

**Product Description****MD50-Q****MD50-Q Actuator**

for Cocon QTR DN40..50 combo valves

**Application**

MD50-Q Elektric actuator modulating controllers in heating systems.

Positive connection with automatic coupling between actuator and compact control valve.



<b>Content</b>	<b>Page</b>
Important Information Regarding Product Safety .....	2
Item .....	3
Technical Data .....	3
Accessories (included in delivery) .....	3
Accessories (not included in delivery) .....	3
Dimensions .....	4
Connection .....	4
Valve Installation .....	5
Installing the Z223 Adapter .....	6
Installing the Actuator .....	7
Removing the Actuator .....	8
Manual adjustment .....	8
Commissioning .....	9

Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

## Important Information Regarding Product Safety

### Safety Instructions

This data sheet contains information on installing and commissioning the product "MD50-Q". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

### Legend



#### WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.



#### CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.



#### CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



#### NOTE

Indicates additional information that can simplify the work with the product for you.

### Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

**Product Description****MD50-Q****Item**

MD50-Q      Actuator for Cocon QTR DN40..50 combo valves

**Order numbers** for combo valves:

HW-108640      QTR DN40

HW-108641      QTR DN50

**Technical Data**

Nominal voltage	AC 24 V $\pm$ 10%; 50/60 Hz; DC 24 V $\pm$ 10%
Power consumption	Dimensioning: 6 VA (AC 24 V); 2.6 W (DC 24 V) Operation: 2.1 VA (AC 24 V); 0.7 W (DC 24 V)
Control	continuous control DC 0(2) to 10 V; < 0.5 mA, invertible
Connection	Built-in cable 1.5 m; 3 x 0.34 mm <sup>2</sup>
Motor switch-off	Actuator spindle: extending = electronic, retracting = electronic
Display	LED display for operating voltage and status
Actuating noise	<30 dB (A)
Nominal stroke	10 mm max.
Travel time	22 s/mm
Positioning force	500 N
Position indicator	Stroke range scale
Manual adjustment	Only when disconnected from the mains power supply Socket for hexagon key on the actuator cover, key socket 4 mm
Valve block protection	Can be switched on
Ambient temp.	0 °C to 50 °C
Degree of protection	IP40
Protection class	III in accordance with EN 60730
Installation position	Anywhere from vertical to horizontal
Maintenance	Maintenance-free
Weight	200 g

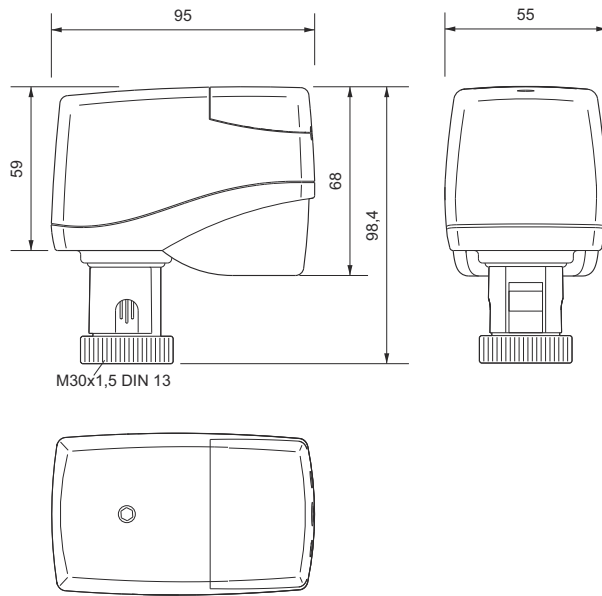
**Accessories (included in delivery)**

Z221      Measuring valves  
Further information in the installation note, data sheet 3.10-20.010-99.

**Accessories (not included in delivery)**

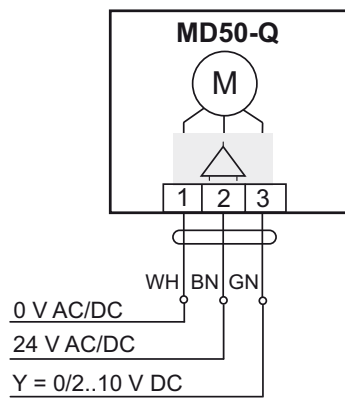
Z223      Adapters for QTR DN40 (HW-108640) and QTR DN50 (HW-108641) and the MD50-Q actuator. Further information in the installation note, data sheet 3.10-20.015-99.

**Dimensions**



**Connection**

**- Continuous control**



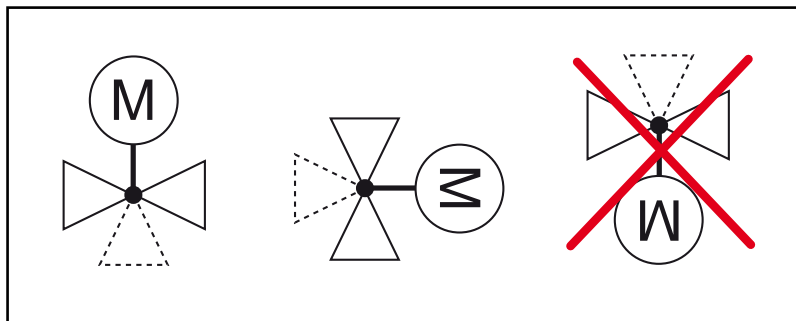
## Valve Installation



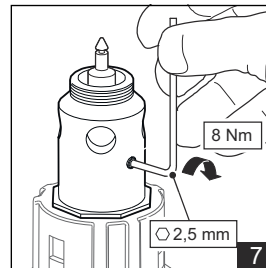
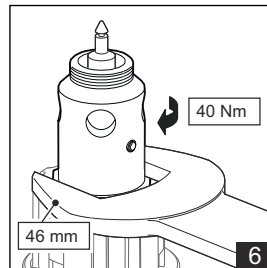
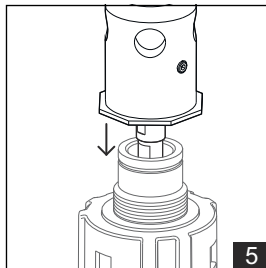
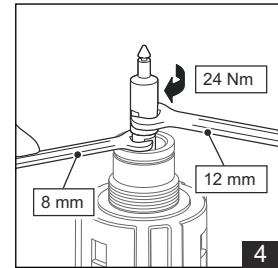
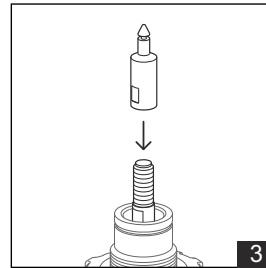
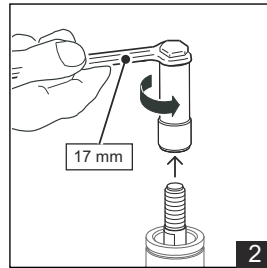
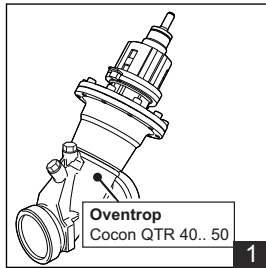
### CAUTION

The valve may only be installed by qualified technicians. In addition to the generally valid installation guidelines, the following points are to be observed:

- Any protective caps on the valve gates should be removed before assembling the valves.
- No grease or oil may be used during assembly because these could destroy the valve seals.
- The pipeline system and the interior of the fitting must be free of foreign objects, particles of dirt, and grease and oil residues. Rinse them out if necessary.
- There must be no tension between the fixture and the pipeline connection.
- To avoid eddy formations in the valve body, the valve should be installed in a straight section of the pipe. A distance of 10 times the nominal diameter is recommended between the valve flange and manifold or other similar parts.
- The installation location is to be selected so that the ambient temperature at the actuator is kept between 0 °C and +50 °C.
- A strainer should be installed upstream of the valve. For maintenance purposes, shut-off valves should be installed upstream and downstream of the valve.
- When carrying out installation, observe the maximum permitted pressure difference  $\Delta p$  and the specified flow direction.
- When installing the drive or removing the connection cover, ensure that there is sufficient clearance above the drive.
- Observe the flow direction arrow on the valve body. Inverting the flow direction impairs control behavior.



Installing the Z223 Adapter



## Installing the Actuator



### CAUTION

Installation and commissioning work may only be carried out by qualified technicians.

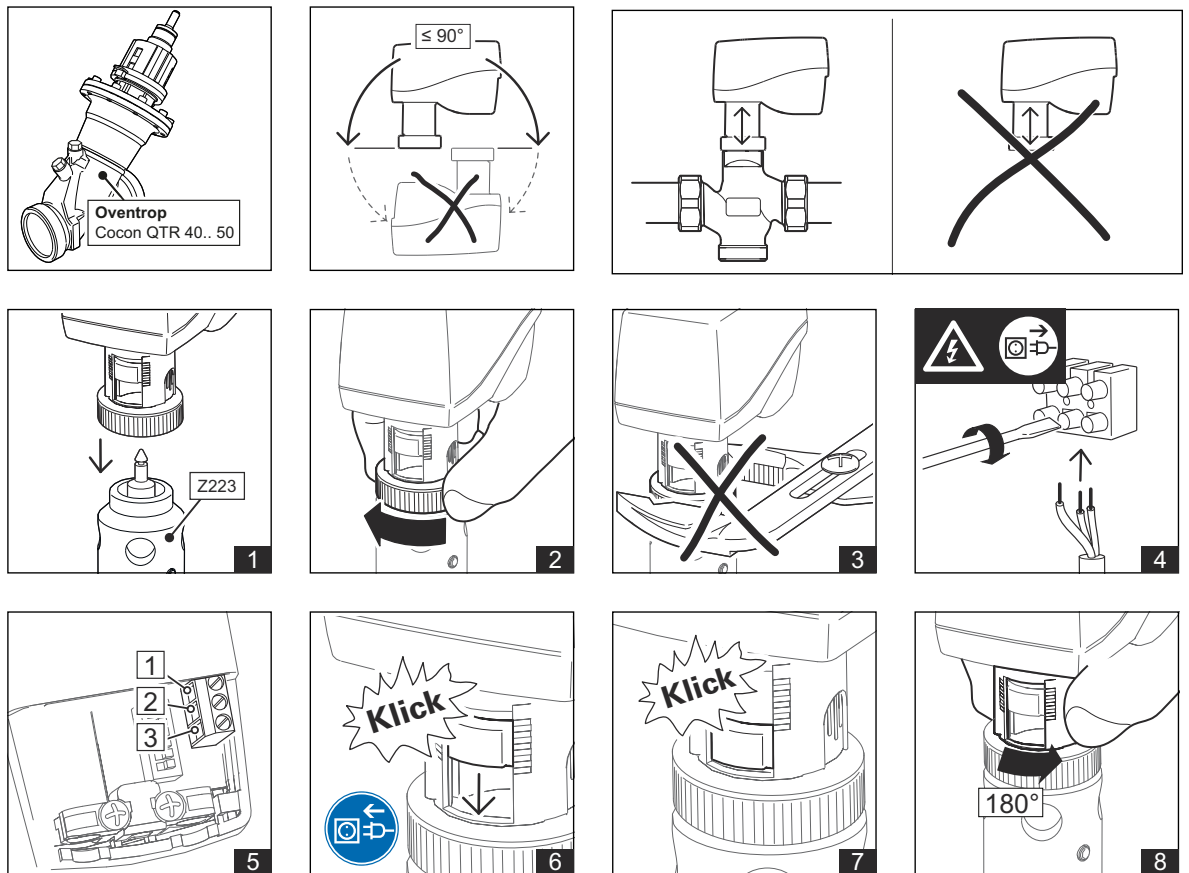
If the valve is installed in the system, make sure that no differential pressure builds up in the valve body before beginning work. If necessary, close the gate valve and turn off pumps. After the pipeline has cooled off, the actuator can be installed.

Be sure to comply with VDE guidelines and local wiring regulations. The device is connected according to the legally binding system circuit diagram.



### CAUTION

Actuator must not be operated electrically without a valve.



- Place the actuator on the threaded connection of the valve and tighten until hand-tight using the union nut.
- Establish the electrical connection.
- After the power supply has been switched on, automatic adaptation to the closing point is performed according to switch position 3 (0 V); see page 9. The maximum valve stroke is adapted at  $Y = 10\text{ V}$ .
- After installation and commissioning work is complete, the automatic coupling must be protected with the dust cover (see fig. 8).

## Removing the Actuator



### CAUTION

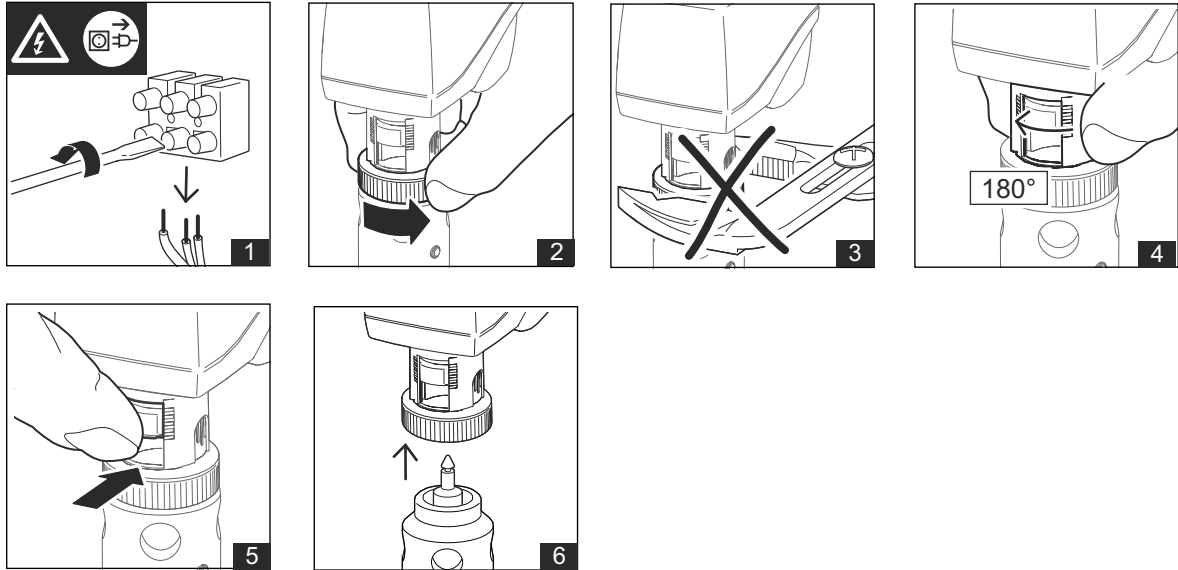
Before beginning removal, make sure that no differential pressure builds up in the valve body. If necessary, close the gate valve and turn off pumps.

After the pipeline has cooled off, you can begin with the removal of the actuator.



### CAUTION

Before beginning to remove the unit, put the actuator in the middle position.



- Disconnect the actuator from the mains power supply. Then disconnect all electrical connections.
- Remove the union nut.
- Turn the dust cover far enough so that you can press the safety button.
- Push the safety button of the automatic coupling as far as it will go and hold down (see fig. 5).
- Remove the actuator from the valve.

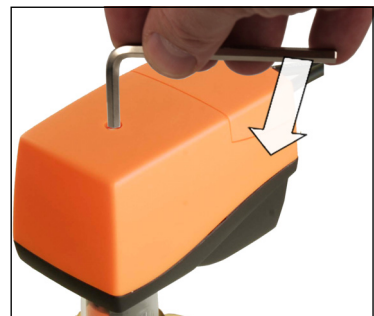
## Manual adjustment



### CAUTION

Manual adjustment may only be performed when the actuator is installed.

- The actuator must be disconnected from the power supply for manual mode.
- A hexagon key (key socket 4 mm) can be used to move the actuator into any position.








## Commissioning

### Valve Functions

The valve functions are adjusted with switches (A) 1 to 6 under the connection cover.

Function	Switch (A)	Function
Deleting and re-teaching in the valve adaptation (OFF ->ON)		Deleting and re-teaching in the valve adaptation (ON->OFF)
Without function		Without function
Without function		Without function
Actuating direction: 100..0% 		Actuating direction: 0..100% 
DC 2 V..10 V		DC 0 V..10 V
Valve block protection feature on		Valve block protection feature off

#### Switch 1: Valve block protection feature

If the plant specifications permit it, the valve block protection feature can be activated during commissioning.



Block protection prevents the ball from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer.


When the block protection is activated, the valve cone is raised for a few seconds if no stroke movement has occurred in a period of 24 hours.

**Default setting:** Off

**Switch 2:** Setting the control range using the continuous actuating signal DC 0 V..10 V or DC 2 V..10 V

**Default setting:** DC 0 V..10 V

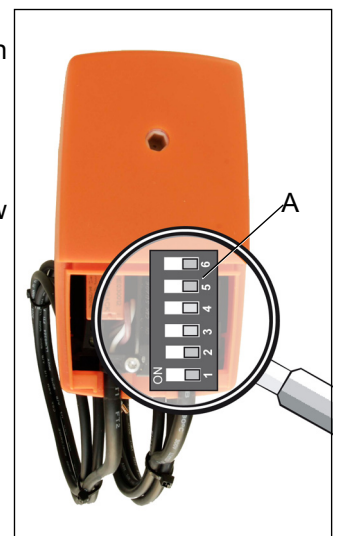
**Switch 3:** Setting the actuating direction with DC 10 V control voltage “valve open”  or “valve closed” 

**Default setting:** 0..100%; “valve open” 

#### Switch 6: Deleting and re-teaching the valve adaptation

Changing the setting for the maximum flow rate on the Combo Valves changes the effective stroke of the valve. As a result, the previous adaptation must be deleted. You can do this by moving switch 6 from “OFF” to “ON” or from “ON” to “OFF”.

The re-adaptation takes place during operation.



#### NOTE

You can find additional information on the default setting of the volume flow in the product description of the RBQ15..32, Cocon QTR DN40..50, QFC DN65..100 data sheet.

