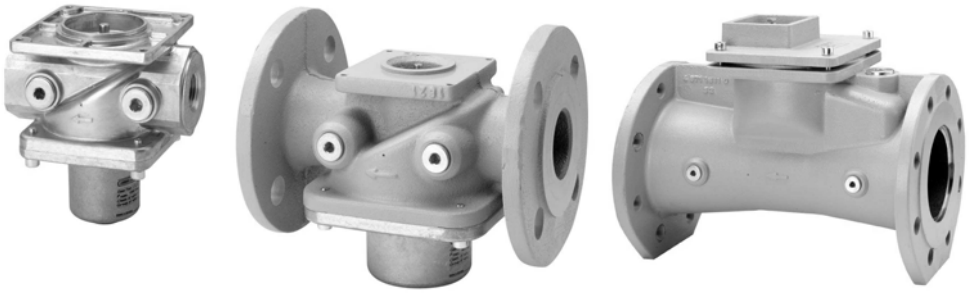
SIEMENS

7636



VGG... VGF... VGH...

Gas Valves

VGG...
VGF...
VGH...

- **Single valves of class A for installation in gas trains**
- **Safety shutoff valves conforming to EN161 in connection with actuators**
- **Suitable for use with gases of gas families I...III**
- **Gas valves in connection with actuators open slowly and close rapidly**
- **2-port valves of the normally closed type**
- **½"... DN125**
- **The gas valves are used in combination with the SKP… / SKL… actuators**
- **As a control valve in connection with SQX... actuators and AGA60 adapter (not as a safety shutoff valve)**
- **Supplementary Data Sheets on actuators (refer to «Mechanical design»)**

The VG... and this Data Sheet are intended for use by OEMs which integrate the gas valves in their products!

Use

The gas valves are used primarily
- for application at gas-fired combustion plant
- for gas trains at forced draft burners

The gas valve is used as:
- Shutoff valve (in combination with SKP1...)
- Control valve with shutoff feature (in combination with SKP2..., SKP5… or SKP7…)
- As shutoff or control valves in the supply air line of industrial combustion plant with or without heat recovery system

If the gas valves are used with gases other than those of gas families I...III, Siemens assumes no responsibility for the valve's durability and life expectancy.

All types of gas valves can be combined with any of these actuators.

Warning notes

To avoid inquiry to persons, damage to property or the environment, the following warning notes must be observed!

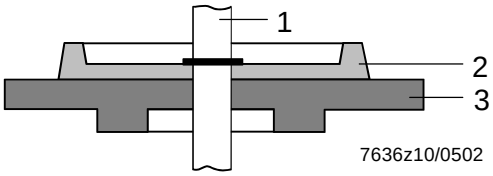
- Do not open, interfere with or modify the gas valves except when installing the service replacement kit
- Any opening of the gas valve, replacement of parts or modifications to the original product is the user's responsibility and carried out at his own risk
- All activities (mounting, installation and service work, etc.) must be performed by qualified staff
- When used in connection with gas, the gas valves constitute part of the safety equipment
- In combination with SQX... or SKL... actuators, the gas valves must **not** be used as safety devices
- Fall or shock can adversely affect the safety functions. Such gas valves must not be put into operation, even if they do not exhibit any damage
- Not suitable gases or gas components causes loss of the safety shutoff function
- It may not join contaminant / particles in the valve, because that could adversely affect the safety shutoff function

Engineering notes

Profile
(only for VGG... / VGF...)

Owing to the profile of valve disc, the gas valves are especially suited for control functions.

Benefit:
Good control performance and hardly prone to hunting in low-fire operation.



Legend

1 Stem
2 Profile
3 Valve disc

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- The actuator can be mounted or replaced while the gas valve is under pressure
- Refer also to the following Mounting Instructions

AGA66	M7643.2	74 319 0421 0
VGF	M7636 / M7631	431920720
VGFDN40...80	M7636.1/M7633	431920500
VGG	M7636 / M7631	431920720
VGG1/2"...3"	M7636.1/M7633	431920500
VGH	M7636 / M7631	431920720
VGx10.654	M7636.2	431923450
VGx10.804	M7636.2	431923450

Sealing / tightness

- Check to ensure that the gas valve is tight when all components are connected
- Check to ensure that the gaskets between the flanges and the gas valve must be fitted

Mounting position

The permissible mounting positions of the actuator must be observed, however (refer to the relevant Data Sheet).

Direction of flow

The direction of gas flow must be in accordance with the direction of the arrow on the valve body.

Function

The inactive gas valve is closed and opens when the actuator opens.

Only VGG...:

- Check to ensure that cuttings not falling into the gas valve when mounting the connecting pipes. As the case arises, the gas valve can be opened and cleaned from below (spring dome)

Only VGD20…

- To prevent cuttings from falling into the gas valve, first mount the flanges on the pipes and then clean the parts

Only VGF.../VGH...

- Check to make certain that the bolts of the flanges are properly tightened and afterwards check to ensure that the gas valve is tight when all components are connected

Standards and certificates

Conformity to EEC directives

- Electromagnetic compatibility EMC (immunity)	2004/108/EC
- Directive for gas appliances	90/396/EEC
- Directive for pressure devices	97/23/EC

ISO 9001: 2000
Cert. 00739

ISO 14001: 2004
Cert. 38233

For use in the U.S. / Canada, the gas valves carry type suffix «U» (see example) and , and listed.

Example: VGG10.204**U**

Approvals in combination with actuator

Type reference			
VGG10.154P	X	X	---
VGG10.204P	X	X	X
VGG10.254P	X	X	X
VGG10.404P	X	X	X
VGG10.504P	X	X	X
VGG10.804P	X	X	X
VGG10.1541P	X	X	---
VGG10.2041P	X	X	---
VGG10.2541P	X	X	---
VGG10.4041P	X	X	---
VGG10.5041P	X	X	---
VGG10.204	X	X	---
VGG10.254	X	X	---
VGG10.404	X	X	---
VGG10.504	X	X	---
VGF10.404P	X	X	---
VGF10.504P	X	X	---
VGF10.654P	X	X	X
VGF10.804P	X	X	X
VGF10.5041P	X	X	---
VGF10.6541P	X	X	---
VGF10.8041P	X	X	---
VGF10.404	X	X	---
VGF10.504	X	X	---
VGF10.654	X	X	---
VGF10.804	X	X	---
VGH10.18050	X	X	X
VGH10.19050	X	X	X
VGH10.19150	X	X	X

Service notes

- Each time a gas valve has been replaced, check to ensure that the gas valve operates correctly and that it is tight both internally and externally
- Siemens gas valves may **only** be repaired by Siemens HVAC Repair Centers
- VGH... gas valves are supplied without strainer. Fit a gas filter upstream of the gas valve or an AGA... strainer (refer to «Accessories») by the gas inlet

Life cycle

The combination gas valve VG... and actuator have a designed lifetime* of 100,000 burner startup cycles which, under use of gases to EN437 (or DVGW specification G260). This lifetime is based on the endurance tests specified in standard EN161 and the table containing the relevant test documentation as published by the European Association of Component Manufacturers (Afecor) (www.afecor.org).

The designed lifetime is based on use of the gas valve VG... and actuator according to the manufacturer's Data Sheet. After reaching the designed lifetime in terms of the number of burner startup cycles, or the respective time of usage, the gas valve VG... and actuator are to be replaced by authorized personnel.

* The designed lifetime is not the warranty time specified in the Terms of Delivery

Disposal notes

Local and currently valid legislation must be observed.

Mechanical design

VGG... / VGF...

The gas valves are dead closed in combination with actuator.

Stem

The stem is guided on both sides of the valve disc, ensuring precise axial stroke and tight shutoff.

Strainer

A strainer made of stainless steel is fitted in the gas valve's inlet and protects the gas valve, the seat and disc as well as downstream devices against dirt.

Valve seat

For use with profile, the gas valves carry type suffix «P» (see example)

Example: VGG10.154**P**

VGH...

Strainer

A strainer type AGA... is available as an accessory item (refer to «Accessories»). The gas valves are supplied **without** strainer (refer to «Engineering notes»). They are of the normally closed one-way high-flow type.

Valve seat

The swiveling disc of gas valve has no profile.

Actuators

The gas valves can be combined with the following types of actuators:

Type reference	Data Sheet	Function
SKP15...	N7643	ON / OFF
SKP25...	N7643	ON / OFF with constant pressure control
SKP25.7... with SQS37...	N7643	ON / OFF with pressure control and via electric signal alterable setpoint setting
SKP55...	N7643	ON / OFF with differential pressure control, signal input → differential pressure
SKP75...	N7643	ON / OFF with ratio control, signal input → static pressure
SKL25... (only for air)	N7643	ON / OFF with constant pressure control, slow closing 4...6 s, no function of safety shutoff
SQX... with AGA60	N4554	Steady position control, no function of safety shutoff

Type summary (other types of gas valves on request)

Nominal size	Material	Perm. operating pressure in mbar		Air flow rate at Δp = 1 mbar / m³ / h	Number of connections		Type reference			
							With profile		Without profile	
		Europe (to EN)	Other countries		Test point RP ¼ 3)	Pilot gas G ¾ 4)	Without stroke limitation	With stroke limitation 1)	Without stroke limitation	With stroke limitation 1)
Internally threaded to ISO 7/1										
½“	Die-cast al.	1200	1200	4.8	4	---	VGG10.154P	VGG10.1541P	---	---
¾“	Die-cast al.	1200	1200 (1400)*	8.9	4	---	VGG10.204P	VGG10.2041P	VGG10.204	---
1“	Die-cast al.	1200	1200 (1400)*	13.3	4	---	VGG10.254P	VGG10.2541P	VGG10.254	---
1 ½“	Die-cast al.	600	600 (1400)*	32.3	4	---	VGG10.404P	VGG10.4041P	VGG10.404	**---**
2“	Die-cast al.	600	600 (1400)*	47.4	4	---	VGG10.504P	VGG10.5041P	VGG10.504	**---**
3“	Cast iron	600	600 (700)*	85.4	2	2	VGG10.804P	**---**	---	**---**
* Only for use in Australia										
With flange, PN16, to ISO 7005										
DN40	Cast iron	600	600	32.3	4	---	VGF10.404P	**---**	VGF10.404	**---**
DN50	Cast iron	600	600	47.4	4	---	VGF10.504P	VGF10.5041P	VGF10.504	**---**
DN65	Cast iron	600	600 (700)*	74	2	2	VGF10.654P	VGF10.6541P	VGF10.654	**---**
DN80	Cast iron	600	600 (700)*	85.4	2	2	VGF10.804P	VGF10.8041P	VGF10.804	**---**
* Only for use in Australia										
Flap type gas valves: High-flow with swing type disc. Great closing force. Version without strainer, to DIN, only for use on plant with gas strainer. **We recommend to install a strainer (refer to «Accessories» AGA80, AGA90 or AGA91!** These gas valves may only be revised by Siemens Repair Centers										
DN80	Cast iron	300	600 (700)*	128.4	4	1	---	---	VGH10.18050	---
DN100	Cast iron	300	400 (700)*	199.5	4	1	---	---	VGH10.19050	---
DN125 5)	Cast iron	250	250 (500)*	277.6	4	1	---	---	VGH10.19150	---
* Only for use in Australia with SKPxx.xxxFxx (must be checked by application side)										

Legend (also refer to «Dimensions»)

1) Cannot be used with attached pressure governor
2) Flow rate reduced by 20 %
3) On inlet and outlet side
4) Inlet side, VGF... with one connection on each side
5) Only for SKPx5.xxxFxx

Ordering

When ordering, please give the complete gas valve type reference.

Actuator and gas valve are supplied as single packs.

Example:
1 piece VGF10.654P flanged valve DN65
1 piece actuator

Manual adjuster **AGA61**

Adapter for SQX... actuators **AGA60**
Consisting of 2 stem parts and a connecting flange

Gasket kit to SKP... / SKL25... **AGA66**
- Between actuator SKP… / SKL25… and gas valve VG…
- For increasing of degree of protection from IP54 up to IP65
- Refer to Mounting Instruction M7643.2 (74 319 0421 0)

Only VGG10.154…, VGG10.204…, VGG10.254…, VGG10.404…:
When used in connection with AGA66, the maximum flow rates are reduced by about 25 %.

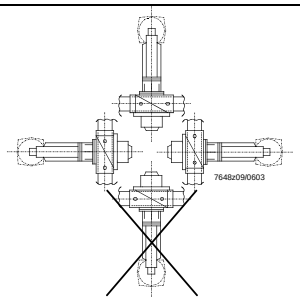
VGH...
Strainer

With circlip and 1 mm mesh size.

Type reference of gas valve	Type reference of strainer
VGH10.18050 / DN80	AGA80
VGH10.19050 / DN100	AGA90
VGH10.19150 / DN125	AGA91

The strainers can be fitted in the flange sections of the gas valves, either on the gas inlet or gas outlet side.

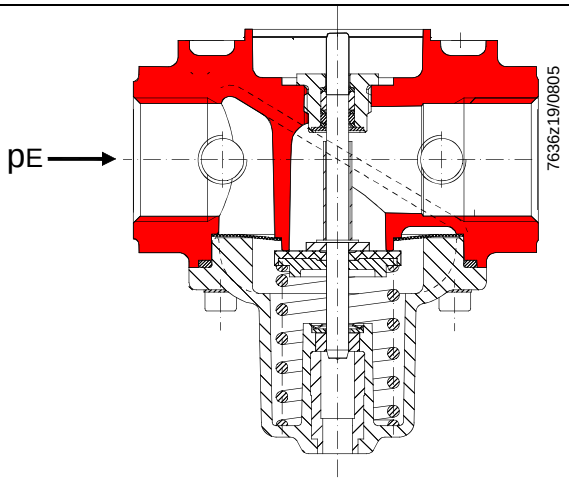
Technical data

General unit data	Valve class in connection with actuator	A conforming to EN161 (except with SQX... / SKL...)
	Group	2 (EN161)
	Perm. medium temperature	0...60 °C
	Weight	Refer to «Dimensions»
	Connecting flanges (VGF..., VGH...)	PN16 to ISO 7005-2
	Required flow rate	Refer to «Flow chart»
	Perm. mounting position	 (refer to «Mounting notes»)
	Operating pressure	Refer to «Type summary»
	Types of gases	Refer to «Use»
	Strainer (only for VGG... / VGF...)	Built-in, mesh size 0.9 mm

Environmental conditions	**Storage**	DIN EN 60721-3-1
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Transport	DIN EN 60721-3-2
	Climatic conditions	Class 2K3
	Mechanical conditions	Class 2M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Operation	DIN EN 60721-3-3
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M3
	Temperature range	-10...+60 °C
	Humidity	<95 % r.h.

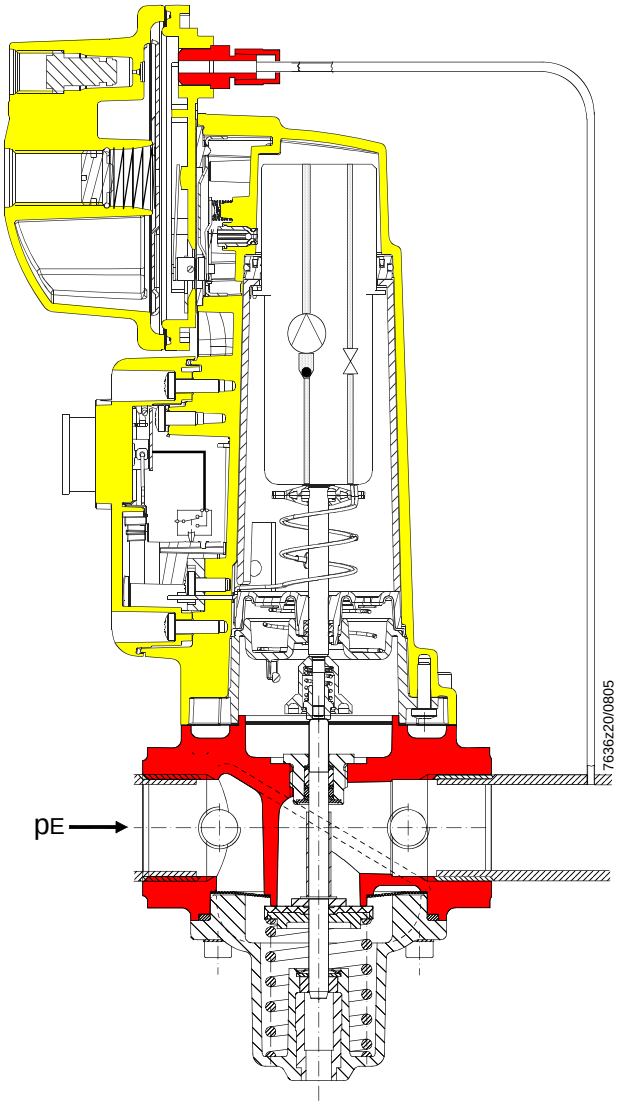
Function

Sectional view of
VGG...

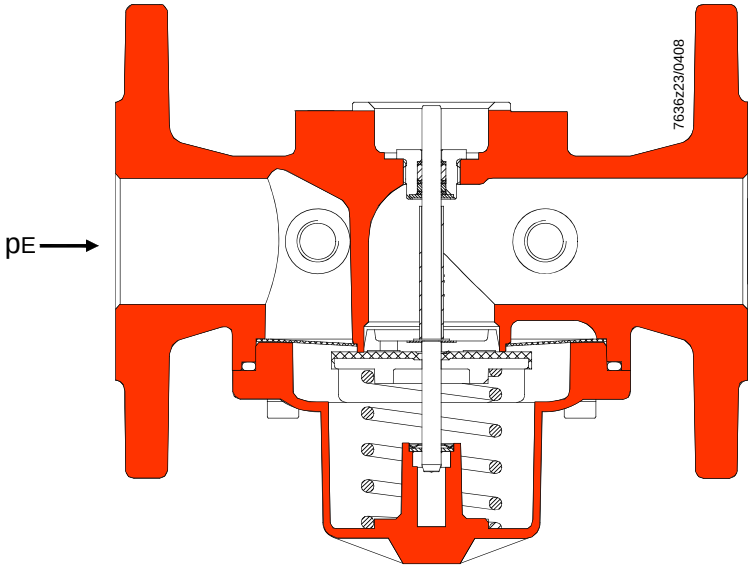


Application example
VGG... complete with SKP25...

Sectional view
VGG... complete with SKP25...

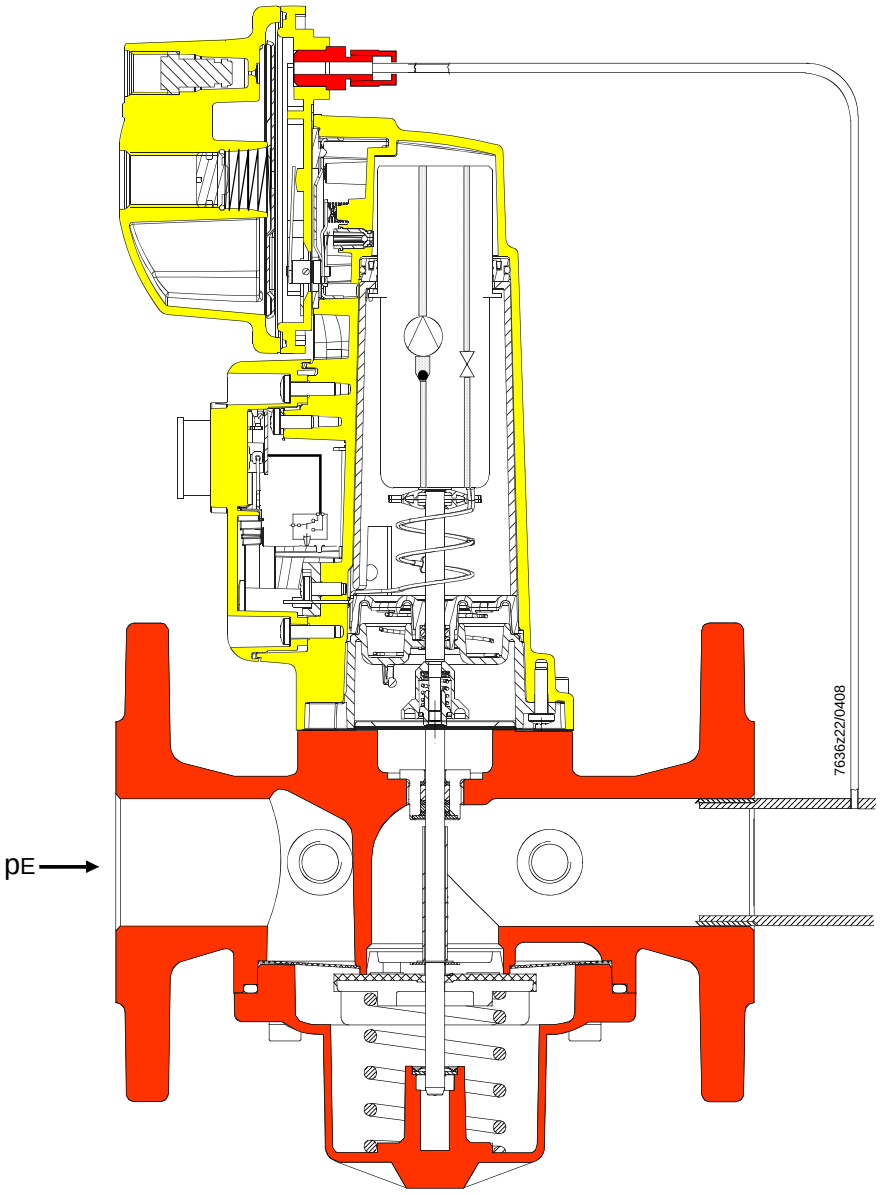


Sectional view of **VGF...**

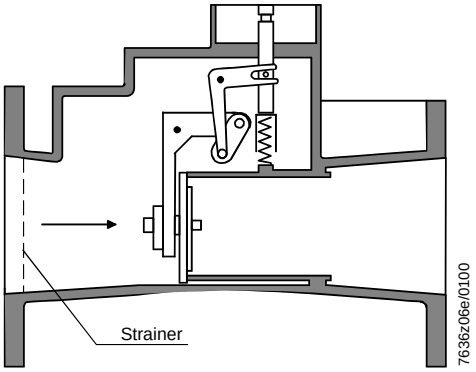


Application example
VGF... complete with SKP25...

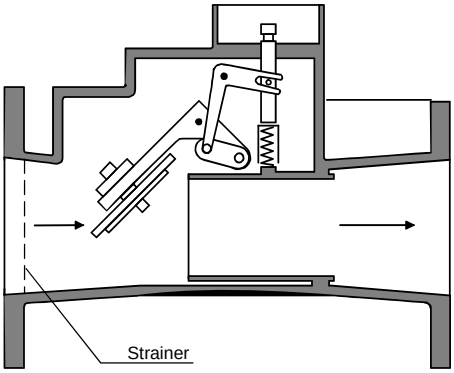
Sectional view
VGF... complete with SKP25...



Sectional view of
VGH...



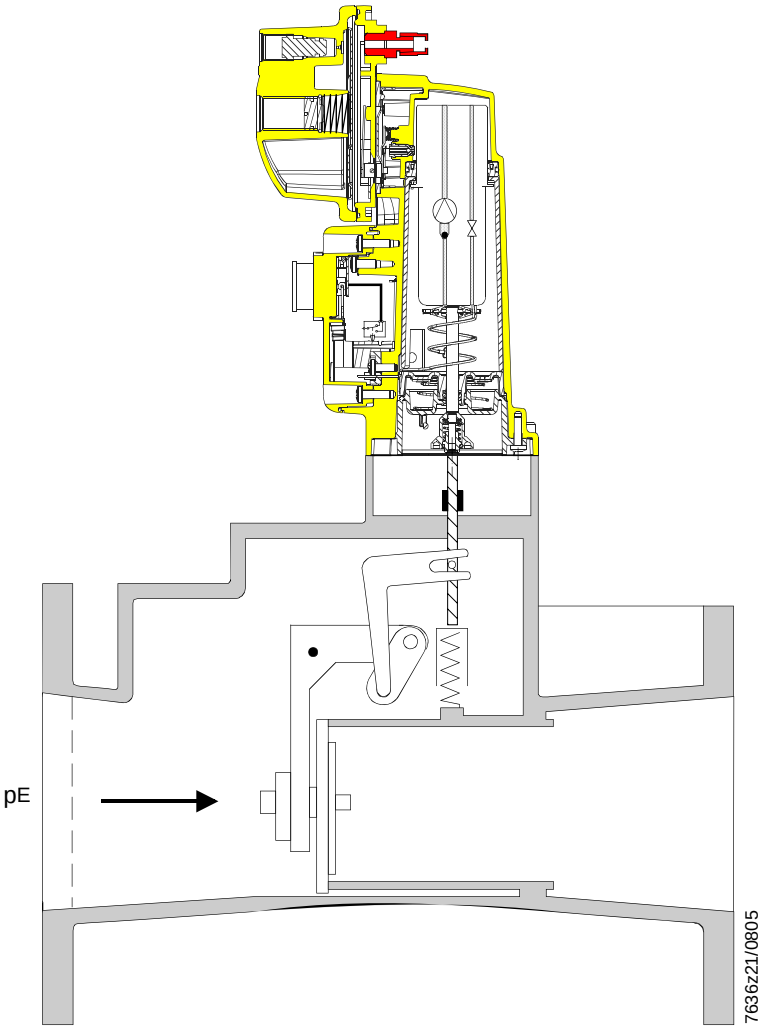
Fully closed



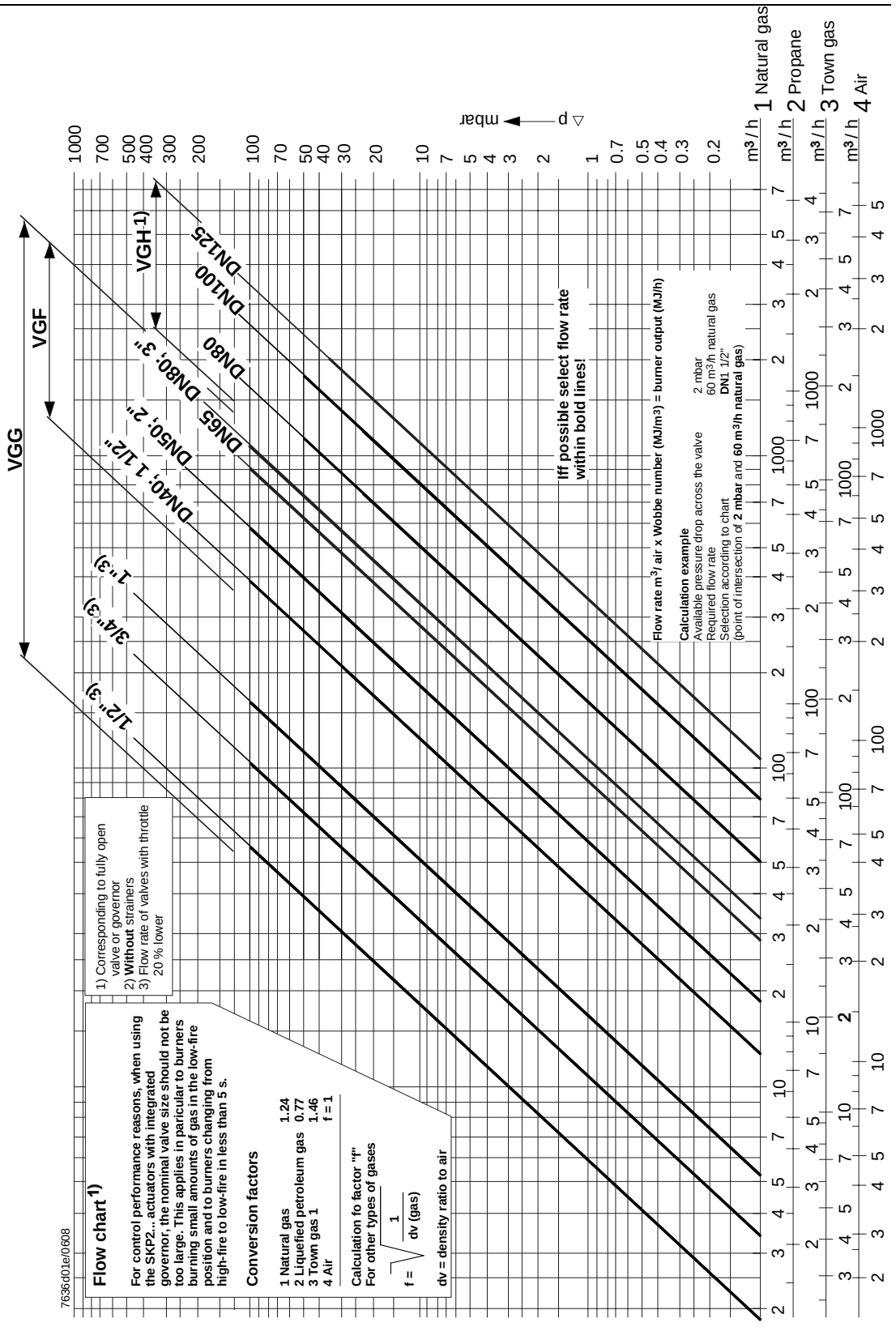
Fully open

Application example
VGH... complete with SKP25...

Sectional view
VGH... complete with SKP25...



Flow chart for VG... (For fully open gas valves only)



Legend —— Maximum flow rate (gas valve fully open)

1) The valve curves shown represent gas valves with no strainer. Each strainer reduces the flow rate by about 8 %

The bold curves represent the recommended pressure drop ranges. Gas valves with higher pressure drops can cause excessive flow noise. Practical experience shows that applications outside the range confined by the bold characteristics could produce significant noise

Note:

- In the case of burners with low-fire flow rates, select a tightly sized gas valve (refer to the Data Sheet of the relevant actuator)
- If the available gas pressure exceeds the maximum permissible operating pressure, use an upstream pressure controller to lower it
- The pressure drop (curves of maximum flow) is based on a fully open gas valve

Conversion of air flow rate to a corresponding gas flow rate (natural gas):

Basis for scale

Abscissa	**Volumetric flow «QG» in m³/h**	**Density ratio «dv» to air**	**Conversion factor** $f = \sqrt{\frac{1}{dv}}$
1	Air	1	1
2	Natural gas	0.61	1.28
3	Propane	1.562	0.8
4	Town gas	0.46	1.47

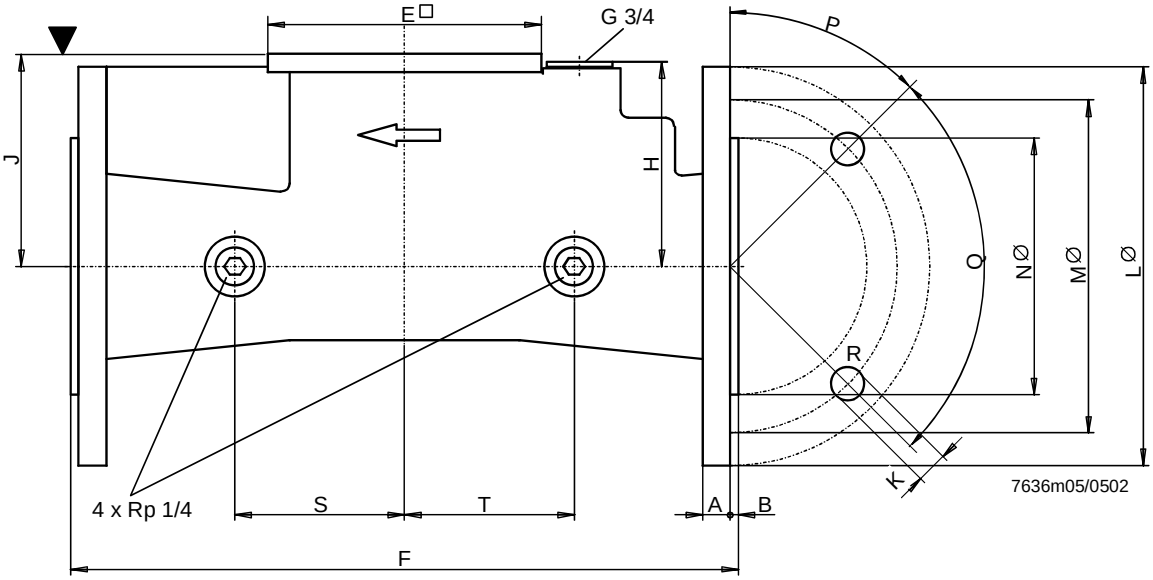
Conversion to air (m³ / h) from other types of gases: $QL = \frac{QG}{f}$ QL = air volume in m³ / h that produces the same pressure drop as «QG»

When used in connection with actuators having an integrated governor, the nominal valve size should not be selected too large to ensure good control performance.

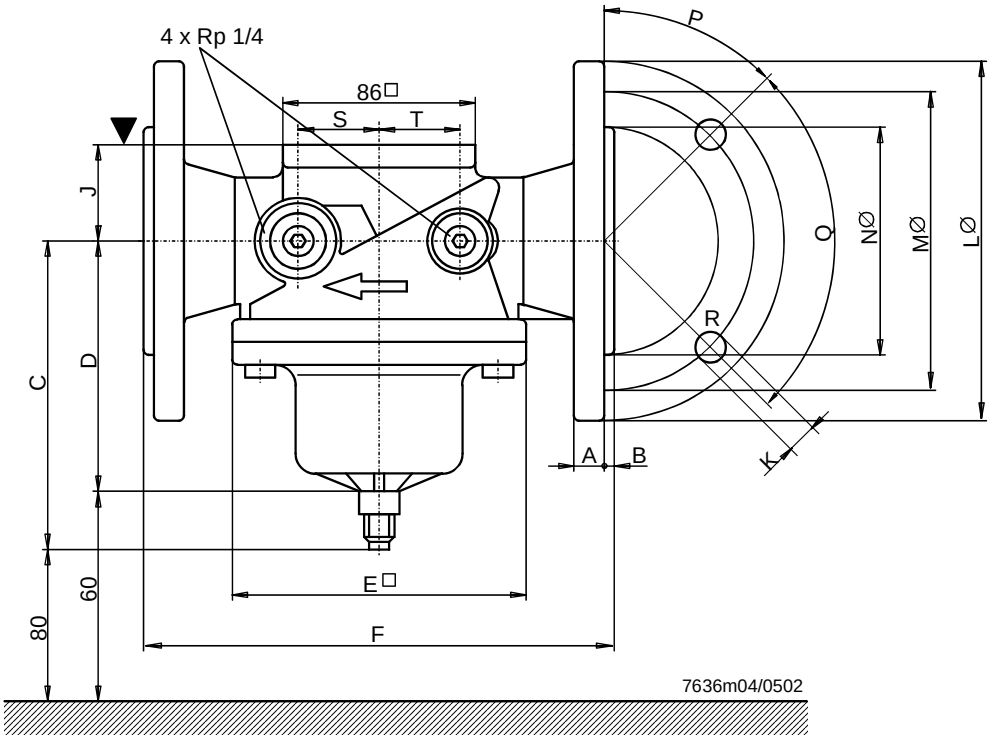
Dimensions

Dimensions in mm

VGH... / DN80...125

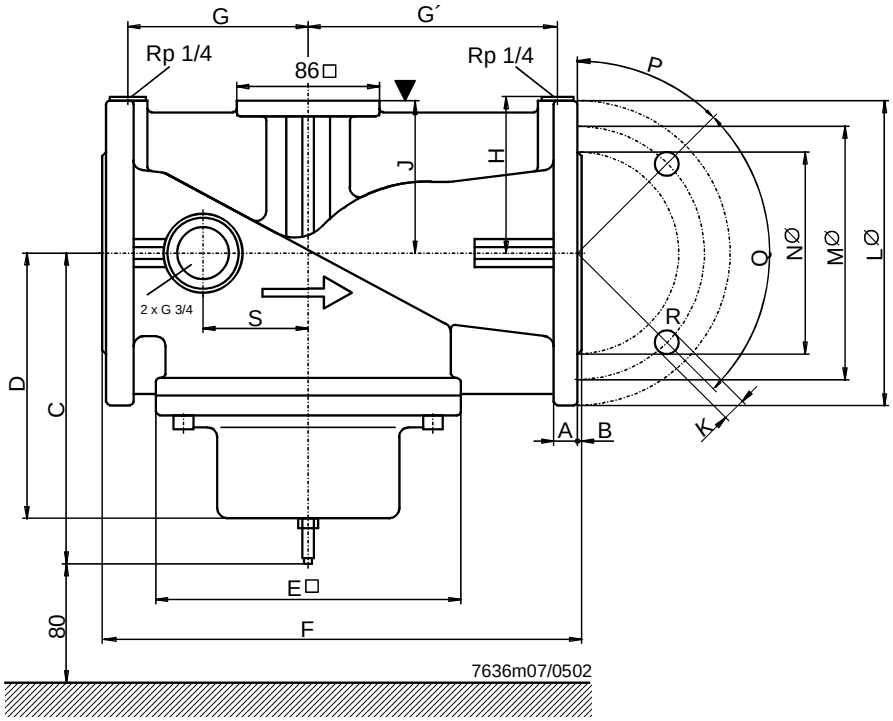


VGF... / DN 40...50

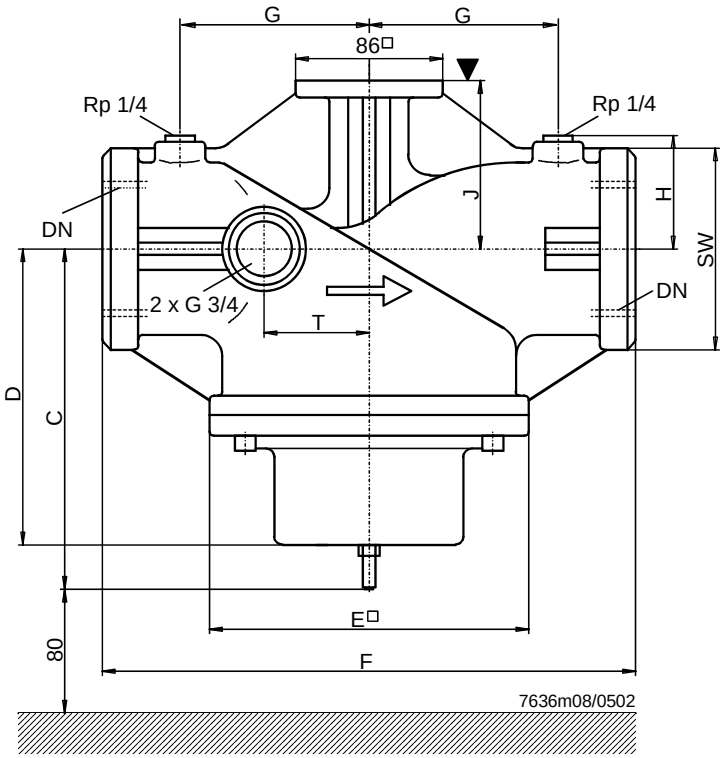


Dimensions in mm

VGF... / DN 65...80

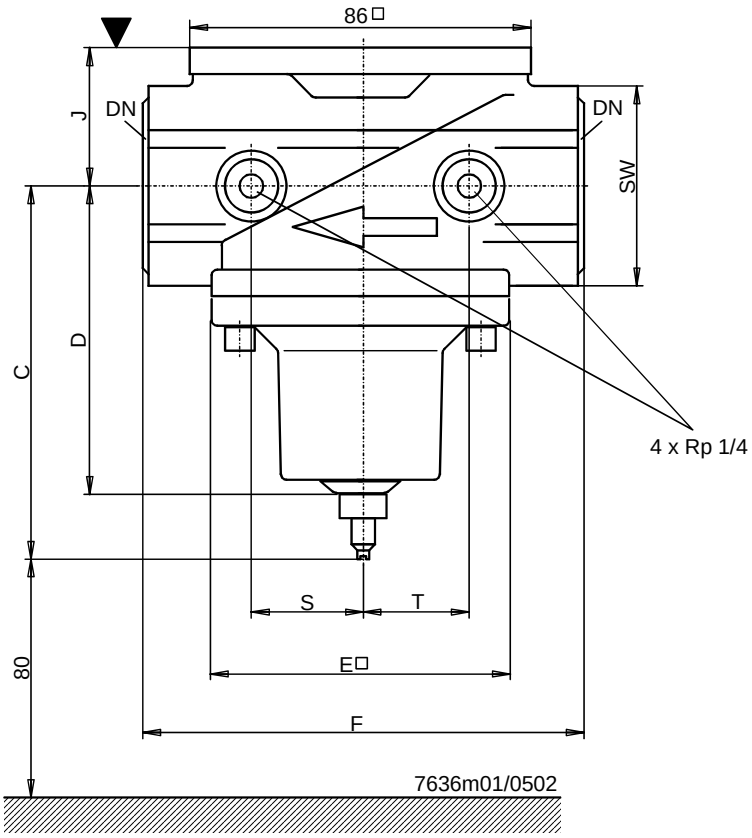


VGG… / 3“



Dimensions in mm

VGG ½“...2“



▼ Mounting surface for actuator or AGA60 adapter flange for SQX... actuator

Table of dimensions

Typ	DN 1)	A	B	C 2)	D 3)	E□	F	G	G´	H	J	K	L ∅	M ∅	N ∅	P	Q	R	S	T	SW*	kg
VGG10.15...	1/2"	---	---	96	79	80	109	---	---	---	32	---	---	---	---	---	---	---	28	31	46	0,8
VGG10.20...	3/4"	---	---	96	79	80	109	---	---	---	32	---	---	---	---	---	---	---	28	31	46	0,8
VGG10.25...	1"	---	---	96	79	80	109	---	---	---	32	---	---	---	---	---	---	---	28	31	46	0,75
VGG10.40...	1 1/2"	---	---	126	102	126	150	---	---	---	41	---	---	---	---	---	---	---	34	34	60	1,4
VGG10.50...	2"	---	---	130	107	126	170	---	---	---	50	---	---	---	---	---	---	---	34	34	75	1,95
VGG10.80...	3"	---	---	191	163	185	310	110	110	68	100	---	---	---	---	---	---	---	---	62	120	13,4
VGF10.40...	DN40	13	3	126	102	126	200	---	---	---	41	19	150	110	88	45°	90°	4	36	36	---	6
VGF10.50...	DN50	13	3	130	107	126	230	---	---	---	50	19	165	125	102	45°	90°	4	42	42	---	7,5
VGF10.65...	DN65	16,5	3	191	163	185	290	108	108	95	92	19	185	145	120	45°	90°	4	---	---	---	15,3
VGF10.80...	DN80	19	3	191	163	185	310	118	118	102	100	19	200	160	131	22,5°	45°	8	---	---	---	17,9
VGH10.180...	DN80	15	3	---	---	160	310	102	102	105	159	19	200	160	131	22,5°	45°	8	95	95	---	16,3
VGH10.190...	DN100	16	3	---	---	160	350	102	102	105	166	19	220	180	157	22,5°	45°	8	95	95	---	18,6
VGH10.191...	DN125	3	3	---	---	160	400	102	102	121	174	19	250	210	187	22,5°	45°	8	95	95	---	23,4

DN Nominal size, dimension for connection of medium
1) Flange conforming to ISO 7005-2
2) With stroke limitation
3) Without stroke limitation
R Number of boreholes; for standards for flanges and threads, refer to «Type summary gas valves»
* Width across flats