



ACVATIX™

Butterfly valves PN 16**VKF42..**

-
- Nodular cast iron valve body
 - DN 50...600
 - k_{vs} 70...37,000 m³/h
 - For fitting with PN 16 counter-flanges to ISO 7005
 - Tight-closing in accordance with ISO 5208, leakage rate A
 - No maintenance required
 - Can be equipped with SQL321B.., SQL361B.., SQL351B.. electromotoric actuators, or GEB..1E, GBB..1E, GIB..1E damper actuator

Use

This device is used as motorized or shut-off valves in heating, ventilation and air conditioning systems applications.

- In open and closed circuits
- For 2-position (SPDT), DC 0(2)...10 V, 4...20 mA control signals (by SQL361B.. actuator)
- For chiller and cooling tower sequencing circuits
- To open or close the flow to a heat exchanger or to complete plant sections

Type summary

Product No.	Stock Number	DN	k_{vs} [m ³ /h]	Top Flange EN ISO 5211	Flow velocity of medium ¹⁾ Water [m/s]
VKF42.50	S55237-V100	50	70	F07	4.5
VKF42.65	S55237-V101	65	155		
VKF42.80	S55237-V102	80	250		
VKF42.100	S55237-V103	100	510		
VKF42.125	S55237-V104	125	820		
VKF42.150	S55237-V105	150	1350		
VKF42.200	S55237-V106	200	3100	F10	
VKF42.250	S55237-V107	250	4550		
VKF42.300	S55237-V108	300	7500	F12	
VKF42.350	S55237-V109	350	10250		
VKF42.400	S55237-V110	400	14100	F14	
VKF42.450	S55237-V111	450	18500		
VKF42.500	S55237-V112	500	24000	F16	
VKF42.600	S55237-V113	600	37000		

¹⁾ Recommended maximum velocity of flow and the butterfly valve fully open

k_{vs} Nominal flow rate of cold water (5...30 °C) through the fully open butterfly valve by a differential pressure of 100 kPa (1 bar)

Ordering

Butterfly valve, actuator must be ordered separately.

When ordering, please specify the quantity, product name and product number.

Example

Product No.	Stock No.	Product Name	Quantity
VKF42.50	S55237-V100	Butterfly valve	1

Delivery

Butterfly valve and actuator are packed separately.

Rev. No.

Please see chapter "Rev. No" on page 8.

Equipment combinations

Butterfly Valve	Electromotoric Actuators						
	SQL321B25 SQL361B25	SQL321B50 SQL361B50	SQL321B150 SQL361B150	SQL321B270 SQL361B270	SQL321B570 SQL361B570	SQL321B1400 SQL361B1400	SQL321B2650 SQL361B2650
	Δp_s [kPa]						
VKF42.50	700						
VKF42.65	700						
VKF42.80	700						
VKF42.100		700					
VKF42.125		700					
VKF42.150		700					
VKF42.200			700				
VKF42.250				700			
VKF42.300				700			
VKF42.350					700		
VKF42.400					700		
VKF42.450						700	
VKF42.500						700	
VKF42.600							700

Product No.	Mounting kit	Actuators			
		GEB..1E	GBB...1E ¹⁾	GIB..1E	2*GIB...1E
		Δp_s [kPa]			
VKF42.50	ASK77.9	700			
VKF42.65		700			
VKF42.80		700			
VKF42.80	ASK77.10		700		
VKF42.100				700	
VKF42.125	ASK77.11				700
VKF42.150					700

¹⁾ GBB.. phase out at end of Y2020.

Δp_s Maximum permissible differential pressure at which the motorized butterfly valve will close securely against the pressure (close off pressure).

Actuator overview

Product No.	Operating Voltage	Positioning Signal	Position Feedback Signal	Positioning Time for 90° at 50 Hz [s]	Nominal Torque [Nm]	Flange Connection EN ISO 5211	Datasheet
SQL321B25	AC 220 V 1 phase	2-position (SPDT)	Dual auxiliary switch	11	25	F07	N4520
SQL321B50		2-position (SPDT)	Dual auxiliary switch	19	50	F07	
SQL321B270		2-position (SPDT)	Dual auxiliary switch	39	270	F10	
SQL321B150		2-position (SPDT)	Dual auxiliary switch	39	150	F07	
SQL321B570		2-position (SPDT)	Dual auxiliary switch	47	570	F12 / F10	
SQL321B1400		2-position (SPDT)	Dual auxiliary switch	76	1400	F14	
SQL321B2650		2-position (SPDT)	Dual auxiliary switch	105	2650	F16	
SQL361B25		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA, dual auxiliary switch	11	25	F07	
SQL361B50		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA, dual auxiliary switch	19	50	F07	
SQL361B150		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	39	150	F07	
SQL361B270		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	39	270	F10	
SQL361B570		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	47	570	F12 / F10	
SQL361B1400		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	76	1400	F14	
SQL361B2650		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	105	2650	F16	

Type		Operating voltage	Positioning signal		time	Torque	Connecting cable	Data sheet
GEB341.1E	GEB346.1E	AC 100..240 V	2-position		150 s	20 Nm	0.9 m	A6V11449860
GEB141.1E	GEB146.1E		3-position					
GEB161.1E	GEB166.1E		DC 0/2...10V					
GBB331.1E	GBB336.1E	AC 230 V	3-position		150 s	25 Nm	0.9 m	N4626
GBB131.1E	GBB136.1E	AC 24 V	DC 0...10 V					
GBB161.1E	GBB166.1E							
GIB331.1E	GIB336.1E	AC 230 V	3-position		150 s	35 Nm	0.9 m	N4626
GIB131.1E	GIB136.1E	AC 24 V	DC 0...10 V					
GIB161.1E	GIB166.1E							

Mechanical design

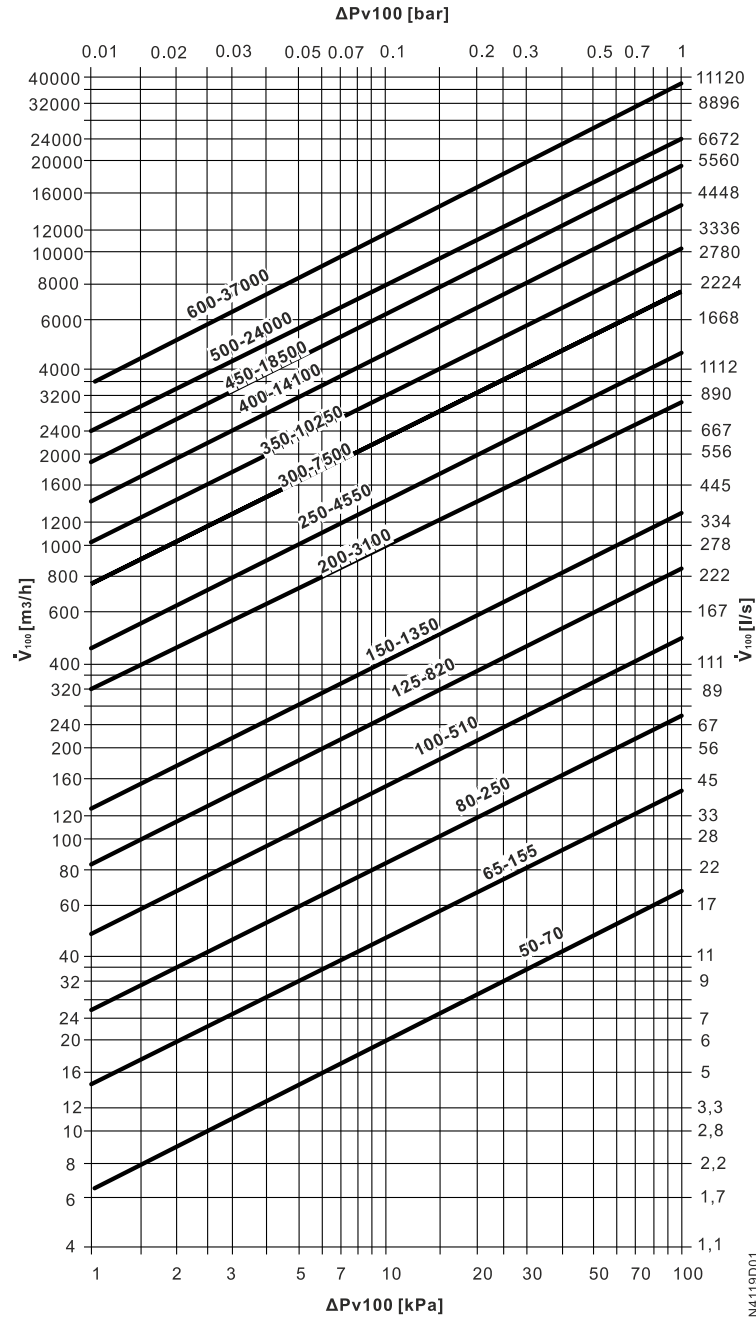
Ring format, nodular cast iron valve body with EPDM seat and multiple shaft bushing.

The seat is also used to seal the flange. There is thus no contact between the medium and the valve body.

The valve has a swing-through disc (angle of rotation 360°). The position of the valve disc is indicated by a notch on the front of the shaft.

Sizing

Flow diagram



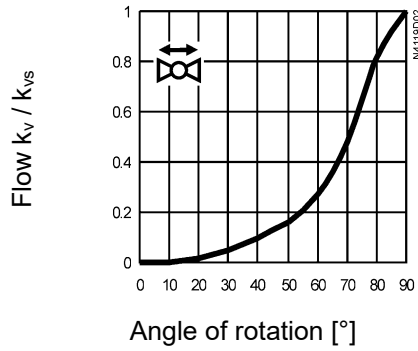
ΔP_{v100} = Differential pressure across the fully open butterfly valve by a volume flow \dot{V}_{v100}

\dot{V}_{v100} = Volume flow through the fully open butterfly valve

100 kPa = 1 bar \approx 10 mWC

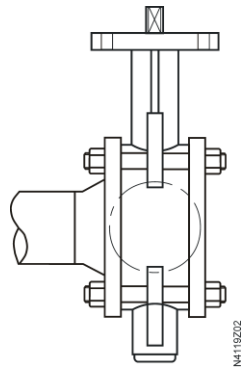
1 m³/h = 0.278 l/s water at 20 °C

Flow characteristic



Engineering notes

Single flange mounting is possible: 700 kPa



The VKF42.. butterfly valves can accommodate flow in either direction.

Warning



To avoid pressure shocks on the butterfly valve, the VKF42.. must be driven to its fully open position either manually or via control signal Y14 prior to activating the pump(s).

Mounting notes

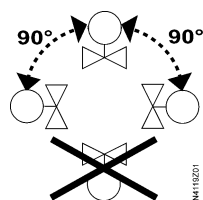
The mounting instruction 74 319 0808 0 (M4119) is enclosed in the product packaging.

DN 50...500 butterfly valves can be mounted in PN 10, PN 16, ANSI150, JIS10K applications.

DN 600 butterfly valve can be mounted in PN 16 applications only!

Do not use additional flange sealing.

Orientation



Upright to horizontal

Maintenance notes

Caution



The VKF42.. butterfly valves require no maintenance.

Before performing any service works on the valve, actuator or mounting kit:

- Switch off the pump and power supply
- Close the main shut-off valves in the pipe work
- Release pressure in the pipes and allow them to cool down completely

If necessary, disconnect electrical connections from terminals.

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

Disposal



The valve is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Disassemble the valve into individual parts prior to disposing of it and sort the individual parts by the various types of materials.
- Comply with all local and currently applicable laws and regulations.

Warranty

The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under "Equipment combinations", page 2.

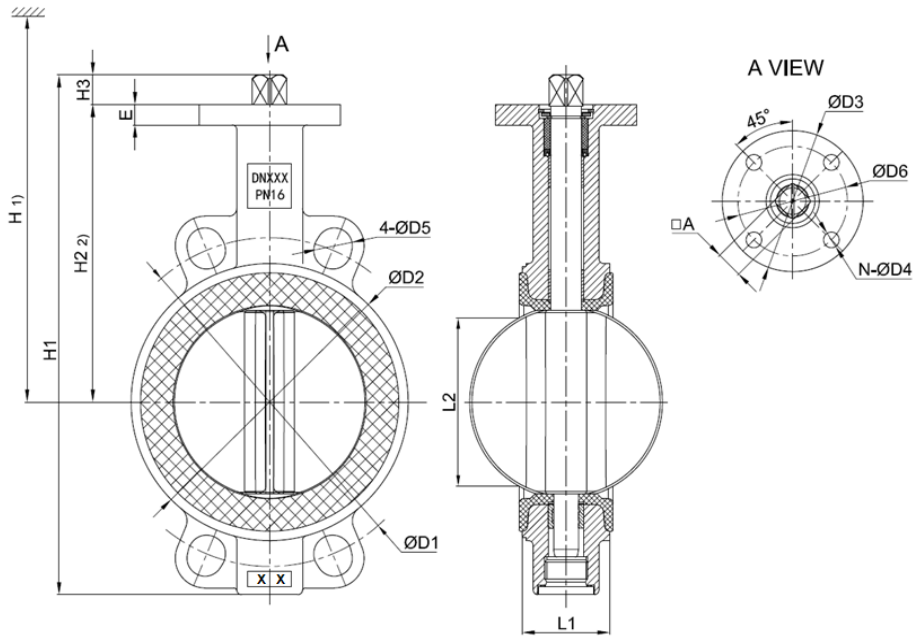
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

Technical data

Operating data	PN class	PN10 and PN16 to ISO 7005 ANSI150 to ASME B16.5 JIS10K to JIS B2220
	Permissible operating pressure	1600 kPa (16 bar)
	Flow characteristic	according to the diagram on page 5
	Leakage rate	A to ISO 5208 (tight-closing)
	Permissible medium	Chilled water, low temperature hot water, cooling water, brine, demineralized water (softened), water with anti-freeze Recommendation: Water treatment to VDI 2035
	Medium temperature	-10...80 °C
	Flange connection for pipes ¹⁾	PN10 and PN16 to ISO 7005 ANSI150 to ASME B16.5 JIS10K to JIS B2220
	Face to face dimension	DIN EN 558, series 20
	Top flange (flange for actuator)	EN ISO 5211
	Angle of rotation	90°
Standards	Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) Directive 2002/95/EC (RoHS)
Materials	Body DN 50...600	Nodular cast iron EN-GJS-450-10 (QT450-10)
	Shaft	Stainless steel 1.4021 (2Cr13)
	Valve disc	Nodular cast iron EN-GJS-450-10 (QT450-10), Nylon coating
	Seat	EPDM
Dimensions		Refer to page 7 "Dimensions"
Weight		Refer to page 7 "Dimensions"

¹⁾ VKF42..., DN 600 is only suited for PN 16

Dimensions (mm)



Product No.	DN	L1	L2	H ¹⁾	H1	H2 ²⁾	H3	ØD3	E	PN 16			EN ISO 5211	n-ØD4	ØD6	A	Weight
										D1	D2	ØD5					
VKF42.50	50	43	29	607	229	143	14	90	9	125	93	19	F07	4-10	70	11	2.72
VKF42.65	65	46	46	620	248	156	14	90	9	145	108	19					3.44
VKF42.80	80	46	66	626	271	162	14	90	9	160	124	19					4.03
VKF42.100	100	52	93	641	299	177	14	90	11	180	152	19					5.2
VKF42.125	125	56	104	654	332	190	19	90	13	210	177	19				7.24	
VKF42.150	150	56	148	669	362	205	19	90	13	240	210	23				9	
VKF42.200	200	60	196	700	426	236	22	125	15	295	265	23				14.1	
VKF42.250	250	68	244	803	498	267	24	125	17	355	313	28	F10	4-12	102	22	21.14
VKF42.300	300	78	295	844	575	308	24	125	17	410	371	28	F10	4-12	102	22	31.8
VKF42.350	350	78	328	904	669	368	29	150	20	470	434	28	F12	4-14	125	27	50
VKF42.400	400	102	380	936	778	400	29	150	21	525	480	31	F12	4-14	125	27	71.4
VKF42.450	450	114	430	1163	846	422	45	175	22	585	536	31	F14	4-18	140	36	90
VKF42.500	500	127	478	1221	934	480	45	175	24	650	590	34	F14	4-18	140	36	114
VKF42.600	600	154	576	1303	1086	562	50	210	28	770	693	37	F16	4-22	165	46	189

L1	Corresponds to overall length according to EN 558, series 20	
H ¹⁾	Overall height of valve and actuator	
	=	Valve installation height (H2) from middle of pipe
	+	Installation height of actuator
		- SQL321B25 = 195 mm (DN50...100)
		- SQL3..1B50, SQL3..1B150 = 264 mm (DN50...200)
		- SQL3..1B270, SQL3..1B570 = 336 mm (DN250...350)
		- SQL3..1B1400, SQL3..1B2650 = 541 mm (DN400...600)
	+	Minimum clearance (≥200 mm) from ceiling or wall for mounting, connection, operation, service etc.
H ²⁾	Dimension for actuator connection from centre of pipe	

Revision numbers

Product No.	Valid from Rev. No.	Product No.	Valid from Rev. No.	Product No.	Valid from Rev. No.
VKF42.50	..C	VKF42.150	..C	VKF42.400	..C
VKF42.65	..C	VKF42.200	..C	VKF42.450	..C
VKF42.80	..C	VKF42.250	..C	VKF42.500	..C
VKF42.100	..C	VKF42.300	..C	VKF42.600	..C
VKF42.125	..C	VKF42.350	..C		

Issued by
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