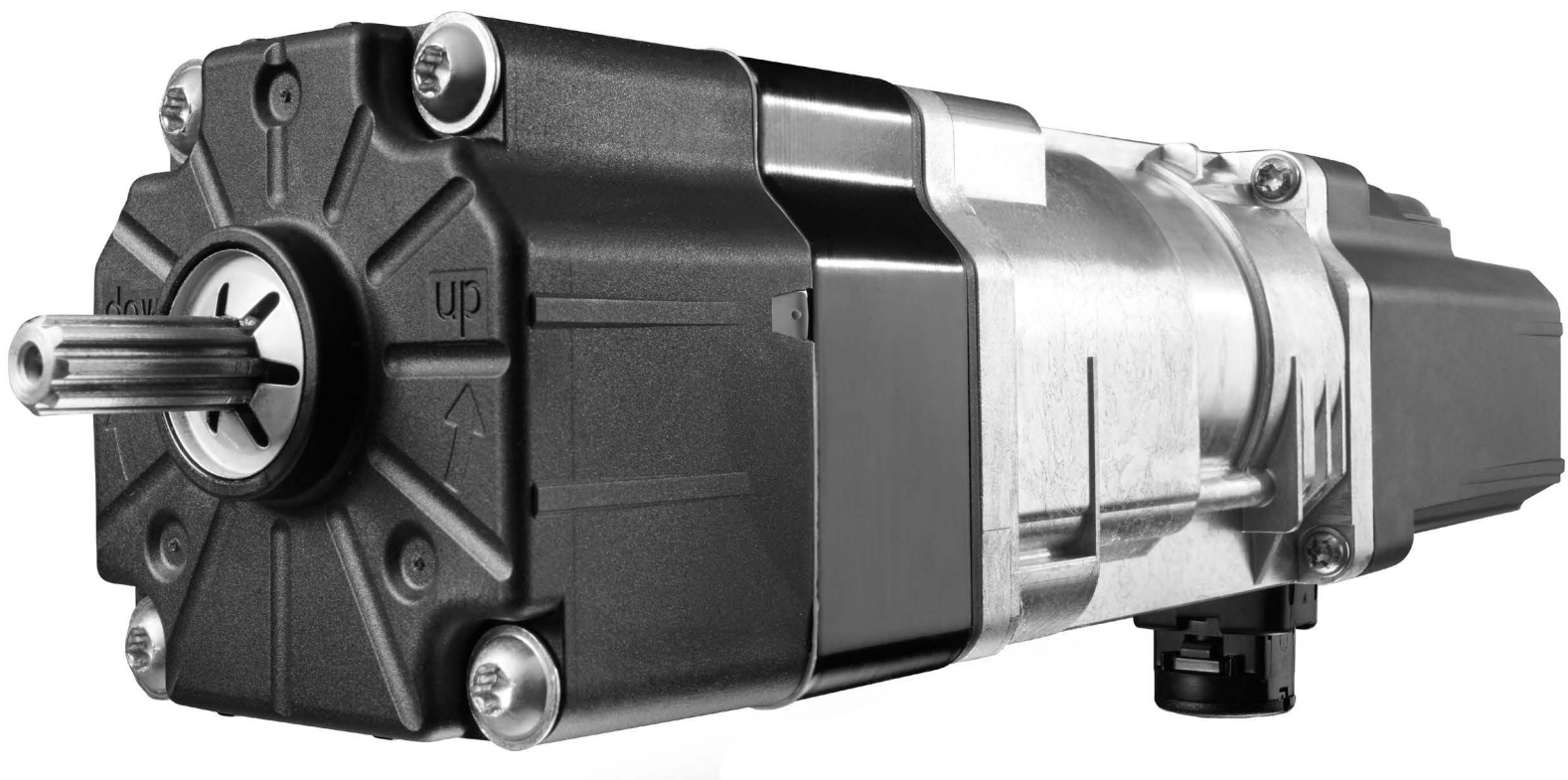


# J4 WT Protect Drive



## Full installation guide



Ref. 5134391A

# INTRODUCTION

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This guide is for use when installing **J4 WT Protect** drives. The drive is designed for the electrical control of Exterior Venetian Blinds (EVB).

This guide supplements the **short installation guide** supplied with the drive.

All guides are available online at **[www.somfy.info](http://www.somfy.info)**.





# SAFETY

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## SPHERE OF APPLICATION

J4 drives are designed to drive all types of Exterior Venetian Blind (EVB). The installer, a home motorisation and automation professional, must ensure that once the driven product is installed, it respects the current standards in the country of installation, notably standard EN 13561 relative to exterior blinds.

## LIABILITY

Before operation, please read this guide carefully. In addition to the instructions provided in this guide, please also comply with the instructions set out in the enclosed **Safety instructions** document.

The drive must be installed by a home motorisation and automation professional, in accordance with Somfy's instructions and the applicable regulations in the country of installation.

Any operation of the drive outside the sphere of application described above is prohibited. Such operation shall exclude Somfy from all liability and invalidate the Somfy warranty, as will any failure to comply with the instructions given herein and in the enclosed **Safety instructions** document.

After installing the drive, the installer must inform his customers of the operating and maintenance conditions for the drive and must pass the operating and maintenance instructions on to them, as well as the **Safety instructions** document. Any After-Sales Service operation on the drive requires intervention by a home motorisation and automation professional.

Should any doubt arise during installation of the drive or for additional information, consult a Somfy contact or visit [www.somfy.com](http://www.somfy.com).

## GENERAL SAFETY INSTRUCTIONS

The installation must be protected from all unauthorised use.

Comply with the assembly and operating guides, in particular the safety instructions supplied by the manufacturer of the device to be used.


To remove the drive power cable, please use the J4 cable removal tool supplied, ref: 9017811.


The drive, torque and operating time must be adjusted in relation to the whole installation.


Moving parts of the drive must be protected if operating less than 2.50 m from the ground or other level surface.


Disconnect all connected cables from the power supply before working on the installation.


## SAFETY INSTRUCTIONS FOR WIRING

 Cables routed through a metal wall must be protected and insulated by sleeving or sheathing.

 Secure the cables to prevent any contact with moving parts.

 If the drive is used outdoors and if the power supply cable is of the H05-VVF type, run the cable in a UV-resistant duct, e.g. trunking.

 Leave the drive power supply cable accessible: it must be easily replaceable.

 Always make a loop in the power cable to prevent water from entering the drive!

**CE** SOMFY ACTIVITES SA, F-74300 CLUSES as manufacturer hereby declares that the drive covered by these instructions and used as intended according to these instructions, is in compliance with the essential requirements of the applicable European Directives and in particular of the Machinery Directive 2006/42/EC and EMC Directive 2014/30/EU.

The full text of the EU Declaration of Conformity is available at [www.somfy.com/ce](http://www.somfy.com/ce). Antoine Crézé, Approval manager, acting on behalf of the Business Director, Cluses, 06/2017.

## SPECIFIC INSTRUCTIONS

Do not connect the drive to an isolating transformer.

Do not use mains disconnection devices in conjunction with a drive.

Do not use more than one switch per drive.

Use only mechanical or electro-mechanical switches (e.g.: relays) to control drives. The relay contacts must not be bypassed by capacitors.

In user mode, do not use electric switches that allow the ▲ and ▼ buttons to be pressed simultaneously.

The drive must not be driven by a solid-state relay or triac relay.

Always refer to the control system instructions for proper wiring.

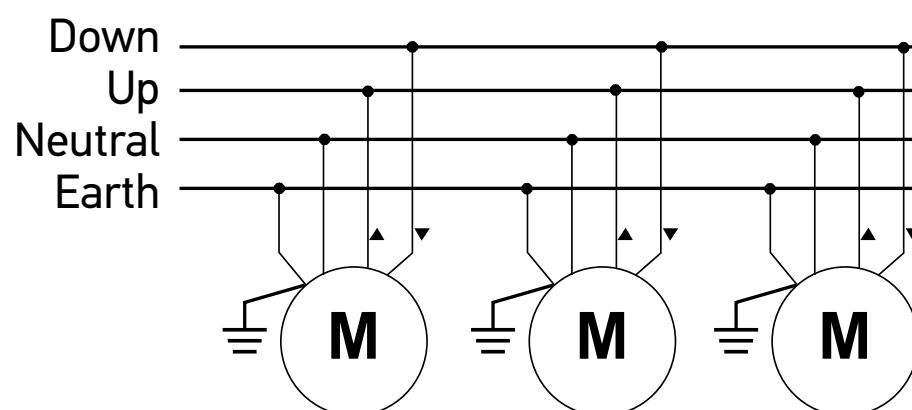
For control systems using an “automatic operating time recognition procedure”, follow the recommendations made by the controller manufacturer: The controller neutral must be connected to neutral of each drive.

Continuous orders of at least 200 ms must be sent to the drive to ensure proper execution.

There must be an interval of at least 500 ms between “Down” and “Up” orders.

The drive can be wired in parallel. In this case, take into account the maximum load of the switch/controller used (peak starting current: 9 A for 3 ms).

The phases and neutrals of each drive must be connected together respectively, as shown below:



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*[ Interactive sections: click on any title to go straight to that section. ]*

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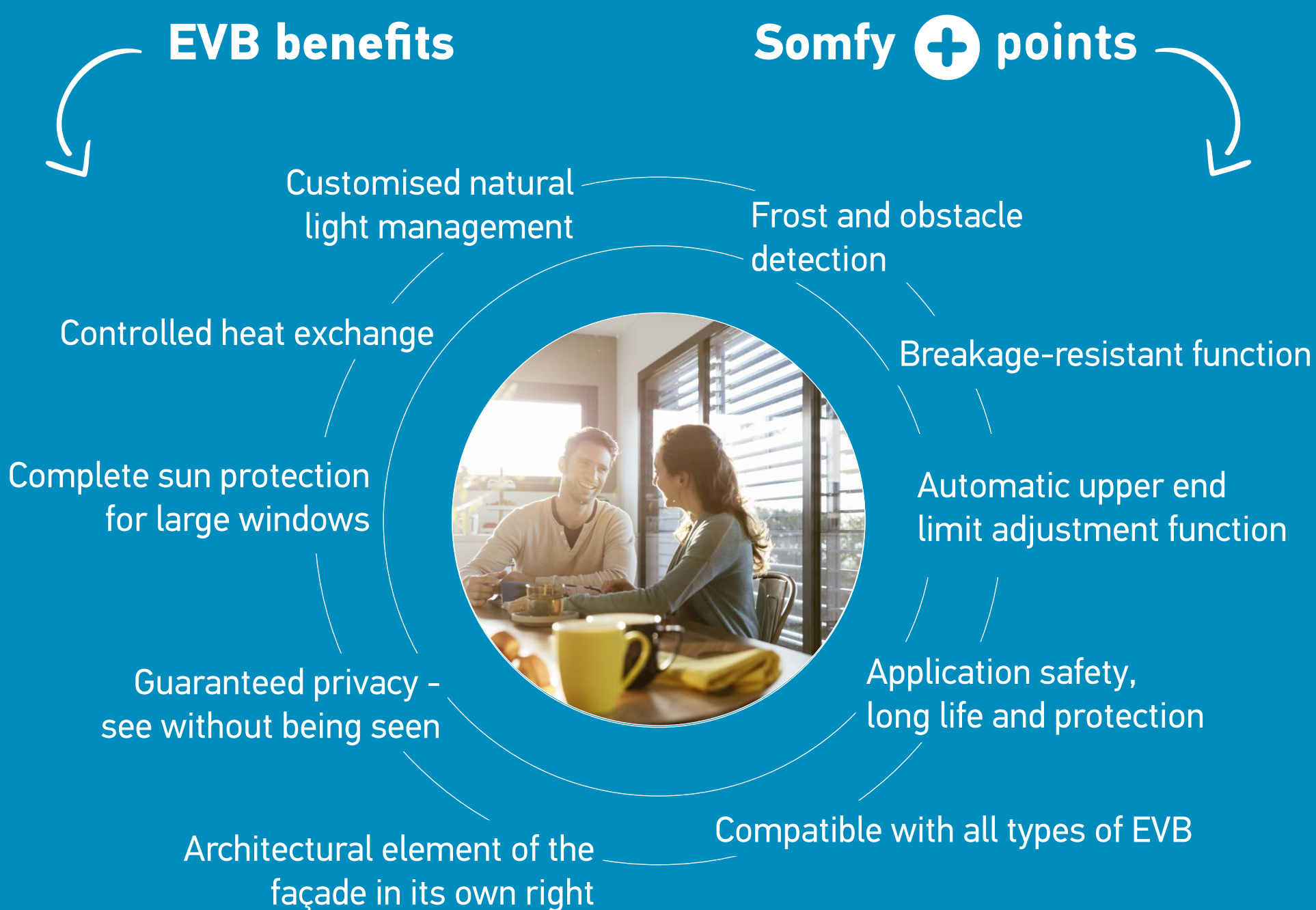
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# 1. GENERAL

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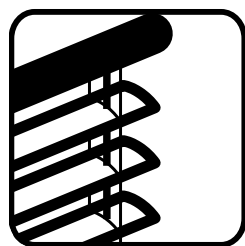
The new version of the **J4 WT Protect** drive forms part of the new, **improved** SOMFY wired electronic range, with **new components** and **a new design**.

## 1.1. BENEFITS OF THE J4 WT PROTECT



## 1.2. COMPATIBLE EXTERIOR VENETIAN BLINDS

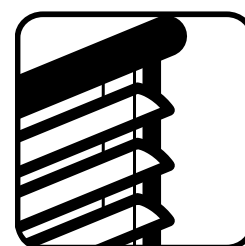
### Type 1



Standard (or conventional) EVB with ladder and cords.

Functions: Up/Down/Slat orientation

### Type 2

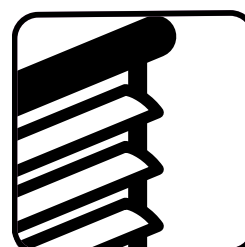


EVB with chain or belt apron drive mechanism. Optimum shading (slats without holes).

→ **Level 1 security - slats cannot be lifted by hand.**

Functions: Up/Down/Slat orientation

### Type 3



EVB with slat drive and orientation mechanism fully built into guide rails.

→ **Attractive + protects against forced entry**

Functions: Up/Down with slats open/  
Slat orientation



## 2. THE DRIVE AND ITS THREE NEW FUNCTIONS

---

### 2.1. OBSTACLE DETECTION & STRESS RELIEF

When the EVB meets an obstacle on the way up, the **J4 WT Protect** drive immediately stops and reverses to relieve the stress on the EVB components. The slats tilt in the opposite direction so that the obstacle can be released. This function, which helps to extend the life of the EVB, is activated by default.



**Obstacle detection only takes place when the EVB is rising.**



**If a building controller is used, after an obstacle has been detected, the blind must be placed in the lower end limit position to resynchronise the drive with the controller.**

### 2.2. FROST DETECTION & STRESS RELIEF

If the EVB is prevented from rising due to frost, the **J4 WT Protect** drive stops immediately and reverses slightly to relieve the stress. This function, which helps to extend the life of the EVB, is activated by default.



*When the drive is first installed or reset, a complete cycle (round trip of the application) must be performed to optimise the function.*

### 2.3. AUTOMATIC UPPER END LIMIT ADJUSTMENT

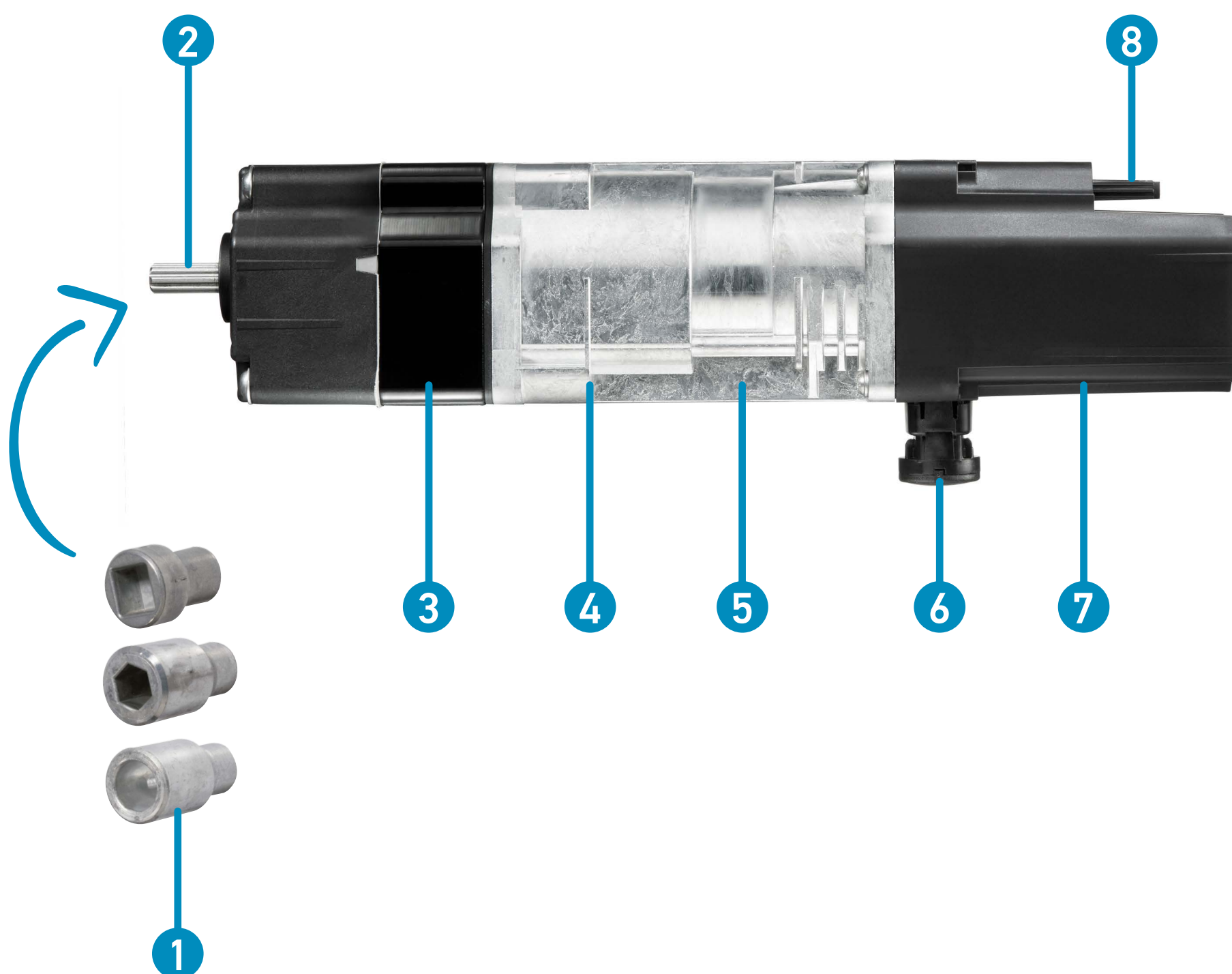
For reduced maintenance, the **J4 WT Protect** drive automatically adjusts its upper position on the first operating cycle, after 5 cycles, 10 cycles and then every 50 cycles. This function is not activated by default. It can be enabled either through an on-site adjustment operation or using the **EMS2** setting tool.



*All of these functions can be deactivated and reactivated (see **section 4. Installation in an EVB**).*

## 3. TECHNICAL DETAILS

### 3.1. DRIVE COMPONENTS



1 Shaft adaptors

2 Shaft/Rotor

3 Stator

4 Brake

5 Gearbox

6 Mushroom

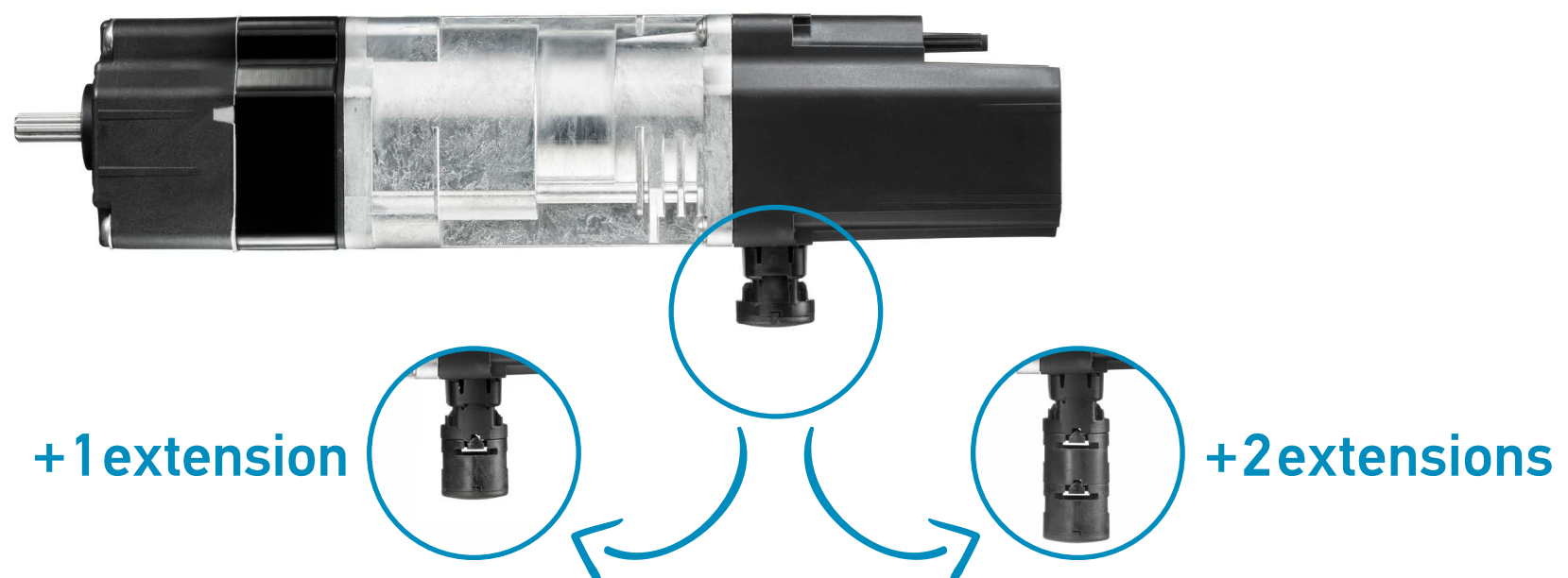
7 Limit switch casing

8 Power connector

## 3.2. MUSHROOM

The main function of a mushroom is to stop the drive in the upper end limit position of the EVB, when the top slat presses against the mushroom.

The mushroom can therefore be used to set the upper end limit position. In this case, there is no need for the installer to set it. One or two mushroom extensions can be used between the mushroom and its cap to adjust the end limit:



It is of course possible to set the upper end limit before the slats touch the mushroom; this provides additional safety (see **section 4.3 Installing the drive**).

It is important to note that if the application has Z-shaped slats, the upper end limit of the drive must be set. In this case, the mushroom is used to ensure the safety of the application.



**Make sure that during operation, none of the slats on the application exerts radial force on the mushroom or on a guide tube, if used.**

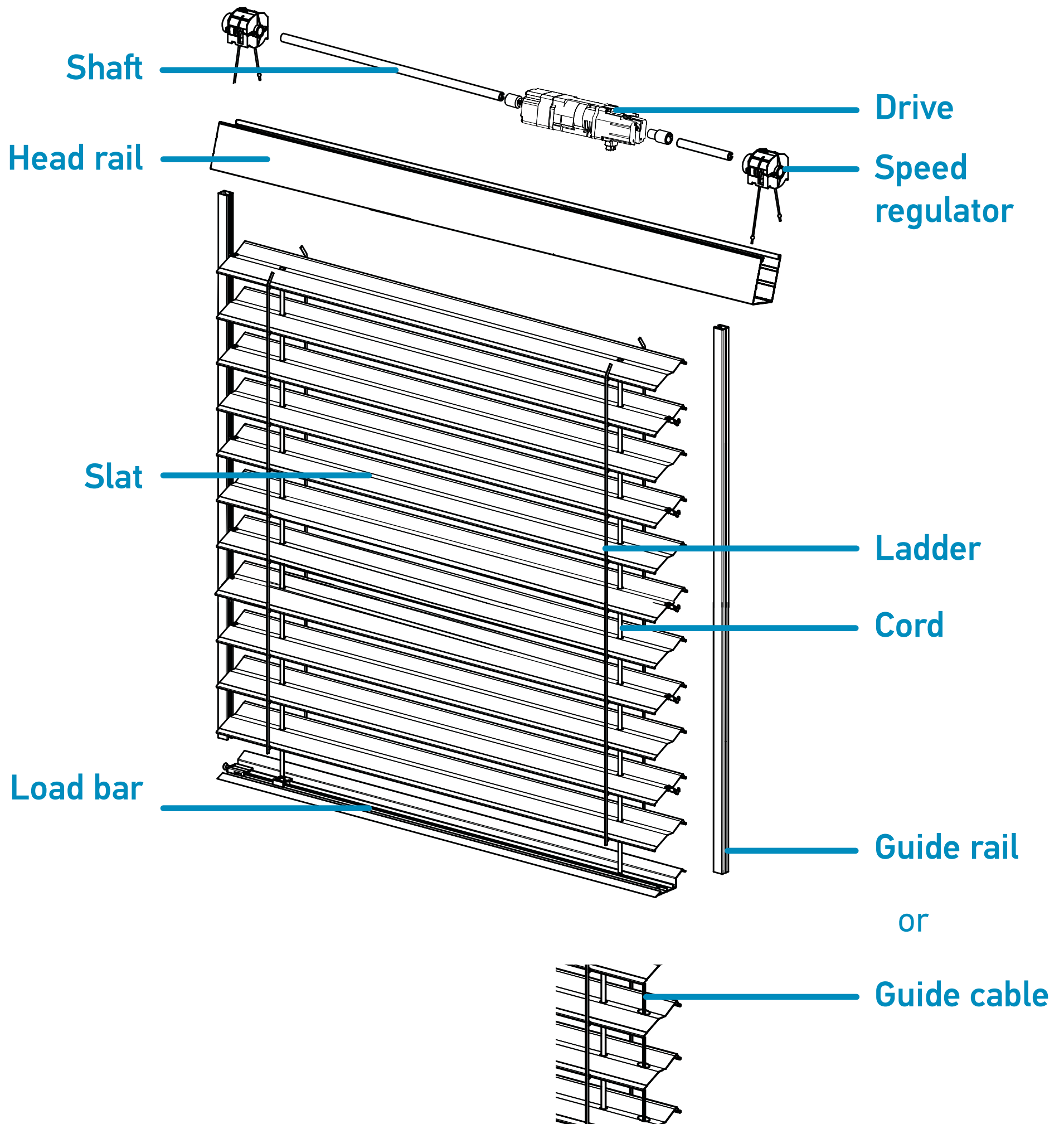


**If the adjustable extension is pulled out, this renders the drive permanently unusable.**



*When it is being lowered, if the EVB starts to rise again before it has reached its lower end limit, the drive will immediately stop when the slats press against the mushroom.*

### 3.3. DESCRIPTION OF AN APPLICATION



*The apron is made up of all of the slats of the exterior Venetian blind.*



## 3.4. TECHNICAL DATA

### → DIRECTION OF ROTATION



The direction of rotation is also engraved on the drive housing.

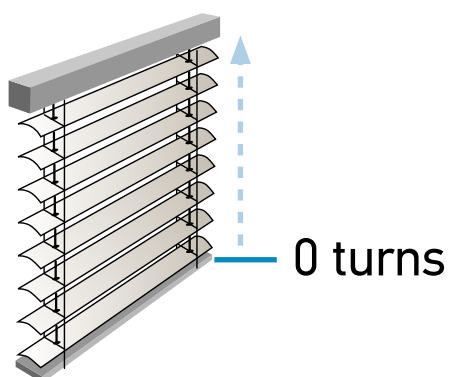


**Direction of rotation subject to the correct positioning of the drive in the application and correct wiring (see section 4.3 Installing the drive).**

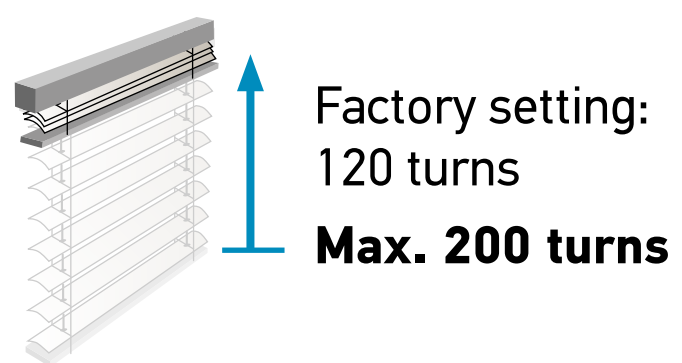
### → LIMIT SWITCH CAPACITY

The drive is supplied in its lower end limit position. The upper end limit position is pre-set at **120 turns of the drive shaft** above the lower end limit position.

Lower end limit position



Upper end limit position



### → THERMAL CUT-OUT

The drive is protected against overheating by a thermal cut-out. In the event of heating caused by prolonged use, the drive will stop for a few minutes.

## → DRIVE ANGLE

The **J4 WT Protect** drive is designed to operate in a horizontal position.



## → SPECIFICATIONS TABLE

Description	J406 WT Protect	J410 WT Protect	J418 WT Protect
Torque	6 N.m	10 N.m	18 N.m *
Rated power	95 W	110 W	155 W
Rated current	0.4 A	0.5 A	0.7 A
Weight (with adaptors)	1.5 kg	1.7 kg	2.2 kg
Noise	53 dB	55 dB	56 dB
Power supply	230 V ~ 50 Hz		
Operating temperature	- 20 °C to + 70 °C		
Protection rating	IP 54		
Safety level	Class I		

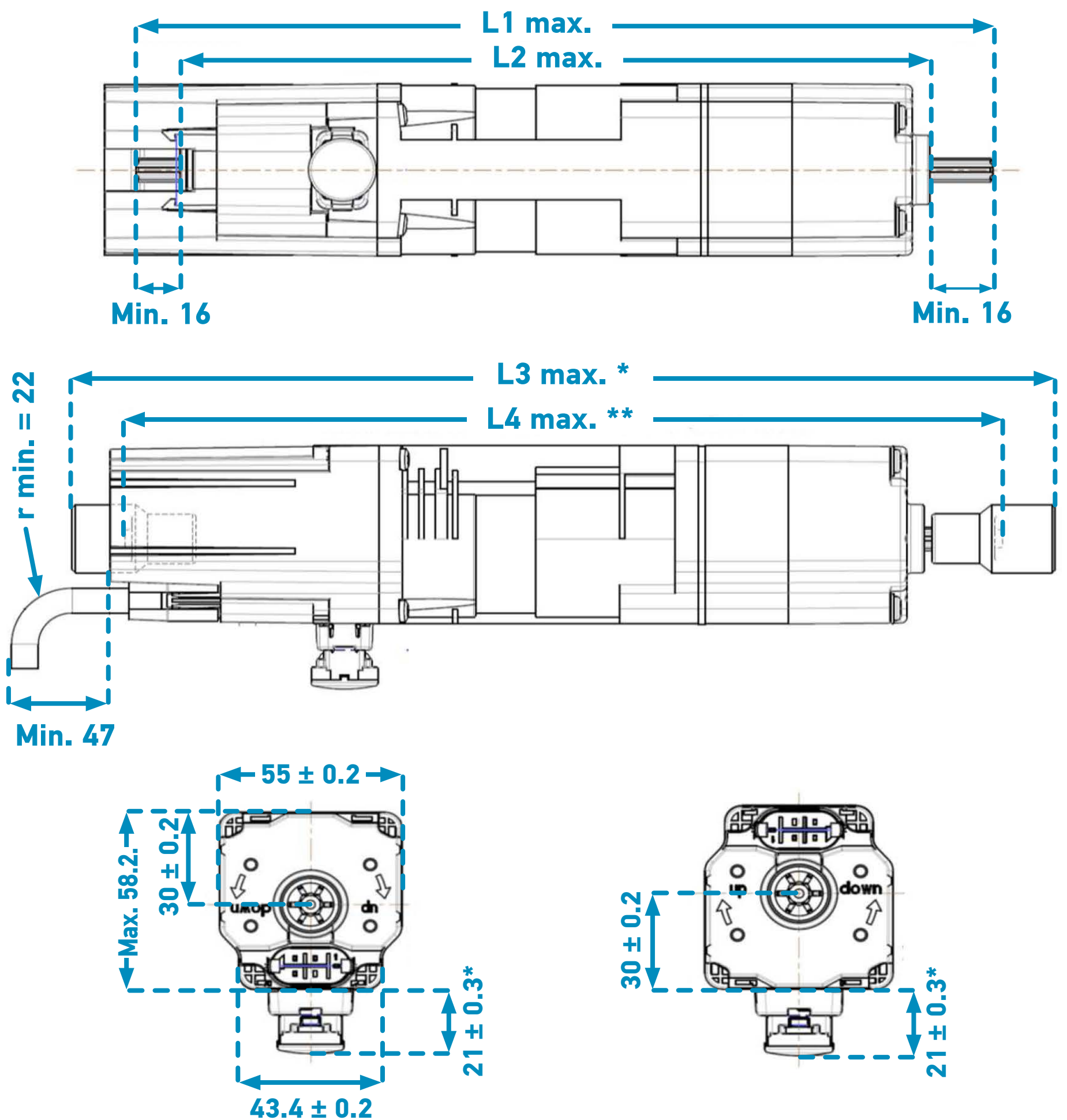


**\* For drives with a torque of 18 N.m, the maximum permissible torque at one end of the drive shaft is 12 N.m.**



*The Somfy connection cable complies with standard H07RNF. Amongst other features, it is UV-resistant and halogen-free.*

## → DRAWINGS & DIMENSIONS



Description	J406 WT Protect	J410 WT Protect	J418 WT Protect
L1 max. (mm)	254	269	289
L2 max. (mm)	222	237	257
L3 max. (mm)	Long adaptors	306	341
	Medium adaptors	296	331
L4 max. (mm)	265	280	300

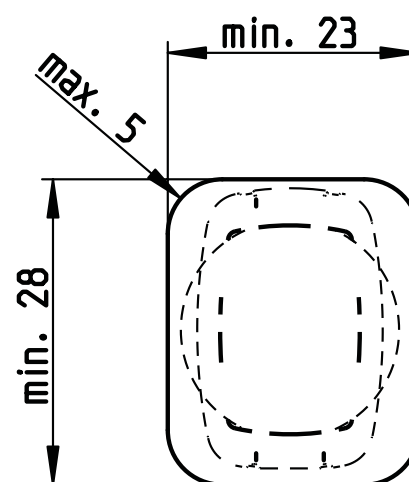
\* Length with Somfy adaptors

\*\* Length with screws and Somfy adaptors

## 4. INSTALLATION IN AN EVB

### 4.1. CUTTING THE HEAD RAIL

To assemble a drive in a head rail that is **open at the top**, a cut must be made so that the mushroom and/or its extensions can pass through the head rail. This cut must have the following dimensions (in mm):



### 4.2. ASSEMBLY IN A HEAD RAIL

Details of assembly in each type of head rail are given on a single sheet. The assembly procedure for the desired head rail can therefore be printed out on one page for ease of display.

#### LIST OF HEAD RAILS:

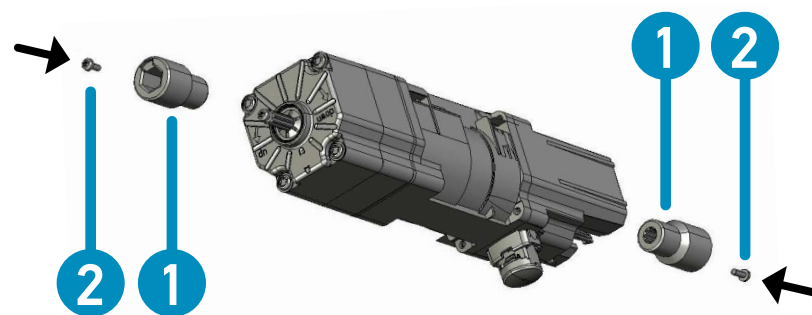
58 mm x 56 mm head rail, open at the bottom & and 57 mm x 51 mm head rail, open at the bottom	p. 17
57 mm x 51 mm head rail, open at the top & 58 mm x 56 mm head rail, open at the top Assembly with external clips	p. 18
57 mm x 51 mm head rail, open at the top Assembly with internal clips	p. 19
78 mm x 67 mm head rail, open at the bottom Assembly with J406 and J410 drives	p. 20
78 mm x 67 mm head rail, open at the bottom Assembly with J418 drive	p. 21
67 mm x 66 mm head rail, open at the bottom	p. 22



→ **58 MM X 56 MM HEAD RAIL, OPEN AT THE BOTTOM**  
& **57 MM X 51 MM HEAD RAIL, OPEN AT THE BOTTOM**

1

Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
Tightening torque = 1.35 N.m ± 20 %

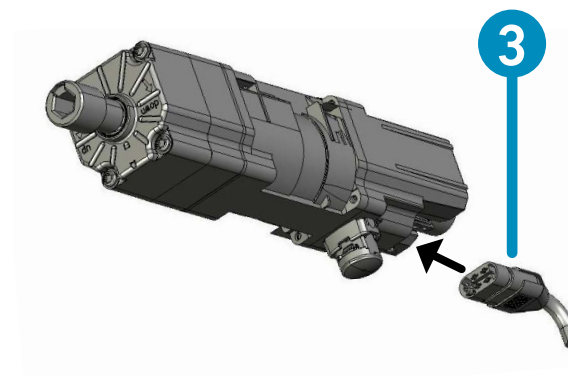


2

Connect the power cable **3** to the drive.

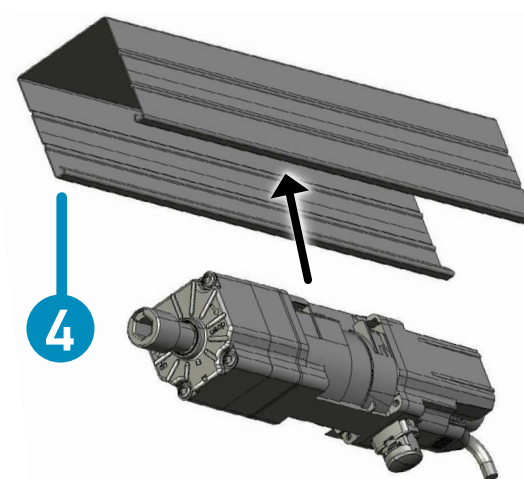


**Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



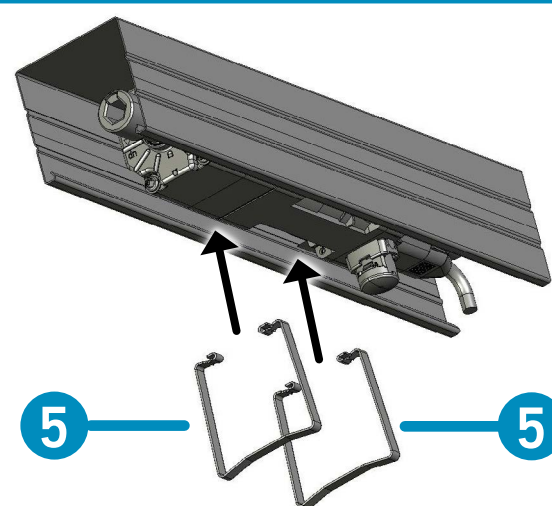
3

Insert the drive in the head rail **4**.



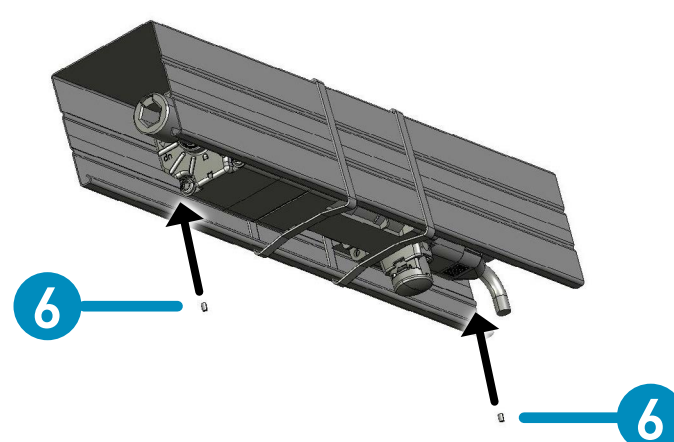
4

Using the clips **5**, fix the drive in the head rail on top of the acoustic strips.



5

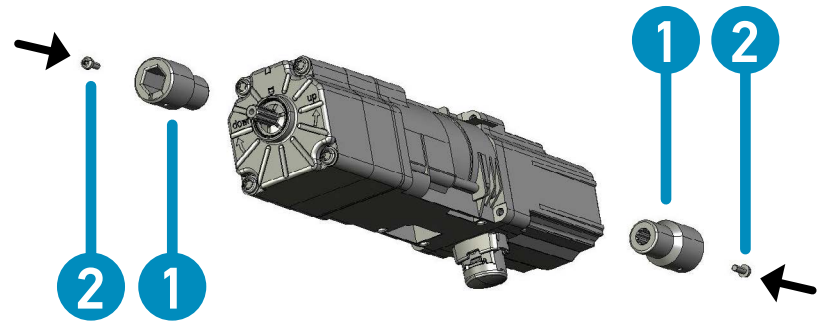
The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
Tightening torque = 2 N.m maximum




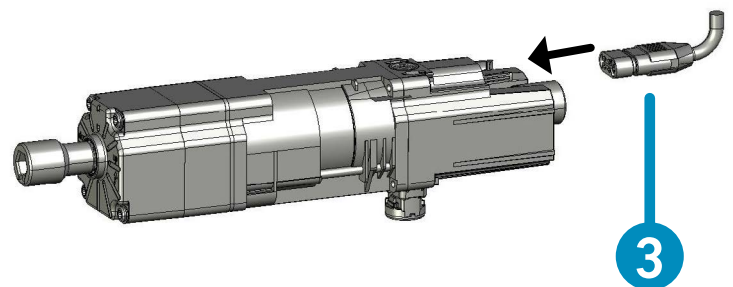
→ **57 MM X 51 MM HEAD RAIL, OPEN AT THE TOP**  
**& 58 MM X 56 MM HEAD RAIL, OPEN AT THE TOP**


**Assembly with external clips**

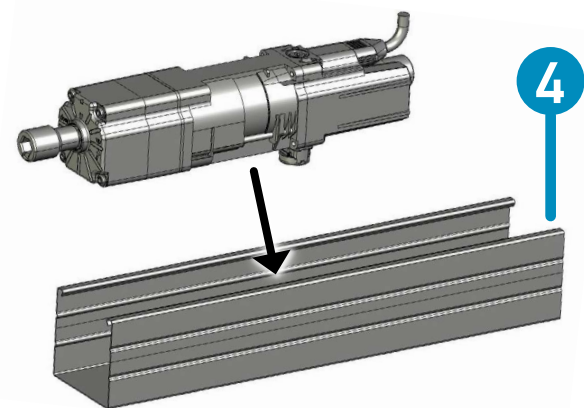
- 1** Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
**Tightening torque = 1.35 N.m ± 20 %**



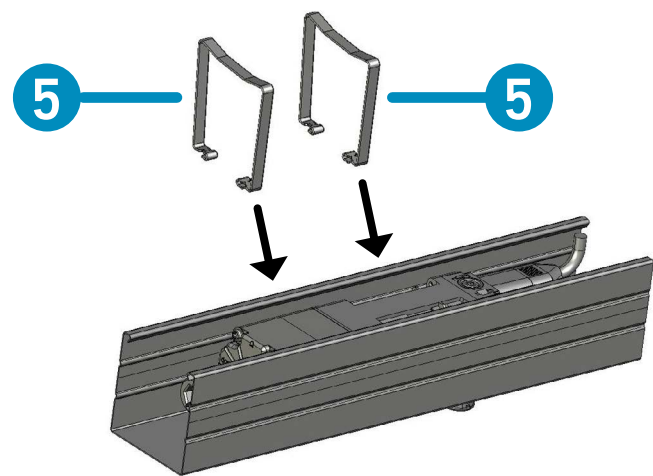
- 2** Connect the power cable **3** to the drive.  
 **Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



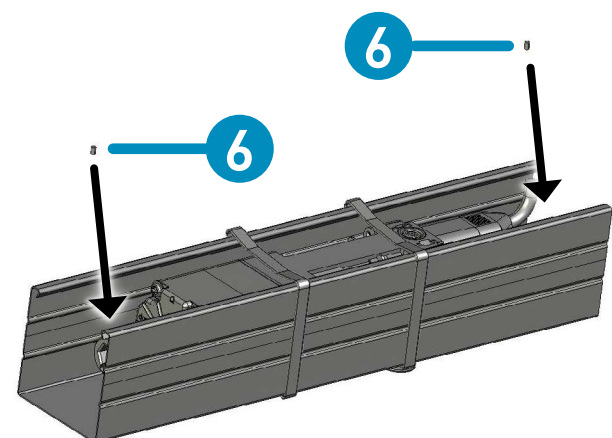
- 3** Insert the drive in the head rail **4**.  
 **Make sure that a cut has been made for the mushroom to pass through the head rail.**



- 4** Using the clips **5**, fix the drive in the head rail on top of the acoustic strips.



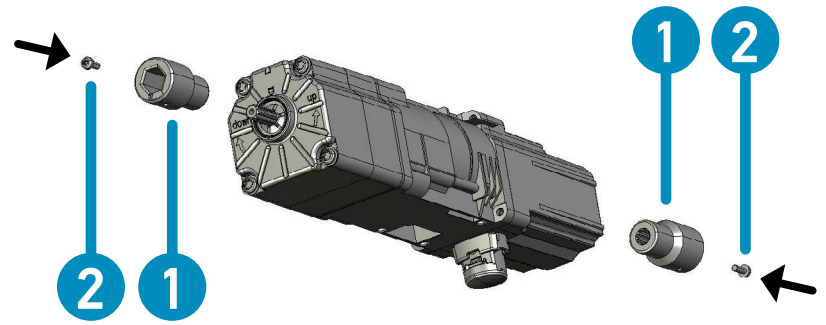
- 5** The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
**Tightening torque = 2 N.m maximum**




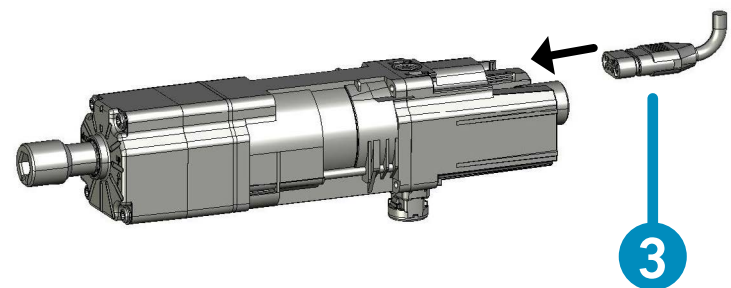
## → 57 MM X 51 MM HEAD RAIL, OPEN AT THE TOP


### Assembly with internal clips

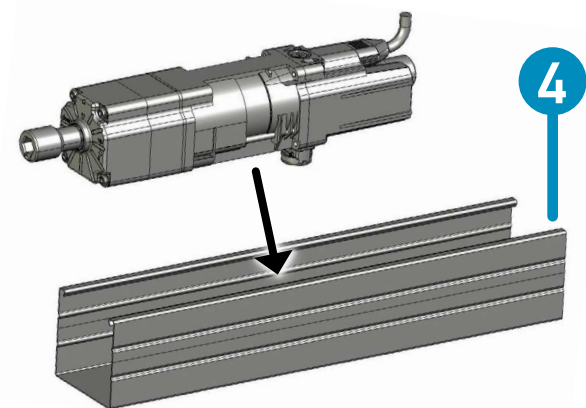
- 1** Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
**Tightening torque = 1.35 N.m ± 20 %**



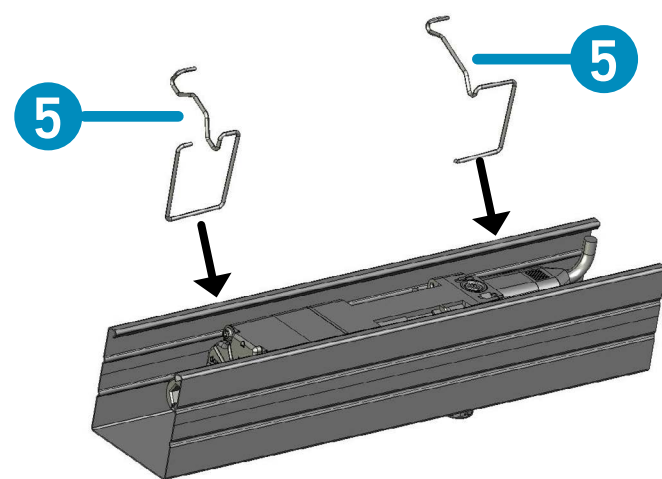
- 2** Connect the power cable **3** to the drive.  
 **Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



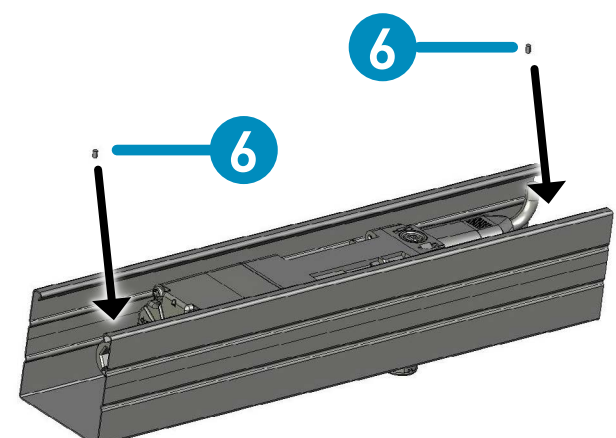
- 3** Insert the drive in the head rail **4**.  
 **Make sure that a cut has been made for the mushroom to pass through the head rail.**



- 4** Using the clips **5**, fix the drive in the head rail.



- 5** The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
**Tightening torque = 2 N.m maximum**

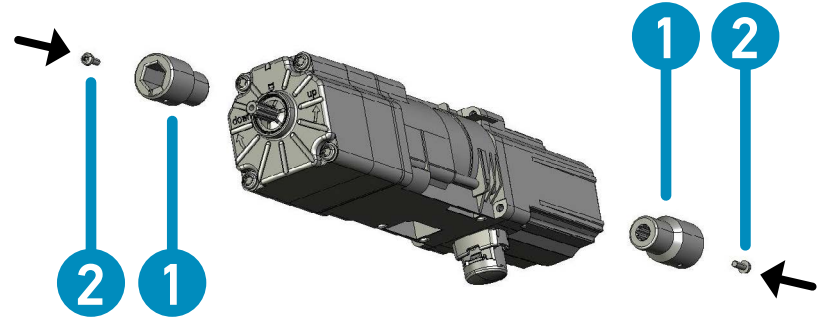




## → 78 MM X 67 MM HEAD RAIL, OPEN AT THE BOTTOM

### Assembly with J406 and J410 drives

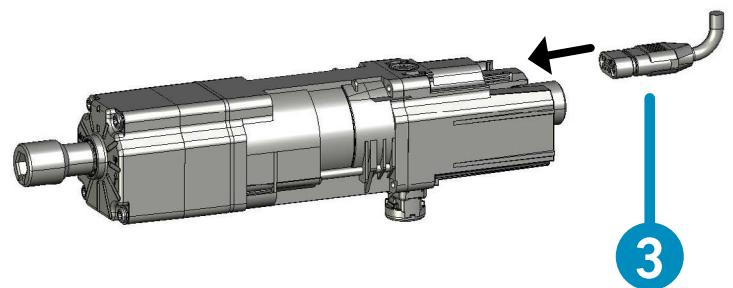
- 1** Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
**Tightening torque = 1.35 N.m ± 20 %**



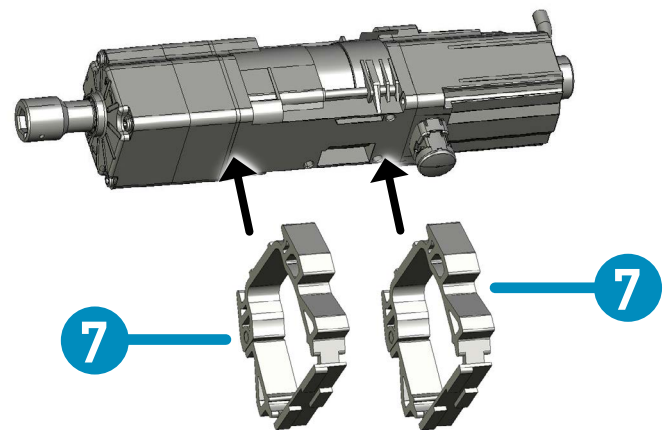
- 2** Connect the power cable **3** to the drive.



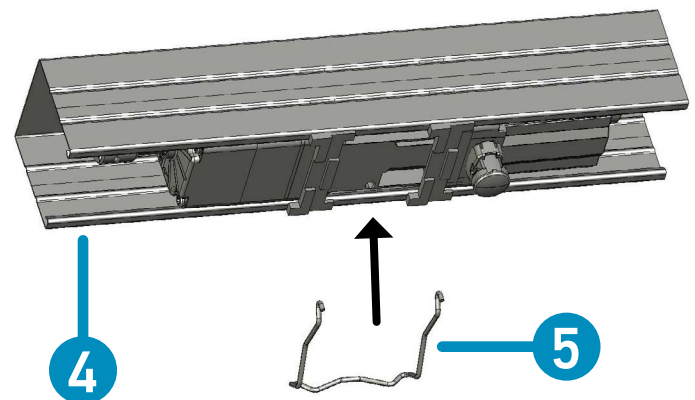
**Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



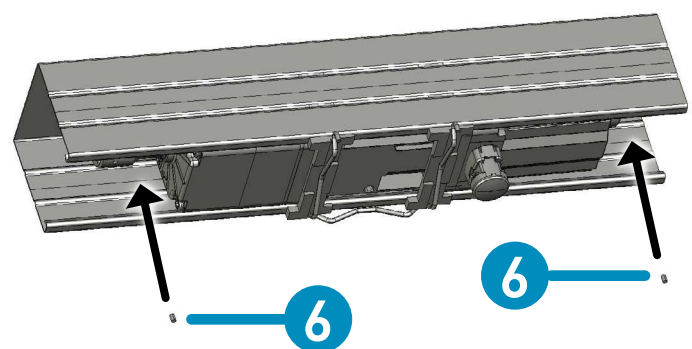
- 3** Fit the two head rail adaptors **7** onto the drive.



- 4** Insert the drive in the head rail **4**.  
Using the clip **5**, fix the drive in the head rail.



- 5** The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
**Tightening torque = 2 N.m maximum**



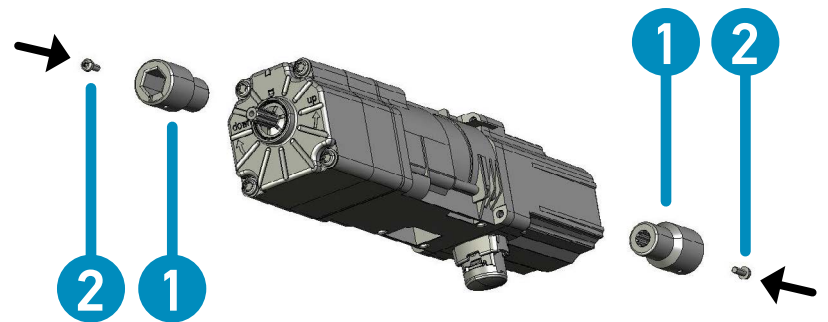


## → 78 MM X 67 MM HEAD RAIL, OPEN AT THE BOTTOM

### Assembly with J418 drive

1

Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
Tightening torque = 1.35 N.m ± 20 %

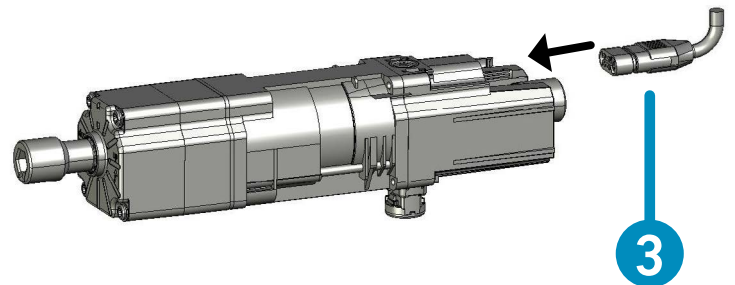


2

Connect the power cable **3** to the drive.

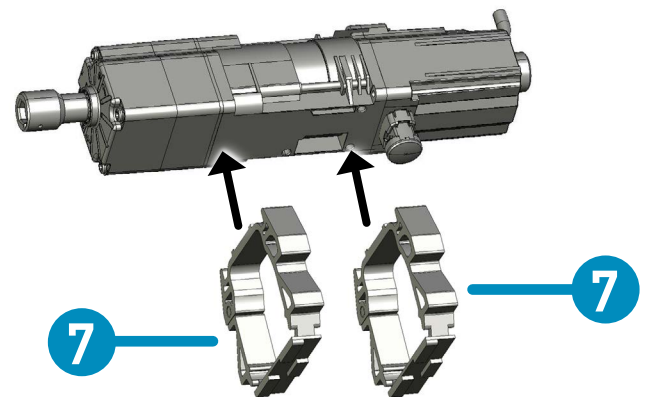


**Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



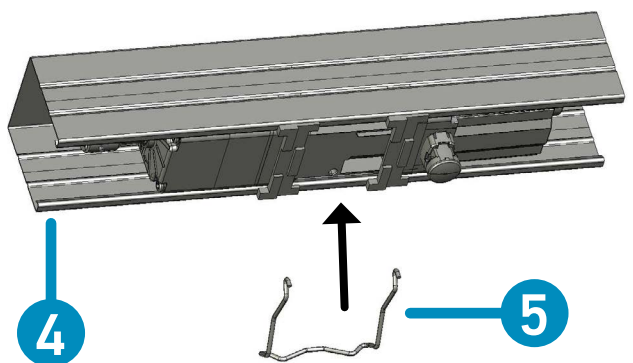
3

Fit the two head rail adaptors **7** onto the drive.



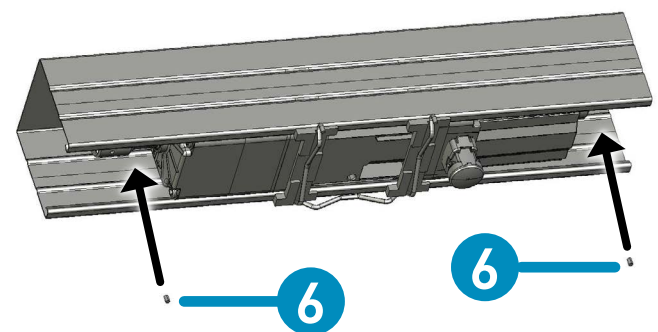
4

Insert the drive in the head rail **4**.  
Using the clip **5**, fix the drive in the head rail.



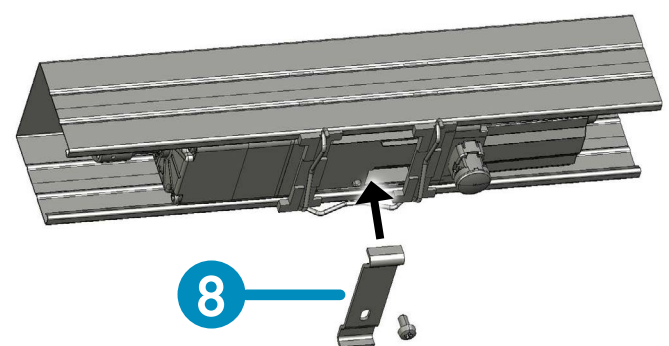
5

The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
Tightening torque = 2 N.m maximum



6

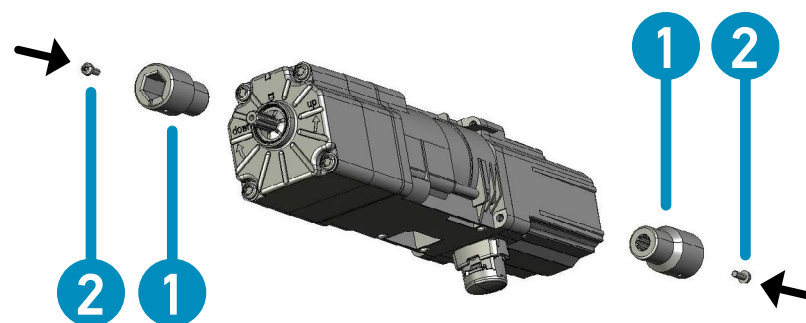
Fit the additional bracket **8** to the head rail + drive assembly and screw it to the drive using a M5 x 10 mm screw. The screw must be fully tightened on the bracket.  
Tightening torque = 4 N.m maximum



## → 67 MM X 66 MM HEAD RAIL, OPEN AT THE BOTTOM

1

Screw the 2 adaptors to the drive shaft **1** using two M3x8 screws **2**.  
Tightening torque = 1.35 N.m ± 20 %

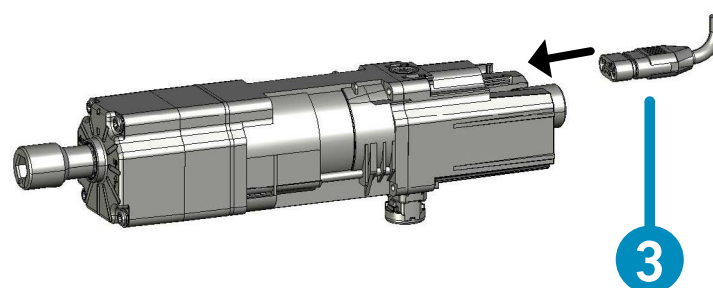


2

Connect the power cable **3** to the drive.

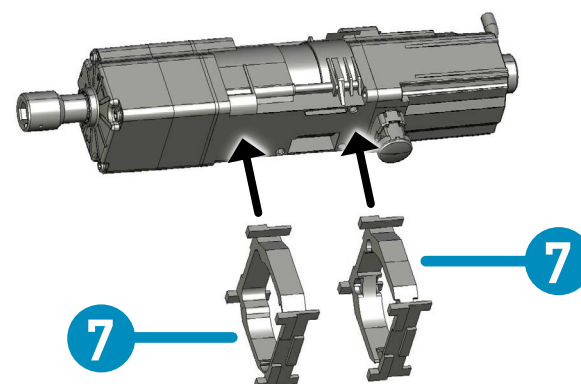


**Ensure that the cable does not hinder any rotating part of the drive or mechanism.**



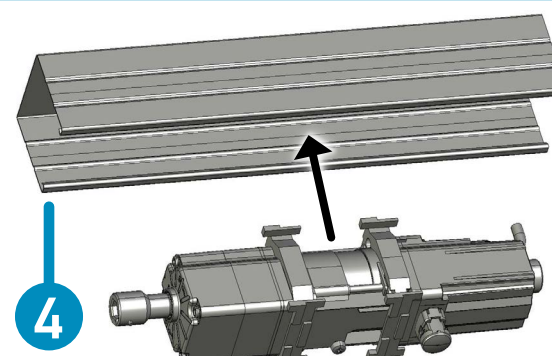
3

Fit the two head rail adaptors **7** onto the drive.



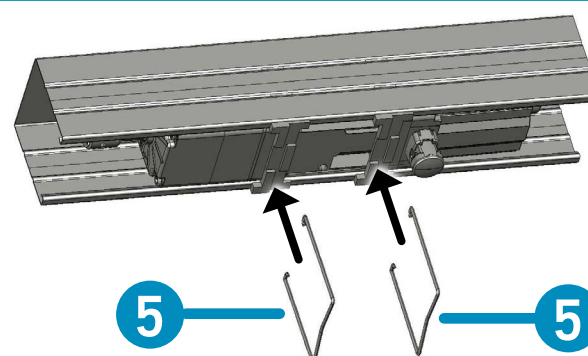
4

Insert the drive in the head rail **4**.



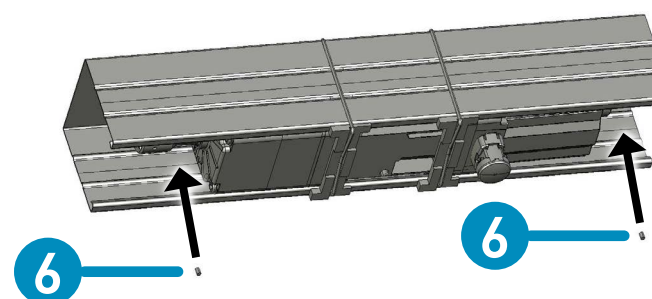
5

Using the clips **5**, fix the drive in the head rail.



6

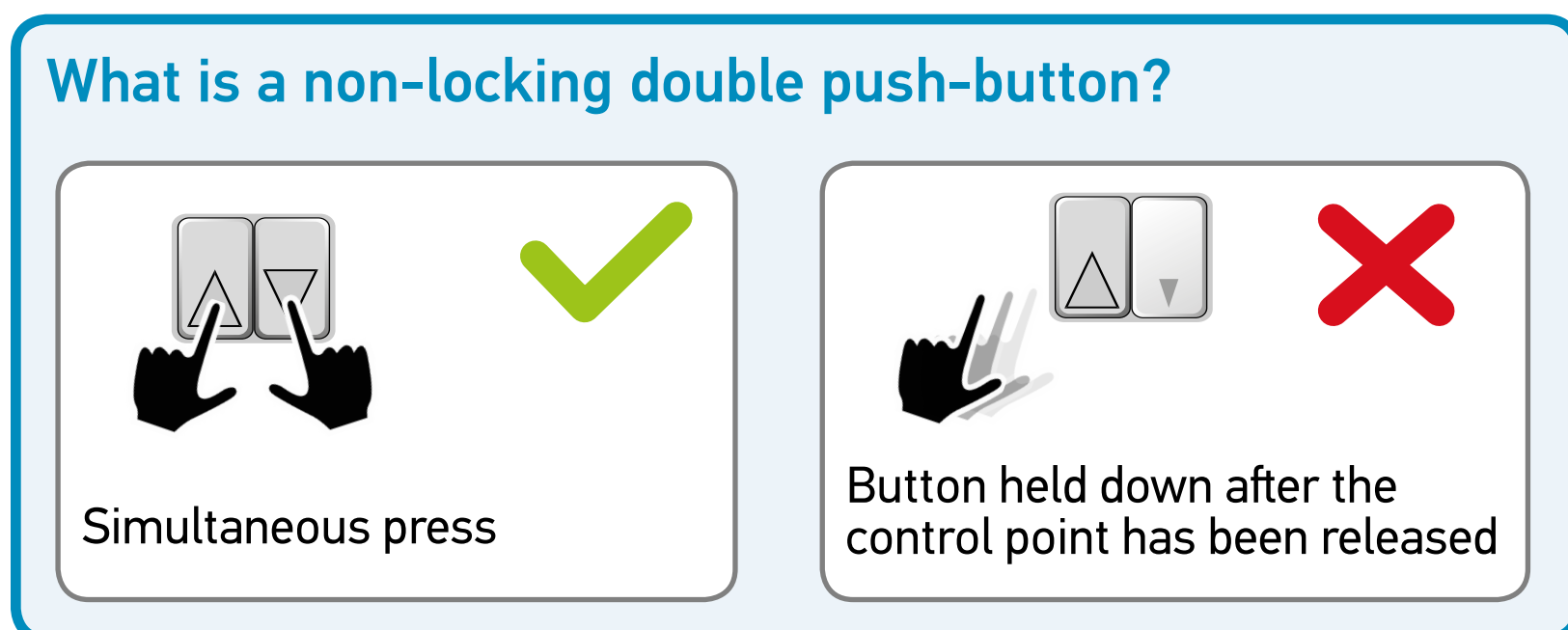
The shaft of the EVB can be fixed in the adaptor using a grub screw **6**.  
Tightening torque = 2 N.m maximum



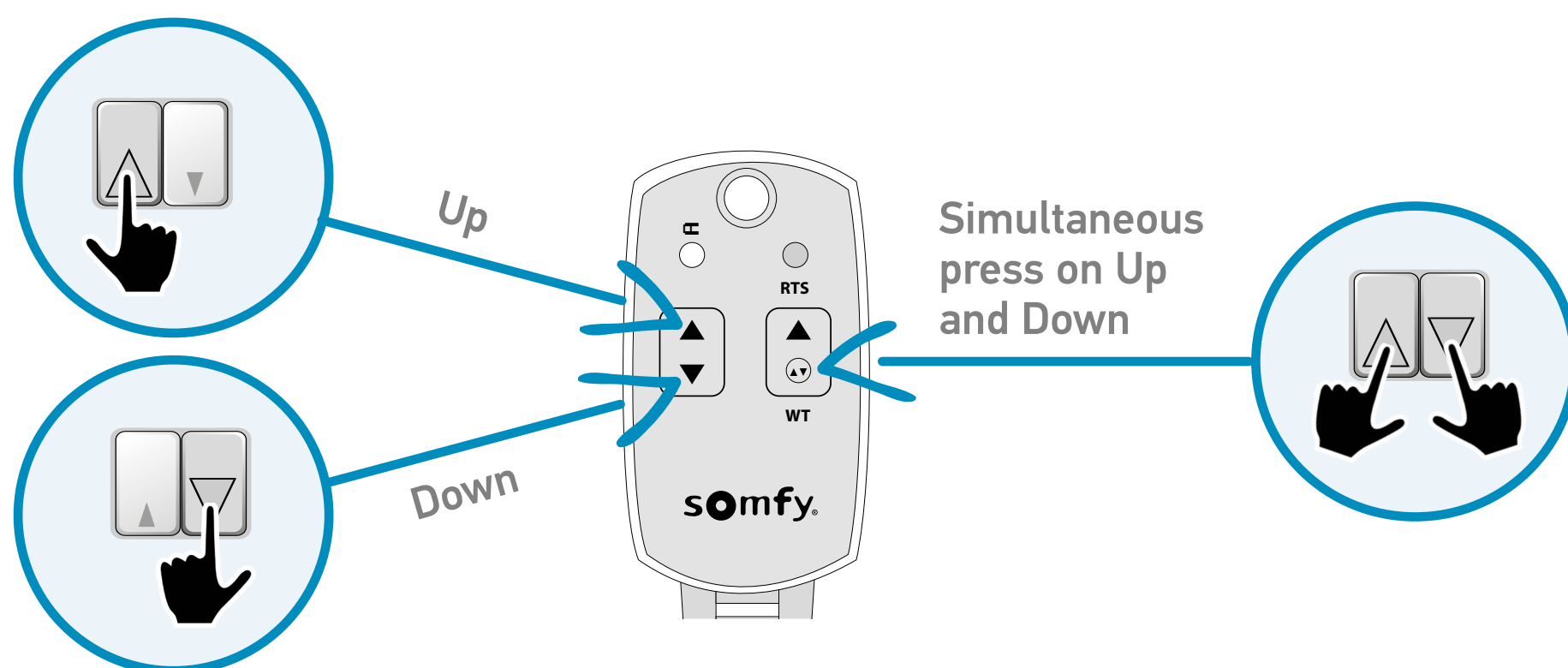
## 4.3. INSTALLING THE DRIVE

### USING THE WT SETTING TOOL:

To make the settings for your drive, you can choose to use either the **WT setting tool** (ref. 9015971 in Europe and ref. 9016772 in Switzerland) or a **non-locking double push-button** control point.



The actions of the WT setting tool correspond to the actions performed on the non-locking double push-button, as shown below:



*The non-locking double push-button is only useful during installation. For use after installation, we strongly recommend that you install a single push-button or reversing switch.*

## INSTALLATION STEPS:

All of the installation steps are also given in the short installation guide supplied as a hard copy with the drive, which can also be downloaded from **[www.somfy.info](http://www.somfy.info)**.

### SETTING THE UPPER END LIMIT: VIDEO

### SETTING THE LOWER END LIMIT: VIDEO

### ACTIVATING/DEACTIVATING THE OBSTACLE DETECTION FUNCTION

### ACTIVATING/DEACTIVATING THE AUTOMATIC ADJUSTMENT FUNCTION

Click here to  
go straight to  
the videos.



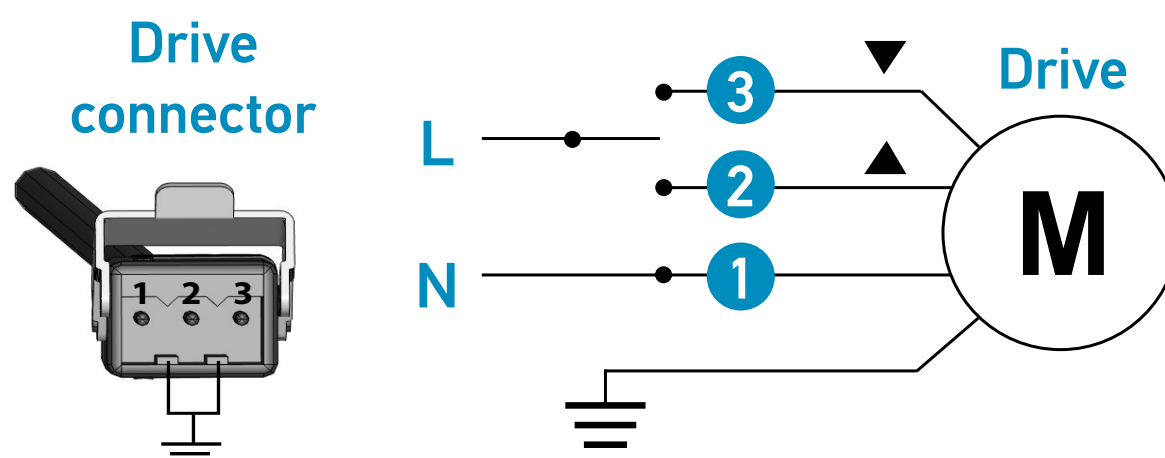
The videos can be found on the **SOMFYTV** YouTube channel. Go to it by clicking the address:

→ **[www.youtube.com/somfytv/playlists](http://www.youtube.com/somfytv/playlists)**



## CONNECTING THE DRIVE

The diagram and table below explain how to connect the **J4 WT Protect** drive:



Phase (L)	3	Down	Brown
	2	Up	Black
Neutral (N)	1		Blue
Earth (⏏)			Green-Yellow

## 5. USE AND MAINTENANCE

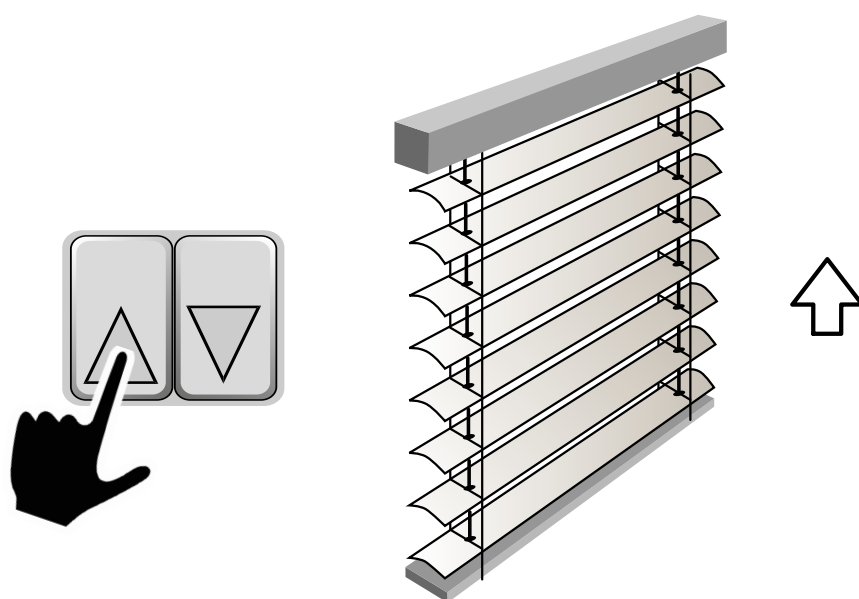
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*This drive does not require any maintenance operations.*

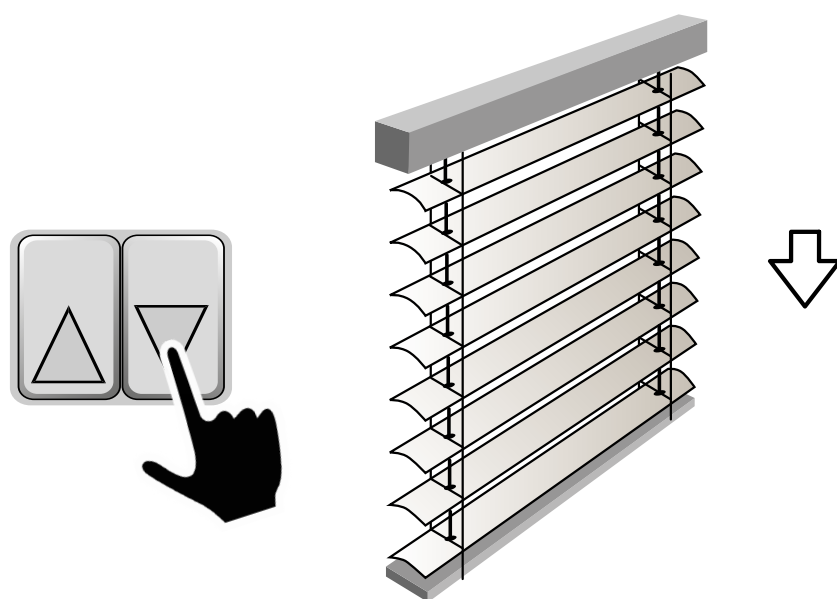
### 5.1. RAISING THE EVB

Press the Up button on the control point to raise the EVB.



### 5.2. LOWERING THE EVB

Press the Down button on the control point to lower the EVB.



## 6. TIPS & RECOMMENDATIONS

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### 6.1. RESETTING THE DRIVE

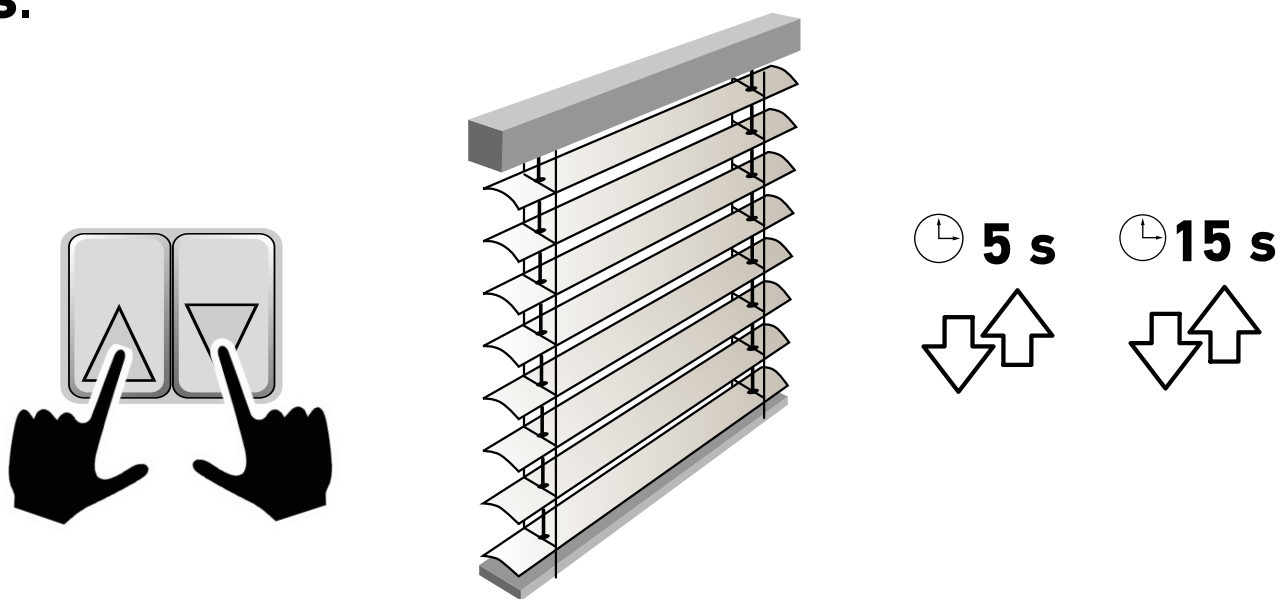
In the event of a problem, the drive can be reset at any time to abort the current actions.



**Ensure that the EVB is at least 30 cm below the mushroom.**

Simultaneously press the Up and Down buttons.

Hold and wait for two back-and-forth movements after **5 seconds** and **15 seconds**.



*The current position of the EVB is stored as the lower end limit position, unless the lower end limit position has been locked by the manufacturer.*



*Tip: if possible, put the EVB in the lower end limit position before resetting the drive. If you do this, there will be no need to re-set the lower end limit.*

### 6.2. RTS AND IO COMPATIBILITY

The **J4 WT Protect** drive can be modified and made compatible with RTS and io remote controls. To do this, one of the following products must be added:

→ **Soliris Mod/Var Slim Receiver RTS**

→ **EVB Slim Receiver Variation io**

## 6.3. TROUBLESHOOTING TABLE

Observations	Possible causes	Solutions
The EVB does not operate.	The drive is wired incorrectly.	Check the wiring and modify as required.
	The overheating protection on the drive has been activated.	Wait for the drive to cool down.
	The cable used is not compliant.	Check the cable and make sure that it has 4 conductors.
The EVB stops too soon.	The end limits are incorrectly programmed.	Re-set the end limits.
	The EVB has detected an obstacle when rising.	Remove the obstacle.
	The EVB was prevented from rising by frost.	Wait until the EVB has thawed.
The EVB does not respond when the lower end limit is set.	The lower end limit has been locked by the manufacturer and can not be re-set.	Do not attempt to set the lower end limit.
The drive is rotating in the incorrect direction.	The up and down conductors are the wrong way round.	Swap the conductors over.
	The drive is incorrectly positioned in the head rail.	Position the drive the other way round in the head rail.
	The drive has not detected the lower end limit and has started to rise again (with a type 1 EVB).	Re-set the lower end limit.
The upper end limit changes automatically.	The automatic adjustment function is activated.	This function can be activated or deactivated if necessary. Please refer to the installation section.



<b>Observations</b>	<b>Possible causes</b>	<b>Solutions</b>
The type 1 EVB lowers with the slats tilted outwards.	The EVB has a working position.	The orientation of the slats on lowering cannot be changed in this case.
The EVB is blocked in its upper end limit position.	The drive was reset when the EVB was very close to the mushroom.	Mechanically disconnect the drive, unwind the apron to the lower end limit, then reassemble the drive.
One of the EVBs controlled by a building controller is no longer synchronised.	The EVB met an obstacle when rising and reversed to relieve the stress.	Lower the EVB to the lower end limit to resynchronise the drive with the controller.

## 6.4. FAQ

### → **WHY HAS THE UPPER END LIMIT OF MY EVB CHANGED SLIGHTLY?**

When the EVB rises, the cords can wind up more efficiently as the blind is used over time, which results in the upper end limit position changing. To overcome this, activate the automatic adjustment function.

However, if the change is due to incorrect stacking of the ladders, this function will not compensate for it.

### → **HOW CAN I CHECK THAT MY TYPE 1 EVB IS ROTATING IN THE CORRECT DIRECTION?**

Press the Up button.

- . If the slats stay flat or tilted inwards when the blind rises, the direction of rotation is correct.
- . If the slats are tilted outwards when the blind rises, the direction of rotation is incorrect.

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