

Data sheet/Assembly instruction

Scissor mounting SB-LW-Hub-SGxxx

Please read these "data sheet" carefully and completely. Only technically qualified personnel may work on this device.

Meaning of symbols

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Safety instructions must be observed!

Failure to observe these notes may result in personal injury and property damage.

- **Advice**, the non-compliance with these instructions or the technical data shall lead to the loss of rights under guarantee.
- Correct,

this is how it should be done.

Incorrect, this is not how it should be done.



Figure 1: dimensional drawing

Correct and proper use

The mounting serve the purpose of opening and closing NSHEV devices, as intended skydome, skylights in the roof area, over 2,5m (no free access for system-external persons). The producer of the NSHEV is responsible for the implementation of EN 12101-2. With the documents, provided by Grasl Pneumatic-Mechanik GmbH, it is necessary to clarify which devices and sizes are suitable for this purpose. For all other applications the compatibility and thus the security can not be guaranteed. On the application of voltage, a movement command is activated.

If the mounting are installed below an installation height of 2,5m to the floor, or to the next access level, appropriate devices must be fitted so that people are not endangered (crushing and trapping hazards). Apply the Directives, Rules and Standards intended for this purpose, such as, for example, EN 14351, DIN EN 60335-2-103:2003 and ASR A1.6. Do not allow children to play with the device or its control and / or control devices, including window controls.

Technical data

rated voltage (tolerance)	24VDC(+	6/-5)/48VDC(+4,8/-5)
current demand factory setting	AM5	8A(24V)/4A(48V)
ripple		150mVpp
lifting force		2x 1808N
lifting height		800mm
ventilation position max.		25s
ambient temperature		-5°C - +60°C





System plan

Permissible cable length from the AM 5a-S-1 to the actuators: L1 = L2 = <3m (Abbildung 2)

All technical datas of the actuator and AM 5a-S-1 can be taken from the respective data sheets!



General notes

The mounting is not suitable for highly corrosive environments (e.g. thermal baths, waste management, etc.).

Sharp edges and corners: The mounting consists of stamped and folded sheets, which have sharp edges and corners. These can lead to cuts. Handle this product only with appropriate PPE (eg cut resistant gloves).

Installation space of the mounting: Design it so that there is no danger of crushing (eg: provide protective plates).

- *High forces:* In the mounting components are installed, which cause high forces (electric actuator, etc.). Only qualified and trained personnel are allowed to handle this product.
- *Roof opening:* During installation work, every person in the roof opening area must be secured with the correct safety equipment.
- *Falling parts:* Make sure that no persons or objects are below the work area while working on the NSHEV.
- Assembly/Disassembly: This must not take place at high wind speeds, as otherwise the skylight/skydome can lift off.
- Movable mounting parts: Due to the requirements of our product, no safety mechanisms, such as: automatic overload detection, etc. are installed. There must be no persons during operation in the danger zone, or work on the mounting take place.
- External controls (eg: automatic commanders outside the field of view) can lead to unpredictable control commands, which can result in movements in the opening construction. When handling the fitting or the entire NSHEV, the electric actuator must be completed.

Technical details/control

The actuators in the mounting are suitable for connection to K+G/Grasl- control centres. With control via other control centres or other power supplies, the compatibility must be checked. As the actuator housings are not earthed, it must be ensured via the controller that no voltages are routed to the actuators over the protective low voltage (keyword, galvanic isolation on the transformer, etc.).

With a fault on the internal actuator overload cut-off device in the event of a short circuit or overcurrent, the upstream controller as a second safety circuit must disconnect the defective actuator via a fuse or similar.

Only with the *Technical data* can the trouble-free functioning of the motor electronics be guaranteed. The mounting must only be used in normal atmospheric conditions.

The mounting must not be exposed to extreme temperatures or weather and is not suitable for storage and assembly outdoors.

- An NSHEV with a dome/flap that can be removed from the outside is advantageous in order to facilitate the installation of the mounting.
- (i) The dimensioning of the connection cable must be carried out and/or be checked by a qualified electrical company. In doing so, in addition to the nominal values the maximum start-up current of the actuators must be taken into account.
- The cross section of the cable L3 (Abbildung 2) between AM 5 and the control centre must be so dimensioned that even at full load the voltage drop between the control centre and the actuator does not exceed 2V (24VDC) 4V (48VDC) (see the control centre documentation).

Scope of supply



Figure 3: mounting without skylight attachment

Not in Scope of supply



Figure 4: skylight attachment, auxiliary sheet for assembly

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In the case of atypical ambient atmosphere (for example, SO2-, saline atmosphere), please consult.

For the control of the actuators, only use mutually mechanically interlocked ventilation buttons with contactless centre positions, "no changeover switch", with independent return from the the two switching positions (Abbildung 2). The direct switching of the direction of movement while the drive is running is not permitted and can lead to defects (approx. 2s pause required).

Installation

Oconnect the mounting to the NSHEV using all the fixing points provided for this purpose using fixing material suitable for the respective subsurface (see *Mounting assembly*).

Before the installation, the following must be observed:

Check the completeness of the scope of supply. Inspect the mounting and the actuator for transport damage. If damage can be seen, the product must be reported immediately.

The mounting must not be operated without a load (>20kg), otherwise damage may occur.

General

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It must be ensured that the actuators can always reach their end positions as otherwise the internal end cut-off is not guaranteed. The adjustment is made by correctly assembling the mounting (see *Mounting assembly*). Continuous operation over the load cut-off is not permitted. Check the setting in the retracted condition by means of marking on the pushrod end (see *Technical Instructions* to the spindle actuators).



In the process, the maximum pushing/pulling force of the actuator must not be exceeded (see the data sheets) as otherwise it cannot retract fully (internal limit switches are then not activated).

When connecting the actuators via an customer-provided junction box/AM 5, strain relief must be used. When selecting the cable length, take into account the positioning of the box and the pivoting range of the actuator. On the application of voltage, a movement command is activated.

Ensure that the actuators/mountings can move freely in the whole of the stroke range and cannot come into contact with parts of the building.

Due to their low cut resistance, handle the connecting cables of the actuators with great care. Be careful with sharp-edged materials. Use rubber grommets, cable glands, etc.



Figure 5: ventilation button

D Information about connection and technical data relating to the electric actuator can be found in the specific datasheets.

 The curbe and the skylight must be so stable that no elastic or plastic deformation occurs during opening/closing, or in the open position.

Mounting assembly

- Put the mountings into the curb and position each side in such a way that the middle upper traverse mount is centered on the skylight flap (Abbildung 8). Use optional auxiliary sheets to facilitate assembly.
- Connect the mountings laterally (on both sides) through all possible fixing holes Ø6mm using suitable fixing material (Not included in the scope of supply!) with the curb. Then drive up approx. 30-40cm, in order to reach all remaining fixing holes and also connect to the curb using suitable fixing material (Not included in the scope of supply!) (Abbildung 6). Make sure that the assembly is flush (Abbildung 8).
- Connect the skylight attachment through all the fixing holes using suitable fixing material (Not included in the scope of supply!) with the upper traverses (Abbildung 7). Make sure that the assembly is flush and horizontal (Abbildung 8).
- Dimension the fixing material "a" (Abbildung 6, Abbildung 7) so that it can withstand the load of the 7500N on each mounting side.

An incorrect installation of the skylight attachment can lead to uncontrolled opening of the flap and occasionally damage to the mounting being opened in strong wind or in a gust of wind.

After completing the installation of the mounting, open and close the flap. The following should be checked:

- lifting height
- mechanical smooth running of the mounting
- that the locks are not in contact when retracted (Abbildung 9)
- tightness of the skylight.

Commissioning

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Only put the mounting into operation when the NSHEV system is fully installed.

When commissioning (test run, installation or maintenance work), for example, with accumulators it is absolutely necessary to fit a fuse of the same value as the nominal current of the actuator in the supply line of the actuator. In doing so, the actuators must not be connected to the actuator output of a control centre/controller at the same time. Otherwise and it can lead to faults on the power output of the control centre/controller. During test runs, the complete NSHEV mechanical systems must be observed.



Figure 6: fixing in the curb



Figure 7: schematic skylight attachment



Figure 8: aligned assembly



Figure 9: locking

Electrical connection AM 5

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Since the operation of the actuators in the mechanism is inverted (actuators retract, skylight flap opens or actuators extend, skylight flap closes), the connection of the actuators to the output of the AM 5a-S-1 module must be made with reverse polarity. Actuator 1: bl./3 - br./4 and actuator 2: bl./5 - br./6 (Abbildung 10).

DIP switch setting on AM 5 $_{,,}X^{(Abbildung 11)}$ = factory setting. For details, see separate data sheet AM 5a-S-1.

Maintenance/fault finding/disassembly

- D Maintenance must be carried out once a year by qualified personnel.
 - If the mounting is no longer functional, it must be completely replaced.
- No changes may be made to the mounting and no mounting components may be converted or removed. The actuator must not be opened. The mounting is then no longer operationally safe and may no longer be used.
- Make sure that the working area is clear of obstacles and that there are no persons in the danger zone.
- During maintenance work/fault finding on the NSHEV system, in order to avoid unintentional actuation/movements as a result of external control and travel commands, the energy supply must be interrupted. This can be done by disconnecting the actuators.
 - When re-boarding, observe possible movements by pending travel commands.

At least the following points must be checked:

- During the course of the annual maintenance, an inspection of the mechanical fixings must be carried out. Where necessary, these must be re-tightened using customary tools.
- Inspection of the pushrod for damage and cleanliness (clean where necessary).
- Inspection of the pushrod wiper for wear.
- Inspection for freeness from dust (clean where necessary).
- Inspection of the structural conditions for changes with regard to the requirements listed in the point, *Installation*.
- The equipment should be checked for imbalance, signs of wear or damage to cables, springs and fasteners.
- Perform a manual functional test.
- If existent, check the extension force of the gas pressure spring. If this does not match the nominal extension force (see label), the gas pressure spring must be replaced with a new one.
- Check the connection cable for damage.
- Check traverses for contamination, clean if necessary.



Figure 10: Electrical connection AM 5



Figure 11: DIP switch setting

Normal operation



The actuator has no internal protection against crushing injuries.

The static self-locking effect of the actuator can be lost due to external influences.

Disposal

This product is made of steel, aluminum, non-ferrous metals, plastic and electronic components.



This product must be disposed of in accordance with national regulations.

