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## Metal blind s\_enn SN 72/1, SN 72/2

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Installation instructions | *Edition 03.2022*






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## Installation instructions for metal blinds SN 72/1, SN 72/2

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## 1. Reading the installation and operating instructions

 The installation and operating instructions must be read prior to installation and then duly followed. Any failure to do so absolves the manufacturer of any liability.

### 1.1. Safety and warning notes for the installation instructions

Safety notes can be found throughout the text. They are marked with various symbols and text:


 **Important safety note:**  
Notes that are important for the functioning of the product and can result in serious injury or death if they are not observed are marked with this warning triangle.

 **Important safety note:**  
Notes that are important for the functioning of the product and that represent a risk of electrocution that can result in serious injury or death if they are not observed are marked with this warning triangle.


## 2. Qualifications


These installation instructions are aimed exclusively at qualified installers with extensive knowledge in the following areas:

- Health and safety at work and accident prevention regulations
- Working with ladders and scaffolding
- Handling and transporting long, heavy components
- Working with tools and machines
- Attaching fasteners
- Assessing the building fabric
- Commissioning and operating the product

 In the absence of any of these qualifications, a specialist installation company must be employed to install the product.

### Electrical work:


 The permanent electrical installation must be carried out by a qualified electrician in accordance with statutory and local regulations (VDE 100). The enclosed installation instructions for the electrical devices supplied with the product must be followed.

 The unit is to be protected with an upstream FI circuit breaker in accordance with VDE regulations.

## 3. Goods receipt

The delivery must be inspected immediately upon receipt for any damage sustained in transit. In addition, the contents of the shipment must be checked against the delivery note.


## 4. Transport

 The permissible axle loads and the permissible total weight of the means of transport must not be exceeded. Loading can affect the vehicle's handling.

The goods being transported are to be tied down and properly secured. The metal blind packaging must be kept dry. Wet packaging may disintegrate, causing accidents. Packaging opened for the purpose of inspecting incoming goods must be properly taped up again for further transportation.

After unloading, the metal blind should be transported to the installation site right-side-up and in the proper installation position, so that it will not have to be manoeuvred later in tight spaces. Attention must be paid to the note on the box indicating position and side.


## 5. Lifting with ropes

 If the metal blind needs to be lifted to a higher position using ropes, the metal blind should be

- taken out of the packaging,
- fastened to the hoisting ropes in such a way that it cannot slip off
- and lifted smoothly in a horizontal position.

The same applies to taking down the metal blind.

## 6. Installation

 Prior to installation, check the load-carrying capacity of the sub-construction.

It is important to check the structural properties of the glass facade construction prior to installation. In addition, ensure that the fastening screws are screwed directly into the supporting structure and that, in the event of wind, there is no connection to the glazing bead, as this could result in stress cracks. If this is not feasible, the installation must not be performed.

If there is any doubt, the manufacturer of the glass facade construction must be consulted.

## Installation instructions for metal blind s\_enn SN 72/1, SN 72/2

### Important safety information for the installation


**Caution:**

Supplied without fittings (accessories).

**The installer must select fittings that are suitable for the particular sub-construction.**

The installer is solely liable for ensuring that the fittings are suitable for the respective brickwork and that the installation work is performed properly. The respective installation notes from the manufacturer of the glass facade construction must be adhered to!

### 7. Fasteners

 The metal blind fulfils the requirements of the wind resistance class specified in the CE conformity mark (see operating instructions). When installed, these requirements are only met if:

- The metal blind is installed using the type and number of brackets recommended by the manufacturer
- The metal blind is suitably mounted to the sub-construction
- The wind resistance class to be achieved depends on the installation substructure and unit width
- The conditions to be complied with to ensure that the performance specifications are fulfilled are based on static loads and do not take account of any dynamic effect of repeatedly applied loads (turbulence) to which the metal blind and frame are exposed during actual use. The static pressure can therefore not be used to determine how to anchor the metal blinds to the building.

### Maximum permissible wind speed at which the unit can be used

**Resistance to wind load**


The wind classes defined by DIN EN 13659 do not permit any conclusions to be drawn on usability (extending/retracting, intermediate positions, etc.) under actual wind loads. The manufacturer must therefore define the maximum speed above which the metal blind must be retracted taking into consideration the installation situation and the blind clearance. This wind speed must be stated in the technical documentation (e.g. operating instructions). The conditions to be complied with to ensure that the performance specifications are fulfilled are based on static loads and do not take account of any dynamic effect of repeatedly applied loads (turbulence) to which the metal blind and frame are exposed during actual use. The static pressure can therefore not be used to determine how to anchor the metal blinds to the building.

The substructure/distance to the facade/height/corner situation also has an influence on the maximum possible wind speed and is not taken into account in the standard (DIN EN 1932:2013-09 External blinds and shutters - Resistance to wind loads - Method of testing and performance criteria) although these factors have a significant impact on the product's resistance to wind loads.

**Note regarding applicability**

The wind speeds used in the following table only apply with windows closed and not in corner situations. Similarly, the positioning and number of wind monitors used are of vital importance in selecting the appropriate wind speed for the building in question. In particular, the building's geometry and location must be taken into consideration. For this reason, it is essential to consult the specialist planner in such situations.

CE product marking


MHZ Hachtel GmbH & Co. KG Sindelfinger Straße 21, D-70771 Leinfelden-Echterdingen Germany  2021 LE-012/2
EN 13659:2004+A1:2008 s_enn SN 72/1, SN 72/2, Modell 48-1180
External installations on buildings and other structures  Wind resistance *: Units up to 2000 mm width = Class 4 Units up to 2700 mm width = Class 3

\* The wind resistance class depends on the application width. The declared performance applies only to the product. After installation, the installation base may result in a lower performance.

Wind resistance class:

Class 3 up to max. 11,9 m/s or up to max. 43 km/h

Class 4 up to max. 16,1 m/s or up to max. 58 km/h


Maximum wind speed at which the unit can be used in m/s

Unit height (mm)	Unit width (mm)			
	1000	1500	2000	2700
1000	16	16	16	12
1500	16	16	16	12
2000	16	16	16	12
2500	16	16	16	12
3000	16	16	16	12
3500	14	14	14	10
4000	14	14	14	10
4500	14	14	14	10


**Note:**

Please note that the specifications on the maximum wind speed at which the unit can be used relate to installation as intended directly on the facade. In the case of installation options deviating from the above, please contact MHZ for the necessary specifications.


### 8. Climbing aids


 Climbing aids must not be attached to or leant against the metal blind. They must be steady and provide adequate grip. Use only climbing aids with a sufficiently high load-bearing capacity. Only approved climbing aids (ladders) may be used.


### 9. Fall protection equipment

 There is a risk of falling when working at height. Appropriate fall protection equipment must be used.


### 10. Electrical connection

 The metal blind may only be connected if the electric drive's specifications match the electricity source (see operating instructions). The installation notes included with the electrical components must be followed.

 The unit is to be protected with an upstream FI circuit breaker in accordance with VDE regulations.


 Only cables and connectors with a minimum protection class of IP 54 should be used to supply power.

### 11. Intended use

 Metal blinds should only be used for the purpose defined for them in the operating instructions. Changes, such as attachments and modifications, not intended by the manufacturer may only be carried out with the manufacturer's written consent.

Applying additional loads to the metal blind by attaching objects can result in it becoming damaged or falling down and is therefore not permitted.


### 12. Unsupervised operation

 When working within the metal blind's range of motion, the automatic control must be turned off. There is a risk of crushing or falling.

In addition, it must be ensured that the unit cannot be unintentionally manually operated. For this purpose, the power supply must be cut, e.g. take out the fuse or disconnect the plug coupling on the motor.

If the metal blinds are operated by several users, a priority locking system (externally controlled circuit breaker) must be used, which makes any retraction and extension of the metal blind impossible.


### 13. Trial run


 The first time the unit is extended, no one is permitted to be in the metal blind's range of motion or underneath it. A visual check must be made of the fasteners and brackets after the unit has been extended for the first time.

For trial runs never use automatic controls or switches from which the operator has no view of the metal blind (there is a risk of it starting to move unintentionally). The use of a test cable to connect the motor is recommended.

The installation and adjustment instructions included with the metal blind from the manufacturers of the motor, switch and control must be followed.

### 14. Crush and shear zones, plus sharp-edged parts

 To avoid injuries, the end positions of the drive must be adjusted in line with the on-site conditions, where applicable.

 There are crush and shear zones between the drop bar, case covers and around the side guide rails. Caution! Risk of injury!

Limbs and clothing can potentially get caught up, crushed or pulled in by the unit!

If the metal blind is being fitted at a height of less than 2.5 metres above accessible thoroughfares, the metal blind may only be operated by a push-button switch within sight of the moving parts. Electrical controls, radio drives with lock switches, lock switches, etc. are not permissible in this case.

 Any long parts taken off, e.g. covers or guide rails, may have sharp edges (caution - risk of injury/cuts).

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## Installation instructions for metal blind s\_en SN 72/1, SN 72/2

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### 15. Handover



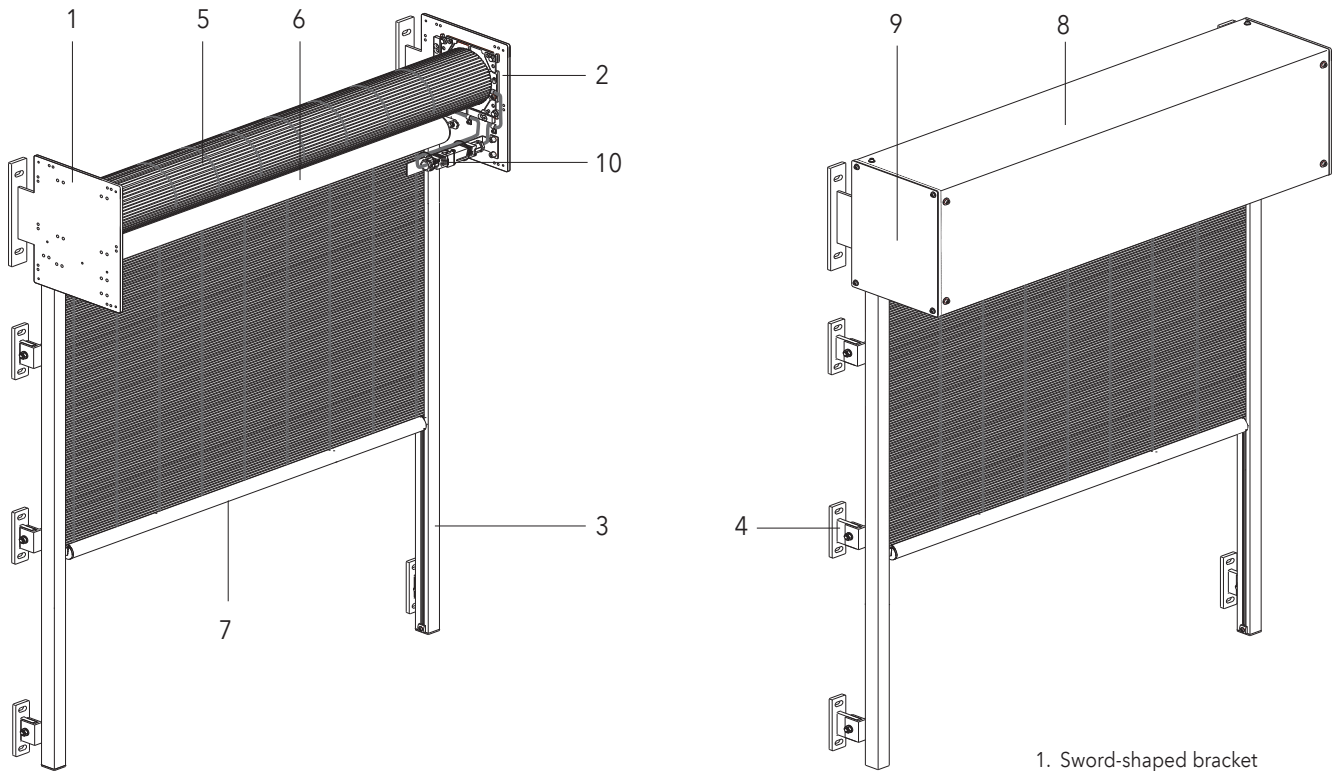
All operating instructions, as well as the installation and adjustment instructions issued by the motor, switch and control manufacturers, are to be handed over to the user with appropriate training. The safety information and information on use relating to the metal blind must be explained in full. Failure to follow the instructions or any incorrect operation can cause accidents and damage to the metal blind.

All instructions are to be kept by the customer for future reference and must be passed on to the new owner if the metal blind is sold.

**Based on knowledge of the particular conditions at the site and the finished installation, the installation company will tell the user whether the wind resistance class specified by the manufacturer has been achieved in the installed condition. If not, the installation company must document the wind resistance class actually achieved.**

#### **Recommendation:**

If you are the installer, have the metal blind's correct installation and set-up, the time of installation and details of the acceptance meeting, including that you explained the safety information, confirmed in writing. The MHZ record of delivery can be used for this purpose (see p. 23).



1. Sword-shaped bracket
2. Side plate
3. Guide rail 30x34
4. Wall bracket
5. Metal blind
6. Deflection tube
7. Drop bar with guide slider
8. Cover
9. End cover
10. Hirschmann plug coupling with holde

Inspect the delivery for any damage sustained in transit right away. The contents of the shipment must be checked against the specifications in the delivery note.

**Caution: Supplied without fittings.**  
The installer must choose fittings suitable for the installation substructure.

Inspection of the sub-construction:  
It is important to check the structural properties of the glass facade construction prior to installation.

In addition, ensure that the fastening screws are screwed directly into the supporting structure and that, in the event of wind, there is no connection to the glazing bead, as this could result in stress cracks.

If there is any doubt, the manufacturer of the glass facade construction must be consulted.

**Operating note:**

A metal blind provides sun protection - it is not a shield for all forms of weather. If there is a strong wind, ice or snow, it must be retracted.

If the metal blind is equipped with an automatic control (e.g. wind and sun sensor), this must be switched off over the winter (risk of freezing).

Give the user of the metal blind the accompanying operating instructions and explain to them in detail all the information on metal blind use and safety.

MHZ metal blinds are largely maintenance-free. If any faults do arise, notify your specialist retailer.

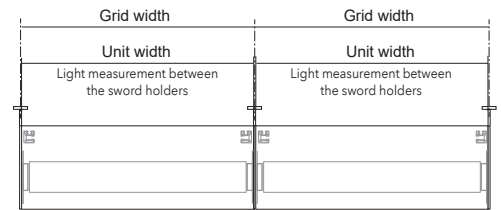
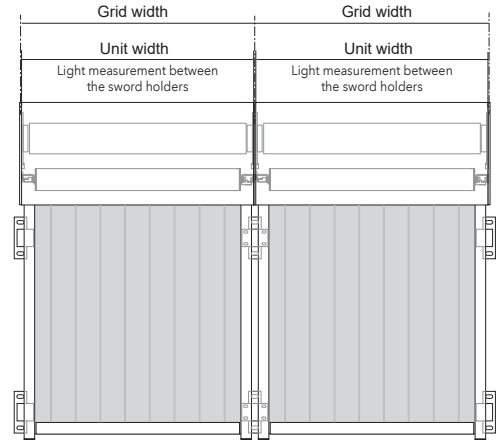
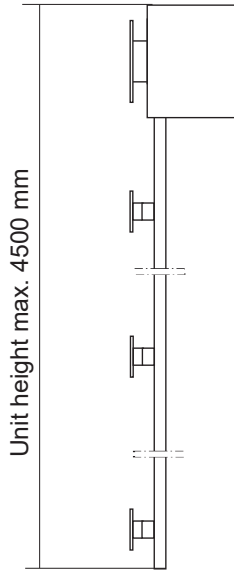
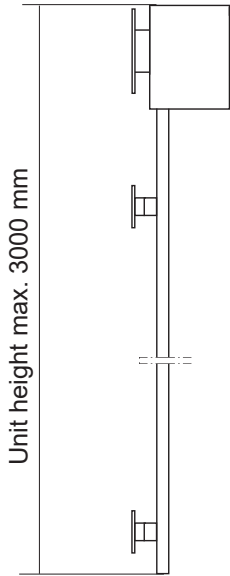
**Installation aids:**

- Drill
- Spirit level
- Allen keys size 3, 4 and 5 mm
- Ring spanners A/F 10 and 13
- Tape measure
- Adjustment cables for elero drives (item no. 99-1085)

The drive settings are not applied at the factory. Please refer to the installation and operating instructions provided by the motor manufacturer for the setting options.

Installation instructions for metal blind s\_enn SN 72/1, SN 72/2

Technical data



**SN 72/1**

Unit width:  
From 650 mm to 2700 mm

Unit height:  
From 650 mm to 3000 mm

Cover:  
Width: 227 mm  
Height: 285 mm

**SN 72/2**

Unit width:  
From 650 mm to 2700 mm

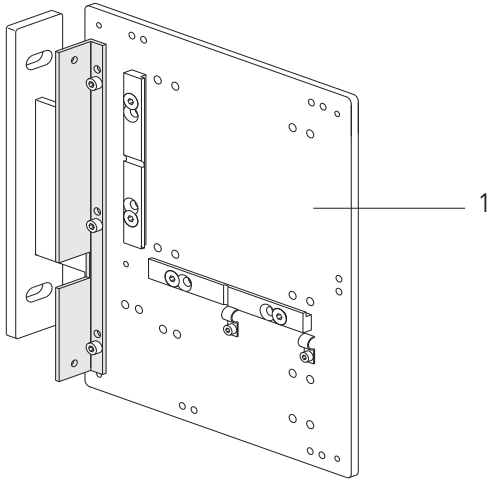
Unit height:  
From 3001 mm to 4500 mm

Cover:  
Width: 267 mm  
Height: 330 mm

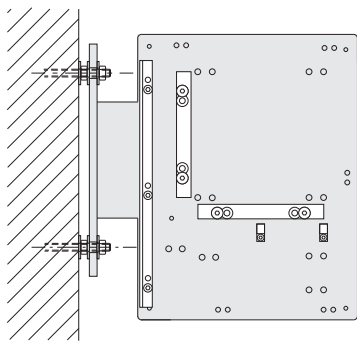


1. Installation of sword-shaped bracket

Position the sword-shaped brackets (1).

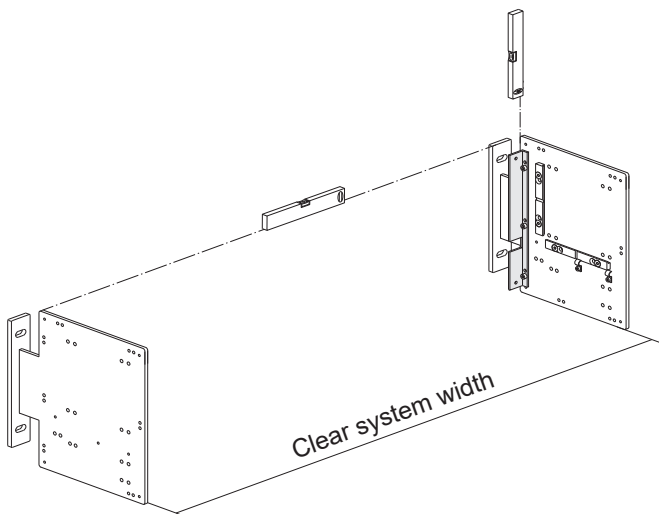


Installation example uses on-site threaded bolts. The metal blind is supplied without fittings.



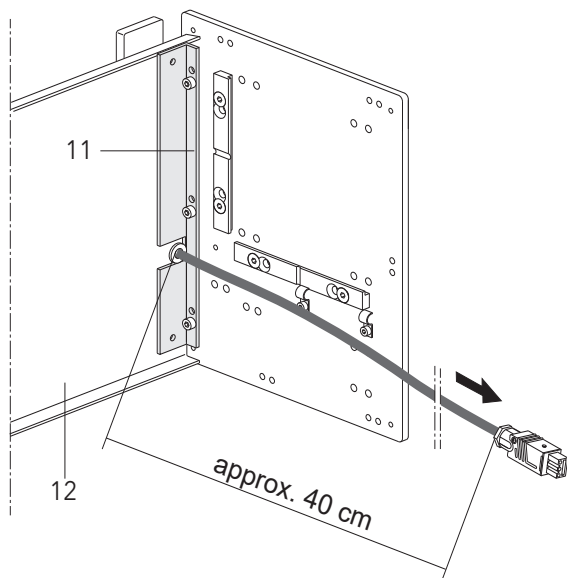
**!** The sword-shaped brackets must be exactly aligned vertically and horizontally.

Permissible dimensional tolerance for the clear unit width between the sword-shaped brackets:  $\pm 2$  mm

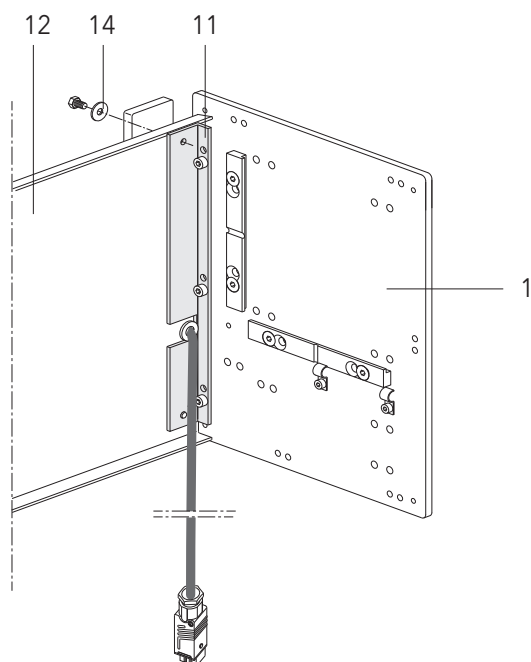
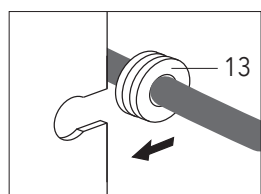


Installation instructions for metal blind s\_enn SN 72/1, SN 72/2

2. Installation of rear cover

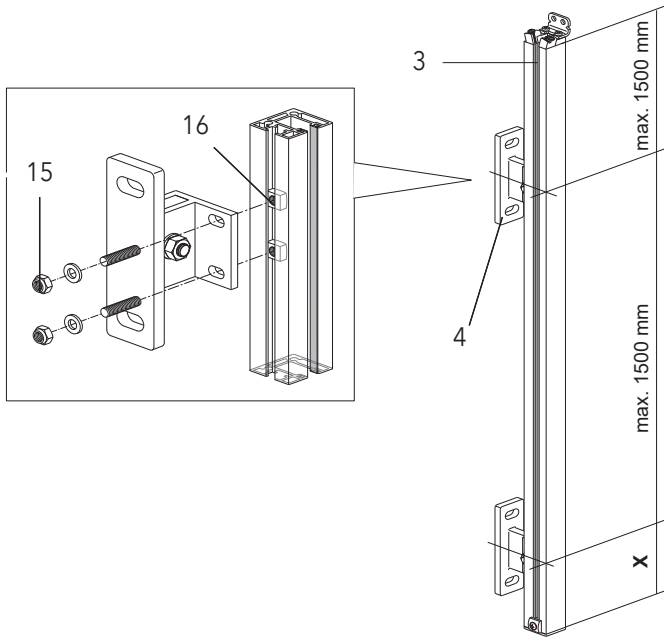


Before installing the rear cover (12), you must push the on-site cable through the cable grommet. Then push the cable grommet (13) and cable into the recess in the cover (see detail drawing). Install the cover and then connect the Stak 3 Hirschmann coupling. Cable length approx. 40 cm.



From the outside, fasten the rear cover (12) to the saddle at the back (11) of the left and right sword-shaped bracket (1) with 2 x M5x8 hex bolts and  $\varnothing 5.3$  U-washers (14) in each case.

3. Installation of guide rail 30x34 on sword-shaped bracket



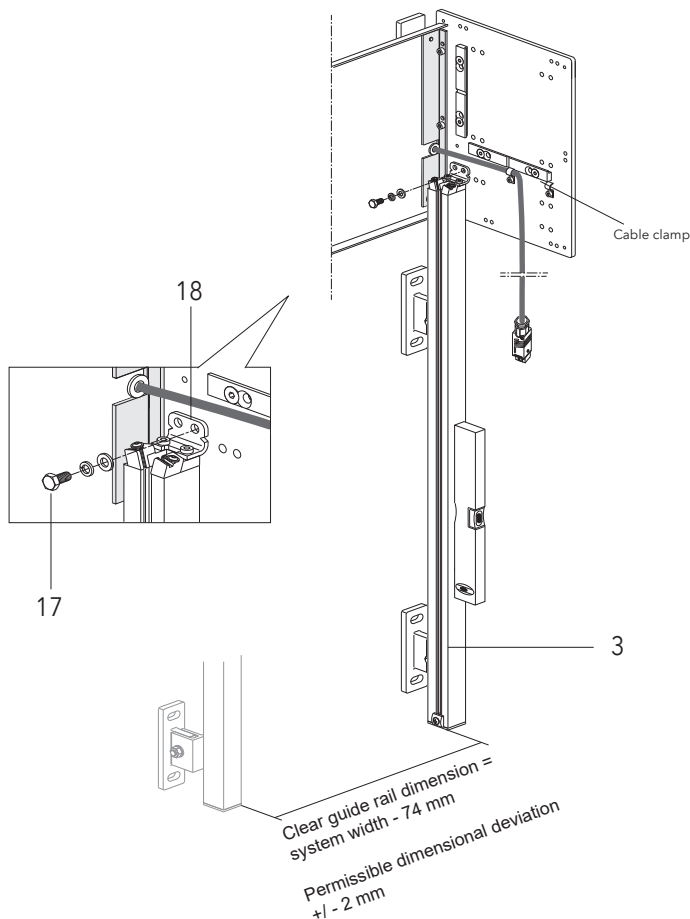
The wall brackets must be pre-mounted prior to installation of the guide rail 30x34 (3) on the sword-shaped bracket.

Use an M6x25 threaded pin,  $\varnothing 6.4$  U-washer and M6 hexagon nut (15) to bolt the wall brackets (4) to the M6 square nuts (16) already located in the guide rail (see detail drawing).

⚠ Pay attention to measurement X and the distance between the wall brackets (see also the table).

Measurement X = max. 150 mm

Unit height	Number of wall brackets per guide rail
Up to 3000 mm	2
From 3001 - 4500 mm	3



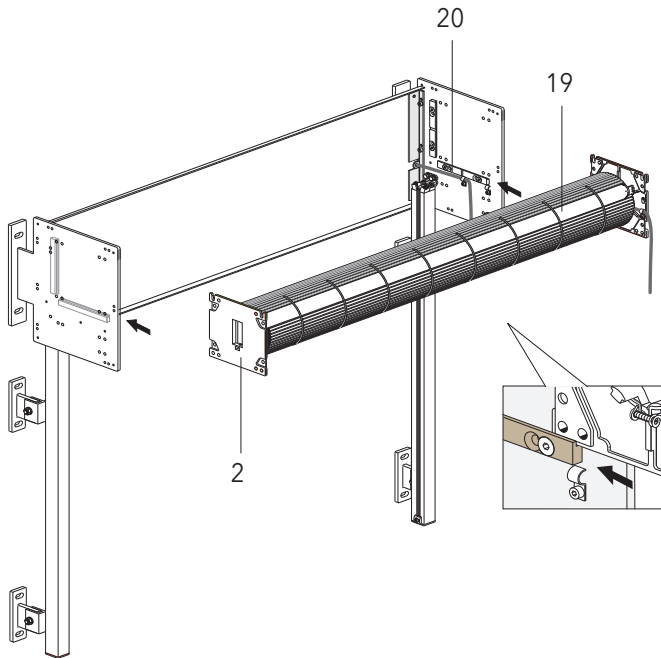
Secure the cable in the cable clamp pre-mounted on the side plate.

Once completed, the guide rails 30x34 (3) are fastened to the sword-shaped brackets using 1 x M6x12 hex bolt,  $\varnothing 6.4$  U-washer and  $\varnothing 6$  spring washer (17) inserted through the drill holes on the mounting bracket (18) in each case.

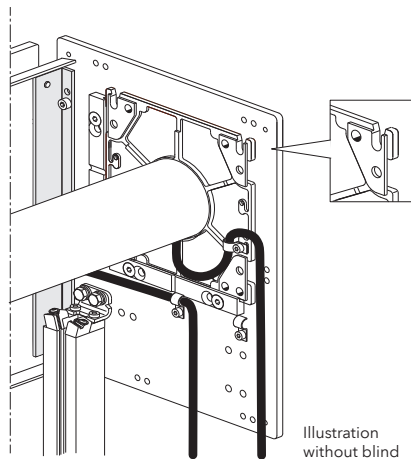
⚠ The guide rails must be exactly aligned vertically and parallel to one another

Installation instructions for metal blind s\_enn SN 72/1, SN 72/2

4. Installation of side plates with blind tube



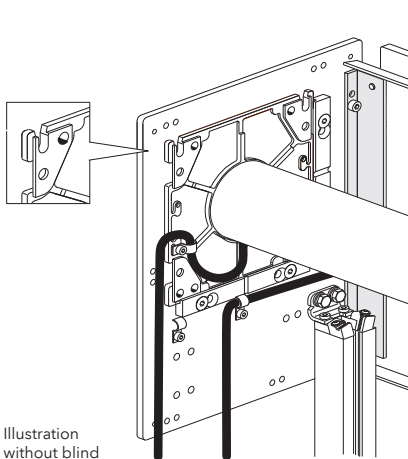
Push the side plates (2) with blind tube (19) from the front into the grooves of the support bars (20).



Motor installed on right

Check whether the installed position of the side plates with blind tube is correct:

- At the side plates, the slots open at the top must point upwards (see detail drawing)
- The motor cable outlet must point vertically downwards

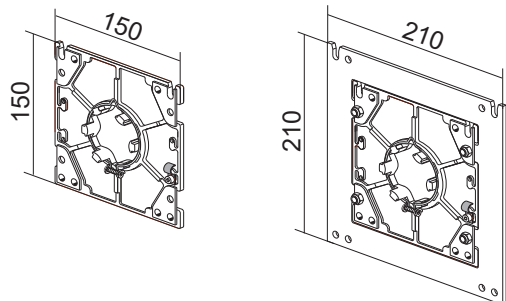


Motor installed on left

Check whether the installed position of the side plates with blind tube is correct:

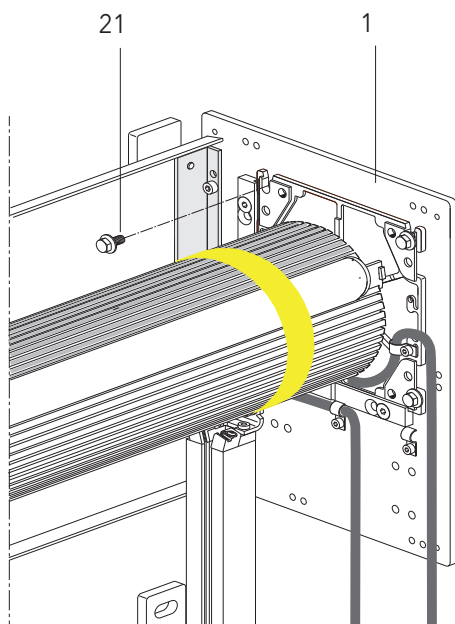
- At the side plates, the slots open at the top must point upwards (see detail drawing)
- The motor cable outlet must point vertically downwards

Installation instructions for metal blind s\_enn SN 72/1, SN 72/2



150x150 side plate	Up to 3000 mm unit height
210x210 side plate	From 3001 mm unit height upwards

**INFORMATION:** The procedure for installation of the 210x210 mm side plates (with stainless-steel adapter plates) is identical to the 150x150 mm side plates shown in the instructions

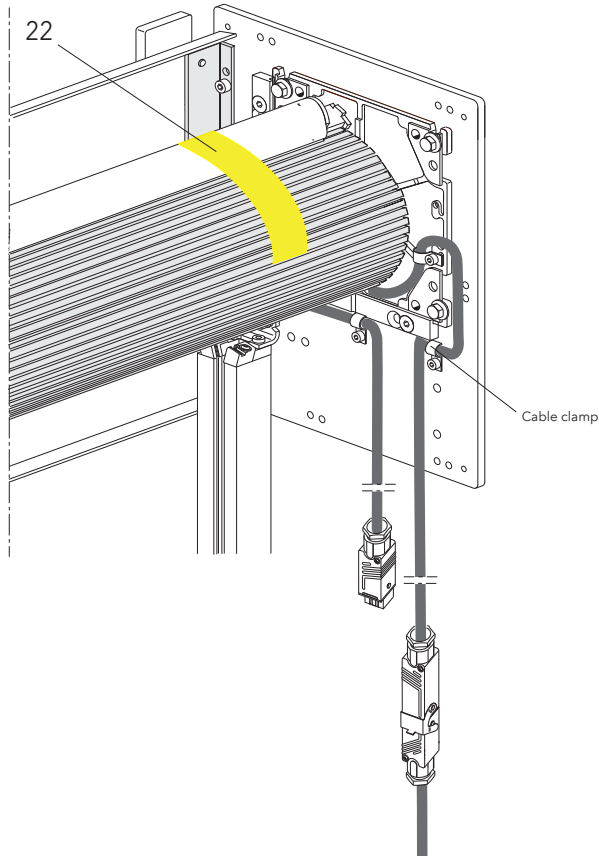


Next, fix each of the side plates to the sword-shaped brackets (1) using 4 x M6 hex bolts (21).

**150x150** side plate: M6x12 hex bolts  
**210x210** side plate: M6x10\* hex bolts

\* The bolts used to install the 210x210 side plates need to be shorter, otherwise they will collide with the end cover.

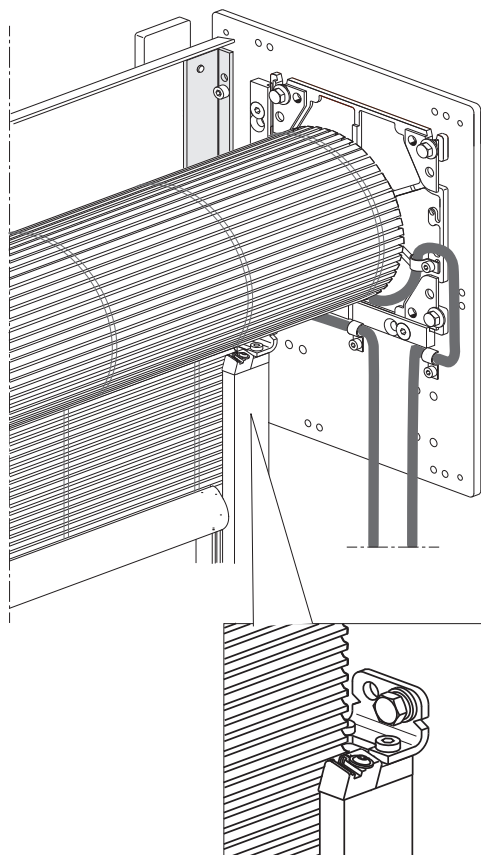
5. Procedure for blind



Fasten the motor cable in the second cable clamp pre-mounted on the side plate to avoid a stripe on the blind.

Connect the adjustment cable.

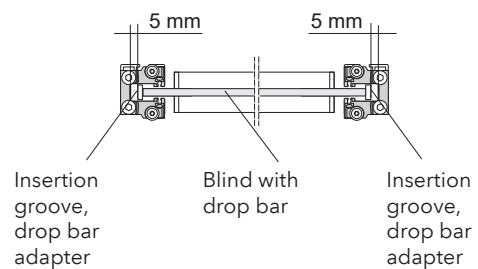
Use the adjustment cable to move the blind into a position where the drop bar is at around 45° at the back and cannot fall forwards and down when the adhesive tapes (22) are removed.



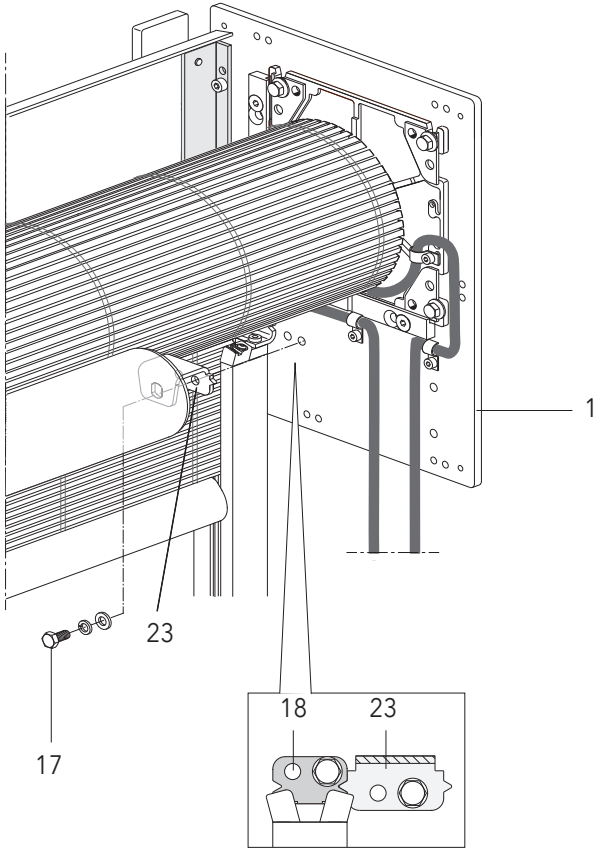
Carefully remove the adhesive tapes (22).

Slowly insert the blind into the guide rail on the left and right (approx. 10 cm).

⚠ When it is being inserted, make sure the blind does not move to either side. It must be inserted into the guide rails in a central position.

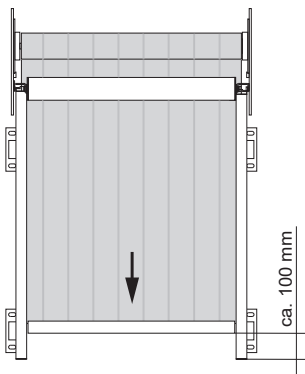


6. Installation of deflection tube



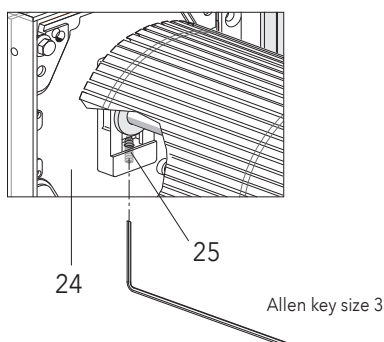
Position each mounting bracket for the deflection tube assembly (23) on the sword-shaped bracket (1) using 1 x M6x12 hex bolt, ø6 spring washer and ø6.4 U-washer (17).

Make sure that the lateral tip of the mounting bracket for the deflection tube (23) snaps into the recess in the mounting bracket for the guide rail (18) (see detail drawing).



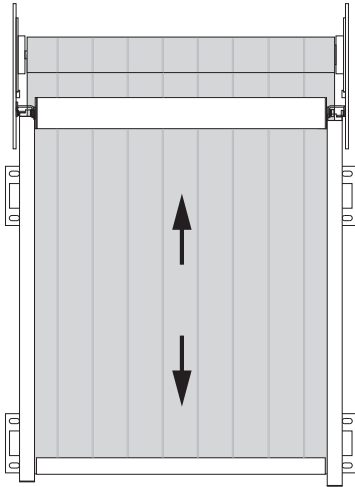
Extend the blind until approx. 100 mm from the end of the guide rail.

Check that the drop bar is aligned centrally to the unit when extended.



Adjust as necessary using the M6x30 threaded pin (25) located in the end position side plate (24).

## 7. End position adjustment

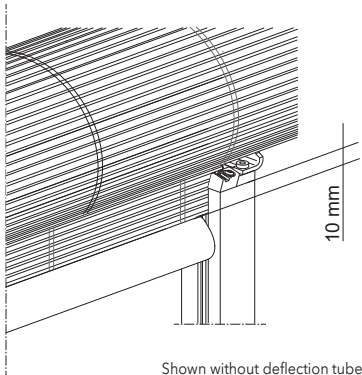


### Do not apply torque when adjusting the top and bottom end positions

Please follow the programming procedure in full and in the order stated here.

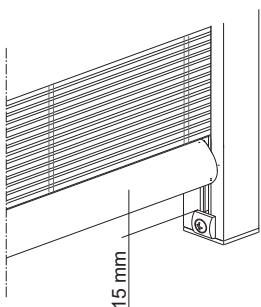
- Move the blind and the installation cable into a central position.
- Press the **UP ▲** and **DOWN ▼** buttons simultaneously to set the drive to its factory setting.  
The motor signals that this has happened by initiating an UP/DOWN movement.
- Press the **UP ▲** button: the drive moves approx. 20-50 cm, stops briefly, then continues to move.  
Move it to just before the end position you want.  
You can use the **UP/DOWN ▲ ▼** buttons to make any corrections.  
From the specified end position, press the **DOWN ▼** button until the drive stops.  
**The top end position is set.**

### Top end position



- Press the **DOWN ▼** button: the drive moves approx. 20-50 cm, stops briefly, then continues to move.  
Move it to just before the bottom end position (bottom edge of the drop bar approx. 15 mm above the piping clip).  
You can use the **UP/DOWN ▲ ▼** buttons to make any corrections.  
From the specified end position, press the **UP ▲** button until the drive stops.  
**The bottom end position is now set.**

### Bottom end position



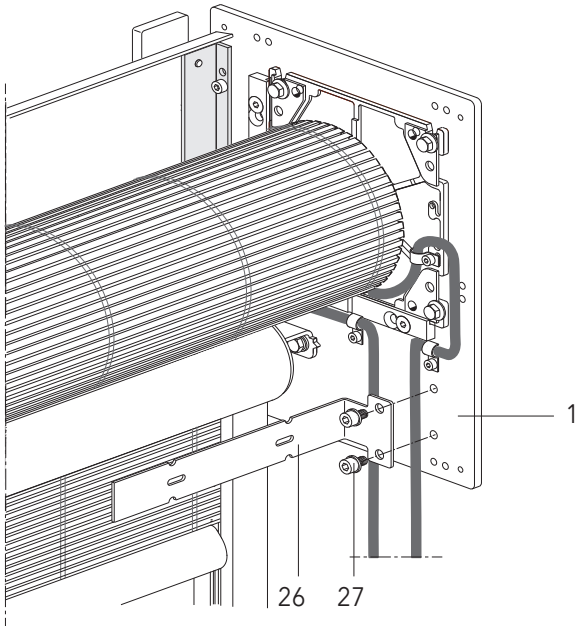
- **The end position adjustment is hereby complete.**  
The adjustment mode ends after the two end positions have been set.
- **Second trial run**
- Does the blind move and wind without any problems?  
Please check!
- Raise/retract the blind.

### Note:

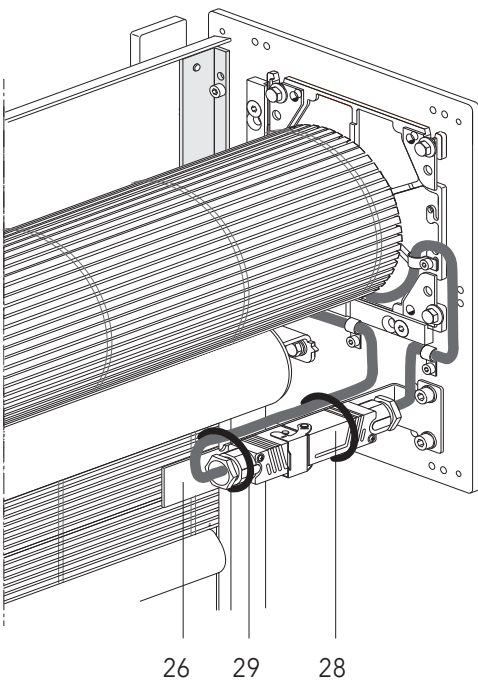
You can reprogram the end positions by repeating points 1 and 2 to restore the motor to its factory setting



8. Installation of plug coupling holder

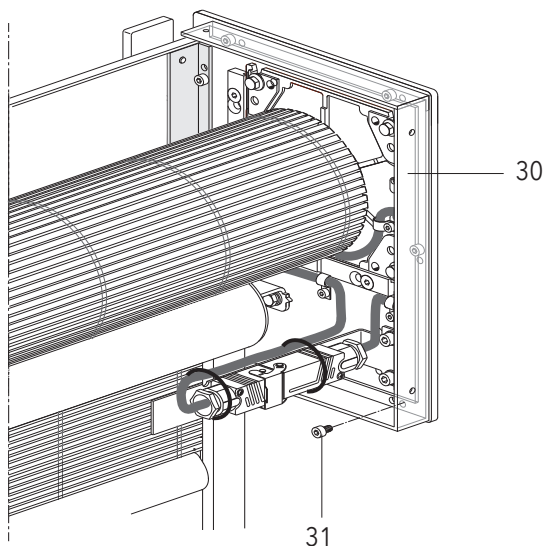


Fasten the plug coupling holder (26) to the sword-shaped bracket (1) with 2 x M6x10 cylinder screws and  $\varnothing 6.4$  U-washers (27).



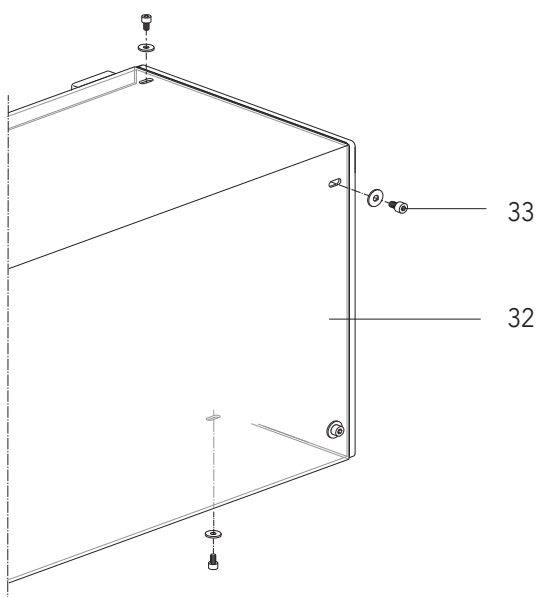
Next, fit the Hirschmann plug coupling (28) together and fasten it to the plug coupling holder (26) using 2 x cable ties (29).

9. Installation of front cover

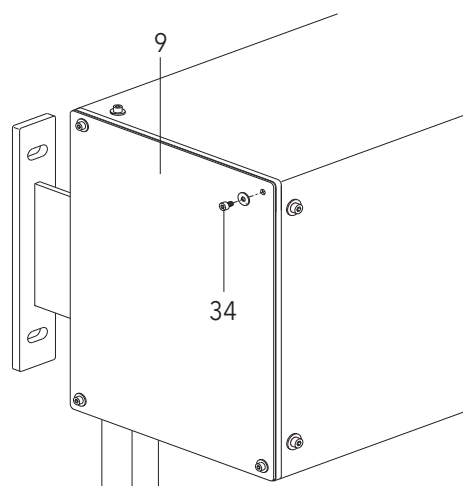


The front saddle for fastening the cover must be installed prior to installation of the front cover.

Attach the front saddle (30) to each sword-shaped bracket using 5 x M5x8 cylinder screws (31).

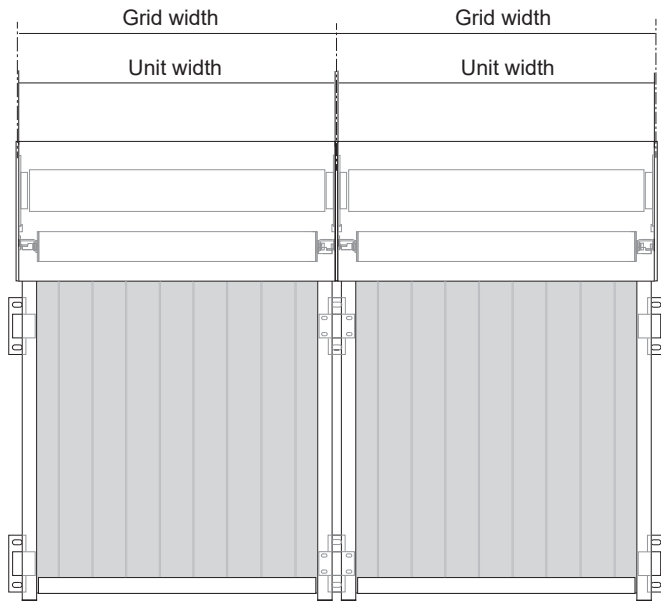


Screw the front cover (32) to the left and right front saddle using 4 x M5x8 cylinder screws and  $\varnothing 5.3$  U-washers (33).

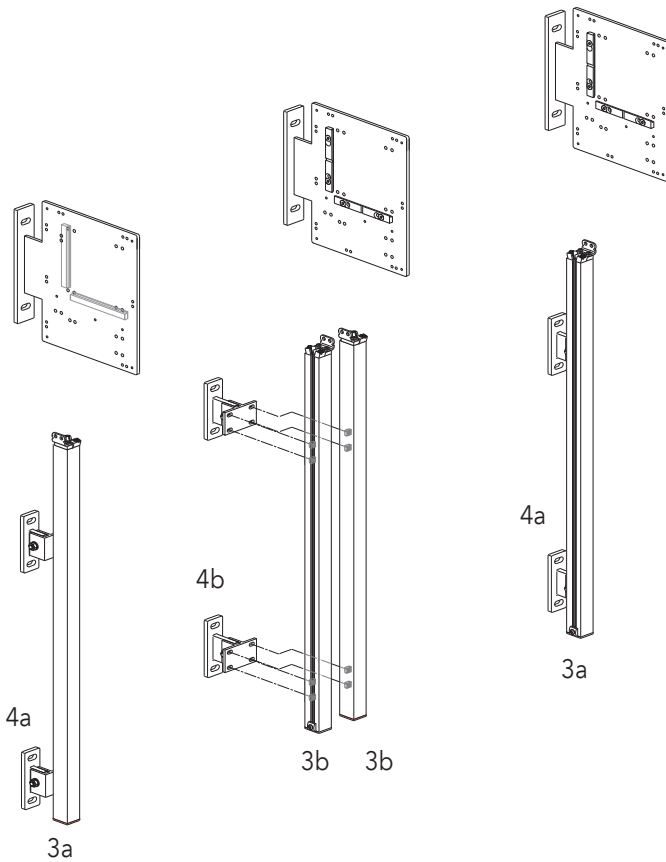


Finally, fasten an end cover (9) to the left and right of the sword-shaped bracket using 4 x M4x6 cylinder screws and  $\varnothing 4.3$  U-washers (34).

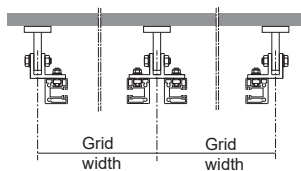
10. Multi-unit systems



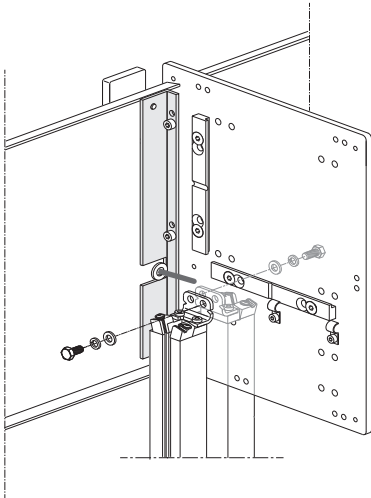
The procedure for the installation of multi-unit systems is essentially identical to the installation of a single-unit system.



When pre-assembling the wall brackets on the guide rails, the wall brackets for the outer guide rails (3a) are mounted singly (4a) and the wall brackets for the inner or adjacent guide rails (3b) are mounted in double (4b).



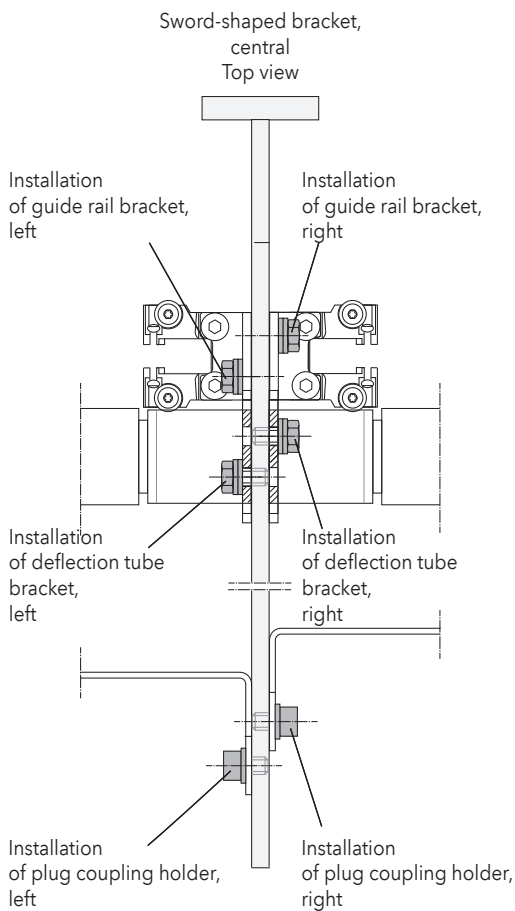
Installation instructions for metal blind s\_enn SN 72/1, SN 72/2



All further installation steps are performed in the same way as for a single-unit system.

Care must be taken when installing the mounting brackets for the guide rail and deflection tube on the sword-shaped bracket in the middle to ensure that the fastening screws on the left and right are mounted offset to each other (see detail drawing).

If the holders for the plug couplings are positioned centrally on the sword-shaped bracket as a mirror image ("head to head" motor arrangement), they must be installed offset to one another.







# Record of delivery

Customer \_\_\_\_\_

Street \_\_\_\_\_

Postcode/  
town \_\_\_\_\_

Customer no. 

					-						-					-		
--	--	--	--	--	---	--	--	--	--	--	---	--	--	--	--	---	--	--

**Specialist firm:**

Order no. \_\_\_\_\_

Installer \_\_\_\_\_

Commission \_\_\_\_\_

Date of installation \_\_\_\_\_

Model name: \_\_\_\_\_

■ **The elements have been installed without visible defects, following consultation with the seller and/or the installer\*:**  yes  no

If no, what is the complaint?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* if the customer waives a formal acceptance test despite being advised of the option and puts the metal blind systems into operation, such systems will be deemed accepted.

■ **The customer has been properly instructed on how the elements work and are operated:**  yes  no

■ **The following documents have been handed over and must be read through prior to putting the units into operation:**

Operating instructions:  yes  no

Installation instructions:  yes  no

Installation and adjustment instructions from the motor, switch and control unit manufacturers:  yes  no

■ **Miscellaneous:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

■ **Installation performed by:**

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Hours from/ \_\_\_\_\_  
to:  
Name: \_\_\_\_\_ Date: \_\_\_\_\_ Hours from/ \_\_\_\_\_  
to:  
Name: \_\_\_\_\_ Date: \_\_\_\_\_ Hours from/ \_\_\_\_\_  
to:

\_\_\_\_\_  
Place and date                      Installer signature                      Customer signature



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