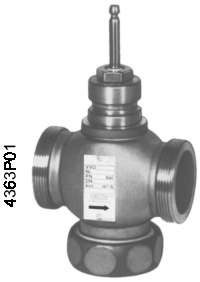
Two-port seat valves with male thread, PN16

VVG41...



Two-port seat valves with male thread, PN16

- **Bronze Rg5**
- **DN15 ... DN50 mm (½" ... 2")**
- **k_{vs} 0.63 ... 40 m^3/h**
- **Stroke 20 mm**
- **Can be equipped with actuators SQX..., SKD... and SKB...**
- **Fittings can be delivered separately.**

Use

For use in heating and domestic water systems as well as in ventilating and air conditioning systems as a **control or safety shutoff valve as per DIN 32730. For open and closed circuits.**

Media

Standard version with dezincification-free stem sealing gland for:	
Cooling water **Chilled water** **Low temperature hot water** **Domestic water** **High temperature hot water** **Water with anti-freeze** up to max. 50 % vol. [1) 2)]	−25 ... +130 °C
Saturated steam (up to max. 1.5 bar abs.)	
Brine [1) 2)]	

1) Media below 0 °C: ASZ6.5 stem heating element required to prevent freezing of the valve stem in the sealing gland.

2) Water with anti-freeze and brine: down to −25 °C as per DIN 3158 (stress case I)

Special refrigerant valves with magnetic actuators are used for applications with refrigerants R…; see data sheets 4700 … 4799.

Type summary

Standard version

Type	DN [mm]	DN [inch]	k_{vs} [m^3/h]	S_v	$\Delta p_{vmax.}$ [kPa]
VVG41.11	15/2.5	½"	0.63		
VVG41.12	15/4	½"	1.0		
VVG41.13	15/6	½"	1.6	> 50	
VVG41.14	15/10	½"	2.5		
VVG41.15	15	½"	4.0		800
VVG41.20	20	¾"	6.3		
VVG41.25	25	1"	10		
VVG41.32	32	1¼"	16	> 100	
VVG41.40	40	1½"	25		
VVG41.50	50	2"	40		

DN = Nominal diameter
k_{vs} = Nominal flow value as per VDI 2173
S_v = Rangeability as per VDI 2173
$\Delta p_{vmax.}$ = Max. permissible differential pressure across the valve's control path, valid for the entire stroke range

Accessories

Electric stem heating element, AC 24 V, required for media below 0 °C : **ASZ6.5**

Ordering

Indicate type.
Example: **VVG41.25**
The fittings must be ordered separately.

Delivery

The valve, actuator and possible fittings are packed and supplied separately.

Equipment combinations

Valves		Actuators [1]						Fittings
		SQX... [2]		SKD...		SKB...		
	H_{100} [mm]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Type
VVG41.11								
VVG41.12								
VVG41.13								**ALG15**
VVG41.14								
VVG41.15	20	800	1600	800	1600	800	1600	
VVG41.20								**ALG20**
VVG41.25			1500					**ALG25**
VVG41.32		600	850		1250			**ALG32**
VVG41.40		400	500	700	750			**ALG40**
VVG41.50		250	300	400	450		1200	**ALG50**
Data sheet		**4554**		**4561**		**4564**		

1) Actuators available for delivery:
- AC 24 V / AC 230 V with 3-position signal
- AC 24 V with proportional pos. signal DC 0...10 V or DC 4...20 mA

2) The Δp_{max} and Δp values are valid for the new SQX32... / SQX82... and SQX62 actuators; deliverable from January 1999

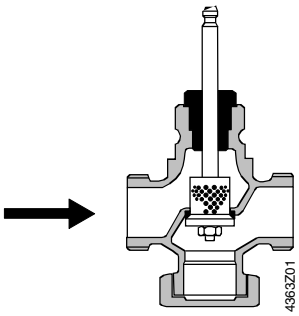
H_{100} = 100% stroke of the valve and the actuator
Δp_{max} = Max. permissible differential pressure across the valve's control path across the entire actuating range of the motorized valve
Δp_s = Maximum permissible differential pressure (closing pressure) at which the motorized valve will close securely against pressure.

Pneumatic actuators

Pneumatic actuators are available on request from your local office.

Mechanical design

Valve cross-section



Guided perforated plug which is integrated in the valve stem.

The seat is attached to the valve body with the aid of special gland material.

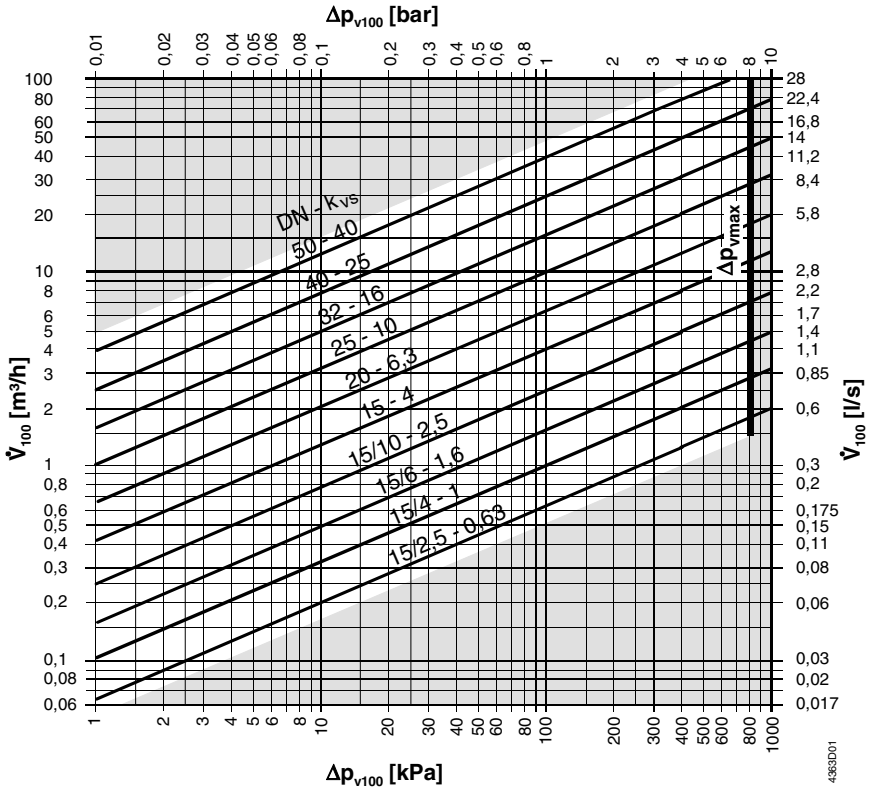
⚠ **The two-port seat valve does not become a three-port valve by removing the blank flange.**

Disposal

The various material types used require that you disassemble the unit and sort the components prior to disposal.

Sizing

Flow diagram



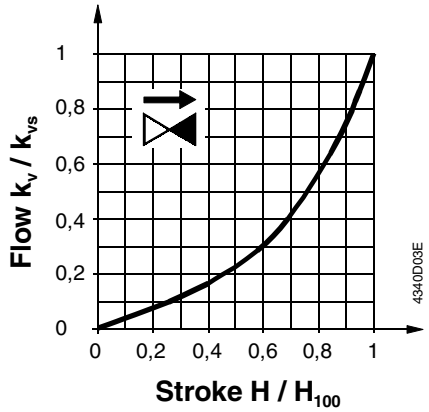
$\Delta p_{vmax.}$ = Maximum permissible differential pressure across the valve's control path, valid for the entire stroke range

Δp_{v100} = Differential pressure across the fully opened valve across the control path at $\dot{V}_{100}$ flow in kPa or in bar

$\dot{V}_{100}$ = Flow in m^3/h or in l/s

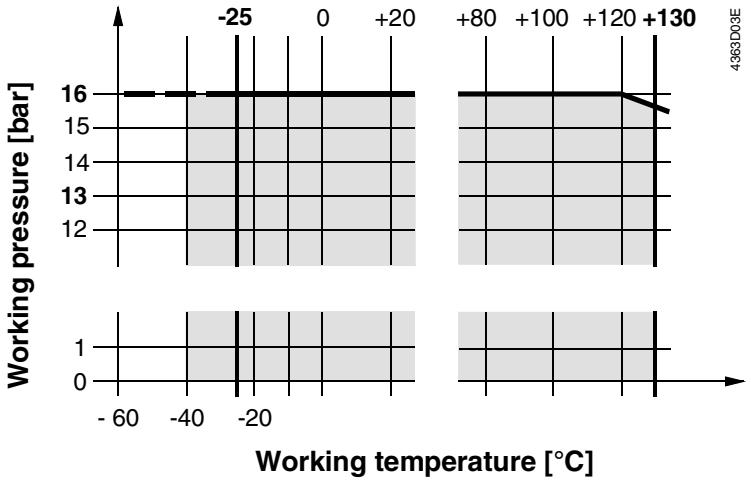
100 kPa = 1 bar ≈ 10 mWG

Valve flow characteristic



Valve flow characteristic
0 ... 30 % ⇒ linear
30 ...100 % ⇒ n_{gl} = 3 as per VDI/ VDE 2173

Working pressure and temperature



Working pressure staged as per ISO 7268 and EN 1333 at operating temperatures of −25 ... +130 °C as per DIN 4747 and DIN 3158.

Notes

Engineering

We recommend installation in the return pipe, as the temperatures in this pipe are lower for applications in heating systems, which in turn, extends the stem sealing gland's life. **Water quality requirements as per VDI 2035.**

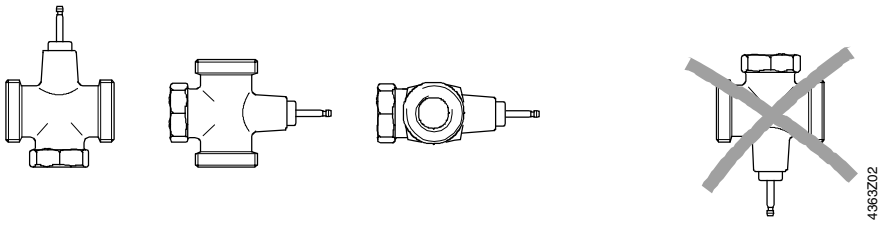
⚠ **In open circuits**, there is a risk of valve plug seizing caused by scale deposits. Thus, use only the most powerful actuator SKB... for these applications. Additionally, periodic actuation (twice or three times per week) must be planned. **Always use** a **strainer** upstream of the valve.
We generally recommend that you install a **strainer even with closed circuits** to increase the valve's functional safety.

⚠ **For media below 0 °C**, use the electric **ASZ6.5 stem heating element** to prevent the valve stem from freezing in the sealing gland. For safety reasons, the stem heating element has been designed for **AC 24 V / 30 W** operating voltage.

Mounting

Both valve and actuator can easily be assembled at the mounting location. Neither special tools nor adjustments are required.
The valve is supplied with mounting instructions.

Mounting positions



Permissible Not permissible

Direction of flow

When mounting, pay attention to the **valve's flow direction symbol** ➔ .

Commissioning

⚠ **Commission the valve only if the actuator has been mounted correctly.**

Stem retracts: Increasing flow
Stem extends: Decreasing flow

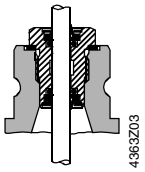
Service ⚠ **For actuator service work: Turn off the pump and the operating voltage, close the shutoff valves, depressurize the pipes and allow them to cool down. Disconnect the electrical connections, where required, from the terminals. Re-commission the valve only if the actuator has been mounted correctly.**

Stem sealing gland

The glands can be exchanged without removing the valve, provided the pipes are depressurized and cooled off and the stem surface is unharmed. If the stem is damaged in the gland range, replace the entire stem-plug-unit. Contact your local office or branch.

Spare parts

Standard version



Replacement for EPDM-O ring sealing gland made from dezincification-free brass, including flat seal made from copper, for cooling water, chilled water, low temperature hot water, high temperature hot water, saturated steam, and brine
−25 ... +130 °C
For VVG41 ... DN15 ... DN50 (Stem dia. 10 mm) **4 284 8874 0**

Warranty

The use of third-party actuators expressly voids any warranty claims.

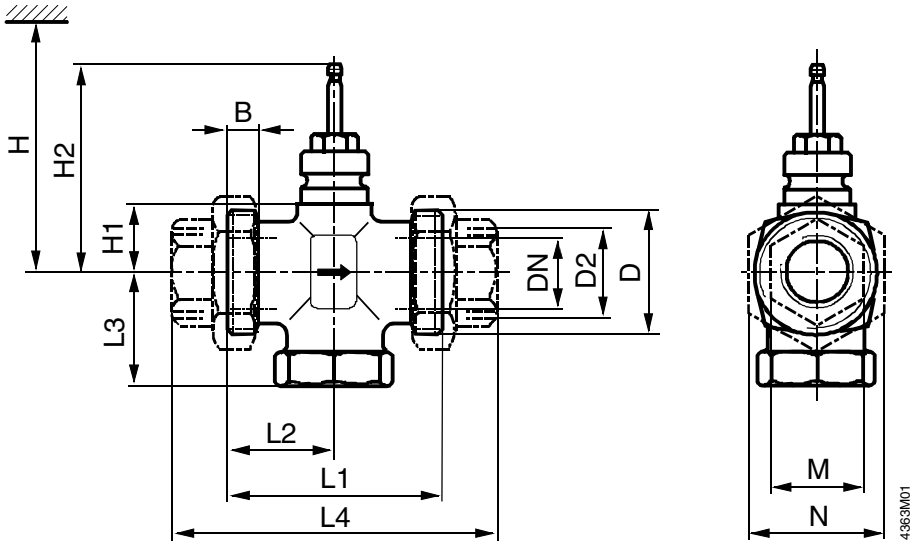
The technical data Δp_{max}, Δp_s, leakage rate, noise level and life apply only when used together with the Landis & Staefa actuators as listed in "Type summary".

Technical data

Function data	PN class	PN16
	Valve flow characteristic	
	0 ... 30 %	linear
	30 ...100 %	n_{gl} = 3 as per VDI / VDE 2173
	Leakage rate	0 ... 0.02 % of k_{vs} value, VDE / VDI 2173
	Permissible pressure	1600 kPa (16 bar), ISO 7268 / EN 1333
	Working pressure	DIN 4747 / DIN 3158 in the range of −25 ... +130 °C
	Threaded connection	
	Valve	G...B as per ISO 228/1
	Fittings	Rp... as per ISO 7/1
	Stroke	20 mm
Materials	Valve body	bronze G-CuSn5ZnPb (Rg5) as per DIN 1705
	Seat, plug, and stem	stainless steel
	Sealing gland	dezincification-free brass
	Gland materials	EPDM-O rings
	Fittings ALG…	black malleable cast iron

Dimensions

All dimensions in mm



DN [mm]	B	D	D2	H1	H2	L1	L2	L3	L4	M	N	Weight without fittings [kg]
15	10	G1B	Rp½	26	122.5	100	50	57	146	26	39	1.25
20		G1¼B	Rp¾						148	32	48	1.30
25	14	G1½B	Rp1	34	130.5	105	52,5	59	160	38	54	1.60
32		G2B	Rp1¼					60	168	48	67	2.20
40	15	G2¼B	Rp1½	46	142.5	130	65	73	198	53	73	2.70
50	16	G2¾B	Rp2			150	75	83	222	66	90	3.90

DN [mm]	H		
	SQX...	**SKD...**	**SKB...**
15 **20**	> 450	> 525	> 600
25 **32**	> 460	> 535	> 610
40 **50**	> 470	> 545	> 620

DN = Nominal diameter

H = Total actuator height plus minimum distance to the wall or the ceiling for mounting, connection, operation, service, etc.

H1 = Dimension from the pipe centre to install Structure the actuator (upper edge)

H2 = Valve in the "Closed" position means that the stem is fully extended