

**Product Description****RBQ15..32, Cocon QTR DN40..50, QFC DN65..100****RBQ15..32, Cocon QTR DN40..50 and Cocon QFC DN65..100 Combo Valves****Application**

RBQ15..32, Cocon QTR DN40..50 and QFC DN65..100 2-way combo valves are valve combinations with automatic differential pressure-dependent flow rate control (hydraulic balancing).

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

**Content****Page**

Important Information Regarding Product Safety .....	2
Types .....	3
Technical Data .....	3
Accessories (not included in delivery) .....	4
Dimensions .....	4
Function of the RBQ15..32 2-way combo valves.....	6
Function of the HW-108640, HW-108641, HW-107844, HW-107845 and HW-107846 2-way combo valves .....	7
Differential pressure p1 - p3 for valve configuration .....	9
Setting the maximum volume flow .....	11
Mounting .....	12

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

## Important Information Regarding Product Safety

### Safety Instructions

This data sheet contains information on installing and commissioning the product "RBQ15..32, Cocon QTR DN40..50, QFC DN65..100". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

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

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

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

### Legend



#### WARNING

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



#### CAUTION

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



#### CAUTION

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



#### NOTE

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

### Notes on Disposal

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

**Product Description****RBQ15..32, Cocon QTR DN40..50, QFC DN65..100****Types**

Type	DN	PN	Volume flow range [l/h]	kvs	Control range [kPa]	Connection	Weight [kg]
RBQ15/0,5	15	16	30..210	0.5	20..400	G 3/4; Rp 1/2	0.45
RBQ15/1,1	15	16	90..450	1.1	20..400	G 3/4; Rp 1/2	0.45
RBQ15/1,8	15	16	150..1050	1.8	20..400	G 3/4; Rp 1/2	0.45
RBQ20/1,8	20	16	150..1050	1.8	20..400	G 1; Rp 3/4	0.52
RBQ20/2,5	20	16	180..1300	2.5	15..400	G 1; Rp 3/4	0.73
RBQ25/4,0	25	16	300..2000	4.0	15..400	G 1 1/4; Rp 1	1.8
RBQ32/6,0	32	16	600..3600	6,0	15..400	G 1 3/4; Rp 1/4	1.9
HW-108640 (QTR 40 1146172)	40	16	1500..7500	11.5	20..400	G 1 3/4	5.7
HW-108641 (QTR 50 1146174)	50	16	2500..10000	15.0	20..400	G 2 3/8	6.4
HW-107844 (QFC 65 1146151)	65	16	5000..20000	36.0	20..400	Flang DN65	27.0
HW-107845 (QFC 80 1146152)	80	16	7500..30000	56.0	20..400	Flang DN80	32.0
HW-107846 (QFC 100 1146153)	100	16	12500..50000	80.0	20..400	Flang DN100	45.0

**Technical Data**

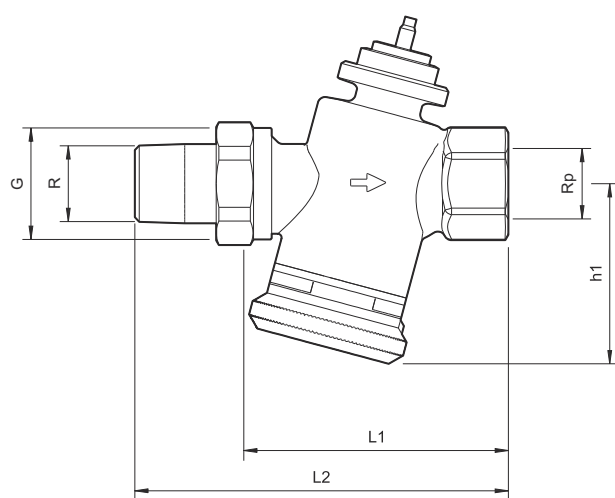
Operating temperature	RBQ15..32: -10 °C..+120 °C HW-108640, HW-108641: -20 °C..+120 °C HW-107844, HW-107845, HW-107846: -10 °C..+120 °C
Max. operating pressure	16 bar (1600 kPa)
Max. differential pressure	4 bar (400 kPa)
Leak rate	0.01% from Kvs
Nominal stroke	DN15, DN20 (150 to 1050 l/h): 2.8 mm DN20 (180 to 1300 l/h): 3.5 mm DN25, DN32: 4 mm DN40, DN50: 10 mm DN65..DN100: 20 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 DN40, DN50: Gunmetal, on both sides external thread DN65..DN100: Grey cast iron
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.
- Z223 Adapter for QTR DN40 (HW-108640), QTR DN50 (HW-108641) and the MD50-Q actuator.  
You can find more information in the installation note, data sheet 3.10-20.015-99, and in product description 3.10-09.055-01.
- Z224 Adapter for QFC DN65 (HW-107844), QFC DN80 (HW-107845) and QFC DN100 (HW-107846), as well as the MD200 and MD200Y actuators.  
You can find more information in the installation note, data sheet 3.10-20.020-99, and in product descriptions 3.10-09.200-01 and 3.10-09.200-10

**Dimensions**

- RBQ15..32 threaded connection M30x15

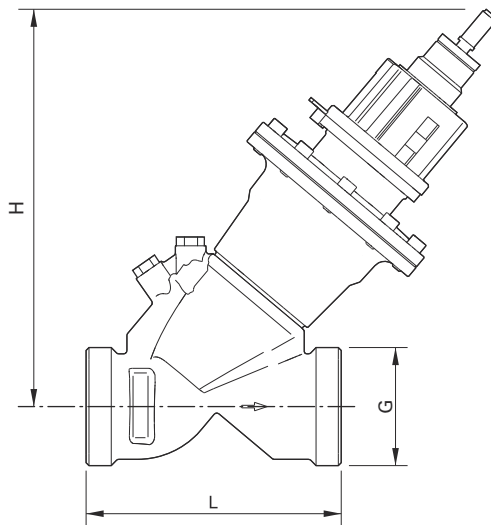


DN	L1 [mm]	L2 [mm]	h1 [mm]	G	R [Inch]	Rp [Inch]	Δp [bar]
15	70	98.5	48	G 3/4	R 1/2	Rp 1/2	0.2 to 4
20 (150 to 1050 l/h)	74	106	48	G 1	R 3/4	Rp 3/4	0.2 to 4
20 (130 to 1300 l/h)	85.5	117.5	54.5	G 1	R 3/4	Rp 3/4	0.15 to 4
25	118	154	79	G 1 1/4	R 1	Rp 1	0.15 to 4
32	124	165	79	G 1 3/4	R 1 1/4	Rp 1 1/4	0.15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

## Product Description

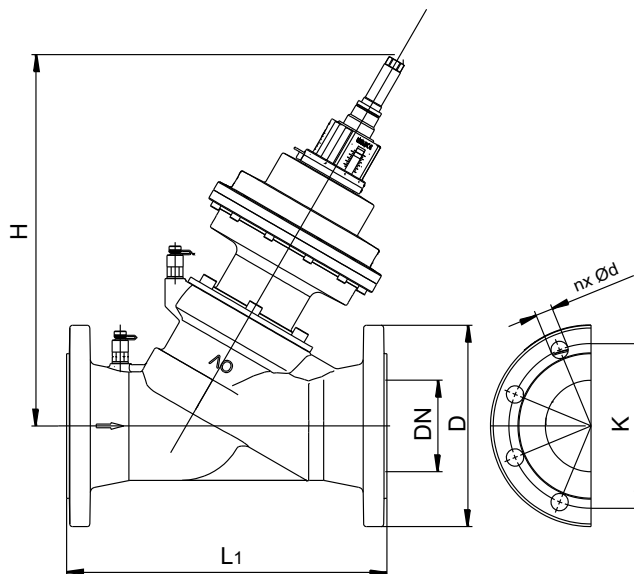
## RBQ15..32, Cocon QTR DN40..50, QFC DN65..100

- HW-108640, HW-108641



DN	L [mm]	H [mm]	G [Inch]	$\Delta p$ [bar]
40	120	245	G 1 3/4	0.2 to 4
50	120	255	G 2 3/8	0.2 to 4

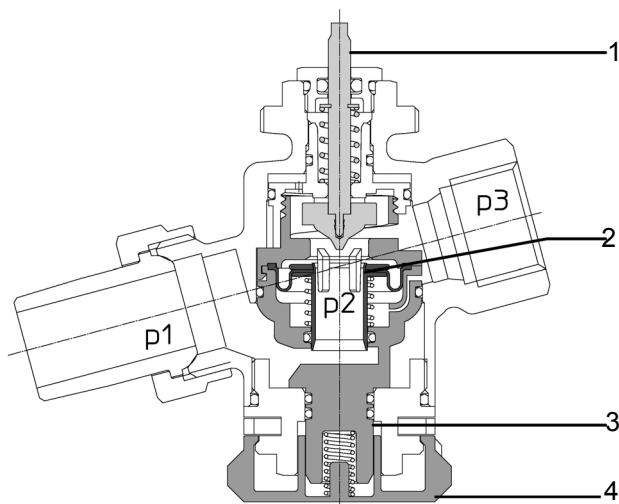
- HW-107844, HW-107845, HW-107846



DN	L1 [mm]	H [mm]	D [mm]	K [mm]	n x Ød
65	290	370	185	145	4 x 19
80	310	385	200	160	8 x 19
100	350	405	220	180	8 x 19

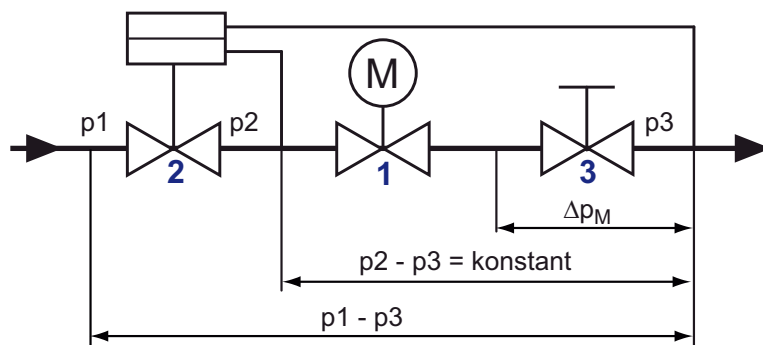
**Function of the RBQ15..32 2-way combo valves**

**Valve cross-section of RBQ15..32**



- (1) Regulating unit
- (2) Membrane unit
- (3) Setpoint unit
- (4) Handwheel for setting

**Hydraulic diagram of the combo valve**



The cross-section of the RBQ15..32 2-way combo valve shows three pressure ranges p1 to p3. The input pressure p1, the working pressure p2 in the membrane unit and the output pressure p3 on the fixture.

The differential pressure p2 - p3 is kept constant by the membrane unit (2) integrated in the RBQ combo valve, by the actuator-controlled regulating unit (1) and the setpoint unit (3) that can be set to a maximum flow value rate.

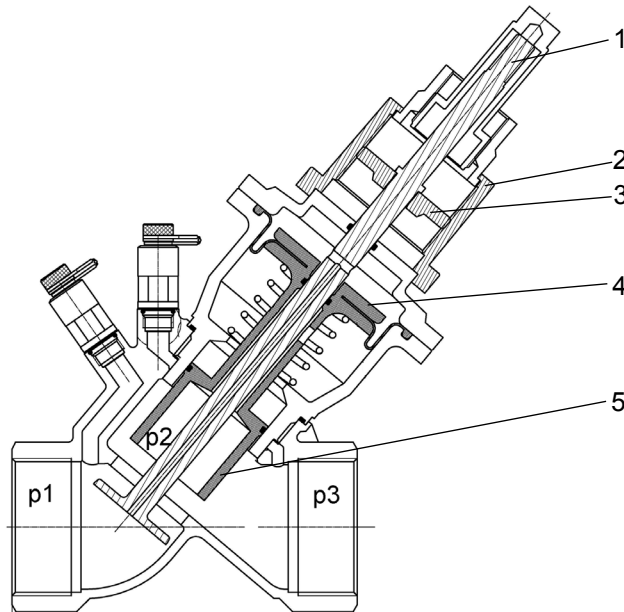
The maximum flow rate value is preset using the handwheel (4).

The combo valve keeps the differential pressure at a constant level even in the event of intense pressure fluctuations in the system.

Even in the partial load range, the valve authority is 100% within the effective valve stroke.

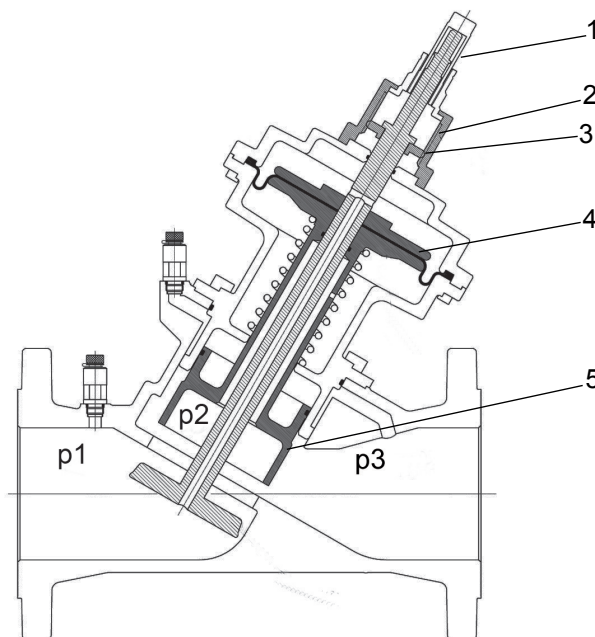
## Function of the HW-108640, HW-108641, HW-107844, HW-107845 and HW-107846 2-way combo valves

### Valve cross-section of HW-108640 and HW-108641

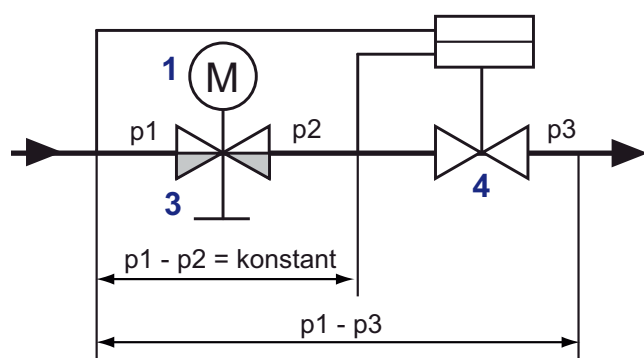


- (1) Regulating unit
- (2) Handwheel for setting
- (3) Setpoint unit
- (4) Membrane unit
- (5) Control sleeve

### Valve cross-section of HW-107844, HW-107845 and HW-107846



- (1) Regulating unit
- (2) Handwheel for setting
- (3) Setpoint unit
- (4) Membrane unit
- (5) Control sleeve

**Hydraulic diagram of the combo valve**

The cross-section of the HW-108640, HW-108641, HW-107844, HW-107845 and HW-107846 2-way combo valve shows three pressure ranges  $p_1$  to  $p_3$ .

The input pressure  $p_1$ , the working pressure  $p_2$  in the membrane unit and the output pressure  $p_3$  on the fixture.

The combo valve keeps the differential pressure  $p_1 - p_2$  at a constant value using the integrated membrane unit (4), the actuator-controlled regulating unit (1) and the setpoint unit (3).

The maximum flow rate value is set on the setpoint unit (3) using the setting wheel (2).

The combo valve keeps the differential pressure at a constant level even in the event of intense pressure fluctuations in the system.

Even in the partial load range, the valve authority is 100% within the effective valve stroke.



**Differential pressure p1 - p3 for valve configuration**

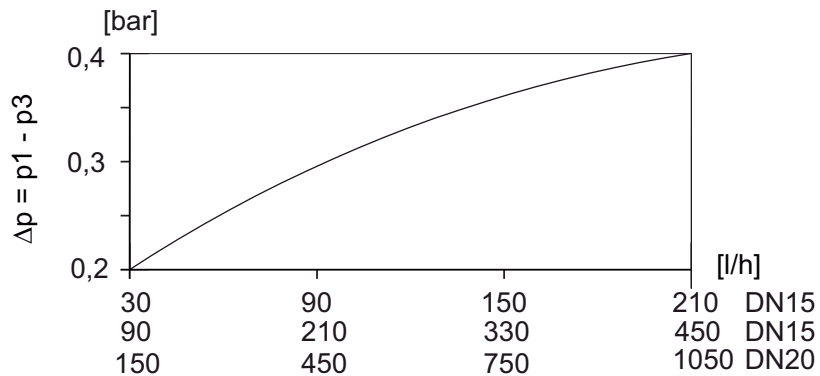
**Minimum differential pressure p1 - p3 for valve configuration:**

Refer to the following diagrams for the minimum required differential pressure p1 - p3 above the valve.

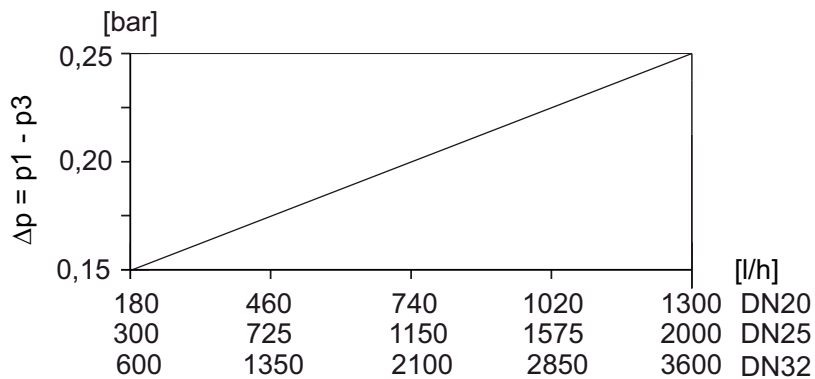
Explanation of the diagrams:

For valves with integrated flow rate control, the minimum differential changes depending on the setpoint setting. The applicable mathematical relationship has been taken into consideration in the diagrams.

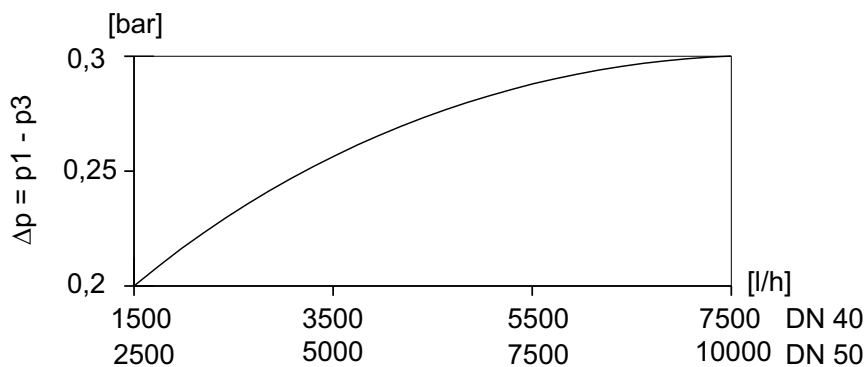
- RBQ15..20



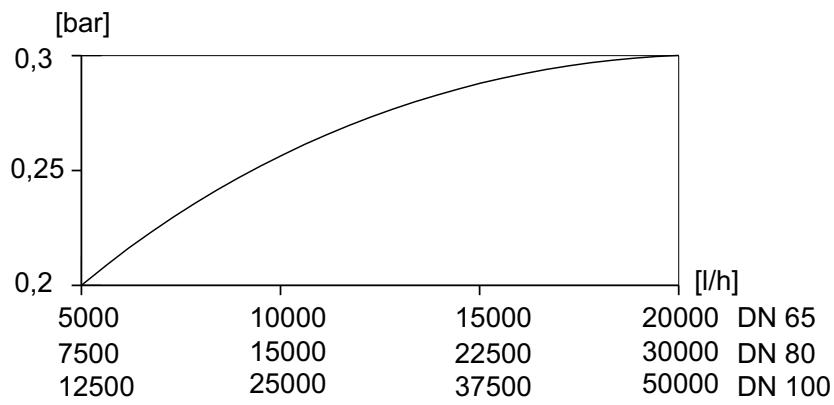
- RBQ20..32



- HW-108640 and HW-108641

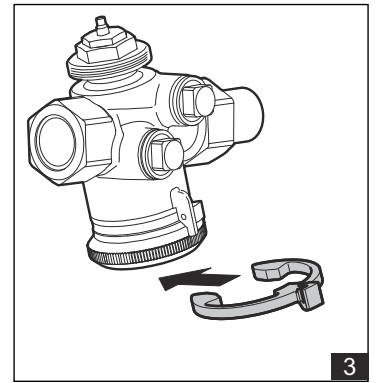
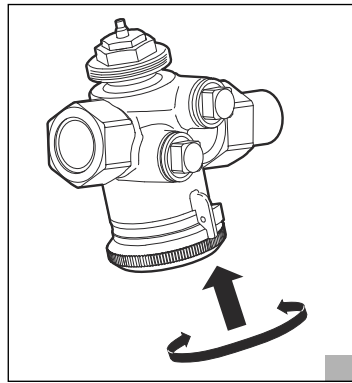
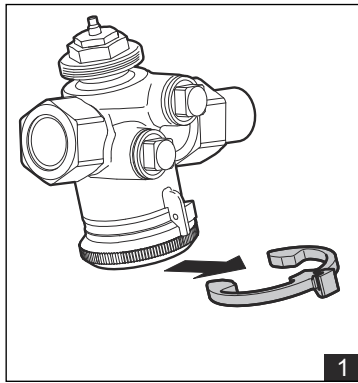


- HW-107844, HW-107845 and HW-107846



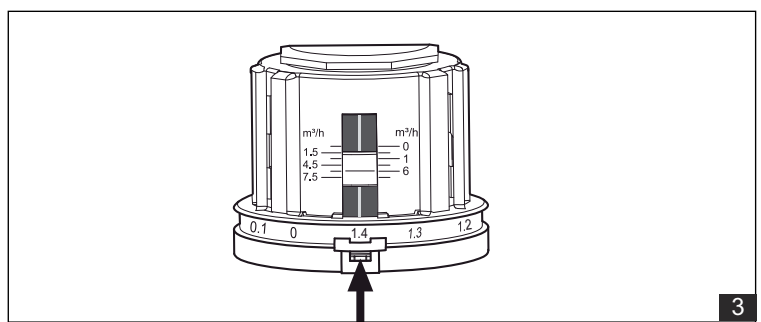
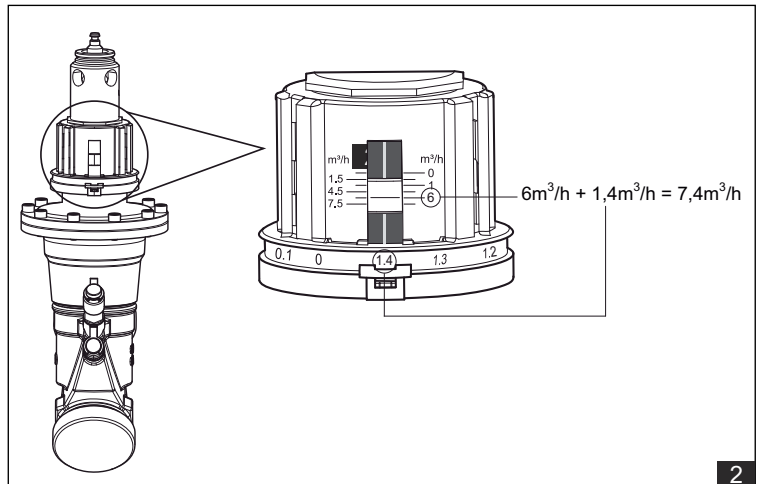
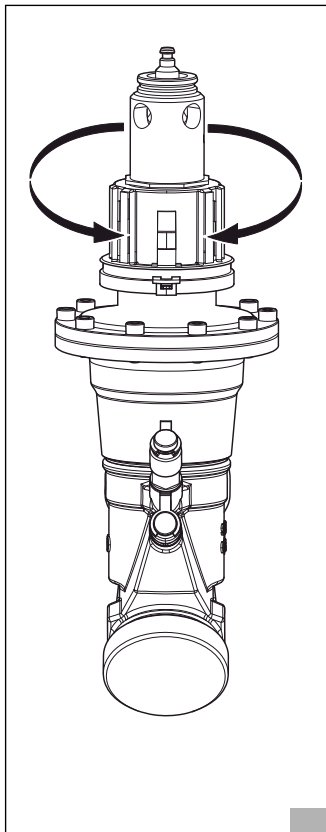
## Setting the maximum volume flow

- RBQ15..32



- ▶ Remove the blocking ring.
- ▶ Set the setpoint of the maximum volume flow to the desired value by turning the handwheel.
- ▶ Reinsert the blocking ring.

- HW-108640, HW-108641, HW-107844, HW-107845 and HW-107846



- ▶ Push down the locking clip.
- ▶ Preset the setpoint of the maximum volume flow to the desired value by turning the handwheel.
- ▶ Put the locking clip back in to locking position (push it upwards).

## Mounting



### CAUTION

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

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

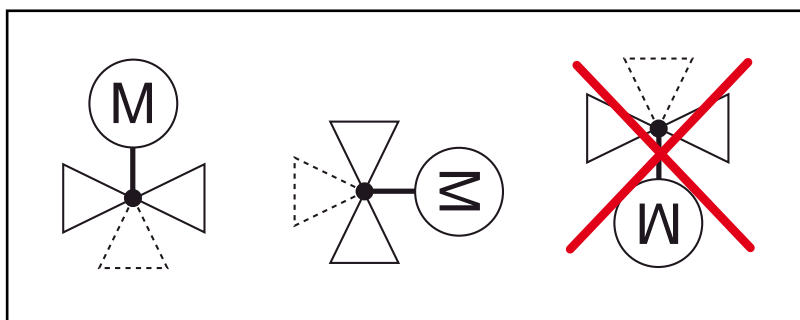
Be sure to comply with VDE guidelines and local wiring regulations. The device is connected according to the legally binding system circuit diagram.



### CAUTION

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

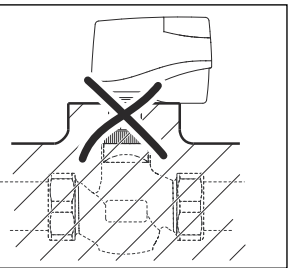
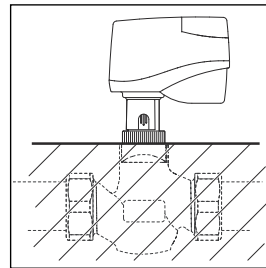
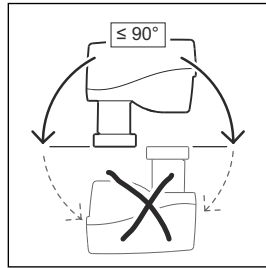
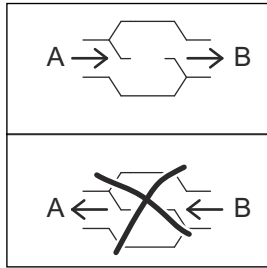
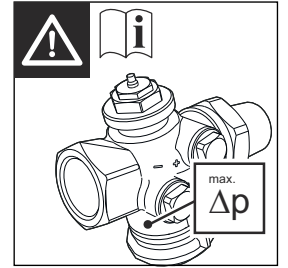
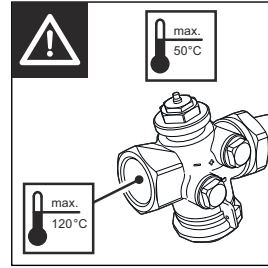
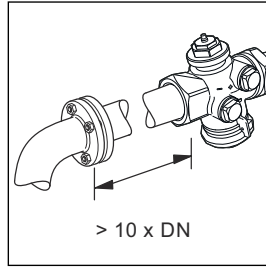
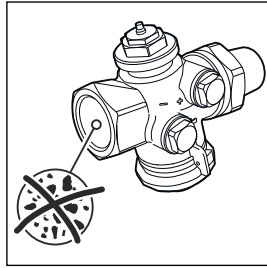
- Any protective caps on the valve gates should be removed before assembling the valves.
- No grease or oil may be used during assembly because these could destroy the valve seals.
- The pipeline system and the interior of the fitting must be free of foreign objects, particles of dirt, and grease and 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.



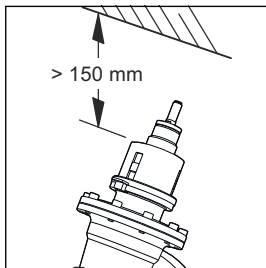
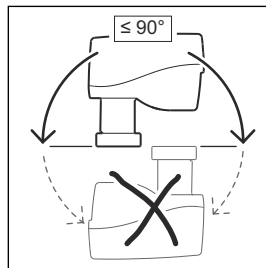
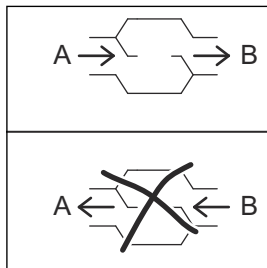
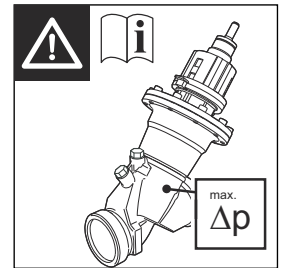
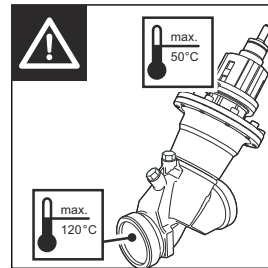
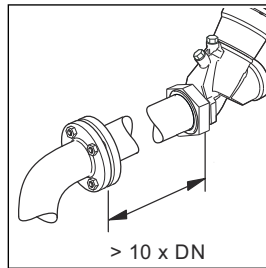
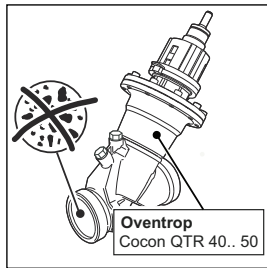
Product Description

RBQ15..32, Cocon QTR DN40..50, QFC DN65..100

RBQ15..32



HW-108640, HW-108641



HW-107844, HW-107845 and HW-107846

