



VVF22..



VXF22..

ACVATIX™

2- and 3-port valves with flanged connections, PN 6

VVF22..
VXF22..

From the large-stroke valve line


- Performance valves for medium temperatures from -10...130 °C
- Valve body of grey cast iron EN-GJL-250
- DN 25...100
- k_{vs} 2.5...160 m³/h
- Flange type 21, flange design B
- Equipable with electro-motoric actuators SAX.., SAV.. or electro-hydraulic actuators SKD.., SKB.., SKC..













Use

In boiler, refrigeration plants, heating groups, ventilation and air-handling units as control or shutoff valves.

For use in closed circuits.

Type summary

Valves	Actuators Stroke Positioning force Data sheet				SAX..	SKD..	SKB..	SAV.. ¹⁾	SKC..												
					20 mm			40 mm													
PN 6					800 N	1000 N	2800 N	1600 N	2800 N												
					N4501	N4561	N4564	N4503	N4566												
	DN	k _{vs}	S _v	Δp_s Δp_{max} Δp_s Δp_{max} Δp_s Δp_{max} Δp_s Δp_{max} Δp_s Δp_{max}																	
-10...130 °C	Stock number	[m ³ /h]		[kPa]																	
VVF22.25-2.5	S55200-V100	25	2.5	> 50	600	300	600	300	600	300	-	-	-	-							
VVF22.25-4	S55200-V101	25	4								-	-	-	-							
VVF22.25-6.3	S55200-V102	25	6.3								-	-	-	-							
VVF22.25-10	S55200-V103	25	10								-	-	-	-							
VVF22.40-16	S55200-V104	40	16	> 100	550	300	600	300	600	300	-	-	-	-							
VVF22.40-25	S55200-V105	40	25								-	-	-	-							
VVF22.50-40	S55200-V106	50	40								350	450	-	-	600	300	-	-			
VVF22.65-63	S55200-V107	65	63								200	150	250	200	450	225	-	-			
VVF22.80-100 ²⁾	S55200-V108	80	100								125	75	175	125	450	250	225	-	-		
VVF22.100-160 ²⁾	S55200-V109	100	160								-	-	-	-	-	-	-	160	125	300	250

Valves	Actuators Stroke Positioning force Data sheet				SAX..	SKD..	SKB..	SAV.. ¹⁾	SKC..											
					20 mm			40 mm												
PN 6					800 N	1000 N	2800 N	1600 N	2800 N											
					N4501	N4561	N4564	N4503	N4566											
	DN	k _{vs}	S _v	Δp_{max}																
-10...130 °C	Stock number	[m ³ /h]		[kPa]																
																				
VXF22.25-2.5	S55200-V110	25	2.5	> 50	300	100	300	100	300	100	-	-	-	-						
VXF22.25-4	S55200-V111	25	4								-	-	-	-						
VXF22.25-6.3	S55200-V112	25	6.3								-	-	-	-						
VXF22.25-10	S55200-V113	25	10								-	-	-	-						
VXF22.40-16	S55200-V114	40	16	> 100	150	50	200	80	300	100	-	-	-	-						
VXF22.40-25	S55200-V115	40	25								-	-	-	-						
VXF22.50-40	S55200-V116	50	40								75	50	125	50	225	50	-	-		
VXF22.65-63	S55200-V117	65	63								-	-	-	-	125	50	-	-		
VXF22.80-100 ²⁾	S55200-V118	80	100								-	-	-	-	-	-	125	50	250	100
VXF22.100-160 ²⁾	S55200-V119	100	160								-	-	-	-	-	-	-	-	-	-

¹⁾ SAV.. available in select countries only

²⁾ Valve characteristic for k_{vs} value 100 m³/h from 70% stroke, k_{vs} value 160 m³/h from 85% is optimized for maximum volumetric flow

DN = Nominal size

k_{vs} = Flow nominal value of cold water (5...30 °C) through the fully opened valve (H₁₀₀) at a differential pressure of 100 kPa (1 bar)

S_v = Rangeability

Δp_s = Maximum permissible differential pressure at which the motorized valve still closes securely against the pressure

Δp_{max} = 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
VVF22.25-2.5	S55200-V100	2-port valve with flange, PN 6
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 11

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						30 s				✓
SAX61.03	S55150-A100			AC 24 V DC 24 V	0...10 V 4...20 mA 0...1000 Ω		3-position	120 s		-	1)
SAX61.03U	S55150-A100-A100							30 s			
SAX81.00	S55150-A102			AC 230 V	3-position		8 s	Opening: 30 s Closing: 10 s		-	1)
SAX81.03	S55150-A103							120 s			
SAX81.03U	S55150-A103-A100	8 s									
SKD32.21	SKD32.21	20 mm	1000 N	AC 230 V	3-position	-	120 s	-	Turn, Position is maintained	1)	
SKD32.50	SKD32.50										8 s
SKD32.51	SKD32.51			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	15 s	Opening: 30 s Closing: 15 s	✓		2)	
SKD60	SKD60										4)
SKD62	SKD62			3-position	-	120 s	-	1)			
SKD62U	SKD62U									8 s	
SKD62UA	SKD62UA			AC 230 V	3-position	-	120 s	-		1)	
SKD82.50	SKD82.50										10 s
SKD82.50U	SKD82.50U	10 s									
SKD82.51	SKD82.51	AC 24 V	0...10 V 4...20 mA 0...1000 Ω	10 s	Opening: 120 s Closing: 10 s	✓	2)				
SKD82.51U	SKD82.51U							4)			
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										4)
SKB62U	SKB62U			3-position	-	120 s	-	1)			
SKB62UA	SKB62UA									10 s	
SKB82.50	SKB82.50	AC 230 V	3-position	-	120 s	-	1)				
SKB82.50U	SKB82.50U							10 s			
SKB82.51	SKB82.51	AC 24 V	0...10 V 4...20 mA 0...1000 Ω	10 s	Opening: 120 s Closing: 10 s	✓	2)				
SKB82.51U	SKB82.51U							4)			
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	0...10 V 4...20 mA 0...1000 Ω			3-position		✓	2)
SAV61.00U	S55150-A110-A100			DC 24 V	3-position			-		-	
SAV81.00	S55150-A111	AC 230 V	3-position	-	120 s	-	1)				
SAV81.00U	S55150-A111-A100							18 s			
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			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	20 s	Opening: 120 s Closing: 20 s	✓		2)	
SKC62	SKC62										4)
SKC62U	SKC62U			3-position	-	120 s	-	1)			
SKC62UA	SKC62UA									18 s	
SKC82.60	SKC82.60	AC 230 V	3-position	-	120 s	-	1)				
SKC82.60U	SKC82.60U							18 s			
SKC82.61	SKC82.61	AC 24 V	0...10 V 4...20 mA 0...1000 Ω	18 s	Opening: 120 s Closing: 20 s	✓	2)				
SKC82.61U	SKC82.61U							4)			

- 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

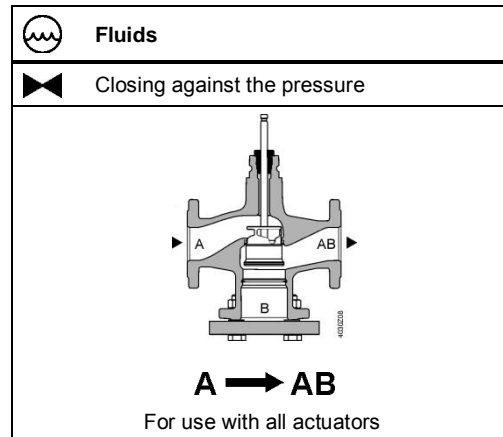
Product documentation

- 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.

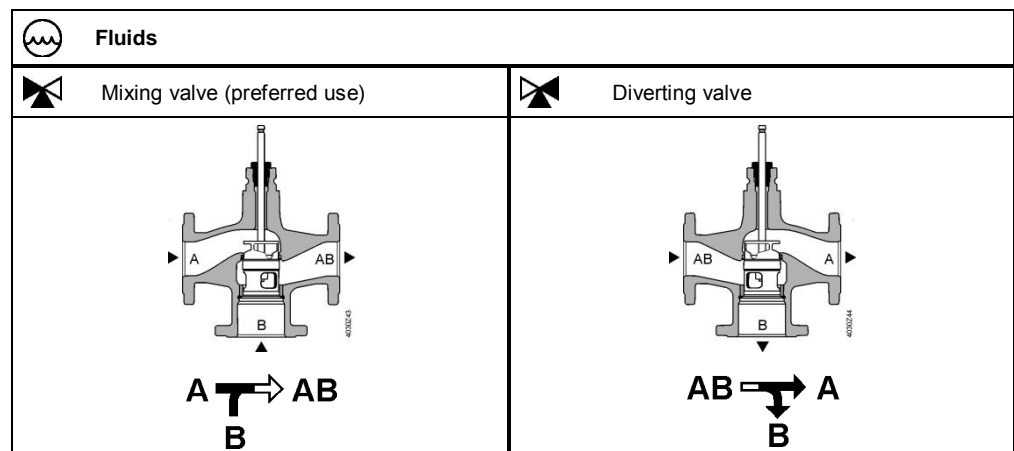
2-port valves




Note

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

3-port valves

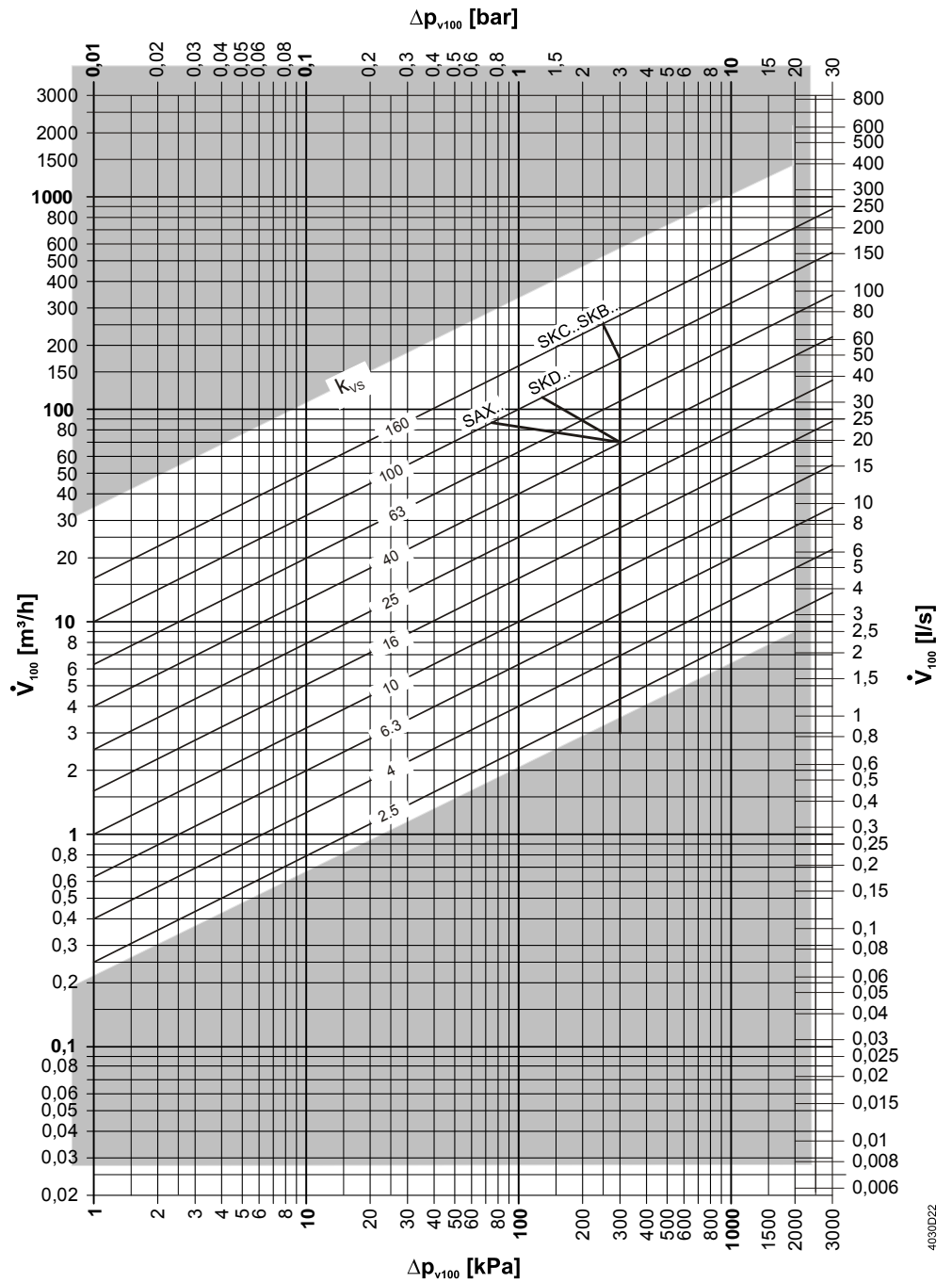


Accessories

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

Sizing

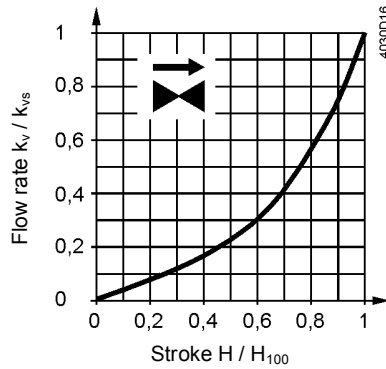
Flow chart



Δp_{max} values apply for the mixing function. Δp_{max} values for the diverting function see table „Type summary“, page 2.

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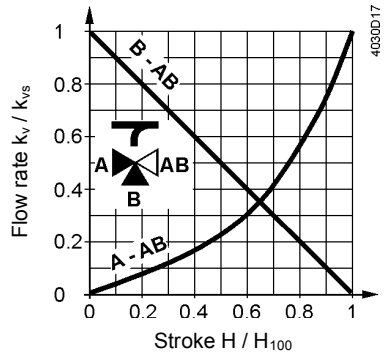
Valve characteristics
2-port valves



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} .

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} .

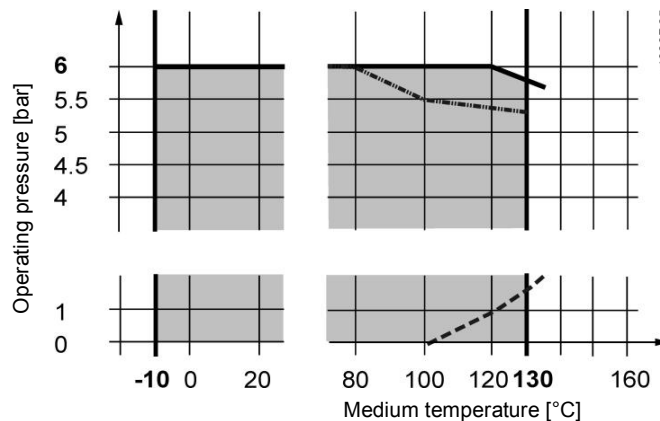
Bypass B-AB

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

Operating pressure and medium temperature

Fluids, PN6 with V..F22..



--- 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	Note
	T _{min} [°C]	T _{max} [°C]		
Cold water	1	25	■	-
Low-temperature hot water	1	130	■	-
High-temperature hot water	130	150	-	-
Water with antifreeze	-5	130	■	For medium temperatures below 0 °C, the stem heating ASZ6.6 has to be installed.
	-10	130	■	
Brines	-5	130	■	For medium temperatures below 0 °C, the stem heating ASZ6.6 has to be installed.
	-10	130	■	
Demineralized water according to VDI2035 / SWKI_BT102-01	1	130	■	

¹⁾ Differentiation due to saturated steam curve

Fields of use

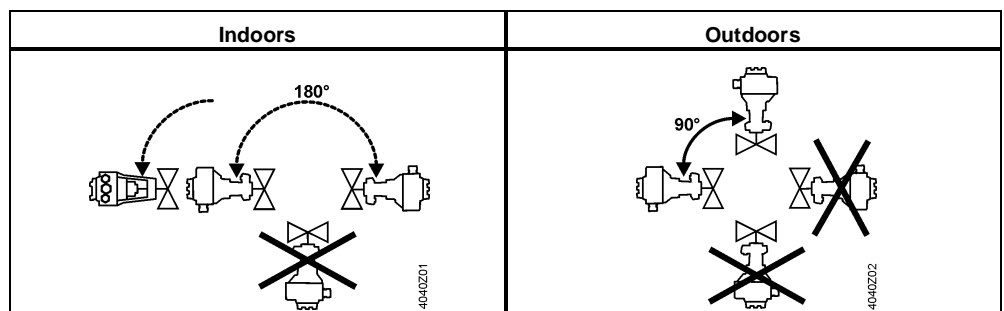
Fields of use		Valves	
		VVF22..	VXF22..
Generation	Boiler plants	■	■
	Refrigeration plants	■	■
Distribution	Heating groups	■	■
	Ventilation and air-handling units	■	■

Engineering notes

- Mounting location** Preferably mount the valves at the return, as the temperature is lower there and the strain on the stem sealing gland is lower.
- 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 11 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 6	
	Connection	Flange	
	Operating pressure	See Section "Operating pressure and medium temperatures", page 9	
	Valve characteristics ¹⁾	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...4% of k_{VS} value ($k_{VS} 2.5; 4$)
	Permissible media	See table "Medium compatibility and temperature ranges", page 7	
	Medium temperature	-10...130 °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 6
	≤ DN 100	Without CE certification as per article 4, section 3 (sound engineering practice) ²⁾
	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	VDI 2173 ¹⁾
	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 CE1E4401en01 ³⁾ and CE1E4401en02 ³⁾ contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
Dimensions / Weight	Dimensions	See „Dimensions“, page 9
	Weight	See „Dimensions“, page 9

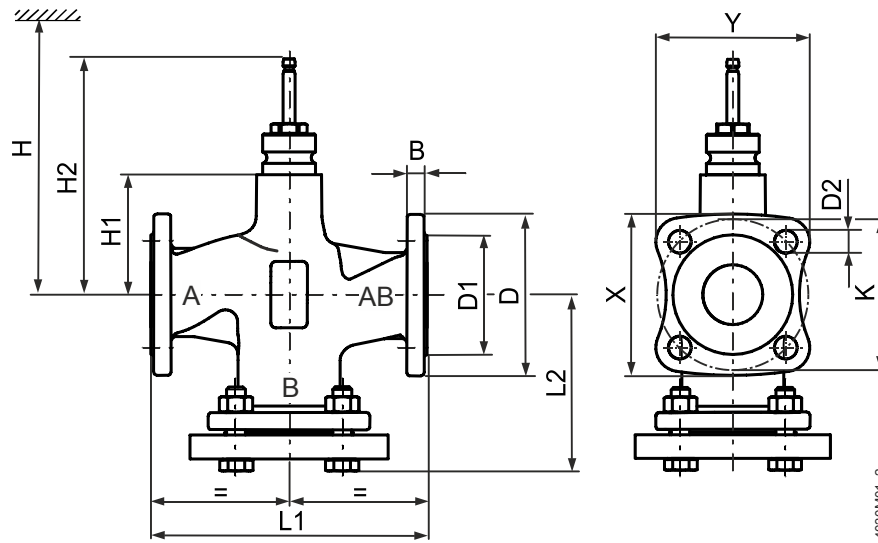
¹⁾ Valves where PS x DN < 1000, do not require special testing and cannot carry the CE label.

²⁾ For certain valve lines and high k_{vs} values, the valve characteristic is optimized for maximum volumetric flow k_{V100} .

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

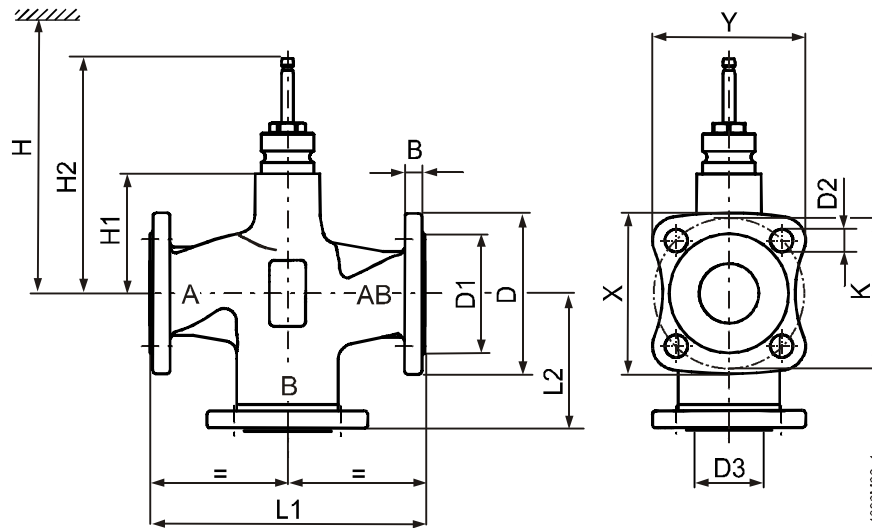
Dimensions

VVF22..



Product number	DN	kg	B	Ø D	Ø D1	Ø D2	L1	L2	Ø K	X	Y	H1	H2	H				
														SAX..	SKD..	SKB..	SAV..	SKC..
VVF22..	25	4.1	11	100	58	11 (4x)	150	99	75	82	78	37	133.5	479	537	612	-	-
	40	6.5	13	130	78	14 (4x)	180	116	100	106	101	37	133.5	479	537	612	502	-
	50	8	14	140	88	14 (4x)	200	128	110	114	108	50	146.5	492	550	625	515	-
	65	11.9	14	160	108	14 (4x)	240	142.5	130	129	122	75	171.55	517	575	650	540	-
	80	17.1	16	190	124	19 (4x)	260	157	150	154	146	75	171.55	517	575	650	540	-
100	24.2	16	210	144	19 (4x)	300	179	170	170	160	110	226.5	-	-	-	575	685	


VXF22..



Product number	DN	kg	B	Ø D	Ø D1	Ø D2	Ø D3	L1	L2	Ø K	X	Y	H1	H2	H				
															SAX..	SKD..	SKB..	SAV..	SKC..
VXF22..	25	3	11	100	58	11 (4x)	36	150	75	75	82	78	37	133.5	479	537	612	-	-
	40	4.8	13	130	78	14 (4x)	52	180	90	100	106	101	37	133.5	479	537	612	502	-
	50	6.2	14	140	88	14 (4x)	65	200	100	110	114	108	50	146.5	492	550	625	515	-
	65	9.5	14	160	108	14 (4x)	85	240	120	130	129	122	75	171.55	517	575	650	540	-
	80	13.1	16	190	124	19 (4x)	98	260	130	150	154	146	75	171.55	517	575	650	540	-
100	24.2	16	210	144	19 (4x)	116	300	150	170	170	160	110	226.5	-	-	-	575	685	

Spare parts

Stem sealing gland

Product number	DN	Stock number	Comments	Image
VVF22.. VXF22..	DN 25...80	4 284 8806 0	Series A	
	DN 100	4 284 8806 0	Series A, B and C until October 2015	
	DN 100	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.
VVF22.25-2.5	..A	VXF22.25-2.5	..A
VVF22.25-4	..A	VXF22.25-4	..A
VVF22.25-6.3	..A	VXF22.25-6.3	..A
VVF22.25-10	..A	VXF22.25-10	..A
VVF22.40-16	..A	VXF22.40-16	..A
VVF22.40-25	..A	VXF22.40-25	..A
VVF22.50-40	..A	VXF22.50-40	..A
VVF22.65-63	..A	VXF22.65-63	..A
VVF22.80-100	..A	VXF22.80-100	..A
VVF22.100-160	..D	VXF22.100-160	..D

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