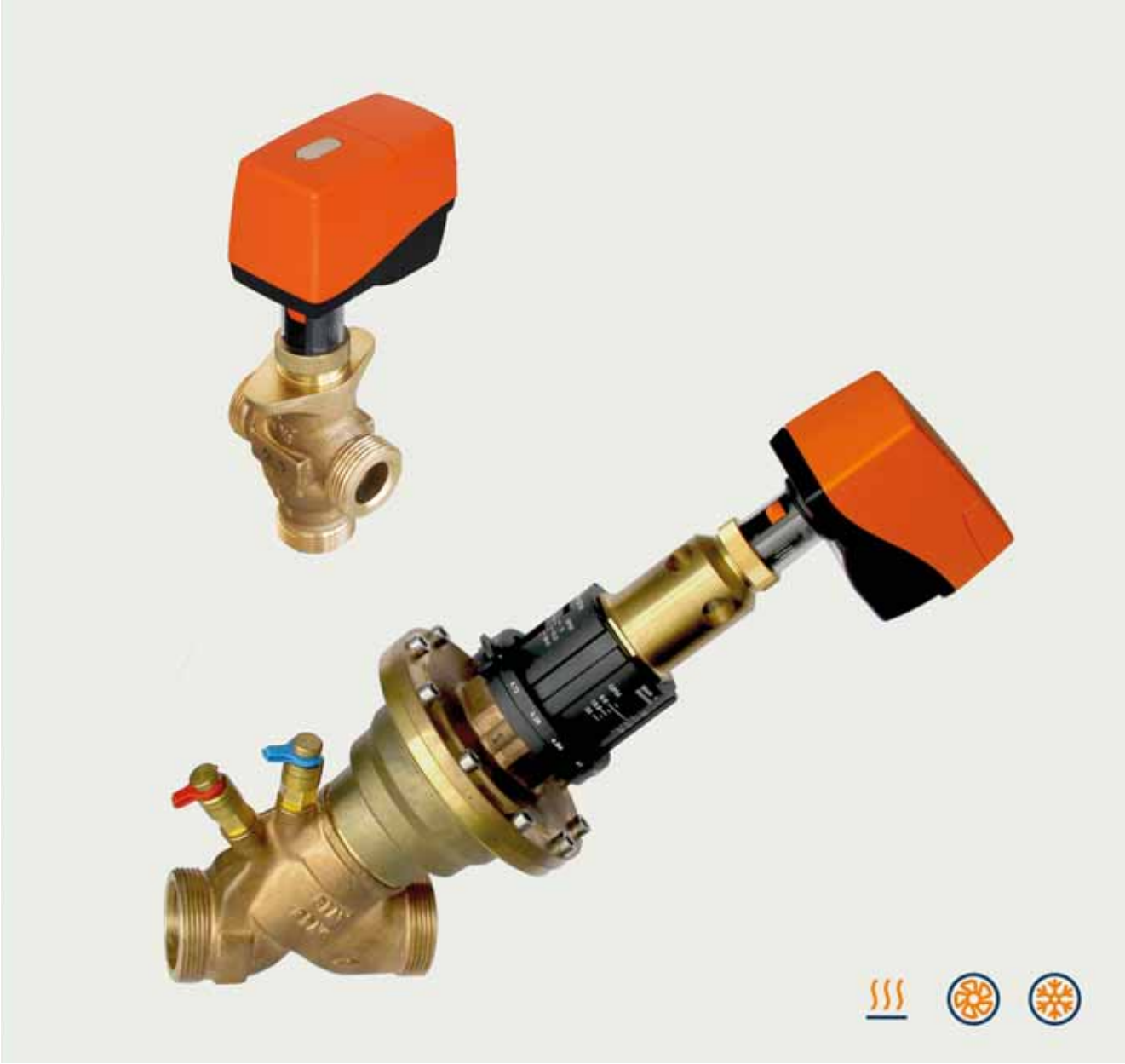

Kieback&Peter

OPERATING INSTRUCTIONS

MD50, MD50-R AND MD50-E

Actuator 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

READ CAREFULLY BEFORE USE

RETAIN FOR LATER REFERENCE

Table of Contents

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 part of the MD50, MD50-E and MD50-R actuators for two-way and three-way valves from the RBK15..50(-BK) compact valve series and RBQ40..50 combo valves.

The MD50, MD50-E and MD50-R actuators will subsequently be referred to as the “actuator” for better readability. The valve types mentioned above are referred to in the text as the “valve”.

The scope of delivery is specific to each actuator and is in accordance with the customer requirements. The positions and figures of the components in the operating instructions may differ depending on the choice of valve.

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

READ CAREFULLY BEFORE USE

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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.

Muscoloskeletal disorders

There is a risk of severe of 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.
- 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 a person who is familiar with the described actuator. Based on his or her professional training, knowledge and experience, he or she has a very good understanding of the fields of cable, wire and laying systems and a good knowledge of the areas of electrical engineering and electrical machines and actuators. The electrical specialist knows the applicable regulations, can assess work assigned to him or her and identify possible dangers.

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 the 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

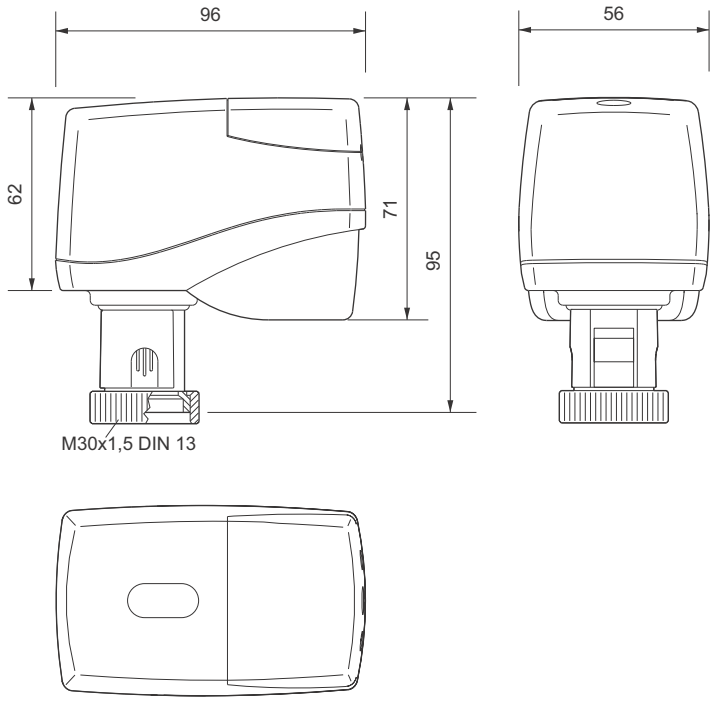
3.1 Device variants

MD50	Actuator for two-way and three-way valves from the RBK15..50 compact valve series and for RBQ40..50 combo valves (Cocon QTR40..50)
MD50-R	The same as MD50, also with position feedback
MD50-E	The same as MD50, also with position feedback and auxiliary switch

3.2 Technical data

Nominal voltage	AC 24 V ±10%; 50/60 Hz; DC 24 V ±10%
Dimensioning	8.5 VA (AC 24 V); 4.1 W (DC 24 V)
Power consumption	Nominal: 4.0 VA (AC 24 V); 1.9 W (DC 24 V) Sleep mode: 0.7 VA (AC); 0.3 W (DC)
Switch-on current	MD50-E: max. 10 A, <1 ms; <0.1 A^2s MD50, MD50-R: max. 8 A, <1 ms; <0.064 A^2s
Control	3-point signal (Open/Stop/Close), min. activation time 2 s, 2-point signal (Open/Close) or continuous control, DC 0(2)..10 V; Re = 100 kΩ, invertible
Connection	Built-in cable MD50: 1.5 m; 3 x 0.5 mm^2 MD50-R: 1.5 m; 5 x 0.5 mm^2 MD50-E: 1.5 m; 5 x 0.5 mm^2 and 1.5 m; 2 x 0.5 mm^2
Sound power	<28 dB (A)
Positioning stroke	10 mm max.
Positioning time	22 s/mm
Positioning force	500 N
Position feedback	Only with MD50-R and MD50-E, DC 0..10 V, 5 mA for 0..100% nominal stroke
Auxiliary switch	Only with MD50-E: 1 binary output, max. DC 24 V; 100 mA Adjustable switch-on point
Permitted temperature of medium in valve	RBK15..50: 0..+120 °C RBQ40..50: -10..+120 °C
Ambient temperature	0..+50° C
Ambient humidity	0..85% r.h., non-condensing
Level of contamination	2
Degree of protection	IP54
Protection class	III in accordance with EN 60730
Installation position	360°
Maintenance	Maintenance-free
Weight	MD50: 310 g; MD50-R: 330 g; MD50-E: 340 g

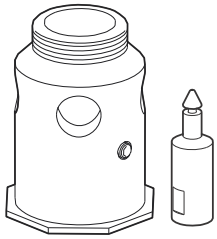
3.3 Dimensions



3.4 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.

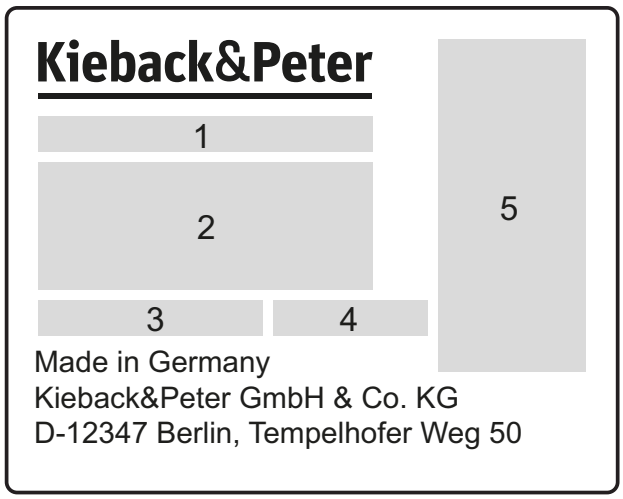


3.5 Scope of delivery

- MD50, MD50-R or MD50-E actuator
- Operating instructions for MD50, MD50-R and MD50-E actuators for RBK15..50(-BK) and RBQ40..50 valves
- MD50, MD50-R and MD50-E mounting instructions

3.6 Identification

The type plate is attached on the underside of the actuator housing.

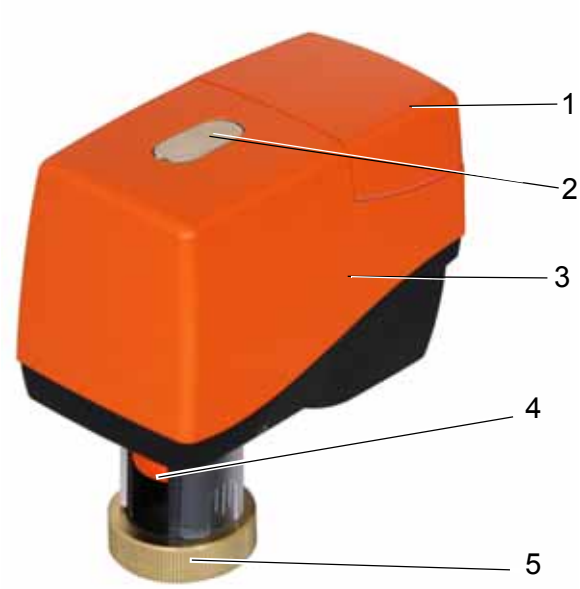


1 Item number
2 Technical data (nominal voltage, power consumption, etc.)
3 Serial number/revision number
4 Year and month of construction (mm/yyyy)
5 Symbols, graphics (CE marks, protection class, etc.)

NOTE

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

3.7 Structure



1 Inspection cover
2 Plug/port for manual adjustment
3 Housing
4 Automatic coupling
5 Union nut

6 Manual adjustment (only when disconnected from the power supply)

The receptacle for a hex key (4 mm) is located under the plug.
The hex key is not included in the scope of delivery.

3.8 Operating mode

The actuator MD50, MD50-R, MD50-E with a positioning force of 500 N is used for fine stroke adjustment of two-way and three-way valves of the types:

- RBK15..50(-BK)
- RBQ40..50

This is controlled with one of the following signals:

- Continuous signal DC 0(2)..10 V
- 3-point signal (Open/Stop/Close) or
- 2-point signal (Open/Close)

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

Compact red cast iron RBK15..50 three-way valves with MD50, MD50-R or MD50-E actuator for water up to 120 °C, 16 bar

Typ	DN	PN	kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK15/0,63MD50	15	16	0,63	12,1	220	G 1 1/8	1.31
RBK15/1,0MD50	15	16	1,0	12,1	220	G 1 1/8	1.31
RBK15/1,6MD50	15	16	1,6	12,1	220	G 1 1/8	1.31
RBK15/2,5MD50	15	16	2,5	12,1	220	G 1 1/8	1.31
RBK20/4,0MD50	20	16	4,0	9,2	220	G 1 1/4	1.41
RBK20/6,3MD50	20	16	6,3	9,2	220	G 1 1/4	1.41
RBK25/6,3MD50	25	16	6,3	5,0	220	G 1 1/2	1.63
RBK25/8,0MD50	25	16	8,0	5,0	220	G 1 1/2	1.63
RBK25/10,0MD50	25	16	10,0	5,0	220	G 1 1/2	1.63
RBK32/10,0MD50	32	16	10,0	3,5	220	G 2	2.17
RBK32/16,0MD50	32	16	16,0	3,5	220	G 2	2.17
RBK40MD50	40	16	25,0	1,5	220	G 2 1/4	2.59
RBK50MD50	50	16	35,0	0,7	220	G 2 3/4	3.75

Compact red cast iron RBK15..50-BK three-way valves with MD50, MD50-R or MD50-E actuator for water up to 120 °C, 16 bar

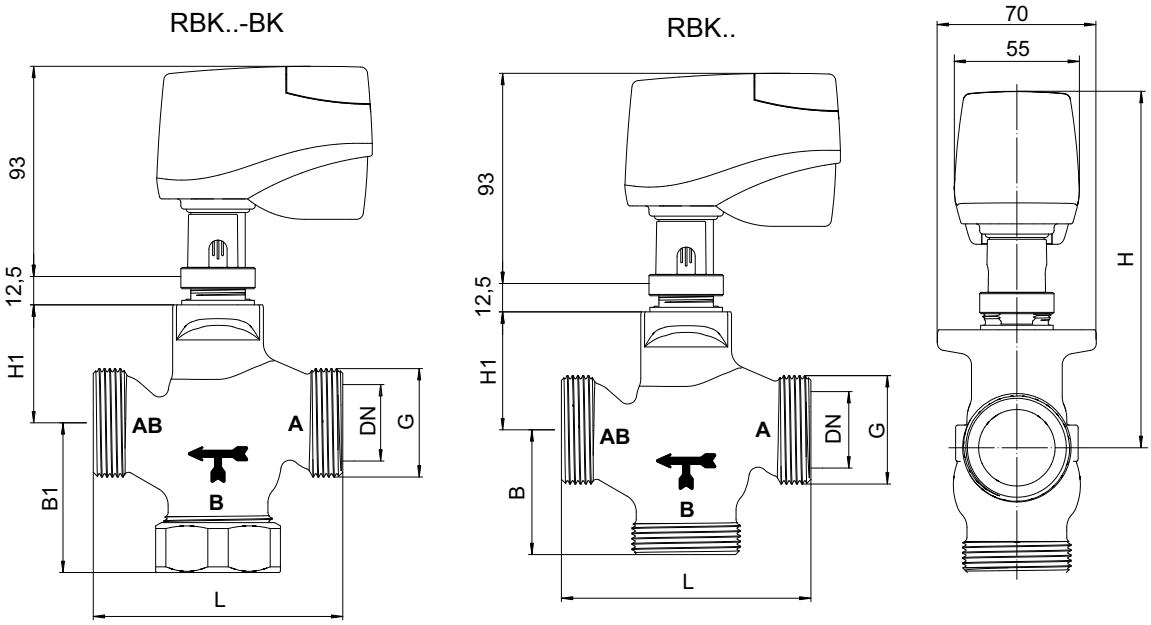
Typ	DN	PN	kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK15/0,63-BKMD50	15	16	0,63	12,1	220	G 1 1/8	1.42
RBK15/1,0-BKMD50	15	16	1,0	12,1	220	G 1 1/8	1.42
RBK15/1,6-BKMD50	15	16	1,6	12,1	220	G 1 1/8	1.42
RBK15/2,5-BKMD50	15	16	2,5	12,1	220	G 1 1/8	1.42
RBK20/4,0-BKMD50	20	16	4,0	9,2	220	G 1 1/4	1.54
RBK20/6,3-BKMD50	20	16	6,3	9,2	220	G 1 1/4	1.54
RBK25/6,3-BKMD50	25	16	6,3	5,0	220	G 1 1/2	1.79
RBK25/8,0-BKMD50	25	16	8,0	5,0	220	G 1 1/2	1.79

Typ	DN	PN	kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK25/10,0-BKMD50	25	16	10,0	5,0	220	G 1 1/2	1.79
RBK32/10,0-BKMD50	32	16	10,0	3,5	220	G 2	2.45
RBK32/16,0-BKMD50	32	16	16,0	3,5	220	G 2	2.45
RBK40-BKMD50	40	16	25,0	1,5	220	G 2 1/4	2.94
RBK50-BKMD50	50	16	35,0	0,7	220	G 2 3/4	4.25

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	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 MD50, MD50-R or MD50-E 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).

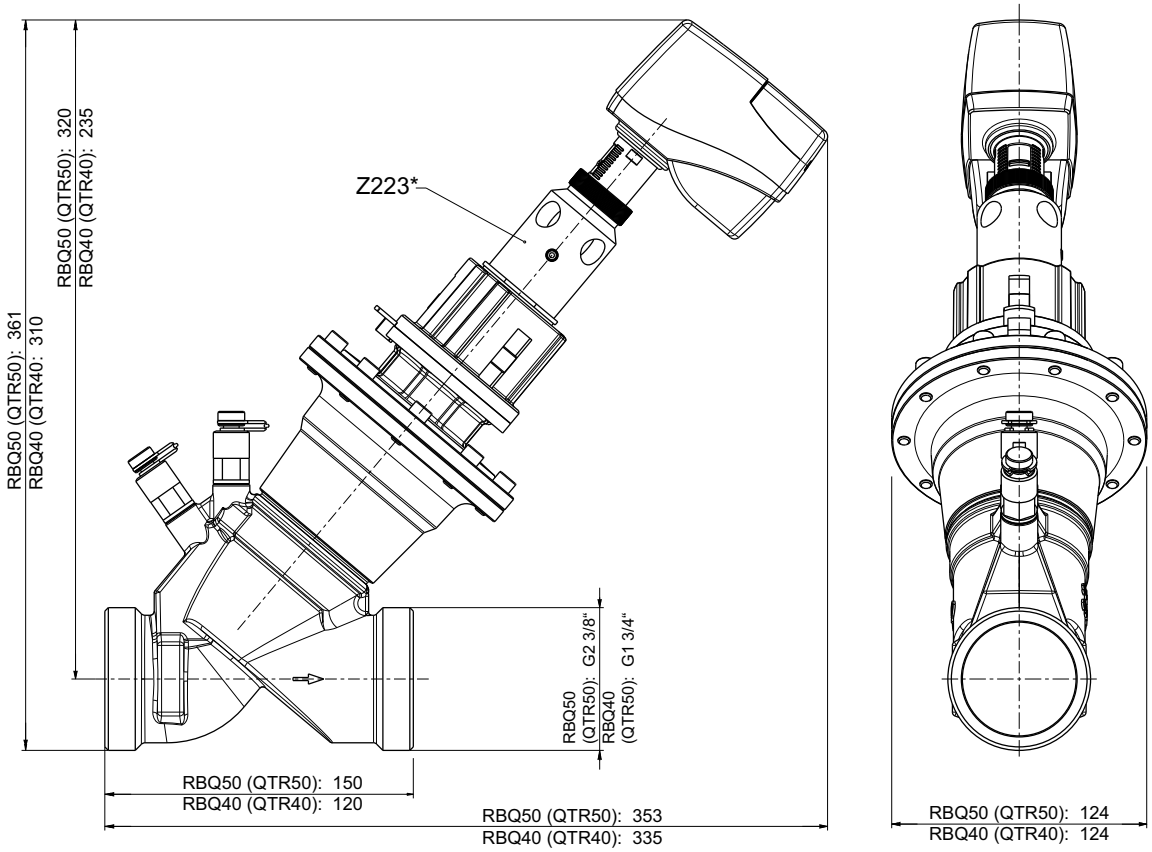
NOTE

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.

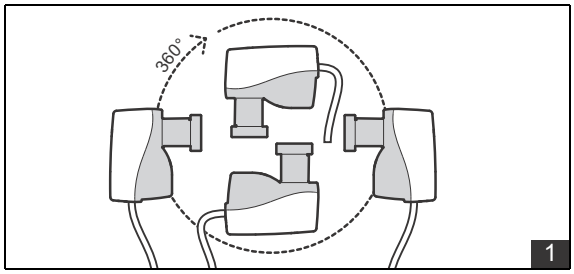
5.2 Mounting the actuator on the valve

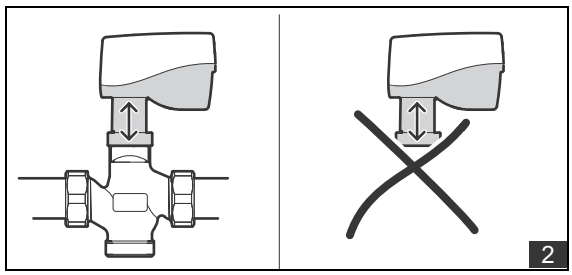
Preparatory tasks

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.

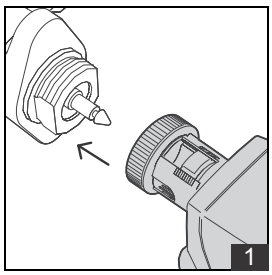
Installation instructions

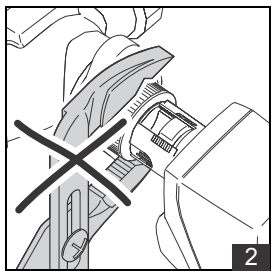


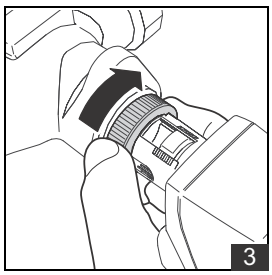


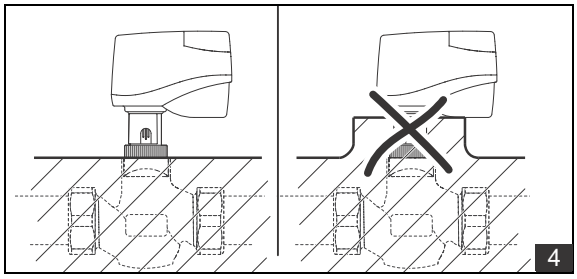
- 1 Any actuator installation positions in which the cabling runs downward are permitted.
- 2 CAUTION! Do not operate the actuator without a valve.

5.2.1 Mounting the actuator on an RBK15..50 valve



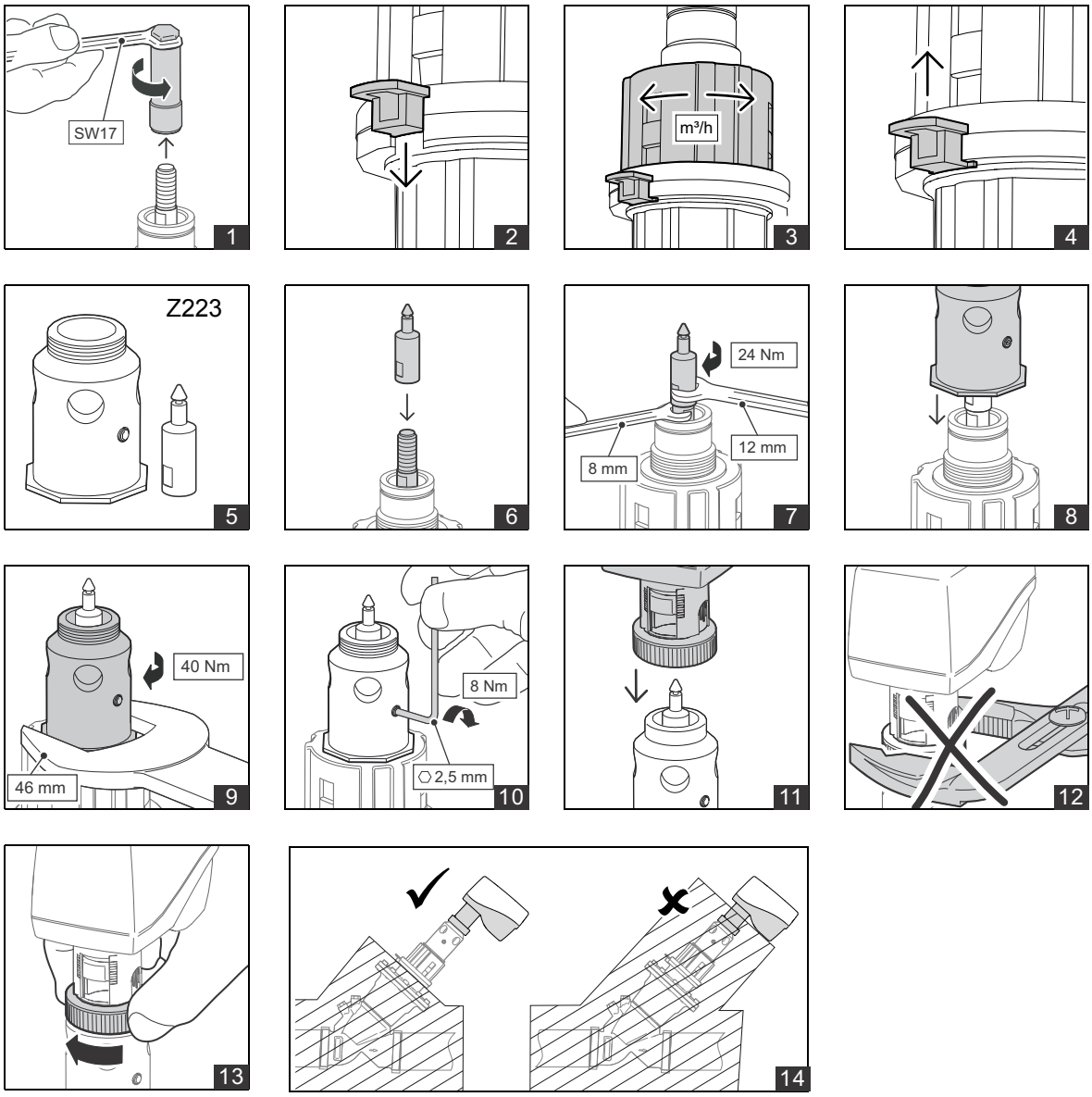






- 1 Place the actuator onto the valve.
- 2 CAUTION! Do not use a pipe wrench. This may damage the actuator and valve.
- 3 Tighten the union nut by hand.
- 4 In the case of system-side insulation, ensure that the flange of the actuator remains clear and is not covered.

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 Connect actuator and start up

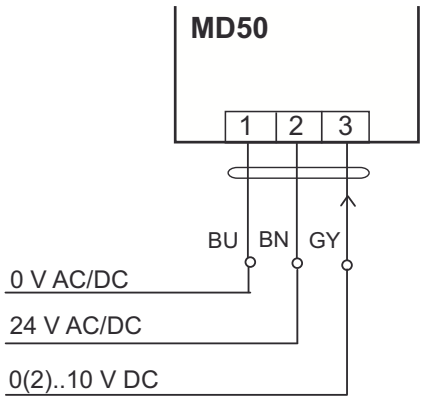
6.1 Connection diagrams

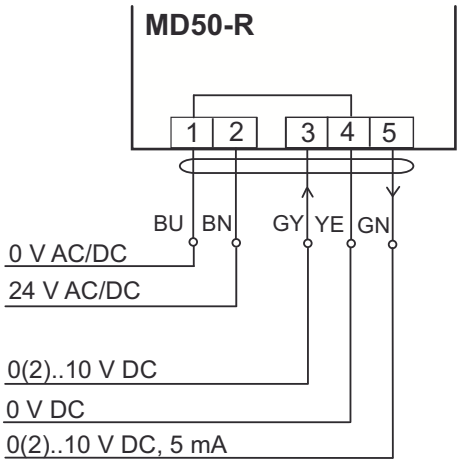
NOTE

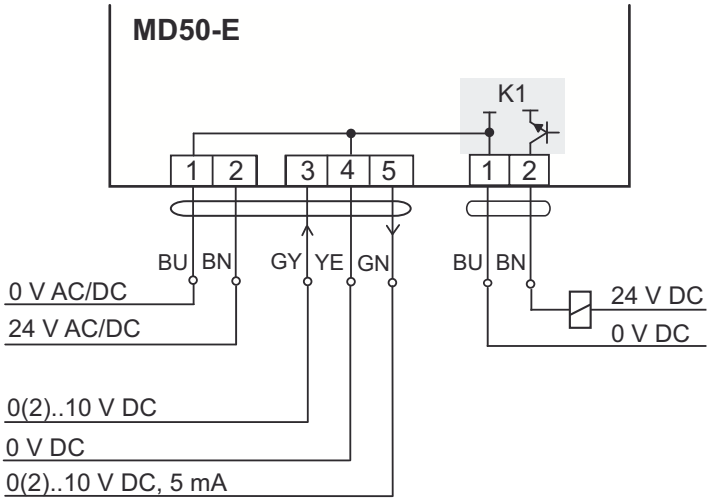
Y = DC 10 V or connection terminal 2 occupied = valve spindle pulled (factory setting B3 = OFF)

Y = DC 0 V or connection terminal 3 occupied = valve spindle pushed (factory setting B3 = OFF)

Continuous control





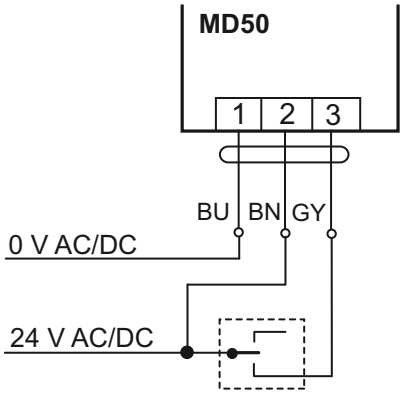


CAUTION

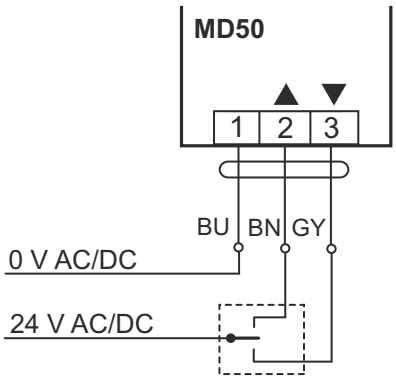
Output K1 on the MD50-E may not be operated without a coupling relay!

Two-point or three-point control

- Two-point control



- Three-point control



CAUTION

In the case of the 3-point control, the position feedback or auxiliary switch is inoperative for the MD50-E and MD50-R actuator.

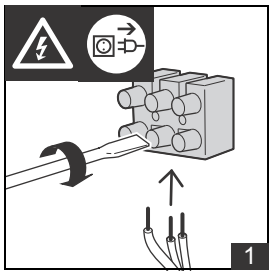
NOTE

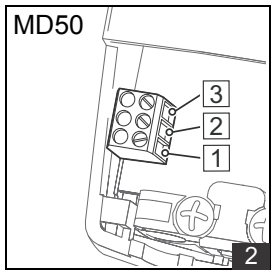
The actuation direction can be changed for two-point and three-point control. The actuation direction can be changed by switching the supply lines to terminals 2 and 3 on the actuator or setting DIP switch 3.

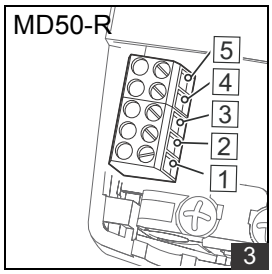
6.2 Commissioning

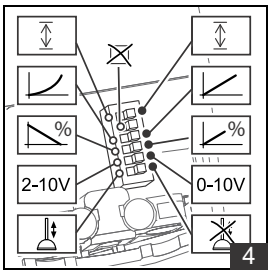
CAUTION

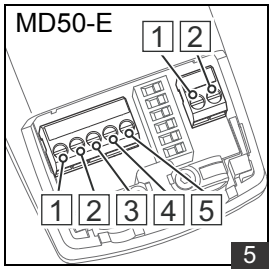
Following peak loads may occur when switching on the actuator:
max. 10 A (MD50-E), max. 8 A (MD50 and MD50-R).
Ensure suitability of switching components (e.g. controller connection) to ensure proper functioning and to avoid malfunctions and damage.

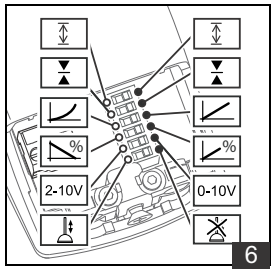


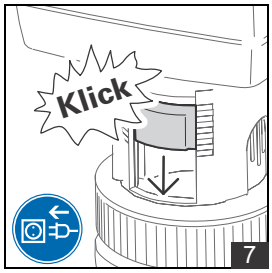


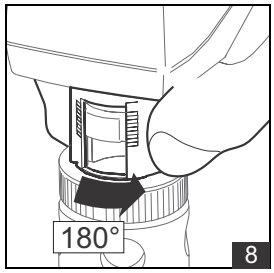








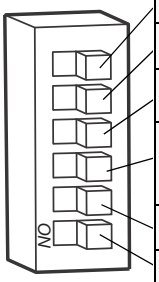




- ► 1 Carry out the electrical connection of the actuator as a fixed installation.
- ► 2 3 5 Refer to the circuit diagram.
- ► 4 6 Adjust valve functions using DIP switches 1 to 6.
- ► 7 An automatic initialization run is performed once the supply voltage has been switched on for the first time. The 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.
- ► 8 Once the assembly and commissioning work is complete, protect the automatic coupling system with the dust protection cap.

6.3 Adjusting actuator functions

The actuator functions are adjusted using DIP switches 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
Auxiliary switch active switch position		5	Auxiliary switch inactive switch position
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

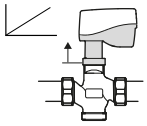
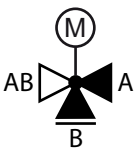
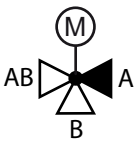
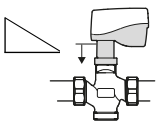
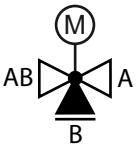
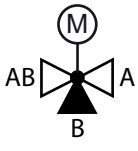
If the actuator is controlled with a 3-point control signal, the “valve blocking protection” (DIP switch 1) and “control range setting” (DIP switch 2) functions are **not** effective.

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 (continuous or 2/3-point control) and the position feedback using DIP switch 3 results in the following directions of flow:

Actuating direction	**Two-way valve** RBQ..	RBK-BK..	**Three-way valve** RBK..
DIP switch 3 = OFF Yin = DC 10 V or 24 V at terminal 3 (Yout = DC 10 V) 			
DIP switch 3 = ON Yin = DC 10 V or 24 V at terminal 3 (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 (only with MD50-E): Setting for the auxiliary switch position

The switch-on point of the auxiliary switch can be set to any position of the nominal stroke.

The switching process is initiated when the set value is reached. The DIP switch remains closed as long as the value meets or falls below the configured switching point.

To configure, move the actuator to the desired position using the DC 0(2)..10 V control signal. DIP switch 5 must then be switched from the “inactive” position to the “active” position. This sets the switch-on point.

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).

6.4 Manual adjustment

CAUTION

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

- ► Disconnect the actuator from the voltage supply.
- ► Fold the cover plug to the side.
- ► A hexagon key (key socket 4 mm) can be used to move the actuator into any position.

CAUTION

If you manually adjust the spindle position until the slip clutch engages in the upper or lower end position, you must turn back the hexagon key by half a turn.

NOTE

Initialization must be performed after any manual adjustment is completed.

This is done during operation when a valve end position is reached due to operation.

This initialization can be performed manually by actuating DIP switch 6.

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

LED flashes green in 1 s cycle	Initialization is running or initialization was not completed successfully
LED lights up green permanently	Initialization was successfully completed, control operation
LED lights up red permanently	Blockage, intervention necessary
	Trigger initialization or briefly interrupt power supply

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. Contact your Kieback&Peter contact person.

10 Decommissioning, Removal and Disposal

10.1 Decommissioning and dismounting the actuator

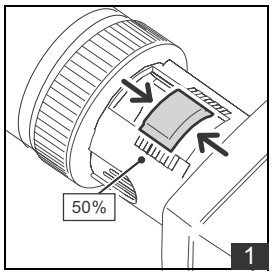
WARNING

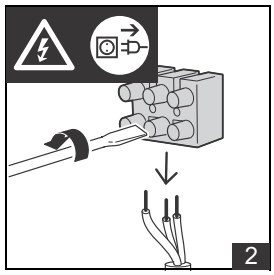
Hot and cold surfaces!

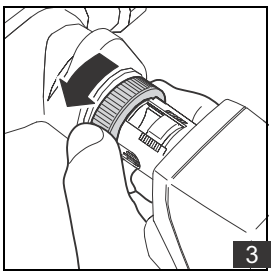
If a hardware or software error occurs, there may be unexpected movements and the valve may open. There is a risk of severe burns or hypothermia from contact with hot or cold surfaces on the valves and pipelines.

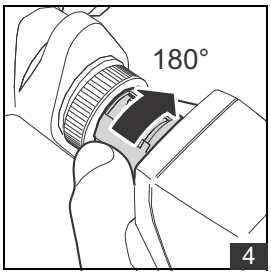
► Wear protective gloves

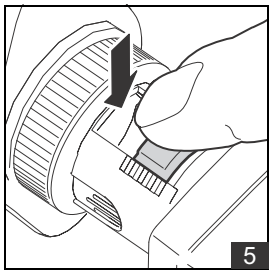
- Before beginning to dismount the unit, make sure that no differential pressure builds up in the valve body before beginning work. If necessary, close the gate valve and turn off pumps. After the pipeline has cooled off, you can begin to dismount the actuator.

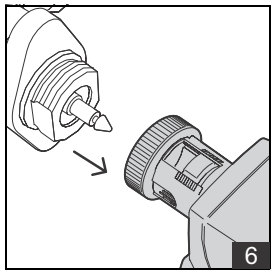












► 1 Move the actuator to the center position using a control signal.
► 2 Shut off the actuator power supply and disconnect all electrical cables.
► 3 Loosen the union nut. Do not use pliers if possible.
► 4 Turn the dust cover far enough so that you can press the safety button.
► 5 Press the safety button on the automatic coupling all the way in and hold it.
► 6 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 Notes 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

MD50, MD50-R, MD50-E

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: 2009-06
DIN EN ISO 12100: 2011-03

Signed for and on behalf of:

Berlin,
01/06/26

(ppa. Philipp Menzel)
Managing Director
Product & Solutionmanagement

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

QM-F-060| Rev. 3.0 vom 15.01.2026
Template: QM-T-034, Rev 1.3

Klassifizierung: Öffentlich

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