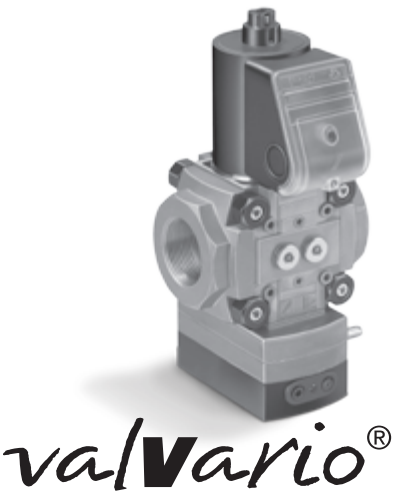
krom//schroder

CE

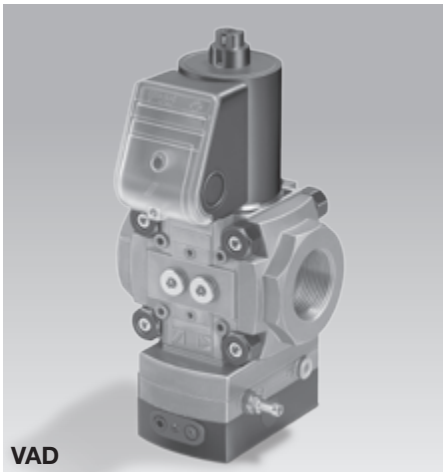


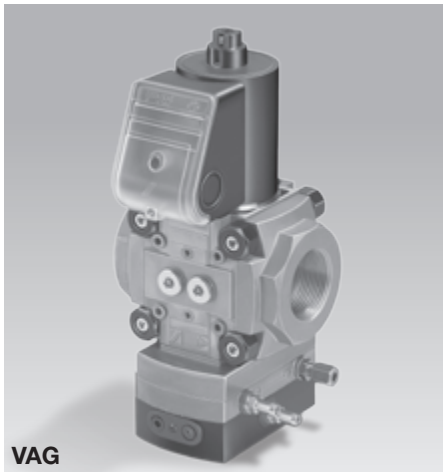
valVario®

Governor with solenoid valve VAD
Air/gas ratio control with solenoid valve VAG

- All-purpose servo-governor for gaseous media with integrated safety valve
- Suitable for a max. inlet pressure of 500 mbar
- Outlet pressure up to 100 mbar
- Suitable for intermittent operation
- Easy installation into a system
- Minimum installation effort: no external impulse line required
- Check indication by blue LED
- High control quality
- Precise setting options from two sides

3.1.0.4 Edition 09.04 GB


VAD


VAG

Easy-to-service measuring connections.
VAD: Gas outlet pressure p_G
VAG: Also air control pressure p_L

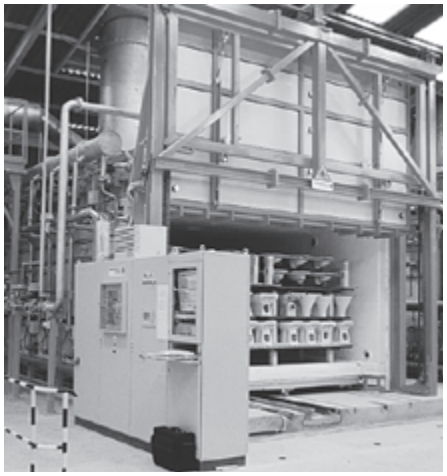
Application

Governor VAD and air/gas ratio control VAG incorporating servo technology for shut-off and precise control of the gas supply to gas burners and gas appliances. For use in gas control and safety systems in all sectors of the iron, steel, glass and ceramics industries, also in commercial heat generation, such as the packaging, paper and foodstuffs industries.

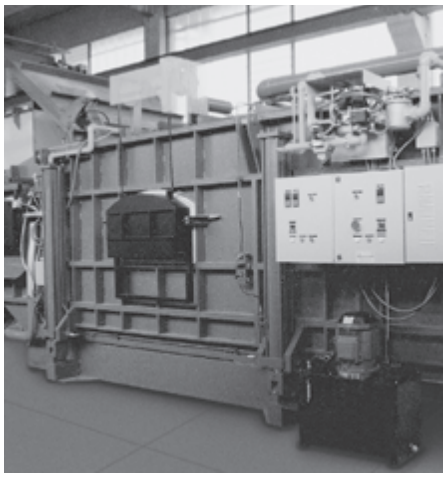
VAD: Constant governor, Class A, with high control accuracy, for excess air burners, atmospheric burners or single-stage force draught burners. Pressure preset via set-point spring.

VAG: Air/gas ratio control, Class A, for maintaining a constant air/gas pressure ratio for modulating-controlled burners or with VAS 1 bypass valve for step-by-step-controlled burners. Pressure preset by the air control line.

The VAG can also be used as a zero governor for gas engines.



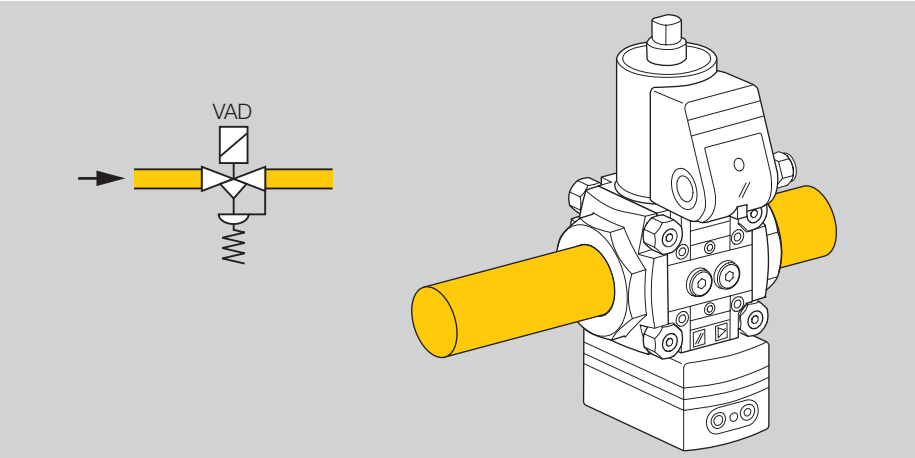
Governor on excess air burners in the ceramics industry



Air/gas ratio control on melting furnace for ensuring stoichiometric combustion over the entire capacity range

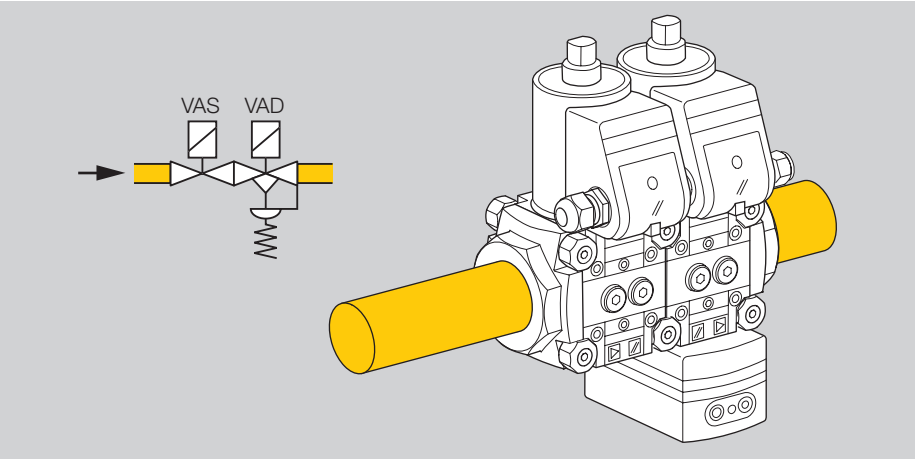
Aluminium age-hardening furnace with air/gas ratio controls for air deficiency cut-out

Application examples



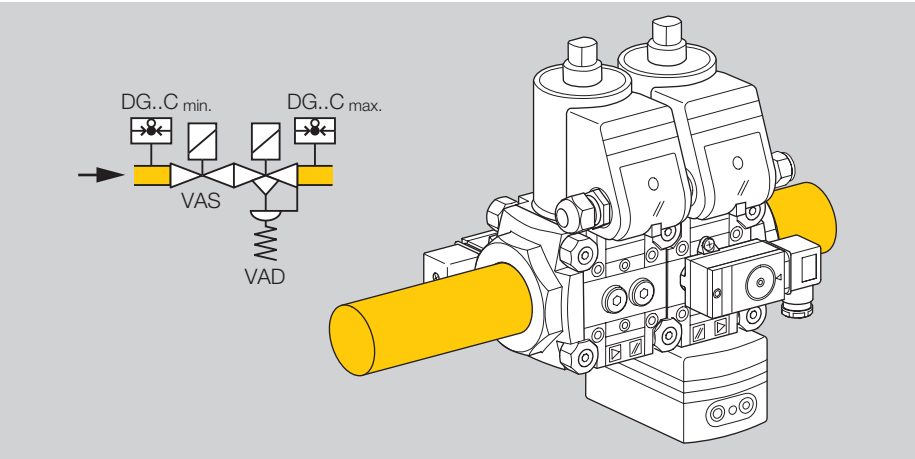
Constant pressure control

The governor with solenoid valve VAD maintains the set gas outlet pressure p_G constant when subject to differing flow rates. If a second solenoid valve is used upstream of the VAD, this complies with the requirements of EN 746-2 for two Class A valves connected in series.



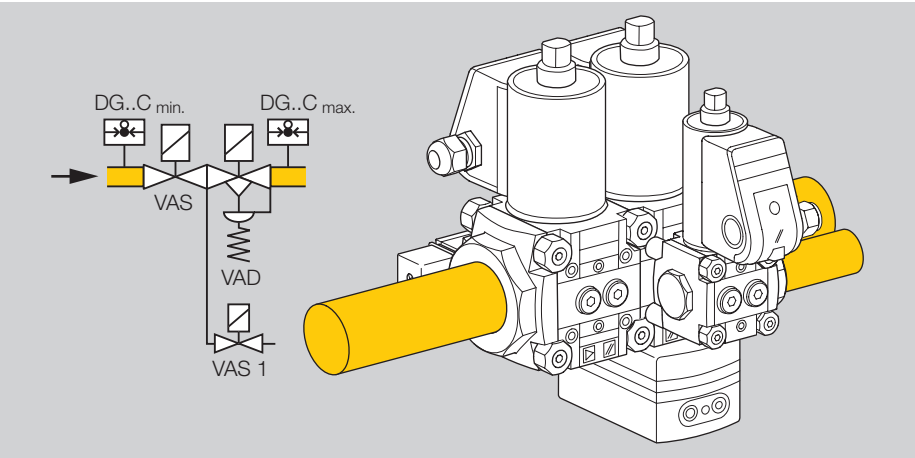
Constant pressure control with two solenoid valves

The governor with solenoid valve VAD maintains the set gas outlet pressure p_G constant when subject to differing flow rates. The gas line is two Class A shut-off valves connected in series, in accordance with the requirements of EN 746-2.



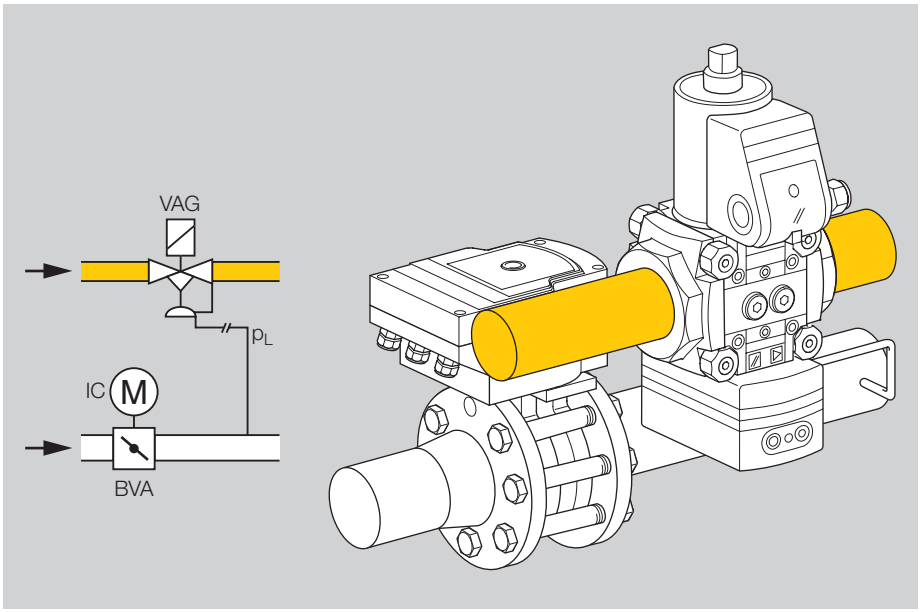
Constant pressure control with max. pressure switch

In this example, the minimum inlet pressure p_e and the maximum outlet pressure p_G are monitored with the pressure switches DG..C. The simple attachment of the pressure switch module makes installation easier.



Constant pressure control with non-controlled pilot gas outlet

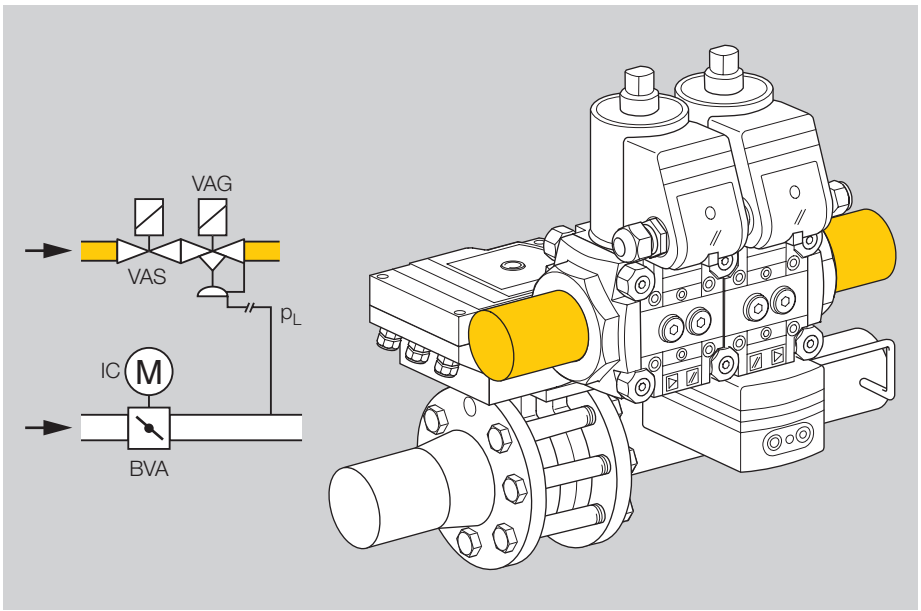
In this application, the pilot burner is supplied with a high inlet pressure via the pilot gas outlet. Here as well, the simple attachment of the bypass valve module makes installation easier. The minimum inlet pressure p_e and the maximum outlet pressure p_G are monitored with the pressure switches DG..C.



Modulating control

The gas outlet pressure p_G is controlled via the air/gas ratio control with solenoid valve VAG. The gas outlet pressure p_G follows the changing air control pressure p_L. The ratio of gas pressure to air pressure remains constant. The VAG is suitable for a control range up to 10:1.

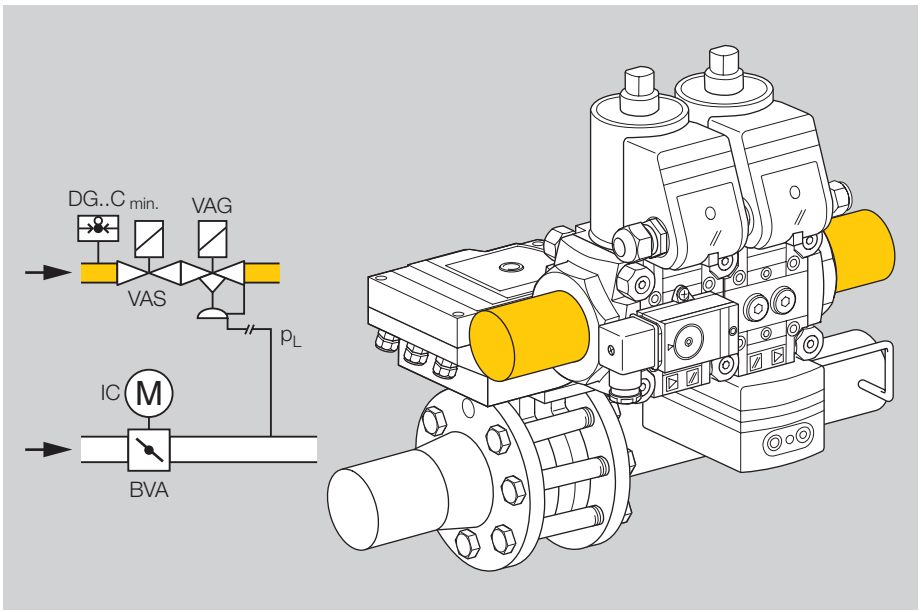
If a second solenoid valve is used upstream of the VAG, this complies with the requirements of EN 746-2 for two Class A valves connected in series.



Modulating control with two solenoid valves

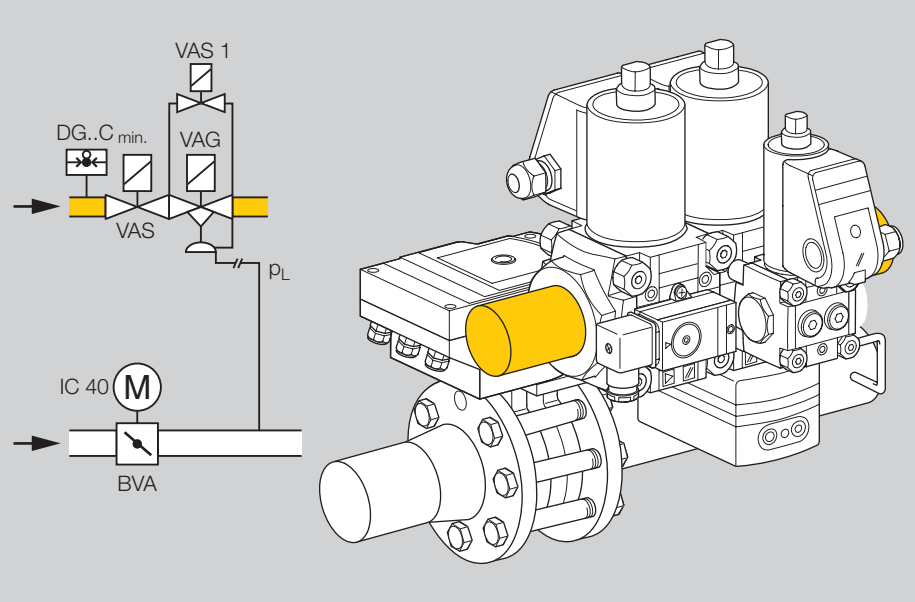
The gas outlet pressure p_G is controlled via the air/gas ratio control with solenoid valve VAG. The gas outlet pressure p_G follows the changing air control pressure p_L. The ratio of gas pressure to air pressure remains constant. The VAG is suitable for a control range up to 10:1.

The gas line is two Class A shut-off valves connected in series, in accordance with the requirements of EN 746-2.



Modulating control with two solenoid valves and inlet pressure switch

In this case, the minimum inlet pressure p_e is monitored by the pressure switch DG..C. The simple attachment of the pressure switch module makes installation easier.



High/Low control

At high fire, the gas outlet pressure p_G follows the air control pressure p_L. The ratio of gas pressure to air pressure remains constant. Low fire is determined via the bypass valve. Here as well, the simple attachment of the bypass valve module makes installation easier.

Replacement possibility for MODULINE governors with solenoid valve

GVS, GVI and GVIB are to be replaced by VAD, VAG and VAG+VAS

GVS		Governor with solenoid valve	Governor with solenoid valve			VAD
GVI		Air/gas ratio control with solenoid valve	Air/gas ratio control with solenoid valve			VAG
GVIB		Air/gas ratio control with solenoid valve and bypass valve	Air/gas ratio control with solenoid valve and bypass valve			VAG+VAS
	⅜	Size 1, DN 15 or 25, Rp ⅜	on request			
115	½	Size 1, DN 15 or 25, Rp ½	Size 1	DN 15		115
125	¾	Size 1, DN 15 or 25, Rp ¾	Size 1	DN 20		120
	1	Size 1, DN 15 or 25, Rp 1	Size 1	DN 25		125
232	1	Size 2, DN 32 or 40, Rp 1				
240	1½	Size 2, DN 32 or 40, Rp 1½	Size 2	DN 40		240
350	1½	Size 3, DN 50, Rp 1½				
	2	Size 3, DN 50, Rp 2	Size 3	DN 50		350
ML		MODULINE + connection flanges Rp internal thread	Rp internal thread			R
01		Max. inlet pressure $p_{e\ max.}$: 100 mbar	Max. inlet pressure $p_{e\ max.}$:		500 mbar	●
02		200 mbar			500 mbar	●
●		Quick opening	Quick opening			/N
K		Mains voltage: 24 V DC	Mains voltage:	24 V DC		K
Q		120 V AC		120 V AC		Q
T		220/240 V AC		230 V AC		W
3		Electrical connection via terminals	Electrical connection via terminals			●
6		Electrical connection with socket	Electrical connection with socket			○
S		Position indicator	on request			
G		Position indicator with gold contacts	on request			
M		Suitable for biologically produced methane	Suitable for biologically produced methane			●
●		Pressure test point at the inlet	Pressure test point at the inlet and outlet*			○
			Outlet pressure p_G:	2.5–25 mbar		-25
●		Outlet pressure p_G: 2–90 mbar		5–50 mbar		-50
				10–100 mbar		-100
			Standard seat			A

Example

GVS 115ML01T3
with Rp 1 connection flanges

Example

VAD 125R/NW-100A
with test points

●standard, ○ available

* Pressure test points may be attached at the left and/or right-hand side.

Selection

VAD: Governor with solenoid valve

VAG: Air/gas ratio control with solenoid valve

	–	15	20	25	40	50	/15	/20	/25	/40	/50	R	/N	K	Q	W								-25	-50	-100	A	B	K	E										
VAD 1	●	●	●	●			●	●	●			●	●	●	●	●	●	○	○	●	○	○	●	○	○	●	●	●	●	●			●	○	○	○	○	●	○	○	○	○
VAD 2	●				●					●		●	●	●	●	●	●	○	○	●	○	○	●	○	○	●	●	●	●				●	○	○	○	○	●	○	○	○	○
VAD 3	●					●					●	●	●	●	●	●	●	○	○	●	○	○	●	○	○	●	●	●	●				●	○	○	○	○	●	○	○	○	○
VAG 1	●	●	●	●			●	●	●			●	●	●	●	●	●	○	○	●	○	○	●	○	○				●	●	●	●	●	○	○	○	○	●	○	○	○	○
VAG 2	●									●		●	●	●	●	●	●	○	○	●	○	○	●	○	○				●			●	●	●	○	○	○	○	●	○	○	○	○
VAG 3	●					●					●	●	●	●	●	●	●	○	○	●	○	○	●	○	○				●			●	●	●	○	○	○	○	●	○	○	○	○

Inlet flange nominal size
– = no inlet flange

Outlet flange nominal size
Specification may be omitted if outlet = inlet

Rp internal thread = R

Quick opening, quick closing = /N

Mains voltage:
24 V DC = K
120 V AC; 50/60 Hz = Q
230 V AC; 50/60 Hz = W

Electrical connection:
M20 cable gland
Plug with socket
Plug without socket

Attached to the left side of the connection box:
Not fitted
Plug for valve
Plug for position indicator

Attached to the right side of the connection box:
Not fitted
Plug for valve
Plug for position indicator

Max. outlet pressure $p_{G\,max.}$ for VAD:
2.5 to 25 mbar = -25
5.0 to 50 mbar = -50
10 to100 mbar = -100

Standard valve seat = A
Reduced valve seat = B

Connection kit VAG for air control pressure p_L:
1 plastic hose coupling, 2 screw plugs = K
1 compression fitting, 2 test points p_G and p_L = E

Accessories attached at the right-hand side:
2 screw plugs
2 test points p_e and p_G
Gas pressure switch DG..C (see table) at the inlet
Gas pressure switch DG..C (see table) at the outlet
Bypass valve VAS 1

Accessories attached at the left-hand side:
2 screw plugs
2 test points p_e and p_G
Gas pressure switch DG..C (see table) at the inlet
Gas pressure switch DG..C (see table) at the outlet
Bypass valve VAS 1

● = standard
○ = available

Order example

VAG 125R/NWAK
Electrical connection via M20 cable gland, not fitted,
2 screw plugs attached at the right-hand side
2 test points attached at the left-hand side

Pressure switch for gas DG..C

Type	Adjusting range [mbar]
DG 17/VC	2 – 17
DG 40/VC	5 – 40
DG 110/VC	30 – 110
DG 300/VC	100 – 300

Technical data

Types of gas: Natural gas, town gas, LPG (gaseous), biologically produced methane (max. 0.1 %-by-vol. H_2S); other gases on request.

Inlet pressure range p_e: 10–500 mbar.

Opening time of the solenoid valve:
Quick opening: ≤0.5 s.
Closing time: Quick closing: <1 s.

Ambient temperature: -20–60°C, no condensation permitted.

Class A safety valve pursuant to EN 161.

Control class A to EN 88.

Control range: up to 10:1.

Mains voltage:
230 V AC, +10/-15%, 50/60 Hz;
120 V AC, +10/-15%, 50/60 Hz;
24 V DC, +20/-20%.

Power consumption:

Type	24 V DC [W]	120 V AC [W]	230 V AC [W]
VAD/VAG 1	29	30	30
VAD/VAG 2	46	54	53
VAD/VAG 3	53	55	63

Enclosure: IP 65.

Duty cycle: 100%.

Flow rate:

Type	V̇ at Δp = 10 mbar air in m^3/h
VAD, VAG 115..B	10
VAD, VAG 125..A	28
VAD, VAG 240..A	66
VAD, VAG 350..A	120

VAD

Outlet pressure p_G: 2.5–25 mbar,
5.0–50 mbar,
10–100 mbar.

VAG

Outlet pressure p_G: 0.5–100 mbar.

Adjusting range at min. flow: ±5 mbar.

Transmission ratio of gas to air: 1:1.
The inlet pressure must always be higher than the air control pressure.

Connection of the air control pressure p_L:
1 1/8" coupling for plastic hose (internal dia. 3.9, external dia. 6.1) or
1 compression fitting for tube 6x1.

Maintenance cycles

Once per year,
twice per year in the case of biologically produced methane.

Certification

EC type-tested and certified pursuant to

- Gas Appliances Directive (90/396/EEC) in conjunction with EN 161, EN 88 and EN 126,
- Machinery Directive (89/392/EEC),
- Low Voltage Directive (73/23/EEC) in conjunction with the relevant standards,
- EMC Directive (89/336/EEC) in conjunction with EN 55014.

FM, UL and CSA approval in preparation.

CE

Detailed information on this product

www.valvario.com

Contact www.kromschroeder.com➔ nformation➔ ontacts

We reserve the right to make technical modifications in the interests of progress.

Kromschröder uses environment-friendly production methods. Please send away for our Environment Report.

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