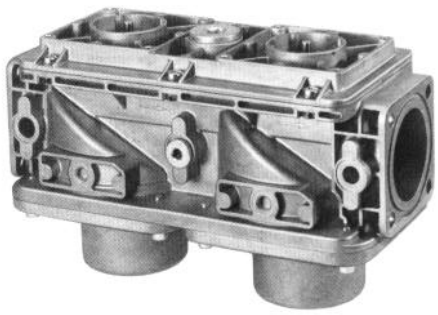
Double Gas Valves VGD20...

Quality Assurance Services
FM739/1, QAS3284.5/108

AGA41 / AGA51



VGD20...

Compact double valve for use in gas trains of gas families I...III, consisting of 2 safety shut-off valves of group A and class 1 respectively. The valve body can be optionally equipped with 2 actuators of the SKP...series providing the functions of safety shut-off valve, governor, and air/gas ratio controller.

Application

The double valves are used especially in gas trains for burners. After fitting the appropriate actuators, the double valve also serves as a:

- shut-off valve (in connection with the SKP10...)
- control valve with shut-off function (in connection with actuators type SKP20..., SKP27..., SKP50...or SKP70...). For technical details and operation of the SKP actuators refer to the corresponding Data Sheets.

SKP 10 / 20	→	Data Sheet No. 7641
SKP 27	→	Data Sheet No. 7644
SKP 50	→	Data Sheet No. 7648
SKP 70	→	Data Sheet No. 7651

Ordering Specification

When ordering, please give type reference of both valve and flanges.
Example: 2" valve with two test points and two connecting flanges:

- 1 **VGD20.503**
- **2 AGA51**

Also to be ordered are the actuators.

Summary of Types

Valves

DN	Flow rate at Δp 1mbar m^3/h air	Test points[3] Number[1]	position[2]	Pilot connection[4]	Type reference
1 1/2"	22,5	2 Rp1/4"	A	1 Rp3/4"	**VGD20.403**
2"	32,5	2 Rp1/4"	A	1 Rp3/4"	**VGD20.503**

Flanges

With test point Rp1/4"
(To be ordered separately)

Type reference	DN[5]	Suitable for valve type
AGA41	1 1/2"	VGD20.40...
AGA51	2"	VGD20.50...

Service replacement sets

Consisting of:
stems, discs, strainer and the necessary bolts, washers and seals:

for valve type	Ordering number
VGD20.40...	**4 679 1550 0**
VGD20.50...	**4 679 1550 0**

1) Flow rate to DIN 3391
2) A test point is provided on both the left and the right side of the valve body. Refer to "Dimensions" on page 4, VGD20.
3) Another test point on the appropriate flanges for the inlet and outlet side of the VGD20.
4) In the middle at the top between the two valve seats, Refer to "Dimensions" on page 4, VGD20, position C.
5) Internally threaded to ISO R 7/1.

Technical Data

Group or class	A and 1 (for both valves)
Types of gas	gas families I, II, III (to DVGW working sheet G260), and air
Maximum operating pressure	600 mbar (in Austria 300 mbar)
Max. counter pressure	150 mbar
Minimum flow rates required	analogous to 1 1/2" and 2" valves of the VGG... and VGF... series (see charts in the Data Sheets of the respective SKP... actuators)
Permissible medium temperature	-15°C...+60°C
Permissible ambient temperature	-15°C...+60°C
Mounting orientation	optional (refer to "Mounting Advice")
Material	die-cast aluminium
Weights, net	
VGD 1 1/2"	3210 g
VGD 2"	3170 g
AGA41	270 g
AGA51	270 g

Design Features

Valves

The valves are of the normally closed single-way type and have two discs, one (non-contoured) for the inlet valve and one (contoured) for the outlet valve. The stems are guided on both sides of the discs, ensuring precise alignment and tight shut-off. The closing force of the return spring is supported by the pressure exerted by the gas. An interchangeable strainer in the inlet valve made of stainless steel protects seats and discs as well as downstream controls against contamination.

On both sides of the valve connecting flanges can be mounted by means of four screws.

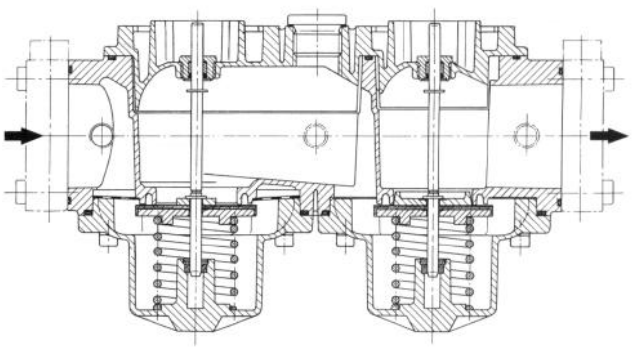
The valve body is made of die-cast aluminium, the seals of nitrile rubber and the stems of stainless steel. The valve has a pilot connection Rp3/4" located in the middle at the top (see "Summary of Types" and "Dimensions").

Valve, flanges and actuators are supplied as separate units. Assembly of the two items is very straightforward. There are **no** special tools required.

Connecting flanges

Connecting flanges are provided **with** or **without** test point. They are internally threaded and are supplied separately, together with the necessary accessories such as bolts, nuts, seals, etc. The overall flange dimensions and bore-holes are identical so that all types of flanges can be fitted to the valve body, independent of the nominal size. This means that a 1 1/2" flange can be fitted to a 2" gas valve type VGD..., and vice versa. Each double valve must have 2 connecting flanges, which must be ordered separately.

Sectional view of VGD20...



Mounting Advice

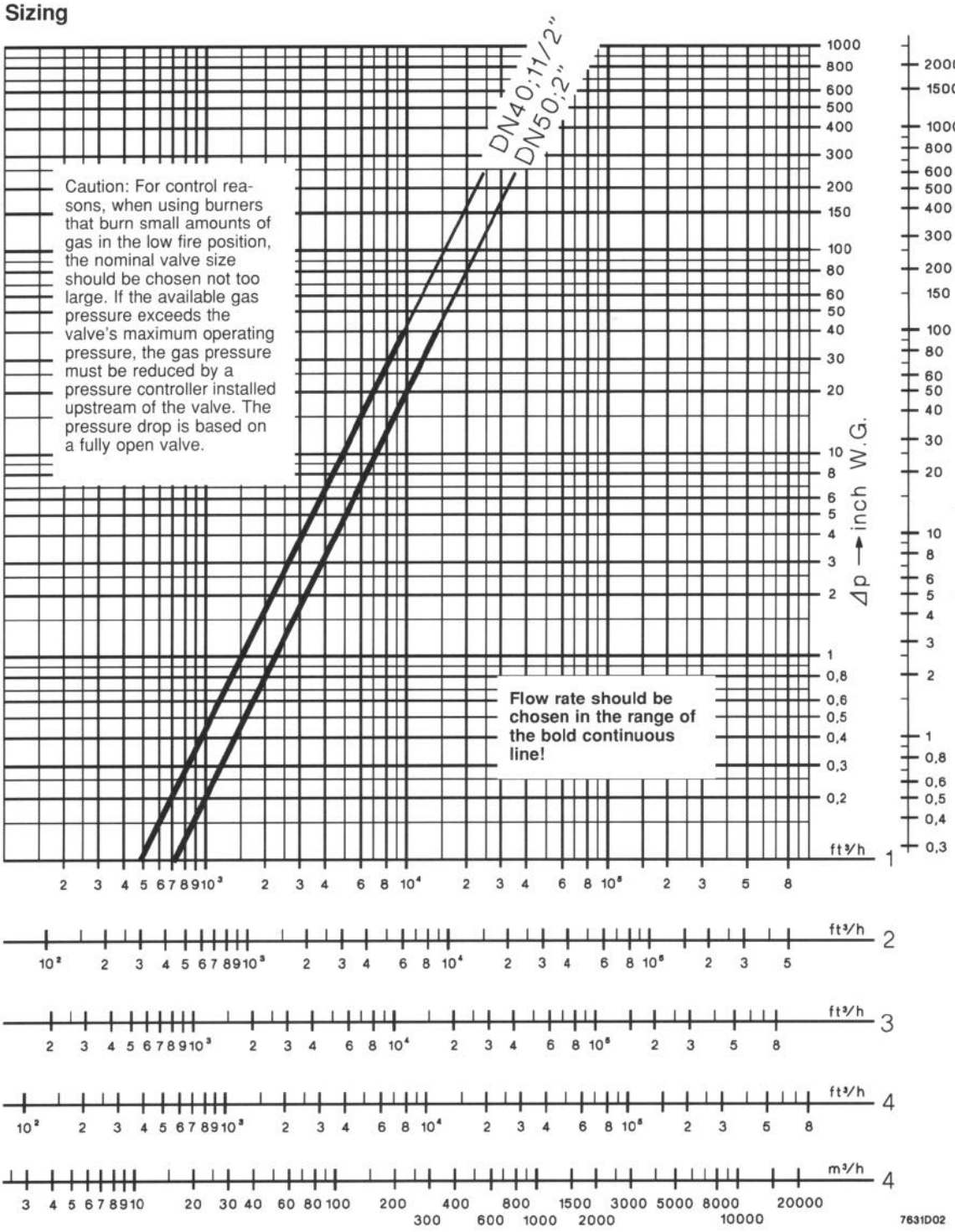
The gas valve's mounting orientation in the gas train is **optional**. However, if the SKP actuators are mounted at an angle of 30° to 60°, there will be a dead time of up to 1 second. The direction of flow of gas must correspond with the arrow on the valve body.

When fitting the actuators to the valve body, it must be ensured that the terminal covers do not point at the pilot gas connection (3/4") in the middle of the valve.

The electro-hydraulic actuator type SKP10, which is used for the shut-off valve, must always be mounted on the **inlet side** of the valve, the actuators with integrated governor (SKP20, SKP27, SKP50, SKP70) always on the outlet side (contoured disc).
Caution: when using the valve in connection with the SKP20 actuator, **the minimum gas pressure switch must always be mounted upstream of the valve**.

Mounting of the valve requires **2 flanges** which are to be **ordered separately** (refer to "Accessories"). In order to prevent cuttings from getting inside the valve, it is recommended to first mount the flanges to the pipes and then clean the parts. It must also be ensured that the O-rings are fitted between the flanges and the valve body.

Sizing



Flow chart

Basic scales

Abscissa	Medium (flow rate Q_G in ft^3/h)	Density ratio to air d_v	Conversion $f = \sqrt{\frac{1}{d_v}}$
1	natural gas	0,61	1,28
2	propane	1,562	0,8
3	town gas	0,46	1,47
4	air	1	1

Conversion to air (ft^3/h) from other types of gases:

$$Q_L = \frac{Q_G}{f}$$

Q_L = air volume in ft^3/h causing the same pressure drop as Q_G

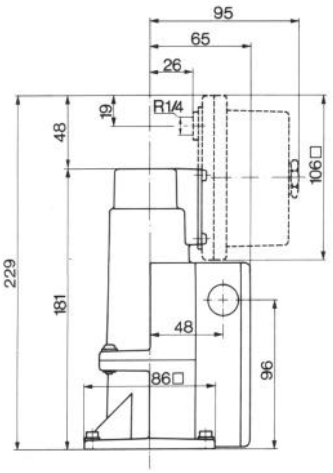
Valve sizing example:

Available pressure drop across valve	4 inch W.G.
Required flow of natural gas	4500 ft^3/h
Valve to be selected (point of intersection at 4 inch W.G. and 4500 ft^3/h)	DN 2"

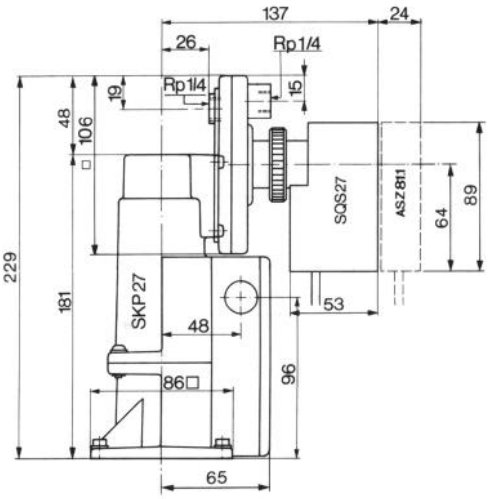
Note:

In the case of valves equipped with an air/gas ratio controller, the valve size selected should be one half or one full size larger than that obtained from the sizing chart.

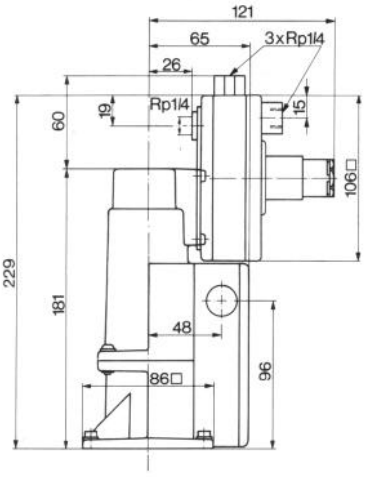
Dimensions



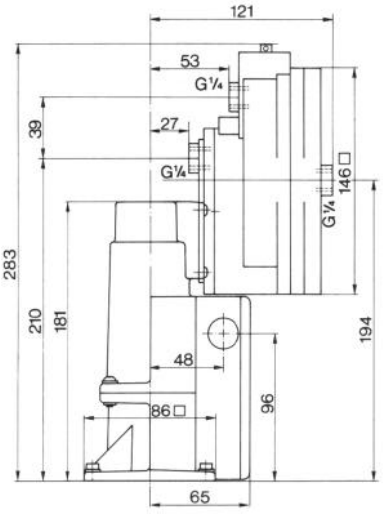
SKP10/SKP20



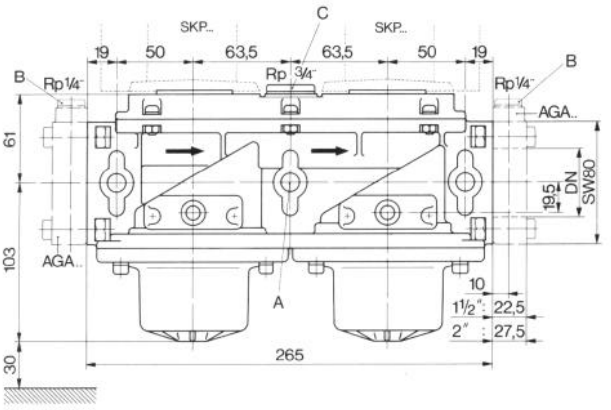
SKP27/SQS27



SKP50



SKP70



VGD20

A Test point on the left and on the right side between the two valve seats.
B Test point on the connecting flange. By appropriate positioning of the flange, test point B may be at the top, bottom, left or right side.
C Pilot connection

Landis & Gyr Building Control AG, Gubelstrasse, CH-6301 ZUG
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Landis & Gyr (Australia) Pty.Ltd., 411 Ferntree Gully Road, AUS-MT.WAVERLEY, Vic.3149
Landis & Gyr Intersystem Corporation, 4-3-1 Tsuchihashi, Miyamaeku, Japan-KAWASAKISHI 213