SIEMENS

4402

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^3/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.. [1]		SKD..		SKB..		SAV.. [1]		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	
		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…150 °C	Stock number		[m³/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		750				1000	400		
VVF32.40-25	S55202-V106	40	25											
VVF32.50-40	S55202-V107	50	40		350	300	450				750			
VVF32.65-63	S55202-V108	65	63		200	150	250	200	700		450			
VVF32.80-100[2]	S55202-V109	80	100		125	75	175	125	450		250	225		
VVF32.100-160[2]	S55202-V110	100	160		-	-	-	-	-	-	160	125	300	250
VVF32.125-250	S55202-V111	125	250								125	90	190	160
VVF32.150-400[2]	S55202-V112	150	400								80	60	125	100

[1] Suitable for medium temperatures up to 130 °C

[2] Valve characteristic for k_{vs} value 100 m³/h from 70% stroke, k_{vs} value 160 m³/h from 85% stroke and k_{vs} value 400 m³/h from 90% stroke is optimized for maximum volumetric flow

Valves				Actuators	SAX.. [1]		SKD..		SKB..		SAV.. [1]		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	
		DN	k_{vs}	S_V			Δp_{max} [kPa]							
-10…150 °C	Stock number		[m³/h]		A⇨AB B	AB⇨A B	A⇨AB B	AB⇨A B	A⇨AB B	AB⇨A B	A⇨AB B	AB⇨A B	A⇨AB B	AB⇨A B
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							400	100		
VXF32.40-25	S55202-V119	40	25											
VXF32.50-40	S55202-V120	50	40		300									
VXF32.65-63	S55202-V121	65	63		150	50	200	80						
VXF32.80-100[2]	S55202-V122	80	100		75		125	50			225	50		
VXF32.100-160[2]	S55202-V123	100	160		-	-	-	-	-	-	125		250	50
VXF32.125-250	S55202-V124	125	250								90		160	
VXF32.150-400[2]	S55202-V125	150	400								60		100	

[1] Suitable for medium temperatures up to 130 °C

[2] Valve characteristic for k_{vs} value 100 m³/h from 70% stroke, k_{vs} value 160 m³/h from 85% stroke and k_{vs} value 400 m³/h from 90% stroke 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 (H_{100}) 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
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						30 s			
SAX61.03 **SAX61.03U**	S55150-A100 S55150-A100-A100			AC 24 V DC 24 V	0…10 V 4…20 mA 0…1000 Ω			✓		[2] [3]
SAX81.00	S55150-A102				3-position	-	120 s	-		[1]
SAX81.03 **SAX81.03U**	S55150-A103 S55150-A103-A100						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	-	Opening: 30 s Closing: 15 s	✓		[2]
SKD62 **SKD62U**	SKD62 SKD62U					15 s				
SKD62UA	SKD62UA									[4]
SKD82.50 **SKD82.50U**	SKD82.50 SKD82.50U				3-position	-	120 s	-		[1]
SKD82.51 **SKD82.51U**	SKD82.51 SKD82.51U					8 s				
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	-	Opening: 120 s Closing:10 s	✓		[2]
SKB62 **SKB62U**	SKB62 SKB62U					10 s				
SKB62UA	SKB62UA									[4]
SKB82.50 **SKB82.50U**	SKB82.50 SKB82.50U				3-position	-	120 s	-		[1]
SKB82.51 **SKB82.51U**	SKB82.51 SKB82.51U					10 s				
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			✓		[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				
SKC60	SKC60			AC 24 V	0…10 V 4…20 mA 0…1000 Ω	-	Opening: 120 s Closing: 20 s	✓		[2]
SKC62 **SKC62U**	SKC62 SKC62U					20 s				
SKC62UA	SKC62UA									[4]
SKC82.60 **SKC82.60U**	SKC82.60 SKC82.60U				3-position	-	120 s	-		[1]
SKC82.61 **SKC82.61U**	SKC82.61 SKC82.61U					18 s				

[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

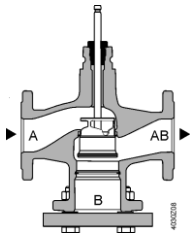
• Mounting Instructions	M4030	74 319 0749 0
• Basic documentation	P4030	Contains background information and technical basic knowledge of valves

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

	Fluids
	Closing against the pressure



A → AB

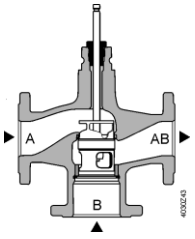
For use with all actuators

Note

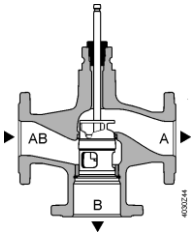
2-port valves do not become 3-port valves by removing the blank flange!

3-port valves

	Fluids	
	Mixing valve (preferred use)	Diverting valve



A → AB
B



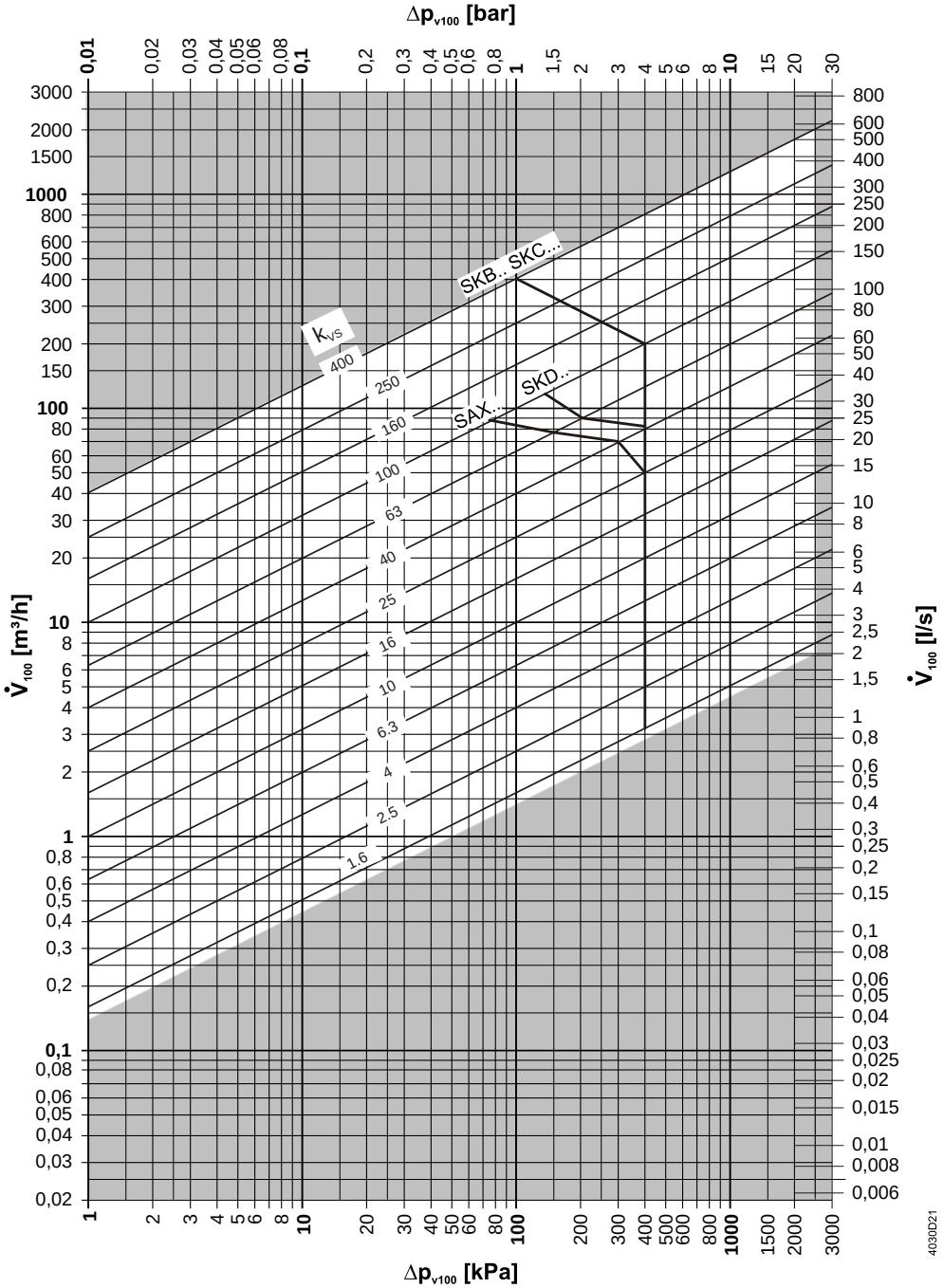
AB → A
B

Accessories

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

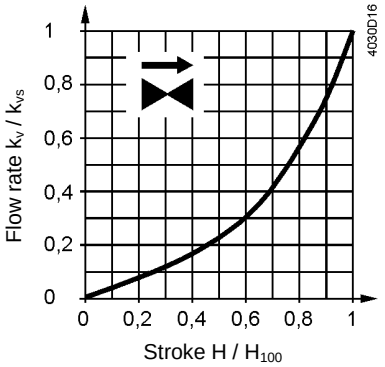
Sizing

Flow chart



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

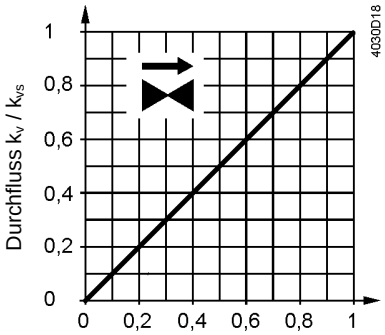
Valve characteristics
2-port valves



0…30%: Linear
30…100%: Equal percentage
n_{gl} = 3 to VDI / VDE 2173

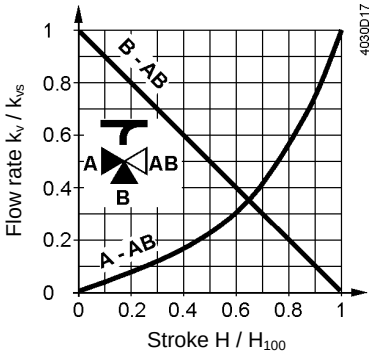
For high k_{vs} values the valve characteristic is optimized for maximum volumetric flow k_{V100}.

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



0…100%: Linear

3-port valves

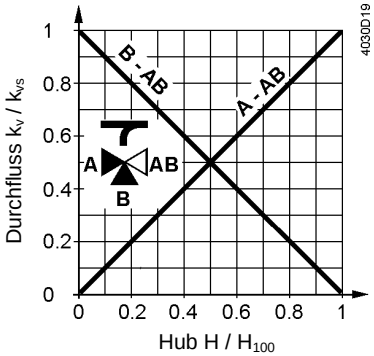


Throughport A-AB
0...30%: Linear
30...100%: Equal percentage
n_{gl} = 3 to VDI / VDE 2173
For high k_{vs} values the valve characteristic is optimized for maximum volumetric flow k_{V100}.
Bypass B-AB
0...100%: Linear

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

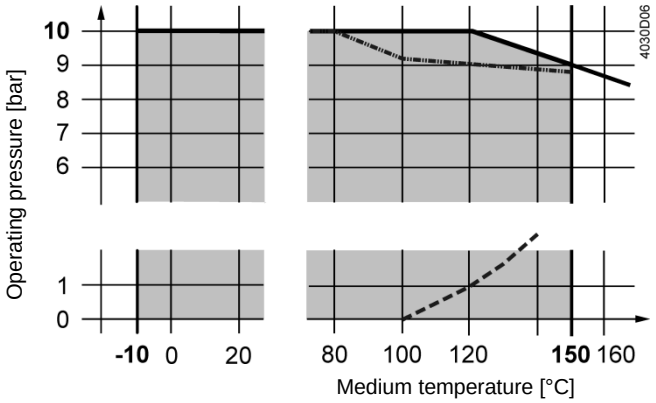
For product lines:
VXF32.125-250
VXF32.150-400



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	Note
	T_{min} [°C]	T_{max} [°C]	V..F32..	
Cold water	1	25	■	-
Low-temperature hot water	1	130	■	-
High-temperature hot water [1]	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	-	
Demineralized water according to VDI2035 / SWKI_BT102-01	1	150	■	

[1] Differentiation due to saturated steam curve

Fields of use

Fields of use		Valves	
		VVF32..	VXF32..
Generation	Boiler plants	■	■
	District heating 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 stem sealing gland is less strained.

Dirt trap

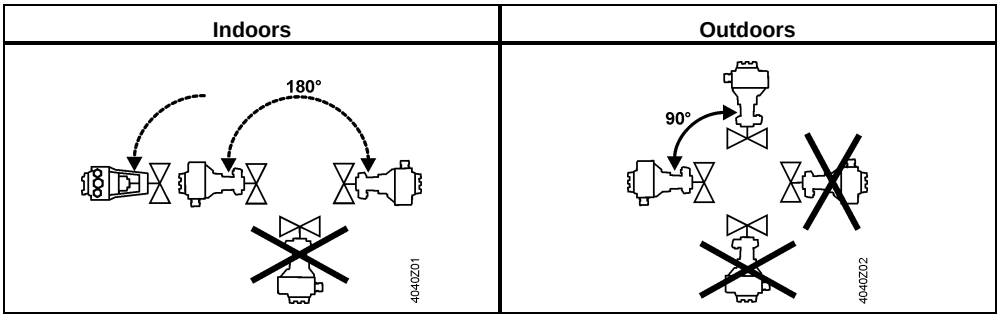
Mount a dirt filter or dirt trap before the valve to ensure proper functioning, and a long service life of the valve. Remove dirt, welding beads, etc. from the valves and pipes.

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 [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} ≥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) [2]
		DN 100…150	Category I, Modul A, with CE-marking as per article 14, section 2
	EU conformity (CE)		
		DN 100…150	A5W00006523 [3]
	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 [1]		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 [3] and CE1E4402en02 [3] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).		
Dimensions / Weight	Dimensions	See „Dimensions“, page 11	
	Weight	See „Dimensions“, page 11	

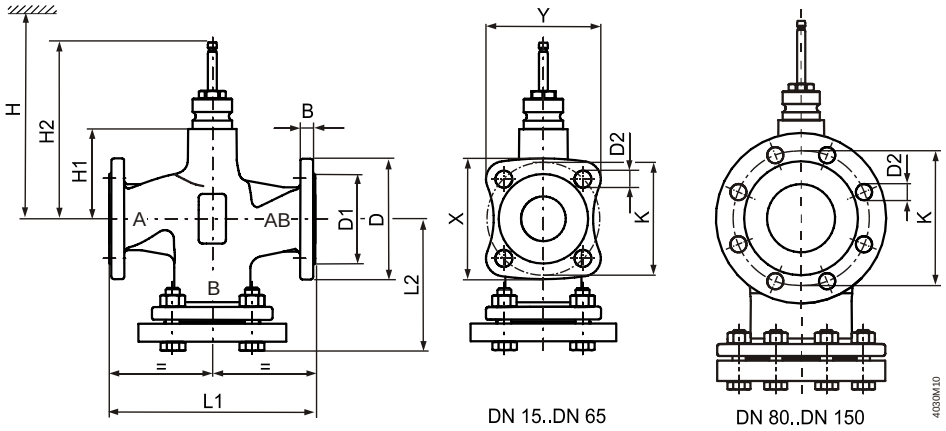
[1] For certain valve lines and high k_{vs} values, the valve characteristic is optimized for maximum volumetric flow k_{V100}.

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

[3] The documents can be downloaded from http://siemens.com/bt/download

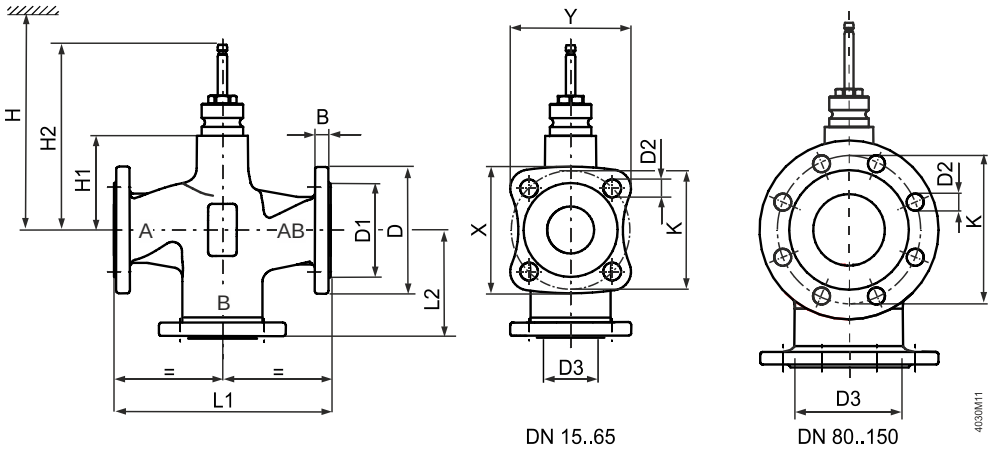
Dimensions

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 - 159	239.5 - 275.5	-	-	-	588 - 624	698 - 734
	150	74.9	17	284	211	23 (8x)	480	275	-	-	240	150.5 - 186.5	267 - 303	-	-	-	616 - 652	726 - 762

VXF32..



Typ	DN	kg	B	Ø D	Ø D1	Ø D2	Ø D3 [1]	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 - 159	239.5 - 275.5	-	-	-	588 - 624	698 - 734
	150	62,1	17	284	211	23 (8x)	174	480	240	-	-	240	150.5 - 186.5	267 - 303	-	-	-	616 - 652	726 - 762

[1] 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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