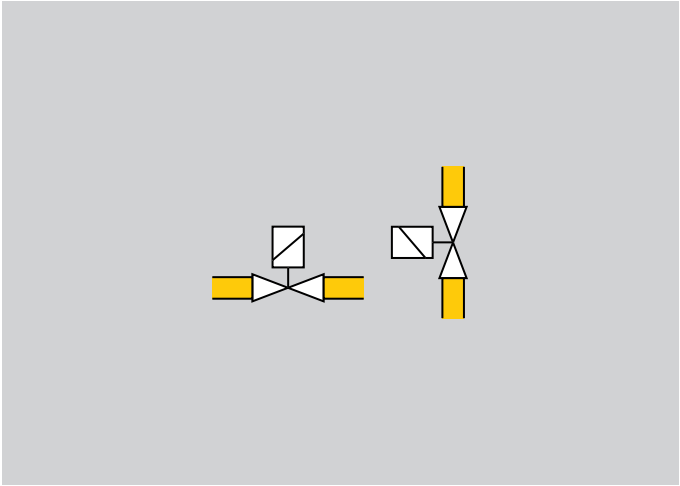
S.G. = Specific gravity of gas – air (1.0 s.g.), propane (1.56 s.g.), butane (2.0 s.g.)

PSIA = Barometric pressure

PSIG = Supply pressure to regulator

Estimate barometric pressure at various altitudes:

Sea level	14.7 psia
1000 ft	14.2 psia
2000 ft	13.7 psia
3000 ft	13.2 psia
4000 ft	12.7 psia
5000 ft	12.2 psia
6000 ft	11.8 psia
7000 ft	11.3 psia



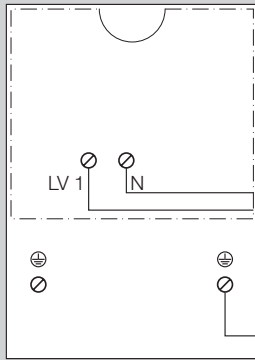
## Installation Fitting

**WARNING:** Improper installation, adjustment, modification, operation or maintenance could lead to injury or damage. All adjustments must be made by a qualified technician.

Wiring must comply with local codes and National Electrical Code. To prevent the possibility of property damage, **turn off electrical power**, depressurize installation, vent fluid to safe area before servicing.

We recommend installing a gas filter in the main gas train of each system. Make sure pipes are free of any foreign matter before assembling the filters. Apply thread seal carefully, avoid getting excess into housing.

- Remove thread protectors.
- Observe direction of flow: arrow on housing.
- Valve coil can be located in any position in vertical piping. In horizontal piping, coil cannot be located below horizontal.
- The housing must have clearance of  $\frac{3}{4}$ " from any vertical surface. Allow access for removal of the coil for maintenance.
- When installing valve do not use coil as lever.
- Use suitable sealant; apply sparingly, only to outer threads.
- Check for gas leaks. Apply pressure to valve (do not exceed name plate rating) – measured at test point.
- Soap pipe joints and check for leaks.



## Electrical wiring

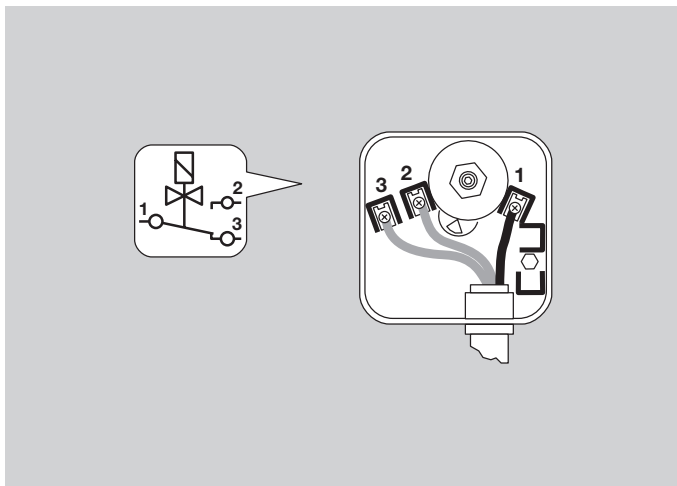
### VG valves without damping unit

Loosen top nut, rotate coil to desired position and retighten nut.

### VG valves with damping unit

Rotate coil to desired position.

- Loosen screws on the terminal box.
- Remove cover and seal from terminal box.  
Use either left or right access into terminal box.
- Remove thread protector.
- If you require access to the other side, you have to remove the plug.
- Place ½" plug in port not being used  
Pull conductors through the opening into the terminal box and wire in accordance with diagram shown on the terminal strip.
- Replace cover on the junction box.



## VG..OCS (electrical wiring of the proof of closure switch)

**WARNING:** Danger of electric shock! Make sure power is removed from solenoid valve before performing any maintenance.

- Unscrew cover
- Remove cover plate
- Pass wires through 1/2" NPT opening and connect – terminals 2 x AWG 14 (2 x 1.5mm<sup>2</sup>)
- Microswitch NO–COM 3 (closes when valve is closing)
- Microswitch NC–COM 3 (closes when valve is opening)
- Use approved flexible conduit for interconnection. Wiring must comply with local and national codes.

### Wire colors

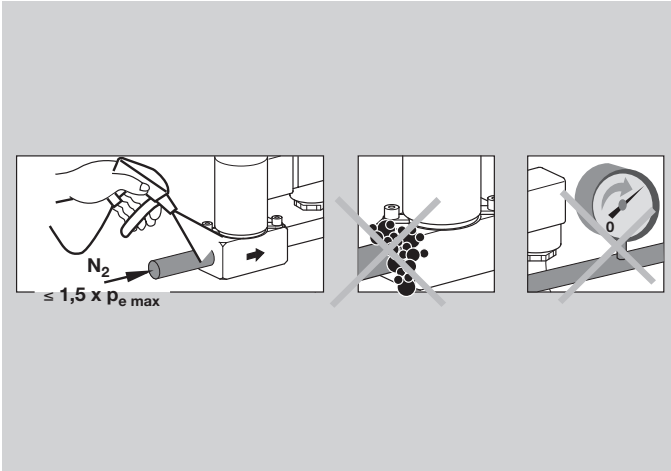
- 1 Valve open = green
- 2 Valve closed = red
- 3 COM = black

### VGP Valves

Valve is furnished with 30" wire leads. Use approved flexible conduit for interconnection. Wiring must agree with local codes, National Electrical Codes, ordinances and regulations.

### Wire colors

- Ground = green yellow
- Neutral = white
- Hot = black



## Verify installation

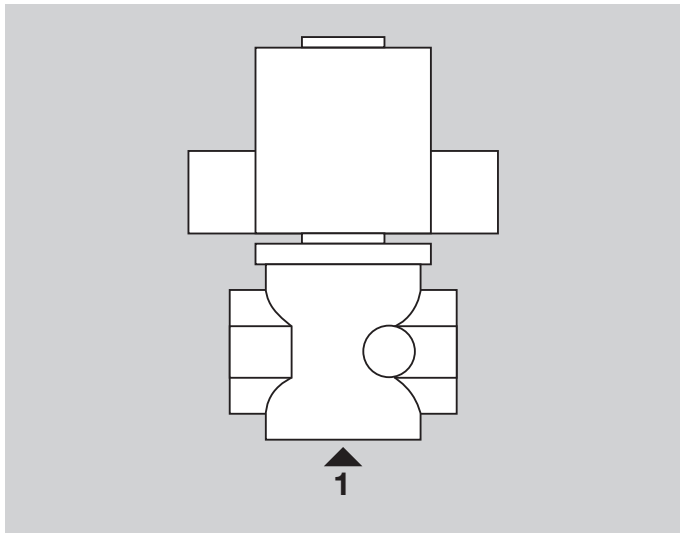
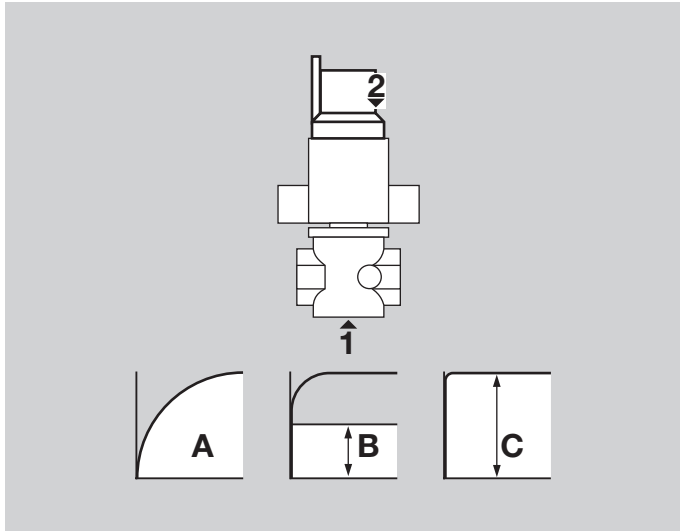
### Leak check

- Open the valve.
- Check the valve connection for tightness at outlet at a pressure of  $< 1.5 \times p_{e \max}$ .
- Soap the threaded housing cover / valve body connection and check for bubbles.

### Electrical test

- Make sure manual ball valve is closed.
- Energize VG valve:
  - If unit has CPS or OCS option, verify switch position by measuring voltage at NO (1) and NC (2).
  - If unit has VI option, verify the indicator shows the valve is open.
- De-energize valve.





## Operation

### Initial gas flow VG..L

#### – Option slow opening

From fully damped **A** when delivered to undamped fast stroke **C**.

#### Changing opening time VG..L – Option slow opening

Loosen allen head screws shown (**see position 2**). Do not remove entirely!

Do not turn the varnished retaining screw!

Turn the damping element until the desired initial gas flow has been attained:

- Clockwise (-) = more initial gas flow
- Counter clockwise (+) = less initial flow

Re-tighten allen head screw.

**A** = fully damped 15–20

**B** = partial damping

**C** = undamped

#### Setting maximum gas flow VG..D – Option flow adjustment

Adjustment is made from the bottom of valve (use 7/32" (6mm) Allen key).

Flow can be adjusted from 10–100% of rating.

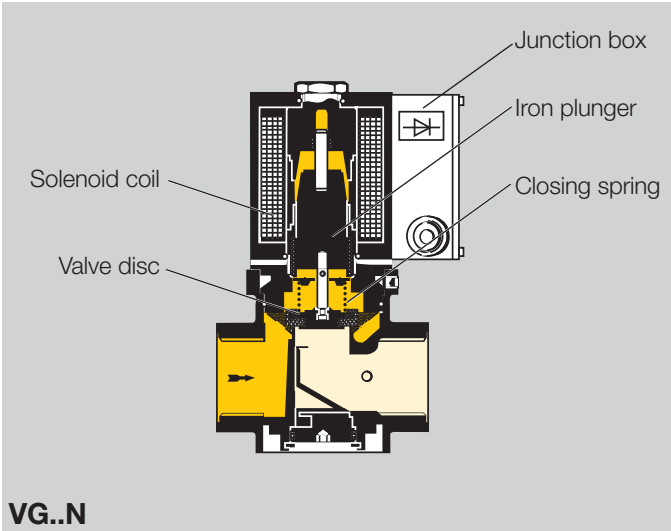
VG 15TN–VG 40/32TN turn 0 to 180 degrees

VG 40TN–VG 100TN–20 turns to fully closed

Turn maximum flow limiting orifice (**see position 1**)

Counter Clockwise (-) = less flow

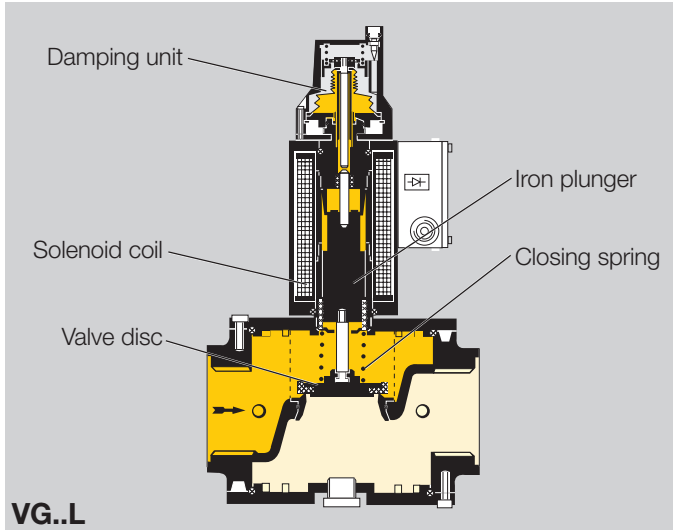
Clockwise (+) = more flow



## Function

### VG..N – fast opening

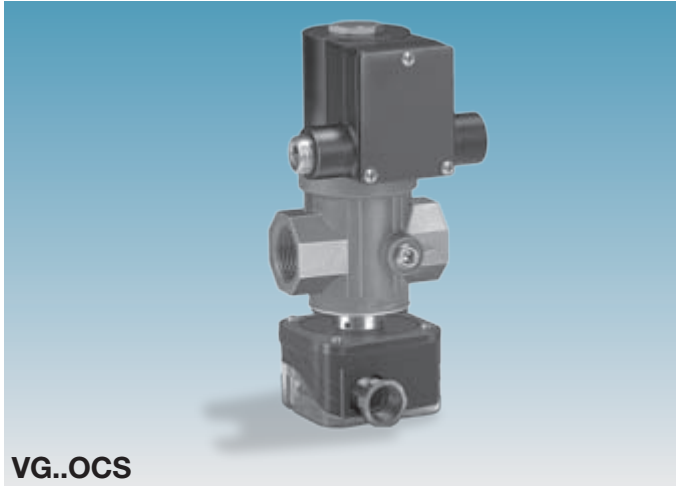
When the valve is de-energized the gas orifice and valve disk is closed. The closing force is produced by the closing spring and the weight of the iron plunger. In addition, supply gas pressure increases, the sealing force. A rectifier board in the junction box converts AC to DC power. The solenoid coil creates a magnetic field when energized and the iron plunger with the valve disk goes upwards. The valve orifice quickly opens. When the valve is de-energized the spring forces the valve closed.



### VG..L – slow opening

The valve is closed when not connected to the power supply. When voltage is applied to the solenoid coil, the plunger with the valve moves upwards. The damping unit slows the movement of the plunger. The gas flow rate responds to the damper setting. The cross section at the valve port is reduced, increasing the pressure drops, and decreasing the flow rate. The cross section at the valve port increases, decreasing the pressure drop and the outlet flow increases.

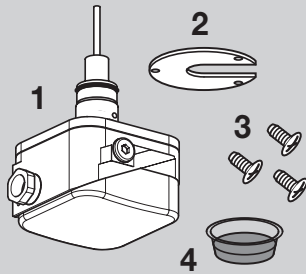
Close the valve. The voltage supply to the drive unit is disconnected. The closing spring forces the valve disk on the valve seat. The valve closes quickly. The gas flow stops. The damping unit moves slowly back to its initial position.



VG..OCS

### **VG..OCS (with proof of closure switch)**

VG solenoid valves are available with a FM-approved proof of closure switch. A factory adjusted and tested SPDT switch enclosed in a housing mounted on the bottom of the valve body indicates open and close positions. Two LED's (red = valve open, green = valve closed) indicate the valve positions. Switching capacity of the switch is 4 Amps maximum at 120 VAC. The enclosure has 1/2" NPT conduit connection and two terminals for 14 gauge wire.



1. CPS + intermediate part
2. Attachment plate
3. Three socket screws
4. Lubricant

## Accessories VG

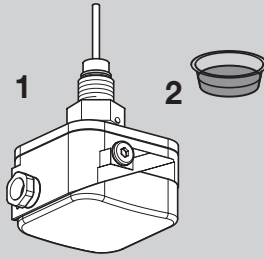
### Close Position Indicator Switch – Option CPS

VG solenoid valves are available with a closed position indicator switch.

A factory adjusted and tested SPDT switch enclosed in a housing mounted on the bottom of the valve body indicates open and closed positions. Switching capacity of the switch is 5 Amps maximum at 120 VAC. The enclosure has one ½" NPT conduit connection and use a maximum wire gauge of 14.

### Installation of CPS for VG10/15 to 40/32

- The housing must have clearance of ¾" from any vertical surface
- **Disconnect the system from electrical power supply**
- **Shut off the gas supply**
- Remove circlip
- Remove plug
- Loosen the setscrew, but do not unscrew completely
- Turn the adapter from the closed position indicator switch
- Grease o-ring and the support surface
- Grease attachment plate
- Slide the attachment plate on to the intermediate piece
- Insert the adapter and screw tight
- Insert the close position switch



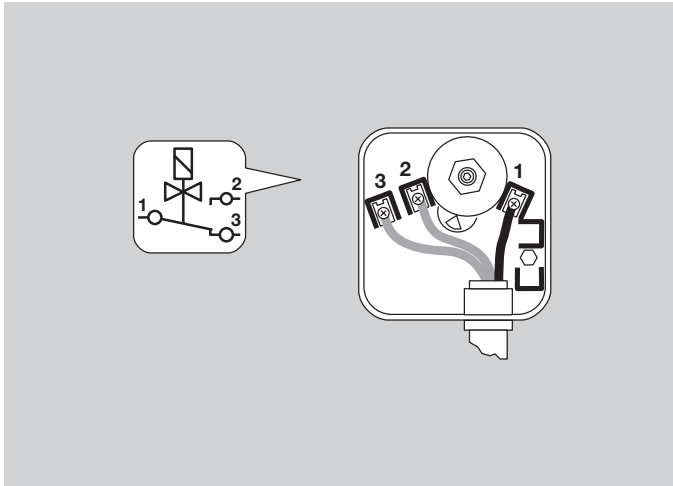
1. CPS + intermediate part
2. Lubricant

### Installation of CPS for VG 40 to VG 100

- When fitting the housing cover for closed position switch CPS, it is recommend to replace the o-ring
- The housing must have clearance of  $\frac{3}{4}$ " from any vertical surface
- **Disconnect the system from electrical power supply**
- **Shut off the gas supply**
- Remove screws from the housing cover
- Remove cover
- Place the o-ring in the new cover
- Loosen the setscrew, but do not unscrew completely
- Turn the adapter from the closed position switch
- Grease the thread on the intermediate piece
- Insert the adapter and screw tight
- Insert the closed position switch

### Tightness test VG..CPS

- Open the valve
- Check the valve / closed position switch connection for tightness at outlet at a pressure of  $< 1.5 \times p_{e \max}$ .
- Soap the valve / closed position switch connection and check for bubbles
- Soap the threaded housing cover / valve body connection and check for bubbles



## Wiring CPS switch

**WARNING:** Danger of electric shock! Make sure power is removed from solenoid valve before performing any maintenance.

- Unscrew cover
- Remove cover plate
- Pass wires through ½" NPT opening and connect – terminals 2 x AWG 14 (2 x 1.5mm<sup>2</sup>)
- Microswitch NO–COM 3 (closes when valve is closing)
- Microswitch NC–COM 3 (closes when valve is opening)

### Wire colours

120 V Version:

- 1 Valve open = Red
- 2 Valve closed = Green
- 3 COM = Blue

24 V Version:

- 1 Valve open = Red
- 2 Valve closed = Green
- 3 COM = Black

### Adjusting CPS switch

- **Shut off the gas supply**
- Loosen the cover screw of the CPS
- Unscrew the cover plate
- Remove cover plate
- Screw in the CPS as far as it will go
- Unscrew the CPS until the contacts 3 and 1 are closed
- Connect a meter to contacts 3 and 1
- Screw in the CPS until the contacts 3 and 2 close –then turn it by a further turn 1/3 turn
- Connect a meter to contacts 2 and 3
- Insert setscrew
- Check the adjustment: Switch the valve several times–check the electrical circuits
- Secure the setscrew with lacquer
- Position the cover plate and cover
- Rescrew the cover

### Operating limits

Ambient Temperature Range: -4°F to 140°F (-20°C to 60°C)  
UL up to 104°F (40°C)

Maximum Inlet Pressure: 5 PSIG

Maximum static Line Pressure: 30 psig (2.1 bar) (with valve closed)

Operating life: 2 million cycles

### Materials of construction

CPS and OCS switch covers are high quality injection-molded plastics and the plates are metal ( die-cast zinc). Switch housing are glass fiber-reinforced plastic. Diaphragms are nitrile rubber. Enclosures are NEMA 3 (dust tight, rain tight & sleet resistant).

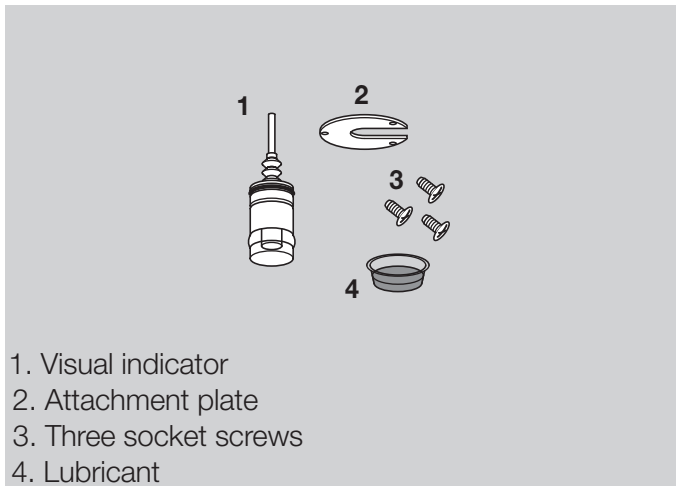




VG..VI

### Visual Indicator Switch–Option VI

The device allows an observer to determine visually whether the valve is open or closed.

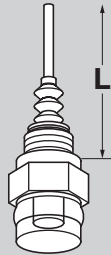


1. Visual indicator
2. Attachment plate
3. Three socket screws
4. Lubricant

### Installation of Visual Indicator VG 15–40/32

- The housing must have clearance of  $\frac{3}{4}$ " from any vertical surface
- **Disconnect the system from electrical power supply**
- **Shut off the gas supply**
- Remove circlip
- Remove plug
- Grease o-ring and the support surface
- Grease attachment plate
- Slide the attachment plate on to the intermediate piece
- Insert Visual Indicator
- Screw tight

	L	
	mm	inch
VG 40	63,0	2.48
VG 50	73,8	2.91
VG 65	86,0	3.39
VG 80	96,8	3.81
VG 100	123,2	4.85



### Installation of Visual Indicator VG 40–100

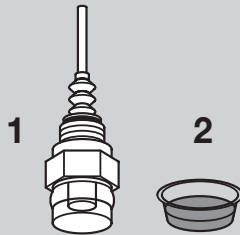
- The housing must have clearance of  $\frac{3}{4}$ " from any vertical surface
- **Shut off the gas supply**
- Turn screw out of the housing cover
- Check the valve stem length
- Insert Visual Indicator
- Screw tight
- Put sticker on the valve body

### Tightness test

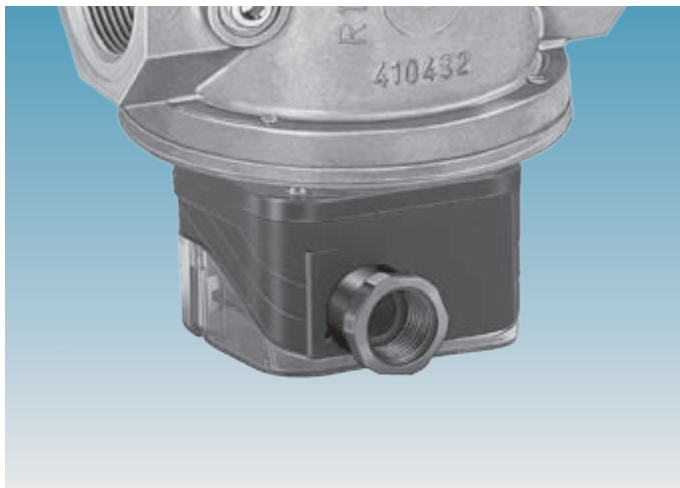
- Open the valve
- Check the valve / Visual Indicator connection for tightness at outlet at a pressure of  $< 1.5 \times p_{pe \text{ max.}}$
- Soap the valve / closed position switch connection and check for bubbles
- Soap the threaded housing cover / valve body connection and check for bubbles

### Check Function

- Open valve–Indicator shows red
- Close valve–Indicator shows green



1. Visual indicator
2. Lubricant



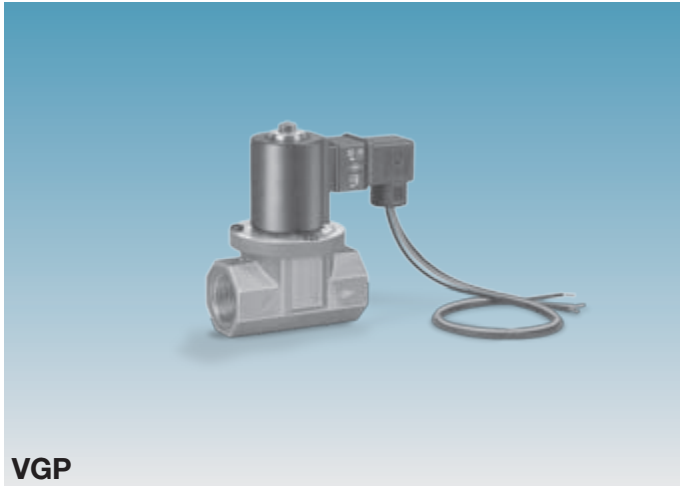
### Order Information

**VI (Visual position indicator as a retrofit kit for solenoids for gas without flow adjustment)**

Designation	Order no.
VI VG15	74919369
VI VG20–25	74919368
VI VG40/32	74919367
VI VG40	74916301
VI VG50	74916302
VI VG65	74916303
VI VG80	74916304
VI VG100	74916305

**CPS (Close position indicator switch as a retrofit kit for solenoid for gas without flow adjustment)**

Designation	Order no.
CPS VG10/15–15T	74921348
CPS VG20–25T	74921349
CPS VG40/32T	74921350
CPS VG40T	74921351
CPS VG50T	74921352
CPS VG65T	74921353
CPS VG80T	74921354
CPS VG100T	74921355



**VGP**

## Order Information

### Solenoid Valves for Gas VGP

<b>VGP</b>	solenoid valve for gas
<b>3/8" to 1" (DN 10 to 25)</b>	nominal diameter
<b>T</b>	T-product
<b>N</b>	NPT-internal thread
<b>01</b>	2.2 psig (150 mbar)
<b>02</b>	3 psig (200 mbar)
<b>Q</b>	120 Vac, 50/60 Hz
<b>6</b>	rectifier adapter and plug

Designation	Order no.
VGP 10TN02Q6	85293600
VGP 15TN02Q6	85294600
VGP 20TN01Q6	85295600
VGP 25TN01Q6	85296600



### Solenoid Valves for Gas VG

<b>VG</b>	solenoid valve for gas
<b>1/2" to 4" (DN 15 to 100)</b>	nominal diameter
<b>T</b>	T-product
<b>N</b>	NPT-internal thread
<b>A</b>	ANSI flange
<b>01, 02</b>	2 psig (130 mbar)
<b>03</b>	5 psig (360 mbar)
<b>N</b>	without damping unit (fast opening)
<b>L</b>	with damping unit (slow opening)
<b>Q</b>	120 Vac, 50/60 Hz
<b>9</b>	metal terminal connection box
<b>2</b>	screw plug at the outlet
<b>3</b>	screw plug at the inlet and outlet
<b>D</b>	maximum flow adjustment
<b>OCS</b>	proof-of-closure switch
<b>VI</b>	visual position indicator
<b>CPS</b>	closed position switch



**VG 40**

$p_{e \text{ max.}}$  2 psig, quick opening

Designation	Order no.
VG 20TN02NQ92D	85236201
VG 25TN02NQ92D	85237201
VG 40/32TN02NQ92D	85238201
VG 20TN02NQ92	85236203
VG 25TN02NQ92	85237202
VG 40/32TN02NQ92	85238207
VG 40TN01NQ93	85239420
VG 50TN01NQ93	85240420
VG 65TN01NQ93	85241420
VG 50TA01NQ93	85240460
VG 65TA01NQ93	85241460
VG 80TA01NQ93	85242420
VG 100TA01NQ93	85243300



$P_e$  max. 5 psig, quick opening

Designation	Order no.
VG 15TN03NQ92D	85235011
VG 20TN03NQ92D	85236011
VG 25TN03NQ92D	85237011
VG 15TN03NQ92	85235017
VG 20TN03NQ92	85236017
VG 25TN03NQ92	85237017
VG 40TN03NQ93	85239400
VG 50TN03NQ93	85240400
VG 65TN03NQ93	85241400
VG 50TA03NQ93	85240440
VG 65TA03NQ93	85241440
VG 80TA03NQ93	85242400

$P_e$  max. 2 psig, slow opening

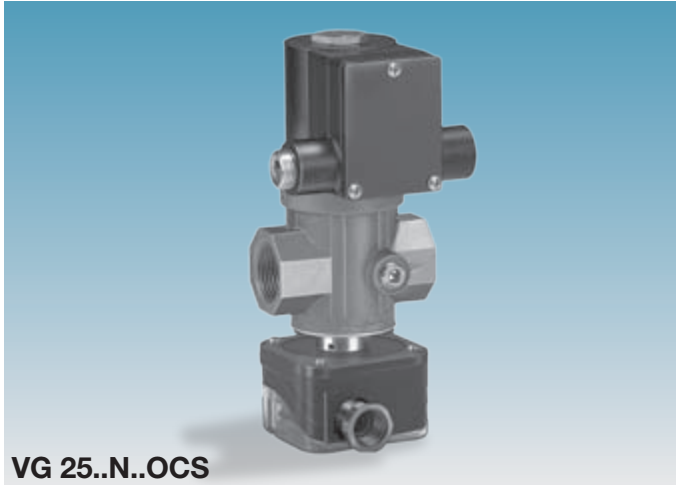
VG 20TN02LQ92D	85236301
VG 25TN02LQ92D	85237301
VG 40/32TN02LQ92D	85238301
VG 15TN02LQ92	85235303
VG 20TN02LQ92	85236303
VG 25TN02LQ92	85237303
VG 40/32TN02LQ92	85238302
VG 40TN01LQ93	85239430
VG 50TN01LQ93	85240430
VG 65TN01LQ93	85241430
VG 50TA01LQ93	85240470
VG 65TA01LQ93	85241470
VG 80TA01LQ93	85242430



$p_e$  max. 5 psig, slow opening

Designation	Order no.
VG 15TN03LQ92D	85235101
VG 20TN03LQ92D	85236101
VG 25TN03LQ92D	85237101
VG 15TN03LQ92	85235103
VG 20TN03LQ92	85236103
VG 25TN03LQ92	85237103
VG 40TN03LQ93	85239410
VG 50TN03LQ93	85240410
VG 65TN03LQ93	85241410
VG 50TA03LQ93	85240450
VG 65TA03LQ93	85241450
VG 80TA03LQ93	85242410





**VG 25..N..OCS**

$p_e$  max. 2 psig, quick opening

Designation	Order no.
VG 20TN02NQ92OCS	85236400
VG 25TN02NQ92OCS	85237400
VG 40/32TN02NQ92OCS	85238400
VG 40TN01NQ93OCS	85239500
VG 50TN01NQ93OCS	85240500
VG 65TN01NQ93OCS	85241500
VG 50TA01NQ93OCS	85240600
VG 65TA01NQ93OCS	85241600
VG 80TA01NQ93OCS	85242500
VG 100TA01NQ93OCS	85243500

$p_e$  max. 5 psig, quick opening

VG 20TN03NQ92OCS	85236450
VG 25TN03NQ92OCS	85237450
VG 40TN03NQ93OCS	85239550
VG 50TN03NQ93OCS	85240550
VG 65TN03NQ93OCS	85241550
VG 50TA03NQ93OCS	85240650
VG 65TA03NQ93OCS	85241650
VG 80TA03NQ93OCS	85242600

## Trouble Shooting

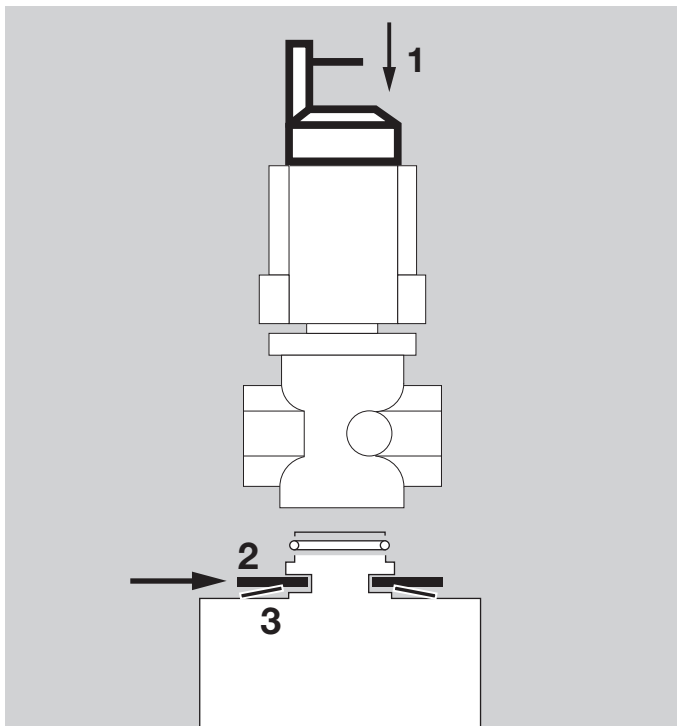
- ! Danger of electric shock !
- Disconnect cables from power supply before working on live parts
- Faults may only be corrected by authorized personnel

## ? Gas valve does not open?

- The solenoid coil may be defective.
- Disconnect the 120 Volt leads 2 and 3 from terminal strip. Measure the resistance of the magnetic coil at the cable leads 2 and 3. At the following value, the coils are correct.

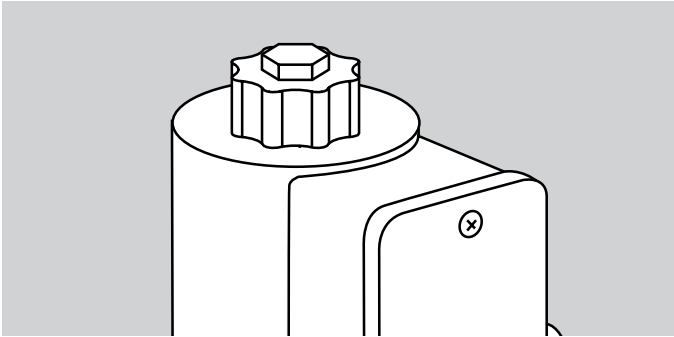
	Resistance valve
VG 15	530–600 $\Omega$
VG 20/25	470–520 $\Omega$
VG 40/32	360–410 $\Omega$
VG 40	210–240 $\Omega$
VG 50	180–210 $\Omega$
VG 65	185–210 $\Omega$
VG 65 (200 mbar)	155–167 $\Omega$
VG 80	140–155 $\Omega$
VG 100	85–160 $\Omega$

- If the resistance value of the table does not correspond with the resistance of coil in question, a new coil is required.



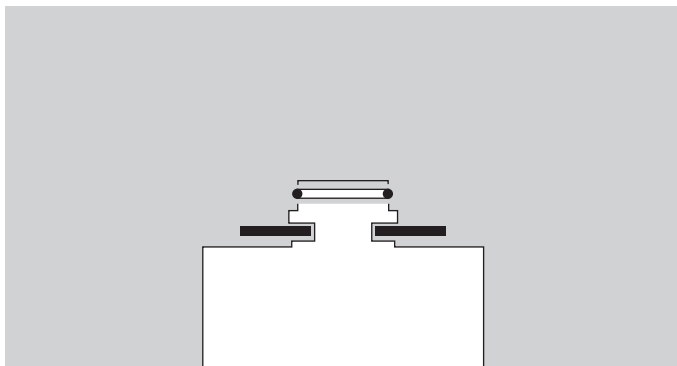
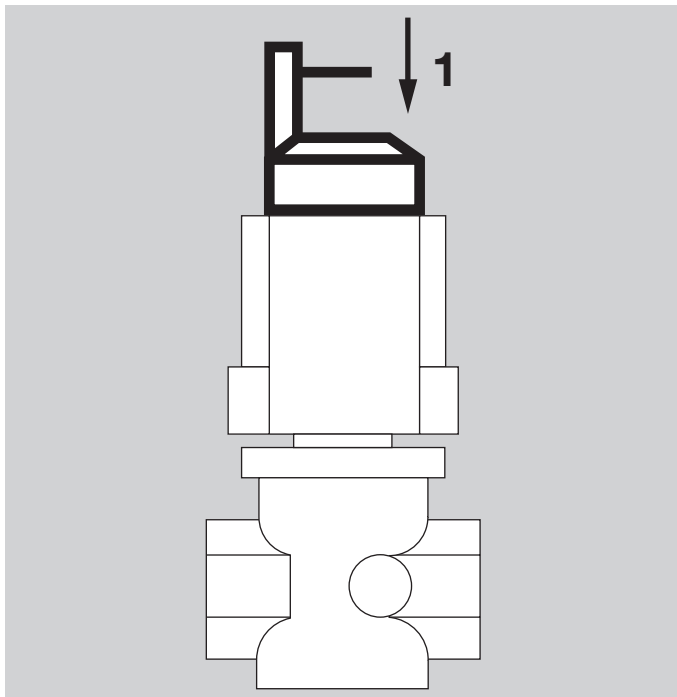
### Replacing a defective coil housing—slow opening

- **Remove power from solenoid valve**
  - 1 = Remove three screws, two of them are varnished
- Remove the damping unit
  - 2 = Press the damping housing
  - 3 = Remove the spring washer
- Remove coil vertically
- Make sure O-rings are located properly
- Insert new coil
- Fit spring washer—as shown in illustration
- Press the clamping plate in tight
- Fit the damping housing into notches
- Above the clamping plate—turn damper until the hexagons engage, then lightly depress
- Insert slotted head screw in the hole marked “V Start”. Insert the two allen screws in the other holes and tighten all three screws with varnish or fingernail polish
- Set initial gas flow
- Reconnect 120 Volt supply per wiring diagram



**Replacing a defective coil housing—with option fast opening**

- **Remove power from solenoid valve**
- Remove cap or hexagon nut
- Remove coil
- Make sure that the O-rings are fitted properly
- Insert new coil
- Replace the nut and tighten securely
- Reconnect 120 Volt supply per-wiring diagram
- Series VG 40–100 solenoid valves can be retrofitted with damping units



## ? Gas valve with damping unit does not open to 80% of max. flow in 6–10 seconds?

– The damping unit may be defective.

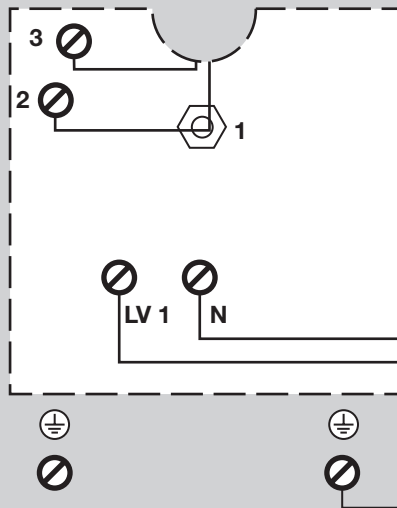
A damping unit is defective if it is leaking oil or if the valve opens to 80% of the maximum flow in less than 6 seconds.

### Replacing a defective damping unit

The spindle of the damping unit element cannot be pressed in by hand.

In a normal state.

- **Remove 120 V power from solenoid valve**
  - 1 = Remove screws, two of them are varnished
- Remove the damping unit
- Make sure that the o-rings are located properly
- Assemble new damping housing
- Insert new damping housing into notches above clamping plate, turn housing until the hexagons engage and lightly depress.
- Insert slotted head screw in the hole marked “V Start”,  
Insert the two allen screws in the other holes and tighten. All three securely to the damping plate, 1/2 turn before stop.
- Secure the allen screws with varnish or fingernail polish
- Set the initial gas flow
- Reconnect 120 V supply per wiring diagram



## ? Gas valve does not open?

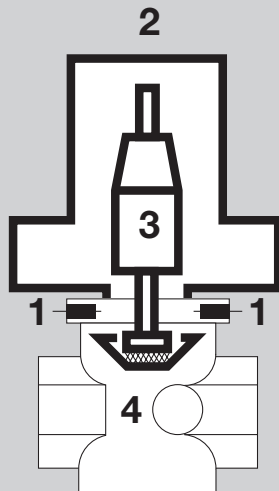
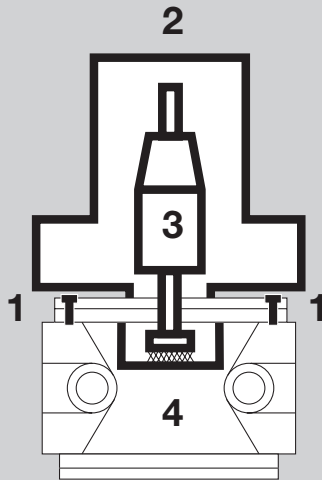
– The rectifier may be faulty.

To determine if a rectifier is faulty:

- Apply 120VAC to terminals LVI and N
- Measure voltage across terminals 2 and 3. If the voltage is approximately 100 Volts DC, the rectifier is o.k.

## Changing a defective rectifier board

- **Remove 120 V power from the solenoid (leads LV1/N at the terminals)**
- Disconnect the coil leads 2 and 3 from terminal strip
- Remove retaining nut 1 and remove rectifier board
- Reassemble in reverse order
- Reconnect leads LV1/N
- Reconnect coil leads 2 and 3



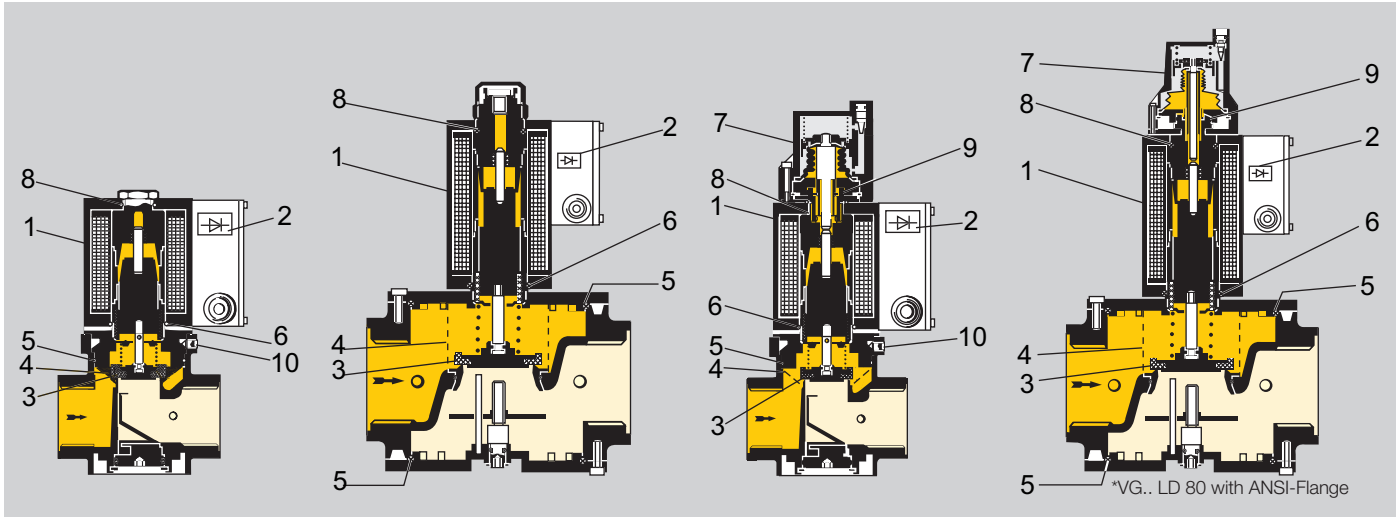
## Maintenance of VG and VGP

Semi-annually

Periodic cleaning is necessary, depending on the operating conditions.

- **Remove power from solenoid valve**

- Remove allen screws Position 1
- Remove top section of coil Position 2
- Remove core with spindle and disk (Position 3), clean with dry cloth
- Check seal of O-rings, replace if they are worn, hardened or enlarged
- Check spring for corrosion, if necessary replace core, see table spare parts
- Assemble in reverse order.
- Check seal after resealing (must have gas pressure to the valve).
- Leak check housing cover or housing surface before restarting system
- Reconnect 120 V supply per wiring diagram



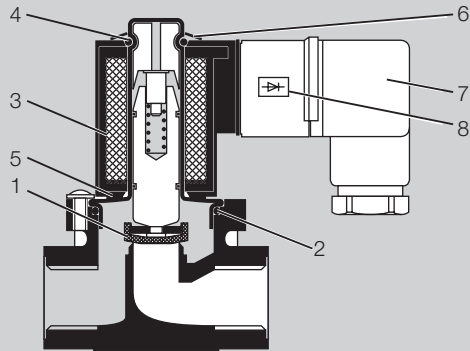
## Spare Parts VG

Type	1. Coil		2. Rectifier board	3. Valve seal	4. Screen	5. O-rings	6. O-rings		7. Damp- ing unit	8. O-rings	9. O-rings	10. Screw
	2 psig	5 psig					2 psig	5 psig				
VG 15	*	*	74912692	35439083	35438019	03109218	03109292		74952012	03109290	03110118	03563025
VG 20.. 25	74952540	74960030	74912692	35439084	35438043	03110079	03109292		74952014	03109290	03110118	03563026
VG 40/32	74960030		74912692	35439085	35438057	03109219	03109292		74952015	03109290	03110118	03563026
VG 40	74960002	74952555	74912692	35440783	35440828	03109274	03109322		74952271	03109321	03109250	-
VG 50	74952555	74952556	74912692	35440784	35440829	03109275	03109322		74952271	03109321	03109250	-
VG 65	74952556	74952626	74912692	35440785	35440830	03109276	03109322	03109346	74952273	03109321	03109250	-
VG 80	74952626	74952627	74912692	35441452	74919322	03109277	03109346		74952557	03109321	03109250	-
VG 100	74952627	-	74912692	35441454	74919323	03109277	03109346		-	03109321	-	-

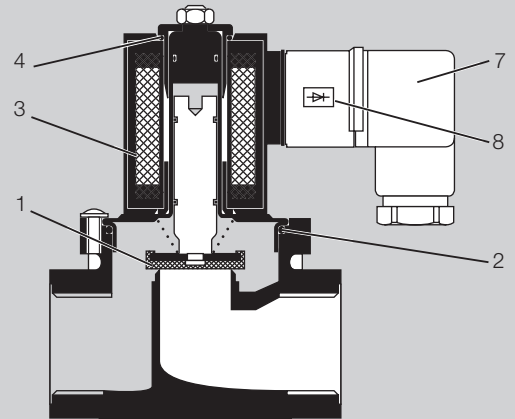
\* = 74952543 for N02-LD and N03-ND

74952540 for N03-LD





VGP 10-15.6



VGP 20-25.6

**VGP**

Nr.	VGP 10-15.6	VGP 20-25.6	
1	35442777	35442546	Seal
2	03110369	03110337	O-Ring
3	35452601	35452600	Coil
4	03109412	03109455	O-ring
5	35449236	03109489	Sealing
6	03026136	-	Fastening
7	35454400	35454400	Connector
7	35454400	35454400	Connector
8	34213465	34213465	Rectifier board

## Warning

Situations dangerous to personnel and property can result from the misapplication and incorrect operation of combustion equipment.

Kromschroder advises compliance with the National Fire Protection Association standards that apply for related equipment and Insurance Underwriters recommendation, and care of operation.

We reserve the right to make technical changes designed to improve our products without prior notice. For current product information, visit our website at [www.kromschroder.com](http://www.kromschroder.com).

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