INSTRUCTION, INSTALLATION AND MAINTENANCE MANUAL

SMOKE EXHAUST RANGE

AIR CONTROL

OBJET

This instruction manual contains all the information and instructions you need to operate, adjust and maintain the damper correctly and safely.
Please read it carefully and follow all instructions and safety advice:

CONTENTS

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1. MATERIAL RECEPTION

Upon receipt of the equipment:

- Inspect the condition and quantity of the delivered material.
- Ensure the equipment has no visible damage.
- If necessary, carry out the necessary steps and make claims with the carrier.
- Remove the plastic film used to protect the equipment during transport.

Note : refer to section 9 on risks and risk prevention.

2. HANDLING INSTRUCTIONS

Handle the product safely. Do not lift the damper using its accessories, the blades, the central reinforcement, the motor, or any other component. Use the frame and its holes.

The equipment should be handled to ensure:

- No visible deformation
- No impact

Note : refer to section 9 on risks and risk prevention.

3. STORAGE CONDITIONS

A. Temporary Storage (Less than One Month)

If the damper is stored temporarily before installation:

- Store the damper in a space protected from shocks (e.g., a pallet).
- Store the damper in a ventilated area with a non-corrosive atmosphere (between -20°C/98% RH and +50°C/30% RH
- Suggested ambient temperature.
- Store the damper in a way that prevents frost/ice from forming on the product.
- Remove or open a part of the plastic film to prevent oxidation: humidity and lack of ventilation can cause oxidation even on galvanized components.
- Shelter the damper from harsh weather conditions (rain, fog, direct sunlight, etc., that may lead to condensation).
- Protect the damper from dust and external contaminants.
- Store the damper in a dry and sun-protected area.
- Store the dampers in their original packaging or another packaging that avoids deformation or damage.

Note : refer to section 9 on risks and risk prevention.

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B. Long-Term Storage (More than One Month)

For long-term storage:

- All the conditions listed in section 3A must be applied.
- Regularly apply mechanical protection oil (e.g., WD40) to the damper's moving parts. The interval between two lubrications depends on the damper's environment and should be defined by the company in charge for maintenance. We recommend a lubrication cycle after one month.
- Actuators and parts containing electronics must be stored in a ventilated area with a non-corrosive atmosphere, protected from adverse weather conditions and humidity.

To preserve the characteristics of the dampers, regularly remove any accumulated dust

Note : refer to section 9 on risks and risk prevention.

4. CHECKS BEFORE START-UP / COMMISSIONING

A visual inspection must be carried out before implementation to ensure:

- The product has not suffered any apparent damage.
- The product is correctly assembled/connected and adapted according to our instructions.
- **The operating conditions (performance, temperature, environment, etc.) comply with the characteristics of the installed product (refer to the associated technical sheets).**
- Access to moving parts is properly secured.
- Electrical connections conform to current standards
- Risks associated with moving parts are controlled.

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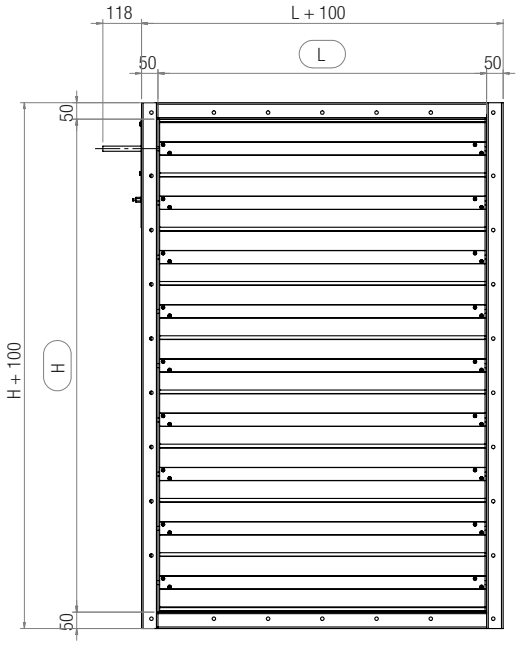
5. PRODUCT PRESENTATION

A. MOD/MSD range

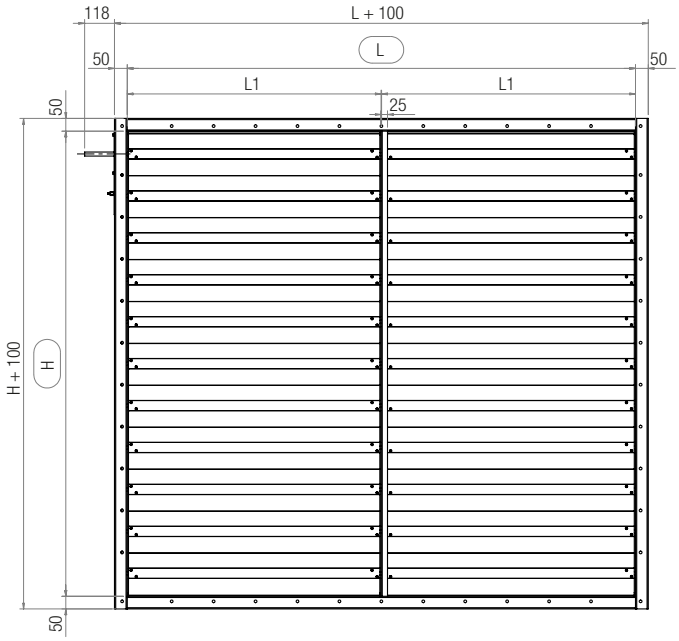
Dimensions of an MOD/MSD damper:

- The dampers are manufactured in accordance with the ordered width (L) x height (H)
- The dampers must be installed following L x H orientation; they generally cannot be rotated.
- The MSD has a preferred sealing direction (the command part's position must align with the airflow direction).

Frame 185 mm / Construction for max height 1170 mm and length < 1000 mm, Belimo actuator:



Frame 185 mm / Construction for length < 1000 mm, Bernard Control actuator:



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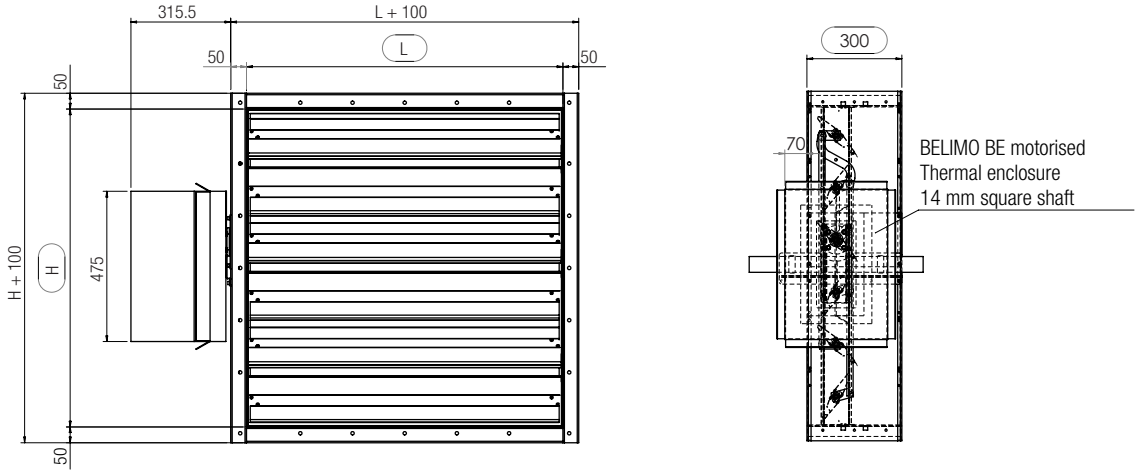
B. MSD-F range

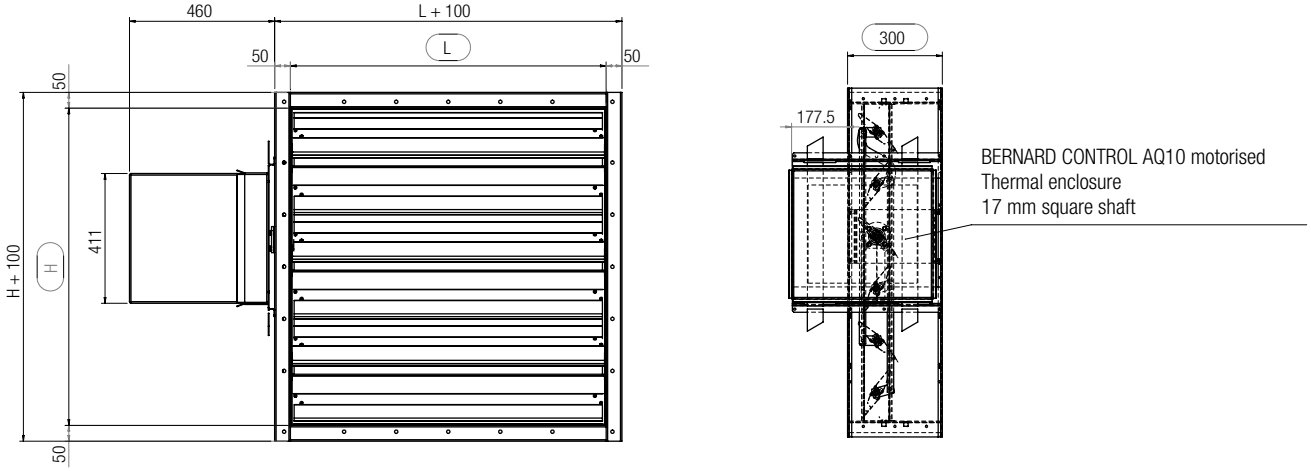
Dimensions of an MSD-F damper:

- The dampers are manufactured according to the ordered width (L) x height (H)
- The dampers must be installed following the L x H orientation; they generally cannot be rotated.
- The MSD has a preferred sealing direction (the command part's position must align with the airflow direction)

Frame 300 mm / Construction for max. height 1170 mm and max. length 1000 mm, Belimo actuator:



300 mm frame / Construction for all sizes, Bernard Control actuator:



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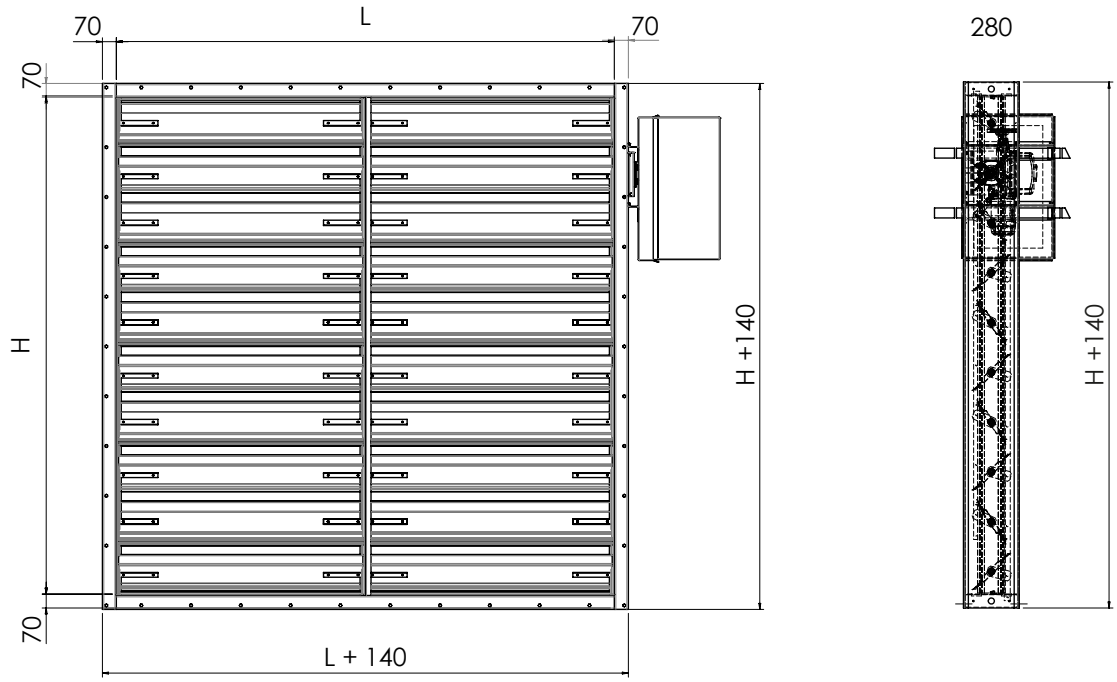
C. TRS range

Dimensions of a TRS damper:

- The dampers are manufactured according to the ordered width (L) x height (H).
- The dampers must be installed in the L x H orientation; they generally cannot be rotated.
- They have no preferred sealing direction (placing the command axis on the left or right, depending on the airflow direction, has no impact).



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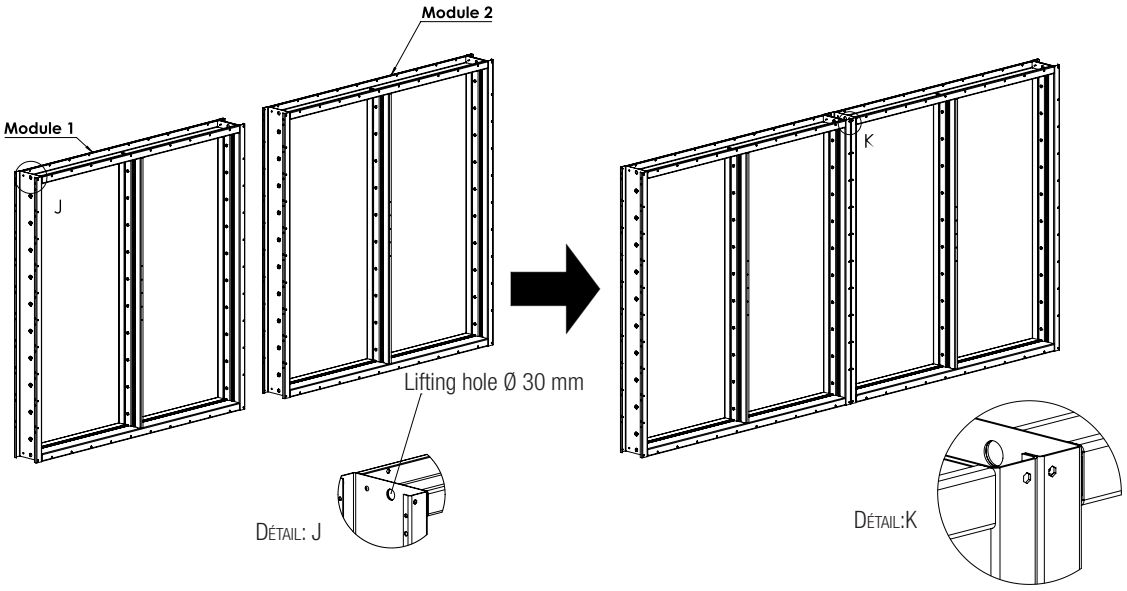
6. INSTALLATION INSTRUCTIONS

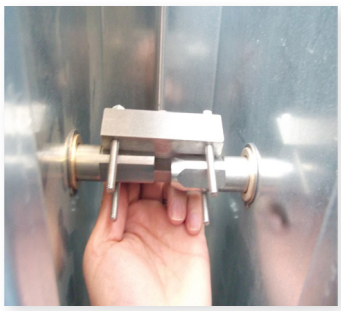
A. Assembly of the Damper in Multiple Elements for MOD/MSD and TRS

1/ Assembly of Horizontal Modules

- Step 1 : place the modules horizontally side-by-side so that they are in contact, frame against frame.



- Step 2 with coupling: place the modules horizontally side-by-side, ensuring contact, frame against frame.



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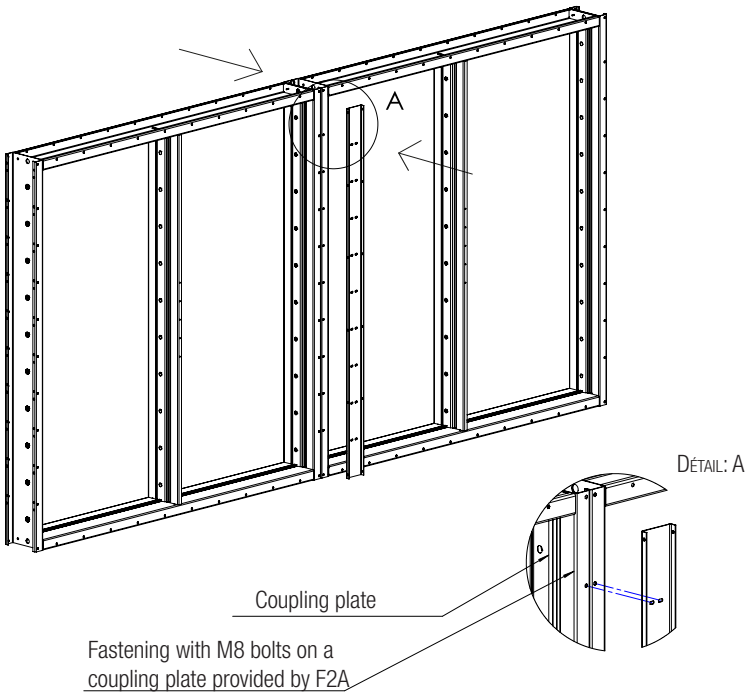
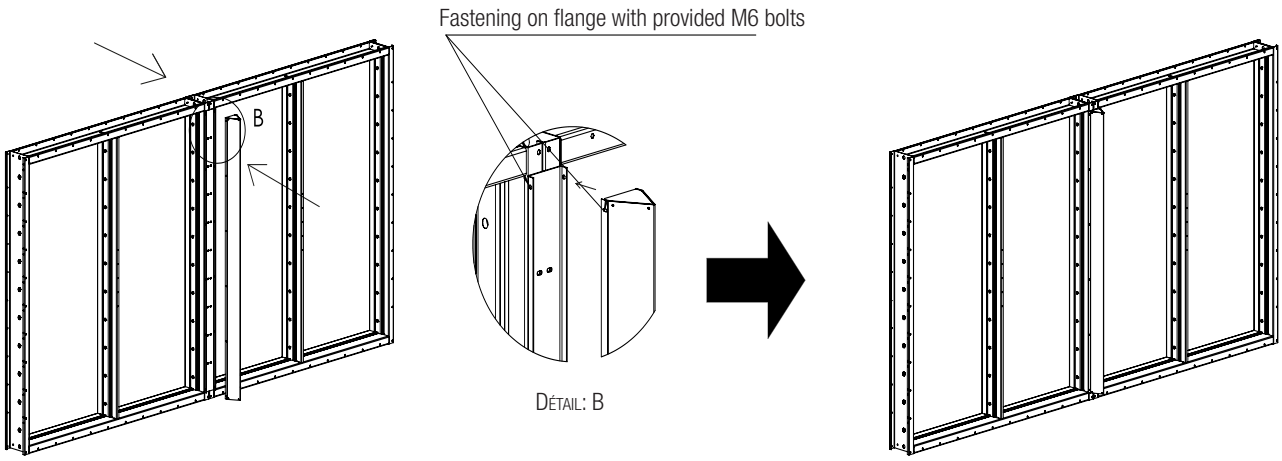
- Step 2 bis without coupling: use a vertical coupling plate to assemble the modules on both sides (front/back) (coupling plate provided by F2A). Then fix the coupling plates with M8 bolts provided by F2A..



- Step 3 : attach the V-shape profiles and trailing edges to the coupling plates using the M6 bolts provided by F2A.



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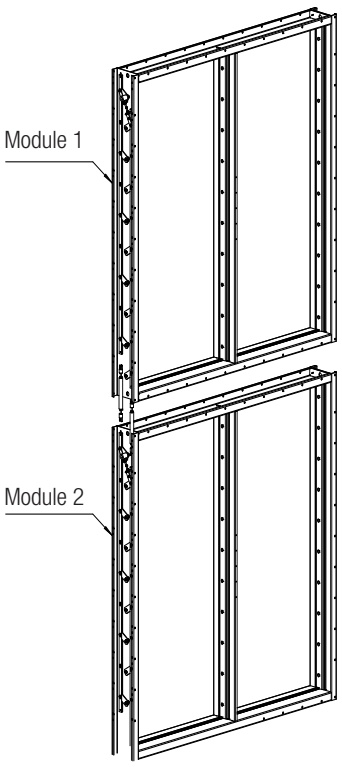
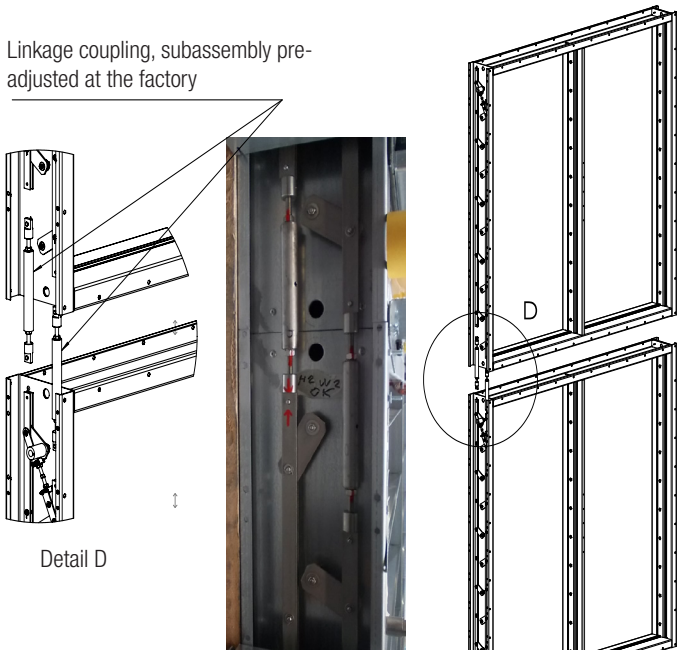
2/ Assembly of vertical modules

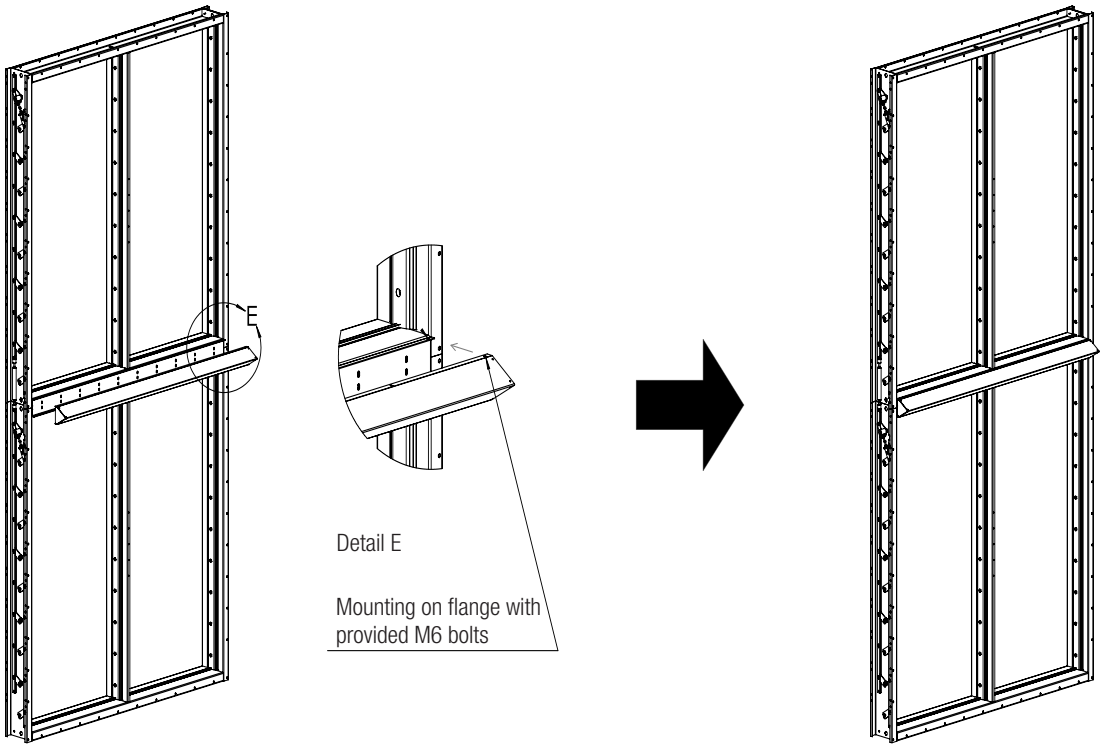
- Step 1 : place the modules vertically side-by-side so they are in contact, frame against frame.



- Step 2 with coupling: use a vertical coupling plate to assemble the modules on the front or back side (plate provided by F2A).
  Open or fully close the dampers, then fix the part that couples the axes. Fix the coupling plates with M8 bolts provided by F2A.



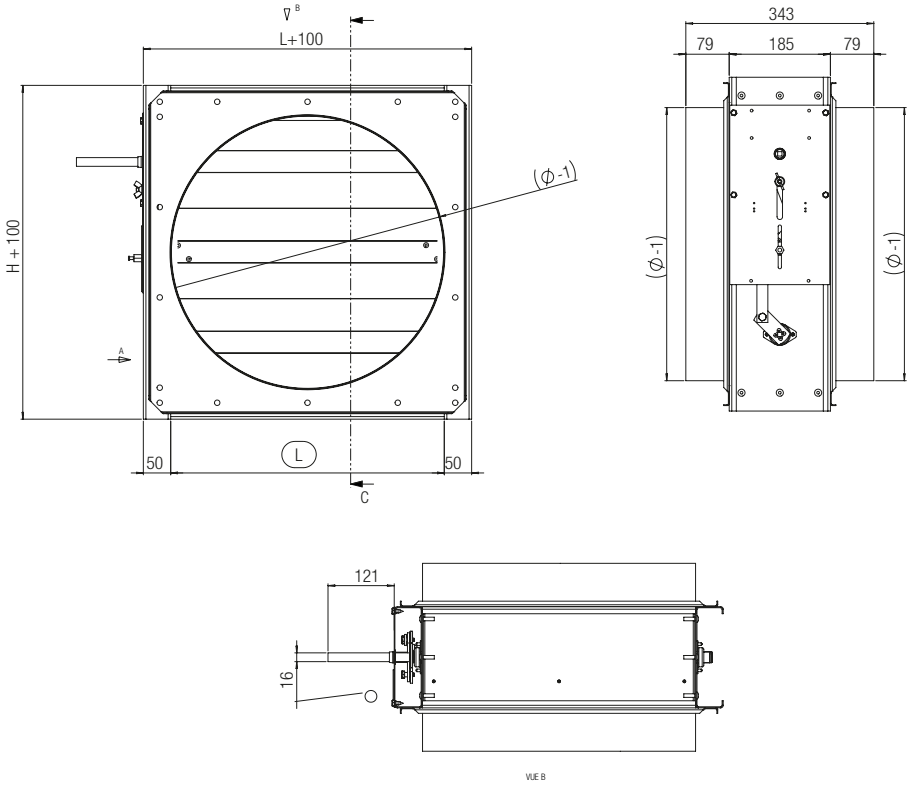
- Step 3 without coupling: fix the profiles to the coupling plates with M6 bolts provided by F2A.



3/ Accessories

a. Circular adaptation

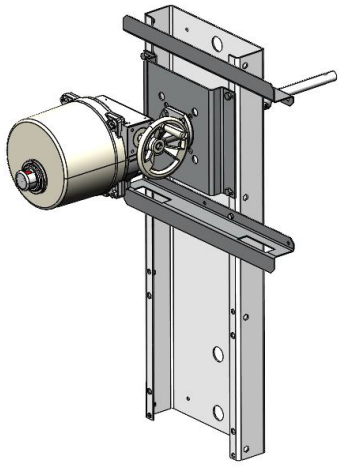
Circular adapters are supplied directly assembled unless otherwise specified in the order. If the product requires sealing, mastic is applied between the round adaptor and the damper to seal it. They are bolted to the register at all 4 corners.



b. Thermal casing

Thermal casing for AQ5/15 (CAP0002)

- Step 1 : check that the actuator is mounted on the damper control shaft.



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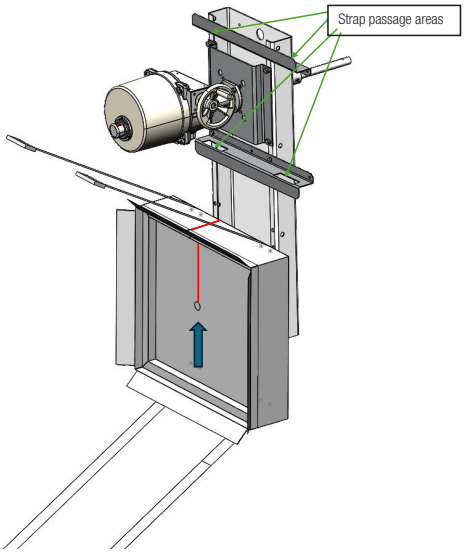
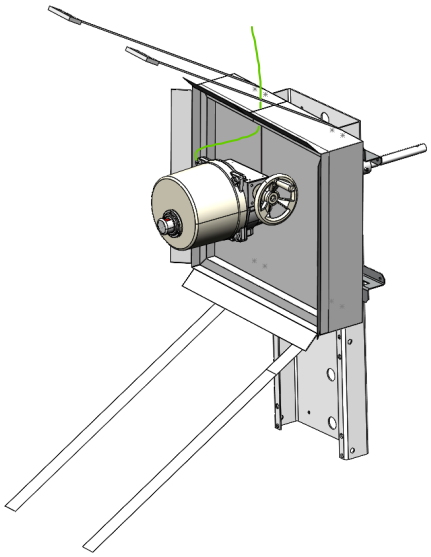
- Step 2 : Fit the lower part of the enclosure

  To do this, insert the straps into the part of the bracket marked opposite, then pass the actuator shaft through the slot in the cowling provided for this purpose (in red below).



- Step 3 : install the cables.

  To do this, pass the power supply cables through the slot (green on the diagram) in the installed cover, bending them as you go



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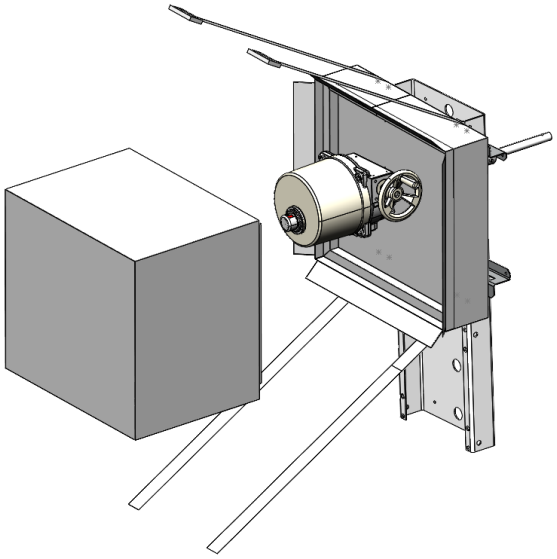
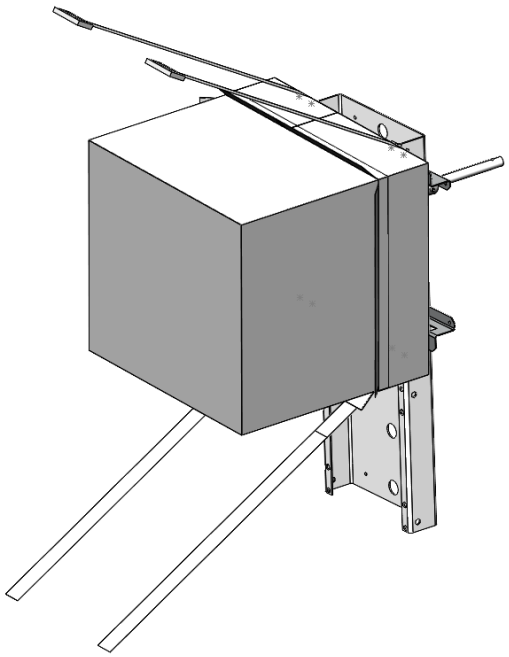
- Step 4 : install the upper part of the enclosure. To do this, take the upper enclosure and position it on the already installed part.

Please note that the cover does not form a cube; you must ensure that the longest side of the upper cover is aligned with the longest side of the lower cover.



- Step 5 : attach the Velcro and tighten the straps. Secure all visible Velcro properly, ensuring that visible Velcro parts are minimized as much as possible. Place the straps of the lower enclosure around the upper enclosure.

Caution: do not overtighten the straps to avoid crushing the enclosure against the motor and to maintain sufficient airflow within the enclosure



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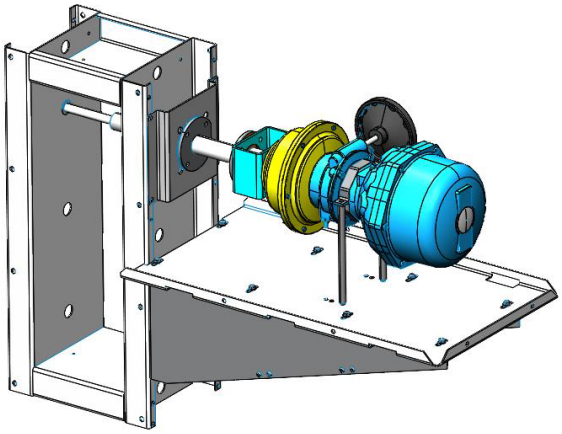
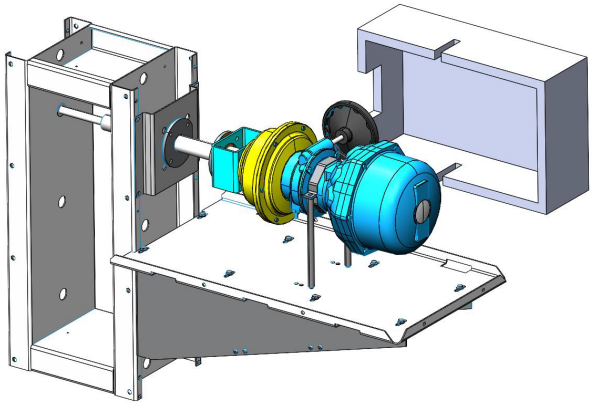
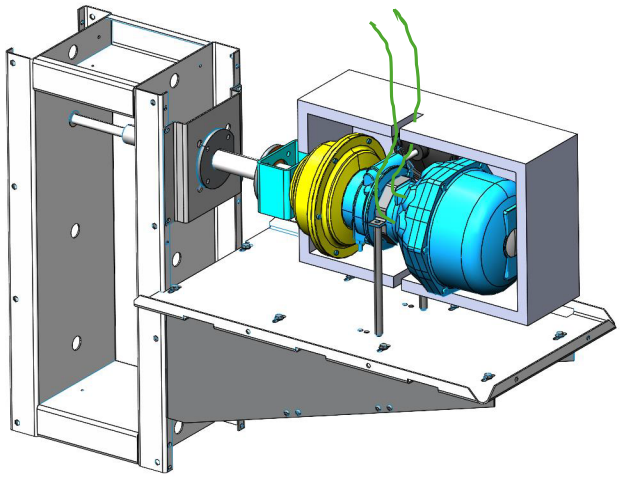
Thermal casing for FQ12/18 (CAP0011)

- Step 1 : mount the actuator onto the damper



- Step 2 : install the internal part of the enclosure + cable routing: place the first shell of the internal enclosure on the actuator, opposite the cable outlets. Then route the cables by bending them through the upper slot as illustrated..





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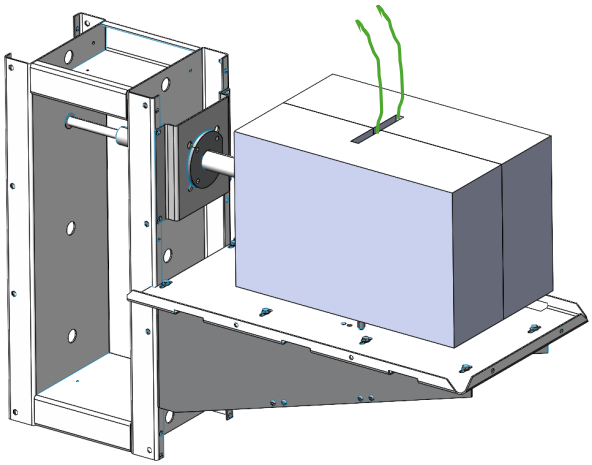
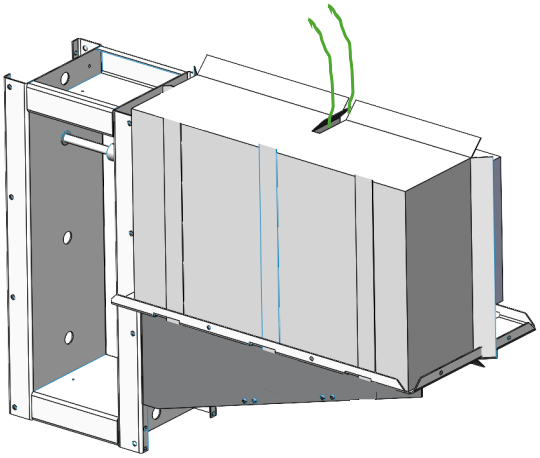
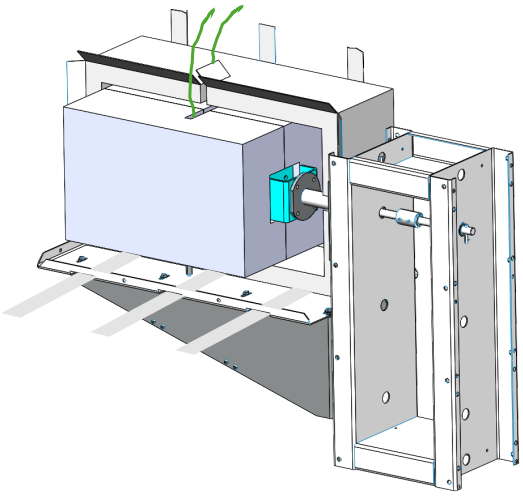
- **Step3** : installing the second part of the internal casing: position the second shell of the internal casing, making sure to align the Velcro surfaces with each other. Ensure the cables are placed in the upper slot designed for this purpose



- Step 4 : install the first part of the external casing: take the external casing with the attached tightening straps. Pass the straps through the designated spaces at the lower section. Position it over the already installed part.

Attention, the casing does not form a cube, so make sure to align the longer side of the upper casing with the longer side of the lower casing





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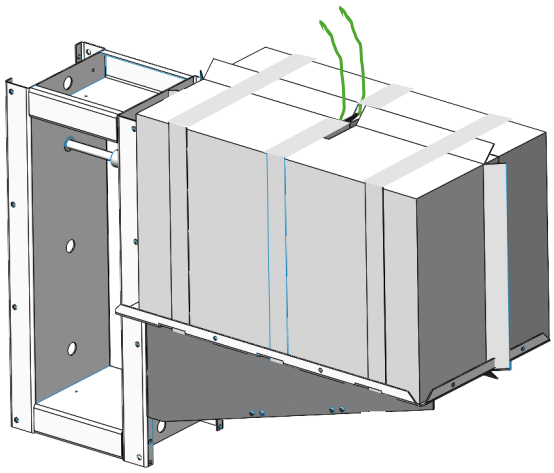
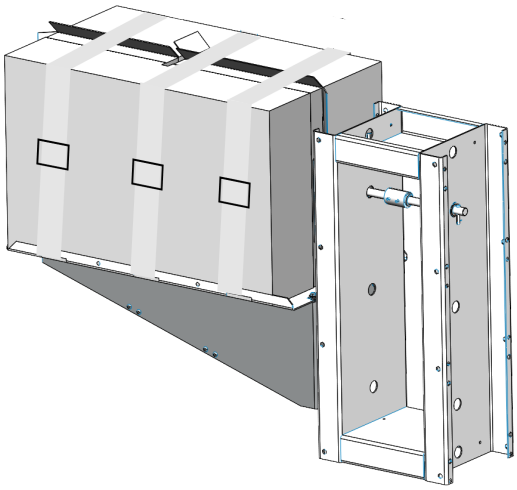
- Step 5 : installing the Velcro and tightening the straps: properly fasten all visible Velcro, ensuring that the visible portions are minimized as much as possible. Spacers to seal uninsulated spaces are provided with the casing. Place them at the cable entry points as well as at the motor's fixing points. Then, install the casing straps.

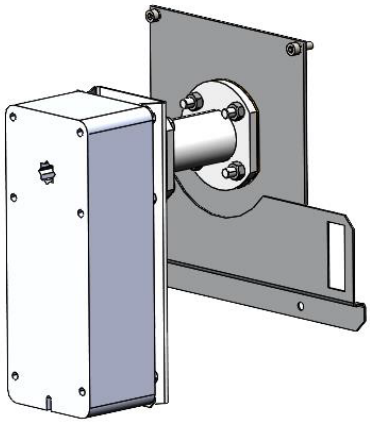
Be careful not to tighten the straps too much so as not to crush the cowling on the engine and to maintain sufficient air volume within the cowling provided for this purpose.





Thermal casing for BE24/230 (CAP0003)

- Step 1 : mount the actuator onto the damper



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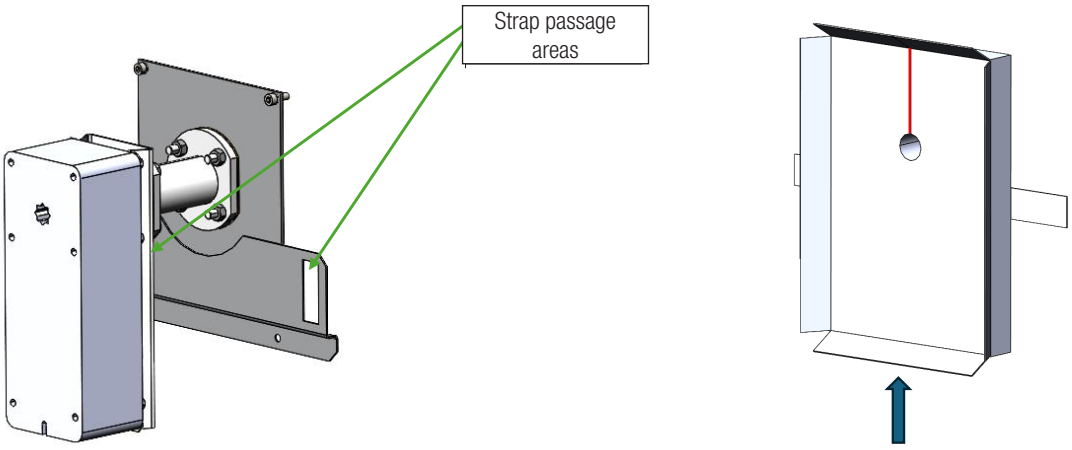
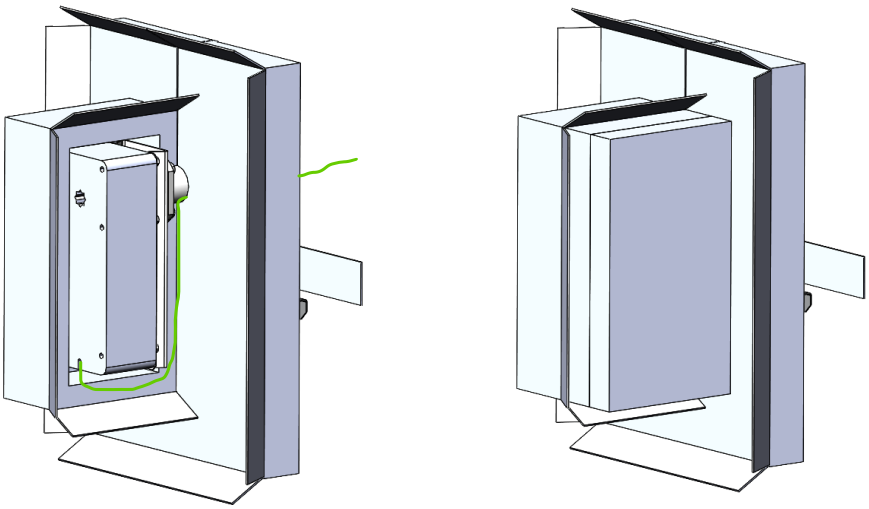
- Step 2 : install the lower part of the external casing: insert the straps into the designated section of the support as indicated below, then pass the actuator shaft through the slot in the casing designed for this purpose (marked in red below).



- Step 3 : installing the cables + the internal casing : pass the power cables through the slot of the already installed casing, bending them if necessary. Then, install the first shell of the internal casing. Next, install the second shell of the internal casing and fasten the Velcro to seal the internal casing as tightly as possible.



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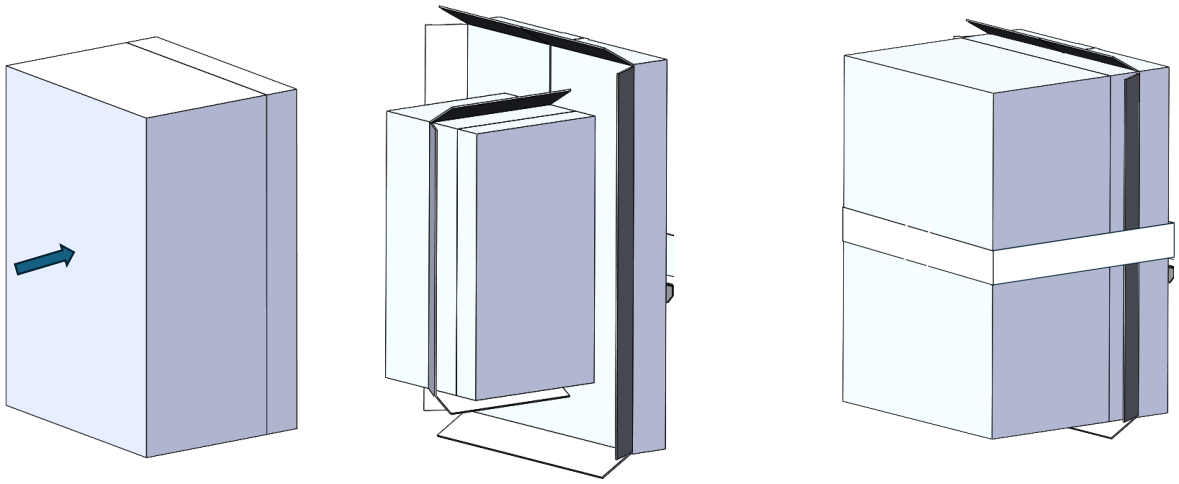
- Step 4 : installing the Velcro and tightening the straps: Take the upper casing and position it over the already installed part. Then, properly fasten all visible Velcro®, ensuring that the visible portions are minimized as much as possible. Install the straps of the lower casing around the upper casing.

Be careful not to overtighten the straps to avoid compressing the casing against the actuator and to maintain sufficient airflow within the casing.

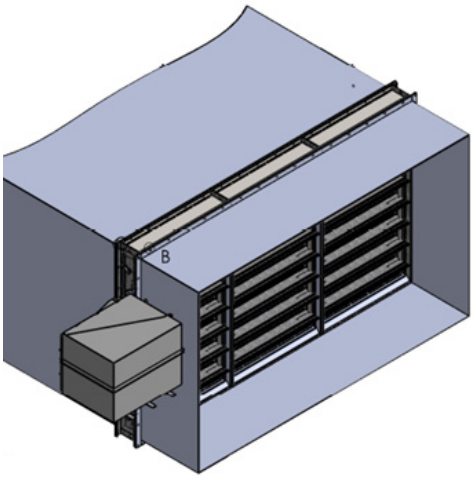


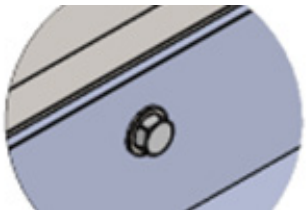
B. Fixing the Damper

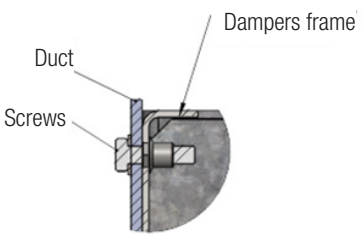
Smoke exhaust dampers can be fixed in two ways:

- In-duct (for non-certified dampers):

The damper must be secured with M8 bolts







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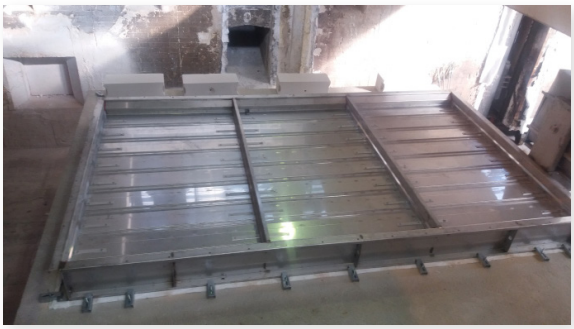
- Embedded or surface-mounted but always on a reinforced concrete slab with a thickness ≥ 150 mm and a density ≥ 2200 kg/m3 for dertified dampers

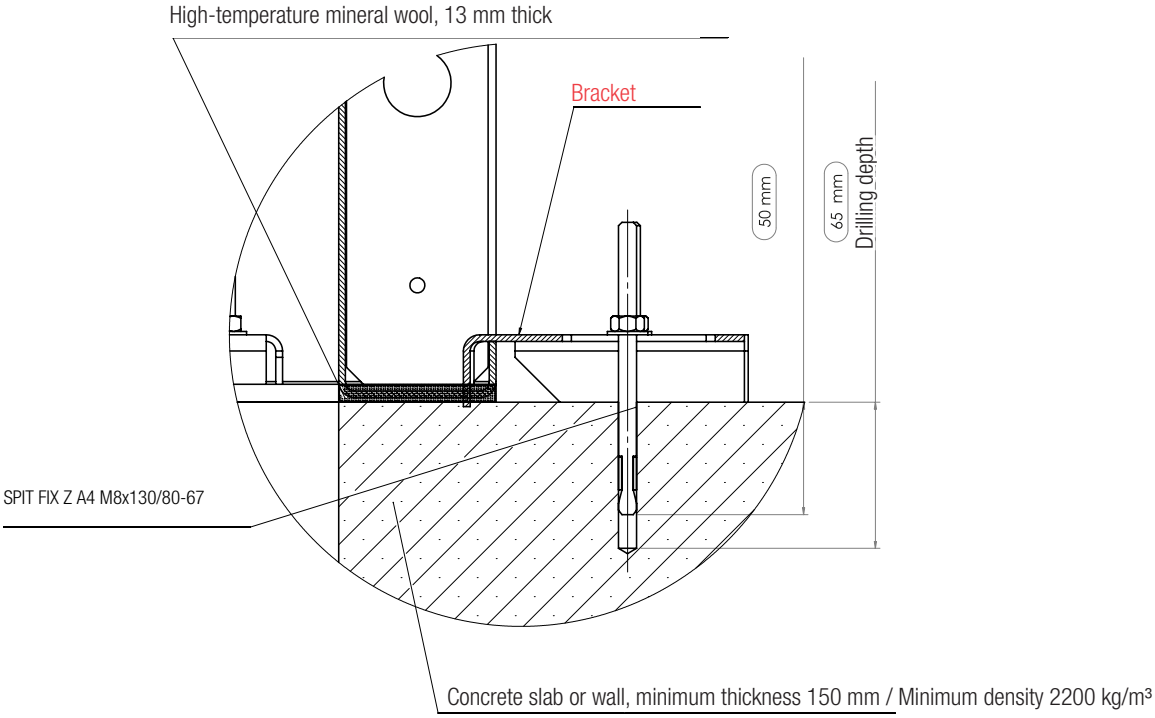
The fixing of the damper on a reinforced concrete slab, thickness ≥ 150 mm and density ≥ 2200 kg/m³.

- The fixing must be ensured with brackets fixed with stainless steel anchors Ø8 mm
- A mineral fiber gasket (optional provided by F2A) must be placed between the damper and its support to ensure fire tightness.
- Check before commissioning the flatness and squareness of the frame for proper damper operation.
- Also ensure that no obstacle will hinder the movement of the blades and linkage.
  Manual tests under atmospheric pressure are recommended before pressure tests.

Close-up of fixed brackets and mineral fiber seal



Overview of fixed brackets and mineral fiber seal



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7. MAINTENANCE

At regular intervals defined by the company responsible for maintenance and depending on the environmental conditions where the damper is installed, perform the following operations:

- Check for the presence of sand or dust on the damper's moving parts.
- Lubricate the damper's moving parts: linkage and blade shaft bearings. Use a lubricating/degreasing spray like «WD40» or an equivalent product.
- Lubricate the lateral seals of the damper using a dry PTFE lubricant spray.
- Perform a complete manual opening and closing cycle using the servomotor's manual wheel. Check that there is no noticeable resistance.
- Refer to the actuator documentation for servomotor maintenance.

Note: Refer to section 9 for information on risks and risk prevention.

8. POSSIBLE PANNE SUR SITE

If the damper does not open or close correctly:

- Check for any blockages in the moving parts.
- Cut off the power supply.
- Perform a manual maneuver using the actuator to verify the proper mechanical operation.
- If a blockage persists, contact the manufacturer.
- If there is no longer a blockage, check the electrical connections and ensure proper power supply to the actuator.

Note: refer to section 9 for information on risks and risk prevention.

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9. RESIDUAL RISKS AND PREVENTION

Surface / Edges / Angles

Important ! There is a risk of injury or cuts when in contact with the damper and steel sheets. Always wear protective gloves when handling and transporting the damper. Be cautious of sharp edges.

Handling / Weight

It is preferable to handle the dampers using a lifting device, hoist, or any other equipment that helps reduce the installer's load.

Moving Parts

Do not touch or interfere with the damper's moving parts during operation, which includes:

- The damper blades.
- The linkage or rotating axis.

There is a significant risk of finger entrapment !!!

Protective grilles and linkage protection are available upon request.

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Steps	Riks	Description	Measures to be applied to reduce / eliminatethe risks
Transport Handling Storage	Handling	Weight of the product (s)	Use means suitable lifting
	Surface / edges / sharp angles	Risk of injury and cut in contact with the damper and the steel sheets	Use of PPE
	Product presence harmful / dangerous	Health risk / burns ...	Not présent
Installation Commissioning Maintenance	Handling / lifting	Weight of the product (s)	Use de moyens de levage adaptés
	Surface / edges / sharp angles	Risk of injury and cut in contact with the damper and the steel sheets	Use of EPI
	Electrical connection	Risk of electrocution	Electrical authorization and electrical protection ports / Power off work
Functioning	Moving parts: Linkage systeme	Risk of crushing / pinching / injury in case of contact with moving parts during operation	Ensure the protection of areas accessible to moving parts (linkage and blades) => Option possible on request: linkage protection plate.
	Moving parts: Mobile blade	Risk of crushing / pinching / injury in case of contact with moving parts during operation	Ensure the protection of the accessible areas of the moving parts (linkage and blades) => Option possible on request: UPPER / DOWNSTREAM blades protection grid
	Electrical connection	Risk of electrocution	Electrical accreditation and electrical protection ports / Power off work
	Surface / edges / sharp angles	Risque de blessure et de coupure au contact du registre et des tôles d'acier	Use of PPE
Cycle de vie du produit	Inflammation	Dust deposits / explosive environment Abnormal friction / Environment Operating temperature	Compliance with the operating instructions and product data sheet

10. LIFE CYCLE

The design and manufacturing of the products do not involve the use of materials that pose a danger to the health of users.

The damper's construction materials can be easily collected through standard recycling channels.

Only the electrical motorization may contain materials that require recycling under specific guidelines. Refer to the manufacturer's documentation and recycling recommendations..

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