



Product manual

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**Rectangular manual control valve**

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Airflow regulation

# Regulation control valve

control valves, are used for air volume and pressure control. They are made out of galvanized steel sheet. Louver gears and bearings are produced out of ABS plastic. Louver can be operated manually or equipped with electric actuator (24V or 230V).

- opposed louver blade operation
- $\Delta p_{max} = 1000 \text{ Pa}$ ;  $t_{max} = 70 \text{ }^{\circ}\text{C}$
- casing air leakage according to EN1751, class C
- open/close, continuous, fast acting and spring return actuators



## PRODUCT OVERVIEW

## AIRFLOW REGULATION

### DIMENSIONS AND WEIGHTS

| Height H<br>[mm] | Base B [mm] |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
|                  | 200         | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 1000 |
| 100              |             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| 150 *            |             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| 200              | 2           | 2   | 3   | 3   | 3   | 3   | 4   | 4   | 5   | 5   |     |     |     |     |     |      |
| 250 *            |             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| 300              | 3           | 3   | 4   | 4   | 5   | 5   | 5   | 6   | 6   |     |     |     |     |     |     |      |
| 350 *            |             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| 400              | 4           | 4   | 5   | 5   | 6   | 6   | 7   | 7   | 8   |     |     |     |     |     |     |      |
| 500              | 4           | 4   | 5   | 5   | 6   | 7   | 7   | 8   | 9   |     |     |     |     |     |     |      |
| 600              | 5           | 5   | 6   | 7   | 7   | 8   | 9   | 9   | 10  |     |     |     |     |     |     |      |
| 700              | 6           | 6   | 7   | 8   | 8   | 9   | 10  | 11  | 11  |     |     |     |     |     |     |      |
| 800              | 6           | 7   | 8   | 9   | 9   | 10  | 11  | 12  | 13  |     |     |     |     |     |     |      |
| 900              | 7           | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  |     |     |     |     |     |     |      |
| 1000             | 7           | 7   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |     |     |     |     |     |     |      |

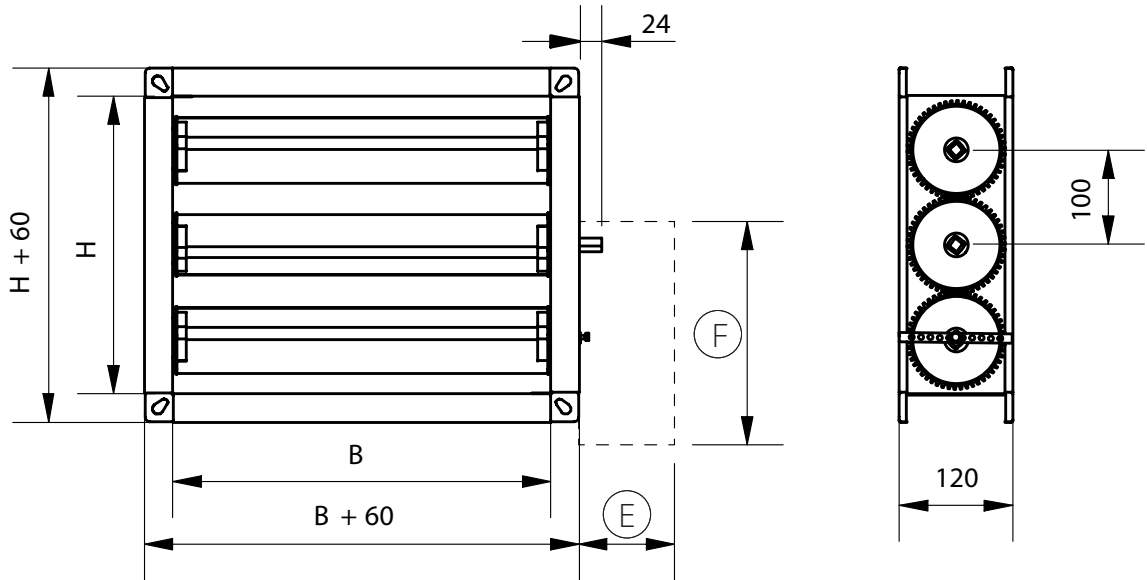
Weights are shown in kg.

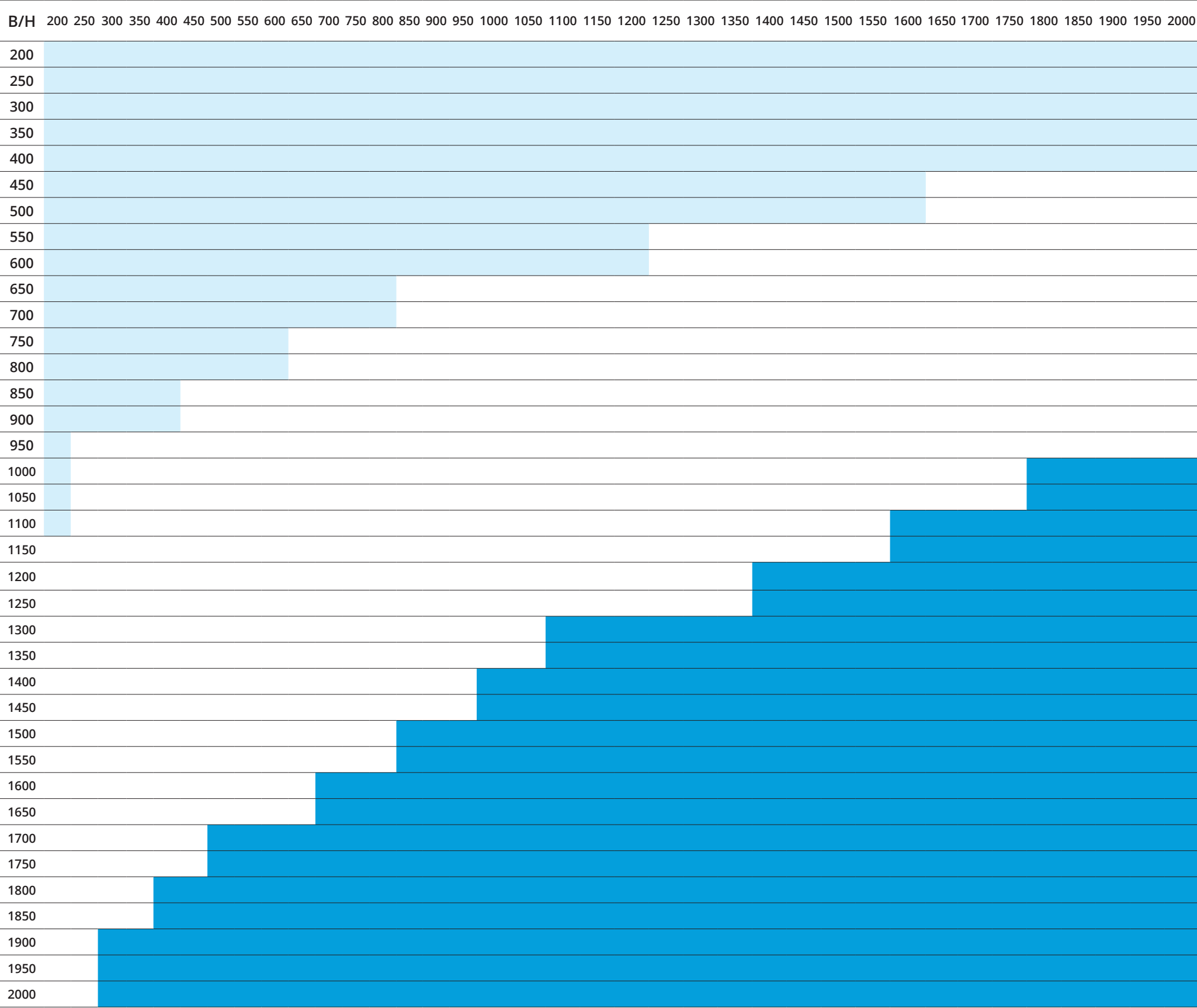
- Not available
- \* Blade 50mm



Motor drives

- LM 5 Nm
- NM 10 Nm
- SM 20 Nm





PRODUCT OVERVIEW

- Motor drives
- Belimo LM (F) / Schischek ExMax 5.10
  - Belimo NM (F) / Schischek ExMax 5.10
  - Belimo SM (F) / Schischek ExMax 15-15.30



Belimo motor drive

- motor drives - Belimo (open/close, continuous, fast-acting, spring return)
- power supply - AC 24V, 50/60 Hz  
- DC 24V
- IP54 degree of protection

| Voltage AC/DC | Type      | Control       | Torque | Energy consumption | Wire sizing                   | Weight [kg] approx. | Dimension (F x E) |
|---------------|-----------|---------------|--------|--------------------|-------------------------------|---------------------|-------------------|
| DC24V         | LM24A     | 3-point       | 5 Nm   | 1 W                | 1.5 VA                        | 0.46                | 160 x 90          |
|               | NM24A     | 3-point       | 10 Nm  | 1,5 W              | 3.5 VA                        | 0.75                | 180 x 90          |
|               | SM24A     | 3-point       | 20 Nm  | 2 W                | 4VA                           | 0.94                | 180 x 90          |
|               | LM24A-SR  | continuous    | 5 Nm   | 1 W                | 2VA                           | 0.40                | 160 x 90          |
|               | NM24A-SR  | continuous    | 10 Nm  | 2 W                | 4VA                           | 0.74                | 180 x 90          |
|               | SM24A-SR  | continuous    | 20 Nm  | 2 W                | 4VA                           | 0.93                | 180 x 90          |
|               | LMQ24A    | fast-acting   | 4 Nm   | 13 W               | I <sub>max</sub> 20 A @ 5 ms  | 0.87                | 190 x 100         |
|               | NMQ24A    | fast-acting   | 8 Nm   | 13 W               | I <sub>max</sub> 20 A @ 5 ms  | 1                   | 205 x 110         |
|               | SMQ24A    | fast-acting   | 16 Nm  | 15 W               | I <sub>max</sub> 20 A @ 5 ms  | 1.7                 | 180 x 110         |
|               | LF24      | spring return | 4 Nm   | 5 W                | I <sub>max</sub> 5.8 A @ 5 ms | 1.4                 | 220 x 110         |
| AC/DC 24/230V | NFA       | spring return | 10 Nm  | 6 W                | 9,5 VA                        | 3.1                 | 240 x 120         |
| AC 230V       | LM230A    | 3-point       | 5 Nm   | 1,5 W              | 3,5 VA                        | 0.46                | 160 x 90          |
|               | NM230A    | 3-point       | 10 Nm  | 2.5 W              | 5,5 VA                        | 0.72                | 180 x 90          |
|               | SM230A    | 3-point       | 20 Nm  | 2.5 W              | 6 VA                          | 1.1                 | 180 x 90          |
|               | LM230A-SR | continuous    | 5 Nm   | 2 W                | 4 VA                          | 0.50                | 180 x 90          |
|               | NM230A-SR | continuous    | 10 Nm  | 3,5 W              | 6,5 VA                        | 0.84                | 190 x 90          |
|               | SM230A-SR | continuous    | 20 Nm  | 3.5 W              | 6,5 VA                        | 1.1                 | 205 x 90          |
|               | LF230     | spring return | 4 Nm   | 5 W                | 7 VA                          | 1.6                 | 220 x 110         |

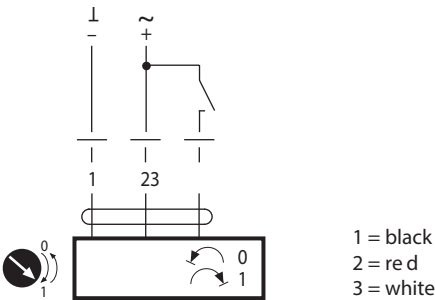


ACTUATORS

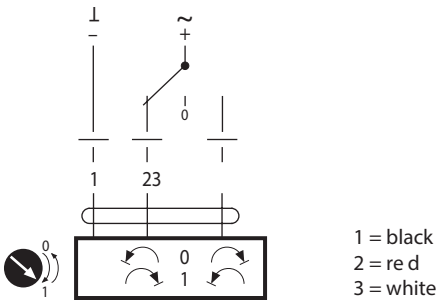
Wiring diagram

OZ -open/close

AC/DC 24 V, open/close

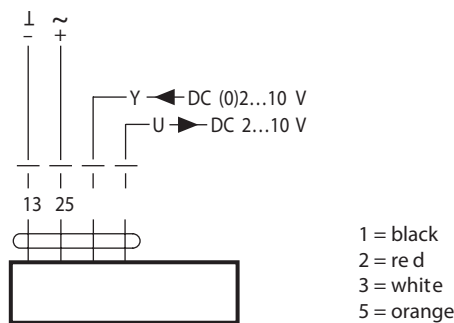


AC/DC 24 V, 3-point



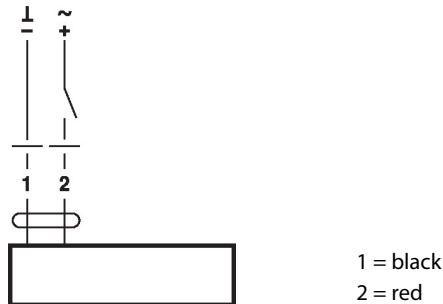
K -continuous

AC/DC 24 V, modulating



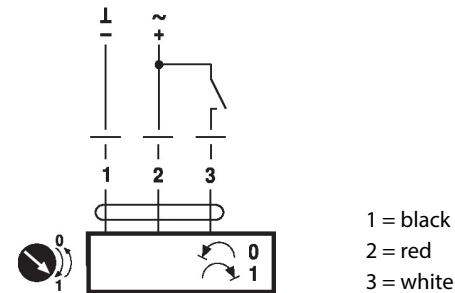
F -spring return

AC/DC 24 V, open/close



Q -fast-acting

AC/DC 24 V, open/close

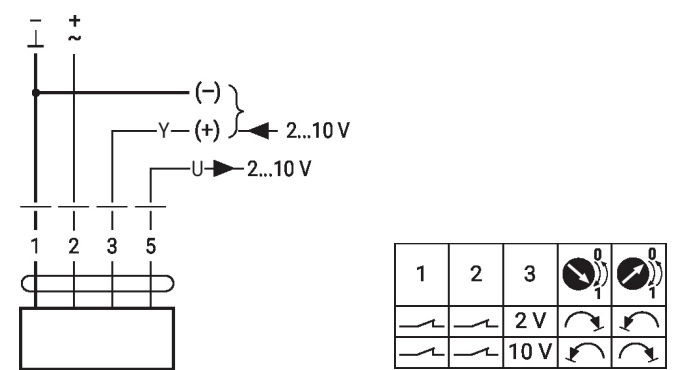


ACTUATORS

Wiring diagram

QK -fast-acting/ continuous

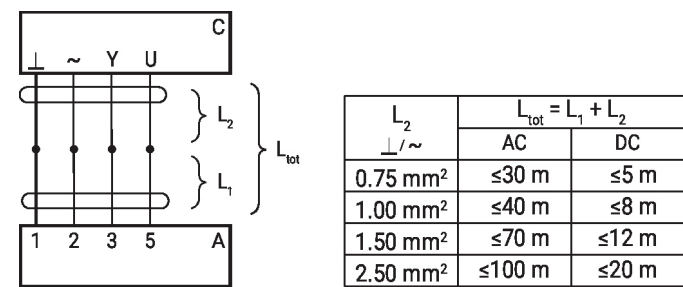
AC/DC 24 V, modulating



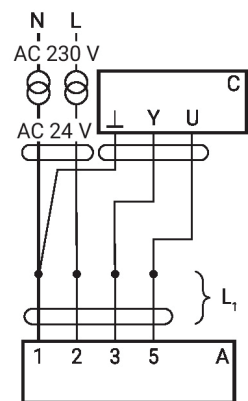
Signal cable lengths

**Wire colours:**  
1 = black  
2 = red  
3 = white  
5 = orange

A = Actuator  
C = Control unit (controlling unit)  
L1 = Connecting cable of the actuator  
L2 = Customer cable  
Ltot = Maximum signal cable length



**Note:**  
When several actuators are connected in parallel, the maximum signal cable length must be divided by the number of actuators.



A = Actuator  
C = Control unit (controlling unit)  
L1 = Connecting cable of the actuator

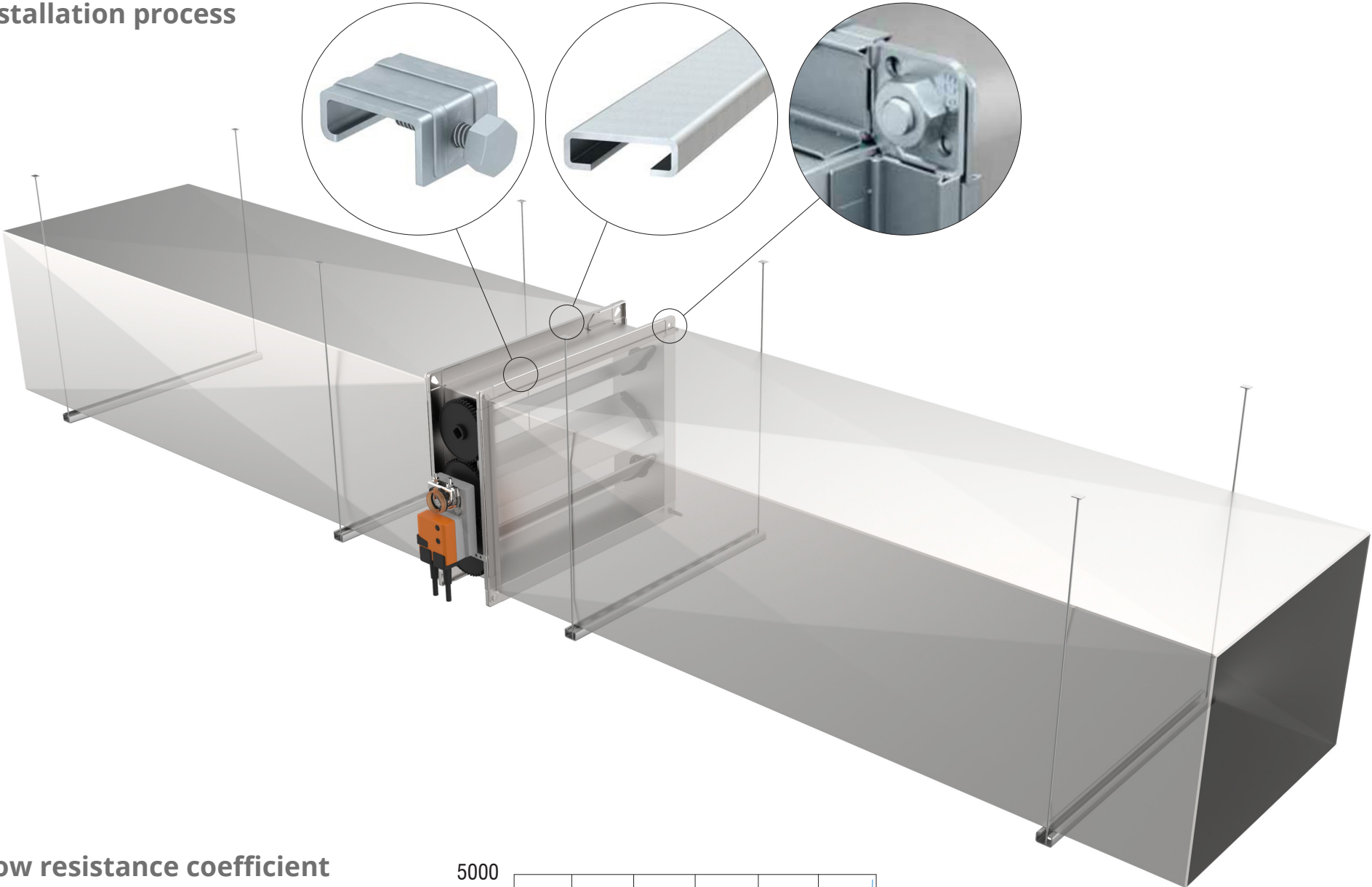
**Note:**  
There are no special restrictions on installation if the supply and the data cable are routed separately.

ACTUATORS



Supply from isolating transformer.  
Parallel connection of other actuators possible. Observe the performance data.

Installation process

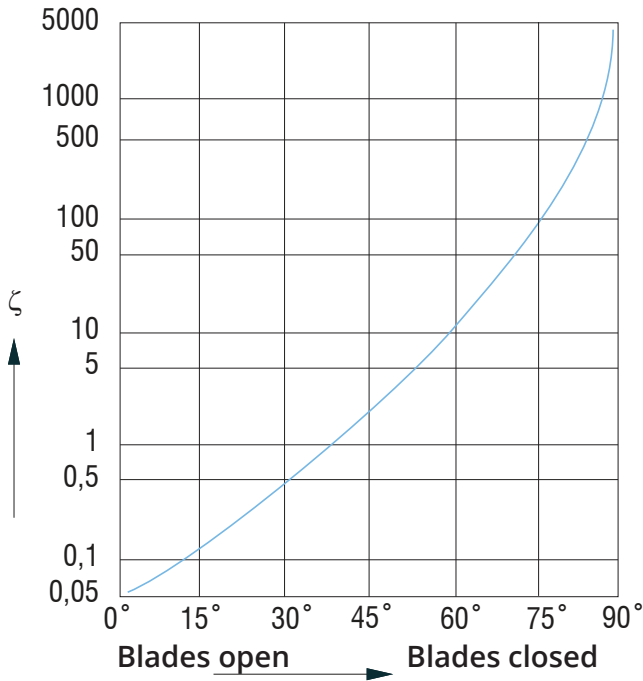


INSTALLATION

Flow resistance coefficient

Depending on blade angle setting (angle of blades opening). Airflow velocity  $v$ [m/s] refers to the total cross-section area  $A=B \times H$  [m<sup>2</sup>]

$$dp = (\zeta \cdot \rho \cdot v^2) / 2$$





## MAINTENANCE



## AIRFLOW REGULATION

## TRANSPORT

After arrival, check the product for transport damage and shortcomings. In case of any damage or shortcomings, immediately contact your supplier.

## STORAGE

If the louver is not installed immediately:

- Remove any wrapping.
- Protect louver from dust and contamination.
- Do not expose the louver to the effects of weather - store the louver in a dry place.
- Do not store the unit below -20 °C or above 50 °C.

**Please properly dispose of packaging material!**

## MAINTENANCE AND OPERATION

Louvers are designed with fully enclosed drive mechanism outside of the duct and as such do not require cleaning and regular maintenance.

However, activation mechanism should be inspected for proper operation on regular basis.

- Provide at least one annual check of the regulation damper
- After each intervention, provide a systematic cleaning of dust and especially its movable plate
- Check the if the electrical terminals are tightened
- Cleaning instruction: clean with a sponge, with water or a mild detergent
- Disinfection instruction: spray disinfectant (disinfectant may contain alcohol which is flammable, take precaution to avoid ignition)

It is not permitted to alter the products in any way nor perform any

changes to their structure without the manufacturer's consent. The functional test must be carried out in compliance with the basic maintenance principles of the European norms.

## COMMISSIONING

- Carefully unpack louver - be careful of sharp edges and do not use excessive force for unpacking
- Inspect the louver - check the regulation louver for damage
- Installation of the louver - according to the installation instructions
- Before commissioning - check the louver functions

# ECONOX

## AIRFLOW REGULATION

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Images are for informational purposes only and may differ from the actual product.  
Follow the latest versions of the catalog on the website.

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