



MD50, MD50-R, MD50-E actuator

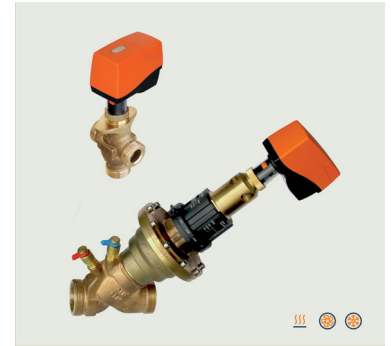
Application

MD50, MD50-R and MD50-E actuators with manual adjustment and automatic coupling are used with two-way and three-way valves in the RBK15..50 compact valve series and RBQ40..50 (Cocon QTR40..50) combo valves.

The MD50-R actuator also features position feedback.

The MD50-E actuator also features position feedback and an auxiliary switch.

The actuator can be operated with continuous, two-point or three-point control.



NOTE

This document does not contain safety instructions.

You can find detailed information about handling the actuator in the operating instructions

3.10-09.050-80 "MD50, MD50-R and MD50-E Actuators for RBK15..50 and RBQ40..50 (COCON QTR40..50) Valves."

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

Technical Data

Nominal voltage	AC 24 V $\pm 10\%$; 50/60 Hz; DC 24 V $\pm 10\%$
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 ² s MD50, MD50-R: max. 8 A, < 1 ms; < 0.064 A ² s
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 k Ω , 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

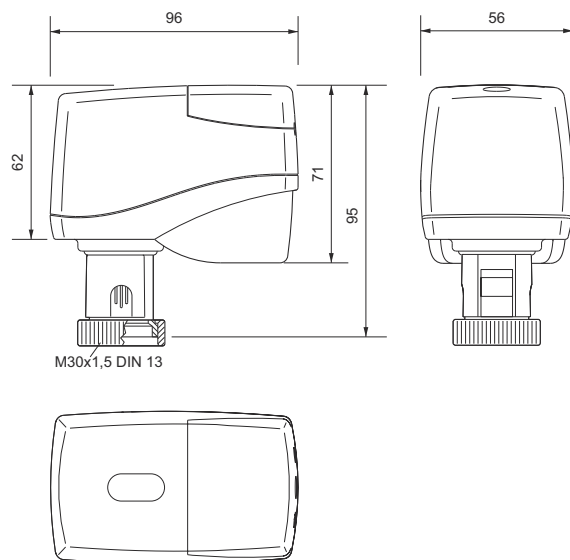


Product Data Sheet

MD50, MD50-R, MD50-E

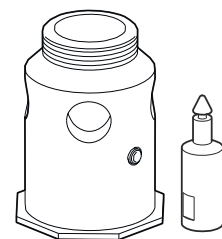
Permitted temperature of medium in valve	RBK15..50: 0..+120 °C RBQ40..50: -10..+120 °C
Ambient temperature	0..+50° C
Ambient humidity	0..85% r.h., non-condensing
Level of contamination	2
Degree of protection	IP54
Protection class	III in accordance with EN 60730
Installation position	360°
Maintenance	Maintenance-free
Weight	MD50: 310 g; MD50-R: 330 g; MD50-E: 340 g

Dimensions



Accessories (not included in the delivery)

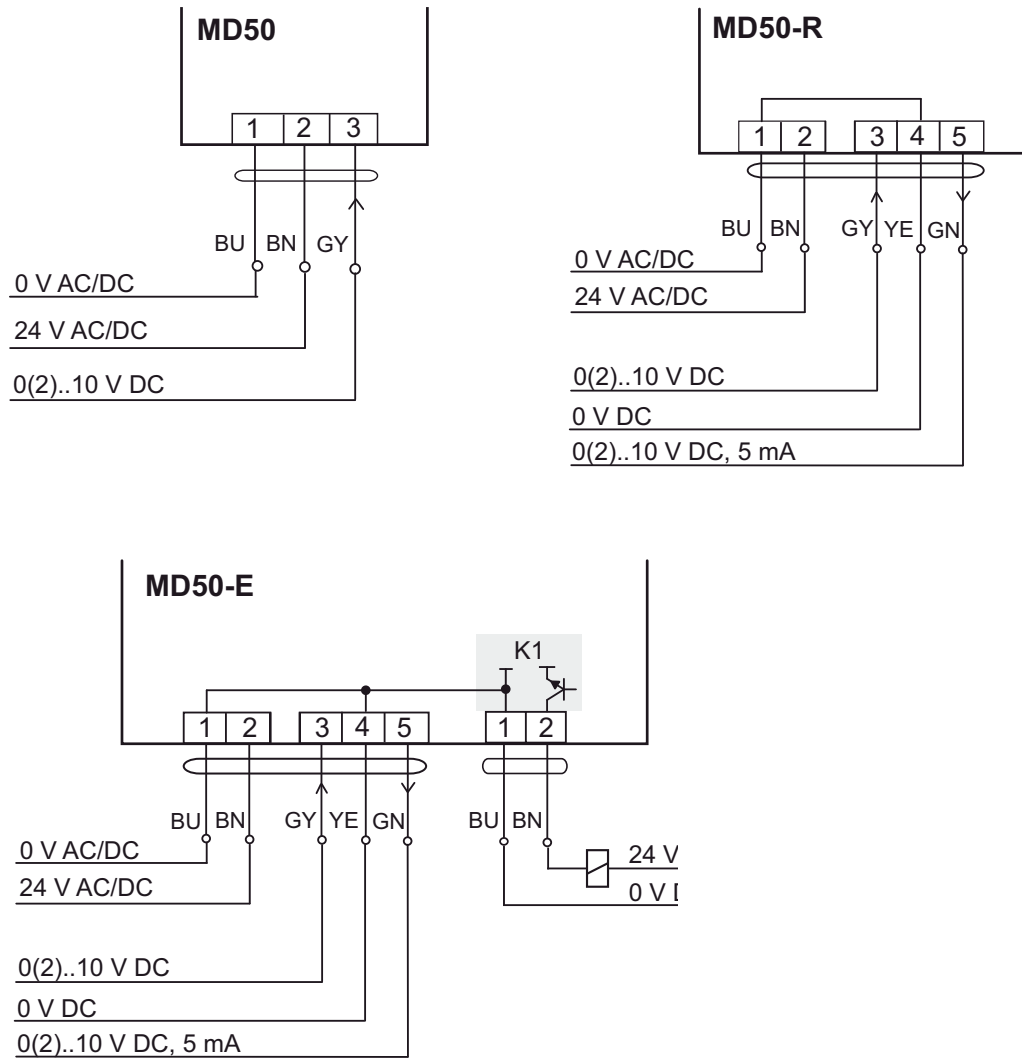
- Z223** Adapter for RBQ40 (QTR DN40) and RBQ50 (QTR DN50) with actuator MD50-BUS, MD50(-E)(-R), MD50/230 or MF50-R. Further information can be found in the mounting instructions for Z223 and in the operating instructions for the actuators.





Connection

Continuous control



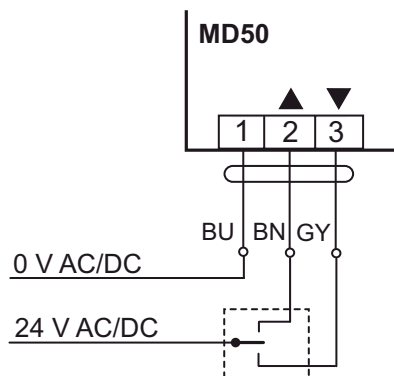
CAUTION

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

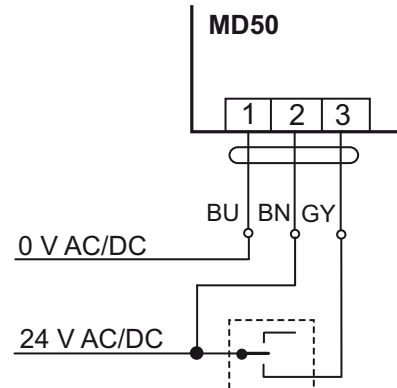


Two-point and three-point control

- Three-point control



- Two-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.



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.



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
RBK25/10,0-BKMD50	25	16	10,0	5,0	220	G 1 1/2	1.79



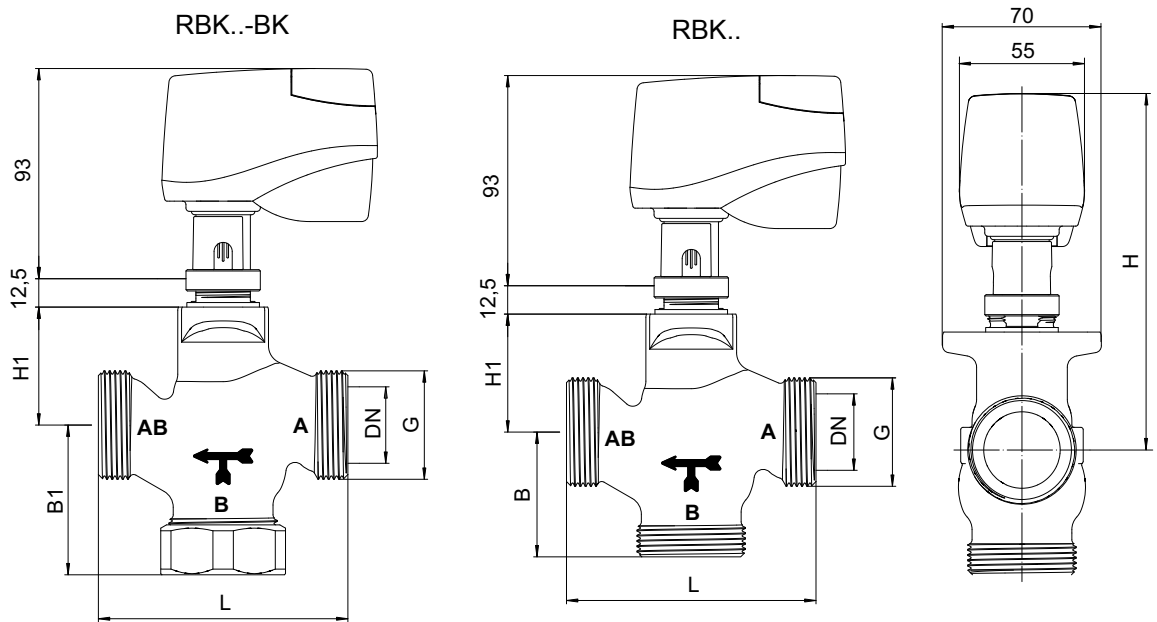
Typ	DN	PN	kvs	Δp (bar)	Travel time (s)	Connection	Weight (kg)
RBK32/10,0-BKMD50	32	16	10,0	3,5	220	G 2	2.45
RBK32/16,0-BKMD50	32	16	16,0	3,5	220	G 2	2.45
RBK40-BKMD50	40	16	25,0	1,5	220	G 2 1/4	2.94
RBK50-BKMD50	50	16	35,0	0,7	220	G 2 3/4	4.25

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	



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						

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

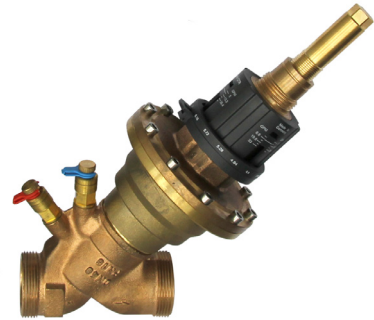


RBQ40..50 (Cocon QTR40..50) combo valves with actuator

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.



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 2).



NOTE

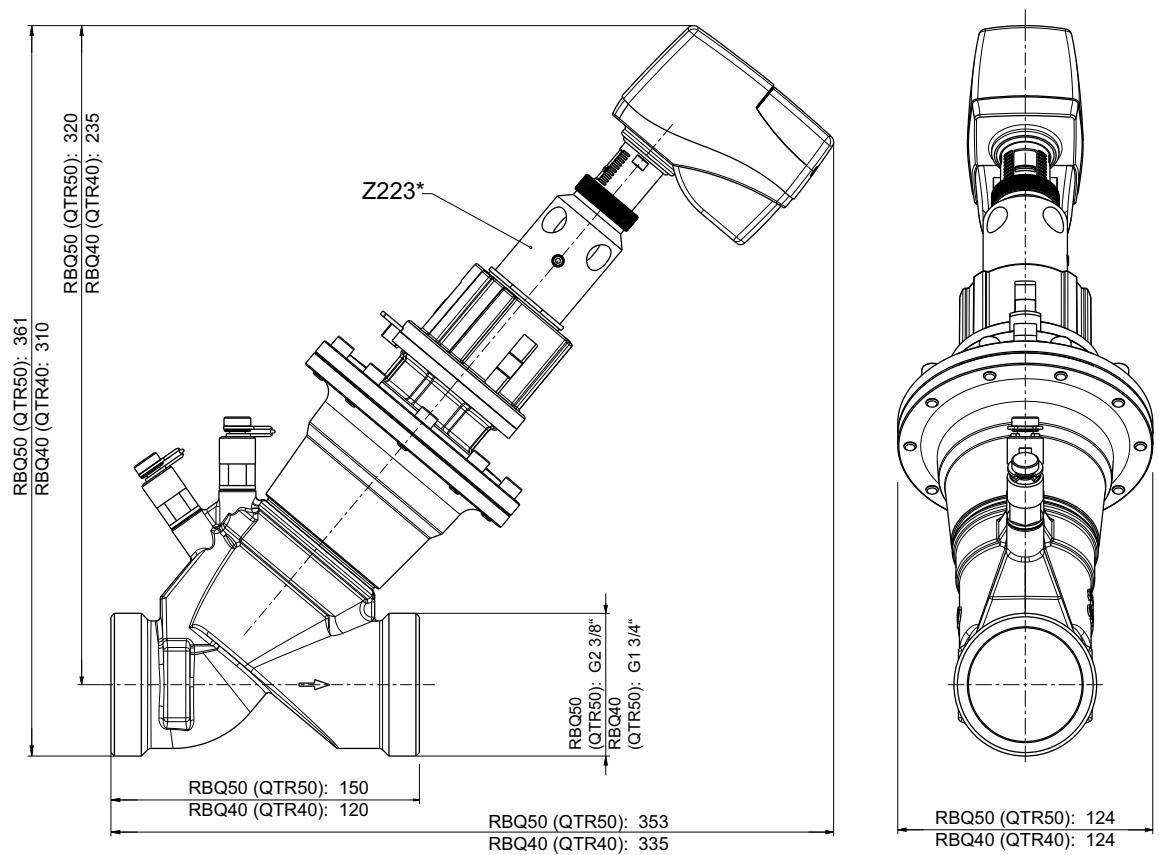
Detailed descriptions of the technical data, function, volume flow setting and dimensions for the RBQ combo valves can be found in the RBQ15..200 product description, doc. no. 3.10-20.000-01.



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

Dimensions



Z223* adapter accessory for RBQ40..50



Product Data Sheet
MD50, MD50-R, MD50-E