



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} [m³/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

	Electromotoric Actuators						
	SQL321B25	SQL321B50	SQL321B150	SQL321B270	SQL321B570	SQL321B1400	SQL321B2650
	SQL361B25	SQL361B50	SQL361B150	SQL361B270	SQL361B570	SQL361B1400	SQL361B2650
Butterfly Valve	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		Torque	Connecting cable	Data sheet
			signal	time			
GEB341.1E	GEB346.1E	AC 100..240 V	2-position	150 s	20 Nm	0.9 m	A6V11449860
GEB141.1E	GEB146.1E	AC/DC 24 V	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					
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					
GIB161.1E	GIB166.1E						

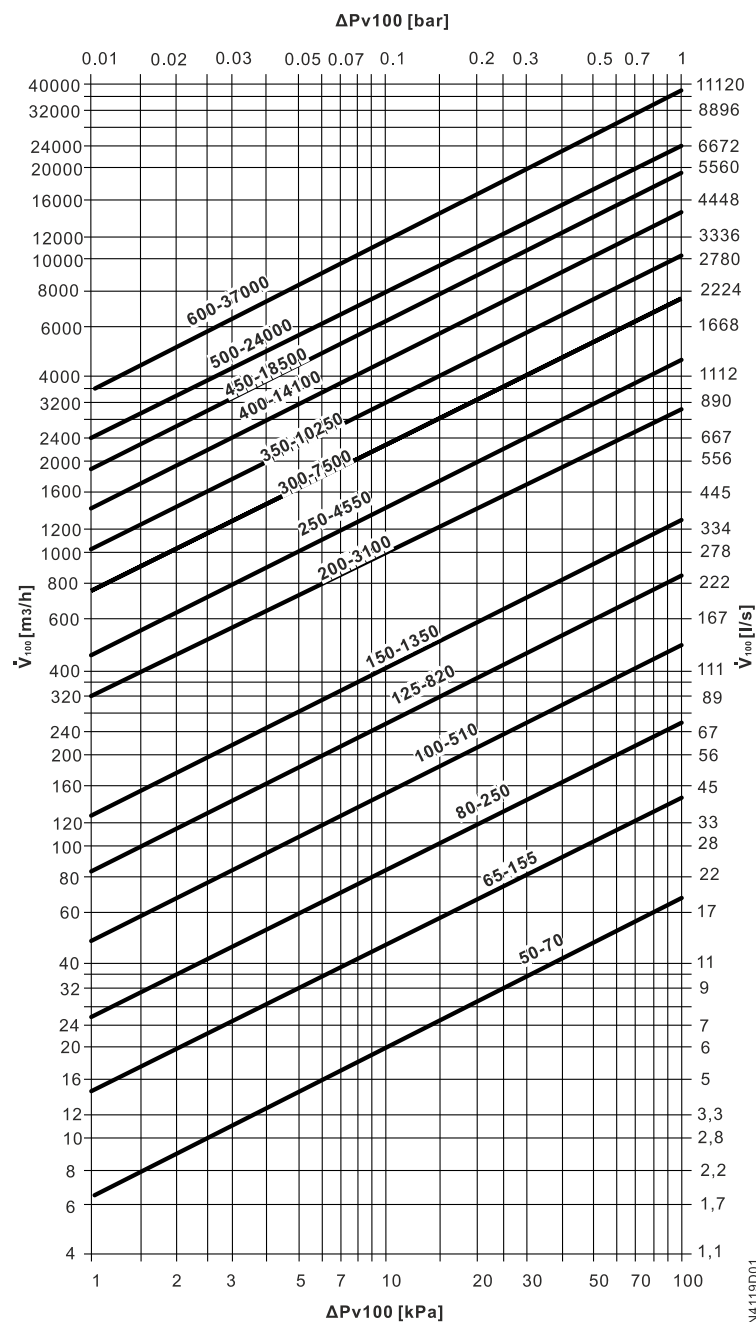
Ring format, nodular cast iron valve body with EPDM seat and multiple shaft bushing.

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



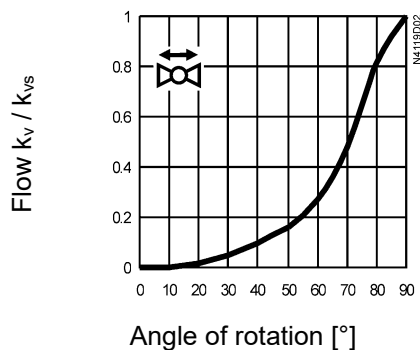
Δp_{v100} = Differential pressure across the fully open butterfly valve by a volume flow $\dot{V}_{100}$

$\dot{V}_{100}$ = Volume flow through the fully open butterfly valve

100 kPa = 1 bar $\approx$ 10 mWC

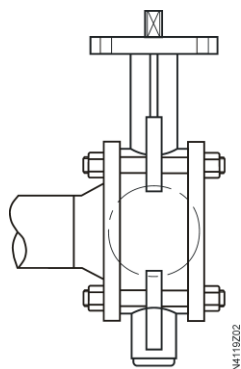
1 m³/h = 0.278 l/s water at 20 °C

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

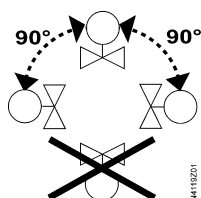
The mounting instruction 74 319 0808 0 (M4119) is enclosed in the product packaging.

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.

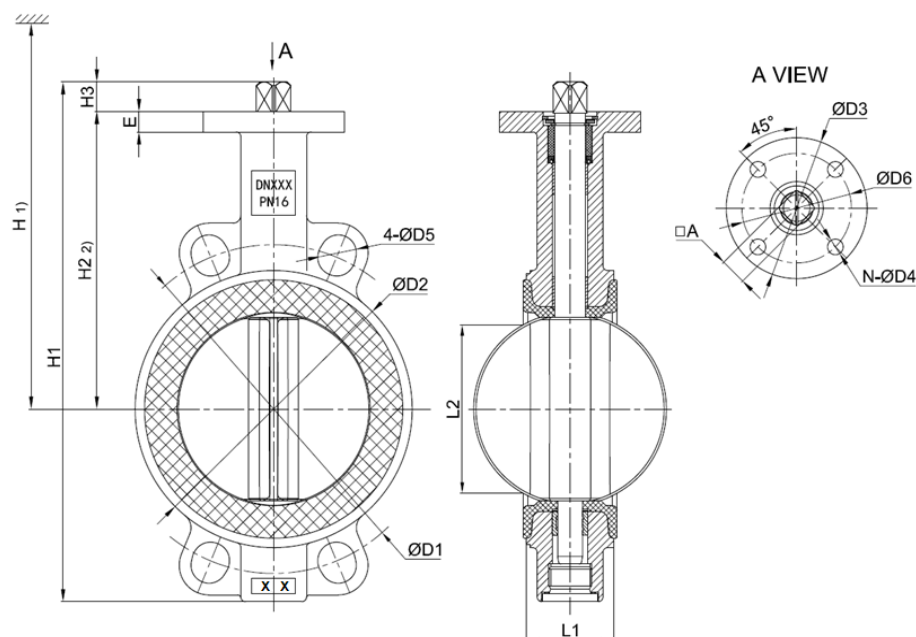
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

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				17	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	F10	4-12	102	22	14.1
VKF42.250	250	68	244	803	498	267	24	125	17	355	313	28					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.	
H2 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		

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Technical specifications and availability subject to change without notice.



ACVATIX™

Electromotoric actuators

SQL321B..

SQL361B..

For VKF42..., VFF41... butterfly valves

-
- SQL321B.. Operating voltage AC 220 V, 2-position (SPDT) control signal
 - SQL361B.. Operating voltage AC 220 V, DC 0(2)...10 V, 4...20 mA control signal
 - Optional auxiliary switch for SQL361B150...B6000
 - Nominal angle of rotation 90°
 - Manual operating devices and position indicator
 - Built-in heating element to avoid condensation
 - Compatible with EN ISO 5211 flanges

Use

For operation of VKF42..., VFF41.. butterfly valves as shutoff and control valves in heating, ventilation and air conditioning plants.

Type summary

Product No.	Stock No.	Operating Voltage	Positioning Signal	Position Feedback Signal	Positioning Time for 90° at 50 Hz [s]	Nominal Torque [Nm]	Flange Connection EN ISO 5211
SQL321B25/1	S55164-A176	AC 220 V 1 phase	2-position (SPDT)	Dual auxiliary switch	18	25	F07
SQL321B50/1	S55164-A177		2-position (SPDT)	Dual auxiliary switch	30	50	F07
SQL321B150	S55164-A103		2-position (SPDT)	Dual auxiliary switch	39	150	F07
SQL321B270	S55164-A105		2-position (SPDT)	Dual auxiliary switch	39	270	F10
SQL321B570	S55164-A107		2-position (SPDT)	Dual auxiliary switch	47	570	F12/F10
SQL321B1400	S55164-A109		2-position (SPDT)	Dual auxiliary switch	47	1400	F14
SQL321B2650	S55164-A111		2-position (SPDT)	Dual auxiliary switch	105	2650	F16
SQL321B6000	S55164-A125		2-position (SPDT)	Dual auxiliary switch	143	6000	F25
SQL361B25	S55164-A113		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA, dual auxiliary switch	11	25	F07
SQL361B50	S55164-A102		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA, dual auxiliary switch	22	50	F07
SQL361B150	S55164-A104		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	39	150	F07
SQL361B270	S55164-A106		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	39	270	F10
SQL361B570	S55164-A108		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	47	570	F12/F10
SQL361B1400	S55164-A110		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	47	1400	F14
SQL361B2650	S55164-A112		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	105	2650	F16
SQL361B6000	S55164-A126		DC 0(2)...10 V, 4...20 mA	DC 0 (2)...10 V, 4...20 mA	143	6000	F25

Ordering

The actuator, butterfly valve and any accessories must be ordered separately.
When ordering, specify the quantity, product name and product number.

Example

Product No.	Stock No.	Description	Quantity
SQL361B150	S55164-A104	Electromotoric actuator	1
ASC10.21	S55845-Z122	Double auxiliary switch	1

Delivery

The actuator, accessory and butterfly valve are packed separately and delivered as individual items.

Rev. No.

See chapter "Rev. No." on page 13.

Equipment combinations

	Electromotoric Actuators ¹⁾						
	SQL321B25/1 SQL361B25	SQL321B50/1 SQL361B50	SQL321B150 SQL361B150	SQL321B270 SQL361B270	SQL321B570 SQL361B570	SQL321B1400 SQL361B1400	SQL321B2650 SQL361B2650
Butterfly Valve	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

	Electromotoric Actuators ¹⁾							
	SQL321B25/1 SQL361B25	SQL321B50/1 SQL361B50	SQL321B150 SQL361B150	SQL321B270 SQL361B270	SQL321B570 SQL361B570	SQL321B1400 SQL361B1400	SQL321B2650 SQL361B2650	SQL321B6000 SQL361B6000
Butterfly Valve	Δp_s [kPa]							
VFF41.40	1000							
VFF41.50	1000							
VFF41.65	1000							
VFF41.80	1000							
VFF41.100		1000						
VFF41.125		1000						
VFF41.150		1000						
VFF41.200			1000					
VFF41.250				1000				
VFF41.300				1000				
VFF41.350					1000			
VFF41.400					1000			
VFF41.450						1000		
VFF41.500						1000		
VFF41.600							1000	
VFF41.700							1000	
VFF41.800								1000
VFF41.900								1000

¹⁾ SQL321B..., SQL361B.. electromotoric actuators can be mounted directly on VKF42.. or VFF41.. butterfly valves.

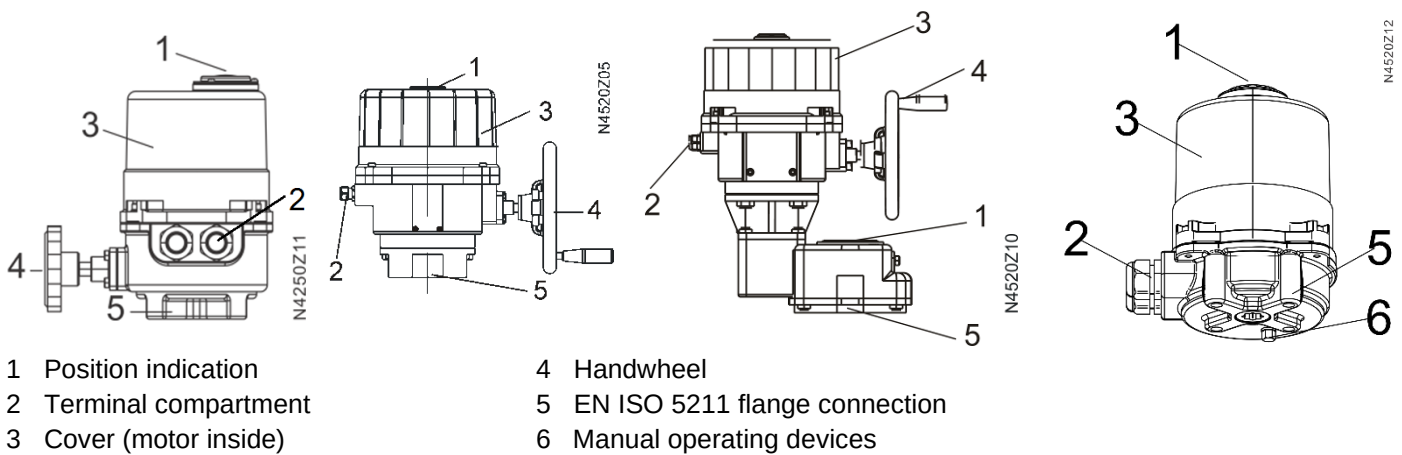
Δp_s Maximum permissible differential pressure at which the motorized butterfly valve will close securely against the pressure (close off pressure)

The actuator is driven by a 2-position (SPDT) or DC 0(2)...10 V, 4...20 mA control signal from the controller and generates a rotary motion which is transferred to the butterfly valve via a driver.

These electromotoric actuators require no maintenance. They have a reversible asynchronous motor which drives the main shaft via gear train, which accommodates the diagonal square head of the butterfly valve. SQL321B25/1, SQL321B50/1 use an 8mm wrench on the bottom of the actuator for manual operation. For SQL361B25/B50, the handwheel shaft is spring-mounted, so the handwheel must be kept pushed in for manual operation. For other product types, the handwheel is attached directly to the worm shaft fitted with a direct-acting operation.

The actuators are 90° rotated so as to work with Siemens VKF42.., VFF41.. butterfly valves. During automatic operation, rotation is stopped by two built-in end-switches.

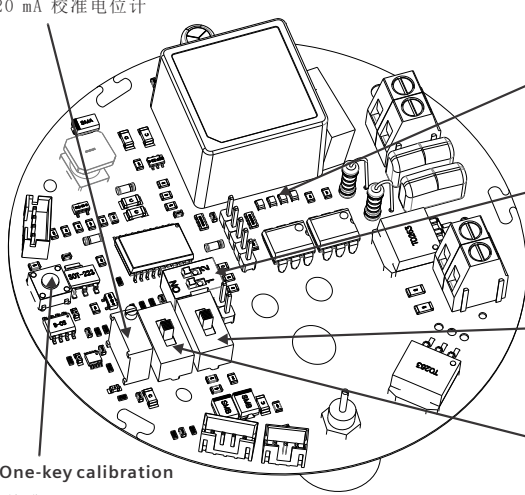
To prevent the temperature inside the housing from falling below the dew point temperature, the actuators are equipped with a built-in heating element.



Calibration
SQL361B..

In order to determine the disc position fully closed “0 %” or fully open “100 %”, calibration is recommended on initial commissioning of modulating type actuator.

SQL361B25..B50

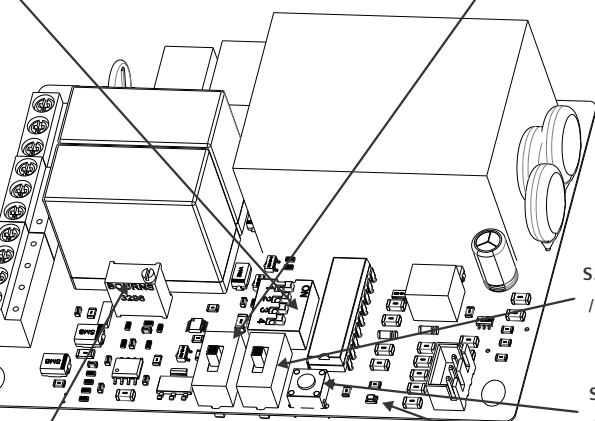
Prerequisites			
• Actuator is mounted on butterfly valve • Rotate the actuator to the half-open position using the handwheel • Housing cover is removed			
Calibration	LED on PCB		Actuator Movement
1. Supply power to terminal 1 and 2.		Flash	Actuator moves to the position as indicated by control signal. (D4 flash)
2.Press button S1 for 3 seconds		Lit	Actuator moves to “100 %” position (valve open). (D4 light)
		Flash once	Actuator stops at “100 %” position (valve open), indicate light flashes (D6), and then the actuator is ready to move towards “0 %”position (valve closed).
		Flash once	Actuator moves to “0 %” position (valve closed). (D7 flash once)
		Flash	Actuator stops at “0 %” position (valve closed). The indicate light flashes (D4), and then the calibration finished.
3. Calibration finished.		Flash	Actuator moves to the position as indicated by control signal. (D4 flash)
W1, 20 mA calibration potentiometer / 20 mA 校准电位计  S1, One-key calibration / 一键校准 From left to right are D4/D10/D7/D6 / 从左到右为 D4/D10/D7/D6 S4, Signal loss mode settings. / 信号丢失模式设置 S2, Selection of Input Signal Types. / 选择输入信号类型 S3, Selection of Feedback Signal Types. / 选择反馈信号类型			

Signal loss mode settings

State Position	Run to 0 % (default)	Hold position		Run to 100 %
		ON	OFF	
DIP 1	OFF	ON	OFF	ON
DIP 2	OFF	OFF	ON	ON

Note:

- Control signal 0-10 V, when signal loss, the valve runs to 0 %.
- Control signal 2-10 V, when signal loss, the valve runs to 0 % or 100 % by adjusting DIP 1&2.
- Control signal 4-20 mA, when signal loss, the valve runs to 0 %, hold position or 100 % by adjusting DIP 1&2.

Prerequisites			
- Actuator is mounted on butterfly valve - Rotate the actuator to the half-open position using the handwheel - Housing cover is removed			
Calibration	LED on PCB		Actuator Movement
1. Supply power to terminal 1 and 2.		Lit	Actuator moves to the position as indicated by control signal.
2. Press button S1 for 3 seconds		Dark	Actuator moves to “100 %” position (valve open).
		Flash once	Actuator stops at “100 %” position (valve open), indicate light flashes, and then the actuator is ready to move towards “0 %” position (valve closed).
		Dark	Actuator moves to “0 %” position (valve closed).
		Flash	Actuator stops at “0 %” position (valve closed). The indicate light flashes, and then the calibration finished.
3. Calibration finished.		Lit	Actuator moves to the position as indicated by control signal.
S4, Signal loss mode settings / 信号丢失模式设置 S3, Selection of Feedback Signal Types (0-10V 2-10V 4-20mA) / 选择反馈信号类型 (0-10V 2-10V 4-20mA)  W1, 20 mA calibration potentiometer / 20 mA 校准电位计 S1, One-key calibration / 一键校准 S2, Selection of Input Signal Types. / 选择输入信号类型 S3, Selection of Feedback Signal Types (0-10V 2-10V 4-20mA) / 选择反馈信号类型 (0-10V 2-10V 4-20mA) LED D3			

Signal loss mode settings

State Position	Run to 0 % (default)	Hold position		Run to 100 %
DIP 1	OFF	ON	OFF	ON
DIP 2	OFF	OFF	ON	ON
DIP 3	Reserve			
DIP 4	Reserve			

Note:

- Control signal 0-10 V, when signal loss, the valve runs to 0 %.
- Control signal 2-10 V, when signal loss, the valve runs to 0 % or 100 % by adjusting DIP 1&2.
- Control signal 4-20 mA, when signal loss, the valve runs to 0 %, hold position or 100 % by adjusting DIP 1&2.

Indication of operating state SQL361B..

SQL361B25..50

The LED display indicating operating status can be viewed by opening the cover of the electronics module.

Function	LED Indication		Remarks, troubleshooting
	D10	D4	
Calibration mode	OFF 	ON 	Run calibration, everything ok. ¹⁾
	ON 	Flashing 	Calibration error.
Control mode	OFF 	Flashing 	Automatic operation; everything o.k. ^{1), 2)}
	ON 	Flashing 	Internal error, troubleshooting
	OFF 	OFF 	No power Troubleshooting, eventually replace actuator

As a general rule, the LED can assume only the states shown above (continuously red, flashing, or off).
¹⁾ The Green LED (D6) with short lit on when reach to «100 %» and the Red LED (D7) with short lit on when reach to «0 %» stroke position.
²⁾ When power supply to actuator but no Y control signal and also calibration not started, LED will be continuously red too.

SQL361B150...6000

Function	LED Indication		Remarks, troubleshooting
Calibration	Off 		Run calibration, everything o.k.
	Flashing 		Calibration error
Control mode	Lit 		Automatic operation; everything o.k. ¹⁾
	Flashing 		Internal error, troubleshooting
	Off 		No power Troubleshooting, eventually replace actuator

As a general rule, the LED can assume only the states shown above (continuously red, flashing, or off).
¹⁾ When power supply to actuator but no Y control signal and also calibration not started, LED will be continuously red too.

0..10 V and 4..20 mA signal SQL361B..

- Factory setting for input and output signal in SQL361B.. is 0..10 V.
- Select switch as below description.

SQL361B25..50

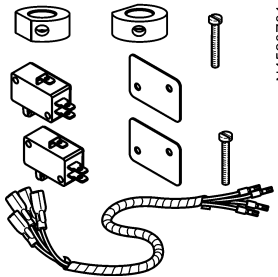
Signal	Input S3	Output S2
		
0-10 V		
2-10 V		
4-20 mA		

SQL361B150...6000

- Factory setting for input and output signal in SQL361B.. is 0...10 V.
- Select switch as below description.

Signal	Input	Output
	S3	S2
0-10 V		
2-10 V		
4-20 mA		

Accessories

Product No.	Stock No.	Figure	Description	For Actuators
ASC10.21	S55845-Z122		Double auxiliary switch	SQL361B150 SQL361B270 SQL361B570 SQL361B1400 SQL361B2650 SQL361B6000

Engineering notes

Electrical installation

The actuators must be electrically connected in accordance with local regulations and with the connection diagrams.

Warning



Regulations and requirements to ensure the safety of people and property must be always observed.

Mounting notes

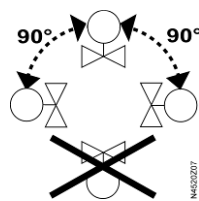
Mounting instructions

Product No.	Documentation No.
VKF42..	74 319 0808 0 (M4119)
VFF41..	A5W00119634A (A6V12045430)
SQL321B.. / SQL361B..	74 319 0809 0 (M4520)
ASC10..	74 319 0810 0 (M4520.1)

These actuators can be mounted directly on type VKF42.., VFF41.. butterfly valves. The butterfly valves have to be closed “0 %” when the actuators are mounted onto the valves.

Orientation

The valve and actuator can be assembled on site. There is no need for special tools.



Upright to horizontal

Commissioning notes

Warning



To avoid pressure shocks on the butterfly valve, the VKF42..., VFF41.. must be driven to its fully open position either manually or via positioning signal prior to activating the pump(s).

The flow rate can be adjusted either by operating the electric actuators when necessary, or by operating the handwheel.

Operating notes

Manual operation mode

SQL321B25...B50/1	Manual operation with 8 mm wrench
SQL361B25...B50	Handwheel is engaged by pushing the handwheel in.
SQL321B150...B6000 SQL361B150...B6000	The handwheel is always engaged.

Reversing the direction of rotation

If the direction of rotation needs to be reversed, simply exchange the connections Y12 and Y14.

Setting the angle of rotation

The 0...90° angle of rotation for the mechanical limit switches is factory-set and cannot be changed. The SQL321B25/1 and SQL321B50/1 has no mechanical limits.

The potential-free auxiliary switches are equipped with adjustable switching points.

Duty cycle value

SQL..B25...570: 50%; SQL..B1400...2650: 30%; SQL..B6000: 15%.
Note that the time of actuator motor starts per hour should not exceed 630.

Maintenance notes

The actuators and butterfly valves require no maintenance.

Warning



Before performing any service work on the valve or actuator:

- 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 re-commissioned only with the handwheel or the actuator correctly assembled.

Disposal



The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Warranty

The engineering data specified in chapter "Equipment combinations" (page 3) are only guaranteed in connection with the Siemens butterfly valves listed.

Note

When using the actuators in connection with butterfly valves of other manufacture, correct functioning must be ensured by the user, and Siemens will assume no responsibility.

Technical data

		SQL321B25/1	SQL321B50/1	SQL321B150	SQL321B270	SQL321B570	SQL321B1400	SQL321B2650	SQL321B6000
		SQL361B25	SQL361B50	SQL361B150	SQL361B270	SQL361B570	SQL361B1400	SQL361B2650	SQL361B6000
Power supply	Operating voltage	AC 220 V / 1 phase							
	Voltage tolerance	+/- 10%							
	Frequency	50 / 60 Hz							
	Power consumption ¹⁾	45 VA	45 VA	91 VA	165 VA	194 VA	390 VA	436 VA	670 VA
Signal inputs	Positioning signal	SQL321....: 2P (SPDT) SQL361....: DC 0(2)...10 V / 4...20 mA							
	Parallel operation	For SQL321B..., it is not possible for electrical parallel operation of several actuators. For SQL361B.. electrical parallel operation of several actuators is possible, and the specific quantity of actuator depends on the controller output.							
	Position feedback	SQL321B.. Dual auxiliary switch (built-in) SQL361B25..B50 DC 0(2)...10 V / 4...20 mA , Dual auxiliary switch (built-in) SQL361B150..., B6000 DC 0(2)...10 V / 4...20 mA							
Operating data	Positioning time for 90° at 50 Hz	18/11 s	30/22 s	39 s	39 s	47 s	47 s	105 s	143 s
	Angle of rotation	90° ± 1° (factory setting)							
	Nominal Torque ¹⁾	25 Nm	50 Nm	150 Nm	270 Nm	570 Nm	1400 Nm	2650 Nm	6000 Nm
	Switching capacity	AC 250 V, 5 A resistive		AC 250 V, 10 A resistive					
	Heating element (built-in)	220 V 2.0 W		220 V 7.5 W	220 V 8.5 W				
	Max. permissible medium temperature	-10...80 °C							
Degree of protection	Housing upright to horizontal	IP67 as per EN 60529							
	Insulation class	Class I as per EN 60730							
Standards	EU conformity (CE)	A5W90000890*							
	RCM conformity	A5W90000886*							
Environmental compatibility	The product environmental declaration A5W02116952A*(SQL321/361B25...50), A5W02627389A*(SQL321/361B150...6000) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).								
	Flange / shaft connection types to valve (top flange)	EN ISO 5211 F07 F10 F12/F10 F14 F16 F25							
Dimension weight	Dimensions	see "Dimensions", page 11, 12							
	Weight	see "Dimensions", page 11, 12							
	Cable glands	2 x Pg 13.5				2 x Pg 16			
Materials	Housing base, yoke	Die-cast aluminum alloy						Housing: Die-cast aluminum alloy Gear box: Cast Iron	
	Cover	SQL321B25/1, SQL321B50/1: ABS SQL361B25/B50, SQL321/361B150...B6000: Die-cast aluminum alloy							

¹⁾ These values apply at nominal voltage, ambient temperature of 20 °C and at nominal running time.

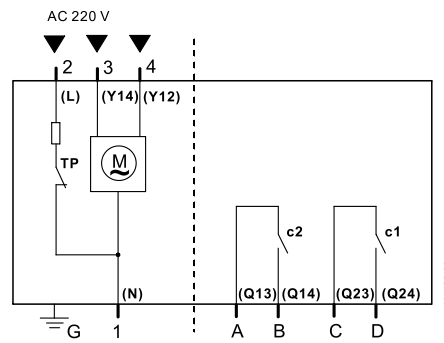
* The documents can be downloaded from <http://siemens.com/bt/download>.

General ambient conditions

	Operation	Transport	Storage
Temperature	-20...65 °C	-30...65 °C	-5...55 °C
Humidity	15...100 % r. h.	< 95 % r. h.	0...95 % r. h.

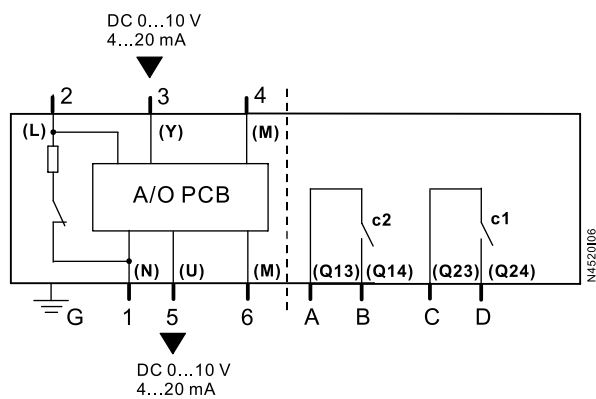
Internal diagrams

SQL321..

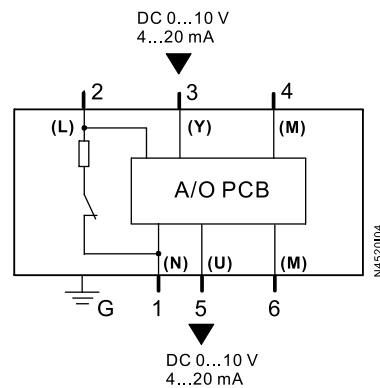


Pin	Terminal no.	Code	Meaning
Actuator AC 220 V	G	-	Grounding
	1	N	System neutral
	2	L	System potential, AC 220 V
	3	Y14	AC 220 V, control signal (open)
	4	Y12	AC 220 V, control signal (closed)
Auxiliary signal feedback	A	Q13	Auxiliary switch c2, open
	B	Q14	Auxiliary switch c2, open
	C	Q23	Auxiliary switch c1, close
	D	Q24	Auxiliary switch c1, close

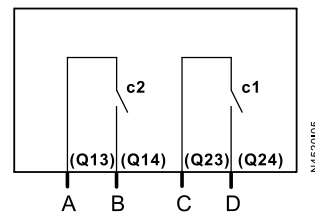
SQL361B25 SQL361B50



SQL361B150... B6000



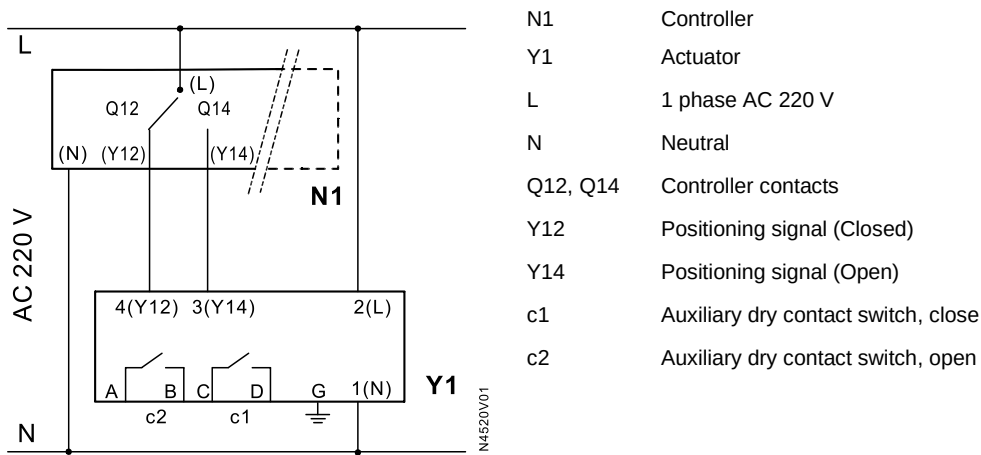
Accessory ASC10.21



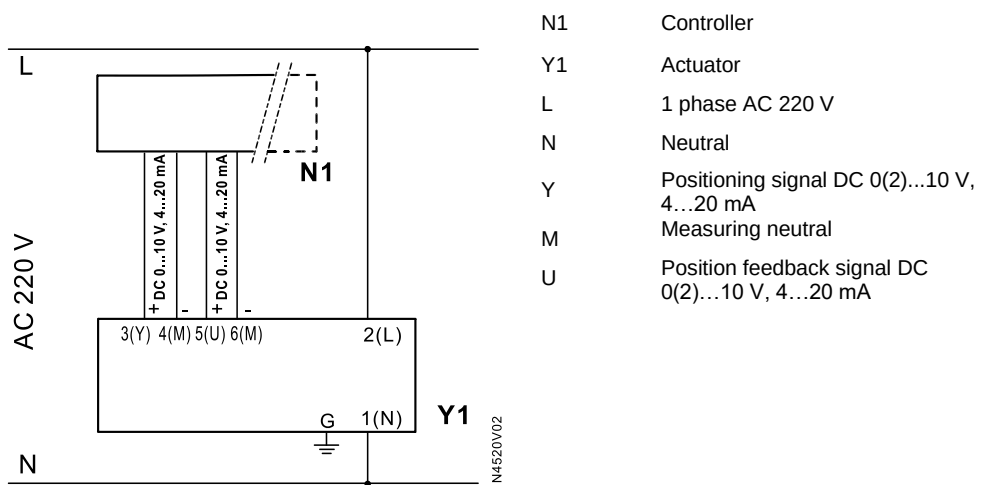
Pin	Terminal no.	Code	Meaning
Actuator AC 220 V	G	-	Protective earth
	1	N	Neutral
	2	L	System potential, AC 220 V
	3	Y	Positioning signal, DC 0(2)...10 V, 4...20 mA
	4, 6	M	Measuring neutral
	5	U	Position feedback, DC 0(2)...10 V, 4...20 mA
Auxiliary signal feedback	A	Q13	Auxiliary switch c2, open
	B	Q14	Auxiliary switch c2, open
	C	Q23	Auxiliary switch c1, close
	D	Q24	Auxiliary switch c1, close

Connection diagrams

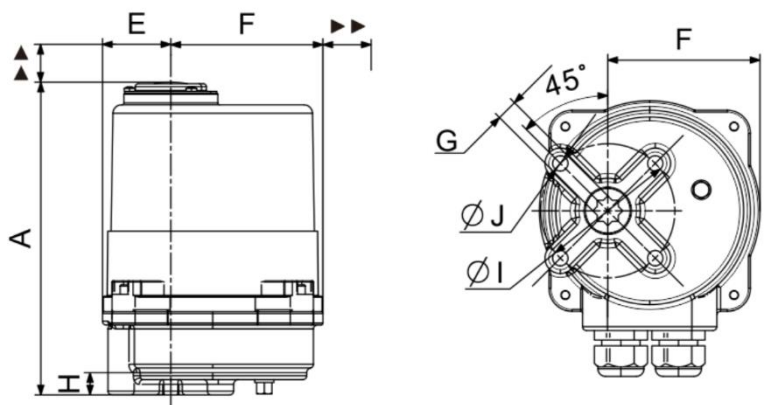
SQL321B..



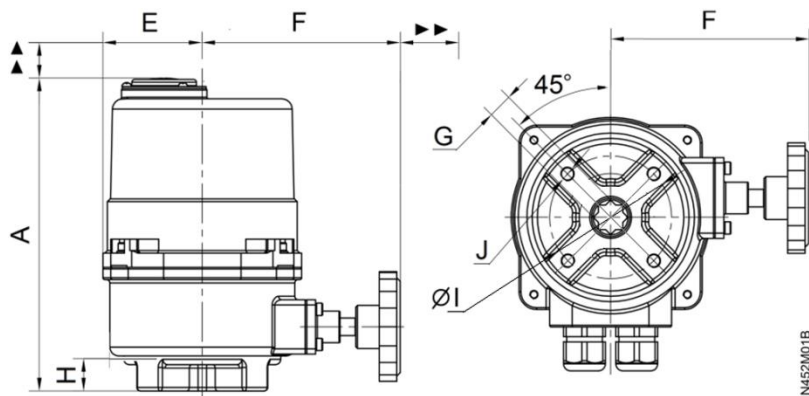
SQL361B..



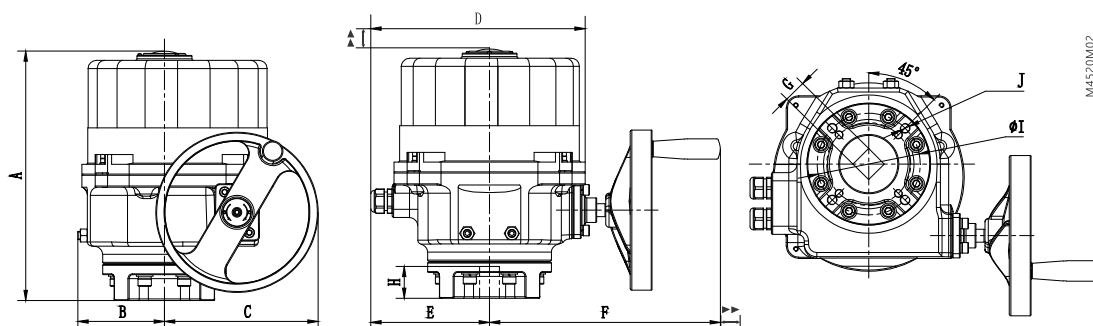
Dimensions (mm)



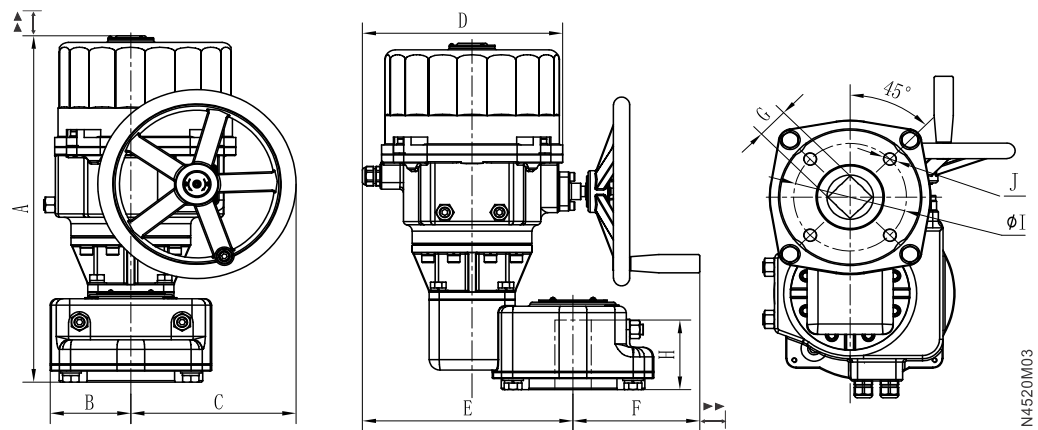
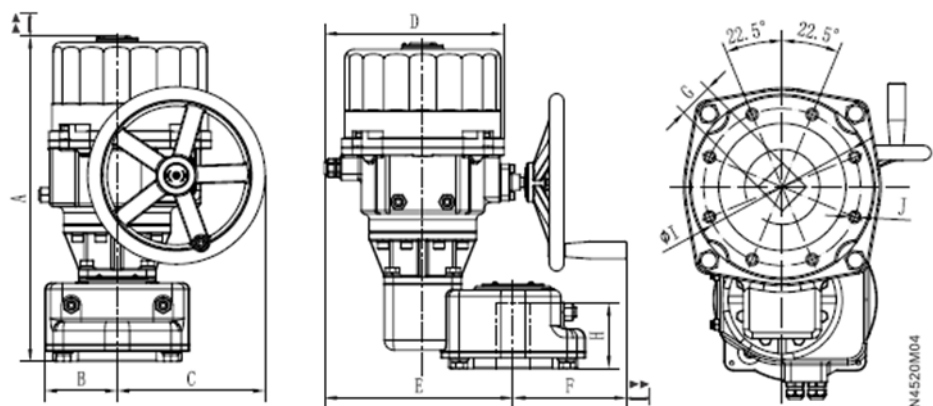
Product No.	A	E	F	H	G	Ø I	J	Weight [kg]	EN ISO 5211
SQL321B25/1	164	36	79	20	11	70	4-M8	1.9	F07
SQL321B50/1	174	36	79	20	17	70	4-M8	2.1	F07
≥ 200 mm: For mounting, connection, operation, service, etc.									



Product No.	A	E	F	H	G	Ø I	J	Weight [kg]	EN ISO 5211
SQL361B25	199	57	114	20	11	70	4-M8	3.8	F07
SQL361B50	199	57	114	20	17	70	4-M8	3.8	F07
▶▶ ≥ 200 mm: For mounting, connection, operation, service, etc.									



Product No.	A	B	C	D	E	F	G	H	Ø I	J	Weight [kg]	EN ISO 5211
SQL321B150 SQL361B150	248	79	123	218	123	243	17	35	70	4-M8	11	F07
SQL321B270 SQL361B270	307	109	187	262	146	280	22	55	102	4-M10	22	F10
SQL321B570 SQL361B570	307	109	187	262	146	280	27	55	102 125	4-M10 4-M12	22	F10/F12
SQL321B1400 SQL361B1400	359	128	242	295	163	333	36	65	140	4-M16	35	F14
▶▶ ≥ 200 mm: For mounting, connection, operation, service, etc.												

[illegible]

Product No.	A	B	C	D	E	F	G	H	Ø I	J	Weight [kg]	EN ISO 5211
SQL321B6000 SQL361B6000	545	160	242	293	343	160	60	150	254	8-M16	107	F25
 		≥ 200 mm: For mounting, connection, operation, service, etc.										