



VVF32..



VXF32..

ACVATIX™

## 2- and 3-port valves with flanged connections, PN 10

VVF32..  
VXF32..


From the large-stroke valve line

- Performance valves for medium temperatures from -10...150 °C
- Valve body of grey cast iron EN-GJL-250
- DN 15...150
- $k_{vs}$  1.6...400 m<sup>3</sup>/h
- Flange type 21, flange design B
- Equipable with electro-motoric actuators SAX.., SAV.. or electro-hydraulic actuators SKD.., SKB.., SKC..

### Use


In boiler, district heating and refrigeration plants, heating groups, ventilation and air-handling units as control or shutoff valves.  
For use in closed circuits.

## Type summary

Valves	Actuators				SAX.. <sup>1)</sup>		SKD..		SKB..		SAV.. <sup>1)</sup>		SKC..	
					Stroke				20 mm		40 mm			
PN 10	Positioning force				800 N		1000 N		2800 N		1600N		2800 N	
	Data sheet				N4501		N4561		N4564		N4503		N4566	
	Stock number	DN	k <sub>vs</sub>	S <sub>v</sub>	Δp <sub>s</sub>	Δp <sub>max</sub>	Δp <sub>s</sub>	Δp <sub>max</sub>	Δp <sub>s</sub>	Δp <sub>max</sub>	Δp <sub>s</sub>	Δp <sub>max</sub>	Δp <sub>s</sub>	Δp <sub>max</sub>
-10...150 °C	[m <sup>3</sup> /h]				[kPa]									
VVF32.15-1.6	S55202-V100	15	1.6	>50	1000	400	1000	400	1000	400	-	-	-	-
VVF32.15-2.5	S55202-V101	15	2.5											
VVF32.15-4	S55202-V102	15	4											
VVF32.25-6.3	S55202-V103	25	6.3											
VVF32.25-10	S55202-V104	25	10											
VVF32.40-16	S55202-V105	40	16	>100	550	300	450	200	700	400	1000	400	-	-
VVF32.40-25	S55202-V106	40	25											
VVF32.50-40	S55202-V107	50	40											
VVF32.65-63	S55202-V108	65	63											
VVF32.80-100 <sup>2)</sup>	S55202-V109	80	100											
VVF32.100-160 <sup>2)</sup>	S55202-V110	100	160											
VVF32.125-250	S55202-V111	125	250											
VVF32.150-400 <sup>2)</sup>	S55202-V112	150	400											
											160	125	300	250
											125	90	190	160
											80	60	125	100

<sup>1)</sup> Suitable for medium temperatures up to 130 °C

<sup>2)</sup> Valve characteristic for k<sub>vs</sub> value 100 m<sup>3</sup>/h from 70% stroke, k<sub>vs</sub> value 160 m<sup>3</sup>/h from 85% stroke and k<sub>vs</sub> value 400 m<sup>3</sup>/h from 90% stroke is optimized for maximum volumetric flow

Valves	Actuators				SAX.. <sup>1)</sup>		SKD..		SKB..		SAV.. <sup>1)</sup>		SKC..	
					Stroke				20 mm		40 mm			
PN 10	Positioning force				800 N		1000 N		2800 N		1600N		2800 N	
	Data sheet				N4501		N4561		N4564		N4503		N4566	
	Stock number	DN	k <sub>vs</sub>	S <sub>v</sub>	Δp <sub>max</sub>									
-10...150 °C	[m <sup>3</sup> /h]				[kPa]									
					A→AB	AB→A	A→AB	AB→A	A→AB	AB→A	A→AB	AB→A	A→AB	AB→A
VXF32.15-1.6	S55202-V113	15	1.6	>50	400	100	400	100	400	100	-	-	-	-
VXF32.15-2.5	S55202-V114	15	2.5											
VXF32.15-4	S55202-V115	15	4											
VXF32.25-6.3	S55202-V116	25	6.3											
VXF32.25-10	S55202-V117	25	10											
VXF32.40-16	S55202-V118	40	16	>100	300	50	200	80	400	100	400	100	-	-
VXF32.40-25	S55202-V119	40	25											
VXF32.50-40	S55202-V120	50	40											
VXF32.65-63	S55202-V121	65	63											
VXF32.80-100 <sup>2)</sup>	S55202-V122	80	100											
VXF32.100-160 <sup>2)</sup>	S55202-V123	100	160											
VXF32.125-250	S55202-V124	125	250											
VXF32.150-400 <sup>2)</sup>	S55202-V125	150	400											
											225	50	250	50
											125		160	
											90		100	
											60			

<sup>1)</sup> Suitable for medium temperatures up to 130 °C

<sup>2)</sup> Valve characteristic for k<sub>vs</sub> value 100 m<sup>3</sup>/h from 70% stroke, k<sub>vs</sub> value 160 m<sup>3</sup>/h from 85% stroke and k<sub>vs</sub> value 400 m<sup>3</sup>/h from 90% stroke is optimized for maximum volumetric flow

DN = Nominal size

k<sub>vs</sub> = Flow nominal value of cold water (5...30 °C) through the fully opened valve (H<sub>100</sub>) at a differential pressure of 100 kPa (1 bar)

S<sub>v</sub> = Rangeability

Δp<sub>s</sub> = Maximum permissible differential pressure at which the motorized valve still closes securely against the pressure

Δp<sub>max</sub> = Maximum permissible differential pressure across the valve's throughport for the entire positioning range of the motorized valve

## Ordering

### Example

Product number	Stock number	Description
VXF32.15-1.6	S55202-V113	3-port valve with flange, PN 10
SKD32.50	SKD32.50	Electro-hydraulic actuator

Delivery

Valves, actuators and accessories are packed and delivered as separate items.

Note

Counter-flanges, bolts and gaskets must be provided on site.

Spare parts, Rev.-No.

See page 13

**Equipment combinations**

Product number	Description	Stroke	Positioning force	Operating voltage	Positioning signal	Spring return time	Positioning time	LED	Manual adjuster	Auxiliary functions									
SAX31.00	S55150-A105	20 mm	800 N	AC 230 V	3-position	-	120 s	-	Press and fix	1)									
SAX31.03	S55150-A106			AC 24 V DC 24 V	0...10 V 4...20 mA 0...1000 Ω	-	30 s	✓			-	2), 3)							
SAX61.03	S55150-A100																		
SAX61.03U	S55150-A100-A100																		
SAX81.00	S55150-A102																		
SAX81.03	S55150-A103			3-position	-	120 s	-	1)											
SAX81.03U	S55150-A103-A100	3-position	-	30 s	-	-	-												
SKD32.21	SKD32.21	20 mm	1000 N	AC 230 V	3-position	8 s	Opening: 30 s Closing: 10 s	-	Turn, Position is maintained	1)									
SKD32.50	SKD32.50					-	120 s	-			-	-							
SKD32.51	SKD32.51					8 s													
SKD60	SKD60			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	-	15 s	Opening: 30 s Closing: 15 s		✓	-	2)							
SKD62	SKD62																		
SKD62U	SKD62U																		
SKD62UA	SKD62UA																		
SKD82.50	SKD82.50												3-position	-	-	120 s	-	-	4)
SKD82.50U	SKD82.50U																		
SKD82.51	SKD82.51																		
SKD82.51U	SKD82.51U	3-position	-	8 s	120 s	-	-	1)											
SKB32.50	SKB32.50	20 mm	2800 N	AC 230 V	3-position	-	120 s	-	Turn, Position is maintained	1)									
SKB32.51	SKB32.51					10 s													
SKB60	SKB60			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	-	10 s	Opening: 120 s Closing: 10 s		✓	-	2)							
SKB62	SKB62																		
SKB62U	SKB62U																		
SKB62UA	SKB62UA																		
SKB82.50	SKB82.50												3-position	-	-	120 s	-	-	4)
SKB82.50U	SKB82.50U																		
SKB82.51	SKB82.51	3-position	-	10 s	120 s	-	-	1)											
SKB82.51U	SKB82.51U	3-position	-	10 s	120 s	-	-	-											
SAV31.00	S55150-A112	40 mm	1600 N	AC 230 V	3-position	-	120 s	-	Press and fix	-									
SAV61.00	S55150-A110			AC 24 V DC 24 V	0...10 V 4...20 mA 0...1000 Ω	-		-		-	✓	-	2)						
SAV61.00U	S55150-A110-A100																		
SAV81.00	S55150-A111			3-position	-	-		-		-	-	-							
SAV81.00U	S55150-A111-A100	3-position	-	-	-	-	-	-	-										
SKC32.60	SKC32.60	40 mm	2800 N	AC 230 V	3-position	-	120 s	-	Turn, Position is maintained	1)									
SKC32.61	SKC32.61					18 s													
SKC60	SKC60					-													
SKC62	SKC62			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	-	20 s	Opening: 120 s Closing: 20 s		✓	-	2)							
SKC62U	SKC62U																		
SKC62UA	SKC62UA																		
SKC82.60	SKC82.60												3-position	-	-	120 s	-	-	4)
SKC82.60U	SKC82.60U																		
SKC82.61	SKC82.61																		
SKC82.61U	SKC82.61U	3-position	-	18 s	120 s	-	-	1)											

- 1) Auxiliary switch, potentiometer
- 2) Position feedback, forced control, selection of valve characteristic
- 3) Optional: sequence control, selection of acting direction
- 4) Plus sequence control, stroke limitation, and selection of acting direction

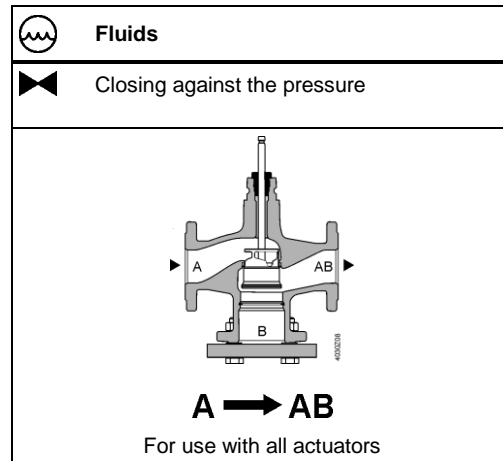
## Product documentation

- Mounting Instructions M4030 74 319 0749 0
- Basic documentation P4030 Contains background information and technical basic knowledge of valves

## Technical and mechanical design

The illustrations below show the basic design of the valves. Constructional features, such as the shape of plugs, may differ.

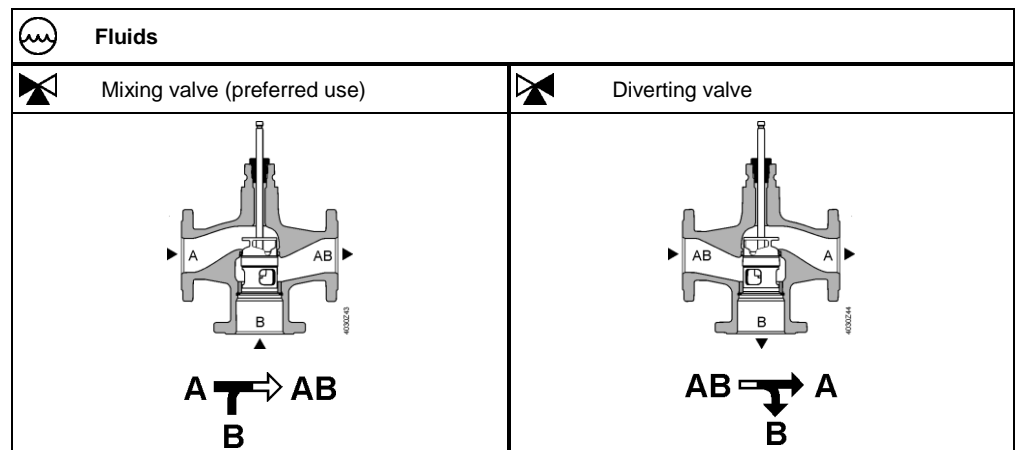
### 2-port valves




Note

**2-port valves do not become 3-port valves by removing the blank flange!**

### 3-port valves

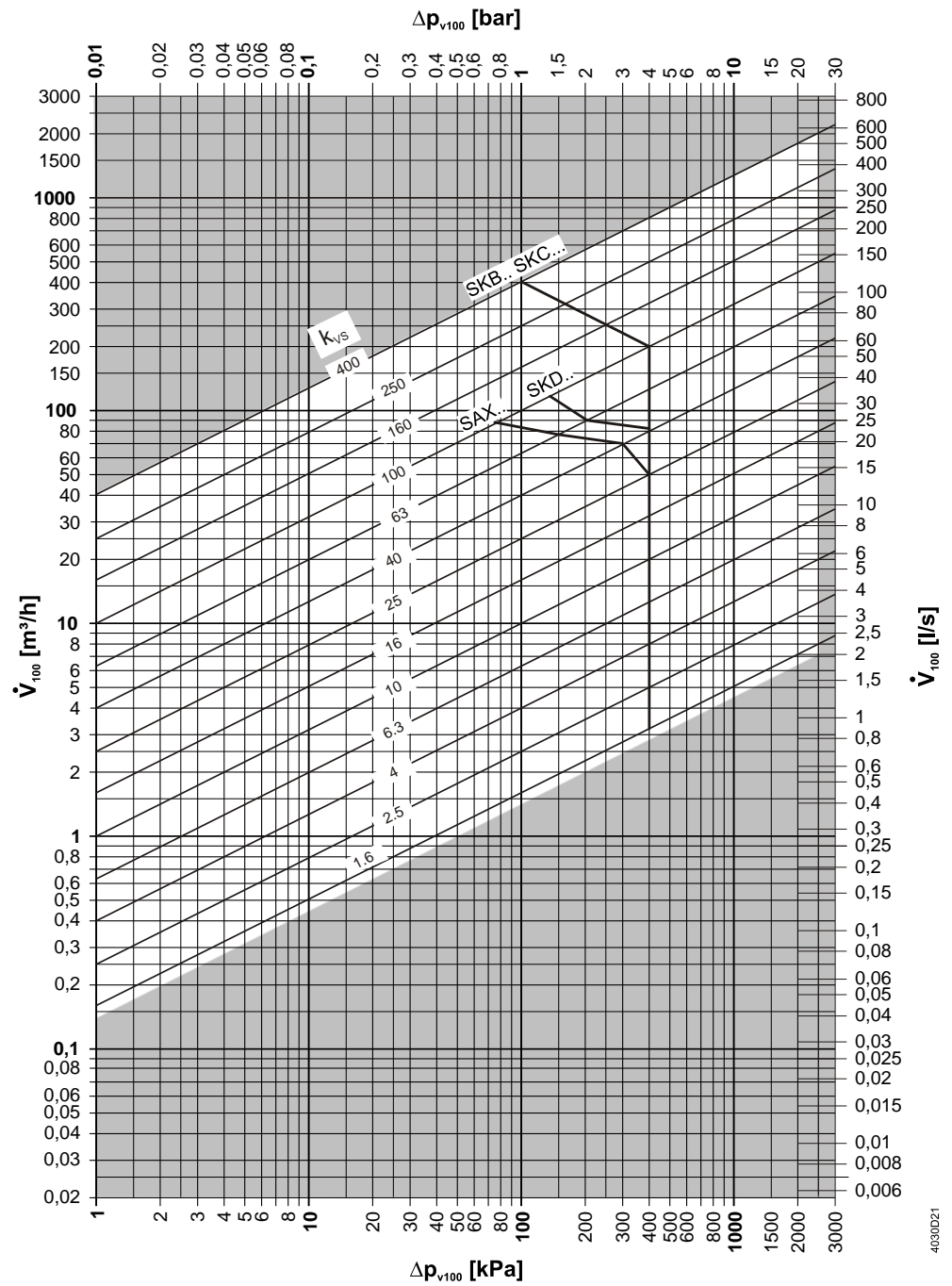


## Accessories

Product number	Stock number	Description	Note	Example
ASZ6.6	S55845-Z108	Stem heating element	Required for medium temperatures < 0 °C	

## Sizing

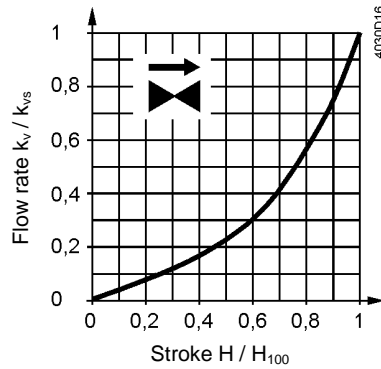
### Flow chart



$\Delta p_{\text{max}}$  values apply for the mixing function.  $\Delta p_{\text{max}}$  values for the diverting function see table „Type summary“, page 2

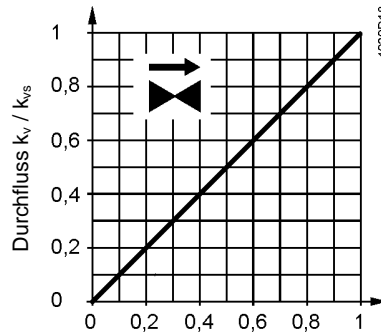
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**Valve characteristics**  
**2-port valves**



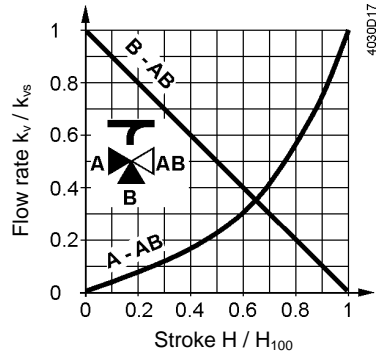
0...30%: Linear  
30...100%: Equal percentage  
 $n_{gl} = 3$  to VDI / VDE 2173  
For high  $k_{vs}$  values the valve characteristic is optimized for maximum volumetric flow  $k_{V100}$ .

For product lines:  
VVF32.125-250  
VVF32.150-400



0...100%: Linear

**3-port valves**



**Throughport A-AB**

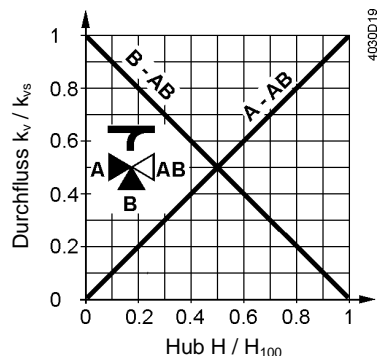
0...30%: Linear  
30...100%: Equal percentage  
 $n_{gl} = 3$  to VDI / VDE 2173  
For high  $k_{vs}$  values the valve characteristic is optimized for maximum volumetric flow  $k_{V100}$ .

**Bypass B-AB**

0...100%: Linear  
Tor AB = constant flow  
Tor A = variable flow  
Tor B = bypass (variable flow)

**Mixing:** Flow from port A and port B to port AB  
**Diverting:** Flow from port AB to port A and port B

For product lines:  
VXF32.125-250  
VXF32.150-400



**Durchgang A-AB**

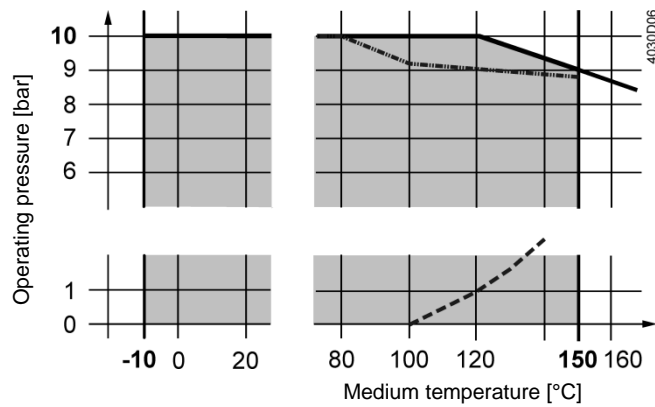
0...100%: Linear

**Bypass B-AB**

0...100%: Linear

**Operating pressure and medium temperature**

**Fluids, PN10**  
with V..F32..



- Curve for saturated steam; steam forms below this line
- .. Operating pressure according to EN 1092, valid for 2-port valves with blank flange

**Operating pressure and operating temperatures according to ISO 7005, EN 1092 and EN 12284**

Notes

All relevant local directives must be observed

**Medium compatibility and temperature ranges**

Medium	Temperature range		Valve V..F32..	Note
	T <sub>min</sub> [°C]	T <sub>max</sub> [°C]		
Cold water	1	25	■	-
Low-temperature hot water	1	130	■	-
High-temperature hot water <sup>1)</sup>	130	150	■	-
Water with antifreeze	-5	150	■	For medium temperatures below 0 °C, the stem heating ASZ6.6 has to be installed.
	-10	150	■	
	-20	150	-	
Brines	-5	150	■	For medium temperatures below 0 °C, the stem heating ASZ6.6 has to be installed.
	-10	150	■	
	-20	150	-	
Deminerlized water according to VDI2035 / SWKI_BT102-01	1	150	■	

<sup>1)</sup> Differentiation due to saturated steam curve

**Fields of use**

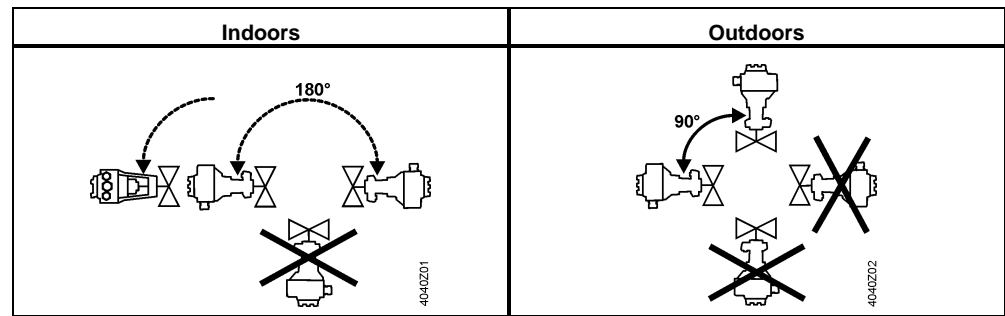
Fields of use		Valves	
		VVF32..	VXF32..
<b>Generation</b>	Boiler plants	■	■
	District heating plants	■	-
	Refrigeration plants	■	■
<b>Distribution</b>	Heating groups	■	■
	Ventilation and air-handling units	■	■

**Engineering notes**

- Mounting location** Preferably mount the valves at the return, as the temperature is lower there and the stem sealing gland is less strained.
- Dirt trap** Mount a dirt filter or dirt trap before the valve to ensure proper functioning, and a long service life of the valve. Remove dirt, welding beads, etc. from the valves and pipes.
- Cavitation** Cavitation can be avoided by limiting the pressure differential across the valve depending on the medium temperature and prepressure.

## Mounting notes

Mounting position



Mounting positions apply to both 2- and 3-port valves.

## Commissioning notes



**The valve may be put into operation only if actuator and valve are correctly assembled.**

Note

Ensure that actuator stem and valve stem are rigidly connected in all positions.

Function check

Valve	Throughport A→AB	Bypass B→AB
Valve stem extends	Closes	Opens
Valve stem retracts	Opens	Closes

## Maintenance notes

Valves are equipped with maintenance-free, continuously lubricated stem sealing glands. See page 13 for replacement stem sealing glands.



When servicing valves or actuators:

- 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.

Disposal

Do not dispose of the device as household waste.

- Special handling of individual components may be mandated by law or make ecological sense.
- Observe all local and currently applicable laws and regulations.

## Warranty

Application-related technical data are guaranteed only when the valves are used in connection with the Siemens actuators listed under "Equipment combinations", page 3.

When used with actuators of other manufacture, any warranty by Siemens becomes void.



## Technical data

Functional data	PN class	PN 10	
	Connection	Flange	
	Operating pressure	See Section "Operating pressure and medium temperatures", page 7	
	Valve characteristics <sup>1)</sup>	See section "Valve characteristics", page 6	
	Leakage rate	Throughport	0...0.02% of $k_{vs}$ value
		Bypass	0.5...2% of $k_{vs}$ value ( $k_{vs} \geq 6.3$ ) 0.5...3% of $k_{vs}$ value ( $k_{vs}$ 1.6; 2.5; 4)
	Permissible media	See table "Medium compatibility and temperature ranges", page 7	
	Medium temperature	-10... 150 °C	
	Rangeability	To DN 25: > 50	
		From DN 40: >100	
	Nominal stroke	To DN 80: 20 mm	
From DN 100: 40 mm			
Materials	Valve body	EN-GJL-250	
	Blank flange	VVF.. S235JRG2	
	Valve stem	Stainless steel	
	Seat	Machined	
	Plug	Brass/ Bronze	
	Stem sealing gland	Brass EPDM O-rings PTFE sleeve silicon-free	
Standards, directives and approvals	Pressure Equipment Directive	PED 2014/68/EU	
	Pressure-carrying accessories	Scope: Article 1, section 1 Definitions: Article 2, section 5	
	Fluid group 2	PN 10	
		≤DN 80	Without CE certification as per article 4, section 3 (sound engineering practice) <sup>2)</sup>
	DN 100...150	Category I, Modul A, with CE-marking as per article 14, section 2	
	EU conformity (CE)	DN 100...150	A5W00006523 <sup>3)</sup>
		PN class	ISO 7268
	Operating pressure	ISO 7005, DIN EN 12284	
	Flanges	ISO 7005	
	Length of flanged valves	DIN EN 558-1, line 1	
	Valve characteristic <sup>1)</sup>	VDI 2173	
	Leakage rate	Throughport, bypass according to EN 60534-4 / EN 1349	
	Water treatment	VDI 2035	

Environmental conditions		
Storage: IEC 60721-3-1	Class	1K3
	Temperature	-15...+55 °C
	Rel. humidity	5...95% r.h.
Transport: IEC 60721-3-2	Class	2K3, 2M2
	Temperature	-30...+65 °C
	Rel. humidity	< 95% r.h.
Operation: IEC 60721-3-3	Class	3K5, 3Z11
	Temperature	-15...+55 °C
	Rel. humidity	5...95% r.h.

Environmental compatibility	The product environmental declaration CE1E4402en01 <sup>3)</sup> and CE1E4402en02 <sup>3)</sup> contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).
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Dimensions / Weight	Dimensions	See „Dimensions“, page 11
	Weight	See „Dimensions“, page 11

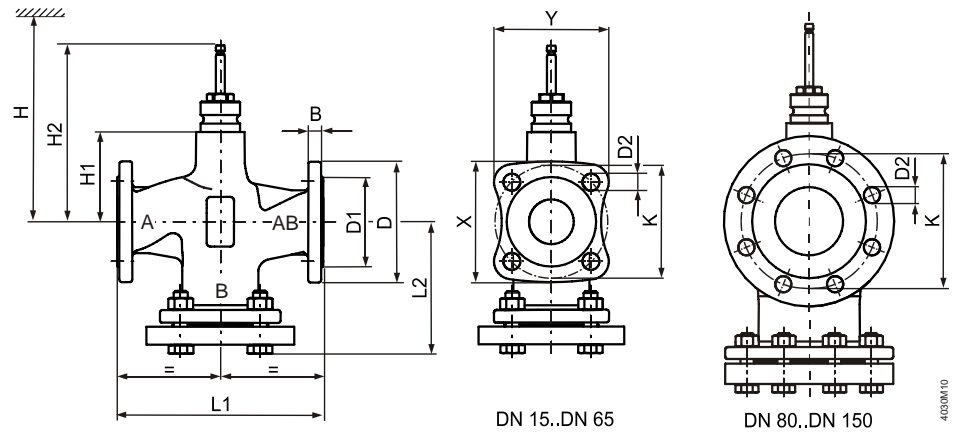
<sup>1)</sup> For certain valve lines and high  $k_{vs}$  values, the valve characteristic is optimized for maximum volumetric flow  $k_{V100}$ .

<sup>2)</sup> Valves where  $PS \times DN < 1000$ , do not require special testing and cannot carry the CE label.

<sup>3)</sup> The documents can be downloaded from <http://siemens.com/bt/download>

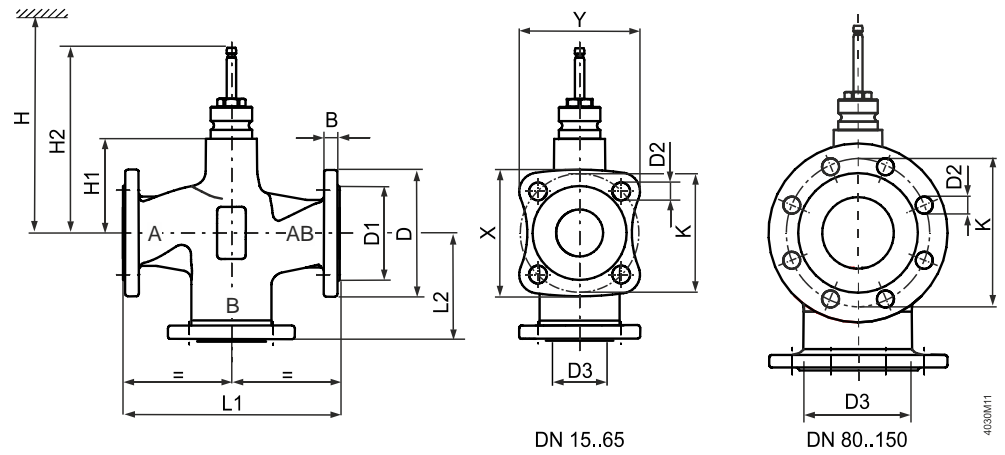
## Dimensions

### VVF32..



Product number	DN	kg	B	Ø D	Ø D1	Ø D2	L1	L2	X	Y	Ø K	H1	H2	H				
														SAX..	SKD..	SKB..	SAV..	SKC..
VVF32..	15	3.7	14	95	46	14 (4x)	130	86	79	76	65	37	133.5	479	537	612	-	-
	25	5.4	15	115	65	14 (4x)	160	104	94.4	90.1	85	37	133.5	479	537	612	-	-
	40	9.2	16	150	84	19 (4x)	200	126	123.2	117.8	110	37	133.5	479	537	612	502	-
	50	12.2	16	165	99	19 (4x)	230	143	135.2	128.4	125	50	146.5	492	550	625	515	-
	65	17	17	185	118	19 (4x)	290	173	150	142.5	145	75	171.55	517	575	650	540	-
	80	25	17	200	132	19 (8x)	310	185	-	-	160	75	171.55	517	575	650	540	-
	100	35.9	17	220	156	19 (8x)	350	205	-	-	180	110	226.5	-	-	-	575	685
	125	52.5	17	250	184	19 (8x)	400	232	-	-	210	123	239.5	-	-	-	588	698
												159	275.5	-	-	-	624	734
												150.5	267	-	-	-	616	726
											186.5	303	-	-	-	652	762	

VXF32..



DN 15..65

DN 80..150


4030M11

Typ	DN	kg	B	Ø D	Ø D1	Ø D2	Ø D3 <sup>1)</sup>	L1	L2	X	Y	Ø K	H1	H2	H				
															SAX..	SKD..	SKB..	SAV..	SKC..
VXF32..	15	2,6	14	95	46	14 (4x)	23	130	65	79	76	65	37	133,5	479	537	612	-	-
	25	3,8	15	115	65	14 (4x)	36	160	80	94,4	90,1	85	37	133,5	479	537	612	-	-
	40	6,3	16	150	84	19 (4x)	56	200	100	123,2	117,8	110	37	133,5	479	537	612	502	-
	50	8,7	16	165	99	19 (4x)	69	230	115	135,2	128,4	125	50	146,5	492	550	625	515	-
	65	12,9	17	185	118	19 (4x)	85	290	145	150	142,5	145	75	171,55	517	575	650	540	-
	80	19,2	17	200	132	19 (8x)	102	310	155	-	-	160	75	171,55	517	575	650	540	-
	100	29	17	220	156	19 (8x)	124	350	175	-	-	180	110	226,5	-	-	-	575	685
	125	43,2	17	250	184	19 (8x)	149	400	200	-	-	210	123	239,5	-	-	-	588	698
													159	275,5	-	-	-	624	734
	150	62,1	17	284	211	23 (8x)	174	480	240	-	-	240	150,5	267	-	-	-	616	726
												186,5	303	-	-	-	652	762	

<sup>1)</sup> Inside opening width of the bypass port

## Spare parts

### Stem sealing gland

Product number	DN	Stock number	Comments	Image
VVF32.. VXF32..	DN 15...80	4 284 8806 0	Series A	
	DN 100...150	4 284 8806 0	Series A, B and C until October 2015	
	DN 100...150	4 679 5629 0	Series D as of October 2015	

### Revision numbers

VVF..  
VXF..

Product number	Valid from rev. no.	Product number	Valid from rev. no.
VVF32.15-1.6	..A	VXF32.15-1.6	..A
VVF32.15-2.5	..A	VXF32.15-2.5	..A
VVF32.15-4	..A	VXF32.15-4	..A
VVF32.25-6.3	..A	VXF32.25-6.3	..A
VVF32.25-10	..A	VXF32.25-10	..A
VVF32.40-16	..A	VXF32.40-16	..A
VVF32.40-25	..A	VXF32.40-25	..A
VVF32.50-40	..A	VXF32.50-40	..A
VVF32.65-63	..A	VXF32.65-63	..A
VVF32.80-100	..A	VXF32.80-100	..A
VVF32.100-160	..D	VXF32.100-160	..D
VVF32.125-250	..D	VXF32.125-250	..D
VVF32.150-400	..D	VXF32.150-400	..D

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