



HAHN Lamellen

HAHN-Louvre Windows Installation Instruction

Receipt of goods/ Handling / Installation



1. Introduction

This Installation instruction is only part of the complete HAHN-Louvre-Window booklet. Please read all instructions in preparation carefully and make it available for all persons whom it does concern.

We herewith advise that there may be limitations or abolition of warranty at inobservance of instruction.

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2. Application / Use according to regulations

HAHN Louvre windows are NSHEV-units (**N**atural **S**moke and **H**eat **E**xhaust **V**entilators), furthermore suitable for day-to-day-ventilation; made from aluminium extrusions (depending on unit type either thermal- or non thermal broken) with single- or insulated glazing. Units are produced for vertical installation.

HAHN Louvre windows can be used wherever optimal ventilation, good use of daylight at best use of space is required. Due to its elegant optics HAHN Louvre windows are suitable for appealingly architectural design. Examples for use of louvre windows are façade constructions, schools, child day care centres, office buildings, winter gardens, staircases and many more.

3. Misuse of Louvre Windows

At reasonably foreseeable misuse of Louvre Windows the producers's warranty deed expires, the sole responsibility is then passed to the user.

Reasonably foreseeable misuse is:

- Holding head or extremities between opened louvre blades
- Using Louvre Window as ladder, shelf or shoring
- Jump or drop against the opened or closed Louvre Window
- Removal of safety barriers
- Not keeping the maintenance interval
- Deferred maintenance
- Deferred replacement of wear parts
- Faulty or inaccurate done maintenance or reparation

4. Remaining risks

Residual risks that, despite the measures for the integration of safety in the design, despite the safety precautions and despite the additional protection measures still remain jamming in the area of the exposed engine and in the opening areas of the lamella.

Existing residual risks are noted in the operating instructions. Existing residual risks to be avoided by:

- Special warning notice at Louvre Windows
- Consideration of general safety instructions and warnings in this instruction

Risk of death / injury to persons on the louvre windows can be caused by:

- Misuse
- Improper Handling
- Transport
- Lack of protective devices
- Defective or damaged components

Damage to the machine may result from

- Improper Handling
- Not keeping the instructions of use and maintenance
- Unsuitable operating materials

5. Power-operated windows, minimize of risks

Depending on location of units in the building, considering the use of rooms and furthermore on control of units, a risk analysis based on the European directive on machinery has to be done proving whether further preventive action has to be taken at the Louvre Windows.

We refer to information sheet no. 3 of the „ZVEI Fachverband Sicherheitssysteme, 60596 Frankfurt/Main“

Checklist for determination of Safety class

Project

Project: _____

Street: _____

Post Code / Location: _____

State: _____

Project number: _____

Risk Analysis

Installation location E _____

Purpose of building N _____

Control S _____

Safety class _____

Notes

Client

Name: _____

Street: _____

Post Code / Location: _____

State: _____

Contact person: _____

Tel/Fax Office: _____

E-Mail: _____

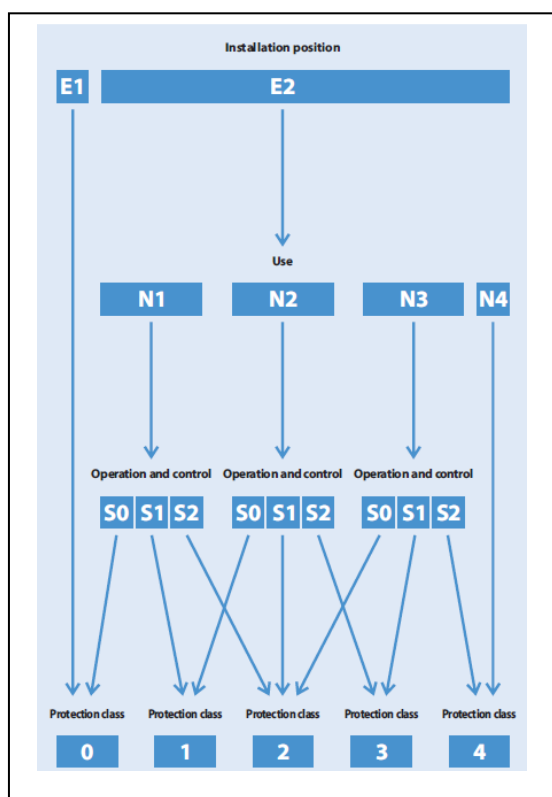
Installation details

Installation location: _____

Installation height: _____

Window name: _____

Window identification number: _____



All necessary preventive actions have been taken YES No

| | |
|----------------------------------|----------------------|
| Producer of window system | Client |
| _____ | _____ |
| Stamp/Date/Signature | Stamp/Date/Signature |

| Case-study installation situation | Risk classification | Risk parameters |
|--|----------------------------|------------------------|
| a) Installation height of the bottom edge of the sash a minimum of 2.5 m above floor level or permanent access level b) Permanently installed devices in front of the window preventing access c) Window ledges or soffits preventing unhindered access to the window for the user | Low Risk | E1 |
| Installation height of the bottom edge of the sash above floor level or access level below 2.5 m with clear access to the window | High Risk | E2 |

| Type of use of the premises | Risk classification | Risk parameters |
|--|----------------------------|------------------------|
| a) Commercial premises , the users of which have been instructed in the use of the technical equipment (e.g. offices, industrial premises) | Low Risk | N1 |
| b) Residential premises , the occupants of which have been instructed in the use of the technical equipment. c) Premises in which the users/visitors are capable of gauging the risk or are supervised. | Medium Risk | N2 |
| d) Premises intended for regular use by persons who cannot be instructed in the safe and reliable use of the technical equipment (e.g. retail outlets, places of assembly, etc.). | High Risk | N3 |
| e) Premises intended for regular use by persons requiring protection or who are unable to reason (such as nurseries, schools and hospitals, etc.). | Very high risk | N4 |

| Control system or method of operation | Risk classification | Risk parameters |
|--|----------------------------|------------------------|
| Manual operation without lock (dead man's controller) with visual monitoring of all windows (e.g. use of a keylock switch) | Very Low Risk | S0 |
| Manual operation with lock with visual monitoring of all windows | Low Risk | S1 |
| Automatic operation (e.g. wind and rain based control system, building management system equipment) or manual operation without visual contact with all windows | High Risk | S2 |

Classification of protective measures

| Classification | Examples of protective measures |
|---------------------------|---|
| Protection class 0 | No protective measures required |
| Protection class 1 | Warning signs |
| Protection class 2 | Access safeguards in the form of constructional measures <u>or</u> Rounded, padded edges; closing forces of 80 to 150 N, no shearing effect <u>or</u> Acoustic warning signals <u>or</u> Warning lamps or EMERGENCY OFF switch on the window <u>or</u> Moveable devices in front of the window to prevent access |
| Protection class 3 | Dead man's controller without higher level central control system <u>or</u> Movement stops 25 mm before the end position over 10 s; tripped by an optical or acoustic signal; further movement with signal up to the end position <u>or</u> Slow window sash movement of max. 5 mm/s <u>or</u> Access width less than 8 mm <u>or</u> Rounded, padded edges; low closing forces of less than 80 N, no shearing effect |
| Protection class 4 | Safeguard in the form of contact-based protection devices, e.g. contact strips, contact sensors <u>or</u> Safeguard in the form of electro-sensitive protective equipment, e.g. light barriers, light grilles <u>or</u> Dead man's controller with authorized operation for each window without higher level central control (e.g. keylock switch) <u>or</u> Access width less than 4 mm <u>or</u> Access safeguards in the form of constructional measures |

6. Operating instructions

HAHN Louvre Windows have movable blades. The side mounted, horizontally rotating blades are to be operated by hand or by motor power. The following instructions must be observed:

- The operation may only be done by instructed persons
- It must be ensured that a quarter rotation of the blades about the central axis is possible.
The turning and closing range of louvre window is permanently kept free of any obstructions and objects
- Louvre Windows are not suitable to hang on any objects.
They should not be used as a stepladder or for supporting the body weight
- After breaking the window glass must not be used or moved. The splitter must be carefully removed.
It is to point out the potential dangers and to take necessary measures in acute danger.
A professional company should be consulted as soon as possible.
- Permanent movement cycles must be avoided to prevent thermal and mechanical overload of the motor
- At mechanical actuation by hand lever, make sure that it moves only in the plane of rotation.
If resistance or stiffness is felt, the opening or closing operation must be stopped
- At any malfunction on the Louvre window HAHN Lamellenfenster GmbH must be informed immediately.
When trying to repair the damage himself, the warranty can be omitted and there is a risk to injury such as bruises, electrical shock ...

7. Receipt of goods / Preparations for installation

7.1 Unloading and interim storage

The supplied HAHN Louvre Windows are packed vertically into wooden transport crates. These crates have to be off-loaded by suitable means, for instance by a fork lift with sufficient support to match weight of units. Transport crates need to be brought down carefully to ground level. Transport crates should never be stacked. Where packing cases are left on site there is the danger of condensate water entering the actuators which needs to be avoided at all costs.



7.2 Transport damages

The next step is to check for any damages. If there is any damage or loss this needs to be reported immediately to the transport company.

For damage that is observed only once the units have been unpacked:

1. Keep the consignment as it was when it arrived
2. Inform HAHN Lamellenfenster GmbH immediately in writing preferably including photos about the type and volume of the damage

The damage note has to be sent to HAHN Lamellenfenster GmbH at latest:

- Within 24 hours when delivered by parcel service or post
- Within 24 hours when delivered by railway
- Within 7 days when delivered by haulage company

Where the goods have been sent by post, the damage has to be reported to the local Post Office.

For damages observed only once the goods have been unpacked, please report damage to your Post Office providing them the damaged goods as well as the packing material.

7.3 Unpacking of goods

In order to unpack the HAHN Louvre Windows in a safe way, it is necessary to place packing pieces underneath so that the transport crate leans slightly backwards. The packing crate then can be opened, but please check labels on crate first (see below). Packing materials have to be disposed in accordance with local regulations.



7.4 Handling on site

When windows have to be moved on site, louvres must be closed. The windows can be stored either on their ends or on their sides. It has to be avoided that the right angle construction of the ventilator gets disturbed by placing any force on it as this could lead to mechanical failure or breakage of glass.

Windows should never be placed on their corners or taken apart.

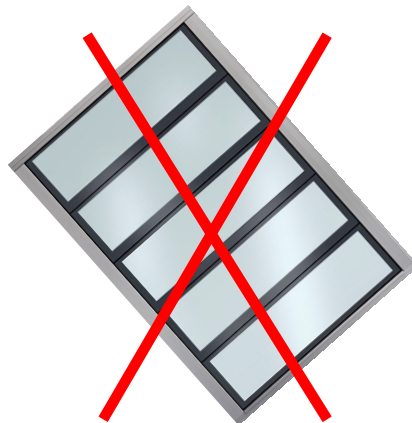
Handling of units with louvres closed only!



Transport vertically or horizontally only!



Do not place or transport on the corner!



Do not take apart!



8.0 Installation



Units should be fixed according to the following instructions by qualified personnel so as to avoid any damage through incorrect installation. Motor types LAH 65 and LAH 65 K may only be uninstalled once you have checked with HAHN Lamellenfenster GmbH.

8.1 Correct support

Before the window is actually installed into the opening, it is necessary to check that it will fit in, that is to say there is sufficient clearance around the ventilator so that the window can function and keep weather out in a correct manner.

The Louvre Window has to be exactly positioned and packing pieces have to be set. Packing pieces have to be placed on the most important and correct places as shown on drawings A and B. Pads need to be placed right underneath the vertical profiles and not in the middle in order to avoid these profiles bending, which would result in one of the louvres not being able to open. Drawing C shows the necessary positioning of packing pieces for double breasted units.

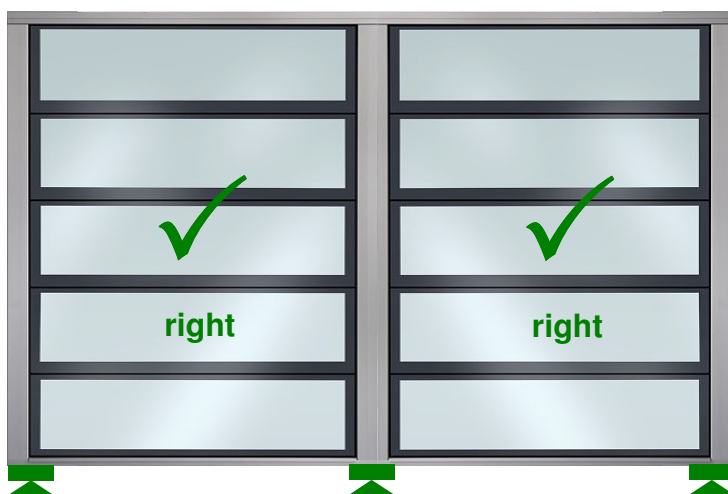
Drawing A



Drawing B



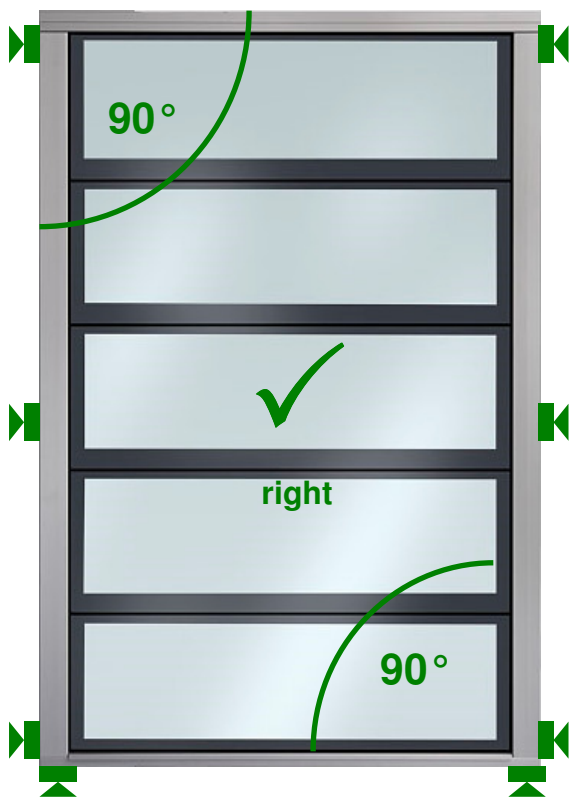
Drawing C



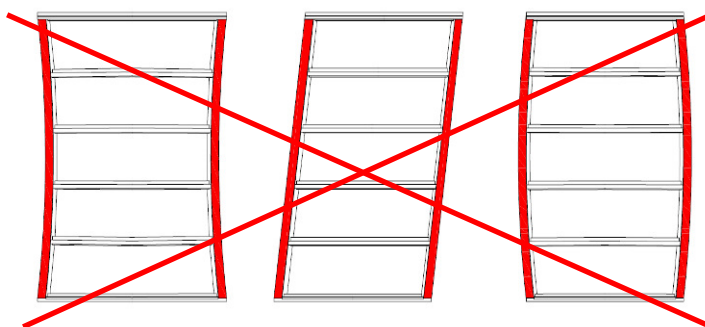
8.2 Alignment



It is necessary to align the window horizontally and vertically accurately to achieve correct function and tightness. The Louvre Window frames must be exactly parallel to each other. This is achieved by side mounted packing pieces. Once the unit has been fixed provisionally it is necessary to check the angles and make sure vent is perpendicular to all sides.



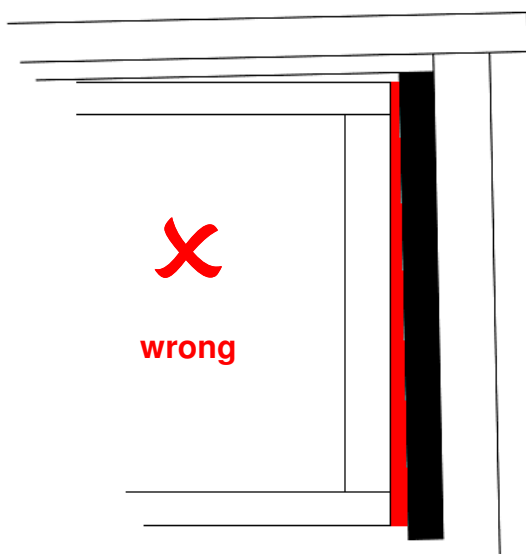
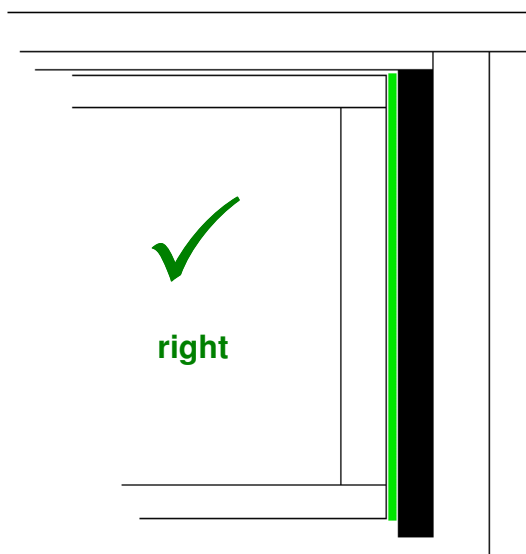
Drawing A



wrong

After installation, support and alignment of units the white distance shims will have to be removed so you can open the unit.

Inaccurate installation can be seen at different gaps between louvre and vertical brush sealing of side frame (Drawing B). The individual louvres ought to be able to move about in the horizontal plane 1-2 mm when open. Widths and heights of this gap need to be the same for every part of the unit.



Drawing B

8.3 Fixation of HAHN Lamellenfenster GmbH Louvre Windows

8.3.1 Fixation by screwing through window frame

Only use boreholes in from HAHN Lamellenfenster GmbH already made into the side frame profile (drawing below)

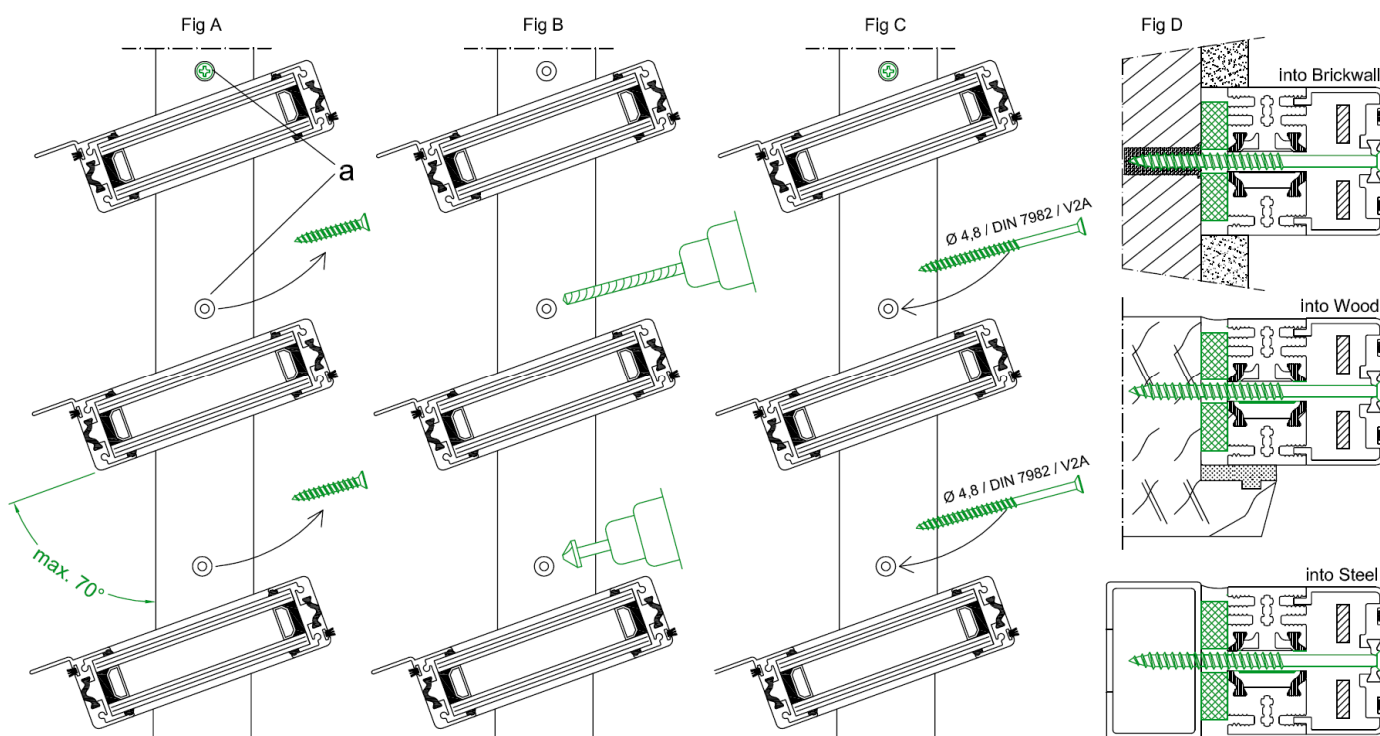
Method of fixing:

- Point of origin: HAHN Louvre Window is installed, packing pieces are fitted and window is secured
 - Open the unit to a maximum of 70° (this avoids linkage mechanism being damaged).
- Note: Actuator types LAH 65 and LAH 65K may only be removed once HAHN Lamellenfenster GmbH has approved this

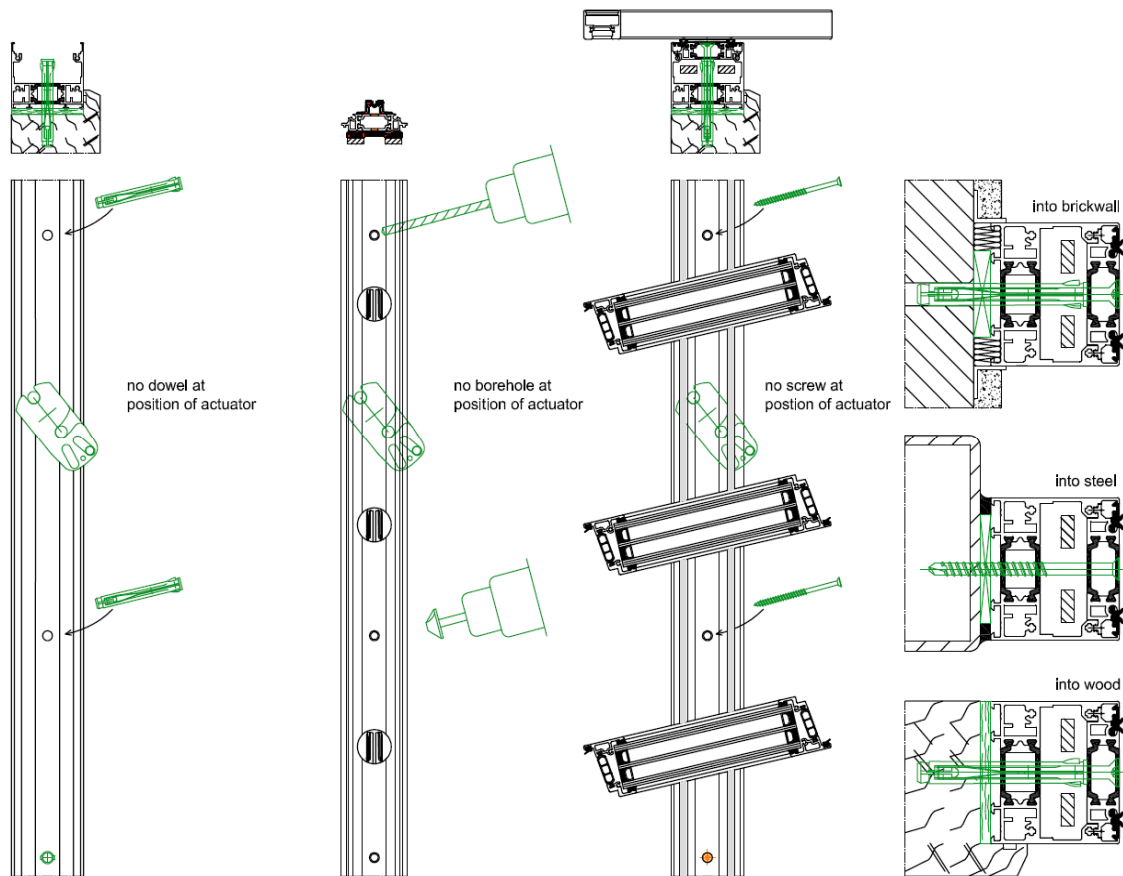


- Remove screws (Fig. A) :
 - at installation into wooden construction: All screws
 - at installation into steel / brickwall: up to 250 mm Louvre height: Every 2nd screw
from 250 mm Louvre height: All screws

- Drill through window frame (Ø5 mm impact dowel). Do spot-drill substructure only (Caution: Pay attention to diameter of screw and use correct boring head size)
- Make core drill hole for Ø 4.8 mm countersunk screw into substructure (Fig. B)
- At fixation into brick wall HAHN Louvre Window has to be removed again or tend slightly out of opening
- Enlarge countersink holes into inner side frame suitable to anchor
- Drill countersink screw Ø 4.8 mm into window frame, but do not yet tighten screw
- Pad all screwed joints between Louvre Window and construction pressure-resistant to avoid bending of frame
- Tighten screws



Example shown at S9-iVt-05



Example shown at TAIRMO/TAIRMO-Allglass

8.3.2 Fixation by using fixing brackets

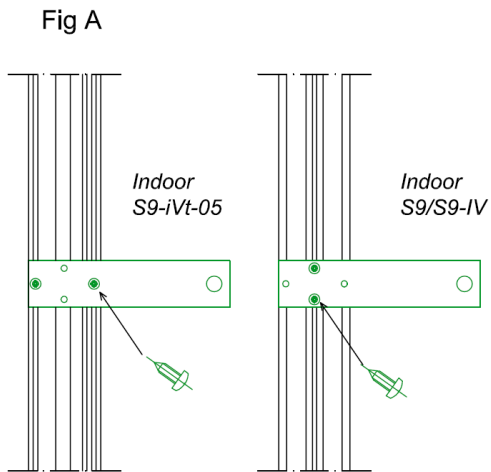
This type of fixing is used when fixing to brickwork. Plates are intended to be attached to the vertical frames with a spacing of 40-70 cm, depending on wind load.

Preparation of fixing:

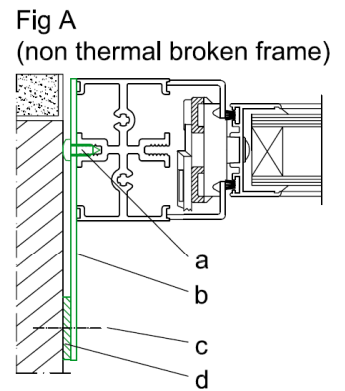
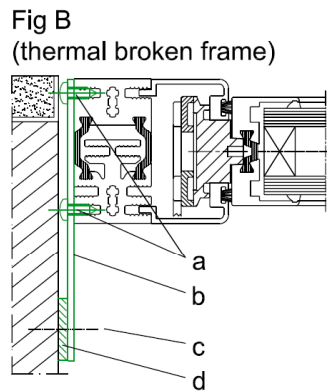
- Turn fixing brackets over through 90° (Fig A) and secure with second screw
- Have rawplug ready (not included into the delivery by HAHN Lamellenfenster GmbH)
(Choice of rawplug has to be made during the planning process and depends on building situation, type of wall, wind loads etc. – necessary clearance between ventilator frame and opening depends again on the size of rawplug)

Method of fixing:

- Point of origin: HAHN Louvre Window is installed, packing pieces are fitted and window is secured
- Drill through borehole of fixing bracket into the wall
- Fix rawplug according to manufacturer's information
- Pad fixing bracket underneath rawplug position (Fig B and C)
- Tighten rawplug



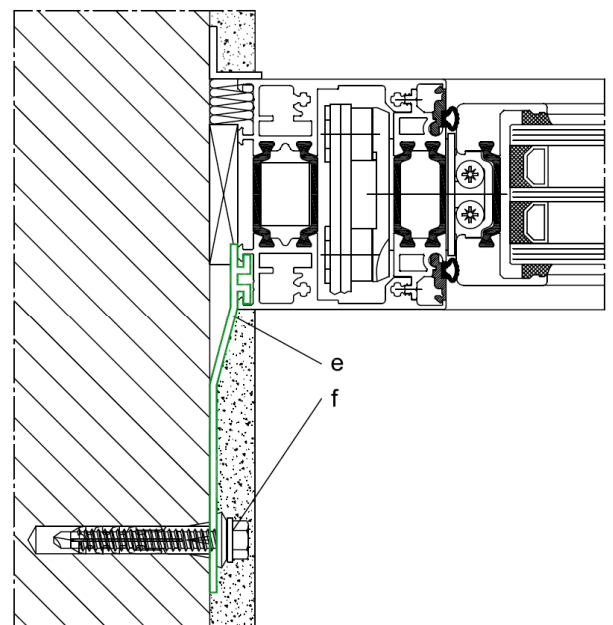
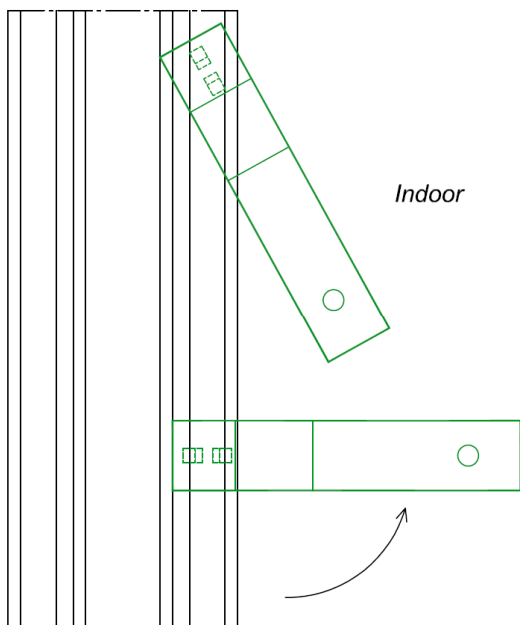
Example shown at S9-IVt-05 (Fig A & B), S9-IV (Fig C)



Legend:

- a.) 2x Lens head screw each bracket $\varnothing 4,2$ (V2A)
- b.) Bracket 30x2x130 standard dimensions / V2A
- c.) Rawplug (not included into the delivery by HAHN Lamellenfenster GmbH)
- d.) Pad (not included into the delivery by HAHN Lamellenfenster GmbH)

Installation example TAIRMO/TAIRMO-Allglass



Example shown at TAIRMO/TAIRMO-Allglass

Legend:

- e.) Screw-in anchor
- f.) Rawplug (not included into the delivery by HAHN Lamellenfenster GmbH)

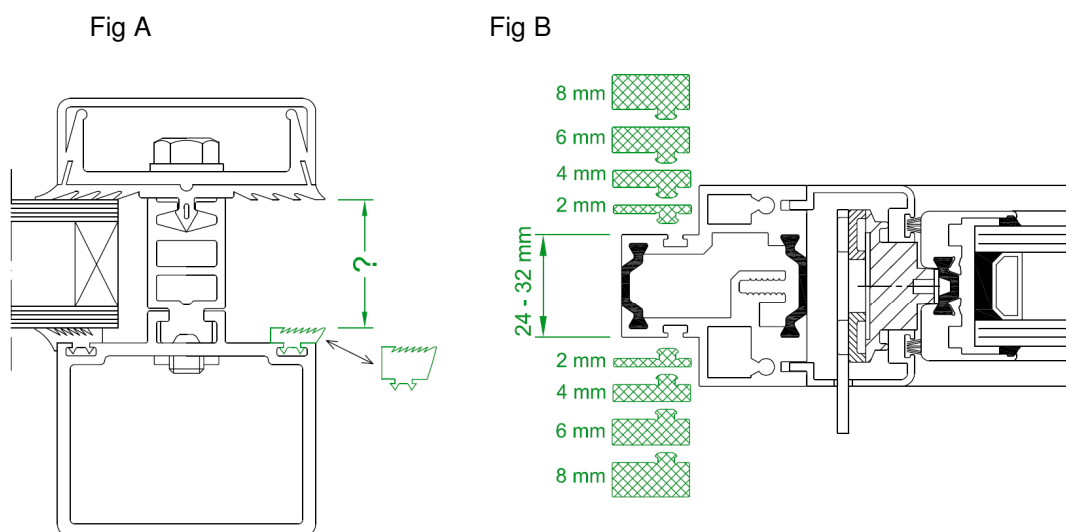
8.3.3 Fixation into glazing flange

All HAHN Louvre Windows can be provided with glazing flange for installation into facade construction. Nearly all sizes are available (needs to be defined with order and clarified in advance.)

Necessary preparation before installation / fixation of units

Compare glazing flange thickness of construction with glazing flange thickness of façade construction. If sizes should not match each other, gaskets in suitable size will have to be exchanged at façade construction (please contact the façade construction system provider).

Alternatively the glazing flange thickness on HAHN Louvre Window frames can be amended on site – assuming that the window has been ordered and supplied with Frame type 2 with integrated glazing flange system. By removing or exchanging glazing rubbers in different sizes all glazing flange thicknesses from 24-40 mm are available in steps of 2 mm each: 24, 26, 28, 30, 32, 34, 36, 38 and 40mm.



Order of installation:

Point of origin: HAHN Louvre Window is installed, packing pieces are fitted and window is secured

Temporary fixation: If covering bar can not be mounted directly, a temporary fixation is necessary.

Depending on the façade construction system it is possible to do this fixation either according to Fig. C1 or C2 below (in case of doubt please ask the façade construction system producer)

Fig C1 (thermal broken glazing flange)

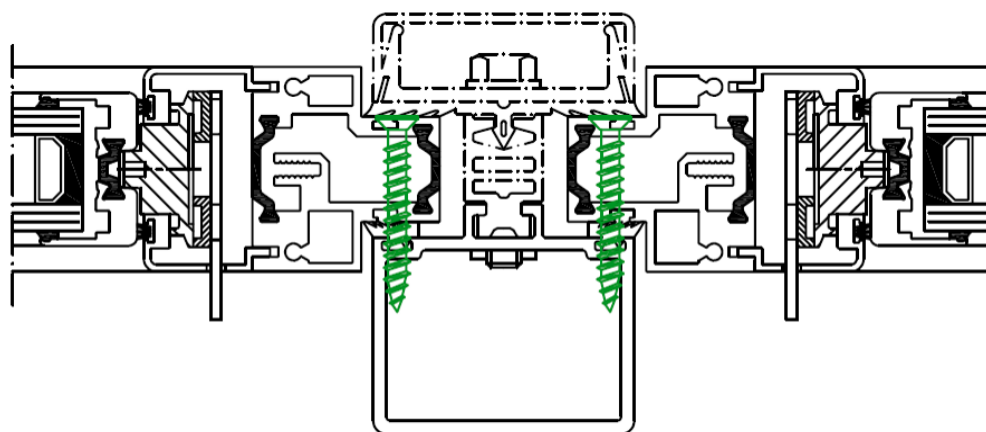
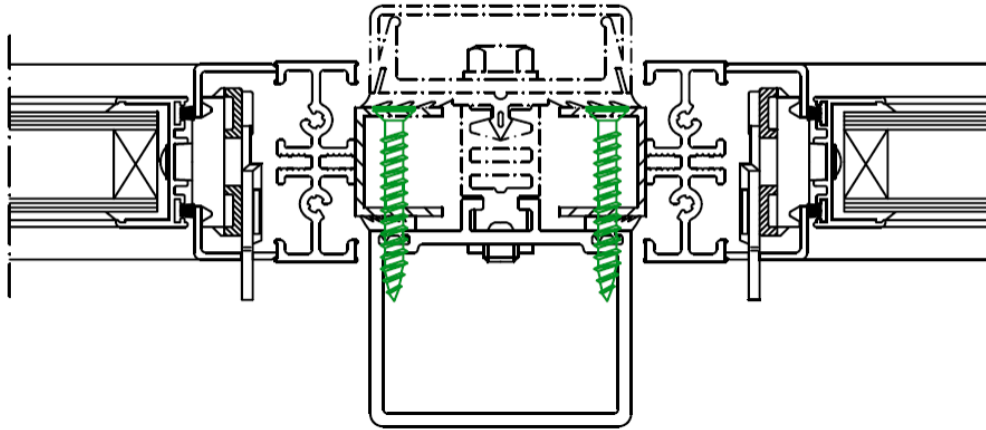


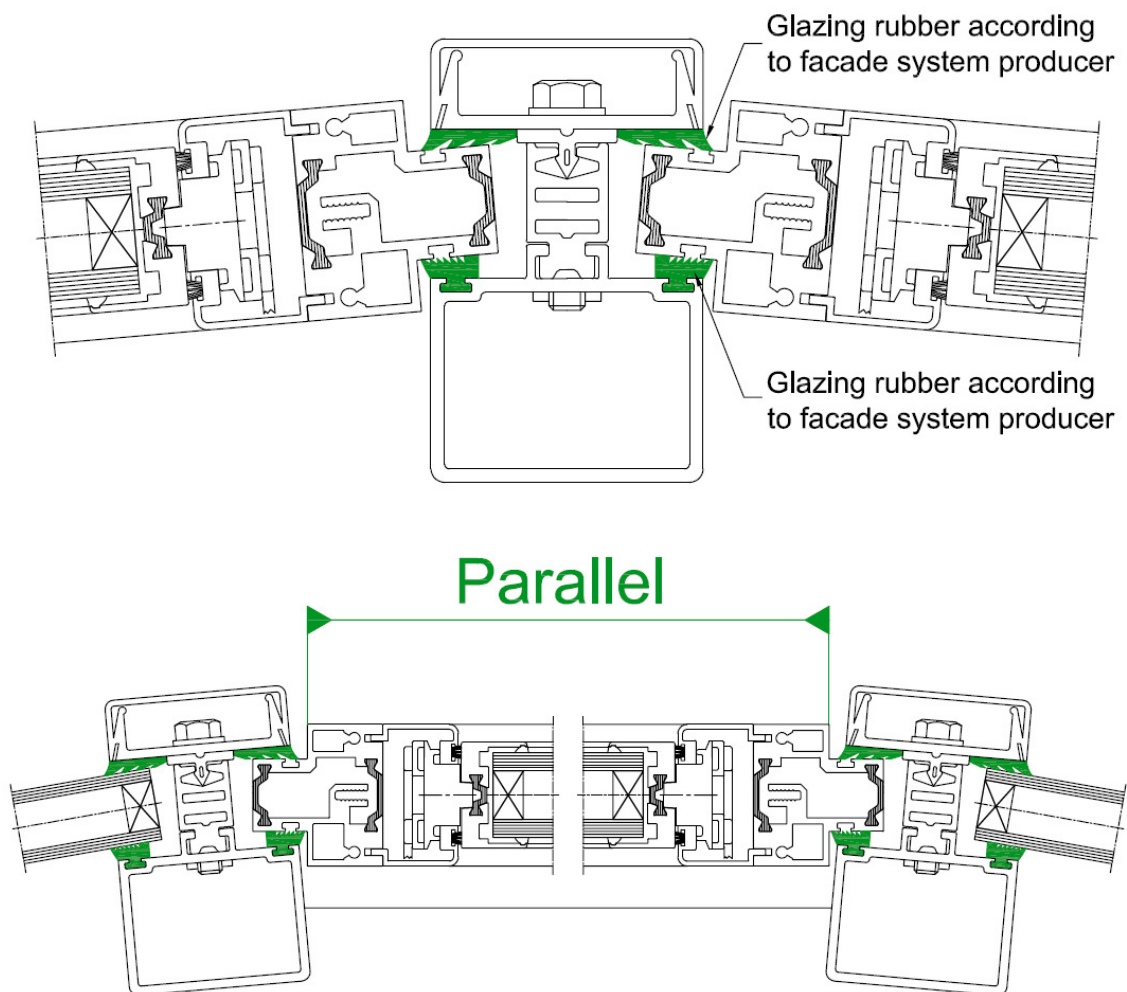
Fig C2 (non thermal broken glazing flange)



- Fix glazing flange of façade system and fix it according to the façade construction supplier's instruction

Installation information for fixation into polygonal façade construction

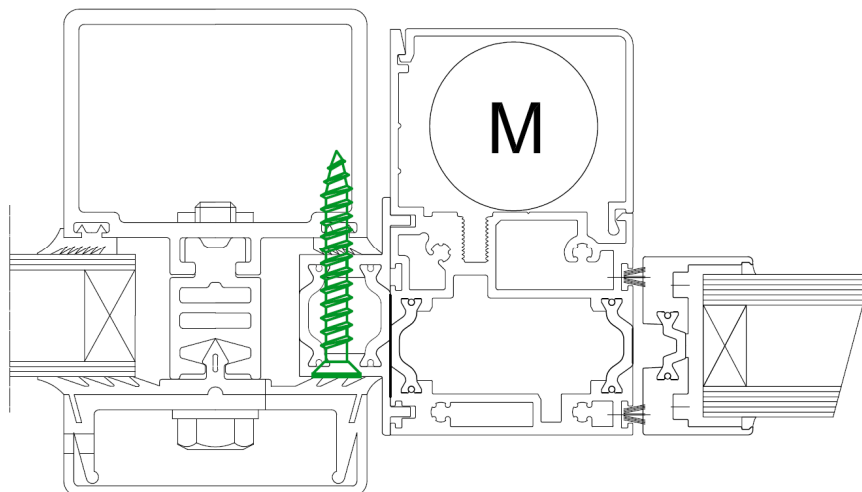
At installation into polygonal façade construction unit has to be padded on side frames to make sure vertical running frame profiles are parallel to each other



Installation of HAHN Louvre Window INTEGRAL into façade construction

Option 1: Installation into façade construction

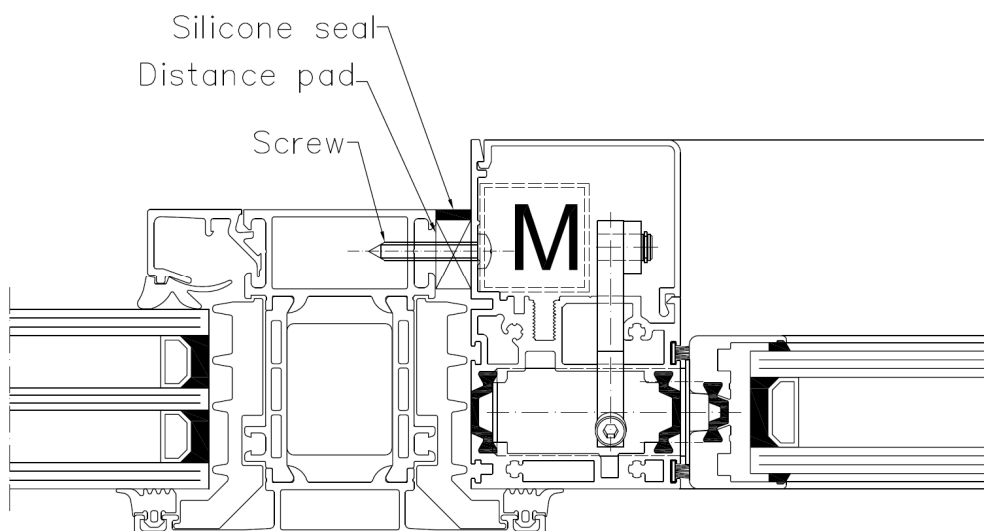
At façade systems with clamping fixation an additional glazing flange is required at the units. This glazing flange is fixed and sealed surrounding the complete unit:



If it should be necessary to secure the unit alternatively, glazing flange of unit can be screwed directly to support post.

Option 2: Installation into window frame

Installation into window frame by screwing through vent frame into construction - distance pad and silicon sealing is necessary.



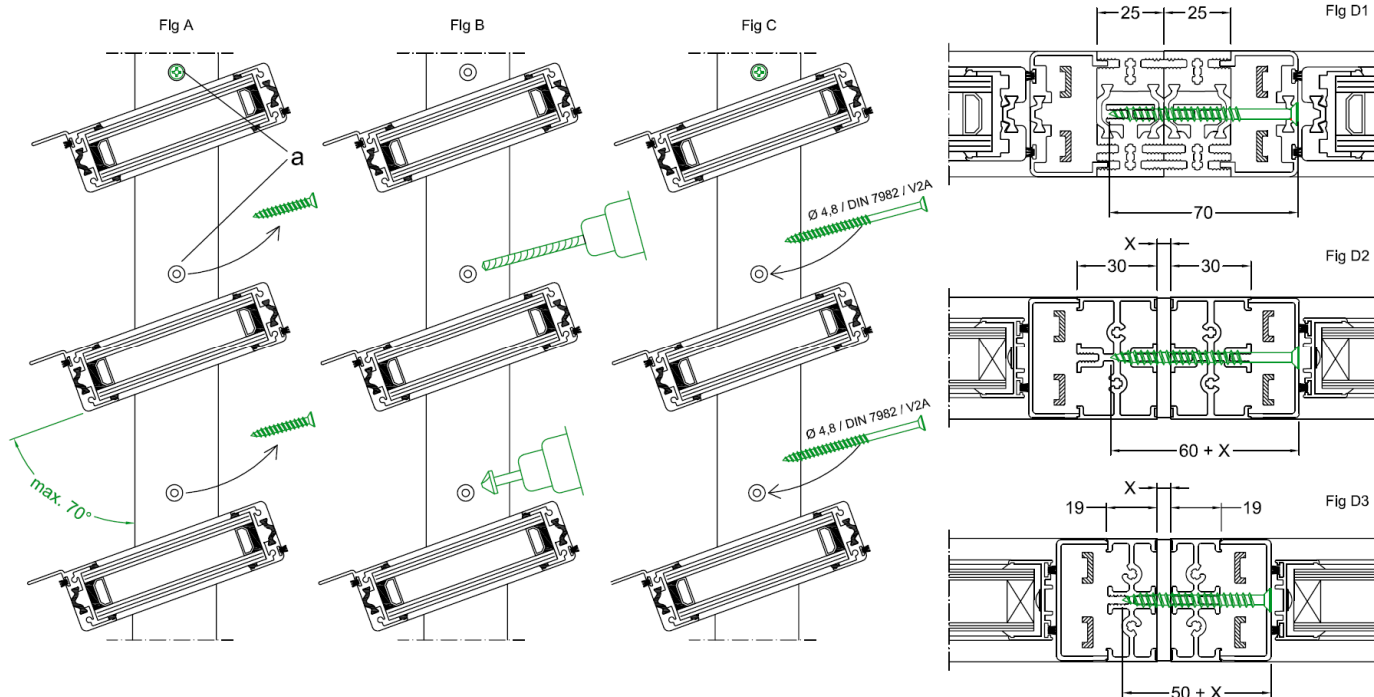
Make sure that fixing screws do not block the motor.

8.4 Coupling of units besides each other

If HAHN Louvre Windows have to be installed beside each other, vertical frames have to be screwed together. Only use boreholes in from HAHN Lamellenfenster GmbH already made into the side frame profile (drawing below)



- Point of origin: HAHN Louvre Window is installed, packing pieces are fitted and window is secured
- Open the unit to a maximum of 70° (this avoids linkage mechanism being damaged).
Note: Actuator types LAH 65 and LAH 65K may only be removed once HAHN Lamellenfenster GmbH has approved this
- Remove screws (Fig. A) :
 - up to 250 mm Louvre height: Every 2nd screw / from 250 mm Louvre height: All screws
- Drill through both window frames (Ø5 mm impact dowel for frame 1, Ø4.2 mm for frame 2).
- Make core drill hole for Ø 4.8 mm countersunk screw (Fig. B)
- Drill countersink screw Ø 4.8 mm (Stainless steel A2 DIN 7982) into window frame and tighten screw (Fig. C)
- Fig D1 = S9-iVt 05, S9-iVt-05 Allglass, S9-45°
- Fig D2 = S9 and S9-iV with big (30 mm) frame profile
- Fig D3 = S9 and S9-iV with small (19 mm) frame profile



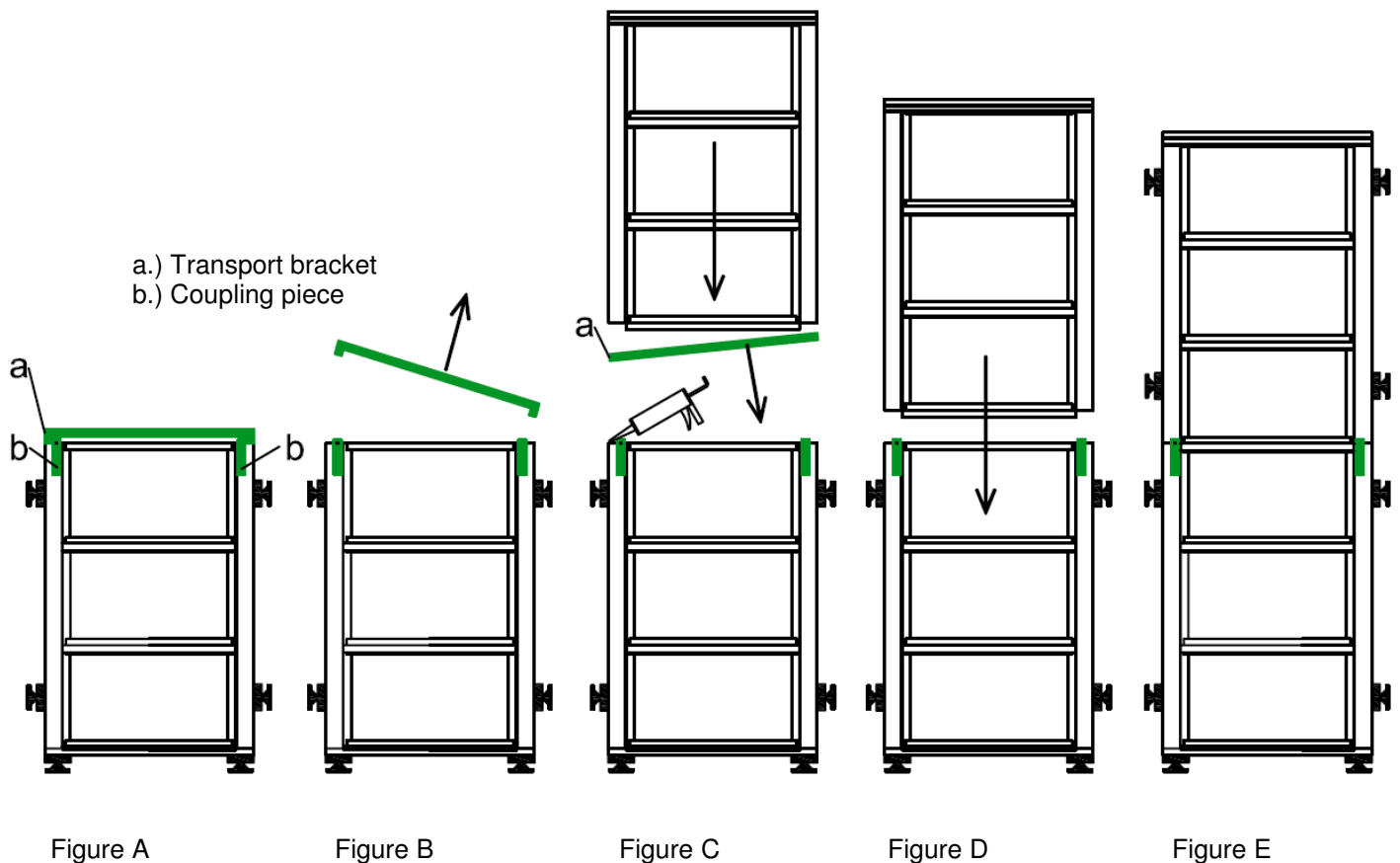
8.5 Coupling of units on top of each other

Some units are provided separately so as to reduce weight and make handling on site easier.

These units have to be coupled on site.

Method of fixing:

- Install the bottom-most unit, fit packing pieces and secure window (Figure A) – see instructions above
- Remove transport bracket (wooden strip) (Figure B)
- Apply silicone to top surface (Figure C)
- Remove transport bracket from upper part of the ventilator (Figure C)
- Bring upper unit on top of the bottom unit. Coupling pieces will help to provide an exact fit. (Figure D)
- Install upper unit – see instructions above (Figure E)



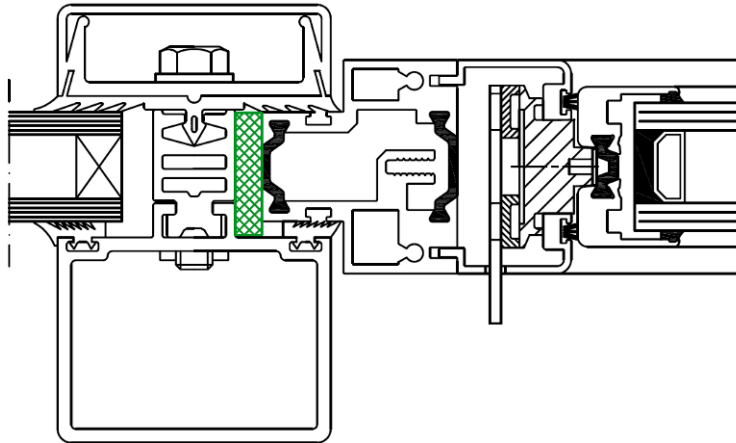
8.6 Additional installation instructions for RC2 windows (Louvre Window S9-iVt-05)

If the HAHN Louvre Window type S9-iVt-05 has been ordered according to classification “RC 2” to DIN V ENV1627 – must be specified with order – additional installation instruction guidelines must be followed.

▪ Installation into façade construction

At least on every second louvre a pressure-resistant backing with a plastic block material of min. 70 mm length is necessarily required (Fig A)

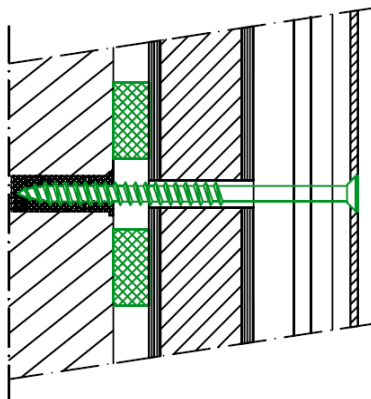
Fig A



▪ Installation into brickwall opening

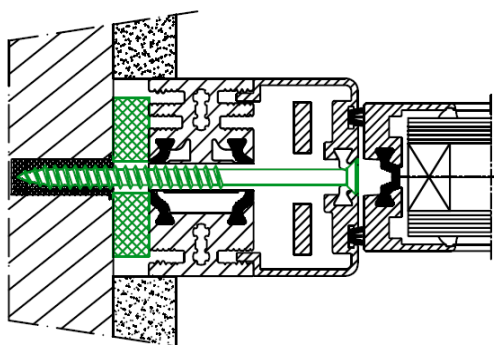
The louvre windows must be bolted at least every second blade through the vertical frame and back-filled with a pressure-resistant plastic block material (no impact dowel or similar).

Use already existing boreholes by HAHN Lamellenfenster GmbH only (see point 8.3.1. to check order of assembly)



RC2 Requirements to brickwall opening:

- Brickwall opening acc. to DIN 1053-1
 - Min. nominal thickness: 115mm
 - Compressive strength class of stones: Min. class 12
 - Mortar group: Min. 2
- Reinforced concrete acc. to DIN 1045
 - Min. nominal thickness: 100mm
 - Strength classification B15



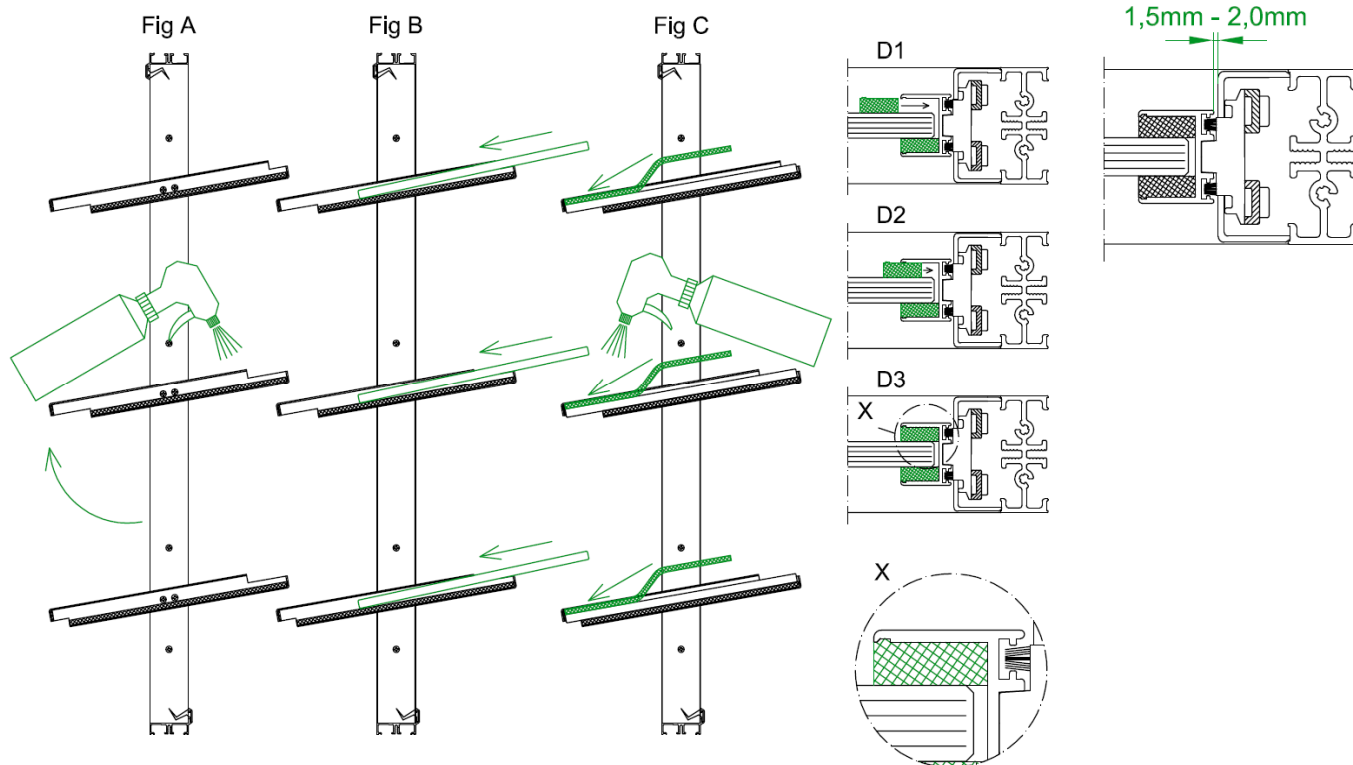
8.7 Installation of single glass louvre blades into mounted S9 window frame

Unless otherwise agreed, HAHN Louvre Windows Type S9 will be supplied unglazed.

Glazing has to be made after installation of units from inside of the building.



- Point of origin: HAHN Louvre Window S9 is installed, packing pieces are fitted and window is secured
- Open the unit (Fig. A)
Actuator types LAH 65 and LAH 65K may only be removed once HAHN Lamellenfenster GmbH has approved this
- Spray glass cleaner on installed glazing rubbers (Fig. A)
- Wear work gloves during glazing of units to avoid injuries
- Sort and arrange glass panes
(Note: On some units top and/or bottom pane sizes differ to remaining panes)
- Install and adjust glass panes into fixing clips (Fig. B)
- Spray glass cleaner on rubber gaskets supplied with units and insert gasket into glass fixing clip (Fig. C)
- Insert gasket until it locks into place (D1-D3 Detail X)
- Close window
- Adjust glass fixing clips – clearance on complete unit 1.5 mm to 2 mm at complete unit
- Test run



8.8 Installation of single louvre blades into mounted TAIRMO/TAIRMO-Allglass window frame

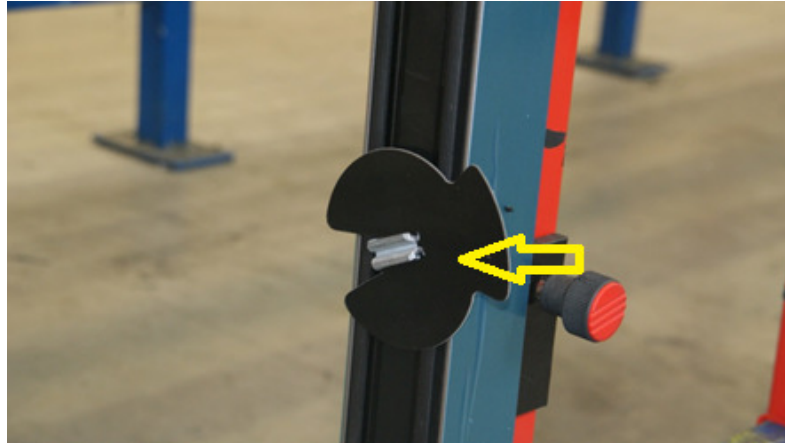


- Point of Origin: Louvre window frame is installed, packing pieces are fitted and window is secured
- Open unit to max. 45° (this avoids linkage mechanisms being damaged)

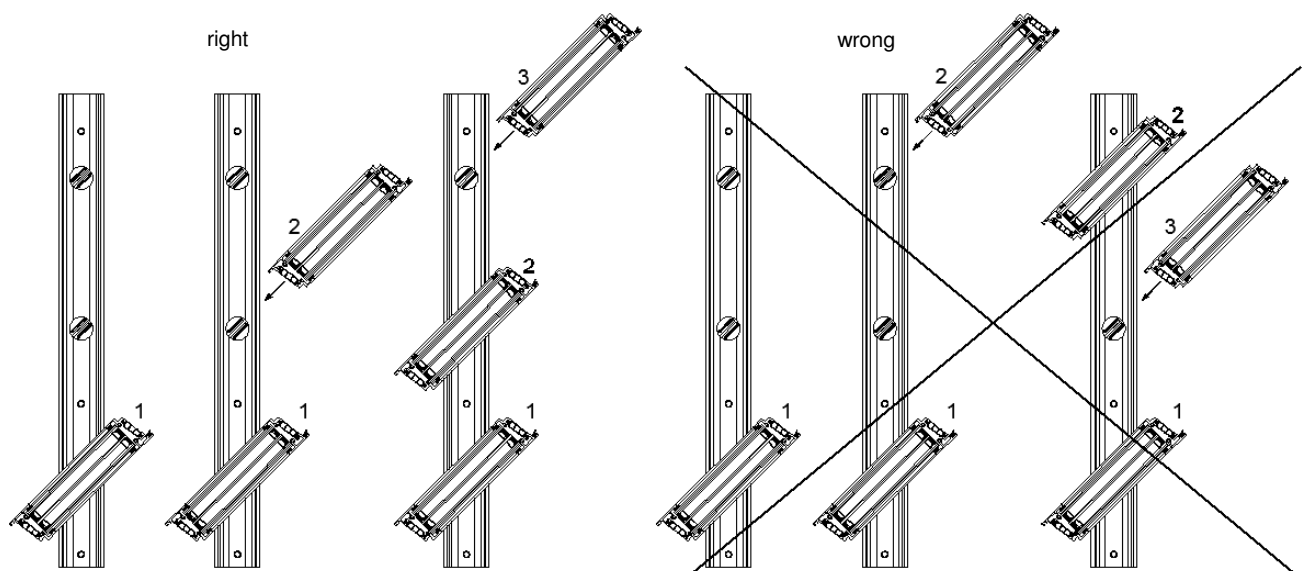
Actuator types LAH 65 and LAH 65K may only be removed once HAHN Lamellenfenster GmbH has approved this

Insert black pastic cap (Photo A)

Photo A



- Insert louvres simultaneously (with 2 engineers) into louvre pivot once black pastic caps are fixed onto the pivot bearings. Louvre blades are numbered, necessarily follow the order
- As soon as TAIRMO/TAIRMO-Allglass louvre blade has been insert correctly, it can not slide downwards

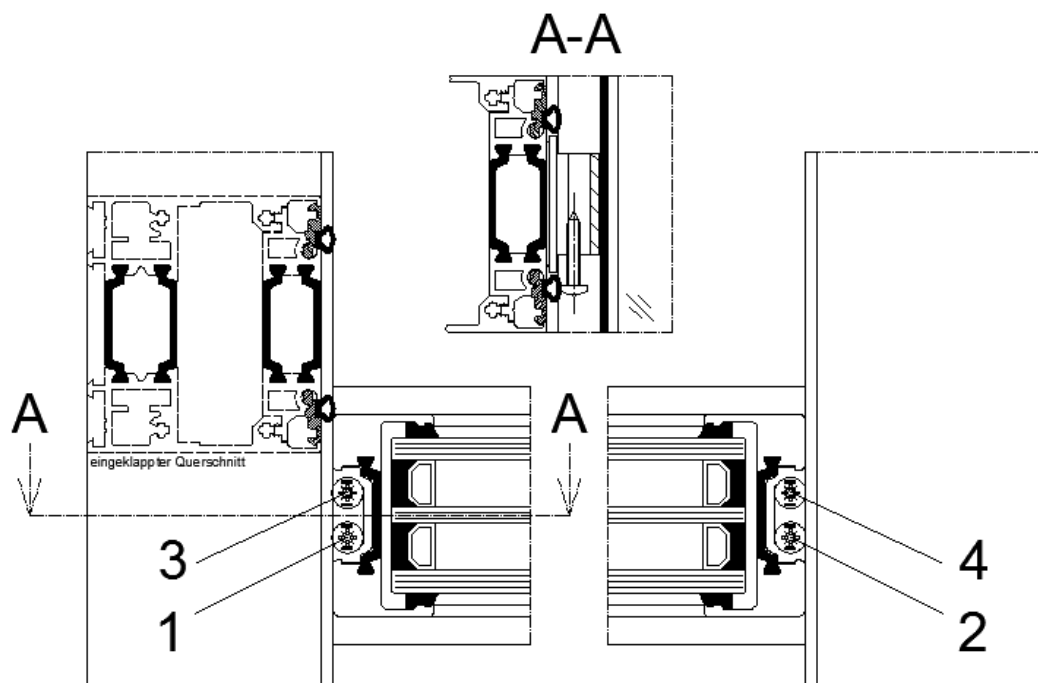


Pay attention that sealing on side does not get damaged during this process

Open louvres fully as soon as all louvre blades are installed

Slightly tighten all four screws (3.9 x 1.9 mm) but do not yet fix them.
Add fat onto bit that screw does not fall down (special tool "bit long" is attached to delivery)

Please pay attention that: Bottom screw (1+2) left and right have to be tightened first.
After this, fix screws 3+4



Remove plastic caps once blade is installed (Photo B)

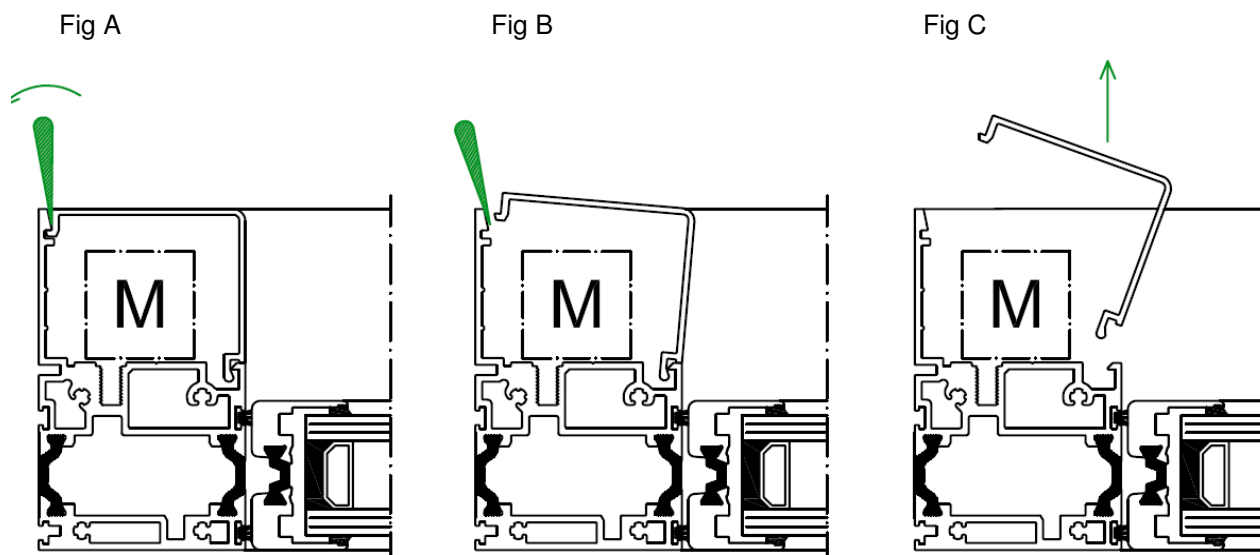
Photo B



8.9 Louvre Window Integral – Window frame / motor cover

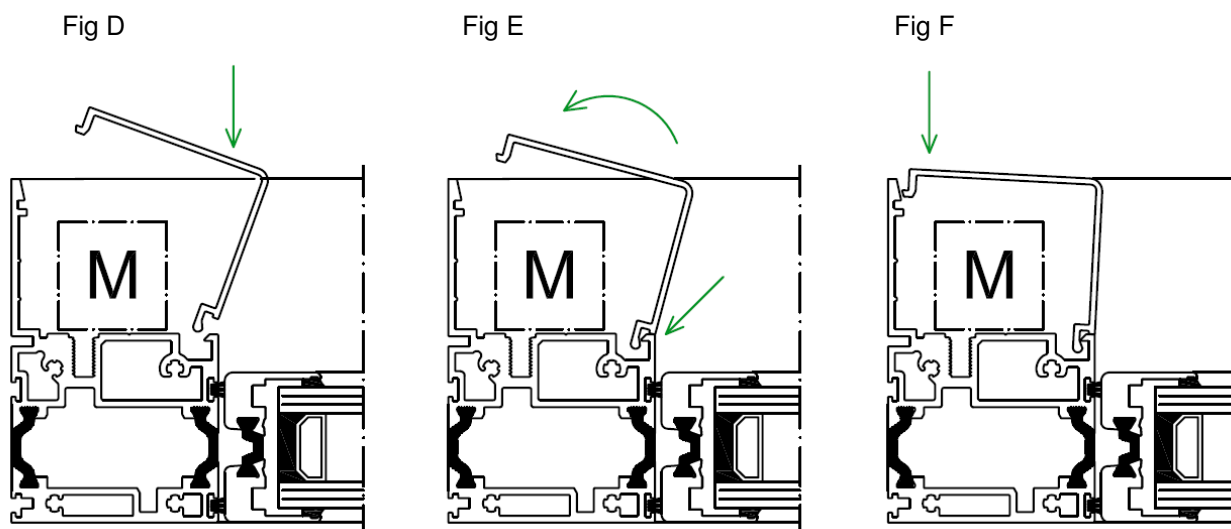
How to open the window frame / motor cover

Opening of the vertical frame has to be made by using a spatula. Insert spatula into joint of profile (Fig A) and rotate until the cover releases (Fig B). Repeat this process at different height positions. Cover can then be removed (Fig C).



How to close the window frame / motor cover

To close the vertical frame, the cover is slightly inclined and led to the element frame (Figure D). Then the cover is rotated so far until it rests on the frame element (Figure E). Now press on the profile until it snaps into place (Figure F). This process must be repeated at different height positions.



8.10 Final testing and start of operation



A function test has to be made after the window has been installed correctly. The actuator has to be connected to the appropriate power supply (according to wiring diagram available at www.hahn-lamellenfenster.de)

only by an electrically qualified person and opened and closed at least once.

Should the window open or close improperly, check if installation has been made correctly.

Correspondingly, this also applies to mechanical drives / manual actuators.

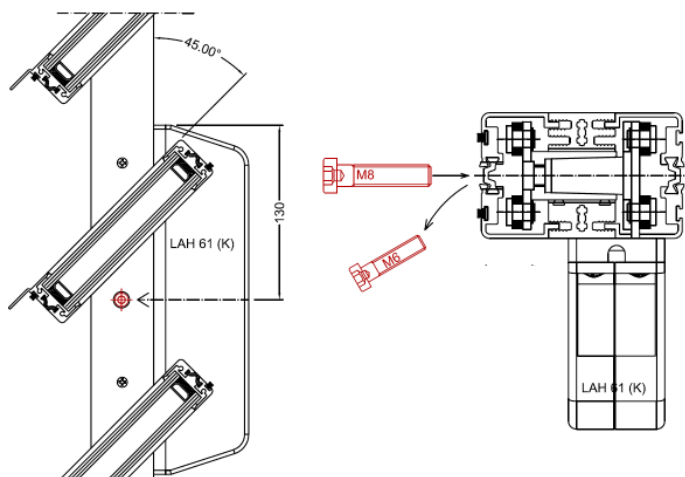
Actuating of Louvre Window may be effected only through the power levers provided. An adjustment of items by pressing against the blades contrary to force of motor mechanism can damage rotation inventory and mechanics. A proper function and tightness of louvre blades is then not longer ensured. Opening area of louvre blades has to kept free of any obstacles. Opened louvres may not be used to bear any objects. Cables, pipes or else may not run through opened louvres.

9. Setup of a LAH 65 (24V/230V) mid mullion motor

Double breasted GBH Louvre vents can be operated synchronously by mid mullion motors type LAH (assumed that motor power is sufficient for the total number of blades). The power transmission is achieved by conical fillers installed into mid mullion. Frequent blockade of louvre blades can move these fillers, so that the louvre blades do not longer open and close synchronously.

To adjust the louvre vents with a new setup, follow these steps:

- A.) Open louvre vent by 45° - do NOT remove motor
- B.) There is a borehole in height of the actuator – see drawing 1 below.
Loose and remove M6 pan screw
- C.) Replace M6 screw with M8 screw (min. length 50 mm) and tighten screw as long as necessary until louvre blades left hand side from mid mullion can be moved manually by hand
- D.) Loose and remove M8 screw
- E.) Insert M6 pan screw again, but do NOT tighten screw
- F.) Bring louvre blades left hand side in same position than vents on right hand side by using a long water level on blades left and right hand side
- G.) Tighten M6 fast (force-fit conical connection)
- H.) Test run



Example shows type S9-iVt-05

10. Sealing of pneumatic control fittings

Compression- or swiveling fittings for supply and exhaust of air are fixed loose only and need to be turned into the cylinder body and sealed on site by using a liquid sealant (e.h. Locite 243).

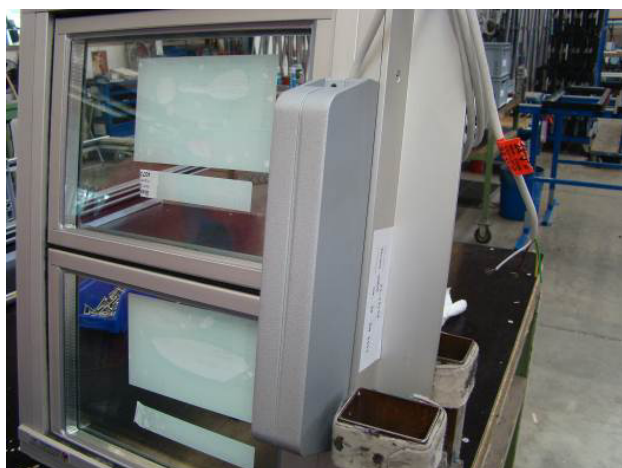
11. Replacement of LAH actuators



DO NOT REMOVE AND/OR REPLACE ANY ACTUATORS WITHOUT APPROVAL OF GBH.
Otherwise warranty gets lost.

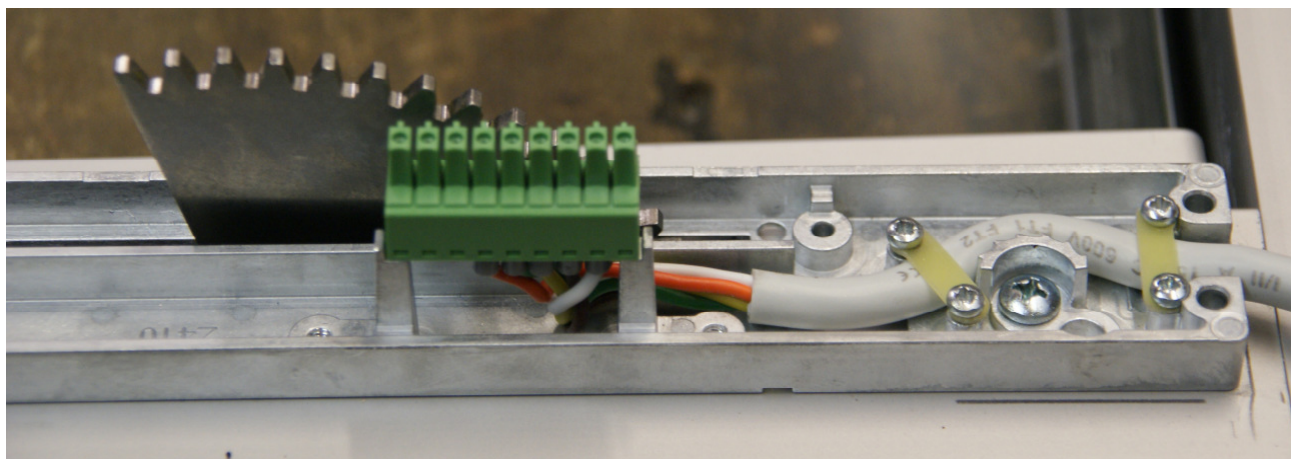
Individually programmable (via software) from D+H Service and Sales partners or GBH.

Remove the 4no Torx screws (T20) on top and bottom of actuator to disassemble it from the unit

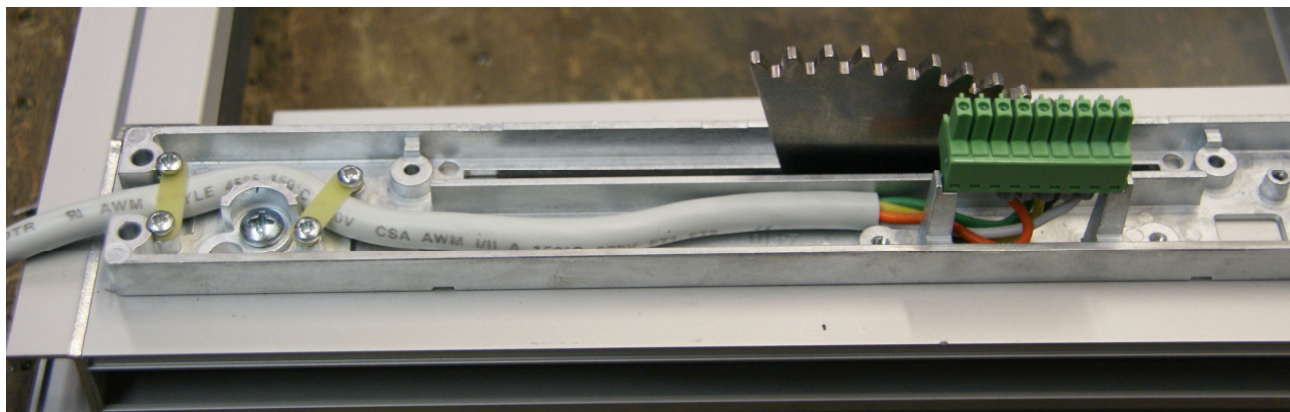


Check cable entry once actuator has been removed:

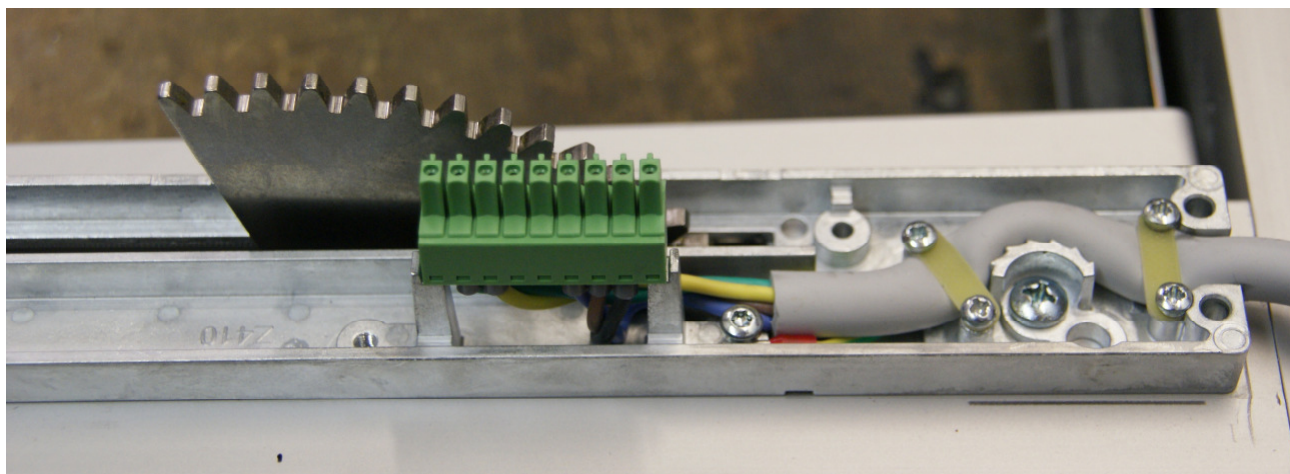
LAH 65 24V top entry



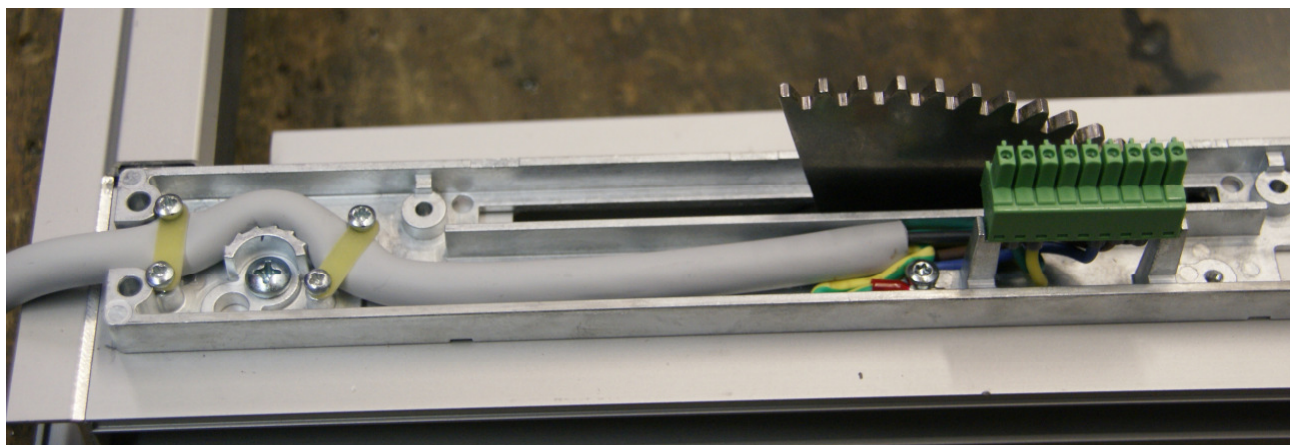
LAH 65 24 V bottom entry



LAH 65 K 230 V top entry



LAH 65 K 230 V bottom entry



Window has to be closed when installing a new actuator. Motor has to be pressed fix to already installed motor bracket and fixed again by tightening the screws.
When finger trapping protection is to be activated, unit has to be opened and closed one time. To check whether function is activated, close unit and hold a finger thick object between (12-15 mm) the closing blades. Motor does register blocking of closing and opens to about 60° opening angle. After a 5 second stop louvrew will close again.
Electric power has to be steady during complete test run.



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