

Fitting Instructions

DucoGrille Close 105

3/03/2025



CONTENT

- 0.** Safety instructions
- 1.** General
 - 1.1** Dimensions
 - 1.2** Orientation
 - 1.3** Actuator side
 - 1.4** Wiring diagram – Belimo NM24A
 - 1.5** Wiring diagram – Belimo NM230A
 - 1.6** Wiring diagram – Belimo NM24A-SR
 - 1.7** Wiring diagram – Belimo NM230ASR
 - 1.8** Wiring diagram – Belimo NF24A
 - 1.9** Wiring diagram – Belimo NFA
 - 1.10** Wiring diagram – Belimo NF24A-SR
 - 1.11** Wiring diagram – Belimo NM24A-MOD
- 2.** Fitting
 - 2.1** In structural opening
 - 2.2** In curtain wall – preparation
 - 2.3** In curtain wall > 125mm
 - 2.4** In curtain wall < 125mm
- 3.** Replacing actuator on side
- 4.** Replacing actuator in the middle



Safety instructions – Read before installation



WARNING Important safety instructions Always follow all instructions, as incorrect installation can lead to serious personal injury. Keep these instructions.

The DucoGrille Close 105 has been designed to optimally open and close a ventilation opening. It is not a duct silencer or shut-off damper for harmful (flue) gasses or liquids. Use this product only for those functions for which it was designed.

Keep this product in a dry place and under normal temperatures.

Do not expose the product excessively to direct sunlight.

Be careful when transporting and placing this product. Ask others for help when handling large or heavy products.

Clean this product using a damp cloth. NEVER use a high-pressure cleaner.



Electrically operated grilles pose a crush injury risk for parts of the body.

Make sure that the moving parts of this product cannot be reached by the user:

- ensure there is a minimum distance of 2.5 m between the bottom of the product and the floor,
- screen off the moving parts: install a grille on both the outside and inside.



Switch off the power when carrying out maintenance or repairs to the product.

CONTENT

1.1	Dimensions
1.2	Orientation
1.3	Actuator side
1.4	Wiring diagram – Belimo NM24A
1.5	Wiring diagram – Belimo NM230A
1.6	Wiring diagram – Belimo NM24A-SR
1.7	Wiring diagram – Belimo NM230ASR
1.8	Wiring diagram – Belimo NF24A
1.9	Wiring diagram – Belimo NFA
1.10	Wiring diagram – Belimo NF24A-SR

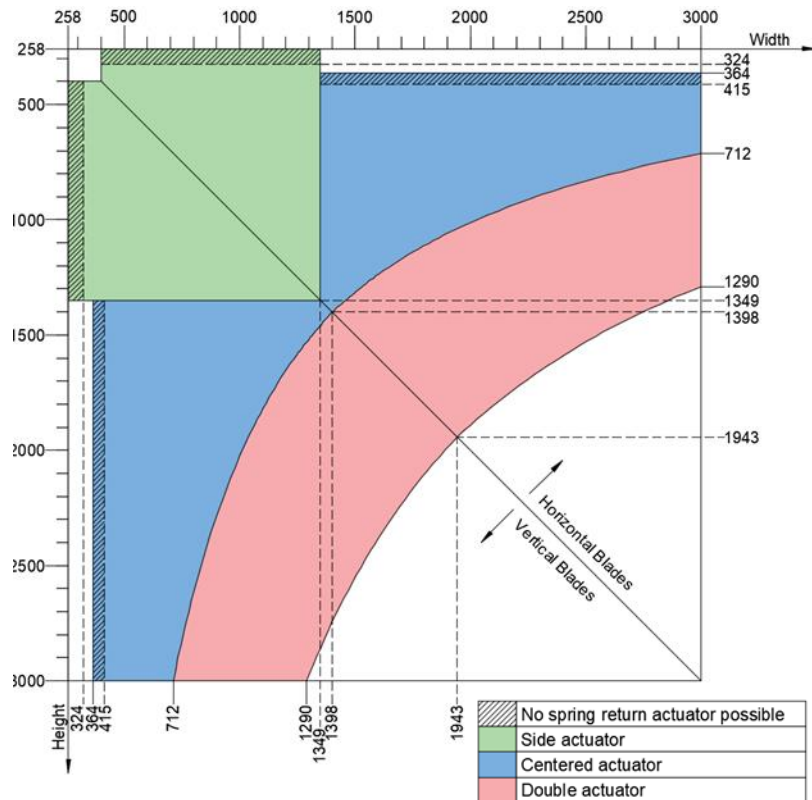
1.1

Dimensions

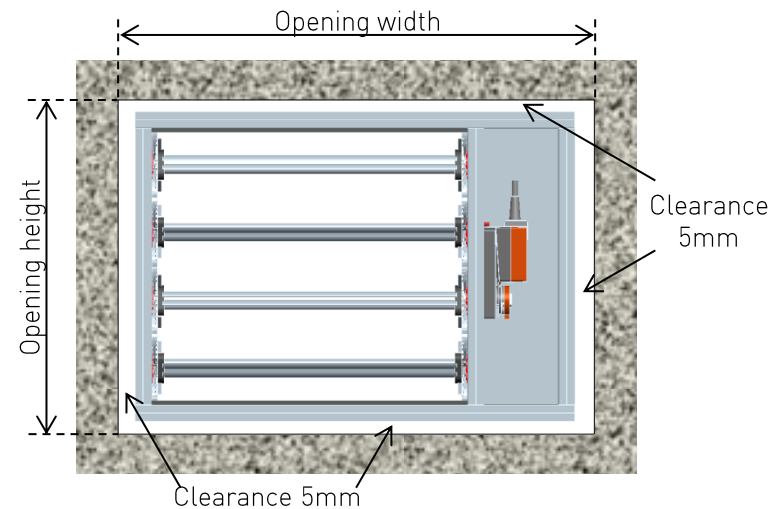
The DucoGrille Close 105 is available in a range of dimensions:

- Width : Ranging from 258 to 3000mm
- Height : Ranging from 258 to 3000mm

- **Attention: For maximum dimensions, consider the figure below..**

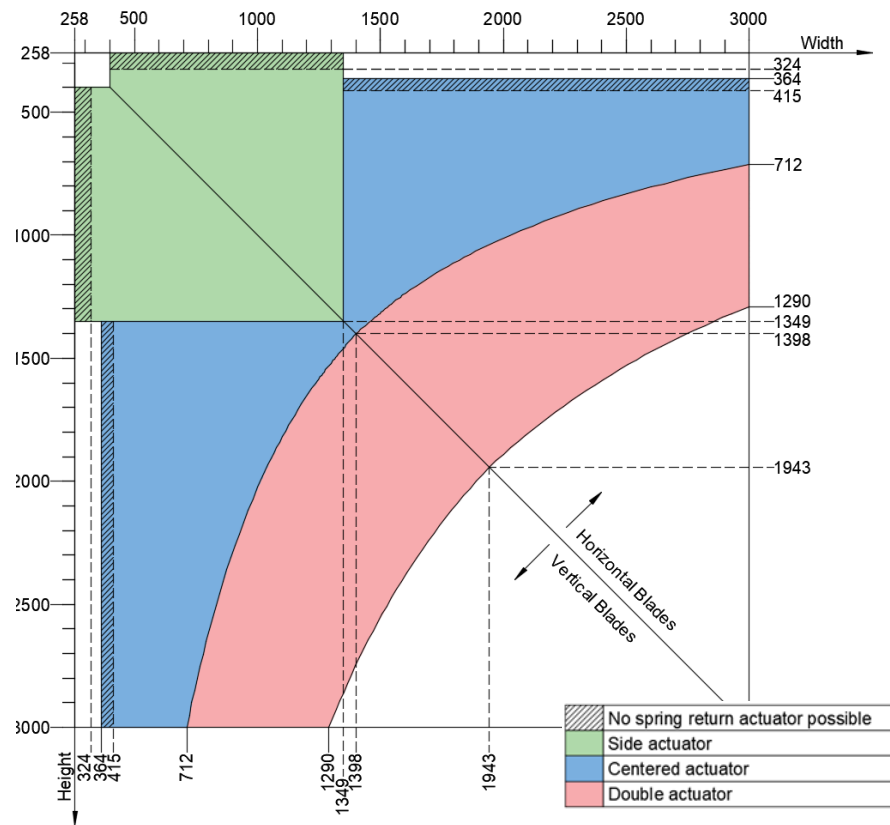


Opening size width: width DGC 105 + 2 x clearance 5mm
 Opening size height: height DGC 105 + 2 x clearance 5mm

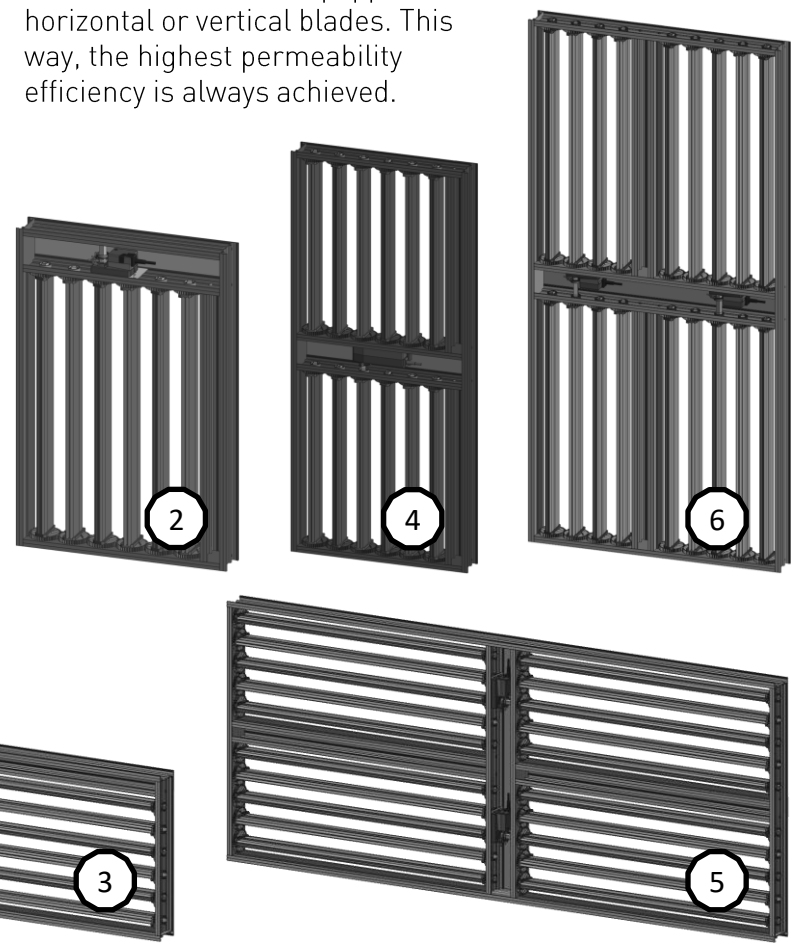


DucoGrille Close 105 weighs 16kg/m².
 (for other dimensions, you can extrapolate)

1.2 Orientation



Depending on the width and height ratio, the unit will be equipped with horizontal or vertical blades. This way, the highest permeability efficiency is always achieved.



1.3 Actuator side

It is recommended to face the actuator with the open side / side with motor cable towards the inside of the building. (This is with a view to accessibility for service).

If, during installation, it is not possible to run a cable along the inside of the DucoGrille Close 105, the installer can provide his own grommet in the side of the frame. In this case, use a grommet to avoid cutting the cable and unwanted air leaks.

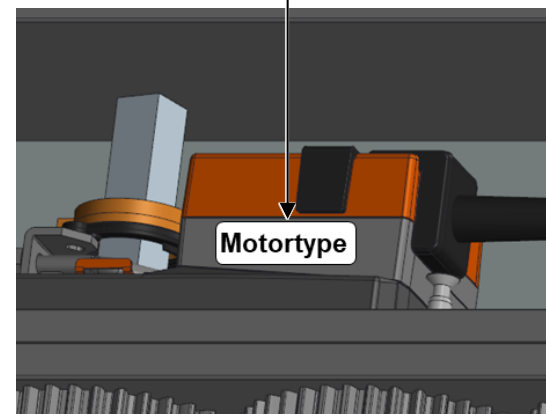
The DucoGrille Close 105 may be rotated 180° to turn the actuator side from left to right or top to bottom (and vice versa).

If the choice is made to install a motor compartment cover, it should be dismantled on installation and the motor cable should be fed through one of the grommets of your choice. Reinstall the cover using the original screws.

		Motortype	Power supply	Art. Nr.
Regular	Time-Controlled	NM24A	3,5W - 0,15A - AC/DC 24V	G0100705
		NM230A	5,5W - 24mA - AC 230V	G0100763
	Modulating (0)2...10V	NM24A-SR	4,0W - 0,17A - AC/DC 24V	G0100728
		NM230ASR	6,5W - 28mA - AC 230V	G0100762
	Communicative	NM24A-MOD	6,0W - 0,25 A - AC/DC 24V	G0100719
Spring Return	Open-Close	NF24A	8,5W - 0,35A - AC/DC 24V	G0100718
		NFA	9,5W - 0,4A ... 40mA / 0,4A ... 76mA AC 24...240V / DC 24...125V	G0100764
	Modulating (0)2...10V	NF24A-SR	5,5W - 24mA - AC/DC 24V	G0100729

Running time of the engine is +/- 150sec.

On the side of the actuator there is a sticker that indicates which actuator type is installed.



1.4

Wiring diagram – Belimo NM24A

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 19.2...28.8 V
	Power consumption in operation	1.5 W
	Power consumption in rest position	0.2 W
	Power consumption for wire sizing	3.5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation



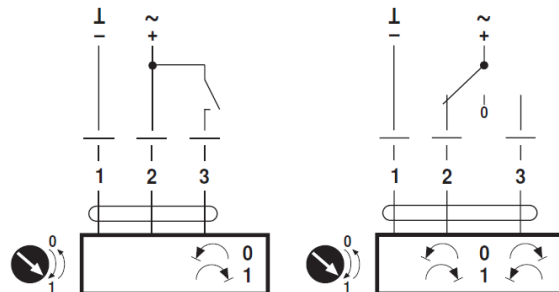
Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, open-close

AC/DC 24 V, 3-point



Cable colours:

- 1 = black
- 2 = red
- 3 = white

	Ventilation	Blade-Opening
Closed	0%	0°
Low	25%	35°
Moderate	50%	40°
Medium	75%	55°
Maximum	100%	75°

Caution : Ensure that the blades are always spaced minimum 6mm apart from one another (20 degrees open angle) when ventilation is required. Below this limit, the actuator must fully close the blades. This prevents the blades from being brought too close to one another generating whistling noises when subjected to occasional high air velocities.

1.5 Wiring diagram – Belimo NM230A

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...264 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	0.6 W
	Power consumption for wire sizing	5.5 VA
	Connection supply / control	Cable 1 m, 3 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation

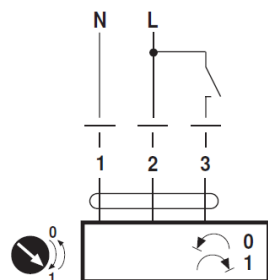


Notes

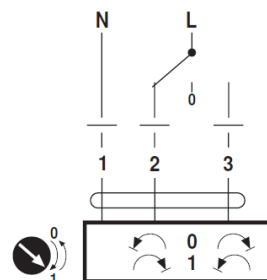
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC 230 V, open-close



AC 230 V, 3-point



Cable colours:

- 1 = blue
- 2 = brown
- 3 = white

Ventilation	Blade-Opening	
Closed	0%	0°
Low	25%	35°
Moderate	50%	40°
Medium	75%	55°
Maximum	100%	75°

Caution : Ensure that the blades are always spaced minimum 6mm apart from one another (20 degrees open angle) when ventilation is required. Below this limit, the actuator must fully close the blades. This prevents the blades from being brought too close to one another generating whistling noises when subjected to occasional high air velocities.

1.6

Wiring diagram – Belimo NM24A-SR

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 19.2...28.8 V
	Power consumption in operation	2 W
	Power consumption in rest position	0.4 W
	Power consumption for wire sizing	4 VA
	Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation

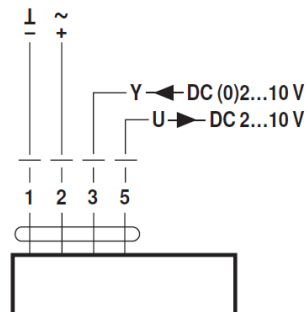


Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, modulating



Cable colours:

- 1 = black
- 2 = red
- 3 = white
- 5 = orange

Ventilation	Blade-Opening	
Closed	0%	0°
Low	25%	35°
Moderate	50%	40°
Medium	75%	55°
Maximum	100%	75°

Caution : Ensure that the blades are always spaced minimum 6mm apart from one another (20 degrees open angle) when ventilation is required. Below this limit, the actuator must fully close the blades. This prevents the blades from being brought too close to one another generating whistling noises when subjected to occasional high air velocities.

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 85...264 V
	Power consumption in operation	3.5 W
	Power consumption in rest position	1 W
	Power consumption for wire sizing	6.5 VA
	Connection supply	Cable 1 m, 2 x 0.75 mm ²
	Connection control	Cable 1 m, 4 x 0.75 mm ²
Parallel operation	Yes (note the performance data)	



Electrical installation

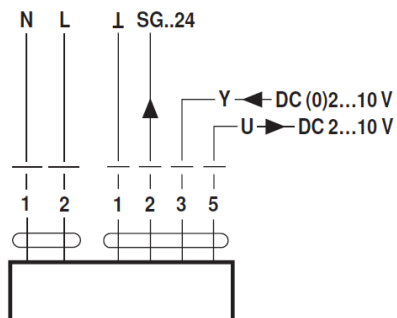


Notes

- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC 230 V, modulating



Cable colours:

- 1 = blue
- 2 = brown
- 1 = black
- 2 = red
- 3 = white
- 5 = orange

Ventilation	Blade-Opening	
Closed	0%	0°
Low	25%	35°
Moderate	50%	40°
Medium	75%	55°
Maximum	100%	75°

Caution : Ensure that the blades are always spaced minimum 6mm apart from one another (20 degrees open angle) when ventilation is required. Below this limit, the actuator must fully close the blades. This prevents the blades from being brought too close to one another generating whistling noises when subjected to occasional high air velocities.

1.8

Wiring diagram – Belimo NF24A

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	6 W
	Power consumption in rest position	2.5 W
	Power consumption for wire sizing	8.5 VA
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation

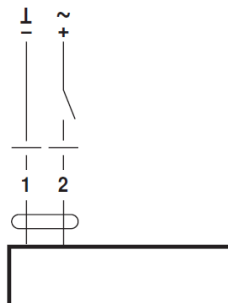


Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, open-close



Cable colours:

- 1 = black
- 2 = red

Electrical data	Nominal voltage	AC 24...240 V / DC 24...125 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...264 V / DC 21.6...137.5 V
	Power consumption in operation	6 W
	Power consumption in rest position	2.5 W
	Power consumption for wire sizing	9.5 VA
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation

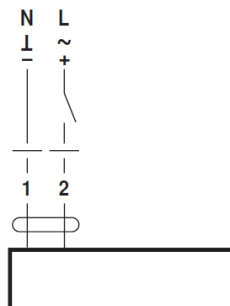


Notes

- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC 24...240 V / DC 24...125 V, open-close



Cable colours:

- 1 = blue
2 = brown

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	3.5 W
	Power consumption in rest position	2.5 W
	Power consumption for wire sizing	5.5 VA
	Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)



Electrical installation

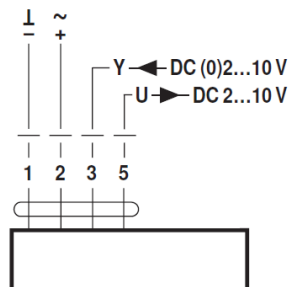


Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, modulating



Cable colours:

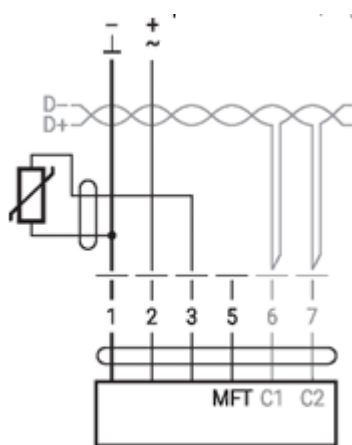
- 1 = black
- 2 = red
- 3 = white
- 5 = orange

	Ventilation	Blade-Opening
Closed	0%	0°
Low	25%	35°
Moderate	50%	40°
Medium	75%	55°
Maximum	100%	75°

Caution : Ensure that the blades are always spaced minimum 6mm apart from one another (20 degrees open angle) when ventilation is required. Below this limit, the actuator must fully close the blades. This prevents the blades from being brought too close to one another generating whistling noises when subjected to occasional high air velocities.

1.11 Wiring diagram – Belimo NM24A-MOD

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	3.5 W
	Power consumption in rest position	1.4 W
	Power consumption for wire sizing	6 VA
	Connection supply / control	Cable 1 m, 6 x 0.75 mm ²



Supply from isolating transformer.

The wiring of the line for BACnet MS/TP / Modbus RTU is to be carried out in accordance with applicable RS-485 regulations.

Modbus / BACnet: Supply and communication are not galvanically isolated. Connect earth signal of the devices with one another.

Cable colours:

- 1= black
 - 2 = red
 - 3 = white
 - 5 = orange
 - 6 = pink
 - 7 = grey
- BACnet / Modbus signal assignment:
 C1 = D- = A
 C2 = D+ = B

CONTENT

- | | |
|------------|-------------------------------|
| 2.1 | In structural opening |
| 2.2 | In curtain wall – preparation |
| 2.3 | In curtain wall > 125mm |
| 2.4 | In curtain wall < 125mm |

The DucoGrille Close 105 should be preferably fitted in between an internal louvre and an external louvre. Here, we recommend the Ducogrille Solid and Ducowall Solid series grilles and continuous louvre systems.

Where burglar resistance (WK2) is desired, we would recommend the installation of a DGS M30Z++ series surface mounted wall louvre.

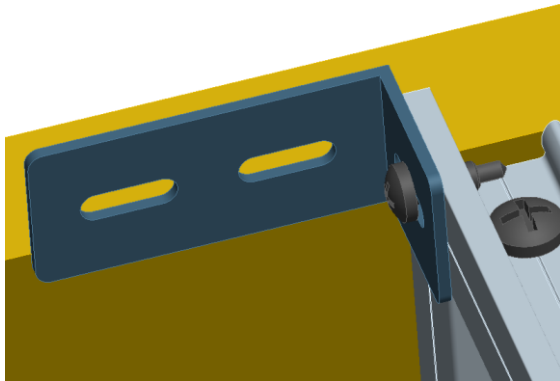
Additional acoustic damping can be achieved by fitting a DucoGrille Acoustic series.

Where stringent demands are imposed on fire resistance, we would recommend the addition of a fire-resistant internal louvre.



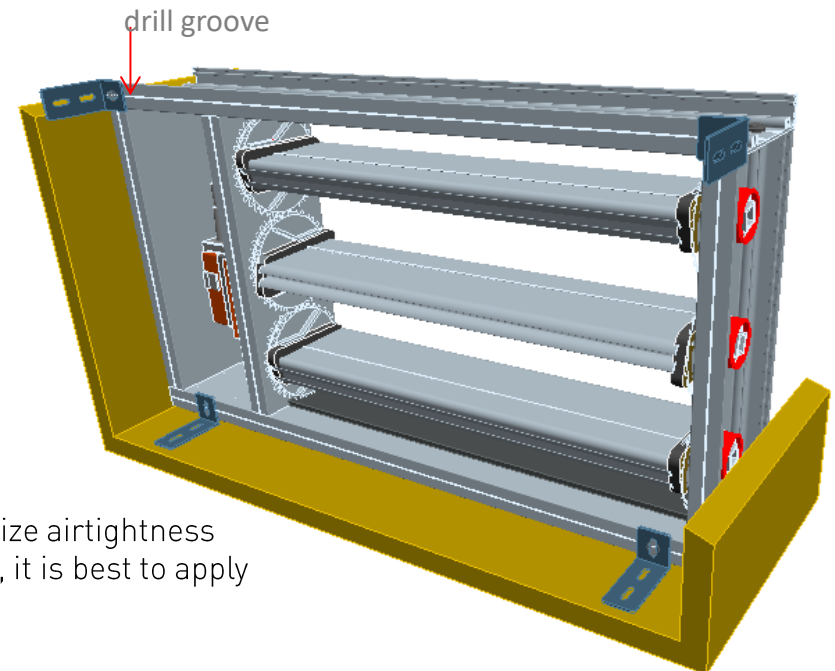
Secure the DucoGrille Close 105 in position in the structural opening using angle profiles. (Project-specific)
Use a 4.8 x 16mm self drill screw DIN 7504 to fix the angle profile to the DucoGrille Close 105.

Drill a vertical hole in the framework profile all the way through the marked drill groove.



The choice of fixing hardware necessary to secure the angle profiles to the structural opening depends on the material (brick, timber, insulation material, render/plaster,...).

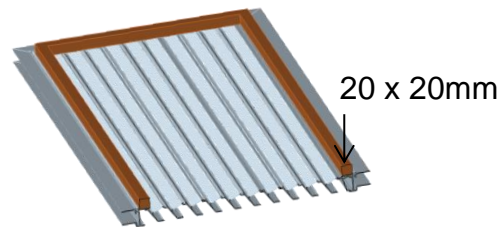
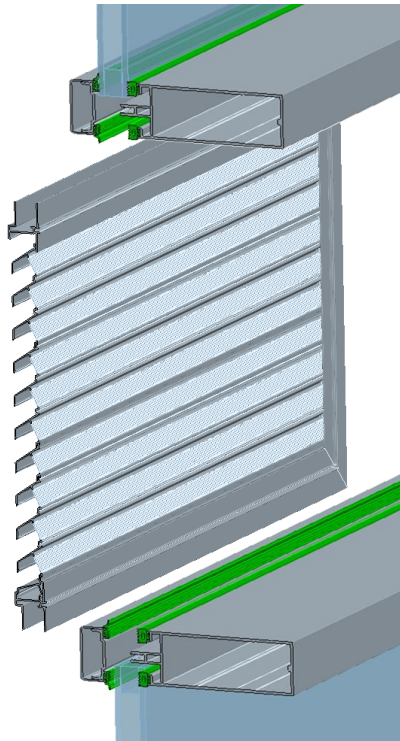
Fill the void at the top of the DucoGrille Close 105. To maximize airtightness performance between the wall and the DucoGrille Close 105, it is best to apply a bead of silicone sealant all the way round.



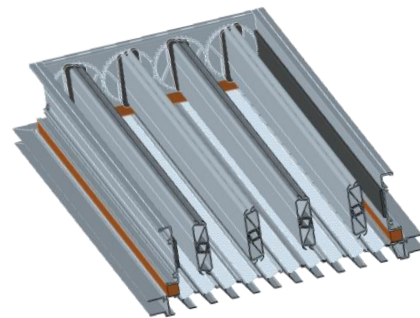
2.2 In a curtain walling system: preparation

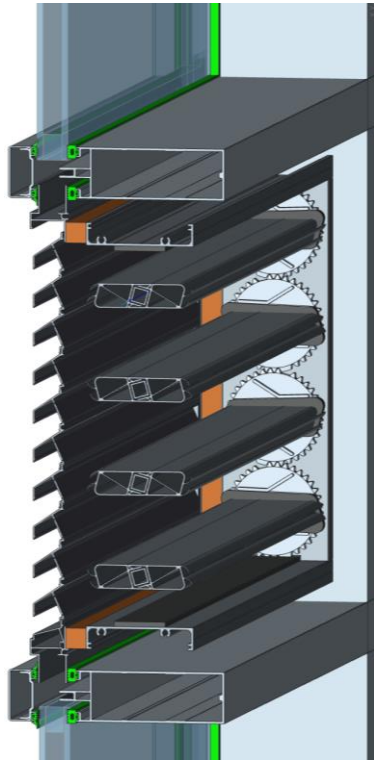
Where fitted in a curtain wall profile, opt for a Ducogrille Solid F series window louvre as external louvre. Make sure the dimensions of this external louvre allow it to be clamped in place by the curtain wall profiles just as much as window glazing.

Place a thin 20mm wide strip profile all around the Ducogrille Solid F louvre.



Lay the DucoGrille Close 105 down on the louvre and the strip. Securely screw fix all items (at 30cm centres). For this use self-drilling screws. Drill through the outer grille and strip, straight into the DucoGrille Close 105 frame profile.





1. Fit the external louvre (and the DucoGrille Close 105) to the curtain wall profile as per manufacturer's instructions of the curtain walling system.



2. Screw fix the internal louvre to the curtain wall profile so the flange is a tight fit.

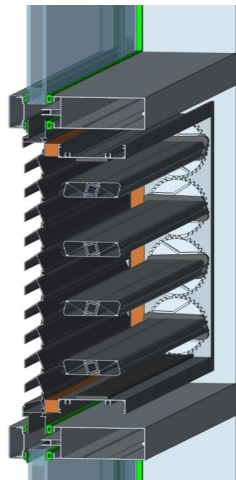
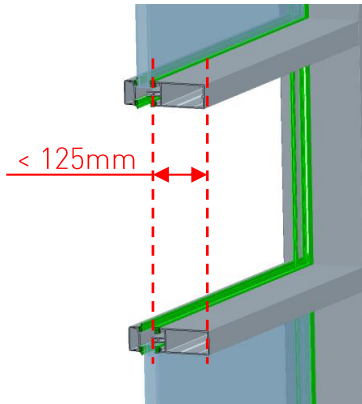


Practical tip : Upside down installation of the internal louvre, which has the following advantages :

- Visibility (privacy maintained)
- Air flow

2.4

In a curtain walling system : Depth < 125mm

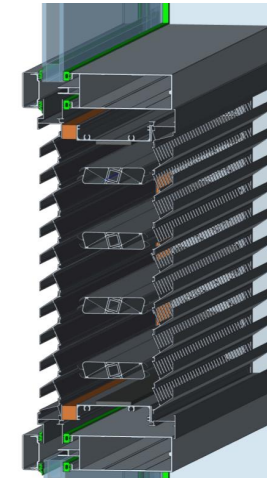
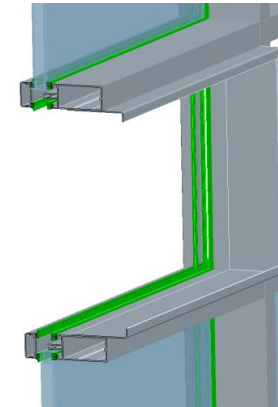


1. When using curtain wall profiles with a depth less than 125mm, the internal louvre cannot be fixed directly onto the curtain wall profile.

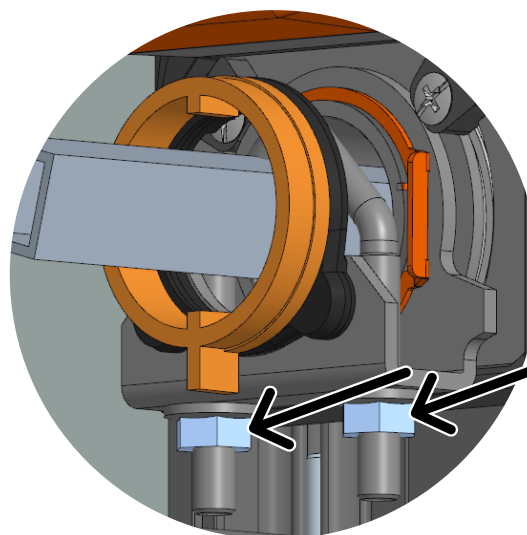
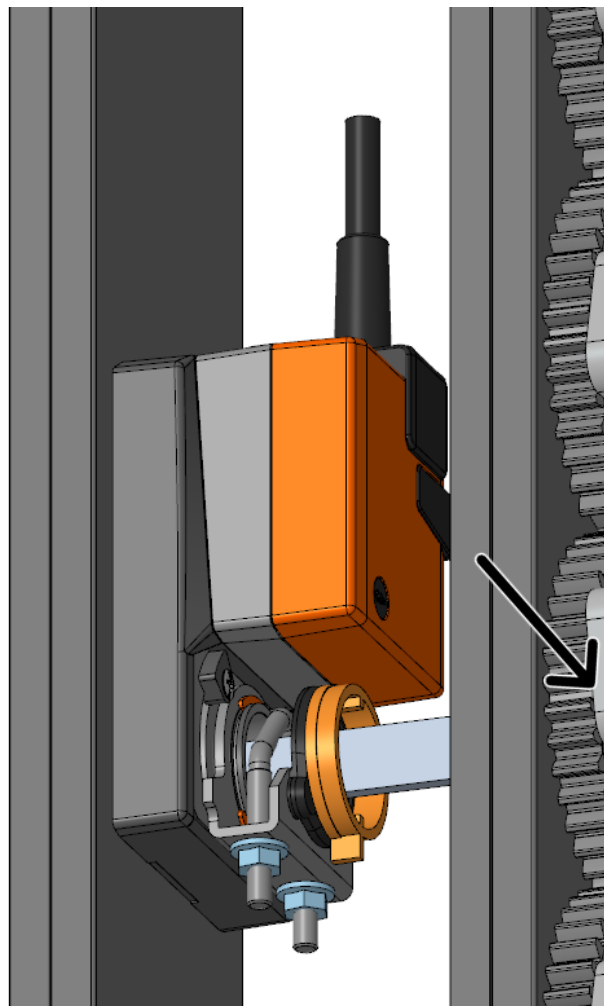
2. It is necessary to first securely attach an L-section frame 120 x 20mm (project-specific) to the curtain wall profile. Make sure to mitre the joints of the frame to suit.

3. Fit the external louvre (and the DucoGrille Close 105) to the curtain wall profile as per manufacturer's instructions of the curtain walling system.

4. Screw fix the internal louvre to the L-section frame so the flange is a tight fit.



3 Replacing actuator on side

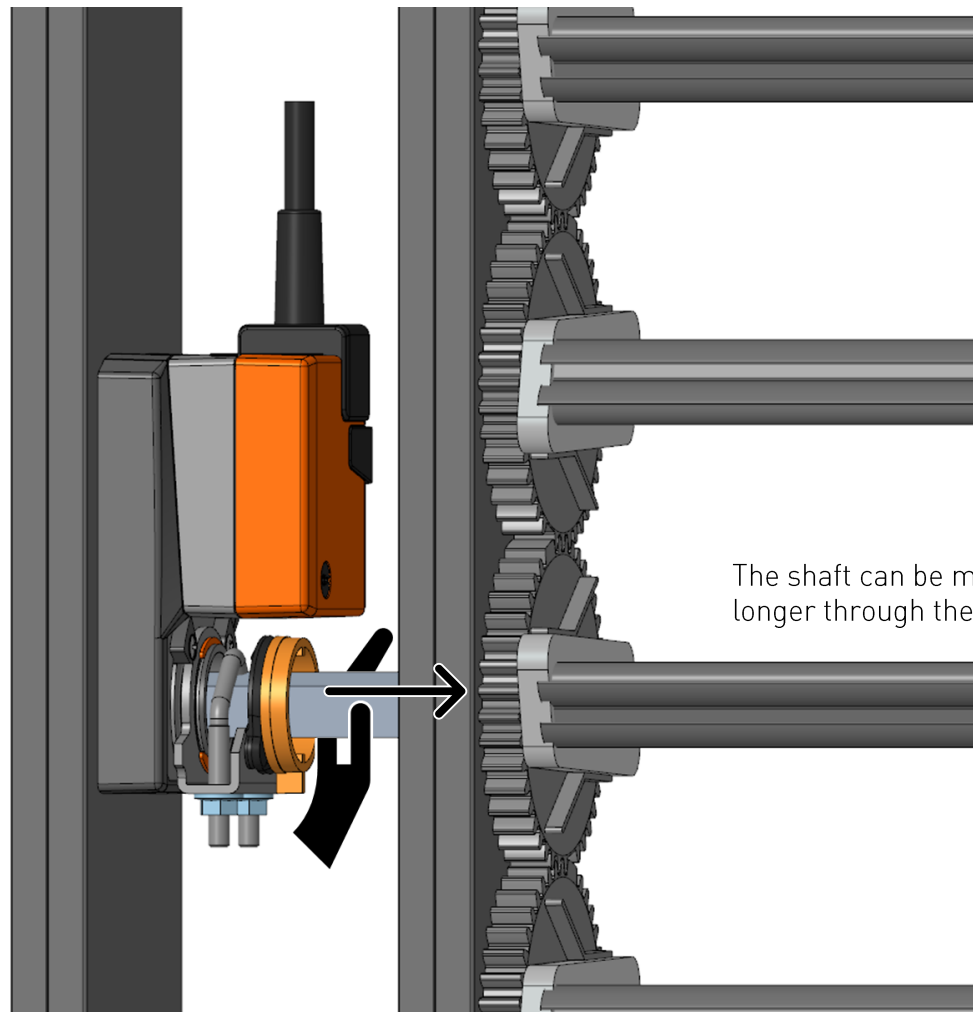


Loosen the M6 nuts so the square axis isn't clamped anymore.



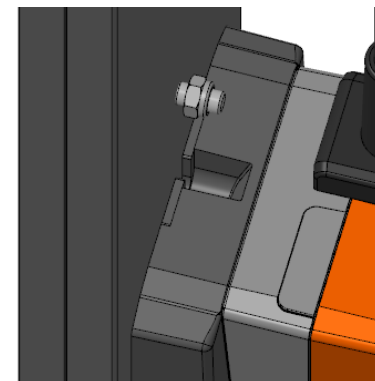
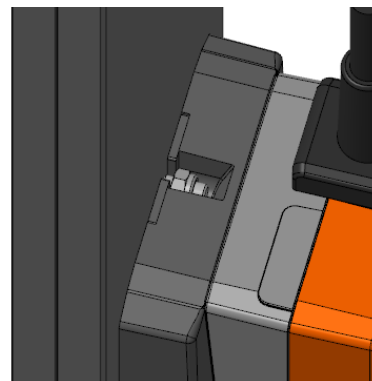
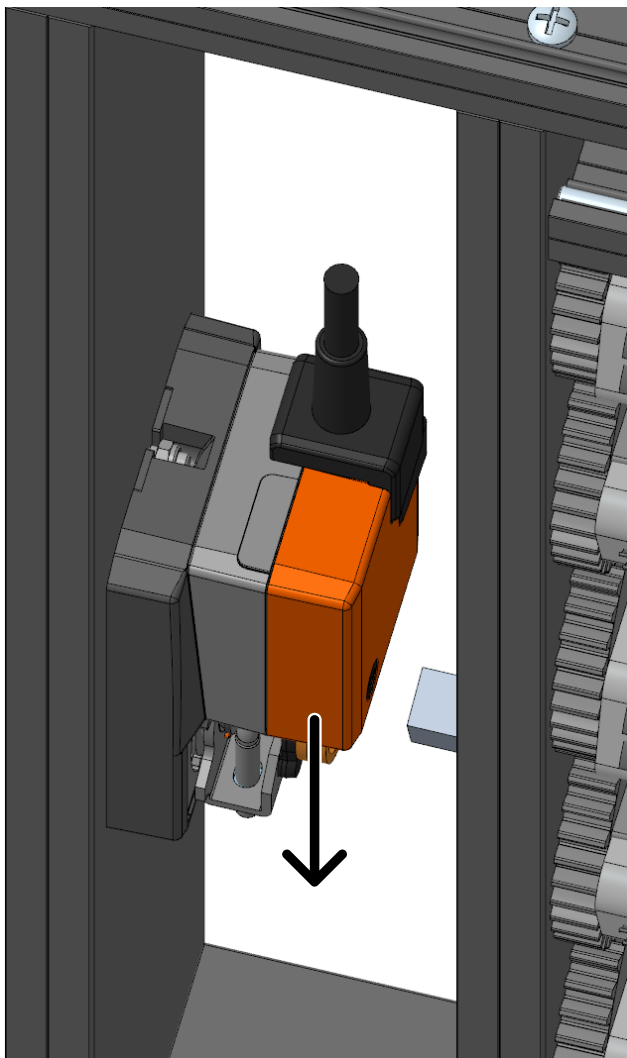
If the nuts are difficult to reach you may want to adjust the axis-position. This can be done by pushing the button on the side of the actuator and manually change the angle of axis/blade.

3 Replacing actuator on side



The shaft can be moved by hand so that it is no longer through the actuator

3 Replacing actuator on side



Remove the actuator from the DGC105 by sliding it off the side profile.

Installing the new actuator follows the same steps as removing the old one, but in reverse order.

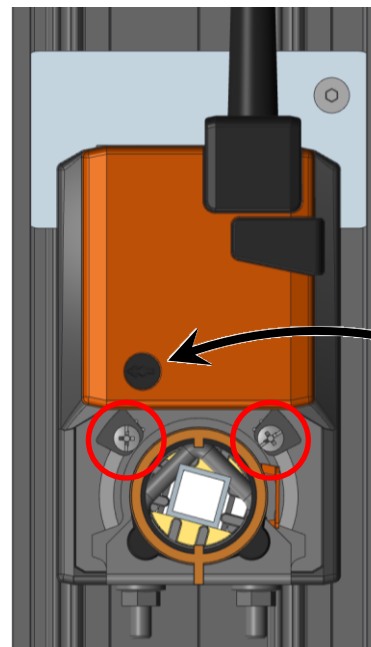
Before fitting the new actuator, make sure that the limit switch and direction of rotation are set the same as for the removed actuator. (next page)

3 Replacing actuator on side

Test the actuator via transfo or 0-10V control.

The end loops can be adjusted with a screwdriver. When closed, the blades must press together firmly. When open they are horizontal and parallel to each other. If not, adjust end of loops

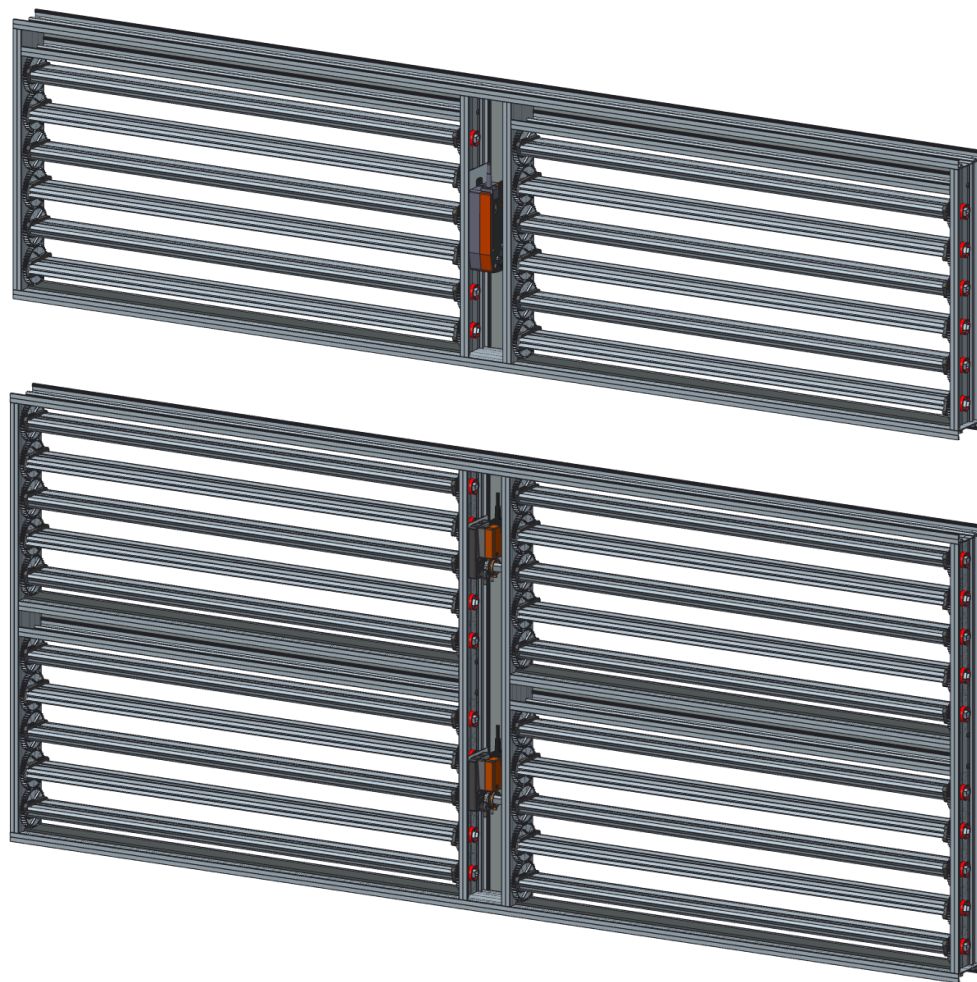
Setting the limit of loops is difficult to do once the actuator is installed. It is therefore recommended to take over the positions of the removed unit



Direction of rotation can be adapted on the motor

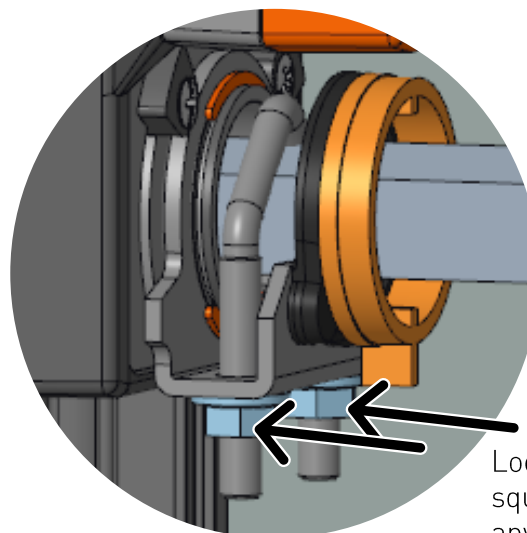
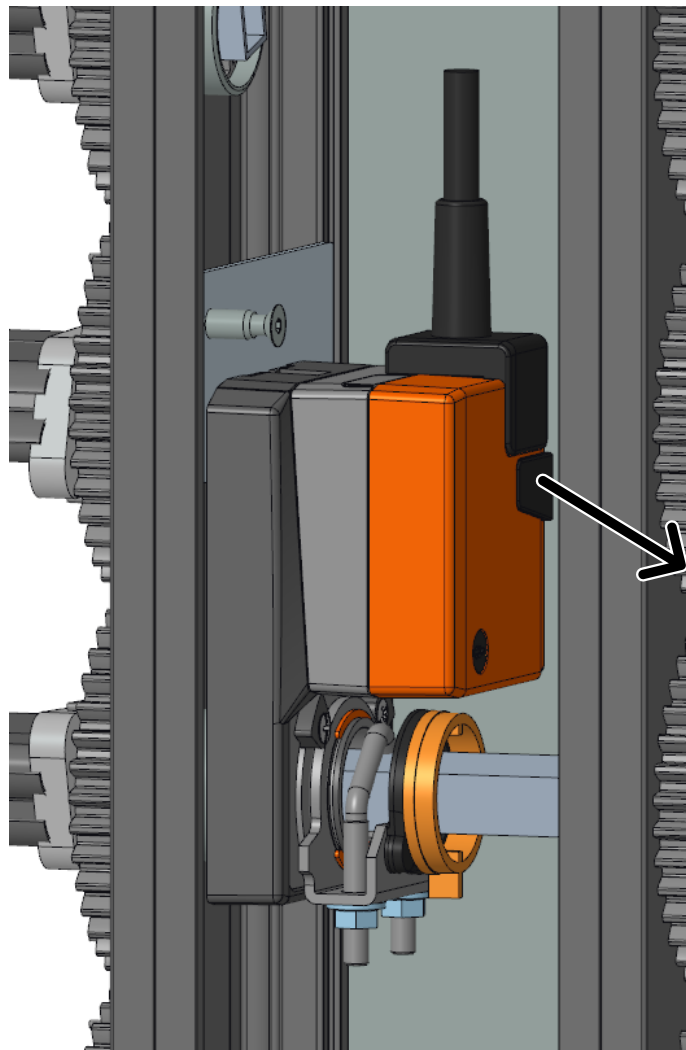
4

Replacing actuator in the middle



4

Replacing actuator in the middle



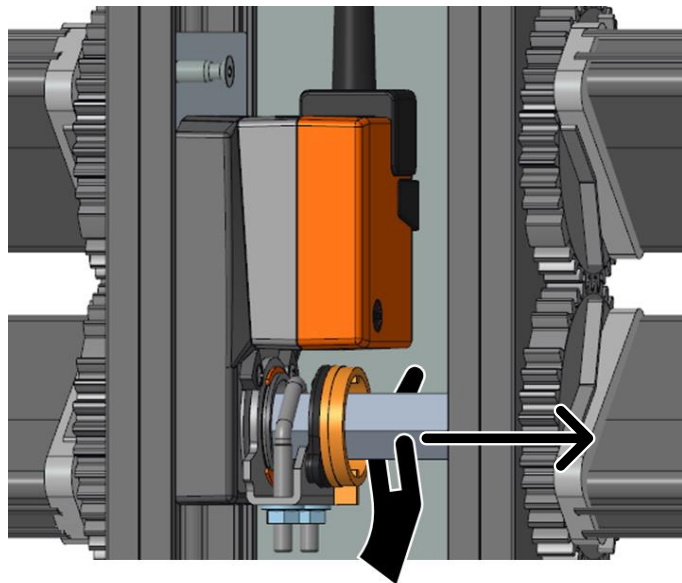
Loosen the M6 nuts so the square axis isn't clamped anymore.



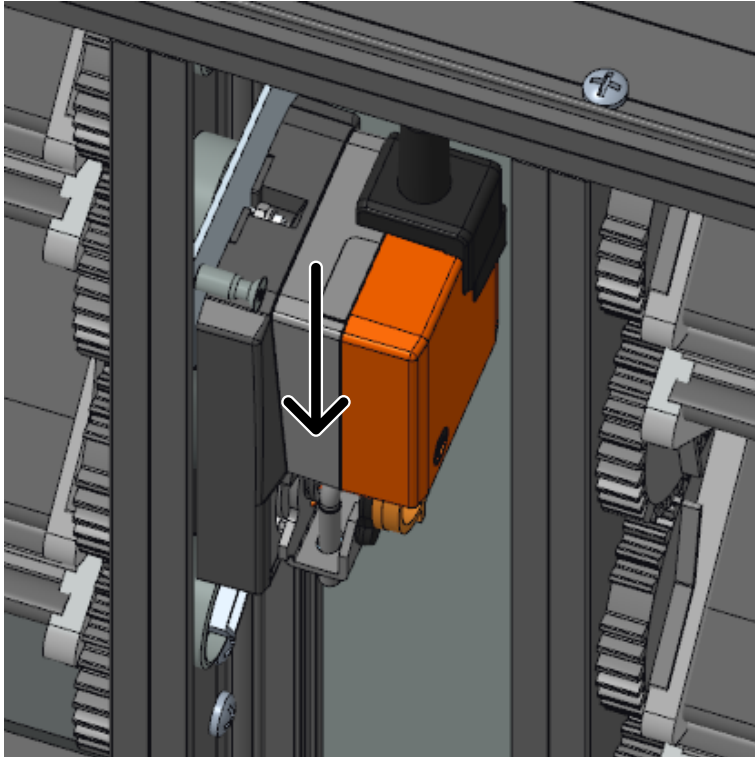
If the nuts are difficult to reach you may want to adjust the axis-position. This can be done by pushing the button on the side of the actuator and manually change the angle of axis/blade.

4

Replacing actuator in the middle



The middle part of the axis has to be slidden manually so it doesn't go through the actuator anymore

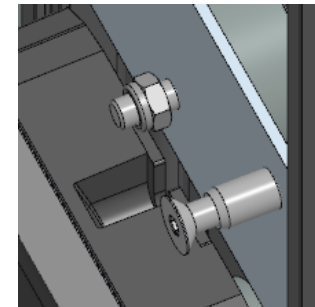
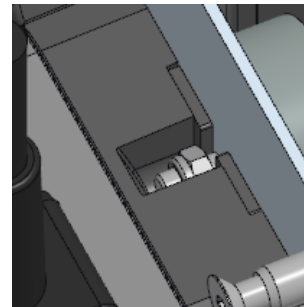


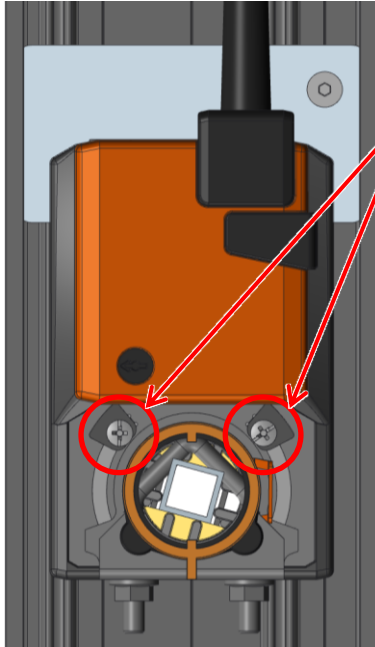
Take the actuator out of the DGC105 by sliding it off the mounting plate.

To install the new actuator you need to follow the same steps as getting it out, but reversed.

When installing the actuator, make sure the nut of the mounting plate is well positioned in the unit.

Before installing the new actuator make sure the limiters and direction of rotation are configured correctly. (next page)





Depending on the model of actuator, check it via transfo or 0-10V.

Limiters can be put into position with the help of a screwdriver. In closed position the blades should be a tight fit. When in open position they should be in horizontal position and parallel to another.

As it difficult to set the end-of-line when the actuator is installed, you can copy the positions of the actuator that has been removed.

Direction of rotation can be adjusted to the actuator

