



SQK33.00



SQL33...
SQL83.00



Electromotoric Actuators

for valves with 90° angle of rotation

SQK33.00
SQL33...
SQL83.00

- **SQK33.00** operating voltage AC 230 V
- **SQL33...** operating voltage AC 230 V
- **SQL83.00** operating voltage AC 24 V
- 3-position control signal
- Nominal angle of rotation 90°
- Auxiliary switch and potentiometer for extra functions
- Manual adjuster and position indicator
- Reversible electric motor






Use

For use in heating, ventilation and air conditioning systems to operate type VKF41... butterfly valves and type VBF21..., VBG31..., VBI31..., VCI31... 3-port and 4-port slipper valves as well as valves from other manufacturers (refer to «Equipment combinations»).

Type summary

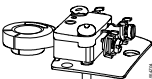
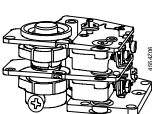
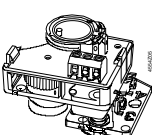
Type	Operating voltage	Positioning signal	Positioning time for 90° at 50 Hz	Torque
SQK33.00	AC 230 V	3-position	125 s	5 Nm
SQL33.00				12.5 Nm
SQL33.03			30 s	10 Nm
SQL83.00	AC 24 V		125 s	12.5 Nm

Mounting kits

Type		For valves	Actuators		
ASK31		Slipper valves VBF21... (DN 65...150)		SQL33.00 SQL33.03 SQL83.00	
ASK32		Slipper valves VBF21... (DN 40...50), VBG31..., VBI31..., VCI31...	SQK33.00		
ASK33		Butterfly valves VKF41... (DN 40...200)	SQK33.00 ¹⁾		
ASK40		Slipper valves from other manufacturers	SQK33.00		
ASK41					

¹⁾ for VKF41.40 only

Accessories

Type	Description	For actuators	Mounting position
ASC9.5 	Auxiliary switch	SQK33.00 ¹⁾ SQL33... SQL83.00	1 x ASC9.5 or 1 x ASC9.4 or 1 x ASZ7.4 (only one accessory at a time can be mounted)
ASC9.4 	Double auxiliary switch		
ASZ7.4 	Auxiliary switch and potentiometer 1000 Ω		

¹⁾ In SQK33.00 only the ASC9.5 auxiliary switch can be installed.

Order

The actuator, slipper valve, butterfly valve, mounting kit ASK.. and any accessories must be ordered separately.

When ordering please specify the quantity, product name and type code.

Example

1 actuator SQL33.03
1 mounting kit ASK31
1 auxiliary switch with potentiometer ASZ7.4

Delivery

The actuator, slipper valve or butterfly valve, mounting kit ASK.. and accessories are packed separately and delivered as individual items.

Equipment combinations

	Electromotoric actuator			Mounting kit	Data sheet
	Valves	SQK33.00	SQL33...	SQL83.00	
3-port slipper valve	VBF21...	DN 40...50		ASK32	N4241
			DN 65...150	ASK31	
	VBI31...	DN 20...40 (¾...1½")		ASK32	N4232
	VBG31..				N4233
	3-port valves of other manufacturers	DN 15...40 (¾...1½")	DN 15...125 (¾...2")	ASK40 ASK41	N4291
4-port slipper valve	VCI31...	DN 20...40 (¾...1½")		ASK32	N4252
	4-port valves of other manufacturers	DN 15...40 (¾...1½")	DN 15...200 (¾...2")	ASK40	N4291
				ASK41	
Butterfly valves	VKF41...	DN 40	DN 40...200	ASK33	N4131

Function / mechanical design

These electromotoric actuators require no maintenance. They have a reversible synchronous motor and reduction gears with self-lubricating sinter bearings.

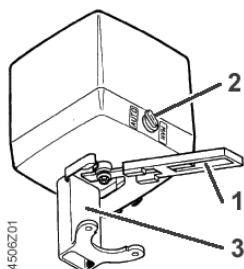
The actuator is driven by a 3-position signal from the controller and generates a rotary motion which is transferred via a driver to the butterfly valve, the 3-port or 4-port slipper valve.

The actuators are supplied with a 90° angle of rotation suitable for use with Siemens butterfly and slipper valves. During automatic operation, rotation is limited by two built-in end-switches. For non-Siemens valves, the angle of rotation in the range 70° to 180° can be selected by repositioning the switching cams.

The direction of operation of the actuator can be reversed (refer to «Commissioning»).

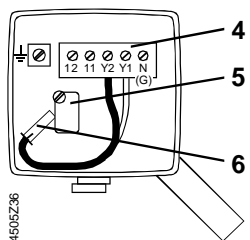
Direction of rotation of the actuator on delivery:

- Voltage at Y1 = Clockwise rotation
- Voltage at Y2 = Anti-clockwise rotation
- No voltage = No rotation; actuator fixed in relevant position



- 1 Manual lever, rotation is limited by built-in stop
- 2 Rotary «AUTO» / «MAN» selector
- 3 Yoke (e.g. mounting kit ASK31)

When the selector is set to «MAN», the valve can be operated with a manual lever.



- 4 Terminal strip
- 5 Double end switch (always factory-installed)
- 6 Plug for reversing direction of rotation

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.

If additional functions are to be controlled by the actuator, the ASC9... (auxiliary switch) or ASZ7.5 (auxiliary switch / potentiometer) must be fitted. The relevant switching point(s) and zero-ohm position must be noted in the plant documentation

Mounting notes

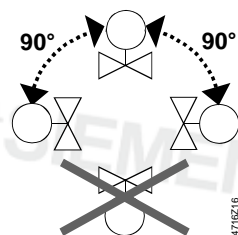
Overview of Mounting Instructions

Type	Mounting Instructions	
ASK31	M4290.1	4 319 5596 0
ASK32	M4290.2	4 319 5597 0
ASK33	M4111.1	4 319 5595 0
ASK40	M4291.1	4 319 5534 0
ASK41	M4291.2	4 319 5535 0

Type	Mounting Instructions	
ASC9.4	G4506.5	4 319 5537 0
ASC9.5	G4506.7	4 319 5557 0
ASZ7.4	G4506.6	4 319 5538 0

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

Orientation



Commissioning notes

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

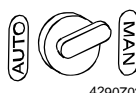
Note

Siemens slipper valves up to DN 50 can be commissioned without an actuator being fitted. In this case, the flow rate must be adjusted manually with the standard manual adjuster fitted to the valve.

Mode of operation



«AUTO» = automatic operation



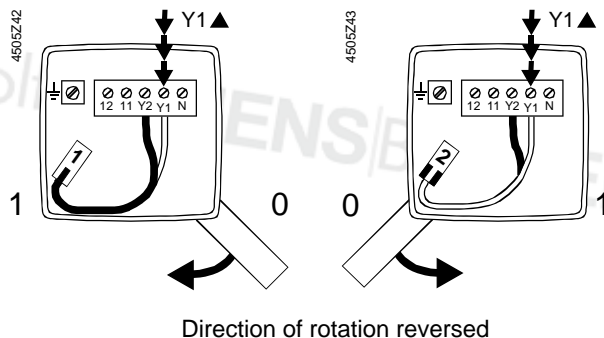
«MAN» = manual operation

Direction of rotation

The actuators are factory-set to rotate in clockwise direction for opening (as seen from the cover).

Reversing the direction of rotation

The direction of rotation can be reversed by repositioning a connector located under the cover. The wiring for the OPEN and CLOSE control signal is not affected



Setting the angle of rotation

The angle of rotation is factory-set to 90°. However, the angle can be changed to between 70° and 180°. This may be necessary when using non-Siemens valves. Special notes on this subject will be found in the mounting instructions for the ASK40 and ASK41.

Control

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

Maintenance

Caution

The actuators and butterfly valves require no maintenance.

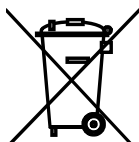
Before performing any service work on the valve or actuator:

- 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 butterfly or slipper valve must be re-commissioned only with the manual adjuster or the actuator correctly assembled.

Disposal



The actuator contains electrical and electronic components and must not be disposed of together with domestic waste.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

Current local legislation must be observed.

Warranty

The technical data given for these applications is valid only in conjunction with the Siemens butterfly and slipper valves as detailed under «Equipment combinations» and with ASK40 / ASK41 mounting kits and valves of other manufacturers.

The use of third-party valves other than those recommended by Siemens invalidates the warranty.

Technical data

		SQK33.00	SQL33.00	SQL33.03	SQL83.00
Power supply	Operating voltage	AC 230 V ±15 %			AC 24 V ±20 %
	Frequency	50 / 60 Hz			
	Power consumption ¹⁾	3 VA	4 VA	6.5 VA	4 VA
Control	Positioning signal	3-position			
	Parallel operation	parallel operation of several actuators not possible			
Operating data	Positioning time for 90° at 50 Hz	125 s		30 s	125 s
	at 60 Hz	105 s		25 s	105 s
	Angle of rotation	90° ± 2° (factory setting)			
	adjustable	70°...180°			
	Torque ¹⁾	5 Nm	12.5 Nm	10 Nm	12.5 Nm
	End switch	Switching capacity AC 250 V, 6 A resistive, 2 A inductive Switching differential approx. 1°			
Standards	Medium temperature	Permissible temperature of medium in the assembled valve: 120°C			
	CE-conformity				
	EMC-directive	2004/108/EC			
	Immunity	EN 61000-6-2	Industrial ²⁾		
	Emission	EN 61000-6-3	Residential		
	Low voltage directive	2006/95/EC			
	Electrical safety	EN 60730-1			
	Product standards for automatic electrical controls	EN 60730-2-14			
	Housing protection standard	IP 44 to IEC 60529 / DIN 40050			
	Protection class to EN 60730	Class II			Class III
	Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)			
	Dimensions / weight	Dimensions	see «Dimensions»		
Cable glands		4 x Ø 20.5 mm (for M20)			
Weight		1.25 kg	1.35 kg	1.4 kg	1.35 kg
Materials	Housing base, yoke	die-cast aluminium			
	Cover	plastic			

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

²⁾ Transformer 160 VA (e.g. Siemens 4AM 3842-4TN00-0EA0) for AC 24 V Actuators

Accessories for SQK33.00, SQL33.00, SQL83.00

			Weight
• Double auxiliary switch ASC9.5 / ASC9.4	Switching capacity	AC 250 V, 10 A resistive, 3 A inductive	ASC9.4 85 g
	Switching differential	approx. 1°	ASC9.5 30 g
• Auxiliary switch with potentiometer ASZ7.4	Switching capacity	AC 250 V, 10 A resistive, 3 A inductive	60 g
	Switching differential	approx. 1°	
	Change in resistance	0 ...1000 Ω corresponding to 0...90 °	

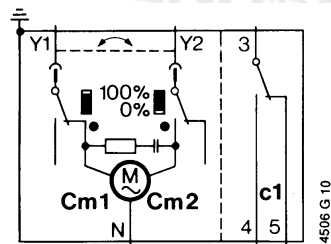
General

ambient conditions

	Operation EN 60721-3-3	Transport EN 60721-3-2	Storage EN 60721-3-1
Environmental conditions	Class 3K5	Class 2K3	Class 1K3
Temperature	−15...+55 °C	−30...+65 °C	−15...+55 °C
Humidity	5...95 % r. h.	< 95 % r. h.	0...95 % r. h.

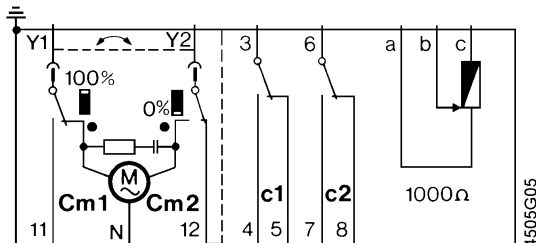
Internal diagrams

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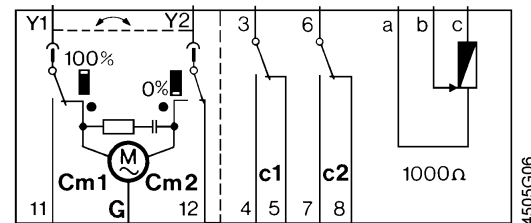
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SQL33.03



- Cm1 End switch
- Cm2 End switch
- c1 1 auxiliary switch **ASC9.5**
- or
- c1, c2 1 double auxiliary switch **ASC9.4**
- or
- c1, 1000 Ω 1 built-in unit **ASZ7.4**
(1 auxiliary switch and 1 potentiometer)
- N Neutral conductor
- G System potential
- Y1 Control signal OPEN
- Y2 Control signal CLOSED
- 11 Sequence Y1 at 90°
- 12 Sequence Y2 at 0°

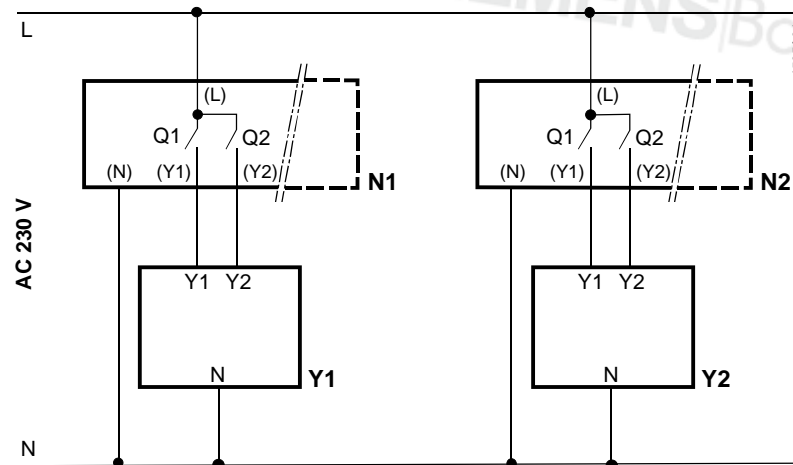
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Connection diagrams

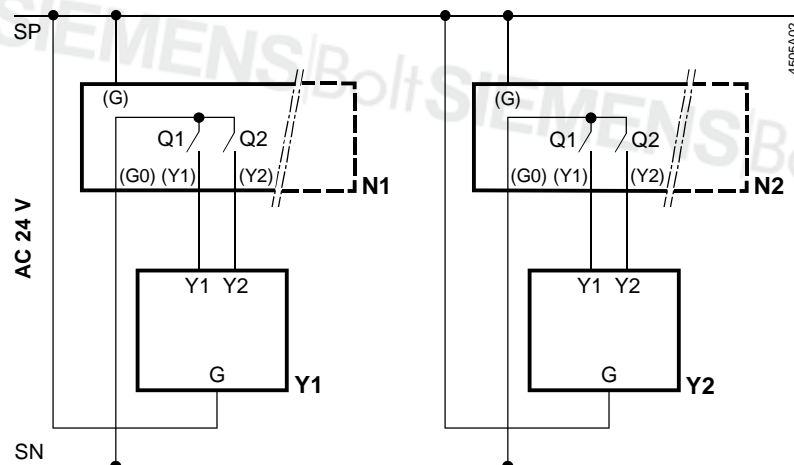
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- N1, N2** Controller
- Y1, Y2** Actuator
- L** System potential AC 230 V
- N** System neutral
- Q1, Q2** Controller contacts

SQL83.00

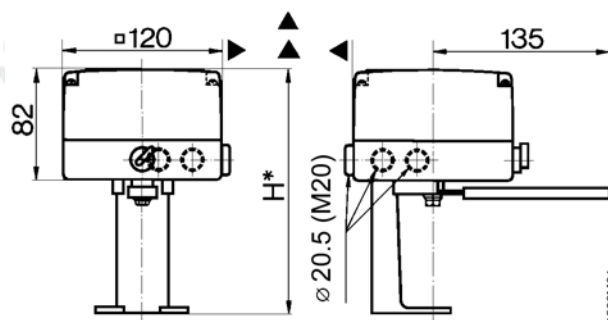


N1, N2 Controller
Y1, Y2 Actuator
SP System potential AC 24 V
SN System neutral
Q1, Q2 Controller contacts

Dimensions

Dimensions in mm

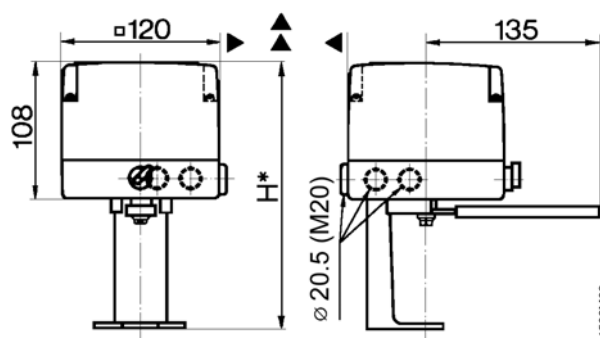
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Installation height H*
for actuator with mounting kit:

ASK31	162 mm
ASK32	132 mm
ASK33	162 mm

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Installation height H*
for actuator with mounting kit:

ASK31	188 mm
ASK32	158 mm
ASK33	188 mm

Overall height of valve
and actuator

= Installation height of slipper or butterfly valve from the middle of the pipe
 + Installation height H* of the actuator with mounting kit
 + Minimum clearance from ceiling or wall for mounting, connection,
 operation, service etc.

- ▶ >100 mm
- ▶▶ >200 mm