

Motorized valves for gas VK

TECHNICAL INFORMATION

- Safety valves for gas
- Flow rate can be restricted
- Robust design for a long service life
- Energy-saving thanks to automatic motor shut-off
- Explosion-proof version available
- One- or two-stage, available with closed position indicator
- Suitable for hydrogen



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1 Application



VK..R



VK..F



VK..X

Robust motorized valves for gas VK for safeguarding and controlling the air and gas supply to gas burners and gas appliances. For heavy-duty use in gas control and safety systems in industrial heat generation. When a closed position indicator is fitted, two-stage operation is possible. Special device versions are suitable for Zone 1 and 2.

1 Application

1.1 Application examples



Metallurgical industry: forging furnace



Ceramics industry: intermittent shuttle kiln



Aluminium industry: shaft melting furnace

2 Certification

2.1 Certificate download

Certificates – see www.docuthek.com

2.2 Certification



- 2014/35/EU (LVD), Low Voltage Directive
- 2014/30/EU (EMC), Electromagnetic Compatibility Directive
- 2014/68/EU (PED), Pressure Equipment Directive
- (EU) 2016/426 (GAR), Gas Appliances Regulation
- EN 161:2011+A3:2013

VK 40–200..X, VK 50–250..HX

- 2014/34/EU (ATEX), Explosion Protection Directives
- 2014/30/EU (EMC), Electromagnetic Compatibility Directive
- 2014/68/EU (PED), Pressure Equipment Directive
- (EU) 2016/426 (GAR), Gas Appliances Regulation
- EN 60079-0:2019
- EN 60079-6:2016
- EN 60079-7:2016
- EN 161:2013

2.3 IECEx system



Complies with the requirements of the IECEx system in conjunction with the IEC 60079 standards.

2.4 AGA approved



Australian Gas Association, Approval No.: 2726.

2.5 UKCA certified



Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)

BS EN 161:2011+A3:2013

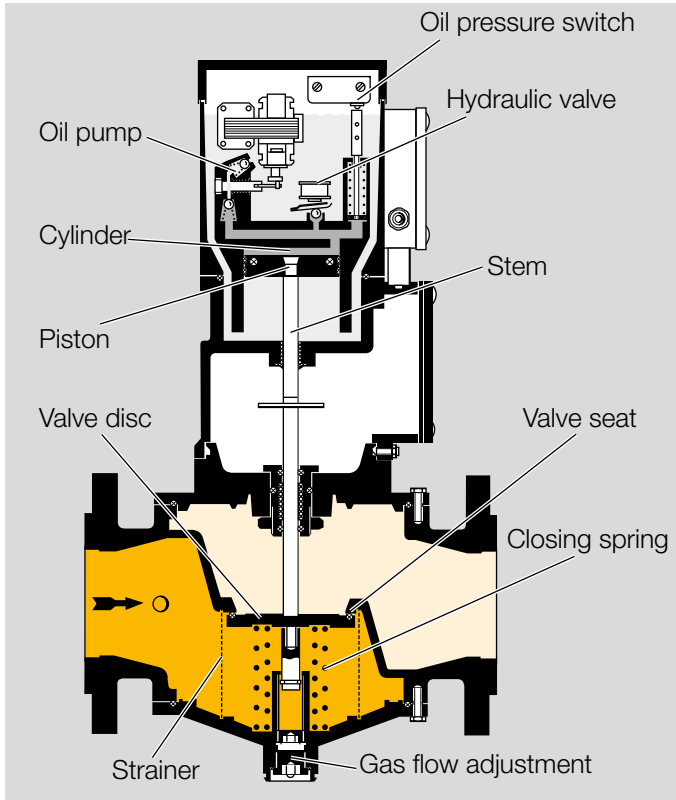
2.6 Eurasian Customs Union



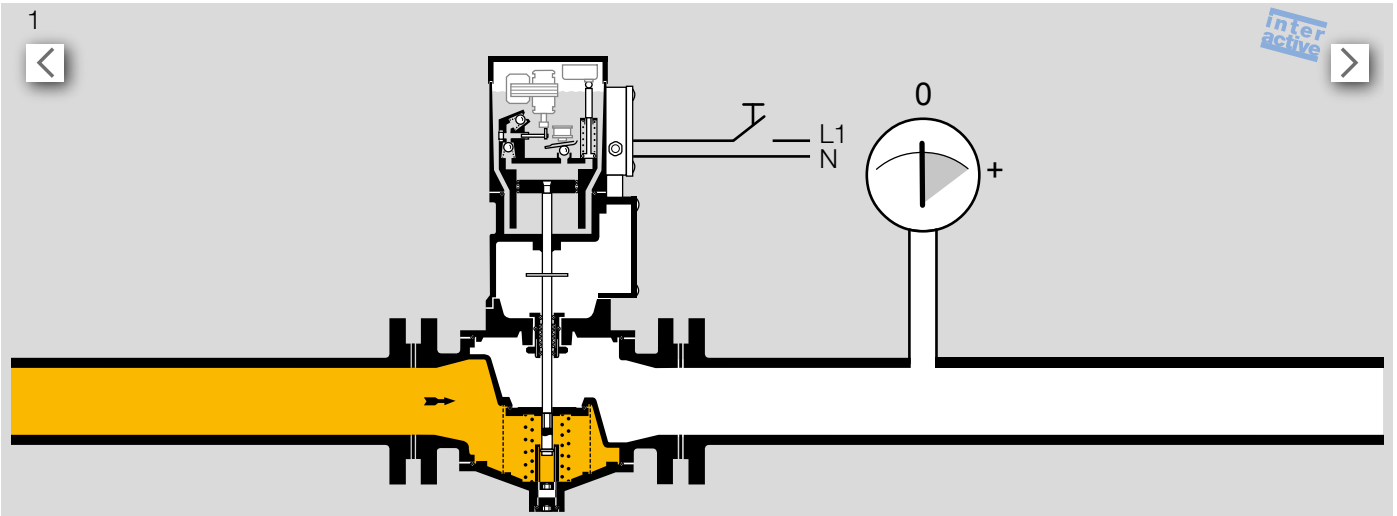
The products VK meet the technical specifications of the Eurasian Customs Union.

3 Function

3.1 Part designations VK

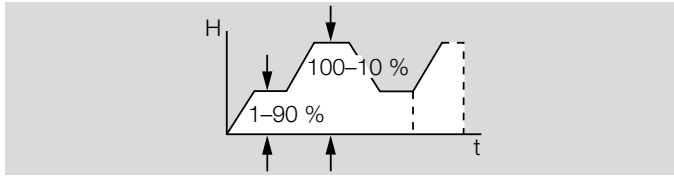


3.2 Slide show



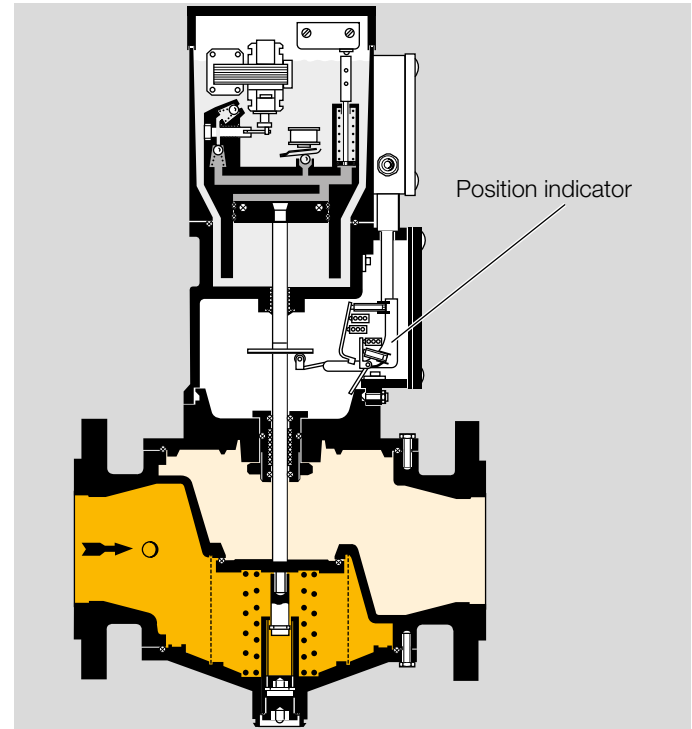
- 1 The hydraulically actuated motorized valve for gas VK is closed when de-energized.
- 2 Opening: apply voltage.
- 3 The hydraulic valve is closed. The oil pump fills the cylinder with oil and the piston is moved down.
- 4 The VK opens.
- 5 When the valve is fully open, the pressure will increase in the cylinder.
- 6 The oil pressure switch will switch the motor off. The cylinder will no longer be filled with oil.
- 7 The gas volume can be adjusted by limiting the piston stroke.
- 8 The valve plate is moved by a connecting rod.
- 9 Closing: the VK is disconnected from the voltage supply.
- 10 The hydraulic valve opens.
- 11 The piston is pushed up again by the force of the closing spring. The VK closes within 1 s.
The strainer in the inlet of the motorized valve for gas prevents deposits of dirt particles on the valve seat.

3.3 Motorized valve for gas VK..Z



The motorized valve for gas VK..Z features a two-stage actuator. The first stage can be set between 1% and 90% using a switch. A second stage can be set between 10% and 100% using an additional flow rate restrictor.

3.4 VK..S with closed position indicator



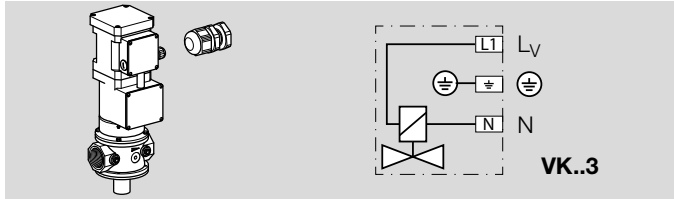
Opening: when the motorized valve for gas is opened, the closed position indicator switches and returns the “open” signal.

Closing: the motorized valve for gas VK is disconnected from the voltage supply and the closing spring presses the valve plate on to the valve seat. In the process, the closed position indicator switches and returns the “closed” signal.

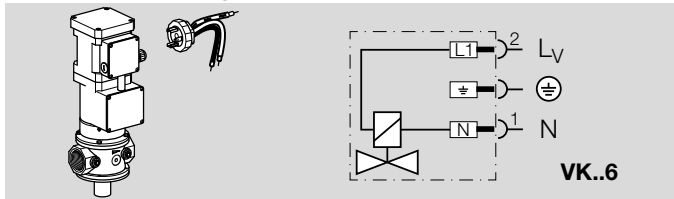
Connection rating: 30–250 V, 50/60 Hz, max. 10 A (resistive load).

3.5 Connection diagrams

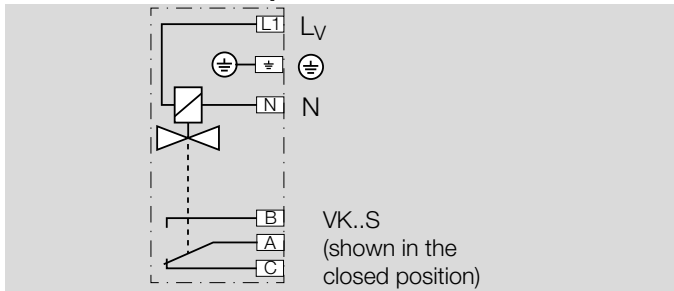
3.5.1 VK with M20 cable gland



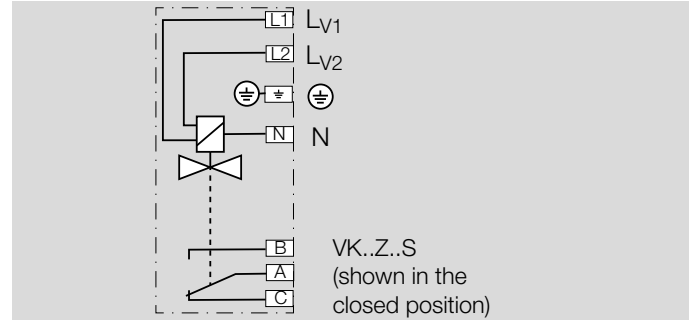
3.5.2 VK with plug



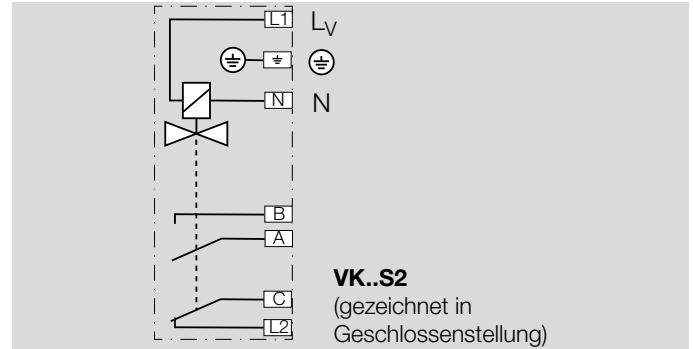
3.5.3 VK with closed position indicator



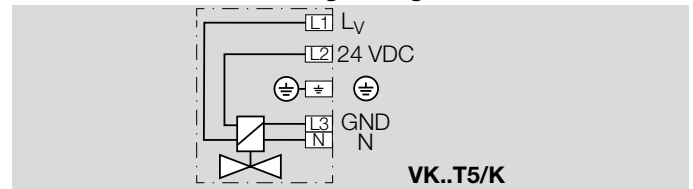
3.5.4 VK, two-stage, with closed position indicator



3.5.5 VK with two closed position indicators

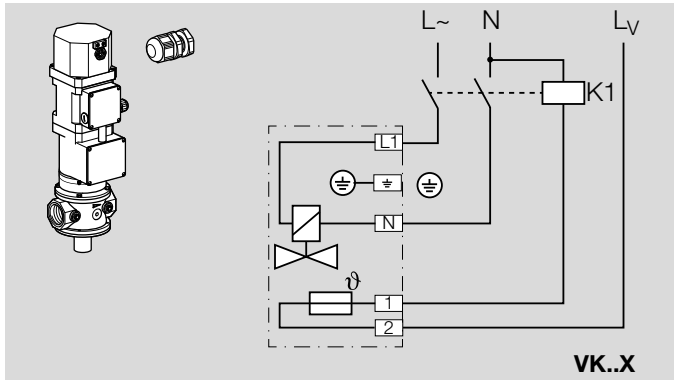


3.5.6 VK with 24 V holding voltage

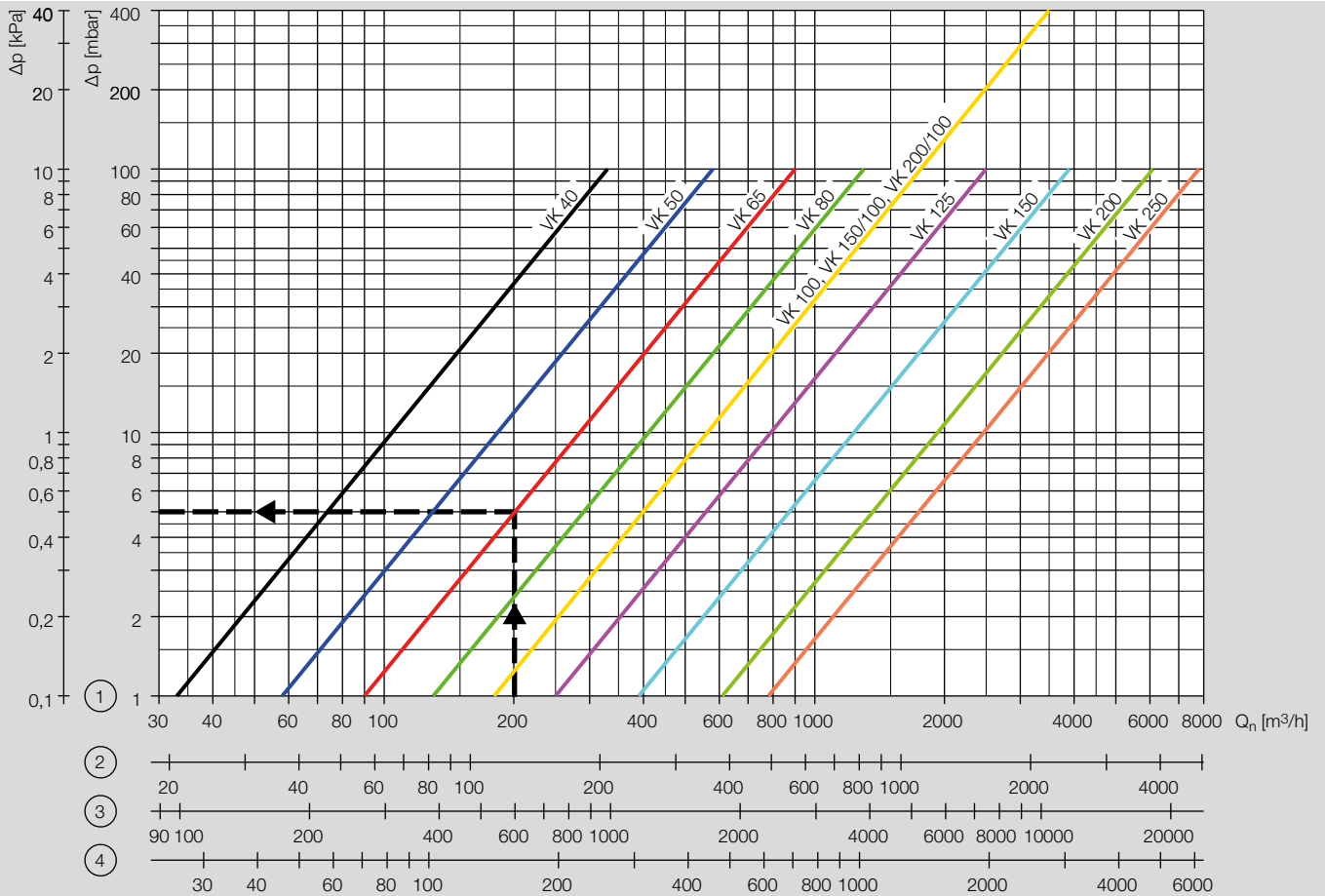


3 Function

3.5.7 VK, explosion-proof version, with M20 cable gland



4 Flow rate



- 1 = natural gas ($\rho = 0.80 \text{ kg/m}^3$)
- 2 = propane ($\rho = 2.01 \text{ kg/m}^3$)
- 3 = hydrogen ($\rho = 0.09 \text{ kg/m}^3$)
- 4 = air ($\rho = 1.29 \text{ kg/m}^3$)

4 Flow rate

Reading instructions: when determining the pressure loss, operating cubic metres must be entered. Then the pressure loss Δp read must be multiplied by the absolute pressure in bar (positive pressure + 1) to account for the change in the medium's density.

Example:

inlet pressure p_u (positive pressure) = 1 bar (100 kPa),

gas type: natural gas,

operating flow rate $Q_b = 200 \text{ m}^3/\text{h}$,

Δp from diagram = 5 mbar (0,5 kPa),

$\Delta p = 5 \text{ mbar (0,5 kPa)} \times (1 + 1) = 10 \text{ mbar (1 kPa)}$ on the motorized valve VK 65.

4.1 Calculating the nominal size

A web app for calculating the nominal size is available at www.adlatus.org.

5 Selection

5.1 ProFi

A web app selecting the correct product is available at www.adlatus.org.

5.2 VK, VK..Z

Description	Code	VK 40	VK 50	VK 65	VK 80	VK 100	VK 125	VK 150	VK 200	Condition
Motorized valve for gas	VK	•	•	•	•	•	•	•	•	
Rp internal thread	R	•	•	•						
Flange to ISO 7005	F	•	•	•	•	•	•	•	•	
Inlet pressure $p_{u \max}$.										
230 mbar (23 kPa)	02								•	
400 mbar (40 kPa)	04	•	•							
600 mbar (60 kPa)	06						•			
1 bar (100 kPa)	10	•	•	•	•	•				
2.4 bar (240 kPa)	24				•					
3.1 bar (310 kPa)	31			•						
4 bar (400 kPa)	40	•	•							
Opening properties										
2-stage	Z	•	•	•	•	•	•	•	•	Version with closed position switch
Mains voltage										
230 V AC, 60 Hz	W6	•	•	•	•	•	•	•	•	
220/240 V AC, 50 Hz	T5	•	•	•	•	•	•	•	•	Version without explosion protection
110 V AC, 50/60 Hz	M	•	•	•	•	•	•	•	•	
230 V AC, 50 Hz	W5	•	•	•	•	•	•	•	•	
120 V AC, 60 Hz	Q6	•	•	•	•	•	•	•	•	Version without explosion protection
200 V AC, 50/60 Hz	Y	•	•	•	•	•	•	•	•	Version without explosion protection
100 V AC, 50/60 Hz	P	•	•	•	•	•	•	•	•	Version without explosion protection
220 V AC, 50 Hz/24 V DC	T5/K	•	•	•	•	•	•	•	•	Version without explosion protection
Valve housing										
AlSi	A	•	•	•	•	•	•	•	•	
GGG 40 (flanged connection)	G		•	•	•	•	•	•	•	Recommended for $p_{u \max} > 1 \text{ bar (100 kPa)}$
Electrical connection										
Connection box with 4-pin standard socket, IP 54	6	•	•	•	•	•	•	•	•	
Metal terminal connection box, IP 54	9	•	•	•	•	•	•	•	•	
Connection box with 4-pin standard socket, with lamp, IP 54	6L	•	•	•	•	•	•	•	•	

5 Selection

Description	Code	VK 40	VK 50	VK 65	VK 80	VK 100	VK 125	VK 150	VK 200	Condition
Pressure test point										
Screw plugs at the inlet and outlet	3	•	•	•	•	•	•	•	•	
Flow adjustment										
With flow adjustment	D	•	•	•	•	•				
Feedback										
Closed position switch	S	•	•	•	•	•	•	•	•	
2 closed position switches	S2	•	•	•	•	•	•	•	•	
Valve plate seal										
Viton	V	•	•	•	•	•	•	•	•	
Viewing window										
With viewing window	F	•	•	•	•	•	•	•	•	

Order example

VK 50R10T5A93D

5.3 VK..H, VK..HX

Explosion-proof version: without closed position switch.

Description	Code	VK 50	VK 65	VK 80	VK 100	VK 125	VK 150	VK 150 /100	VK 200	VK 200 /100	VK 250	Condition
Motorized valve for gas	VK	•	•	•	•	•	•	•	•	•	•	
Flange to ISO 7005	F	•	•	•	•	•	•	•	•	•	•	
Inlet pressure $p_{u \max}$.												
500 mbar (50 kPa)	05										•	
1 bar (100 kPa)	10					•	•		•			AlSi valve housing = standard
1.5 bar (150 kPa)	15						•					
2 bar (200 kPa)	20					•						
4 bar (400 kPa)	40				•			•		•		4 bar (400 kPa) for GGG 40 valve housing only. VK .. /100 = reduced to 100 mm
6 bar (600 kPa)	60			•								
8 bar (800 kPa)	80	•	•									
Mains voltage												
230 V AC, 60 Hz	W6	•	•	•	•	•	•	•	•	•	•	
220/240 V AC, 50 Hz	T5	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
110 V AC, 50/60 Hz	M	•	•	•	•	•	•	•	•	•	•	
230 V AC, 50 Hz	W5	•	•	•	•	•	•	•	•	•	•	
120 V AC, 60 Hz	Q6	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
200 V AC, 50/60 Hz	Y	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
100 V AC, 50/60 Hz	P	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
220 V AC, 50 Hz/24 V DC	T5/K	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
Stronger drive												
For higher inlet pressures	H	•	•	•	•	•	•	•	•	•	•	
Explosion protection												
Explosion-proof version, IP 65	X	•	•	•	•	•	•	•	•	•	•	

5 Selection

Description	Code	VK 50	VK 65	VK 80	VK 100	VK 125	VK 150	VK 150 /100	VK 200	VK 200 /100	VK 250	Condition
Valve housing												
AISI	A					•	•		•		•	
GGG 40 (flanged connection)	G		•	•	•	•	•	•	•	•		Recommended for $p_{u \max.} > 1 \text{ bar (100 kPa)}$
Electrical connection												
Terminal connection box, IP 65	4	•	•	•	•	•	•	•	•	•	•	Explosion-proof version
Connection box with 4-pin standard socket, IP 54	6	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
Metal terminal connection box, IP 54	9	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
Pressure test point												
Screw plugs at the inlet and outlet	3	•	•	•	•	•	•	•	•	•	•	
Flow adjustment												
With flow adjustment	D	•	•	•	•							
Feedback												
Closed position switch	S	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
2 closed position switches	S2	•	•	•	•	•	•	•	•	•	•	Version without explosion protection
Valve plate seal												
Viton	V	•	•	•	•	•	•		•			
Viewing window												
With viewing window	F	•	•	•	•	•	•	•	•	•	•	Version without explosion protection

Order example

VK 100F40W5HXG43D

5.4 VK..X

Explosion-proof version: without closed position switch.

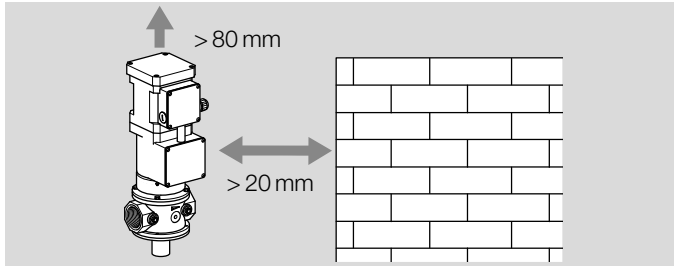
Description	Code	VK 40	VK 50	VK 65	VK 80	VK 100	VK 125	VK 150	VK 200	Condition
Motorized valve for gas	VK	•	•	•	•	•	•	•	•	
Rp internal thread	R	•	•	•						
Flange to ISO 7005	F	•	•	•	•	•	•	•	•	
Inlet pressure $p_{u \max}$.										
230 mbar (23 kPa)	02								•	
400 mbar (40 kPa)	04							•		
600 mbar (60 kPa)	06						•			
1 bar (100 kPa)	10	•	•	•	•	•				
2.4 bar (240 kPa)	24				•					
3.1 bar (310 kPa)	31			•						
4 bar (400 kPa)	40	•	•							
Mains voltage										
230 V AC, 60 Hz	W6	•	•	•	•	•	•	•	•	
110 V AC, 50/60 Hz	M	•	•	•	•	•	•	•	•	
230 V AC, 50 Hz	W5	•	•	•	•	•	•	•	•	
Explosion protection										
Explosion-proof version, IP 65	X	•	•	•	•	•	•	•	•	
Valve housing										
AlSi	A	•	•	•	•	•	•	•	•	
GGG 40 (flanged connection)	G		•	•	•	•	•	•	•	Recommended for $p_{u \max} > 1$ bar (100 kPa)
Electrical connection										
Terminal connection box, IP 65	4	•	•	•	•	•	•	•	•	
Pressure test point										
Screw plugs at the inlet and outlet	3	•	•	•	•	•	•	•	•	
Flow adjustment										
With flow adjustment	D	•	•	•	•	•				
Valve plate seal										
Viton	V	•	•	•	•	•	•	•	•	

Order example

VK 50R10W5XA43D

6 Project planning information

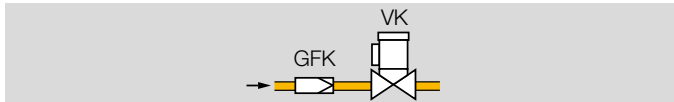
6.1 Installation



The motorized valve for gas VK must not be in contact with masonry. Minimum clearance to the side: 20 mm.

Ensure that there is sufficient space for installation and adjustment. Minimum clearance to the top: 80 mm.

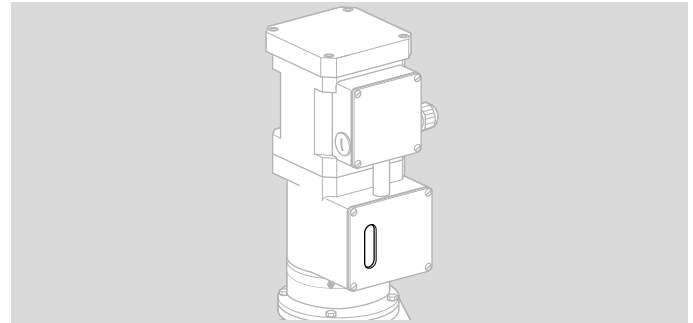
Do not store or install the unit in the open air.



Sealing material and dirt, e.g. thread cuttings, must not be allowed to get into the valve housing.

Install a filter (GFK) upstream of every system.

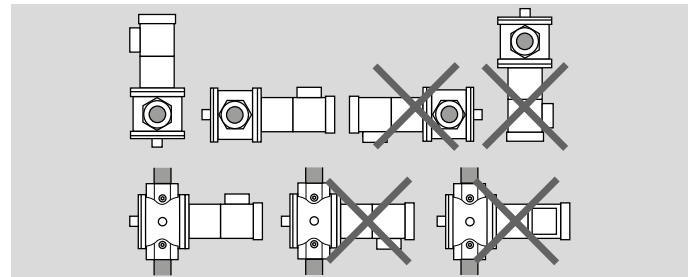
6.2 Viewing window



Ensure that the viewing window is clearly visible as you install the VK..F.

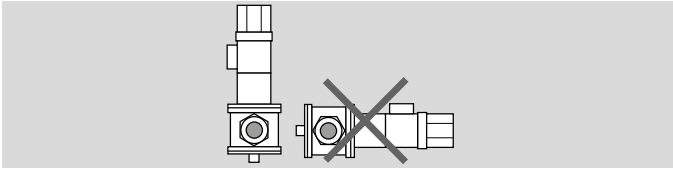
The version with the viewing window is available for a VK without explosion protection.

6.3 Installation position: VK, VK..H



Actuator in the vertical upright position or tilted up to the horizontal, not upside down. The connection box must point upwards.

6.4 Installation position: VK..X, VK..HX



Actuator in the vertical upright position only. The connection box must point upwards.

Explosion protection cannot be guaranteed in other installation positions.

6.5 Explosion protection

Motorized valves for gas VK..X and VK..HX can be installed in Zone 1 and 2 hazardous areas. Only design-approved electrical operating equipment may be used for this.


Marking pursuant to ATEX:

 II 2G Ex eb ob IIC T5 Gb

Marking pursuant to IECEx:

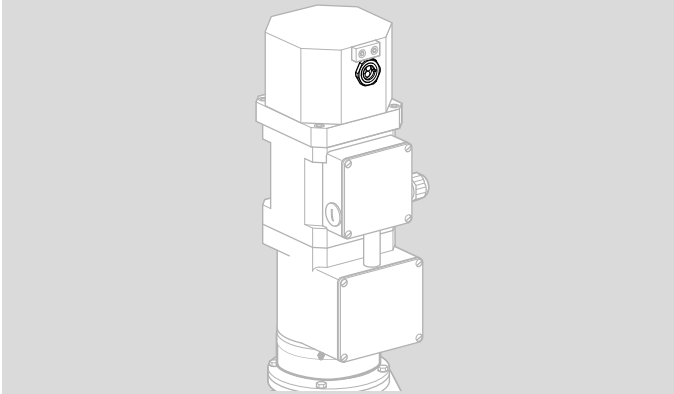
Ex eb ob IIC T5 Gb

Legend

Marking pursuant to ATEX	
	Specific marking of explosion protection
II	Equipment group for general industries, all flammable gases and vapours (as defined by Directive 2014/34/EU)
2G	Equipment category for explosive gases, vapours and hazes
Ex	Symbol for electrical equipment built according to European standards
eb	Type of ignition protection: increased safety
ob	Type of ignition protection: oil immersion

IIC	Suitable for gases of explosion group IIC; field of application: electrical equipment for all hazardous areas except for mines susceptible to firedamp
T5	Maximum surface temperature of the device determined: 100°C
Gb	Equipment protection level (EPL); device with high level of protection for use in potentially explosive atmospheres, in which there is no danger of ignition in normal operation or in the case of foreseeable faults/malfunctions

6.5.1 Oil-level gauge glass



Ensure that the oil-level gauge glass is clearly visible as you install the VK..X.

The oil level must be checked at regular intervals. The protective fluid must not be allowed to fall below the min. mark. Having an adequate oil level is relevant for preventing explosions.

6.6 Hydrogen



Other hydrogen-compatible products can be found here: [Technical Information, Products for hydrogen.](#)

7 Accessories

7.1 Closed position indicator

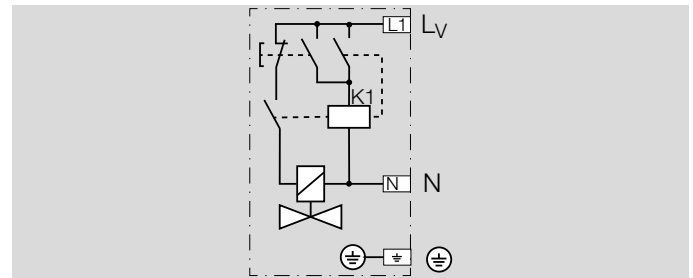
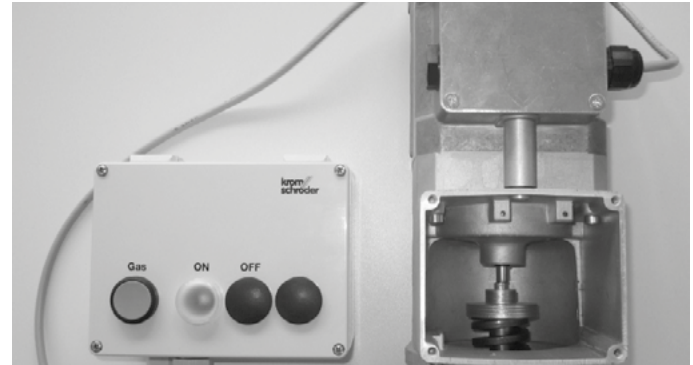


For the “closed” or “not closed” signal.

Type	Order No.
VK..S	74911637
VK..S2	74960023
VK..HS	74918705
VK..HS2	74919317

7.2 Switch box with holding relay

For “manual restart”, a separate switch box with holding relay can be connected. The holding relay prevents the gas from being automatically released in the case of a power failure.



Two different voltage variants are available:

220/240 V switch box: SK HR-T, Order No. 84408017,
110/120 V switch box: SK HR-N, Order No. 84408018.

8 Technical data

8.1 Ambient conditions

Icing, condensation and dew in and on the unit are not permitted.

Avoid direct sunlight or radiation from red-hot surfaces on the unit.

Note the maximum medium and ambient temperatures!

Avoid corrosive influences, e.g. salty ambient air or SO₂.

The unit may only be stored/installed in enclosed rooms/buildings.

The unit is suitable for a maximum installation height of 2000 m AMSL.

Ambient temperature:

VK., VK..H, VK..Z: -15°C to +60°C,

VK..X, VK..HX: -15°C to +40°C.

Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

Storage and transport temperatures: -20°C to +40°C.

Enclosure: IP 54,
safety class 1.

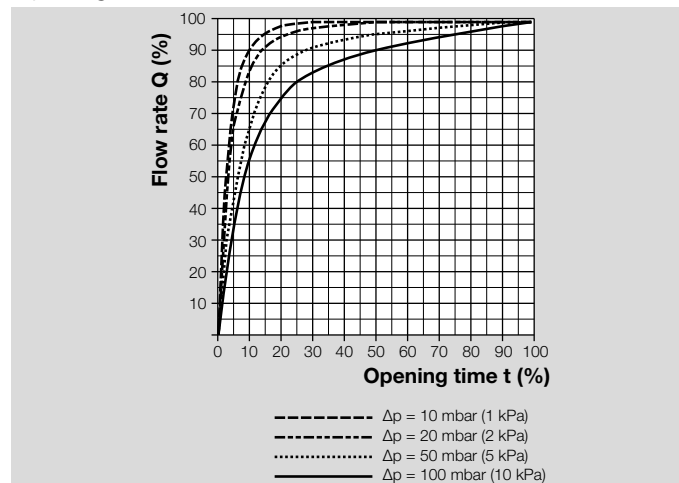
This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

8.2 Mechanical data

Gas types: natural gas, town gas, LPG (gaseous), biogas (max. 0.1 %-by-vol. H₂S), hydrogen, landfill gas or clean air; other gases on request.

The gas must be dry in all temperature conditions and must not contain condensate.

Opening time:



Nominal size	Opening time t VK	Opening time t VK..H
DN 40	5 s	-
DN 50–65	8 s	12 s
DN 80–100	10 s	18 s
DN 125–200	13 s	24 s
DN 250	-	24 s

Closing time: < 1 s.

Safety valve: Class A, Group 2 pursuant to EN 161.

Duty cycle: 100%.

Valve housing: aluminium, GGG 40 (coated inside and outside with epoxy powder coating).

Valve plate: Perbunan, Viton.

Motor actuator: AISi.

8 Technical data

Internal thread: Rp to ISO 7-1.

Flange: ISO 7005, PN 16.

Medium temperature = ambient temperature.

8.3 Electrical data

Mains voltage:

220/240 V AC, +10/-15%, 50 Hz (standard),

230 V AC, +10/-15%, 50 Hz,

230 V AC, +10/-15%, 60 Hz,

220 V AC, +10/-15%, 50 Hz, 24 V DC,

200 V AC, +10/-10%, 50/60 Hz,

120 V AC, +10/-15%, 60 Hz,

110 V AC, +10/-15%, 50/60 Hz,

100 V AC, +10/-15%, 50/60 Hz.

Power consumption:

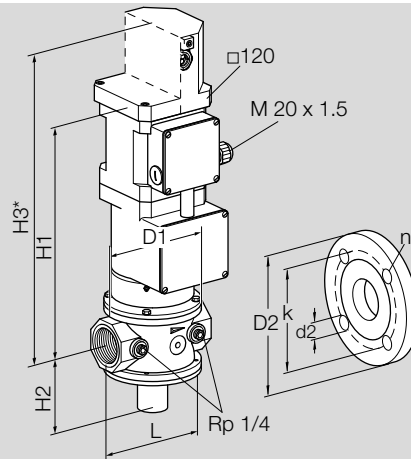
when opening: 90 VA, 50 W, open: 9 VA, 9 W.

Electrical connection:

- plug with socket to EN 175301-803,
- cable gland: M20,
- connection terminal: 2.5 mm².

8.4 Dimensions

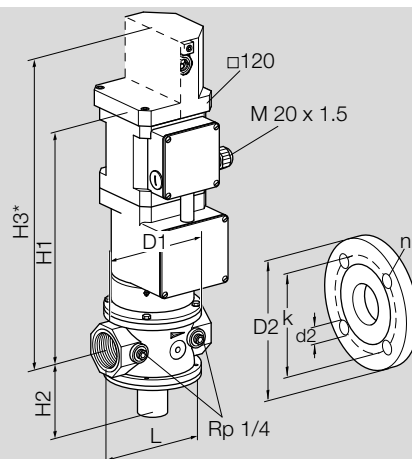
8.4.1 VK



Type	Dimensions											Drilling		p _u max.				Q		Weight*	
	Connection		L	H1	H2	H3	D1	D2	k	d2	n	AISI		GGG		Δp = 1 mbar Δp = 0,1 kPa	Al	GGG			
	DN	Rp	mm	mm	mm	mm	mm	mm	mm	mm	mm	mbar	kPa	mbar	kPa	m ³ /h air	kg	kg			
VK 40	-	Rp 1½	150	345	100	430	127	-	-	-	1000/4000	100/400	-	-	27,5	8	-				
VK 40	40	-	200	345	100	430	127	150	110	18	4	1000/4000	100/400	-	-	27,5	9	-			
VK 50	-	Rp 2	180	350	117	435	155	-	-	-	1000/4000	100/400	-	-	45,0	9	-				
VK 50	50	-	230	350	117	435	155	165	125	18	4	1000/4000	100/400	4000	400	45,0	11	20,5			
VK 65	-	Rp 2½	218	370	135	455	182	-	-	-	1000/3100	100/310	-	-	70,0	11	-				
VK 65	65	-	290	370	135	455	182	185	145	18	4	1000/3100	100/310	3100	310	70,0	13	26			
VK 80	80	-	310	378	137	463	210	200	160	18	8	1000/2400	100/240	2400	240	103,0	15	32			
VK 100	100	-	350	400	163	485	248	229	180	18	8	1000	100	1000	100	148,0	19	41,5			
VK 125	125	-	400	450	158	535	314	250	210	18	8	600	60	600	60	206,0	24	60			
VK 150	150	-	480	445	173	530	344	285	240	23	8	400	40	400	40	31	32	80			
VK 200	200	-	600	475	218	560	420	340	295	23	12	230	23	230	23	490,0	52	141			

* VK..X: + 1.5 kg

8.4.2 VK..H



Type	Dimensions										Drilling		p _u max., Class A				Q		Weight*	
	Connection	L	H1	H2	H3	D1	D2	k	d2	n	p _u max., Class A		Q		Weight*					
		DN	mm	mm	mm	mm	mm	mm	mm	mm		AlSi	GGG	Δp = 1 mbar Δp = 0,1 kPa	Al	GGG				
											mbar	kPa	mbar	kPa	m ³ /h air	kg	kg			
VK 50..H	50	230	414	117	499	155	165	125	18	4	-	-	8000	800	45,0	-	21			
VK 65..H	65	290	434	135	519	182	185	145	18	4	-	-	8000	800	70,0	-	27			
VK 80..H	80	310	442	137	527	210	200	160	18	8	-	-	6000	600	103,0	-	33			
VK 100..H	100	350	464	163	549	248	220	180	18	8	-	-	4000	400	148,0	-	43			
VK 125..H	125	400	514	158	599	314	250	210	18	8	1000	100	2000	200	206,0	25	61			
VK 150..H	150	480	509	173	594	344	285	240	23	8	1000	100	1500	150	310,0	33	81			
VK 150/100..H	150	480	509	173	-	344	285	240	23	8	-	-	4000	400	148,0	-	81			
VK 200..H	200	600	539	218	624	420	340	295	23	12	1000	100	1000	100	490,0	53	142			
VK 200/100..H	200	600	539	218	-	420	340	295	23	12	-	-	4000	400	148,0	-	142			
VK 250..H	250	730	573	270	658	496	405	355	27	12	500	50	-	-	590,0	80	-			

* VK..X: + 1.5 kg

9 Maintenance cycles

At least once a year, at least twice a year in the case of biologically produced methane.

For more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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