



SQL36E..

ACVATIX™

Electromotoric actuators

SQL36E..

For VKF46.. butterfly valves

-
- **SQL36E.. operating voltage AC 230 V, 3-position control signal**
 - **Nominal angle of rotation 90°**
 - **Auxiliary switch and potentiometer for extra functions**
 - **Manual adjuster and position indicator**
 - **SQL36E.. built-in heating element to avoid condensation**
 - **SQL36E.. compatible with EN ISO 5211 flanges**
 - **SQL36E.. variable positioning time with SEZ31.1 auxiliary module**

Use

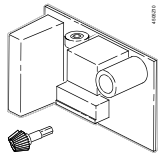
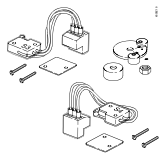
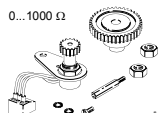
For operation of VKF41.., VKF46.. butterfly valves as control and shutoff valves in heating, ventilation and air conditioning plants.

Type summary

Type	Operating voltage	Positioning signal	Positioning time for 90° at 50 Hz		Torque	Flange connection EN 5211
			without SEZ31.1	with SEZ31.1		
SQL36E50F04	AC 230 V	3-position	25 s		40 Nm	F04
SQL36E50F05						F05
SQL36E65			6 s	30...180 s	100 Nm	F07
SQL36E110			12 s	60...360 s	400 Nm	F10
SQL36E160			24 s	120...720 s	1200 Nm	¹⁾

¹⁾ EN 5211 F12 / F16 flange connections for third-party butterfly valves are available on request.

Accessories

Type	Description	For actuators	Mounting position
SEZ31.1 	Auxiliary module for variable positioning time (refer to «Function/mechanical design», page 3)	SQL36E65 SQL36E110 SQL36E160	1 x SEZ31.1 and 1 x ASC36 and 1 x ASZ36
ASC36 	Double auxiliary switch	SQL36E50F04 SQL36E50F05 SQL36E65	
ASZ36 	Potentiometer 1000 Ω	SQL36E110 SQL36E160	

Ordering

Example:

Type	Order no.	Description	Quantity
SQL36E65	SQL36E65	Electromotoric actuator	1
ASZ36	ASZ36	Potentiometer 1000 Ω	1

The actuator, butterfly valve and any accessories must be ordered separately.

Delivery

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

Rev.-no.

Overview see page 12.

Equipment combinations

Butterfly valves	Electromotoric actuators					Data sheet
	SQL36E50F04	SQL36E50F05	SQL36E65	SQL36E110	SQL36E160	
VKF46.40	direct mounting					N4136
VKF46.50	direct mounting					
VKF46.65	direct mounting					
VKF46.80		direct mounting				
VKF46.100		direct mounting				
VKF46.125		direct mounting				
VKF46.150			direct mounting			
VKF46.200			direct mounting			
VKF46.250				direct mounting		
VKF46.300				direct mounting		
VKF46.350				direct mounting		
VKF46.400				direct mounting		
VKF46.450					direct mounting	
VKF46.500					direct mounting	
VKF46.600					direct mounting	
VKF41.150...200						N4131

Function / mechanical design

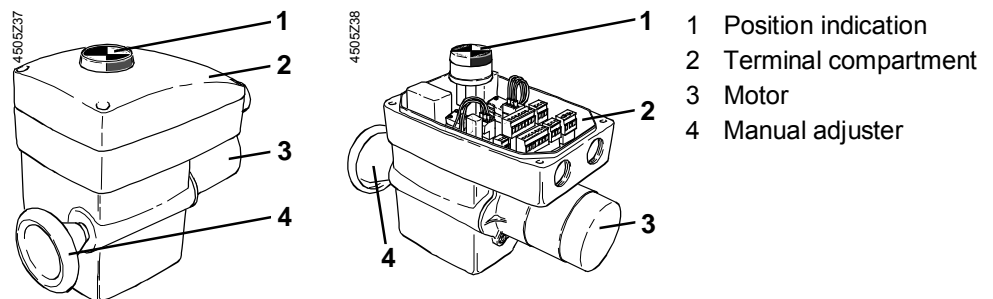
The actuator is driven by a 3-position signal from the controller and generates a rotary motion which is transferred via a driver to the valve.

SQL36E...

These electromotoric actuators require no maintenance. They have a reversible asynchronous motor which drives the main shaft via spur gears and a self-locking worm gear, which accommodates the rectangular shaft of the butterfly valve. The worm shaft is fitted with a direct-acting manual adjuster.

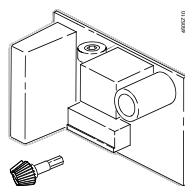
The actuators are supplied with a 90° angle of rotation suitable for use with Siemens butterfly valves. During automatic operation, rotation is limited by two built-in non-adjustable end-switches.

The direction of rotation of the actuator can be reversed (refer to «Commissioning», page 5). To prevent the temperature inside the housing from falling below the dewpoint temperature, the actuators are supplied with a built-in heating element (AC 230 V, power consumption 5 W).



Accessory for SQL36E65 SQL36E110 SQL36E160

SEZ31.1



Auxiliary module

In the presence of a 3-position signal, the auxiliary module pulses the actuator. The output shaft rotates by approximately 2° with each pulse. The pulse-to-pause ratio is continuously adjustable and can therefore be used to achieve longer running times for an angle of rotation of 90° (refer to «Commissioning», page 5).

Engineering notes

Electrical installation

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



Regulations and requirements to ensure the safety of people and property must be observed at all times.

Mounting notes

Overview of
Mounting Instructions

Type	Mounting Instructions	
SQL36E..	M4505.1	74 319 0440 0
ASC36	M4505.3	74 319 0442 0
ASZ36	M4505.2	74 319 0441 0
SEZ31.1	M4505.4	74 319 0443 0

SQL36E...

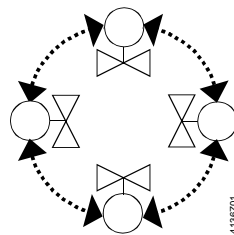
These actuators are mounted directly on type VKF46... butterfly valves. The butterfly valves have to be closed during installation.
In case of unsteady ambient temperatures connect the built-in heating element to avoid condensation.

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

Orientation

SQL36E..

Any



41982/01

When commissioning the complete motorized valve consisting of actuator, mounting set and butterfly valve, always check the wiring and test the functions. This also applies to any additional components fitted, e.g. auxiliary switch, potentiometer or auxiliary module (variable positioning time).

VKF41.. or VKF46... butterfly valves can only be commissioned with a SQL36E.. actuator or with an ASK46... manual adjuster fitted.

Warning 

To avoid pressure shocks on the butterfly, the VKF46.. must be driven to its fully open position (either manually or via positioning signal Y1) prior to activating the pump(s).

The flow rate is adjusted either by driving the electric actuators as required, or by operating the manual adjuster.

When using a SEZ31.1 auxiliary module set the desired positioning time:

SQL36E65: 30...180 s

SQL36E110: 60...360 s

SQL36E160: 120...720 s

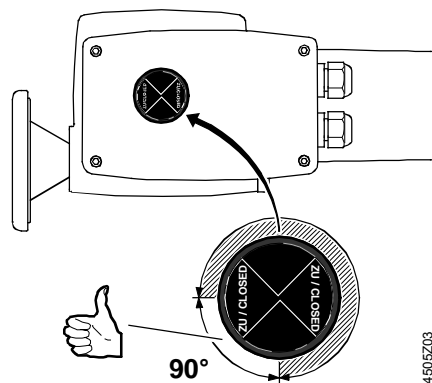
Warning 

The actuator is designed for a static load in the pipe system. Risks arising from loads caused by vibrations in the system are not covered: In such cases, the long term protection of the screw connections on the actuator must be agreed with Siemens.

Operating mode
SQL36E...

In the case of the SQL36E..., the manual adjuster is always engaged and cannot be mechanically disconnected.

Direction of rotation
SQL36E...



The direction of rotation of these types of actuators for opening is counterclockwise.

Reversing the
direction of rotation
SQL36E...

If the direction of rotation needs reversing, simply change the connections Y1/Y2.

Setting the
angle of rotation

The 0...90° angle of rotation for the end switches is factory-set and. They cannot be adjusted.

The potential-free auxiliary switches have adjustable switching points.

Control

Every actuator must be driven by a dedicated controller (refer to «Connection diagrams», page 9).

Maintenance

Caution 

The actuators and butterfly valves require no maintenance.

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 pipework
- 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 manual adjuster 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

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Technical data

		SQL36E50..	SQL36E65	SQL36E110	SQL36E160
Power supply	Operating voltage	AC 230 V -5 / +10 %			
	Frequency	50 / 60 Hz			
	Power consumption ¹⁾	35 VA	160 VA	235 VA	
	External supply line protection	Slow-blow fuse max. 10 A or Circuit breaker max. 13 A Characteristic B, C, D according to EN 60898			
Control	Positioning signal	3-position			
	Parallel operation	parallel operation of several actuators not possible			
Operating data	Positioning time for 90°				
	at 50 Hz	25 s	6 s ²⁾	12 s ²⁾	24 s ²⁾
	at 60 Hz	20 s	5 s	10 s	20 s
	Angle of rotation	90° ± 1° (factory setting)			
	Torque ¹⁾	40 Nm	100 Nm	400 Nm	1200 Nm
	End switch	Switching capacity AC 250 V, 3 A resistive, 1.5 A inductive Switching differential approx. 1° End position non-adjustable			
	Heating element	AC 230 V, 5 W			
	Medium temperature	Permissible temperature of medium in the assembled valve: 120°C			
	Product standards for automatic electrical controls	EN 61010-1			
	EU conformity (CE)	8000059601 ³⁾			
	Housing protection standard	IP 67 to IEC 60529			
	Electromagnetic compatibility (Applications)	For use in residential, commerce, light-industrial and industrial environments			
	Environmental compatibility	Product environmental declaration (contains data on RoHS compliance, materials composition, packaging, environmental benefit, disposal) CE1E4505en ³⁾			
Dimensions / weight	Flanges and shaft connection to actuator	EN ISO 5211 F04 / F05 F07 F10			o 32mm F12 / F16
	Dimensions	see «Dimensions» (page 10)			
	Cable glands	2 x M20			
Materials	Weight	4.5 kg	7 kg	14 kg	25 kg
	Housing base, yoke	die-cast aluminum			
	Cover	die-cast aluminum			

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

²⁾ Variable positioning time with SEZ31.1 auxiliary module (see below)

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

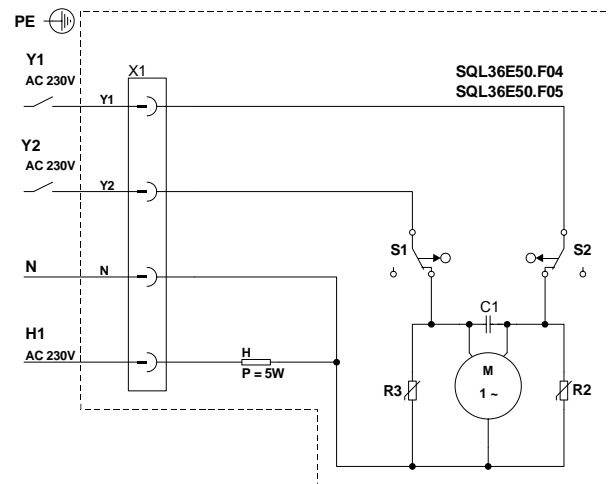
Accessories for SQL36E..

Accessories for SQL36E..			Weight
• Double auxiliary switch ASC36	Switching capacity Switching differential	AC 250 V, 3 A resistive, 1.5 A inductive approx. 1°	60 g
• Potentiometer ASZ36	Change in resistance	0...1000 Ω corresponding to 0...90°	50 g
• Auxiliary module SEZ31.1	Positioning time for 90 ° at 50 Hz	SQL36E65: 30...180 s SQL36E110: 60...360 s SQL36E160: 120...720 s	60 g

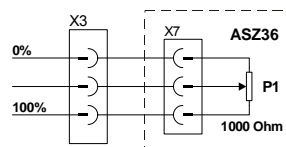
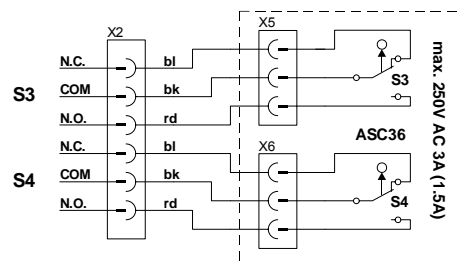
General ambient conditions	Operation EN 60721-3-4	Transport EN 60721-3-2	Storage EN 60721-3-1
Environmental conditions	Class 4K2	Class 2K3	Class 1K3
Temperature	-20...+70 °C	-30...+65 °C	-15...+55 °C
Humidity	15...100 % r. h.	< 95 % r. h.	0...95 % r. h.

Internal diagrams

SQL36E50F04
SQL36E50F05

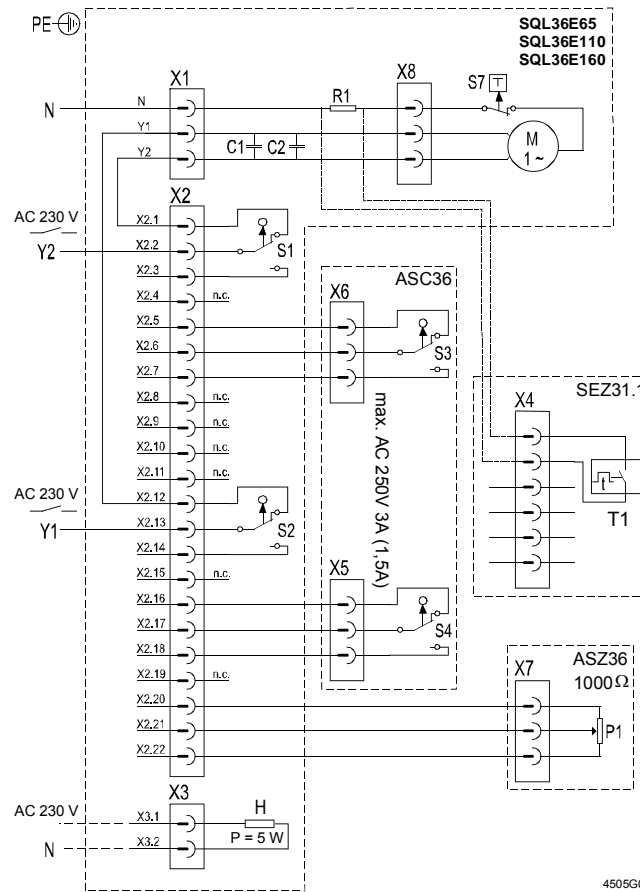


- S1 End switch CLOSED (non-adjustable)
- S2 End switch OPEN (non-adjustable)
- S3 Auxiliary switch CLOSED (ASC36)
- S4 Auxiliary switch OPEN (ASC36)
- H Heating element
- P1 Potentiometer (ASZ36)
- Y1 Control phase OPEN
- Y2 Control phase CLOSED
- N Neutral conductor
- N.C. Normally Closed
- N.O. Normally Open
- COM Common conductor



4505G07_02

SQL36E65
 SQL36E110
 SQL36E160

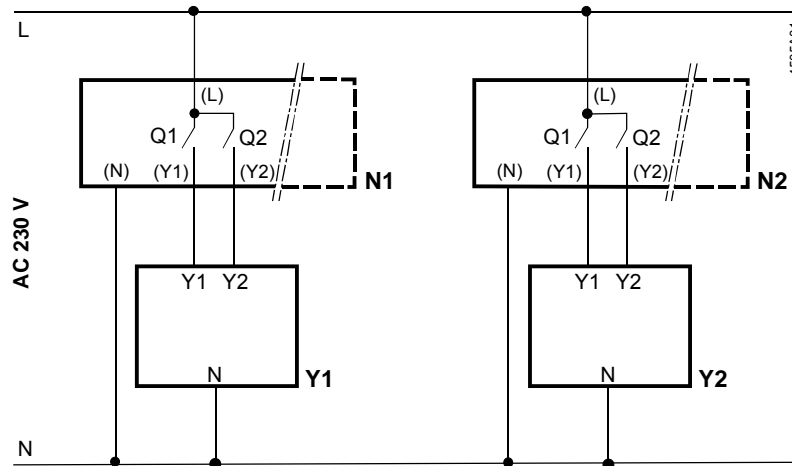


- S1 End switch CLOSED (non-adjustable)
- S2 End switch OPEN (non-adjustable)
- S3 Auxiliary switch CLOSED (ASC36)
- S4 Auxiliary switch OPEN (ASC36)
- S7 Thermal switch (integrated)
- H Heating element
- P1 Potentiometer (ASZ36)
- T1 Auxiliary module (SEZ31.1)
- Y1 Control phase OPEN
- Y2 Control phase CLOSED
- N Neutral conductor

4505G01

Connection diagrams

SQL36E..

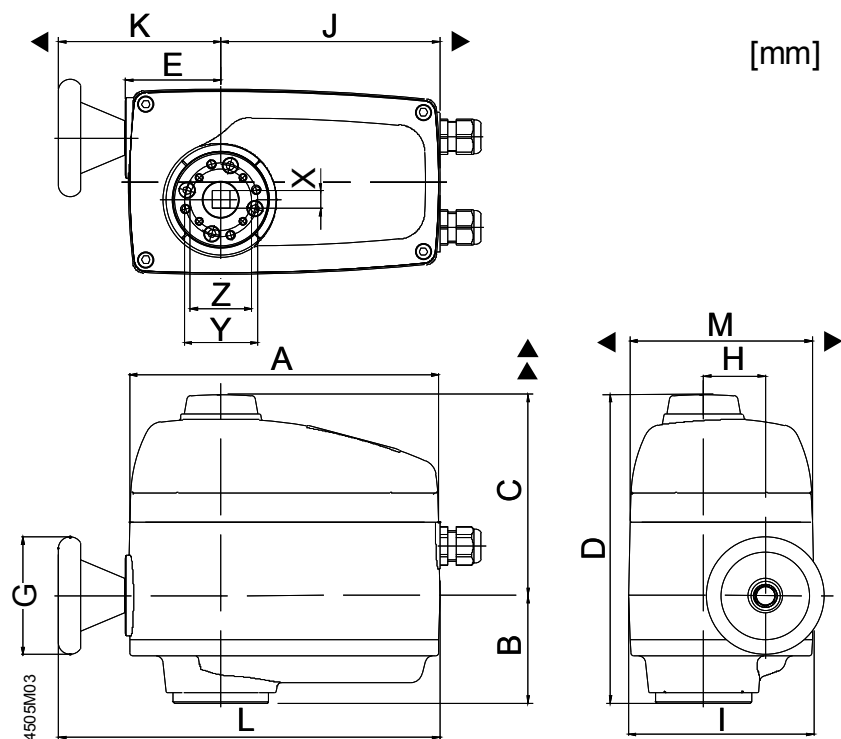



- | | | | |
|---------------|------------|--------|---------------------------|
| N1, N2 | Controller | L | System potential AC 230 V |
| Y1, Y2 | Actuator | N | System neutral |
| | | Q1, Q2 | Controller contacts |

Dimensions

Dimensions in mm

SQL36E50F04
SQL36E50F05

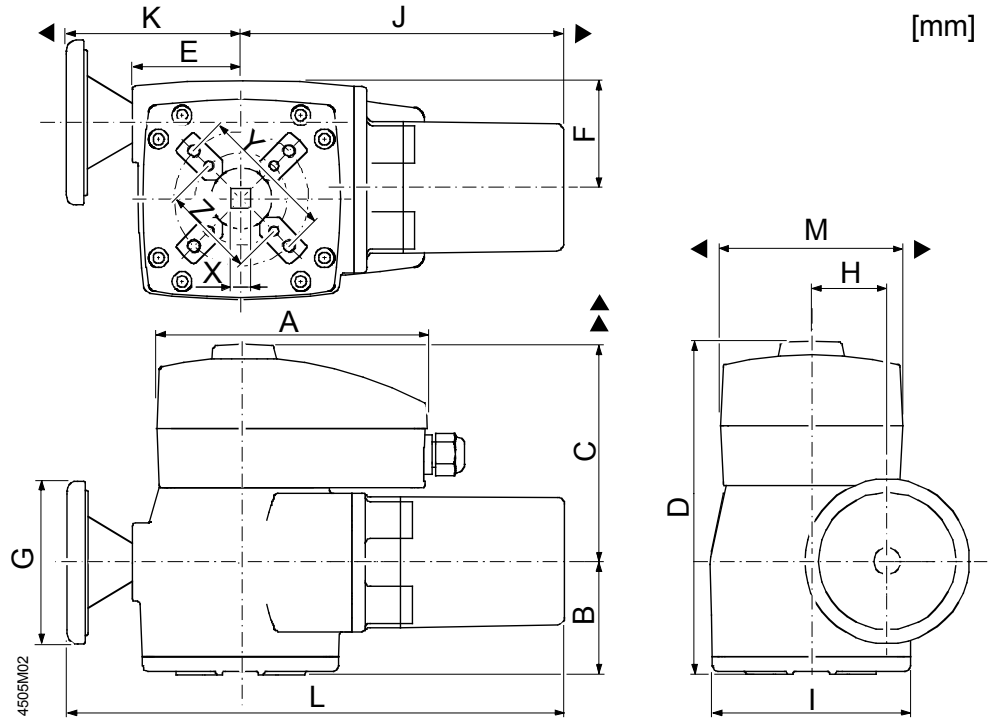


	SQL36E50F04	SQL36E50F05
DN	40...65	80...125
A	210	
B	73	
C	137	
D	210	
E	65	
G	Ø 80	
H	42	
I	126	
J	149	
K	110	
L	259	
M	124	
X	□ 11	□ 14
Y	42	
Z		50
EN 5211	F04	F05
 kg	4.5 kg	

◀ > 100 mm: Minimum clearance from wall or ceiling

▲ > 200 mm: For mounting, connection, operation, service, etc.

SQL36E65
 SQL36E110
 SQL36E160



	SQL36E65	SQL36E110	SQL36E160
DN	150...200	250...400	450...600
A	208	208	208
B	78	88	112
C	157	169	170
D	235	257	282
E	65	81	110
F	65	87	126
G	Ø 80	Ø 125	Ø 200
H	42	58	89
I	125	150	175
J	171	247	280
K	119	136	157
L	290	383	437
M	139	139	139
X	□ 17	□ 22	□ 32
Y	70	102	165
Z	50	70	125
EN 5211	F07	F10	¹⁾
kg	7 kg	14 kg	25 kg

¹⁾ EN 5211 F12 / F16 flange connections for third-party butterfly valves are available on request.

◀ > 100 mm: Minimum clearance from wall or ceiling

▲ > 200 mm: For mounting, connection, operation, service, etc.

Revision numbers

Product number	Valid from rev. no.
SQL36E50F04	..A
SQL36E50F05	..A
SQL36E65	..A
SQL36E110	..A
SQL36E160	..A

Published by:
Siemens Switzerland Ltd.
Building Technologies Division
International Headquarters
Theilerstrasse 1a
6300 Zug
Switzerland
Tel. +41 58-724 24 24
www.siemens.com/buildingtechnologies

© Siemens Switzerland Ltd 2003
Delivery and technical specifications subject to change