

**Product Description****MD15-Q Small Actuator**  
for RBQ15..32 Combo Valves**MD15-Q Small Actuator**

for RBQ15..32 Combo Valves

**Application**

Small actuator for continuous control in zone post-treatment devices for heating, ventilation, and air conditioning plants.



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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifichhe - 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 "MD15-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.

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for RBQ15..32 Combo Valves**MD15-Q Small Actuator**

MD15-Q Small actuator for RBQ15..32 combo valves

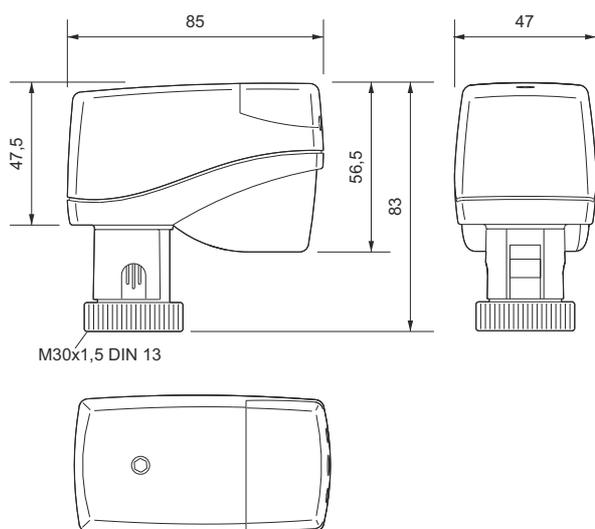
**Technical Data**

Nominal voltage	AC 24 V $\pm$ 10%; 50/60 Hz; 2.5 VA; DC 24 V $\pm$ 10%; 0.8 W
Control	Continuous control DC 0(2)..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: when extending = load-dependent, when retracting = path-dependent
Display	LED display for operating voltage
Actuating noise	<31 dB (A)
Nominal stroke	4 mm
Travel time	15 s/mm
Positioning force	150 N (nominal)
Position indication	Stroke range scale
Manual adjustment	Only when disconnected from the power supply Socket for hexagon key on the actuator cover, key socket 4 mm
Valve block protection feature	Can be switched on
Characteristic curve compensation	Can be set based on the default setting of the valve
Ambient temp.	0..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	180 g

**MD15-Q Small Actuator**  
for RBQ15..32 Combo Valves

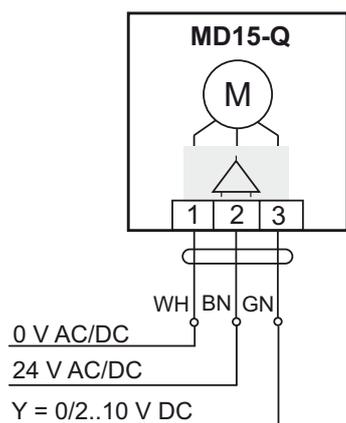
**Product Description**

**Dimensions**



**Connection**

- Continuous control



**Product Description****MD15-Q Small Actuator**  
for RBQ15..32 Combo Valves**RBQ15..32MD15-Q 2-way Combo Valves with Small Actuators****Application**

Combo valves with small actuators for automatic control of the flow direction, independent of the differential pressure (hydraulic balancing).

**Types**

Type	DN	PN	Volume flow range [l/h]	Control range [kPa]	Connection [Inch]	Weight [kg]
RBQ15/0,5MD15-Q	15	16	30..210	20..400	G 3/4; Rp 1/2	0.63
RBQ15/1,1MD15-Q	15	16	90..450	20..400	G 3/4; Rp 1/2	0.63
RBQ15/1,8MD15-Q	15	16	150..1050	20..400	G 3/4; Rp 1/2	0.63
RBQ20/1,8MD15-Q	20	16	150..1050	20..400	G 1; Rp 3/4	0.70
RBQ20/2,5MD15-Q	20	16	180..1300	15..400	G 1; Rp 3/4	0.91
RBQ25/4,0MD15-Q	25	16	300..2000	15..400	G 1 1/4; Rp 1	1.98
RBQ32/6,0MD15-Q	32	16	600..3600	15..400	G 1 3/4; Rp 1/4	2.08

**Technical Data**

Operating temperature	RBQ15..32, -10 to +120 °C
Max. operating pressure	16 bar (1600 kPa)
Max. differential pressure	4 bar (400 kPa)
Leak rate	0.01% from Kvs
Nominal stroke	DN15, DN20 (150 to 1050 l/h): 2.8 mm DN20 (180 to 1300 l/h): 3.5 mm DN25, DN32: 4 mm
Medium	Water or water-propylene glycol mixtures and water-ethylene glycol mixtures (max. 50%, ph value 6.5 to 10)
Housing	DN15 to DN32: dezincification resistant brass
Seals	Made of EPDM or PTFE

**Accessories (not included in delivery)**

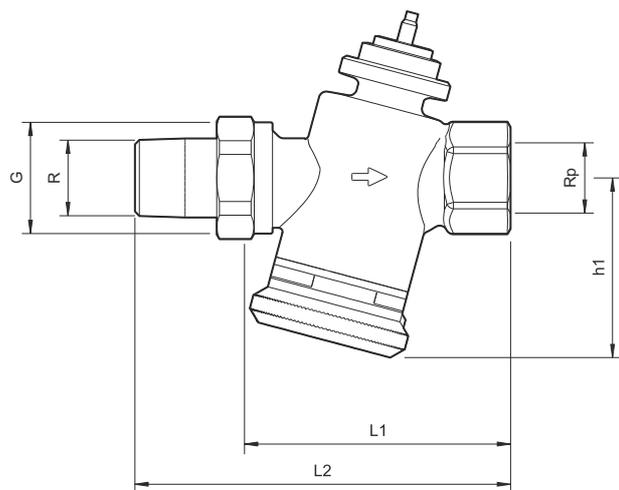
Z221	Measuring valves Further information in the installation note, data sheet 3.10-20.010-99.
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**MD15-Q Small Actuator**  
for RBQ15..32 Combo Valves

**Product Description**

**Dimensions**

- RBQ15..32 threaded connection M30x15



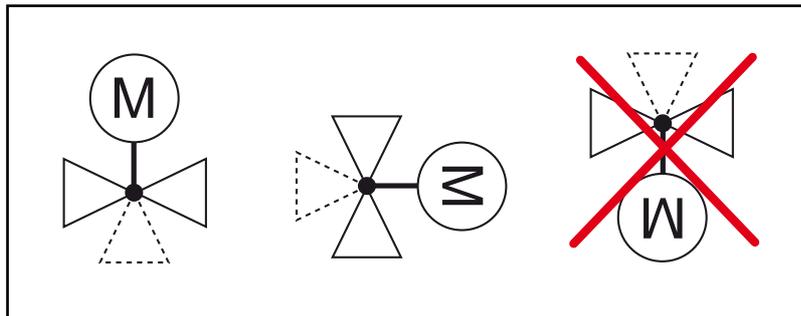
DN	L1 [mm]	L2 [mm]	h1 [mm]	G	R [Inch]	Rp [Inch]	Δp [bar]
15	70	98.5	48	G 3/4	R 1/2	Rp 1/2	0.2 to 4
20 (150 to 1050 l/h)	74	106	48	G 1	R 3/4	Rp 3/4	0.2 to 4
20 (130 to 1300 l/h)	85.5	117.5	54.5	G 1	R 3/4	Rp 3/4	0.15 to 4
25	118	154	79	G 1 1/4	R 1	Rp 1	0.15 to 4
32	124	165	79	G 1 3/4	R 1 1/4	Rp 1 1/4	0.15 to 4

## 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.



**Installation and Commissioning of the Small Actuator**



**CAUTION**

MD15-Q Kleinstellantrieb must not be operated electrically without a valve.

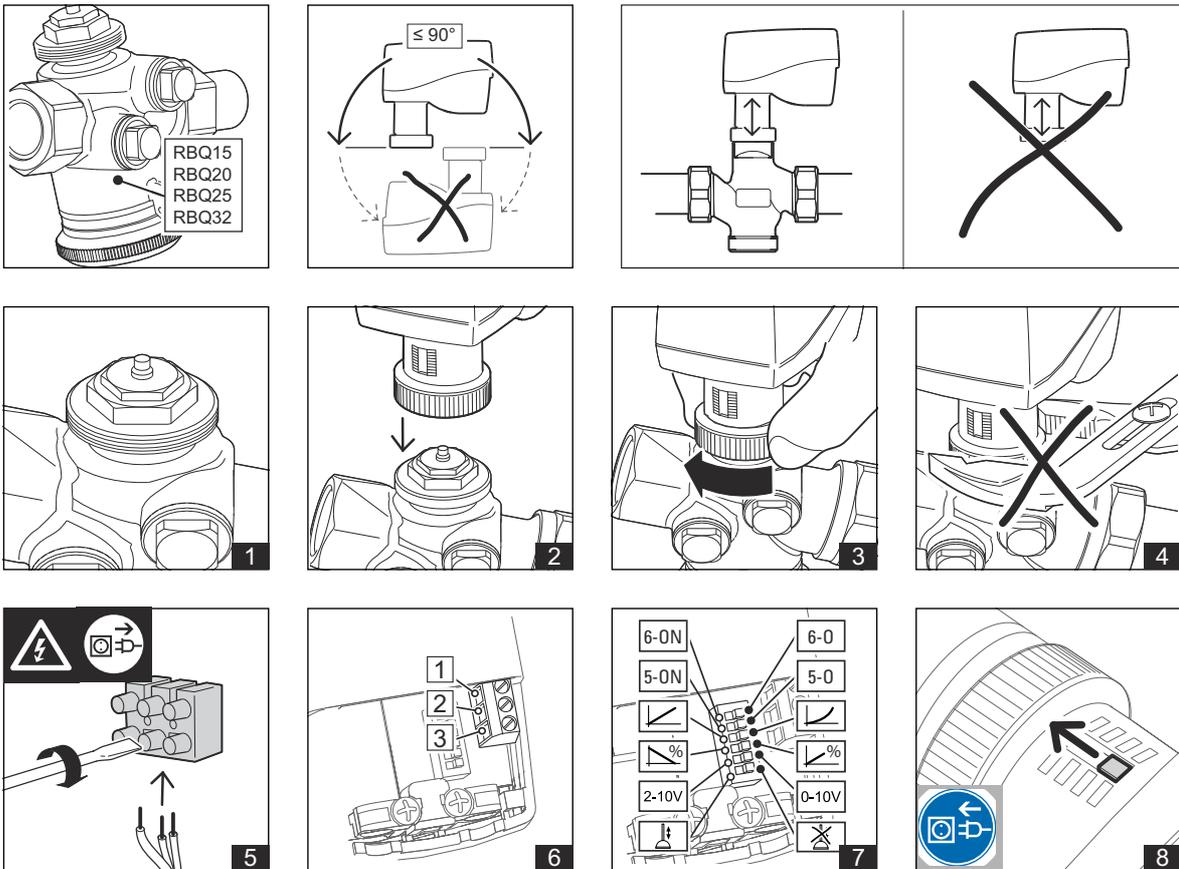


**CAUTION**

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.

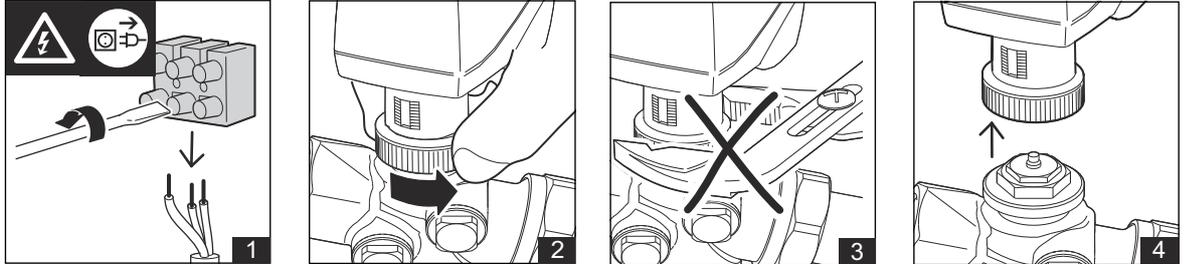


- ▶ Place the small actuator on the threaded connection of the valve and tighten until hand-tight using the union nut.
- ▶ Make the default setting based on the maximum flow rate set on the valve.
- ▶ Establish the electrical connection.
- ▶ After the power supply has been switched on, an initialization run takes place.

**Removing the Small Actuator****CAUTION**

Before beginning to remove 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 removal of the small actuator.

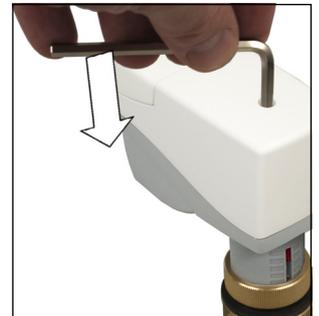


- ▶ Disconnect the small actuator from the mains power supply. Then disconnect all electrical connections.
- ▶ Remove the union nut.
- ▶ Remove the small actuator from the valve.

**Manual adjustment****CAUTION**

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

- The small actuator must be disconnected from the mains power supply for manual operation.
- Using a hexagon key (key socket 4 mm), the actuator can be moved into any position.

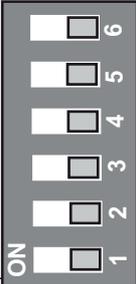
**CAUTION**

If you manually adjust until the slip clutch responds, turn the hexagon key half a turn in the opposite direction after the manually set stroke position has been reached.

**Commissioning**

**Valve Functions**

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

Function	Switch (A)	Function
RBQxx volume flow range (ON)		RBQxx volume flow range (OFF)
RBQxx volume flow range (ON)		RBQxx volume flow range (OFF)
Linear characteristic curve		Equal-percentage characteristic curve
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.

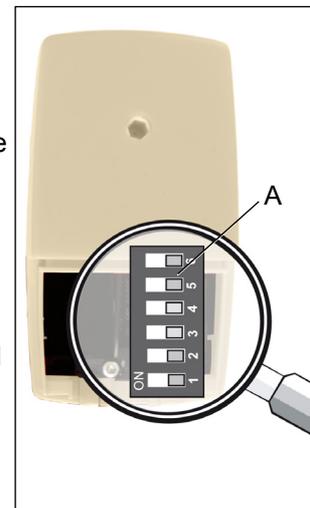
**Default setting:** Off

**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 DC 0 V “valve closed” .

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



**Switch 5 and switch 6**

For adjusting the MD15-Q to the default setting of the volume flow range of the RBQ15..32 according to the following table:

	Volume flow range [l/h]	Switch 5	Switch 6
RBQ15/0,5	30..90	OFF	ON
RBQ15/0,5	91..210	OFF	OFF
RBQ15/1,1	90..150	OFF	ON
RBQ15/1,1	151..450	OFF	OFF
RBQ15/1,8	150..300	OFF	ON
RBQ15/1,8	301..1050	OFF	OFF
RBQ20/1,8	150..300	OFF	ON
RBQ20/1,8	301..1050	OFF	OFF
RBQ20/2,5	180..400	OFF	ON
RBQ20/2,5	401..600	OFF	OFF
RBQ20/2,5	601..1300	ON	ON
RBQ25/4,0	300..400	OFF	ON
RBQ25/4,0	401..900	OFF	OFF

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	<b>Volume flow range [l/h]</b>	<b>Switch 5</b>	<b>Switch 6</b>
RBQ25/4,0	901..1400	ON	ON
RBQ25/4,0	1401..2000	ON	OFF
RBQ32/6,0	600	OFF	ON
RBQ32/6,0	601..1600	ON	ON
RBQ32/6,0	1601..3600	ON	OFF

**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.

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