



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..		SKC..	
PN 6					20 mm		40 mm		800 N		1000 N		2800 N	
		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		[m³/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	600	300	-	-
VVF22.40-25	S55200-V105	40	25								-	-		
VVF22.50-40	S55200-V106	50	40		350	450	200	200	450	200				
VVF22.65-63	S55200-V107	65	63		200	150	250	200	450	200				
VVF22.80-100 ¹⁾	S55200-V108	80	100		125	75	175	125	450	200				
VVF22.100-160 ¹⁾	S55200-V109	100	160		-	-	-	-	-	-	160	125	300	250

Valves	Actuators				SAX..	SKD..	SKB..	SAV..	SKC..			
PN 6	Stroke				20 mm			40 mm				
	Positioning force				800 N	1000 N	2800 N	1600 N	2800 N			
	Data sheet				N4501	N4561	N4564	N4503	N4566			
	Stock number	DN	k _{vs}	S _v	Δp _{max} [kPa]							
-10...130 °C			[m³/h]									
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									
VXF22.80-100 ¹⁾	S55200-V118	80	100		-	-	-	-	125	250	100	
VXF22.100-160 ¹⁾	S55200-V119	100	160		-	-	-	-	-	-	-	

¹⁾ 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			AC 24 V DC 24 V	0...10 V 4...20 mA 0...1000 Ω		-	30 s			✓	2), 3)	
SAX61.03 SAX61.03U	S55150-A100 S55150-A100-A100					120 s				-	1)		
SAX81.00	S55150-A102												30 s
SAX81.03 SAX81.03U	S55150-A103 S55150-A103-A100												
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				✓	2)	
SKD32.51	SKD32.51					8 s							4)
SKD60	SKD60			AC 24 V	0...10 V 4...20 mA 0...1000 Ω	-	Opening: 30 s Closing: 15 s	-		1)			
SKD62 SKD62U	SKD62 SKD62U					15 s					120 s	-	
SKD62UA	SKD62UA					3-position							8 s
SKD82.50 SKD82.50U	SKD82.50 SKD82.50U			120 s	-		1)						
SKD82.51 SKD82.51U	SKD82.51 SKD82.51U												
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	Opening: 120 s Closing: 10 s					✓	2)				
SKB60	SKB60	-											
SKB62 SKB62U	SKB62 SKB62U	10 s				120 s	-			1)			
SKB62UA	SKB62UA	3-position	10 s					-	1)				
SKB82.50 SKB82.50U	SKB82.50 SKB82.50U										120 s		-
SKB82.51 SKB82.51U	SKB82.51 SKB82.51U												
SAV31.00	S55150-A112	40 mm	1600 N	AC 230 V	3-position	-	120 s	-	Press and fix	-			
SAV61.00 SAV61.00U	S55150-A110 S55150-A110-A100			AC 24 V DC 24 V	0...10 V 4...20 mA 0...1000 Ω			-		120 s	✓	2)	
SAV81.00 SAV81.00U	S55150-A111 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					Opening: 120 s Closing: 20 s	✓	2)
SKC60	SKC60					-							
SKC62 SKC62U	SKC62 SKC62U			20 s	120 s	-	1)						
SKC62UA	SKC62UA			3-position				18 s		-	1)		
SKC82.60 SKC82.60U	SKC82.60 SKC82.60U											120 s	-
SKC82.61 SKC82.61U	SKC82.61 SKC82.61U												

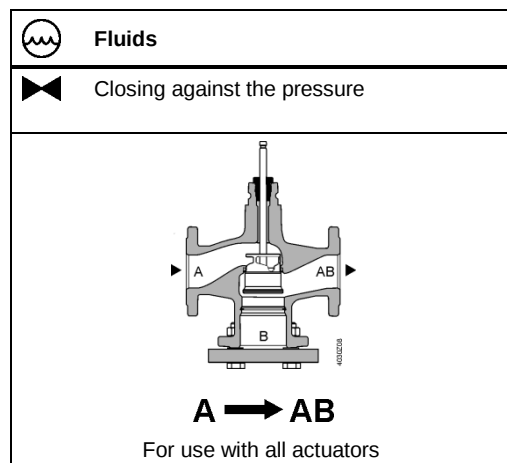
- 1) Auxiliary switch, potentiometer
2) Position feedback, forced control, selection of valve characteristic
3) Optional: sequence control, selection of acting direction
4) Plus sequence control, stroke limitation, and selection of acting direction

- | | | |
|-------------------------|-------|---|
| • 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.

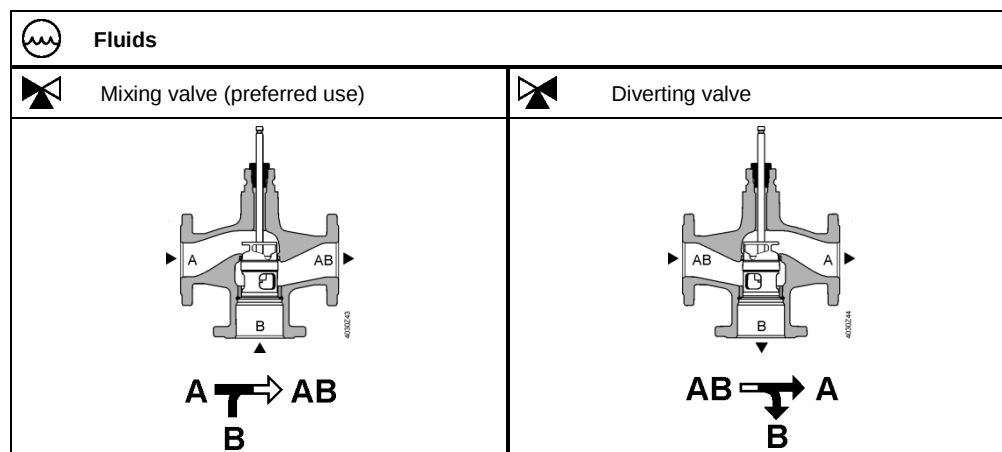
2-port valves



Note

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

3-port valves

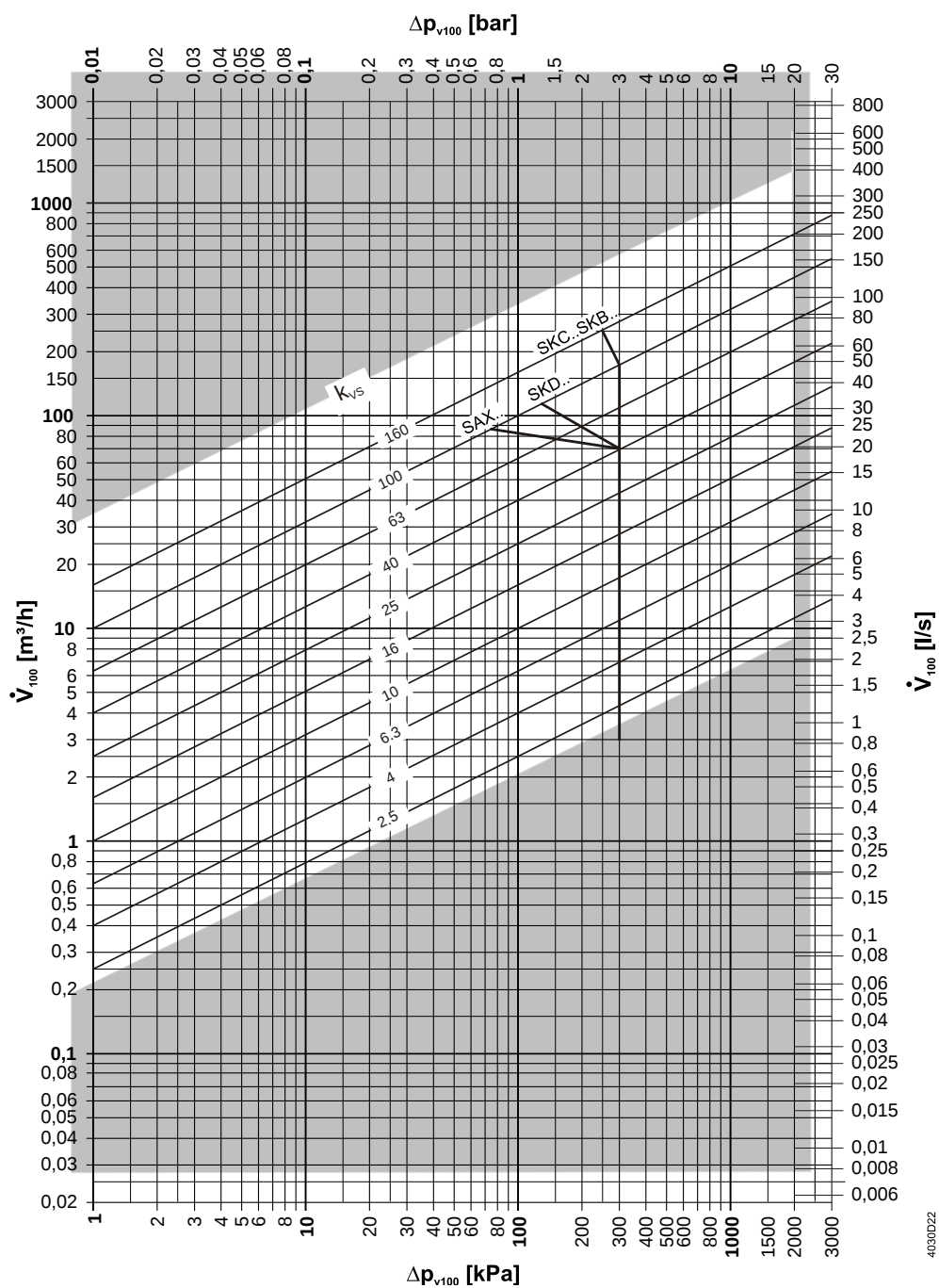


Accessories

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

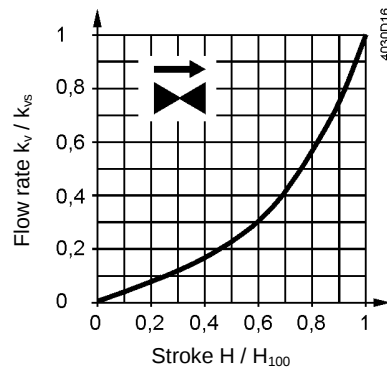
Sizing

Flow chart



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

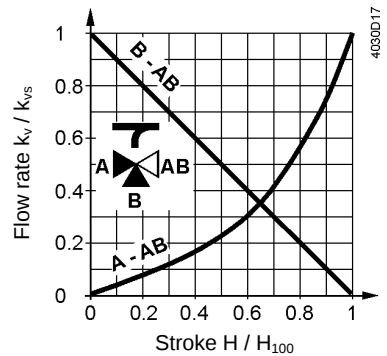
Valve characteristics 2-port valves



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} .

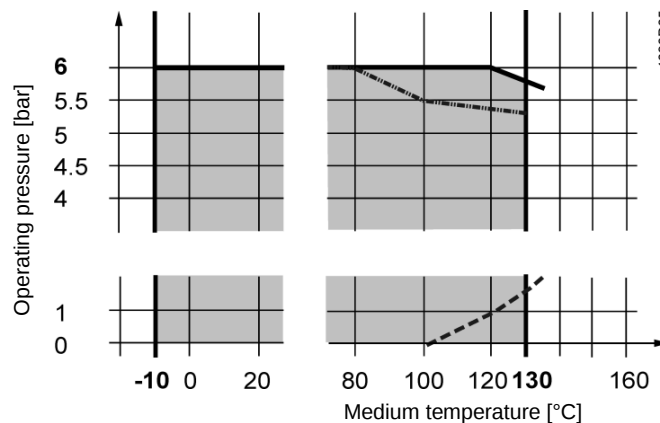
Bypass B-AB

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
Diverging: 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

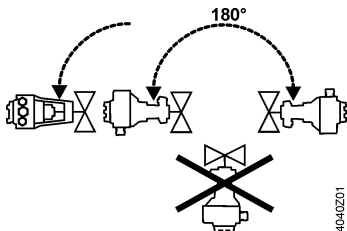
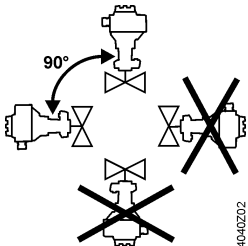
Fields of use

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	Indoors	Outdoors
		

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) ¹⁾
	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 ²⁾
	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

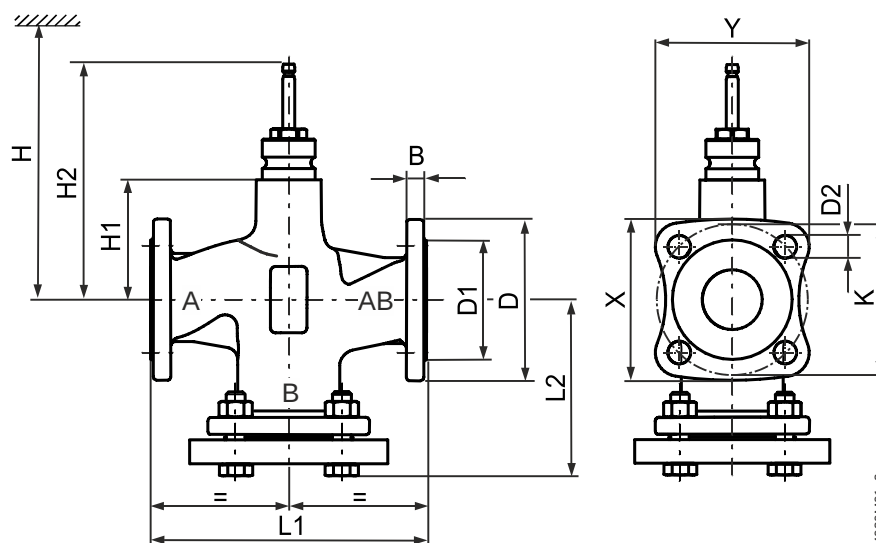
¹⁾ Valves where PS x DN < 1000, do not require special testing and cannot carry the CE label.

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>

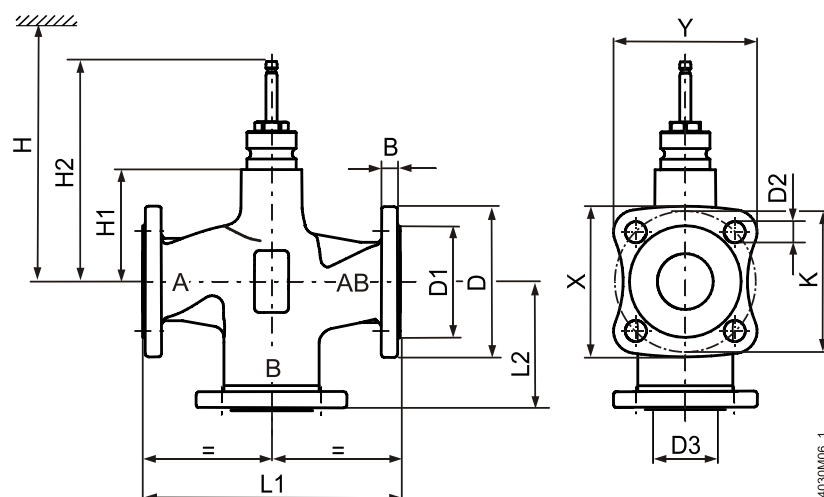
Dimensions

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 ¹⁾	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

¹⁾ Inside opening width of the bypass port

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

Issued by
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www.siemens.com/buildingtechnologies

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