

**SCHNEEBERGER**  
LINEAR TECHNOLOGY



## Installation Instructions

**Cover Strip MAC  
for MONORAIL MR**



## Version data

Date written	Description	Author	Released by
07.12.2007	First release	JS	KG

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- 01	07.12.2007	First release	KG
- 02	03.04.2008	Notice about minimum length added	KG
- 03	12.11.2009	Amended cover strip retainer dimensions	KG

## Notes for users

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The Installation Instructions MAC for MONORAIL MR can be obtained free of charge from your Schneeberger Partner, or downloaded as a pdf-file from **[www.schneeberger.com](http://www.schneeberger.com)**.

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# 1 About these Installation Instructions

## 1.1 Function and validity

The Installation Instructions Cover Strips MAC for MONORAIL MR describes the installation of MAC cover strips with the aid of installation tool MWC to cover mounting holes in MONORAIL MR guideways. These instructions supplement the MONORAIL Installation Instructions and are only valid in conjunction with them.

## 1.2 Target audience

These Installation Instructions are intended for the fitters and service personnel who have to install cover strips, or remove and replace them during servicing operations.

## 1.3 Further reading

- MONORAIL catalogue
- MONORAIL Installation Instructions

Catalogues and installation instructions can be obtained from SCHNEEBERGER representatives or downloaded from **[www.schneeberger.com](http://www.schneeberger.com)**.

# 2 For your safety

## 2.1 Authorised persons

MAC cover strips may only be installed by specialist personnel who have read and understood these Installation Instructions.

## 2.2 General safety and accident prevention measures



### **Notice:**

Cover strips may be kinked in storage or during transport so that they damage the wiper on a carriage.

- ➔ Cover strips must always be supported over their entire length
- ➔ Never use kinked cover strips

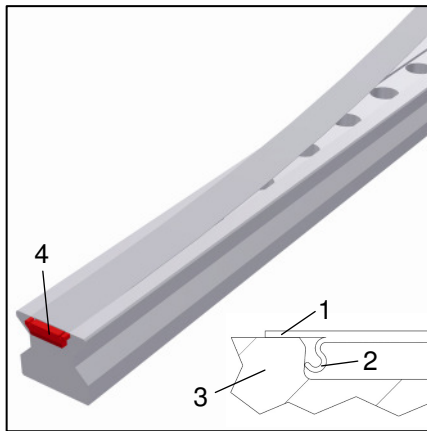


### **Caution:**

Danger of injury from the edges and ends of cover strips

- ➔ Wear gloves

### 3 Operating principle



An MAC cover strip is made from stainless spring steel and consists of a smooth steel band (1) with S-shaped spring elements on its under side (2) to fasten the strip.

Installation is carried out using a special cover-strip rail (3), which has a dovetail-shaped longitudinal groove.

When installed, a cover strip lies flat on the rail with a slightly cambered cross-section and covers the upper surface in the region of the rail mounting holes. The edges of the upper surface of the rail remain free.

The strip is retained by S-shaped spring elements, which engage in the rail groove; this mechanical retention provides firm and secure retention for the cover strip.

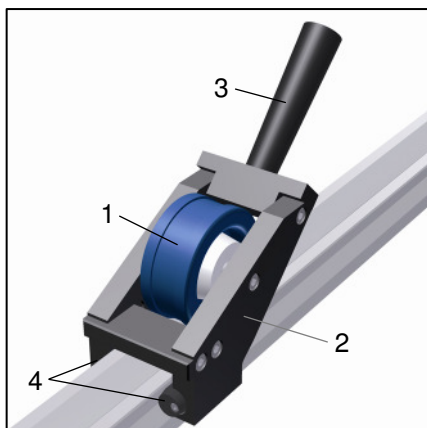
In addition, the ends of the strip are secured by special end pieces (4) which prevent the retaining elements from lifting the strip. The end pieces also cover a gap between the rail and the strip on the end faces.

### 4 Preparing for installation

#### 4.1 Tools, materials and equipment required

- Installation tool MWC
- Mounting rail MRM
- Anti-corrosion grease
- Lubricant (oil or grease)
- Soft rag

#### 4.2 Installation tool MWC



For correct installation of MAC cover strips, SCHNEEBERGER recommends the manual installation tool MWC. This consists of a large pressure roller (1), which is supported on bearings in a housing (2). A handle (3), for manual operation, is attached to the housing, as are slide pieces (4) to guide the tool along the rail.

The installation tool can be purchased from SCHNEEBERGER and must be ordered separately.

Order code: **MWC xx**,  
xx = size; ordering example 1 x MWC 45

#### 4.3 Preparing the rail

- Install the rail according to the MONORAIL Installation Instructions and tighten the screws securely.
- Remove the carriage from the rail using a mounting rail MRM if necessary.



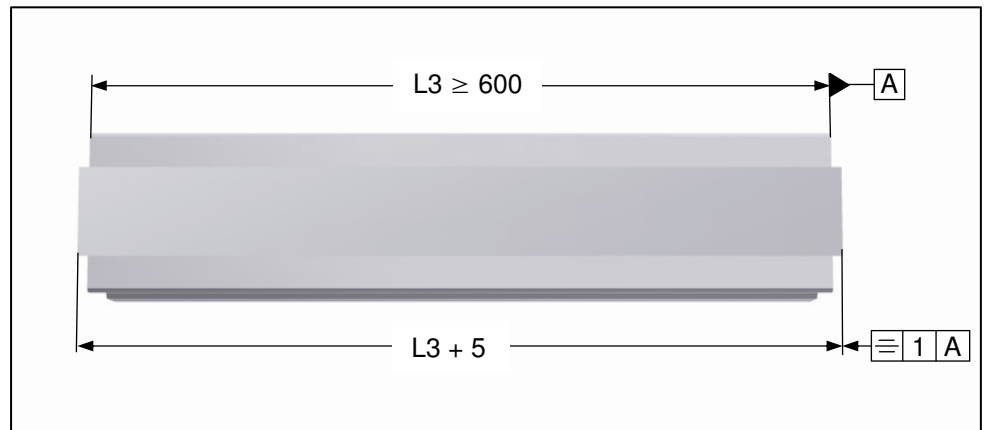
**Notice:**

Before moving the carriage, ensure that the corrosion protection coating applied in our works has been removed completely; see MONORAIL Installation Instructions. The corrosion protection can stick the rolling elements together, thus cause a damage on the carriage.

- Clean the upper surface of the rail and the groove with methylated spirit. Do not use thinners, acetone, etc.
- Coat the surface in the groove completely with a corrosion-inhibiting grease (e.g. Klüber STABURAGS NBU 30 PTM) using a paint brush or a rag.

## 5 Installation

#### 5.1 Procedure with a single strip

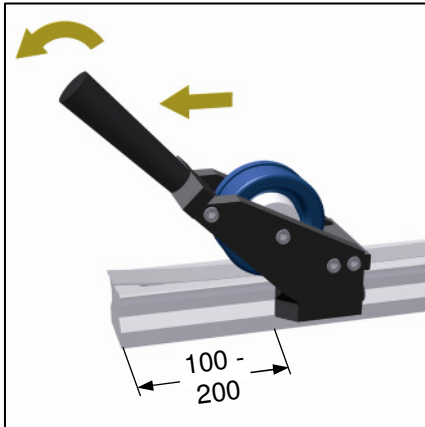


Minimum length

Rails with cover strip should have a minimum length of  $L3 \geq 600$  mm. If the rail length is  $< 600$  mm, the strip ends must be secured against sliding in longitudinal direction by means of an steel strip retainer, see chapter 5.3.

Aligning the strip

Before installation, lay the cover strip loose on the rail and position it in the centre of the rail. If the strip is to be secured with standard end pieces, the strip must be slightly longer than the guideway. When the strip is correctly positioned, it should project 2 – 3.5 mm at each end of the rail. This measurement is critical for correct function of the end pieces.



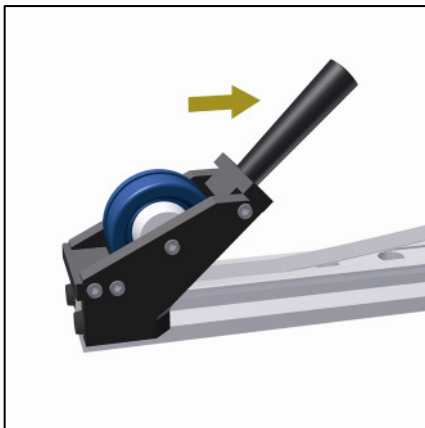
#### Installation

Start the installation tool MWC at one end of the rail so that the handle points towards that end of the rail. About 100 – 200 mm from that end of the rail, start to press the strip into the groove by tilting the tool and moving it forwards. The strip must audibly click into the groove.

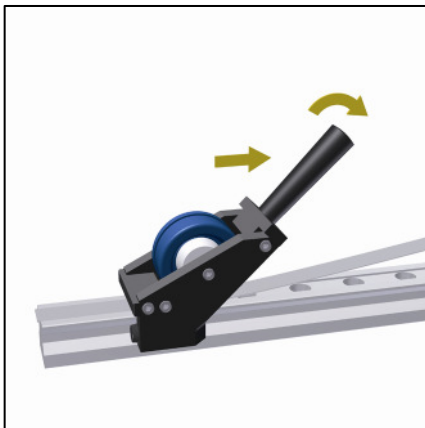


#### Notice:

At the rail end, take care that the free end of the strip is not kinked by the roller. Only push the installation tool to the rail end. The pressure roller of the tool must not pass the end of the rail with pressure applied.

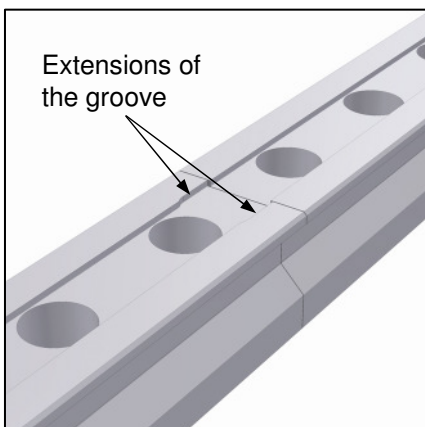


Turn the installation tool around and fit it to the rail again. The handle must point in the direction of installation.



Tilt the tool forwards and move it along the rail so that the strip is pressed into its groove over the entire length of the rail.

### 5.2 Procedure with multi-piece strips

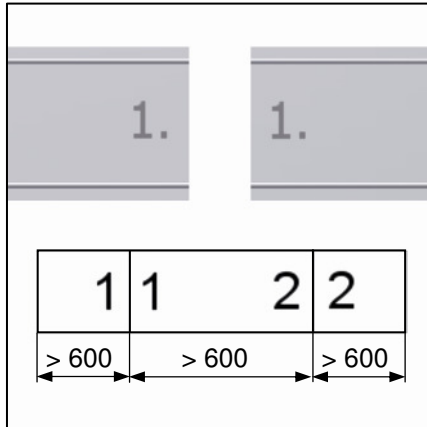


#### General

As far as possible, several strips should only be used when, for example on a very long axis, the rail is in several pieces and the circumstances demand it. A butt joint is always a potential source of trouble for the carriage wiper and should be avoided wherever possible.

#### Rail installation

Install multi-piece rails for cover strips as specified in the MONORAIL Installation Instructions. The rail segments must be installed so that, at the butt joints, each piece of rail has an extension of the groove for the cover strip, see figure on the left.

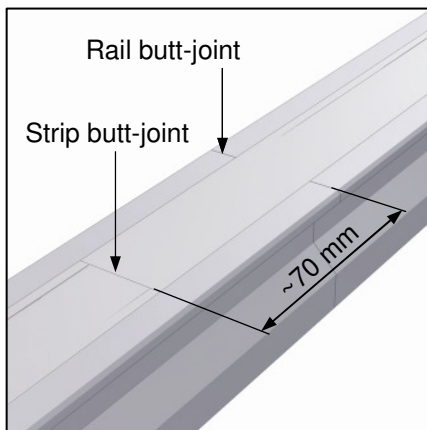


#### Installation

For multi-piece cover strips, follow the same procedure as for single strips, see chapter 5.1.

The minimum length in a multi-piece cover strip must not be less than 600 mm.

Follow the numbering of the strips. Sections of a multi-piece cover strip are marked with the joint number on the underside in the same way as multi-piece rails.

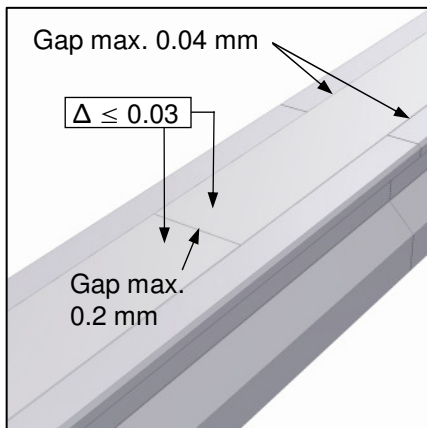


Start installation with the first section. All the remaining sections are then installed seamlessly (gap size < 0.2 mm) from the end of the first.

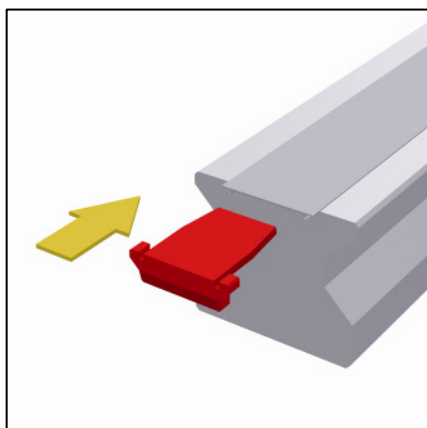
For multi-piece rails, the rails and cover strips do not have the same section lengths.

The lengths of the sections are chosen so that the cover strip joints are offset by about 70 mm from rail joints.

### 5.3 Completion of installation



After installation, check that the strip is even and flush. Correctly installed, the strip is slightly cambered in cross-section so that its edges contact the surface of the rail. The permissible gap between the rail and the strip is 0.04 mm. The thickness of the strip including camber is max. 0.6 mm; the height difference between strips at the joints must not exceed 0.03 mm.



#### Installation of end pieces

Finally, fit the end pieces at both ends of the rail by pushing them into the space between the cover strip and the rail groove up to their shoulders.

Apply a light coating of the lubricant used in the MONORAIL carriage to the entire surface of the rail.

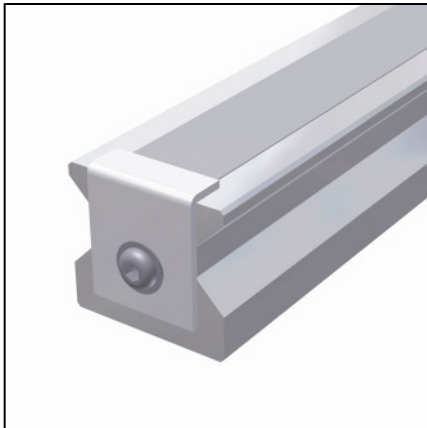
#### Notice:



In case of a cover strip length < 600 mm, the strip ends have to be secured with a steel retainer instead of the end pieces, see chapter 5.4.



#### 5.4 Steel cover strip retainers



For more severe mechanical stress, e.g. when directly exposed to machining swarf, the strip ends can be secured with steel angles instead of the red plastic end pieces. In this case, the strip ends must be cut off at right-angles and free of burrs, and a thread for a mounting screw tapped in each end of the rail. Retro-fitting with steel strip retainers is therefore only recommended where induction-hardened rails are used.

For dimensions of the strip retainers and the mounting threads, please see chapter 8.2

The steel strip retainers are not part of the standard scope of supply for cover strips and must be ordered separately.

Order code: **BSC xx**

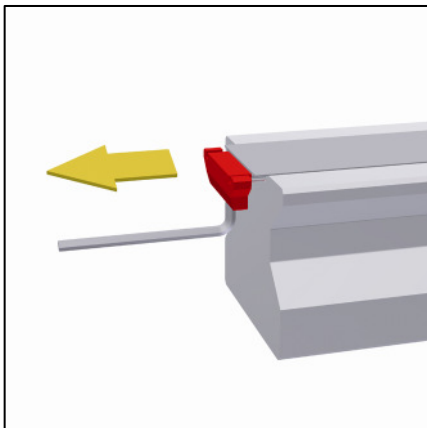
xx = size, ordering example: 2 x BSC 45

## 6 Removing cover strips

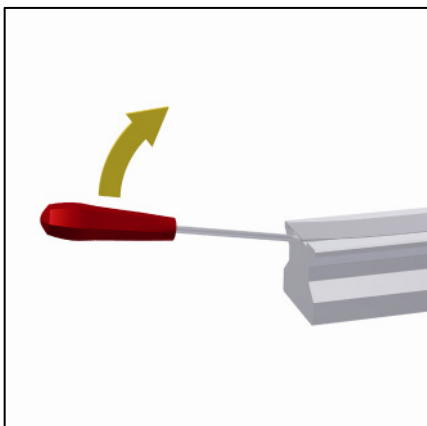
### 6.1 Tools required

- Slotted head screw driver
- Small hexagon key

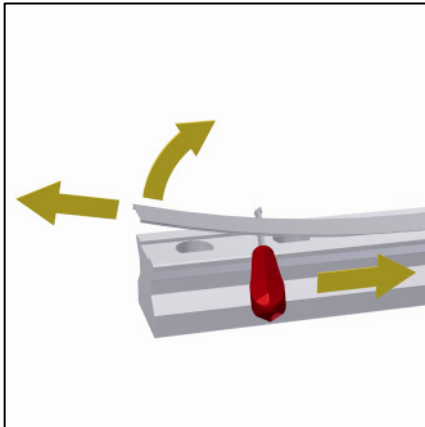
### 6.2 Procedure



To permit removal of cover strips, both end pieces must be removed. To do so, use a small hexagon key. Hook the hexagon key behind the end piece from below and pull away from the rail to extract it.



Use a screwdriver to lever the cover strip a few millimetres out of the groove at one end of the rail until the end can be grasped by hand.



Raise the strip so far that you can insert a screwdriver or a steel bar at right-angles to the rail and between the rail and the cover strip. Now push the screwdriver or bar along the rail to lift the strip out of the groove. Take care not to bend or kink the strip and avoid scratching the rail and the strip. Repeat as necessary for a long strip until it has been removed over the entire length of the rail.

### 6.3 Completion of removal

After removal, check the strip and plastic end pieces for damage. A slight curvature of the strip is not critical and can be straightened. Strips that are severely bent or kinked must not be reused. Strips that have other types of damage, such as scoring or scratches, are also not suitable for further use and must be replaced.

End pieces may be damaged by removal or lose their retention force and should, as a rule, be replaced.

### 6.4 Spare parts

Cover strips and end pieces can be purchased from SCHNEEBERGER as spare parts. For multi-piece strips, the lengths of the rail sections must be quoted.

#### Cover strip

Order code: **MAC xx-yy**

xx = size, yy = rail length L3 in mm; ordering example: 2 x MAC 35-1968

#### End pieces

Order code: **EST xx-MAC**

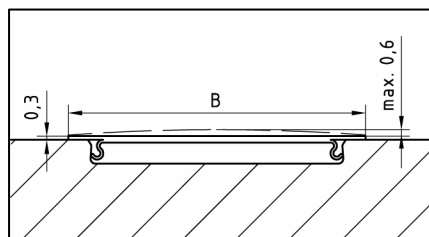
xx = size, ordering example: 4 x EST 35-MAC

## 7 Maintenance

The installation tool MWC is maintenance-free. Nevertheless, after a long period of use, the sliding components may exhibit signs of wear. We therefore recommend that the installation tool is checked regularly and replaced when necessary; see chapter 4.4 for ordering data.

## 8 Appendix

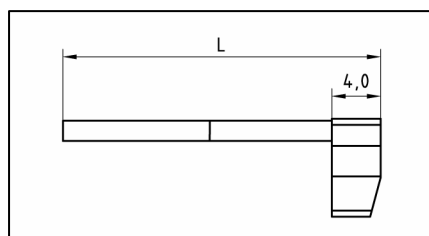
### 8.1 Dimensions of cover strips



Size	B
MAC 25	15
MAC 35	19
MAC 45	25
MAC 55	28,5
MAC 65	32

All dimensions in mm

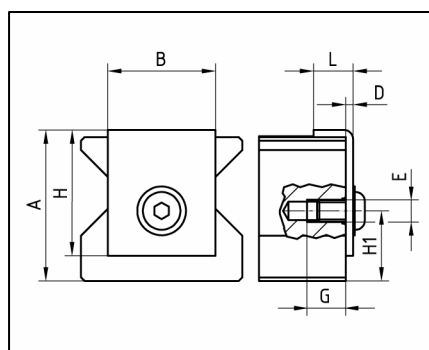
### 8.2 Dimensions of end pieces



Size	L
EST 25-MAC	22
EST 35-MAC	22
EST 45-MAC	26
EST 55-MAC	28
EST 65-MAC	30

All dimensions in mm

### 8.3 Dimensions of steel strip retainers



Size	MR	A	B	H	L	D	E	G	H1
BSC 25	25	27	15	24	10	2	M4	9	14,5
BSC 35	35	34,5	20	25	10	2	M4	9	22
BSC 45	45	42,5	30	35	11	2	M6	11	20
BSC 55	55	50,5	30	35	11	2	M6	11	28
BSC 65	65	60,5	30	35	11	2	M6	11	38

All dimensions in mm

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