Two-port seat valves with flange, PN10

VVF31

Two-port seat valves with flange, PN10

- **Nodular cast iron GG-20 / GG-25**
- **DN25...150 mm**
- **k_{vs} 5...300 m^3/h**
- **Stroke 20 or 40 mm**
- **Can be equipped with actuators SQX..., SKD..., SKB... and SKC...**

Use

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

Media

Standard versions with standard stem sealing gland for:	
Chilled water **Low temperature hot water** **High temperature hot water** **Water with anti-freeze** up to max. 50 % vol. [1) 2)] **Brine** [1) 2)]	−25 ... +120 °C

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: up to −10 °C as per DIN 3158 (stress case I) or up to −25 °C as per DIN 3158 (stress case II)

Type summary

Standard version

Type	DN [mm]	k_{vs} [m^3 / h]	S_v	$\Delta p_{vmax.}$ [kPa]
VVF31.24	25/20	5	> 50	100
VVF31.25	25	7.5		
VVF31.39	40/32	12		
VVF31.40	40	19	> 100	
VVF31.50	50	31		
VVF31.65	65	49		
VVF31.80	80	78		
VVF31.90	100	124		
VVF31.91	125	200		
VVF31.92	150	300		

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: **VVF31.50**

Delivery

Both the valve and the actuator are packed and supplied separately.
The valves are supplied without counter-flanges and without flange gaskets.

Equipment combinations

Valves		Actuators [1]							
		SQX... [2]		SKD...		SKB...		SKC...	
	H_{100} [mm]	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s
		[kPa]							
VVF31.24	20	100	1000	100	1000	100	1000	100	300
VVF31.25									175
VVF31.39			500		750				125
VVF31.40									
VVF31.50			300		450				
VVF31.65			175		250		700		
VVF31.80		80	100		150		450		
VVF31.90	40							100	300
VVF31.91									175
VVF31.92									125
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

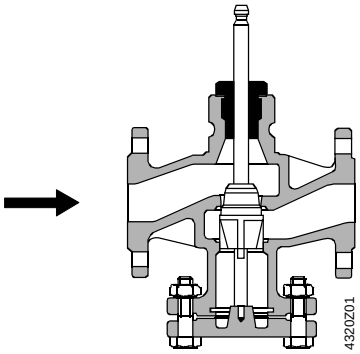
H_{100} = 100 % stroke of the valve and the actuator
Δp_{max} = Max. permissible differential pressure across the valve's control path across the entire actuating range of the motorized valve
Δp_s = Maximum permissible differential pressure (closing pressure) at which the motorized valve will close securely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

Pneumatic actuators

Pneumatic actuators are available on request from your local office.

Mechanical design

Valve cross-section



Guided parabolic plug which is integrated in the valve stem.

The seat is machined in the valve body.

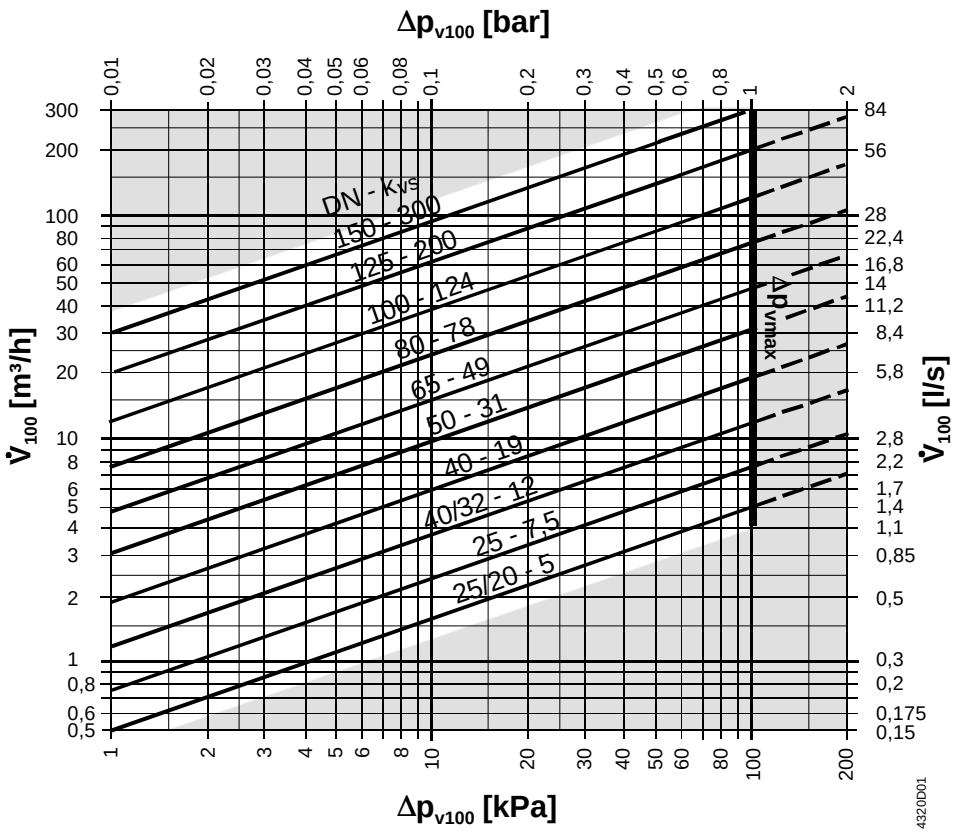
⚠ **The two-port seat valve does not become a three-port valve by removing the blank flange.**

Disposal

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

Sizing

Flow diagram



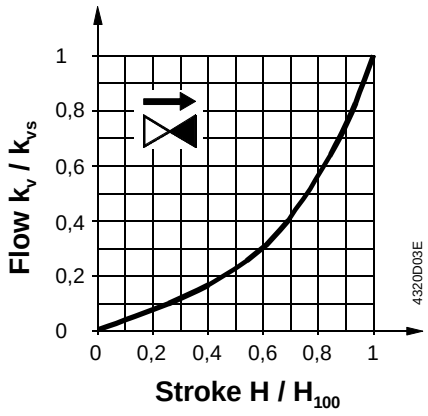
100 kPa = 1 bar ≈ 10 mWG

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

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

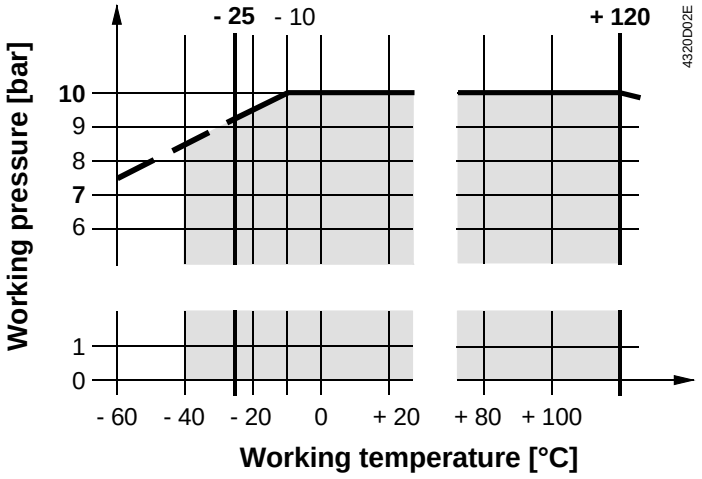
$\dot{V}_{100}$ = Flow in m^3/h or l/s

Valve flow characteristic



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

Working pressure and temperature



Working pressure staged as per ISO 7268 and EN 1333 at operating temperatures of −25 ... +120 °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.

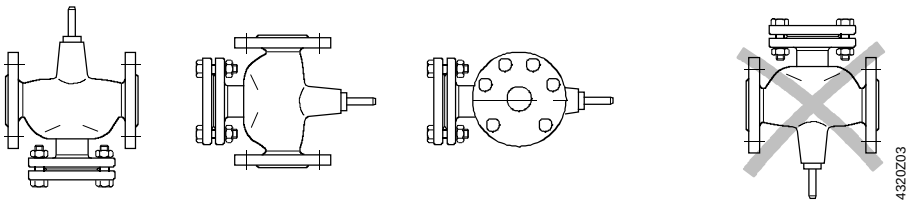
⚠ We generally recommend that you install a **strainer even with closed circuits** to increase the valve's functional safety.

⚠ **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

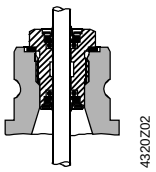
⚠ **For actuator service work: Turn off the pump and the operating voltage, close the shutoff valves, depressurize the pipes and allow them to cool down. Disconnect the electrical connections, where required, from the terminals. Re-commission the valve only if the actuator has been mounted correctly.**

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, including flat seal made from copper, for chilled water, low temperature hot water, high temperature hot water, and brine −25 ... +120 °C

For VVF31...	DN25 ... 80	(Stem dia. 10 mm)	**4 284 8806 0**
For VVF31...	DN100 ... 150	(Stem dia. 14 mm)	**4 679 5629 0**

Warranty

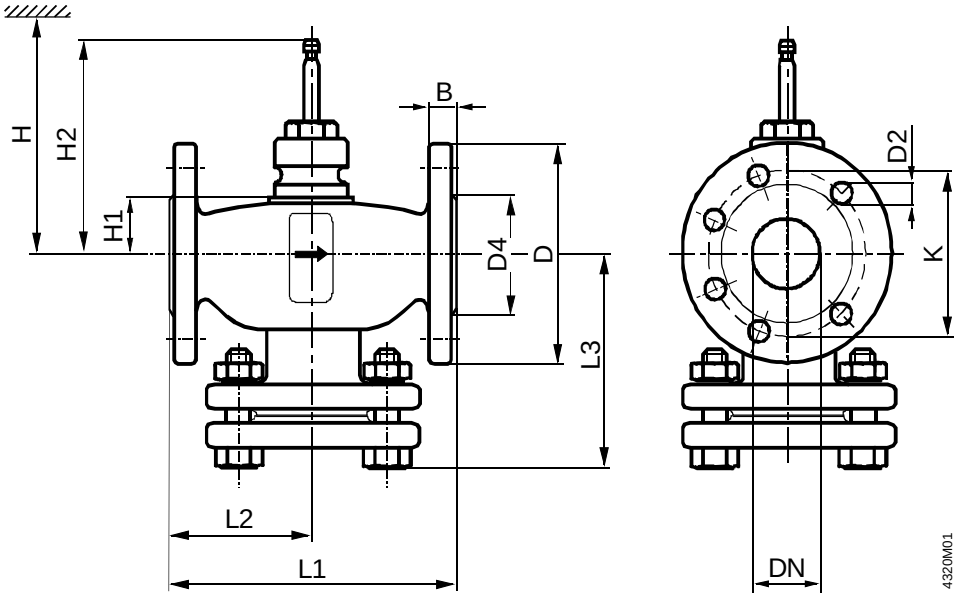
The use of third-party actuators expressly voids any warranty claims.

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	PN10
	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	1000 kPa (10 bar), ISO 7268 / EN 1333
	Working pressure	DIN 4747 / DIN 3158 in the range of −25 ... +120 °C
	Flange connections	ISO 7005
	Stroke	
	– DN25 ... 80	20 mm
	– DN100 ... 150	40 mm
Materials	Valve body	GG-20/GG-25 as per DIN 1561
	Valve stem	stainless steel
	Plug	
	DN25...65	brass
	DN80...150	bronze
	Sealing gland	
	Standard version	brass
	Gland materials	EPDM-O rings

Dimensions



DN [mm]	B	D dia.	D2 dia.	D4 dia.	H1	H2	K	L1	L2	L3	Weight [kg]
25	16	115	14 (4x)	65	34	130.5	85	160	80	104	5.9
40	18	150		84	39	135.5	110	200	100	126	10.1
50	20	165	19 (4x)	99	39		125	230	115	143	15.5
65		185		118	60	156.5	145	290	145	173	17.3
80	22	200		132	60		160	310	155	185	22.9
100	24	220	19 (8x)	156	91	207.5	180	350	175	205	33
125	26	250		184	102	218.5	210	400	200	232	48
150		285	23 (8x)	211	118	234.5	240	480	240	275	68

DN [mm]	H SQX...	SKD...	SKB...	SKC...
25	> 459	> 534	> 609	
40	> 464	> 539	> 614	
50	> 464	> 539	> 614	
65	> 485	> 560	> 635	
80	> 485	> 560	> 635	
100				> 666
125				> 677
150				> 693

DN = Nominal diameter

H = Total actuator height plus minimum distance to wall or 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

Dimensions in mm

replaces CE1N4342E