Two-port seat valves with flange, PN16

VVF40...

Two-port seat valves with flange, PN16

- **Nodular cast iron GG-20 / GG-25**
- **DN15 ... DN150 mm**
- **k_{vs} 1.9 ... 300 m^3/h**
- **20 mm or 40 mm stroke**
- **Can be fitted with actuator types SQX..., SKD..., SKB... and SKC...**

Application

For use in heating, ventilation and air conditioning systems as a **control** or **safety shut-off valve** as defined in DIN32730.
For closed circuits only.

Media

Standard version with standard stem seal for:

Chilled water **Low temperature hot water** **High-temperature hot water** **Water with antifreeze**, max. 50%vol. [1) 2)] **Brine** [1) 2)]	−25 ... +120 °C

1) Media below 0 °C: A stem heater, type **ASZ6.5**, is required to prevent the valve stem from freezing in the gland.

2) Water with anti-freeze additives, and brine: Up to −10 °C to DIN 3158 (class I stress) or up to −25 °C to DIN 3158 (class II stress)

Types

Standard version

Type	DN [mm]	k_{vs} [m^3/h]	S_v	Δp_{vmax}. [kPa]
VVF40.15-1.9	15/10	1.9		
VVF40.15-3	15	3		
VVF40.25-5	25/20	5	> 50	100
VVF40.25-7.5	25	7.5		
VVF40.40-12	40/32	12		
VVF40.40-19	40	19		
VVF40.50-31	50	31		
VVF40.65-49	65	49		
VVF40.80-78	80	78	> 100	100
VVF40.100-124	100	124		
VVF40.125-200	125	200		
VVF40.150-300	150	300		

DN = Nominal diameter
k_{vs} = Nominal flow to VDI 2173
S_v = Rangeability to VDI 2173
$\Delta p_V max$ = Maximum admissible pressure differential across the control path valid for the entire stroke range.

Accessories

ASZ6.5 Electric stem heater, AC 24 V, required for media below 0 °C

Ordering

When ordering, please specify the quantity, product name and type code.
Example: **2 two-port seat valves, PN16 Type VVF40.50-31**

Delivery

- The valves and actuators are packed separately.
- No counter-flanges or flange seals are supplied with the valves.

Compatibility

Electric actuators

Landis & Staefa actuator types SKB…, SKC…, SKD… and SQX are available in various versions:
- AC 24 V / AC 230 V with a 3-position control signal
- AC 24 V with a DC 0 ...10 V or DC 4 ... 20 mA proportional control signal

		Actuators							
		SQX...		SKD...		SKB...		SKC...	
Valves	H_{100}	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s
	[mm]	[kPa]							
VVF40.15-1.9			1600					-	-
VVF40.15-3								-	-
VVF40.25-5			1500		1600		1600	-	-
VVF40.25-7.5								-	-
VVF40.40-12	20	100	500	100	750	100		-	-
VVF40.40-19								-	-
VVF40.50-31			300		450		1200	-	-
VVF40.65-49			175		250		700	-	-
VVF40.80-78		80	100		150		450	-	-
VVF40.100-124		-	-	-	-	-	-		300
VVF40.125-200	40	-	-	-	-	-	-	100	175
VVF40.150-300		-	-	-	-	-	-		125
Data sheet		**4554**		**4561**		**4564**			

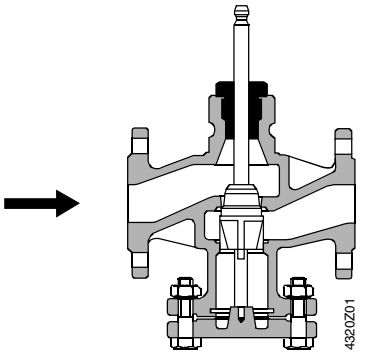
H_{100} = 100 % stroke of valve and actuator
Δp_{max} = Maximum admissible pressure differential across the control path of the valve over the entire actuating range of the motorised valve
Δp_s = Maximum admissible pressure differential (closing pressure) at which the motorised valve will close reliably against the pressure

Pneumatic actuators

Landis & Staefa pneumatic actuators are available on request from your local office.

Mechanical design

Valve cross-section



Guided parabolic plug, integrated into the valve stem.
The seat is machined into the valve body.

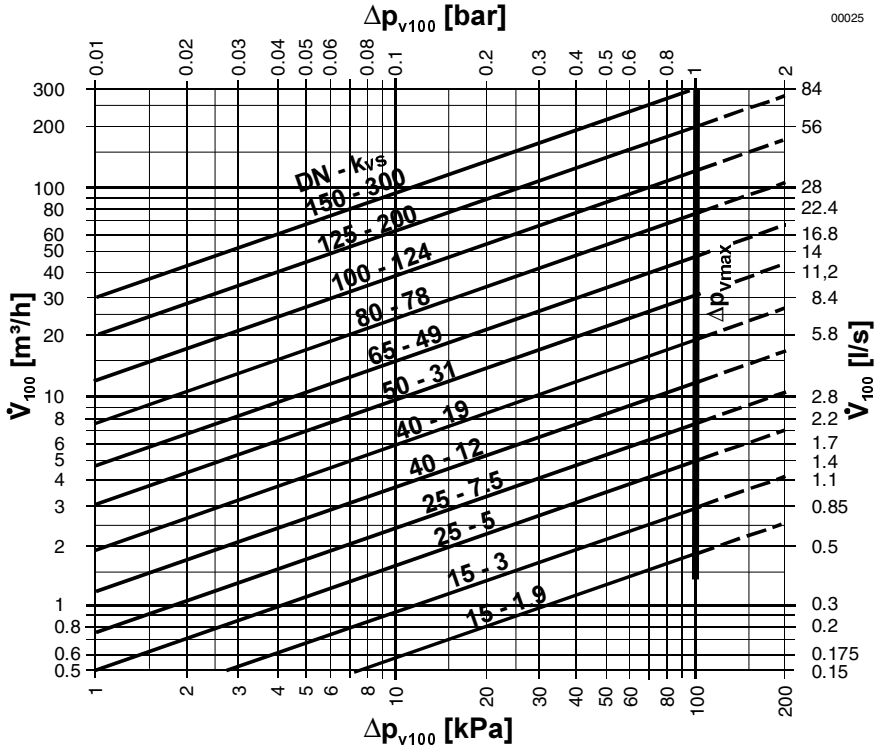
The VVF40… *cannot* be converted into a three-port valve by removing the blank flange.

Disposal

The valve must be dismantled and separated into its constituent materials before disposal.

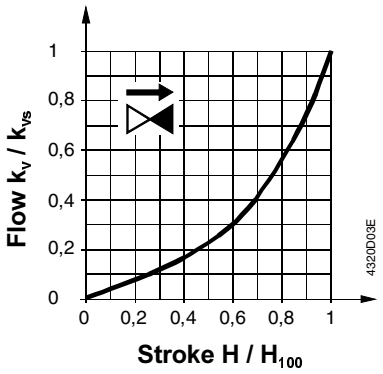
Sizing

Flow diagram



100 kPa = 1 bar ≈ 10 mWG
$\Delta p_V max$ = Maximum admissible pressure differential across the control path, valid for the entire stroke range.
$\Delta p_v 100$ = Pressure differential across the fully open valve across the control path at $\dot{V}_{100}$ flow in kPa or bar
$\dot{V}_{100}$ = Flow in m³/h or in l/s

Valve characteristic



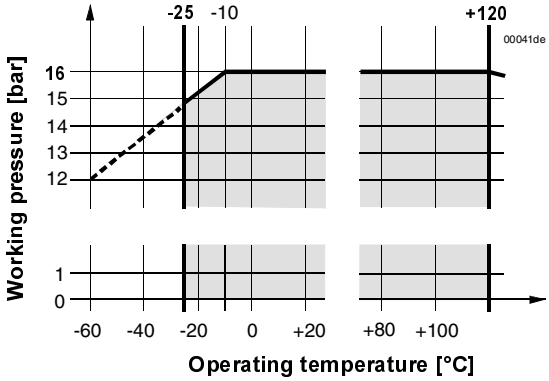
Valve characteristic:

0 ... 30 % ⇒ **Linear**

30 ... 100 % ⇒ **n_{gl} = 3**

to VDI /VDE2173

Working pressure and temperature



Working pressures classified to ISO 7268 and EN1333 at operating temperatures of – 25 … +120 °C to DIN4747 and DIN3158

Engineering

- In heating systems, the valve should preferably be installed in the return, where the seal will be exposed to lower temperatures, so extending its service life.
- Water should be of the quality recommended in VDI2035
- Recommendation: To increase the reliability of the valve, a **strainer** should be installed at the valve inlet.

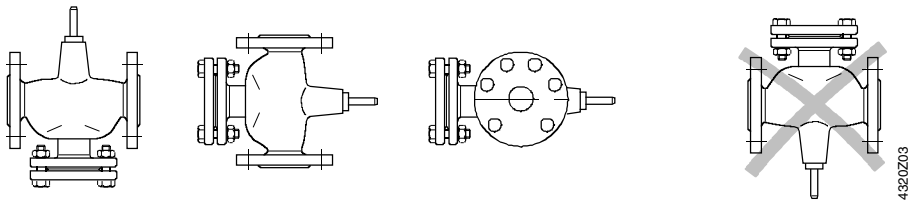
Stem heater

With **media temperatures below 0 °C**, an electric **stem heater, type ASZ6.5** is required to prevent the valve stem from freezing in the sealing gland. For safety reasons, the stem heater is designed to operate with a voltage of AC 24 V.

Mounting

The valve and actuator are easily assembled directly on site. There is no need for special tools or calibration.
Mounting instructions are enclosed with the valve.

Orientation



Permissible *Not permissible*

Direction of flow

When installing the valve, observe the flow-direction symbol ➞ marked on the valve.

Commissioning

The valve must be commissioned only with the actuator correctly assembled.

- Stem retracted: Increasing flow
- Stem extended: Decreasing flow

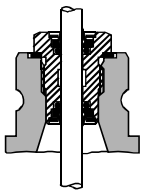
Maintenance

When servicing the valve: Switch OFF the pump and power supply, close the main shut-off valve in the pipework, release pressure in the pipes and allow them to cool down completely. If necessary, disconnect electrical connections from terminals.
The valve must be re-commissioned only with the actuator correctly assembled.

Stem seal

This can be replaced without removing the valve from the pipework. The pipes must be cool and free of pressure, and the stem surface must be in perfect condition. If the seal is damaged in the vicinity of the seal, the entire stem/plug unit must be replaced. Contact your local office for details.

Spare parts



Replacements for EPDM O-ring seal including flat-faced copper seal, for chilled water, low temperature hot water, high temperature hot water, and brine (−25 ... +120 °C):

For VVF40 … DN15 ... DN80	(Stem diameter 10 mm)	**4 284 8806 0**
For VVF40 ... DN100 ... DN150	(Stem diameter 14 mm)	**4 679 5629 0**

Warranty

The Landis & Staefa warranty is invalidated by the use of actuators from other manufacturers.
The technical data in relation to Δp_{max}, Δp_s, leakage rates, noise and service-life is valid only in conjunction with the Landis & Staefa actuators listed in the table under "Compatibility".

Technical data

Operating data

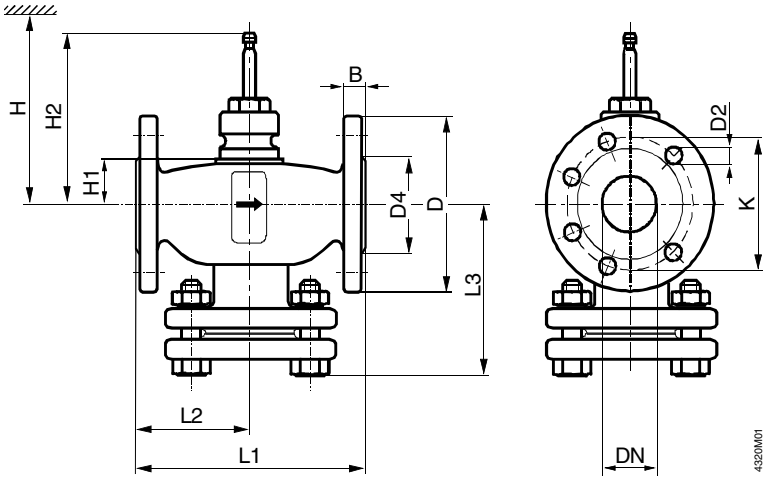
PN class		PN16
Valve characteristic	0 ... 30 %	Linear
	30 ... 100 %	n_{gl} = 3 to VDI/ VDE2173
Leakage		0 ... 0.02 % of k_{vs} value, VDE/ VDI2174
Admissible pressure		1600 kPa (16 bar) to ISO7268 / EN1333
Operating pressure		To DIN4747 / DIN3158 in the range −25 ... +120 °C
Flange connections		To ISO7005-2
Stroke	DN15 ... DN80	20 mm
	DN100 ... DN150	40 mm

Materials

Valve body		GG-20 / GG-25 to DIN1561
Stem		Stainless steel
Plug	DN15 ... DN65	Brass
	DN80 ... DN150	Bronze
Seal		Brass
– Sealing material		EPDM O-rings

Dimensions

All dimensions in mm



DN [mm]	B	D Ø	D2 Ø	D4 Ø	H1	H2	K Ø	L1	L2	L3	Weight [kg]
15	14	95	14 (4x)	46	40.5	137	65	130	65	86	5.2
25	16	115		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	135.5	125	230	115	143	15.5
65	20	185		118	60	156.5	145	290	145	173	17.3
80	22	200		132	60	156.5	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	26	285	23 (8x)	211	118	234.5	240	480	240	275	68

Overall installation height

DN [mm]	H			
	SQX...	**SKD...**	**SKB...**	**SKC...**
15	> 465	> 540	> 615	-
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 height of actuator plus minimum clearance from wall or ceiling for mounting, connection, operation, maintenance etc.
H_1 = Installation height from middle of pipe, for fitted actuator (upper edge)
H2 = Valve in "Closed" position, i.e. with stem fully extended