



2-Port Seat Valves with Male Thread, PN 16

VVG41...

- Bronze CC491K (Rg5) valve body
- DN 15...DN 50
- k_{vs} 0.63...40 m³/h
- Flat sealing connections with external thread G...B to ISO 228/1
- Sets of ALG...2 screwed fittings with threaded connection available from Siemens
- Can be equipped with SQX... motoric or SKD... and SKB... electrohydraulic actuators

Use

- For use in heating, ventilating and air conditioning systems as a control or safety shutoff valve as per DIN 32730.
- For open and closed circuits.

Media

Standard version for:

Cooling water	-25...+140 °C
Chilled water	
Low temperature hot water	
High temperature hot water	
Water with anti-freeze ^{1) 2)}	
Saturated steam (up to max. 3 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)

Type summary

Type reference	DN	k_{vs} [m ³ /h]	S_v
VVG41.11	15	0.63	> 50
VVG41.12		1.0	
VVG41.13		1.6	
VVG41.14		2.5	
VVG41.15		4.0	
VVG41.20	20	6.3	> 100
VVG41.25	25	10	
VVG41.32	32	16	
VVG41.40	40	25	
VVG41.50	50	40	

DN = Nominal size

k_{vs} = Nominal flow rate of cold water (5...30 °C) through the fully open valve (H_{100}) by a differential pressure of 100 kPa (1 bar)

S_v = Rangeability k_{vs} / k_{vr}

k_{vr} = Smallest k_v value, at which the flow characteristic tolerances can still be maintained, by a differential pressure of 100 kPa (1 bar)

Accessories

Type reference	Description
ALG...2	Set of 2 screwed fittings for 2-port valves, consisting of <ul style="list-style-type: none"> - 2 union nut - 2 discs and - 2 flat seals
ASZ6.5	Electric stem heating element, AC 24 V 30 W, required for media below 0 °C

Order

When ordering please give quantity, product name and type reference.

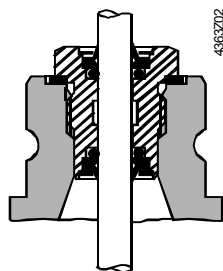
Example: 2 valves VVG41.25
2 sets of screwed fittings ALG252

Delivery

Valves, actuators and accessories are packed and supplied separately.

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...+140 °C

for VVG41... DN 15...DN 50 (stem-Ø 10 mm)
order-no. 4 284 8874 0

Equipment combinations

Valves	Actuators						Fitting sets
	SQX...		SKD...		SKB...		
	Δp_{\max}	Δp_s	Δp_{\max}	Δp_s	Δp_{\max}	Δp_s	Type reference
	[kPa]						
VVG41.11	800	1600	800	1600	800	1600	ALG152
VVG41.12							
VVG41.13							
VVG41.14							
VVG41.15							
VVG41.20							
VVG41.25							
VVG41.32							
VVG41.40	525	525	775	775			ALG402
VVG41.50	300	300	450	450		1225	ALG502

Δp_{\max} = Maximum permissible differential pressure across valve's control path, valid for the entire actuating range of the motorized valve

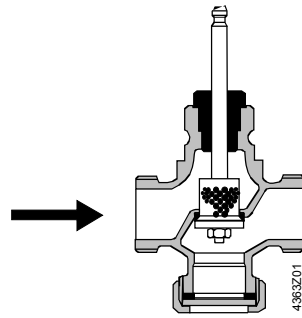
Δp_s = Maximum permissible differential pressure at which the motorised valve will close securely against the pressure (close off pressure)

Actuator overview

Type reference	Actuator type	Operating voltage	Positioning signal	Spring return	Positioning time	Positioning force	Data sheet	
SQX32.00	Motoric	AC 230 V	3-position	No	150 s	700 N	N4554	
SQX32.03					35 s			
SQX82.00		AC 24 V			150 s			
SQX82.03					35 s			
SQX62					DC 0...10 V ¹⁾			
SKD32.50	Electro-hydraulic	AC 230 V	3- position	No	120 s	1000 N	N4561	
SKD32.21				Yes	30 s			
SKD32.51				No	120 s			
SKD82.50		AC 24 V		Yes	30 s			N4563
SKD82.51				No				
SKD60				Yes				
SKD62				DC 0...10 V ¹⁾				
SKB32.50	Electro-hydraulic	AC 230 V	3- position	No	120 s	2800 N	N4564	
SKB32.51				Yes				
SKB82.50				No				
SKB82.51		Yes		DC 0...10 V ¹⁾				N4566
SKB60		No						
SKB62		Yes						
SKB62		Yes						

¹⁾ or DC 4...20 mA

Valve cross section



Guided perforated plug which is integrated in the valve stem.

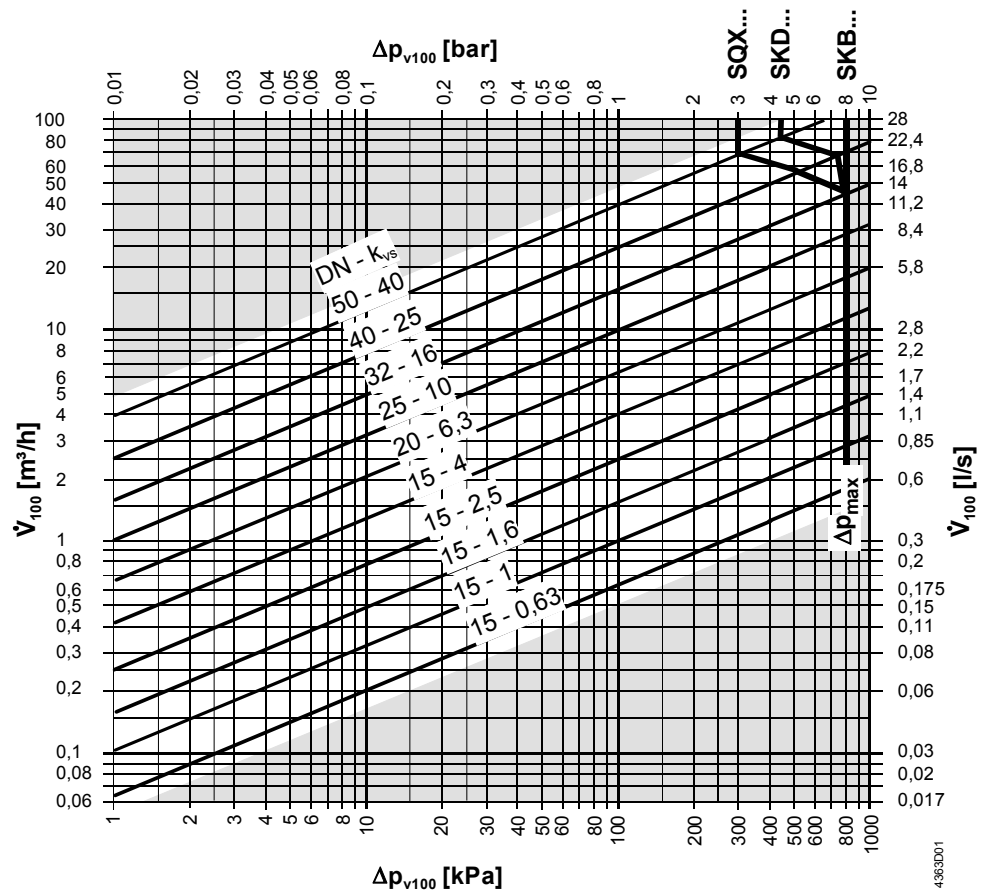
The seat is attached to the valve body with the aid of special gland material.



The 2-port seat valve does not become a 3-port valve by removing the seal cover!

Sizing

Flow diagramm



Δp_{max} = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorised valve

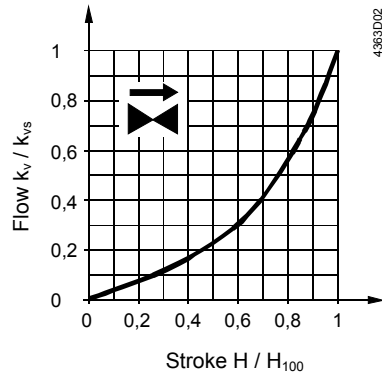
Δp_{v100} = Differential pressure across the fully open valve and the valve's control path A → AB by a volume flow V_{100}

\dot{V}_{100} = Volumetric flow through the fully open valve (H_{100})

100 kPa = 1 bar \approx 10 mWS

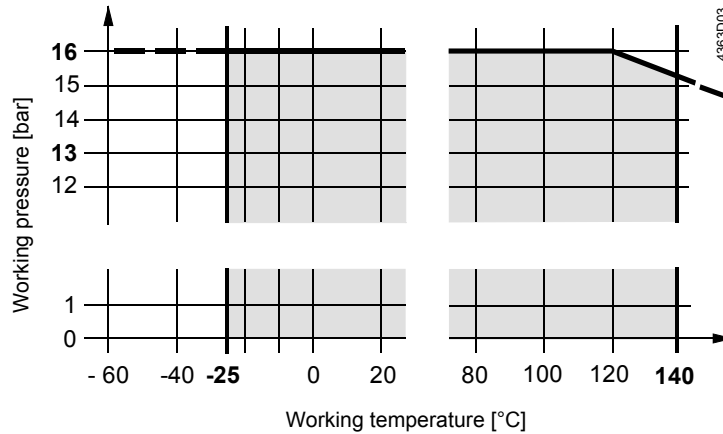
1 m^3/h = 0.278 l/s water at 20 °C

Valve flow characteristic



0...30 % → linear
 30...100 % → equal percentage
 $n_{gl} = 3$ as per VDI / VDE 2173

Working pressure and temperature



Working pressure staged as per ISO 7268 and EN 1333
 at operating temperatures of $-25...+140$ °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.



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. With closed and open circuits always use a strainer upstream of the valve to increase the valve's functional safety.

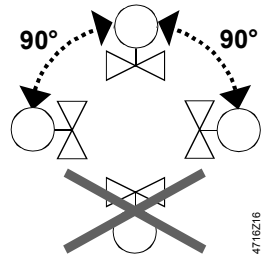


For media below 0 °C, use the electric ASZ6.5 stem heating element to prevent the valve stem from freezing in the sealing gland. For safety reasons, the stem heating element has been designed for AC 24 V / 30 W operating voltage.

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 4 319 9563 0.

Orientation



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.

Valve stem retracts: valve opens = increasing flow

Valve stem extends: valve closes = decreasing flow

Maintenance

VVG41... valves require no maintenance.

Warning

When doing service work on the valve / actuator:

- Deactivate the pump and turn off the power supply
- Close the shutoff valves
- Fully reduce the pressure in the piping system and allow pipes to completely cool down

If necessary, disconnect the electrical wires.

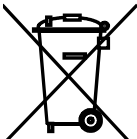
Before putting the valve into operation again, make certain the actuator is correctly fitted.

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, refer to «Order».
- If the stem is damaged in the gland range, replace the entire stem-plug-unit.

Contact your local office or branch.

Disposal



Before disposal the valve must be dismantled and separated into its various constituent materials.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

Warranty

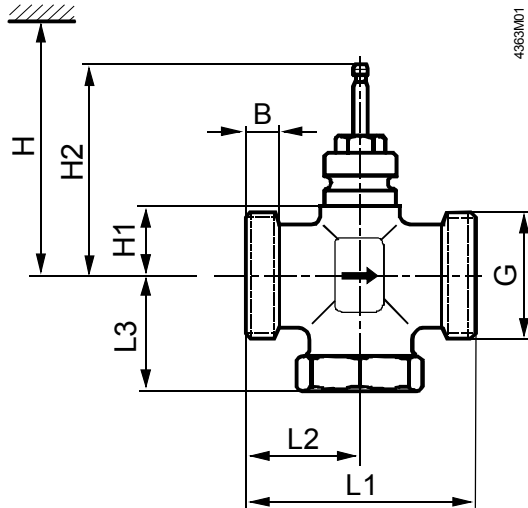
The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under «Equipment combinations».

All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

Technical data

Functional data	PN class	PN 16 to EN 1333	
	Permissible operating pressure	1600 kPa (16 bar) to ISO 7268 / EN1333	
	Working pressure	to DIN 4747 / DIN 3158 in the range of –25...+140 °C (refer to page 5)	
	Flow characteristic	0...30 % linear 30...100 % equal percentage; $n_{gl} = 3$ to VDI / VDE 2173	
	Leakage rate	0...0.02 % of k_{vs} value to DIN EN 1349	
	Permissible media	cooling water, chilled water, low temperature hot water, high temperature hot water, water with anti-freeze, saturated steam, brine. recommendation: water treatment to VDI 2035	
	Medium temperature	–25...+140 °C	
	Rangeability S_v	DN 15: > 50 DN ≥20: >100	
	Nominal stroke	20 mm	
	Industry standards	Pressure Equipment Directive	PED 97/23/EC
		Pressure Accessories	as per article 1, section 2.1.4
		Fluid group 2	without CE-marking as per article 3, section 3 (sound engineering practice)
	Materials	Valve body	bronze CC491K (Rg5)
Seat, plug, stem		stainless steel	
Sealing gland		dezincification-free brass	
gland materials		EPDM O rings	
Dimensions / Weight	Refer to «Dimensions»		
	External thread connections	G...B to ISO 228/1	

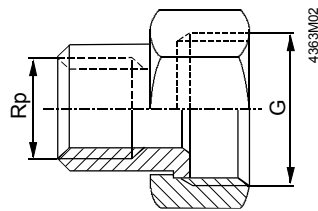
Dimensions



- DN = Nominal size
- 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 the actuator (upper edge)
- H2 = Valve in the «Closed» position means that the stem is fully extended

Type reference	DN	B [mm]	G [Zoll]	L1 [mm]	L2 [mm]	L3 [mm]	H1 [mm]	H2 [mm]	H			Weight [kg]	
									SQX...	SKD...	SKB...		
VVG41.11	15	10	G1B	100	50	57	26	122.5	> 450	> 525	> 600	1.25	
VVG41.12													
VVG41.13													
VVG41.14													
VVG41.15													
VVG41.20	20		G1½B									1.30	
VVG41.25	25	14	G1½B	105	52.5	59	34	130.5	> 460	> 535	> 610	1.60	
VVG41.32	32		G2B									60	2.20
VVG41.40	40		G2¼B									73	2.70
VVG41.50	50	16	G2¼B	150	75	83	46	142.5	> 470	> 545	> 620	3.90	

Screwed fittings



Type reference	for valve type	G [Zoll]	Rp [Zoll]
ALG15...	VVG41.11...15	G1	Rp½
ALG20...	VVG41.20	G1¼	Rp¾
ALG25...	VVG41.25	G1½	Rp1
ALG32...	VVG41.32	G2	Rp1¼
ALG40...	VVG41.40	G2¼	Rp1½
ALG50...	VVG41.50	G2¾	Rp2

- On valve side: cylindrical thread to ISO 228/1
- On pipe side: with cylindrical thread to ISO 7/1