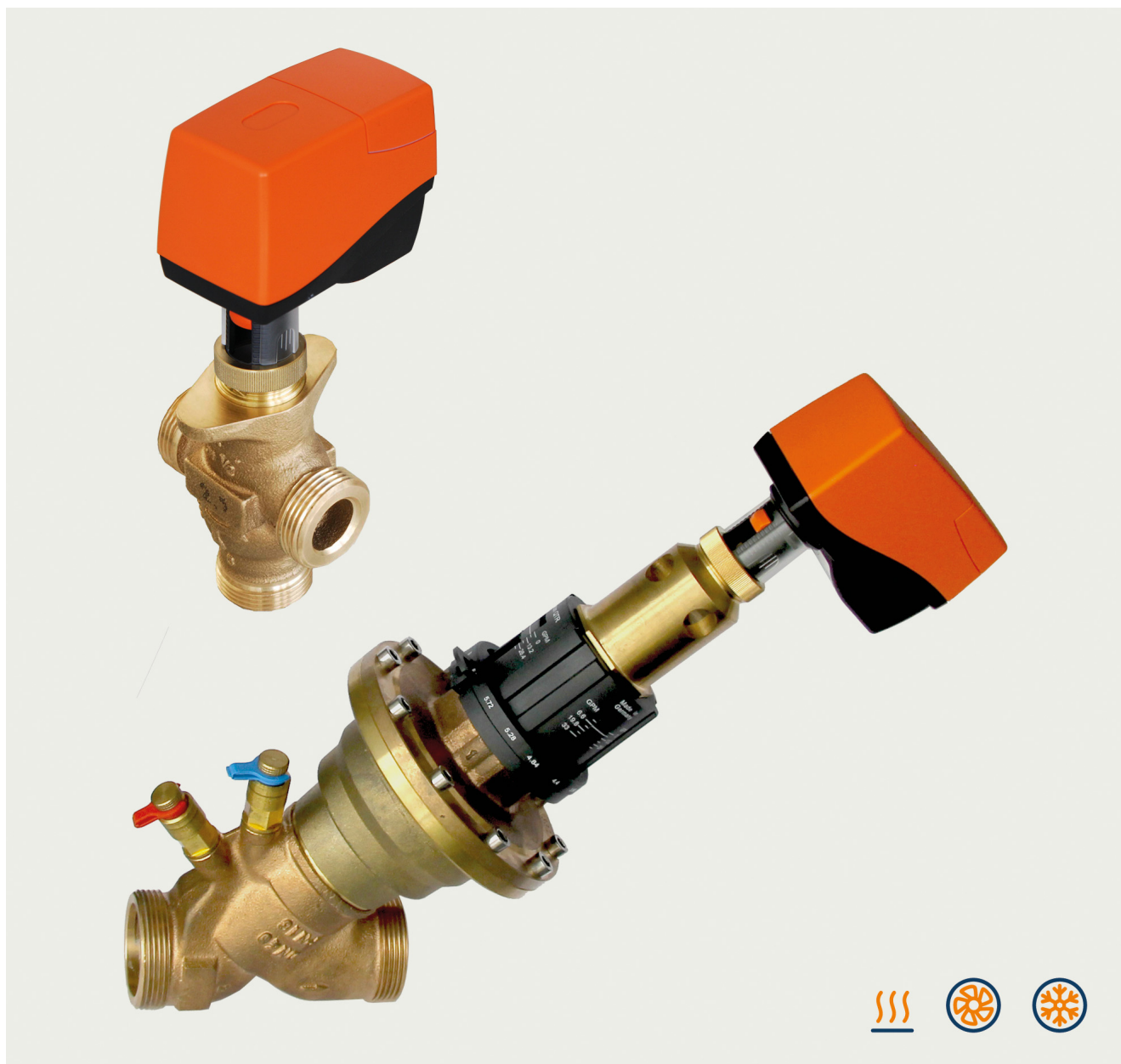




Kieback&Peter

OPERATING INSTRUCTIONS

MF50-R

**Actuator with electrical emergency control function
for valves from the RBK15..50(-BK) and RBQ40..50 series**

This document replaces all versions with an older release date. This version is not updated automatically. Subject to change.

The figures in this document were created with the utmost care. Nevertheless, we cannot guarantee that the delivered product will not differ from these figures.

The original operating instructions were composed in German.

Documentation in other languages has been translated from German.

Kieback&Peter is not liable for damages that result directly or indirectly from the improper use of this device.

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IMPORTANT
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RETAIN FOR LATER REFERENCE

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1 Notes on these operating instructions



NOTE

If you have any questions that cannot be clarified with these operating instructions, you can obtain further information from your Kieback&Peter contact person.

1.1 Validity of the operating instructions

These operating instructions are an integral part of the MF50-R actuator for RBK15..50 two-way or three-way valves and RBQ40..50 (Cocon QTR40..50) combo valves and are valid only for this actuator and these valves.

To aid readability, the MF50-R actuator will hereinafter be referred to as the "actuator". The RBK15..50 two-way or three-way valves and the RBQ40..50 (Cocon QTR40..50) combo valves are hereinafter referred to as "valves" in the text.

1.2 Display elements



NOTE

Notes provide you with important information.

You can find the following display elements in these instructions:

- List point
- ▶ Step or measure for avoiding danger

2 Safety

IMPORTANT

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2.1 Explanation of safety instructions and warnings

The basic safety information includes general instructions for the safe use of the actuator with valve or instructions to maintain its safe condition.

Action-related warnings of residual risks are indicated prior to performing dangerous actions.

Presentation and structure of warnings

The warnings are action-related and are structured as follows.



CAUTION

Type and source of danger!

Potential consequences when the danger occurs or the warning is not observed.

- ▶ Measures to avoid the danger.

Warnings are classified according to the severity of the hazard. The hazard levels and their corresponding signal words and warning symbols are described below:



WARNING

Indicates a hazard of medium risk which can result in **death or serious bodily injury** if not avoided.



CAUTION

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



CAUTION

Indicates a hazard which can result in **material damage or malfunctions** if not avoided.

2.2 Basic safety instructions

Safety in the workplace depends on the attention, care and rationality of all the persons involved. To prevent damage and injury, read and follow the safety instructions below, the safety instructions in the documentation on using the components and the applicable local regulations.

Sharp edges and corners

There is a risk of skin abrasions and cutting injuries due to sharp edges and corners, such as those on cast iron bodies and the outer threads of the valves and individual parts of the actuators.

- ▶ Proceed with care.
- ▶ Wear protective gloves.

Toppling, falling and ejected parts

Severe injury and substantial damage to property due to:

- Toppling or falling valve or actuator parts
- Ejected parts in the event of impermissible pressure increases (bursting components)
- Impermissible drop in pressure (e.g. when using tensioning devices)
- ▶ Secure the protected area against access by unauthorized persons.
- ▶ Secure parts to prevent toppling and falling.
- ▶ Do not exceed the maximum valve operating pressure.

Pressurized liquids

There is a risk of severe burns and injuries caused by liquid jets due to incorrect connections.

- ▶ Do not exceed the maximum valve operating pressure.
- ▶ Check all connections before filling the system.
- ▶ Secure the protected area against access by unauthorized persons.

Hot and cold surfaces

There is a risk of severe burns or hypothermia from contact with hot or cold surfaces on the valves and pipelines.

- ▶ Before starting work, wait until the temperature of the pipelines and valves is between roughly 10 to 40 °C.

Musculoskeletal disorders

There is a risk of severe musculoskeletal disorders (e.g. back injuries) due to incorrect posture or excessive exertion (e.g. due to weight loads).

- ▶ Proceed with care.

2.3 Responsibilities of the Operator

The actuator and valve must be operated only when in a technically sound and safe condition. The operator must observe the following points:

- Ensure that the operating instructions are available to all persons who perform work on the actuator and valve.
- Ensure that all persons have read and understood the operating instructions before working on the actuator and valve.
- Ensure the required ambient conditions and clearances at the mounting location.
- Ensure that mounting, installation and commissioning are carried out only by a fitter or specialist electrician, according to the tasks. NOT DEFINED
- Inform your Kieback&Peter contact person in the event of damage to the actuator and/or valve.
- Ensure that personnel receive the personal protective equipment (PPE) stipulated in the specific country and use this equipment at all times.

2.4 Qualification of personnel

Fitter

The fitter is familiar with heating, ventilation and air conditioning systems. Based on his or her technical training and appropriate knowledge and experience, he or she is familiar with the described actuator and valve. The fitter knows the applicable regulations, can assess his or her assigned tasks and identify potential dangers.

Electrical specialist

The electrical specialist is familiar with the described actuator. Based on his or her professional training, knowledge and experience, he or she has a very good command of tasks related to cables, lines and laying systems and a good level of knowledge in the fields of electrical engineering and electrical machines and actuators. The electrical specialist knows the applicable regulations, can assess his or her assigned tasks and identify potential dangers.

His or her professional qualification as an electrical specialist is usually proven through the successful completion of training as, for example, an electrical engineer or electrical technician. Training may also be proven through several years of working in the field with theoretical and practical training following an assessment by an electrical specialist.

Who is permitted to perform which tasks?

Task	Fitter	Electrical specialist
Mounting		
Assembling the valve	x	
Assembling the actuator	x	
Commissioning		
Electrical connection		x
Adapting actuator functions		x
Faults and remedial measures		
Searching for and correcting faults	x	x
Decommissioning, disassembly and disposal		
Taking the actuator out of operation		x
Disassembling the actuator	x	
Disassembling the valve	x	
Disposal	x	

2.5 Intended use

- The actuator with valve is designed to control the flow or precise mixture of liquids for heating, ventilation and air conditioning systems.
- Operate the actuator only with one of the specified valves and the original valve accessories.
- The actuator with valve is intended only for industrial and commercial use; never operate the actuator with valve in the private sphere or in households.
- Only operate the actuator with valve indoors.
- Maintain the specified ambient conditions during operation, transport and storage.
- Use a suitable operating medium.
- Only operate the actuator with valve in its original condition. Modifications to the actuator and/or valve may result in unforeseeable dangers and are thus prohibited.

2.6 Transport and storage

Unpacking

- ▶ Do not use damaged deliveries and get in touch with your contact at Kieback&Peter.
- ▶ Dispose of packaging material according to local regulations.

Transportation

- ▶ Maintain the specified ambient temperature of -20..+60 °C and ambient humidity of 0..85% r. F., non-condensing.
- ▶ Avoid slipping.

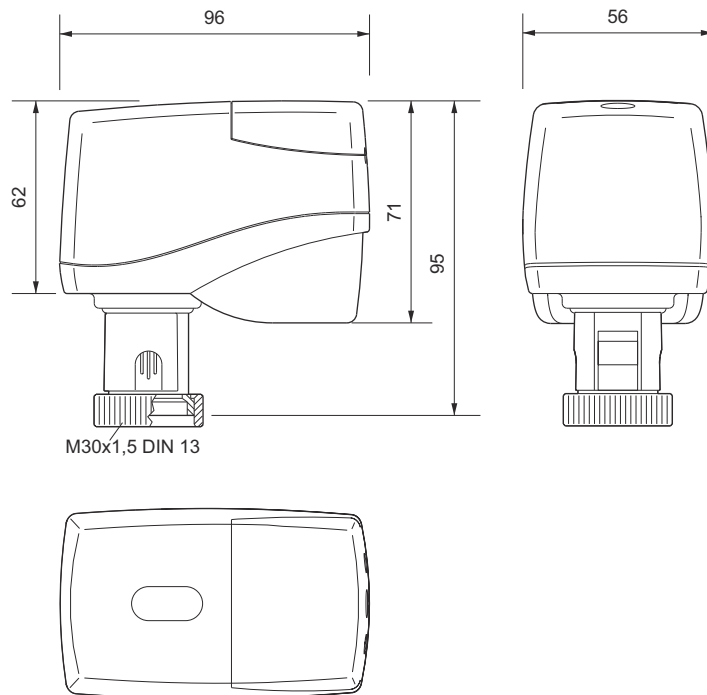
Storage

- ▶ Maintain the specified ambient temperature of -20..+50 °C and ambient humidity of 0..85% r. F., non-condensing.

3 Technical features and functions

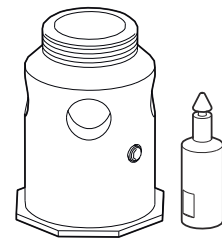
Nominal voltage	AC 24 V $\pm$ 10%; 50/60 Hz; DC 24 V $\pm$ 10%
Dimensioning	9.0 VA (AC 24 V); 4.5 W (DC 24 V)
Power consumption	Nominal: 6.2 VA (AC 24 V); 3.0 W (DC 24 V)
Switch-on current	Max. 12 A for a short time
Control	Continuous control DC 0(2) to 10 V; < 0.5 mA, invertible
Connection	Built-in cable 1.5 m; 5 x 0.5 mm ²
Motor switch-off	Actuator spindle: extending = load-dependent, retracting = load-dependent
Sound power	<28 dB (A)
Positioning stroke	10 mm max.
Positioning time	22 s/mm
Emergency positioning time	5 s/mm
Positioning force	500 N
Emergency control function	Emergency control end position adjustable
Position feedback	2..10 V DC; 5 mA for 0..100% positioning stroke 0 V DC when the emergency stop function is active
Permitted temperature of medium in valve	RBK15..50: 0..+120 °C RBQ40..50: -10..+120 °C
Ambient temperature	0..50 °C
Degree of protection	IP54
Ambient humidity	0..85% r.h., non-condensing
Protection class	III
Installation position	360°
Maintenance	Maintenance-free
Weight	325 g

3.1 Dimensions



3.2 Accessories (not included in the delivery)

- Z223** Adapter for RBQ40 (QTR DN40) and RBQ50 (QTR DN50) with actuator MD50-BUS, MD50(-E)(-R), MD50/230 or MF50-R. Further information can be found in the mounting instructions for Z223 and in the operating instructions for the actuators.



3.3 Scope of delivery, transportation and storage

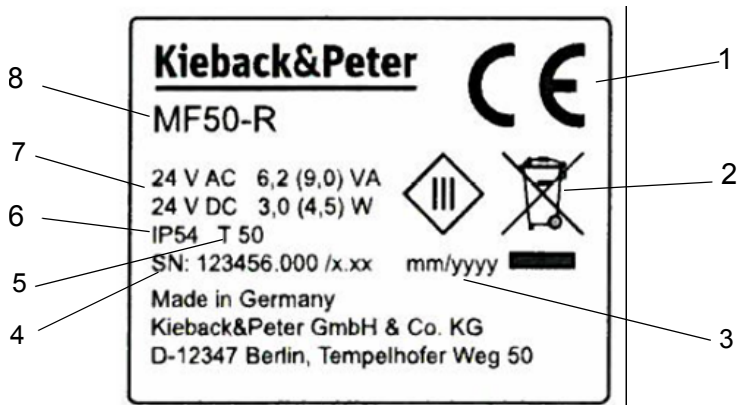
- MF50-R actuator
- Operating instructions for the MF50-R actuator with electrical emergency control function for valves from the RBK15..50(-BK) and RBQ40..50 series
- Mounting instructions for MF50-R

3.4 Identification

The actuator can be clearly identified by the type plate.

The type plate contains the serial number and other important information.

The type plate is located on the bottom of the actuator housing.



3-1: Type plate of the actuator

- 1 CE marking
- 2 Labeling: Disposal, protection class
- 3 Month/year of construction
- 4 Serial number
- 5 Temperature range
- 6 Degree of protection
- 7 Nominal voltage and power consumption
- 8 Item number



NOTE

Information on the type of valve can be found on the cast body of the valve.

3.5 Structure



3-2: Actuator layout

- 1 Inspection cover
- 2 Housing
- 3 Dust cover
- 4 Safety button
- 5 Union nut

3.6 Operating mode

The MF50-R actuator has an electric emergency function and is used for two-way and three-way valves of the RBK15..50 compact valve series and for RBQ40..50 (Cocon QTR40..50) combo valves with position feedback.

The electric emergency function ensures that the valve is set to a safe preset valve position following failure of the actuator supply voltage. By default, the 0% position (valve closed) is set as the emergency position.

After commissioning, the emergency position can be reset. See chapter 6.2 “Commissioning”, page 22.

The electrical emergency function is only available when the internal energy storage unit is fully charged and the actuator has detected the valve end positions during the initialization run. Readiness for operation is signaled by a constant green light on the LED.

The charging time of the internal energy storage unit is up to 3.5 minutes.

If the emergency function has been triggered and the nominal voltage returns, the energy storage unit will be fully charged again.

The actuator remains in the preset emergency end position until it is fully charged. Afterward, the actuator moves according to the control signal and the emergency function is available again.

If the emergency function has been triggered, a voltage of DC 0 V is output via the feedback signal.

The devices are controlled with the following signal:

- Continuous signal DC 0(2)..10 V

4 Actuator/valve combinations

4.1 RBK15..50 three-way/two-way valves with actuator

Application

The red cast iron three-way valves and two-way valves with actuator are used for mixing liquids precisely.

The valves can be used as two-way valves using the BK blank cover on gate B.



4.1.1 Types

RBK15..50 compact gunmetal three-way valve with the MF50-R actuator for water up to 120°C, 16 bar

Type	DN	PN	Kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK15/0,63MF50-R	15	16	0.63	12.1	220	G 1 1/8	1.26
RBK15/1,0MF50-R	15	16	1.0	12.1	220	G 1 1/8	1.26
RBK15/1,6MF50-R	15	16	1.6	12.1	220	G 1 1/8	1.26
RBK15/2,5MF50-R	15	16	2.5	12.1	220	G 1 1/8	1.26
RBK20/4,0MF50-R	20	16	4.0	9.2	220	G 1 1/4	1.36
RBK20/6,3MF50-R	20	16	6.3	9.2	220	G 1 1/4	1.36
RBK25/6,3MF50-R	25	16	6.3	5.0	220	G 1 1/2	1.58
RBK25/8,0MF50-R	25	16	8.0	5.0	220	G 1 1/2	1.58
RBK25/10,0MF50-R	25	16	10.0	5.0	220	G 1 1/2	1.58
RBK32/10,0MF50-R	32	16	10.0	3.5	220	G 2	2.12
RBK32/16,0MF50-R	32	16	16.0	3.5	220	G 2	2.12
RBK40MF50-R	40	16	25.0	1.5	220	G 2 1/4	2.54
RBK50MF50-R	50	16	35.0	0.7	220	G 2 3/4	3.70

RBK15..50-BK compact gunmetal two-way valve with the MF50-R actuator for water up to 120°C, 16 bar

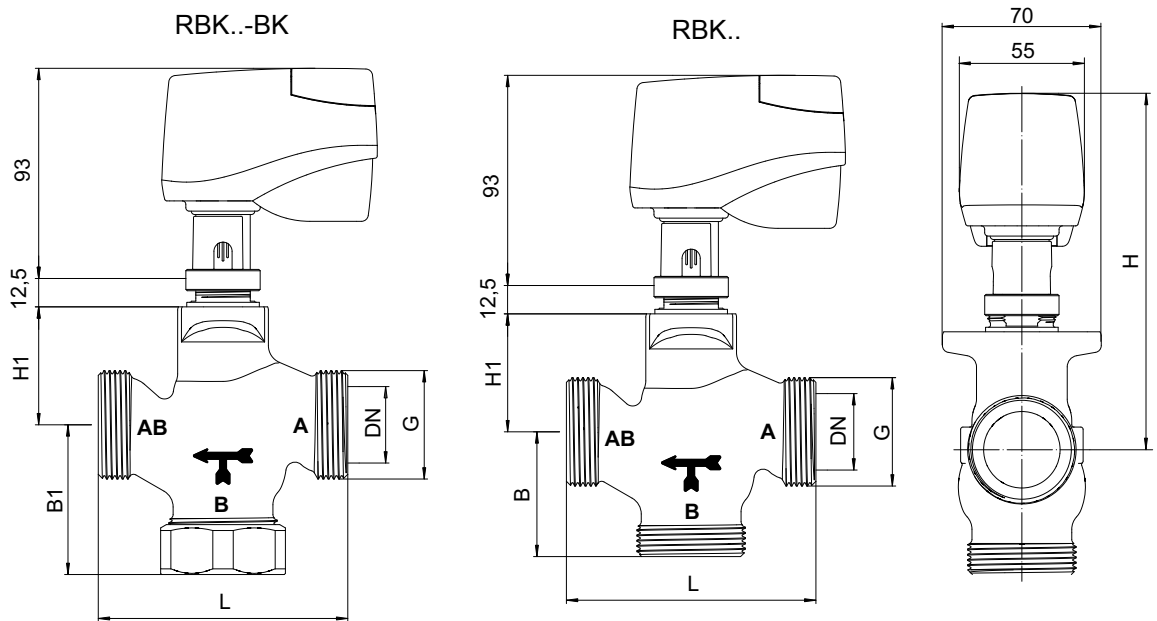
Type	DN	PN	Kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK15/0,63-BKMF50-R	15	16	0.63	12.1	220	G 1 1/8	1.37
RBK15/1,0-BKMF50-R	15	16	1.0	12.1	220	G 1 1/8	1.37
RBK15/1,6-BKMF50-R	15	16	1.6	12.1	220	G 1 1/8	1.37
RBK15/2,5-BKMF50-R	15	16	2.5	12.1	220	G 1 1/8	1.37
RBK20/4,0-BKMF50-R	20	16	4.0	9.2	220	G 1 1/4	1.49
RBK20/6,3-BKMF50-R	20	16	6.3	9.2	220	G 1 1/4	1.49
RBK25/6,3-BKMF50-R	25	16	6.3	5.0	220	G 1 1/2	1.74
RBK25/8,0-BKMF50-R	25	16	8.0	5.0	220	G 1 1/2	1.74

Type	DN	PN	Kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK25/10,0-BKMF50-R	25	16	10.0	5.0	220	G 1 1/2	1.74
RBK32/10,0-BKMF50-R	32	16	10.0	3.5	220	G 2	2.40
RBK32/16,0-BKMF50-R	32	16	16.0	3.5	220	G 2	2.40
RBK40-BKMF50-R	40	16	25.0	1.5	220	G 2 1/4	2.89
RBK50-BKMF50-R	50	16	35.0	0.7	220	G 2 3/4	4.20

4.1.2 Technical Data: RBK..(BK) Valves

Nominal width	DN15..50 (G 1 1/8.. G 2 3/4)		
Pressure rating	PN 16		
Connection	Male thread ISO 228/1		
Characteristic curve	RBK..	Gates A → AB = modified, same percentage up to DN32	
		Gates A → AB = linear as of DN40	
		Gates B → AB = linear	
	RBK..-BK	Gates A → AB = modified, same percentage up to DN32	
		Gates A → AB = linear as of DN40	
Positioning stroke	RBK15..50(-BK): 10 mm		
Leak rate	in accordance with EN 1349; leakage class I; 0.05% from Kvs value		
Medium temperature	0..+120 °C		
Housing	Gunmetal, CC491K		
Cone	Brass CW614N		
Valve spindle	CrMo steel 1.4021		
Stem seal	EPDM O-rings, maintenance-free		
Pipe connections	Female thread fittings and		
	GTW union nuts (malleable iron, yellow chromated)		
Blank cover	GTW union nut (malleable iron, yellow chromated)		
	Steel gasket, yellow chromated		

4.1.3 Dimensions



RBK...-BK design (two-way valve) with blank cover on gate B

DN	H1	B	B1	L	H	G
15	46	55	65	80	152	G 1 1/8
20	46	55	65	90	152	G 1 1/4
25	52	55	66	110	158	G 1 1/2
32	56	55	67	120	162	G 2
40	65	60	72	130	171	G 2 1/4
50	65	65	77	150	171	G 2 3/4
Dimensions H1 to H in mm, connection threads G in inches						

4.1.4 Accessories (not included in delivery)

RBK15...50-BK two-way valves require 2 fittings and RBK15...50 three-way valves require 3 fittings.

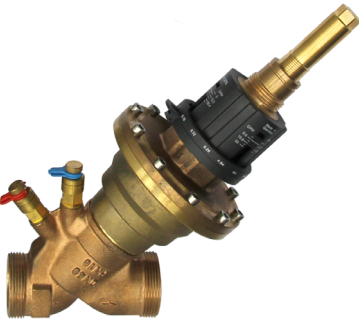
Z210	Female thread fitting DN15
Z211	Female thread fitting DN20
Z212	Female thread fitting DN25
Z213	Female thread fitting DN32
Z214	Female thread fitting DN40
Z215	Female thread fitting DN50

4.2 RBQ40..50 (Cocon QTR40..50) combo valves with actuator

Application

The two-way combo valves with actuator are used to adjust the volume flow rate and automatically regulate the flow rate regardless of the differential pressure (hydraulic balancing).

The combo valve is used in air conditioning, cooling and heating systems, e.g. central heating systems, floor heating systems, fan coil systems, cooling ceilings and fan convectors.



4.2.1 Types

Red cast iron RBQ40..50 combo valves (Cocon QTR40..50) can be used for MF50-R actuator, for water up to 120 °C, 16 bar

Type	DN	PN	Volume flow rate range [l/h] min*..max	kvs	Control range [kPa]	Connection	Weight [kg]
RBQ40 (QTR DN40 1146172)	40	16	1500..7500	11.5	20..400	Size 1 3/4	10.0
RBQ50 (QTR DN50 1146174)	50	16	2500..10000	15.0	20..400	Size 2 3/8	13.0

* Recommended lowest setting value; using the actuator, the flow rate can be reduced from the setting value to shut-off.



NOTE

Z223 mounting kit required (see accessories on page 10).



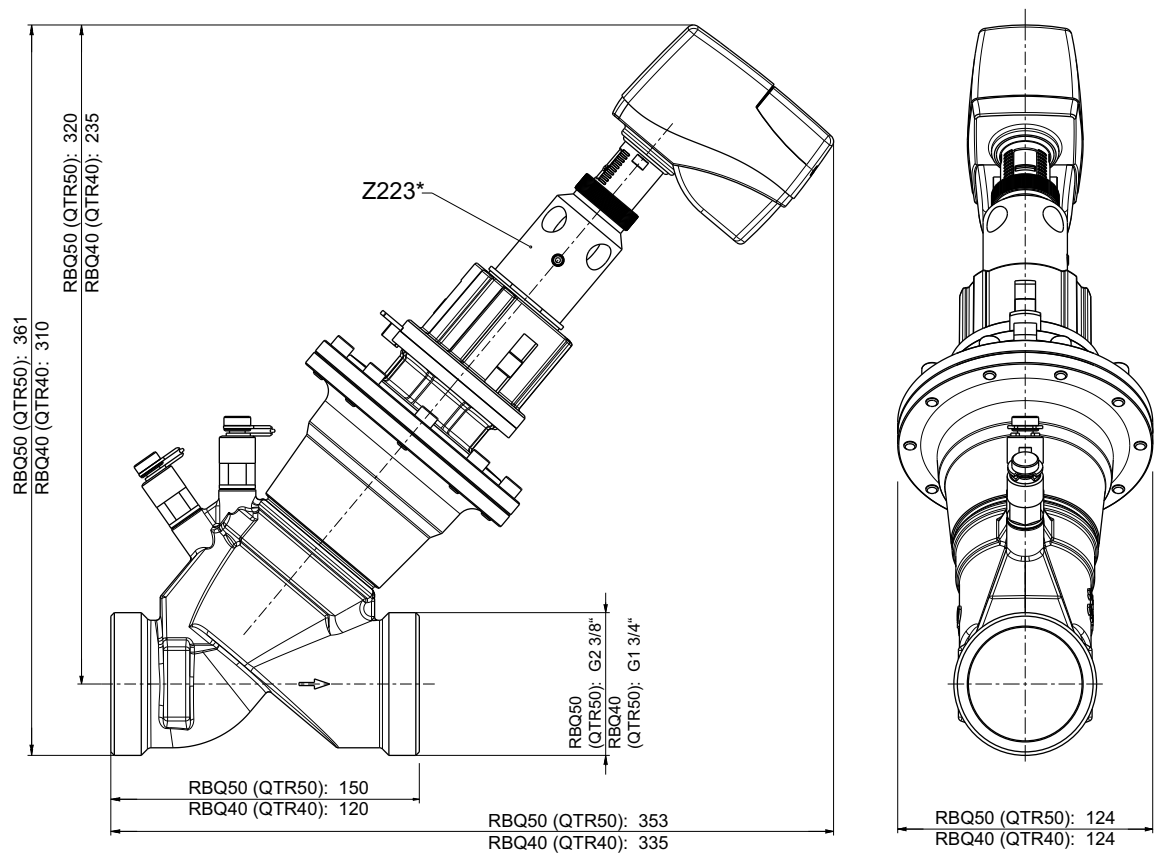
NOTE

Detailed descriptions of the technical data, function, volume flow setting and dimensions for the RBQ combo valves can be found in the RBQ15..200 product description, doc. no. 3.10-20.000-01.

4.2.2 Technical data for RBQ40..50

Medium temperature	-10..+120 °C
Max. operating pressure	16 bar (1600 kPa)
Max. differential pressure	4 bar (400 kPa)
Leak rate	0.01% of kvs
Positioning stroke	10 mm
Medium	Water or ethylene/propylene glycol-water mixtures (max. 50%, pH value 6.5..10)
Housing	Gunmetal, male thread on both sides
Seals	Made of EPDM or PTFE

4.2.3 Dimensions



Z223* adapter accessory for RBQ40..50

5 Mounting

5.1 Valve mounting



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.
- If the operating medium is contaminated, a strainer must be installed in the supply pipe. For maintenance purposes, we recommend to install shut-off valves both upstream and downstream of the valve or plant section.
- During installation, observe the maximum permitted differential pressure Δp .
- Note that a free space of 150 mm above the valve is required for mounting the actuator and removing the connection cover.
- Observe the direction of flow arrow on the valve body. Inverting the direction of flow impairs control behavior.
- Differential pressure must not occur on the valve body. Close the gate valve and turn off pumps.
- Screw the valve connections onto the pipelines.

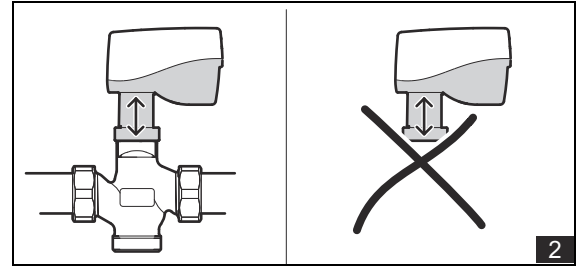
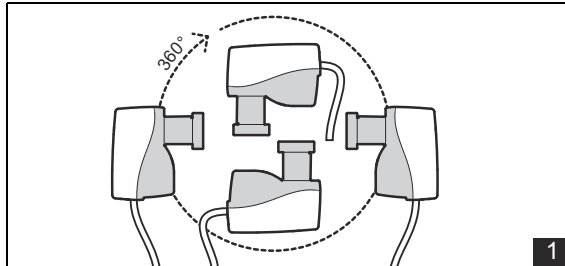
5.2 Mounting the actuator on the valve

Preparatory tasks

Perform the following preparatory tasks to mount the actuator on a valve in a plant that is in operation:

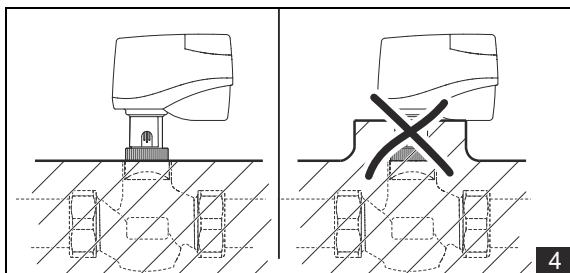
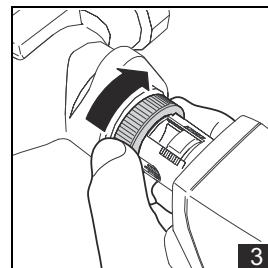
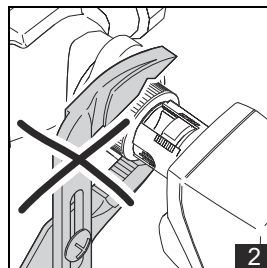
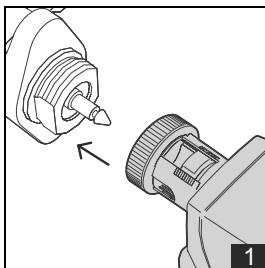
- ▶ Before starting the tasks, ensure that there is no buildup of differential pressure in the valve body.
 - ▶ Close the gate valve and turn off pumps.
- ▶ Allow the valve and pipelines to cool down.

Installation instructions



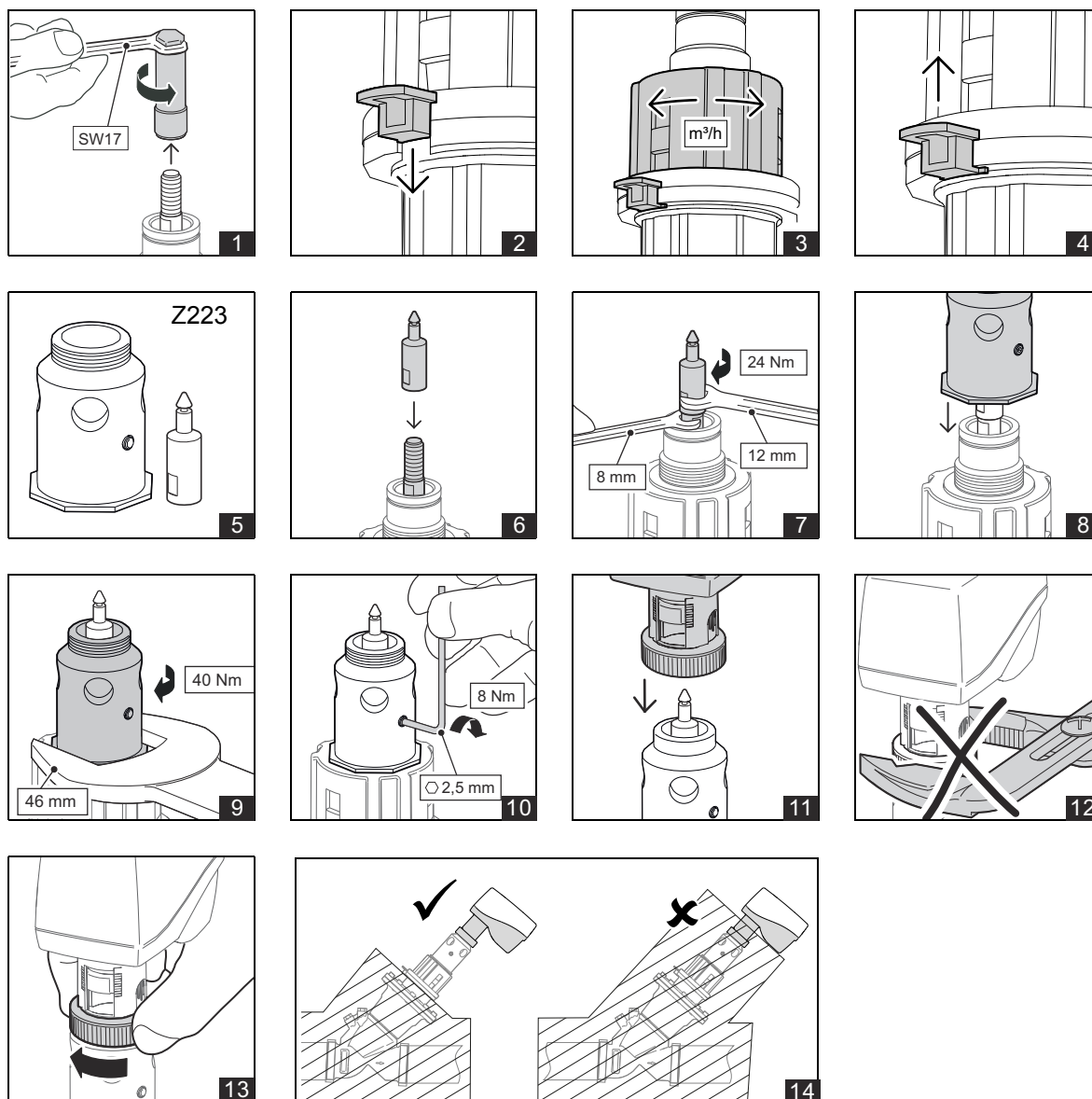
- ▶ **1** Any actuator installation positions in which the cabling runs downward are permitted.
- ▶ **2** CAUTION! Do not operate the actuator without a valve.

5.2.1 Mounting the actuator on an RBK15..50 valve



- ▶ **1** Place the actuator onto the valve.
- ▶ **2** CAUTION! Do not use a pipe wrench. This may damage the actuator and valve.
- ▶ **3** Tighten the union nut by hand.
- ▶ **4** In the case of system-side insulation, ensure that the flange of the actuator remains clear and is not covered.

5.2.2 Mounting the actuator with Z223 onto a RBQ40..50 (Cocon QTR40..50) valve



- ▶ **1** Remove the adjustment sleeve of the valve using a 17 mm open-end wrench.
- ▶ **2** Push the locking clip down.
- ▶ **3** Adjust the setpoint of the maximum volume flow rate to the desired value by turning the hand-wheel.
- ▶ **4** Push the locking clip up. This locks the setting.
- ▶ **5** Z223 adapter
- ▶ **6** Install the spindle adapter (part of Z223).
- ▶ **7** Tighten the spindle adapter with a tightening torque of 24 Nm using a 12 mm open-end wrench. While doing so, hold the spindle in place with an 8 mm open-end wrench.
- ▶ **8** Install the valve adapter (part of Z223).
- ▶ **9** Tighten the valve adapter with a tightening torque of 40 Nm using a 46 mm open-end wrench.

- ▶ **10** Secure the valve adapter: Tighten the grub screw with a tightening torque of 8 Nm using a 2.5 mm hexagon socket.
- ▶ **11** Set the actuator onto the threaded connection on the adapter.
- ▶ **12** CAUTION! Do not use a pipe wrench. This may damage the actuator and valve.
- ▶ **13** Tighten the union nut by hand.
- ▶ **14** In the case of system-side insulation, ensure that the flange of the actuator remains clear and is not covered.

6 Connecting the actuator and putting it into operation

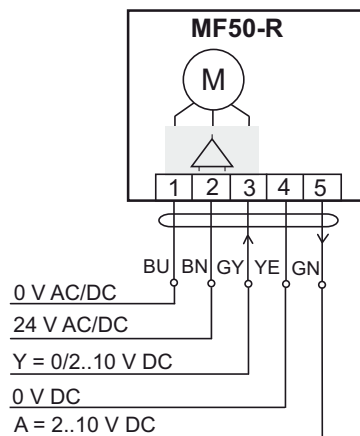
6.1 Wiring diagram



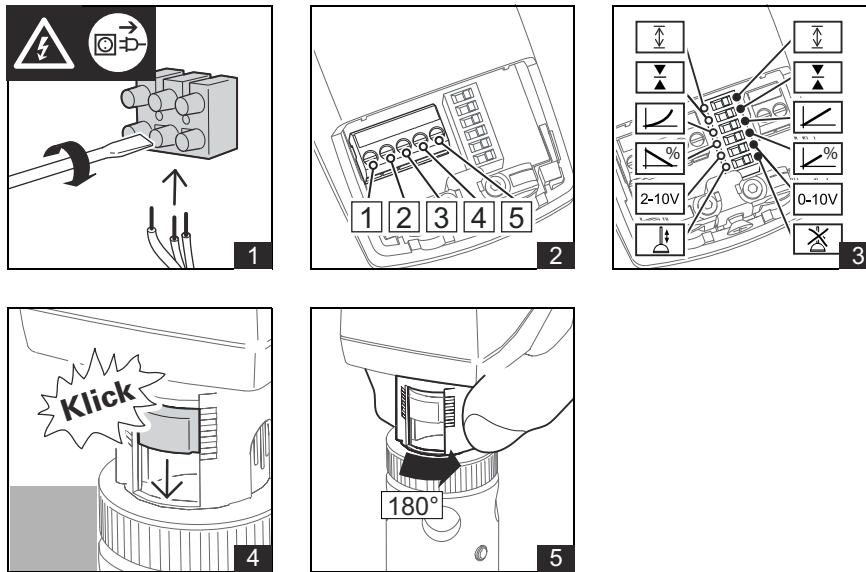
NOTE

Y = DC 10 V = valve spindle pulled (factory setting B3 = OFF)

Y = DC 0 V = valve spindle pushed (factory setting B3 = OFF)



6.2 Commissioning



- ▶ **1** Carry out the electrical connection of the actuator as a fixed installation.
- ▶ **2** Refer to the circuit diagram.
- ▶ **3** Adjust valve functions using switches 1 to 6.
- ▶ **4** An automatic initialization will run once the supply voltage has been switched on for the first time. The actuator first travels to the upper end position and then to the lower end position. The actuator will not respond to the control signal until the initialization run is complete.
- ▶ **5** Once the assembly and commissioning work is complete, protect the automatic coupling system with the dust protection cap.

6.2.1 Energy storage unit loading time to emergency capability

After the nominal voltage is applied, the actuator is not ready for operation until the energy storage unit has charged.

Charging takes about 3.5 min.

If the emergency control function was triggered and the nominal voltage is restored, the energy storage unit is first fully recharged.

The actuator remains in its preset emergency control end position (top by default) until charged. The actuator then moves to the lower end position and subsequently follows the control signal.



NOTE

The charging of the energy storage unit takes precedence over the actuator functions.

6.2.2 Renewed actuator mounting



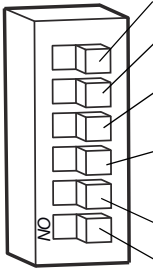
NOTE

If the actuator is not in the middle setting position, these mounting steps must be followed while mounting the actuator again.

- ▶ Establish the electrical connection.
The energy storage unit charges.
- ▶ After 3.5 minutes, move the actuator to the middle position using a control signal.
- ▶ Set the actuator onto the threaded connection on the valve and fasten it by hand using the union nut.
- ▶ Re-adapt the valve; see page 25.
- ▶ Check the emergency control end position setting and the emergency control function.

6.3 Adjust actuator functions

The actuator functions are adjusted using switches (A) 1 to 6 under the terminal cover.

Function with DIP switch position ON	DIP switch	Function with DIP switch position OFF (factory setting)
Reinitialization ON->OFF/OFF->ON		6 Reinitialization ON->OFF/OFF->ON
Emergency control end position setting		5 Emergency control end position setting
Equal percentage characteristic 		4 Linear characteristic 
Inversion (Yin +Yout): 0(2)..10 V → 100..0% 		3 Inversion (Yin + Yout): 0(2)..10 V → 0..100% 
DC 2..10 V		2 DC 0..10 V
Valve blocking protection on		1 Valve blocking protection off

DIP switch 1: Valve blocking protection

If plant specifications permit, the valve blocking protection feature may be activated during commissioning.

Valve blocking protection prevents the cone from jamming when the valve is not moved for a long period of inactivity, e.g. for heating systems during the summer.

If valve blocking protection is activated, the valve cone is moved back and forth for a few seconds when there is no movement for 21 days.



NOTE

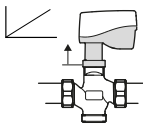
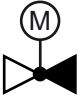
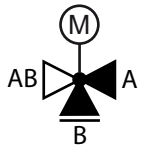
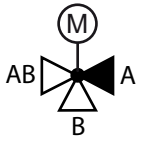
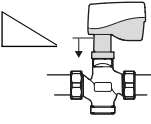
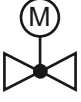
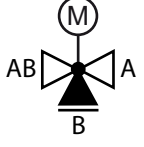
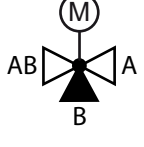
If the actuator is controlled with a 3-point control signal, the “valve blocking protection” (DIP switch 1) and “control range setting” (DIP switch 2) functions are **not** effective.

DIP switch 2: Control range

Setting for the control range of the continuous actuating signal DC 0..10 V or DC 2..10 V

DIP switch 3: Inversion of the actuating direction and position feedback

Inverting the control signal and the position feedback using DIP switch 3 results in the following directions of flow:

Actuating direction	Two-way valve		Three-way valve
	RBQ..	RBK-BK..	RBK..
DIP switch 3 = OFF Yin = DC 10 V (Yout = DC 10 V) 			
DIP switch 3 = ON Yin = DC 10 V (Yout = DC 10 V) 			
 = open  = closed  = sealed at the flange			

The Yout position feedback maps the valve position but follows the direction of the input signal (regardless of the inversion).

DIP switch 4: Characteristic curves

Adjustment of the valve characteristic to linear or equal percentage.

**NOTE**

The characteristic curve to be set always depends on the system hydraulics and must be adapted individually. Recommendation: for RBK15..50, set the equal percentage characteristic and for RBQ40..50 (Cocon QTR40..50), set the linear characteristic.

DIP switch 5: Setting for the emergency control end position (top by default)

Setting of the emergency stop end position in which the actuator moves when de-energized.

To configure, move the actuator to the desired position using the DC 0(2)..10 V control signal. The switch must then be actuated (change the switch position).

DIP switch 6: Reinitialization

If the unit is remounted, a re-initialization must be carried out to re-adapt the valve.

This is done by changing the switch position of DIP switch 6 from “OFF” to “ON” or from “ON” to “OFF”.

During initialization, the LED flashes green (under the terminal cover).

7 **Faults and remedial measures**



WARNING

Live parts

There is risk of death by electrocution by coming into contact with live parts on the actuator or on electrical components of the actuator that have become live due to faults.

- ▶ Disconnect the actuator from the power supply before opening the inspection cover.



WARNING

Hot and cold surfaces!

If a hardware or software error occurs, there may be unexpected movements and the valve may open. There is a risk of severe burns or hypothermia from contact with hot or cold surfaces on the valves and pipelines.

- ▶ Wear protective gloves

Error	Cause	Rectification
Actuator does not run	Operating voltage failure	▶ Determine the cause and rectify it.
	Wiring incorrect	▶ Check the connection and correct.
	Main circuit board defective	▶ Get in touch with your contact at Kieback&Peter.
Actuator stops every so often	Supply line has a loose connection	▶ Check and tighten the connections to the terminal strip.
Actuator not moving or not moving correctly to the valve position dictated by the input signal, valve not closing or opening	Valve is blocked/jammed	▶ Ensure the valve can travel freely or replace the valve.
	Pressure difference too high	▶ Have the hydraulic system and differential pressure checked and adjusted.

LED states



(1) Status LED

The Status-LED is located under the inspection cover below the terminal and indicates the operating state of the actuator:

Status LED	Meaning
Flashing red	Charging the capacitors after switching on
Flashing green	Initializing or Initialization did not complete successfully
constant green	Initialization completed successfully, normal operation
constant red	Valve blockage detected, intervention needed Initialize or briefly interrupt power supply
Off	Emergency mode triggered / operating voltage interrupted

8 Maintenance

Maintenance

The actuator does not require maintenance.

Cleaning

The actuator does not require cleaning.

9 Repair

At the installation location, the valve/actuator combination can only be repaired by replacing the valve or actuator. Get in touch with your contact at Kieback&Peter.

10 Decommissioning, Removal and Disposal

10.1 Decommissioning and dismantling the actuator



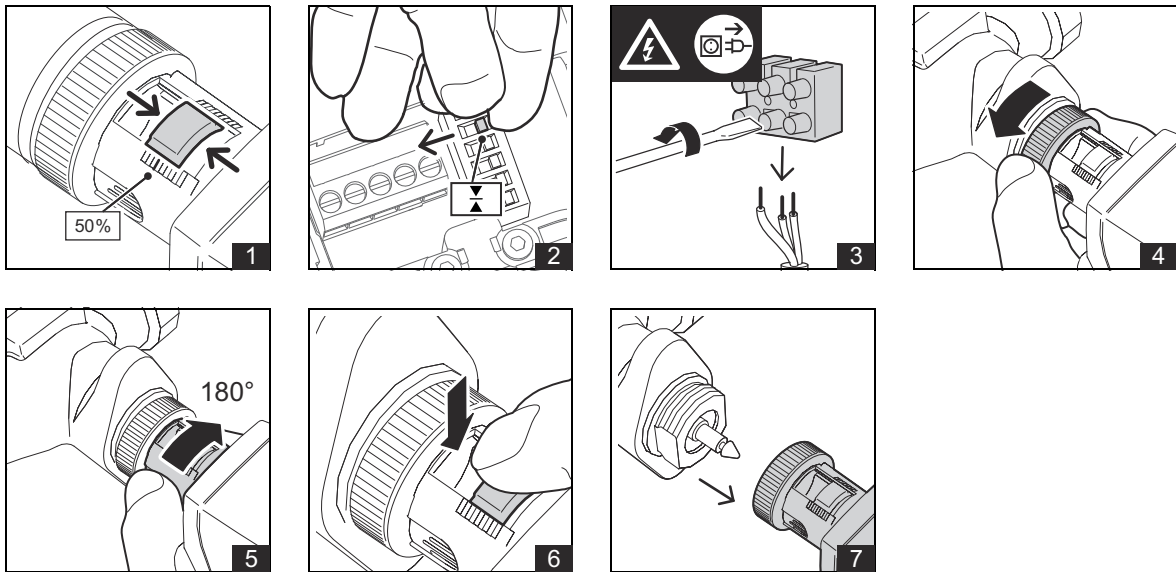
WARNING

Hot and cold surfaces!

If a hardware or software error occurs, there may be unexpected movements and the valve may open. There is a risk of severe burns or hypothermia from contact with hot or cold surfaces on the valves and pipelines.

- ▶ Wear protective gloves

- Before beginning to dismantle the unit, 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, you can begin to dismantle the actuator.



- ▶ **1** Move the actuator to the center position using a control signal.
- ▶ **2** Actuate switch 5 (switch position change, saves the current position as the emergency power position, prevents the actuator from moving if the operating voltage drops out).
- ▶ **3** Disconnect the actuator from the power supply and remove all electrical cables.
- ▶ **4** Loosen the union nut. If possible, do not use pliers.
- ▶ **5** Turn the dust cover far enough so that you can press the safety button.
- ▶ **6** Press the safety button on the automatic coupling all the way in and hold it.
- ▶ **7** Remove the actuator from the valve.

10.2 Removing the valve

- ▶ No differential pressure must occur on the valve body. Close the gate valve and turn off pumps.
- ▶ Loosen the screw fittings between the pipeline and the valve connections.
- ▶ Remove the valve from the pipeline.

10.3 Note on disposal

In accordance with the applicable laws and directives of the European Union countries, the product should not be disposed of with household waste. This ensures environmental protection and sustainable recycling or raw materials. Commercial users should contact their supplier and observe the conditions of the purchase agreement. This device may not be disposed of together with other commercial waste.

11 Contact persons

Orders and questions

If you want to submit an order, have questions or require technical information, please contact your Kieback&Peter contact person.

Repair service

If your device has a defect, contact your Kieback&Peter contact person to clarify how to proceed.

12 Declaration of conformity



EN

Kieback&Peter



EU-DECLARATION OF CONFORMITY

Kieback&Peter GmbH & Co. KG
Tempelhofer Weg 50
12347 Berlin / Germany

Authorized Representative for Documentation:
Lydia Bruchno / Eva Franke

declares in sole responsibility that the designated product

Actuator

MF50-R

in combination with the valves of the series

RBK15..50, RBQ40..50

to which this declaration refers, corresponds to the requirements which are stipulated in the following European directives:

- 2006/42/EG Directive Machinery
- 2014/35/EU Low Voltage Directive
- 2014/30/EU electromagnetic compatibility
- 2011/65/EU Restriction of certain Hazardous Substances

Harmonised standards applied:

DIN EN 60730-2-14: 2019-10
DIN EN ISO 12100: 2011-03

Signed for and on behalf of:

(ppa. Philipp Menzel)
Managing Director
Product & Solutionmanagement

(ppa. Rainer Mahling)
Managing Director
Solution & Support Center

Berlin,
01/06/26

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