# VENGEN[28] NSHEV

**Installation, operation & maintenance manual**

## Contents



## Health & safety

### Symbol key

**Symbols on the machine**

This product complies with applicable UK directives.

**Symbols in this user manual**

Warning/Caution!

Risk of crushing

### General

Please read this manual carefully in advance and make it accessible to all persons involved in a suitable and appropriate place. We point out that not observing the instructions in this document may affects the warranty.

It is not permissible to make changes or modify this product other than those specified in this document.

### Application area

The product is a natural smoke & heat exhaust ventilator designed for automatic opening in a vertical external wall.

The product may not be used for anything other than its intended use.

### This product is not suitable for:

- Maintaining compartmentation (e.g smoke shaft)
- Horizontal roof mounted application
- Sloping roof application

### Personnel

Work should be carried out by competent site operatives.

**PPE**

Appropriate personal protective equipment should be used. All operatives should follow guidance for the specific building site.

We recommend the following: Safety shoes or boots, work gloves, eye protection, helmet, high viz clothing, hearing protection, face mask.


Part Number: L00035


actionair by Swegon

## Electrical safety

Safety extra low voltage 24V DC!

Do not connect directly to the mains supply!

Connection has to be carried out only by an authorized electrical specialist.

Actuator rating: IP50 Protected from limited dust ingress. Not protected from liquids.

Actuator must be installed on the inside of the building.

## Other Risks

When the product is voltage fed, the ventilator will be either open or close and there can be a risk for pinch injuries, for example, on the fingers if these are placed between the louvred blades.

**Danger of crushing hands and fingers!**

## Initial Checks

Firstly, check the site and ensure that it is safe and clear of obstacles or hazards before commencing work. Inspect the work area again checking for potential trip hazards. Ensure that adequate edge protection is provided if working from height.

A method statement and risk assessment should be prepared before any work is carried out.

Suitable access equipment, scaffolding or MEWPs should be used if working at height. All personnel should be suitably trained in their use.

If working in a high up location, ensure that there are no walkways or footpaths below the work area and that no one is working below. This could put people at risk from falling debris. Employ a marshal if necessary to keep people from going into the area below the work.

Ensure that the fixing substrate is structurally sound and capable of supporting the vent. Ensure that it is also free of any potentially hazardous material. Use a detector to ensure there are no services such as electrical cables or gas pipes that could pose a potential hazard.

## Unloading

The weight of the goods should be assessed before unloading. Unloading of goods should be carried using suitable offloading equipment if required. Manual handling should only be employed if the weight of the goods is within safe limitations and the right number of people should carry out the lift.

Goods should be stored in a safe storage area, as near to the area of work as possible to avoid unnecessary handling.

## Lifting and handling

As with offloading, appropriate lifting equipment should be used if required. If NSHEVs are to be handled manually then the relevant number of people should be employed for lifting.

When NSHEVs have to be moved on site, louvres must be closed. The NSHEVs can be stored either on their ends or on their sides. Avoid placing force on the corners. This may result in mechanical failure.

Extra care should be taken when handling glass and every precaution should be taken to avoid breakages.

All lifting should be carried out using best practice. Suitable hop-ups or access equipment should be used to avoid stretching or lifting overhead.

**The HSE Work at Height Regulations should be followed at all times.**

## Installation

Install the product for easy access during service/maintenance.

Use appropriate tools and the recommended fixings – ensure that the vent is installed safely and securely. Avoid long periods of drilling.

When opening and closing the NSHEV ensure that hands are held away from any moving parts to avoid the possibility of trapping/crushing.

Once installed the NSHEV should be left in a safe manner, ideally with the blades closed ensuring that no parts of the NSHEV are protruding into a walkway area.

# Installation

**Builders clear opening**

**Use the below graph to check the opening sizes meet the minimum requirements**

For the horizontal clearance apply the width of the VENGEN28 NSHEV to obtain minimum clearance values to be applied to each side of the NSHEV.

For the vertical clearance apply the height of the VENGEN28 NSHEV to obtain minimum clearance values to be applied to the top & bottom of the NSHEV.


**Example:**

Unit 1000 (W) x 1300 (H)

Horizontal Clearance : 9.7mm ----

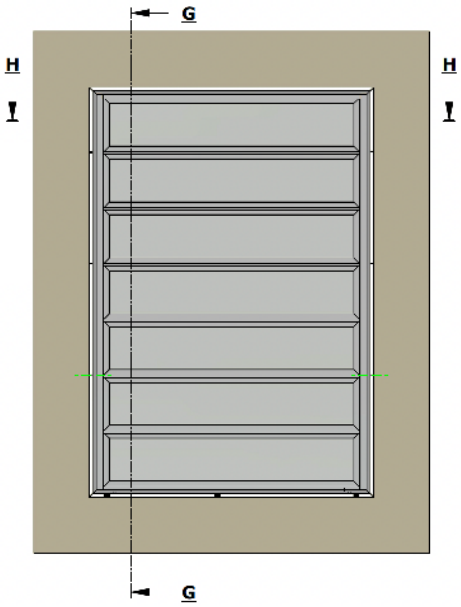
Vertical Clearance : 12.5mm ----

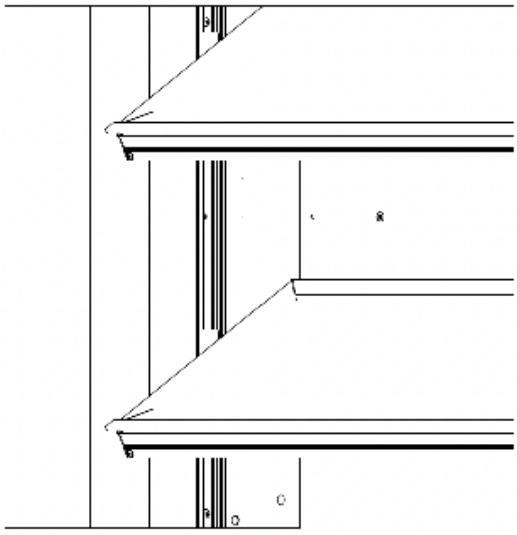
Builders Clear Opening: 1020mm (W) x 1325mm (H)

## NSHEV fixing

### Direct fixing

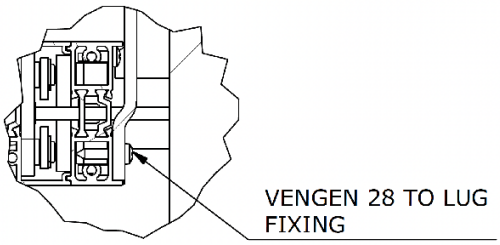
- Fix cill clips to the cill structure with suitable packing to meet clearance requirements
- Place NSHEV into opening & position over cill clips & secure.
- Open the blades of the unit to reveal pre-drilled fixing holes
- Drill pilot holes in the building structure located through pre-drilled frame holes
- For brick & blockwork remove louvre to drill holes & fit suitable wall plug for building material (not provided) Note: Allow suitable edge distance for fixing.
- Place NSHEV back into opening. Sufficient packing shims should be placed around direct fixings to avoid distortion of the window frame when fixings are tightened.
- **Important! Refer to installation checks (page 6) to ensure NSHEV is true/square/ level & plumb. If not remove fixing and adjust**
- Fit backing rod between NSHEV & opening Sealant application should be in accordance with good practice for fixing commercial window systems.

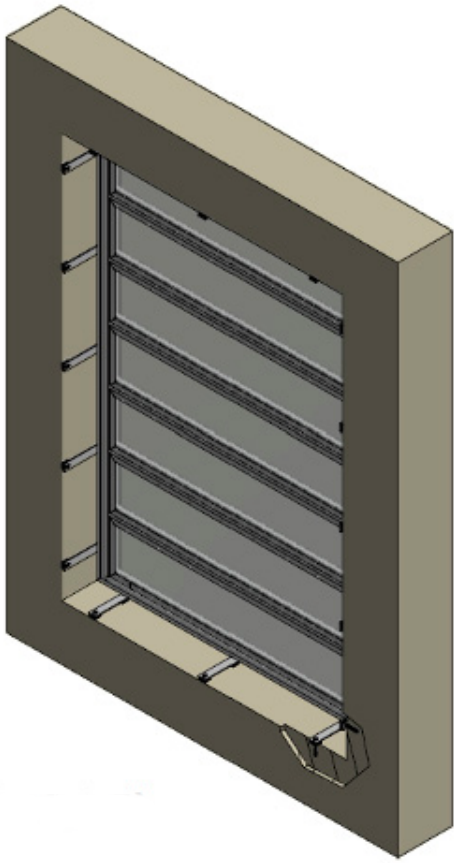


## Lug Fixing

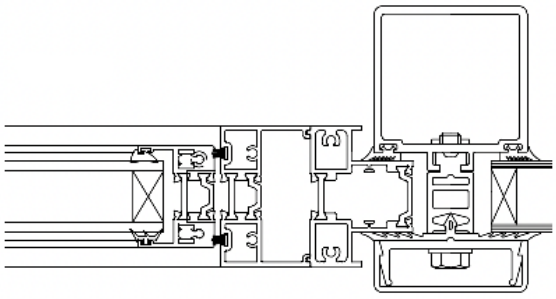
- Fix lugs to side of frame with a maximum spacing of 600mm between centres and 150mm from each edge.
- Place NSHEV into opening & secure window
- Drill pilot holes in the building structure located through bracket fixing holes
- Remove NSHEV to drill holes & fit suitable wall plug for building material (not provided)
- Note: Allow suitable edge distance for fixing
- Place NSHEV back into opening. Sufficient packing shims should be placed around direct fixings to avoid distortion of the NSHEV frame when fixings are tightened.
- **Important! Refer to installation checks (page 6) to ensure NSHEV is true/square/ level & plumb. If not remove fixing and adjust**
- Fit backing rod between NSHEV & opening
- Sealant application should be in accordance with good practice for fixing commercial window systems.



## Glazing system

- VENGEN[28] NSHEV can be provided with a 28mm glazing edge for installation into a façade.
- Compare glazing edge thickness to façade glazing opening.
- Place NSHEV into glazing system with suitable packing pieces and secure.
- Fix in accordance with façade suppliers instructions
- **Important!!** Refer to installation checks (page 6).



## Installation checks

**Important!! Please ensure the following installation steps are adhered to:**

- Post installation make the below checks:
- Ensure unit is square by measuring the corners are at 90° angle and corner to corner measurements are equal as per fig. 1
- Ensure the louvre window frames are exactly parallel to each other
- Ensure blades move freely without motor attached
- Check blades open to at least 86°

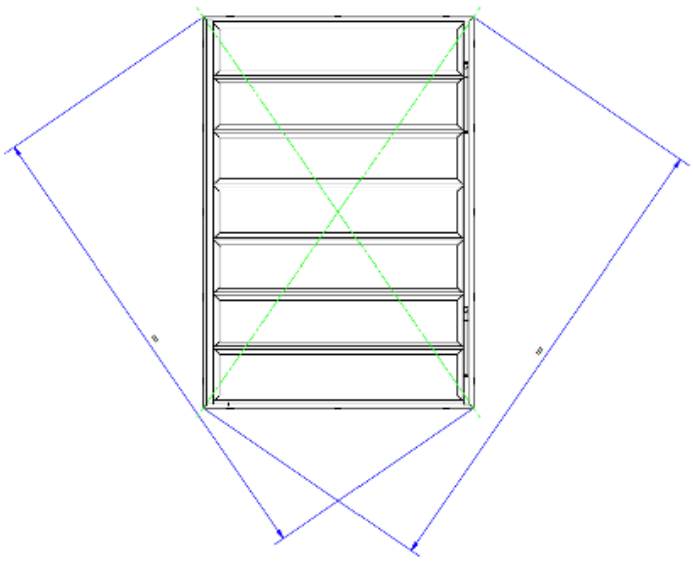
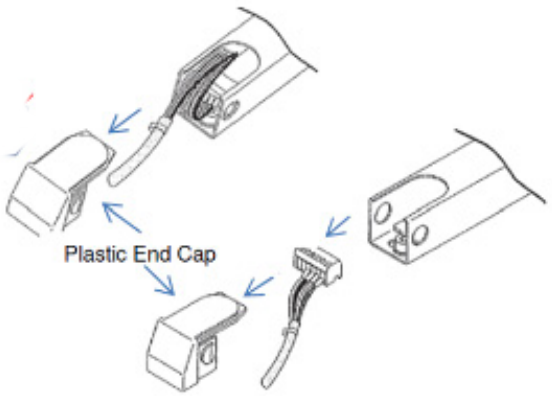
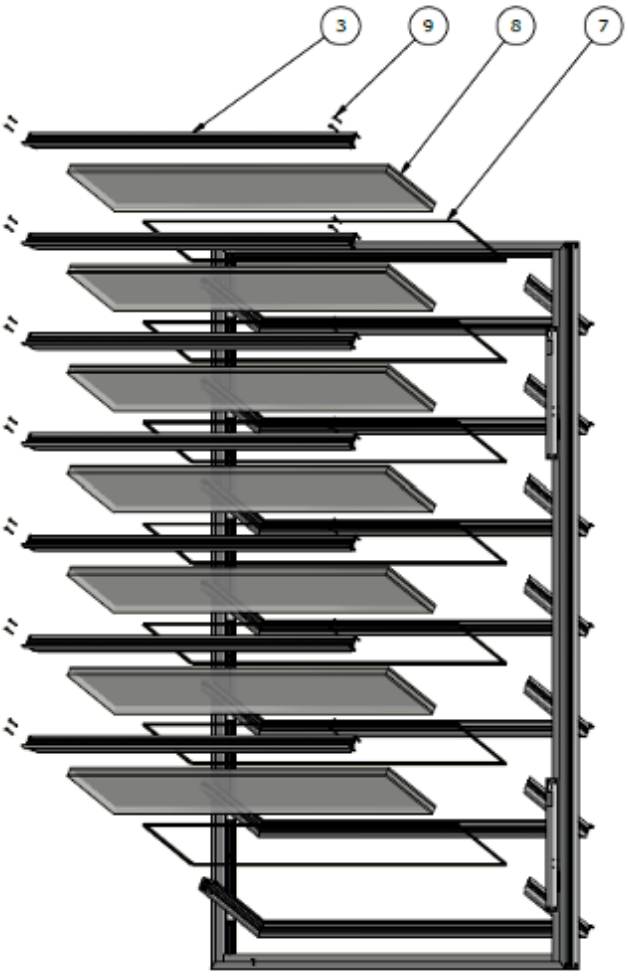


*Fig.1*

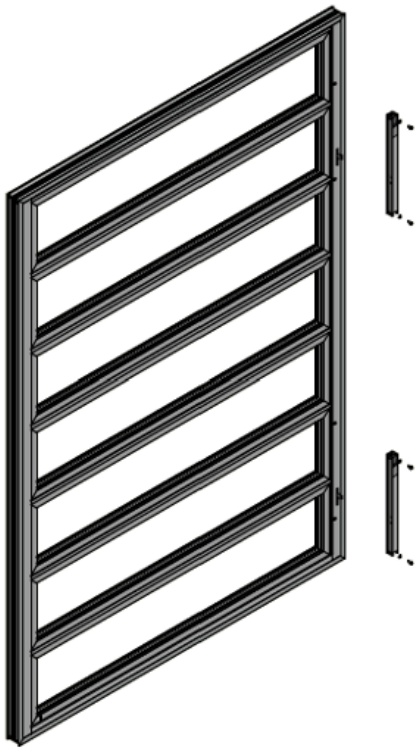
## Glass Installation

- Glass is typically supplied loose for onsite glazing
- Glazing should be carried out after NSHEV is fixed to the structure and prior to actuator fitting.
- If actuator is fitted remove plastic cap, disconnect cable (figure 1) and undo screws top & bottom.
- Fully open NSHEV
- Remove 2no. screws (9) from each end of the louvre head rail (3) & remove horizontal head rail.
- Slide glass unit (8) into 'goal post' frame & re-fit horizontal head rail (3).
- Close the NSHEV to fit the internal glazing wedges (7). *Note; Wedges are supplied in reels for site cutting*
- Fit head & Cill rail wedges first followed by side rail wedges
- Repeat for each louvre blade.
- After glazing it may be necessary to re-level and square the head & cill rails. To do this apply pressure at centre points of rail.
- Check & seal frame corners at junctions of head, cill & side rails with small joint sealant.



# Commissioning



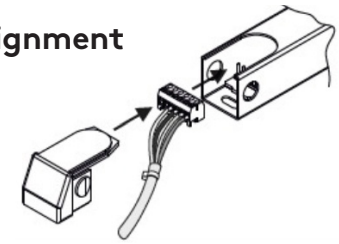
## Actuator ixing

VENGEN[28] NSHEV is provided with a 24v DC programmable linear actuators. The drive allows variable opening and closing for daily use, whilst also being suitable for smoke ventilation.

- Close NSHEV to allow actuator fitting
- Lubricate the linkage drive plate
- Place D+H Mechantronic 24V LDN actuator on jamb and align the slot on the back with the drive plate.
- Using screws & anti-shake washers secure the actuator to VENGEN[28] NSHEV via top & bottom holes. *Note : Actuator is to be fitted inside the building*
- Connect the motor lead by sliding the cable connection block firmly over the motor pins.
- Connect the live and neutral wires to a 24v power pack.
- Connect to D&H software and program the stroke length to achieve minimum 86 degree blade angle.
- Activate the motor – open fully then close the window. Repeat a second cycle.
- If the unit is functional place the cover caps on the motor.
- The actuator should be fitted so that no part overhangs the inside of the jamb and impedes the opening of the vent. Check that the blades are moving freely, without fouling on the actuator, when fitted.

**Pin Assignment**

1.



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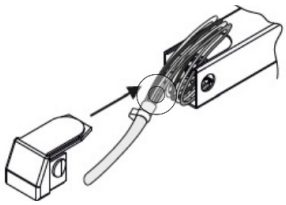

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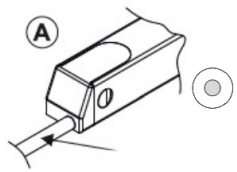
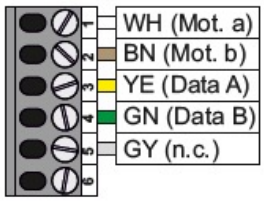


## Wiring details

### Standard

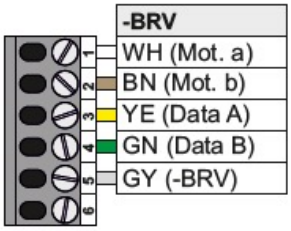


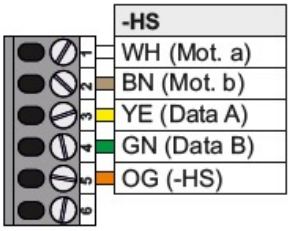

(WH) white
(BN) brown
(OG) orange
(YE) yellow
(GN) green
(PK) pink
(GY) grey

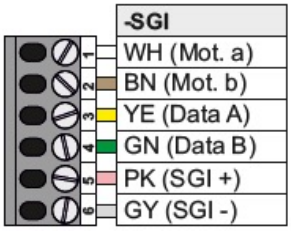
* protect against short circuit

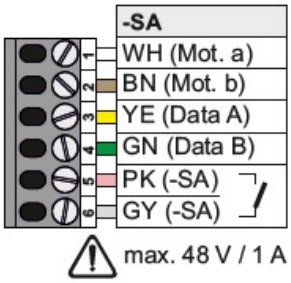
** Cable acc. to D+H table for layout of cables (see instructions for use of control panel)

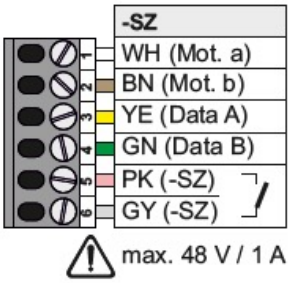
### Optional Signals

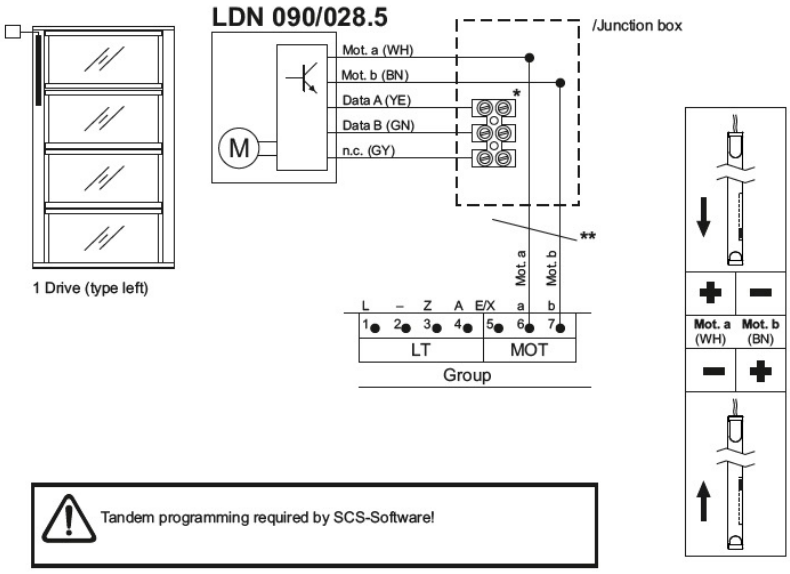


# Maintenance

## Operational and visual checks

| Frequency | Action | Purpose |
|---|---|---|
| Weekly | Check window opening edges are clear of obstruction | To ensure window can actuate in accordance with EN12101-2 |
| Weekly | Check whether the glass louvre or actuator has any visible damage or corrosion | To ensure window can actuate in accordance with EN12101-2 |
| Weekly | Actuation of the system should be simulated, ensuring NSHEV opens as intended | To meet guidance for BS 9999 |
| Weekly | Observe windows are running parallel on opening & closing | To ensure window can actuate in accordance with EN12101-2 |
| Weekly | Check Louvre is left in normal operational position after inspection | To ensure window can actuate in accordance with EN12101-2 |
| 3 Months | Actuation of all smoke control systems . All zones should be separately tested and it should be ensured that the NSHEV operates correctly | To meet guidance for BS 9999 |
| 3 Months | Check actuator screws are secured tightly | To ensure window can actuate in accordance with EN12101-2 |
| 3 Months | Check actuator wiring for damage | To ensure window can actuate in accordance with EN12101-2 |
| 3 Months | Check condition of seals & brush seals | To prevent water ingress |
| Yearly | Arrangements should be made for annual inspections and performance tests of the following to be carried out by a competent persons, for any defects to be logged and the necessary action taken, and for certificates of testing to be obtained | To meet guidance for BS 9999 |
| Yearly | The operating hardware should be lubricated. | To ensure window can actuate in accordance with EN12101-2 |

## Cleaning

### External surface

Cleaning should start at the time the products are installed, ensuring that construction materials such as concrete, plaster and paint splashes are removed before they have a chance to dry. Failure to remove these materials at this early stage will require the use of aggressive cleaning materials and techniques with potential damage to the powder coated surface.

The best method of cleaning is by regular washing of the coating using a solution of warm water and non-abrasive, pH neutral detergent solution. Surfaces should be thoroughly rinsed after cleaning to remove all residues. All surfaces should be cleaned using a soft cloth or sponge or nothing harsher than a soft natural bristle brush. Cleaning of powder coated sections can be conveniently carried out at the same time as window cleaning. If the project is subject to any hazardous unusual environmental factors, or is close to salt water an estuary or marine environments then swegon must be consulted on an individual project basis.

The frequency of cleaning depends in part on the standard of appearance that is required and also the requirements to remove deposits, which could cause damage. For frequency please refer to Interpon D series Cleaning and Maintenance Guidelines.

## Internal surface

| Component | Action | Frequency |
|---|---|---|
| Louvre Frame | The best method of cleaning is by regular washing of the coating using a solution of warm water and non-abrasive, pH neutral detergent solution. Surfaces should be thoroughly rinsed after cleaning to remove all residues. All surfaces should be cleaned using a soft cloth or sponge or nothing harsher than a soft natural bristle brush. | Monthly |
| Brush Seals | To clean the brush seals, open the units and clean them with a coarse scrubbing brush in dry condition. If the dirt is very persistent you can add water and a neutral detergent. | Monthly |
| Actuator | Wipe away any debris or contamination with a dry, soft cloth<br>**Do not** use cleaning agents or solvents.<br>**Do not** use water. The actuator has no protection against moisture (IP50) | Monthly |

## Repairing / Replacements

- Any malfunction or damage should be immediately reported to Swegon.
- Repairs are to be carried out exclusively by a Swegon approved installer.
- In the event of a life safety actuation the NSHEV should be assessed by a Swegon approved installer. Any signs of fire damage the unit should be replaced.
- Any attempt to repair the NSHEV or actuator would void the warranty.
- Only Swegon parts can be used for repair / replacement.
- For the actuator only D+H parts can be used

Technical file at:

Swegon Ltd, Unit D Vantage Point, Snodland , ME6 5SL Kent