

A. Installation of plastic slide rail and support rail

About slide rail

The slide rail is attached to the sides of the conveyor beam to reduce chain friction where the chain would otherwise be in direct contact with the beam profile. It is very important that the slide rail is installed properly, so that the chain can run without disruption.

When the conveyor is to be mounted high above ground level, it might be easier to mount the slide rail onto a conveyor section while the conveyor beam is still on the floor. If doing so, leave an extra end, approximately 300 mm longer than the beam, so that it can be cut off and adjusted when the beam is finally installed.

Characteristics

Slide rails are available in several materials, each with different characteristics:

The coefficient of friction is normally closer to the lower value at startup of a new conveyor. It will increase as the contact surfaces are wearing in. Lubricants will reduce the coefficient of friction.

Considerations when selecting slide rail

Each of the slide rails has its own characteristics and is suitable for different types of applications.

Slide rails made of HDPE or PA-PE are suitable for most standard applications. PA-PE has higher wear resistance but should not be used in wet environments.

In environments where high resistance to chemicals is important, PVDF slide rails are recommended.

Hardened steel slide rails in combination with PVDF slide rails in bends can be a good combination where larger particles such as chip occur.

UHMW-PE has the highest wear resistance and can be recommended in applications with accumulation, transport of heavy parts, high speed, abrasive particles or requirements on low dust generation.

Horizontal plain bends

The contact pressure between the chain and the slide rail is very high in the inner bend of horizontal plain bends. It is important to use the PVDF slide at this location if the speed is high as there will be increased temperatures that may cause melting of other slide rails. This, however, will result in somewhat higher wear on the chain.

A. Installation of plastic slide rail and support rail (continued)

Example of available slide rail types

| Slide rail type | XSCR 25 XLCR 25 XBCR 25 | XSCR 25 P XLCR 25 P XWCR 25 P | XLCR 25 H | XSCR 25 U XLCR 25 U XKCR 25 U XWCR 25 U XBCR 3/6 UA | XLCR 25 E XBCR 25 E XBCR 25 EB XBCR 3 EA | XLCR 3 TA | XKCR 3 TH XKCR W.. TH |
|----------------------------|--|---|---|--|--|--|---|
| Material | HDPE High density polyethylene | PVDF Polyvinylidene fluoride | PA-PE Polyamide-polyethylene | UHMW-PE Ultra-high molecular weight polyethylene | UHMW-PE Carbon filled ultra-high molecular weight polyethylene | SS Stainless steel | -- Hardened steel |
| Friction coefficient | 0,1–0,25 | 0,15–0,35 | 0,1–0,30 | 0,1–0,25 | 0,15–0,30 | 0,15–0,35 | 0,15–0,35 |
| Application information | –40 to +60 °C Standard applications | –40 to +100 °C High resistance to chemicals (see table in the Product catalogue) Accumulation Transport of heavy parts High speed Abrasive particles | –40 to +80 °C Accumulation Transport of heavy parts High speed Abrasive non-metal particles | –40 to +60 °C High wear resistance Clean environment Low dust and particle generation | –40 to +60 °C Reduces static electricity Relatively low dust and particle generation | Abrasive particles High resistance to chemicals | Abrasive particles such as metal chips from milling and grinding processes |
| Advantages | Good standard Easy to mount | Chemical and heat resistant Low elongation More resistant to chemicals | Good wear and heat resistance | Easy to mount Low wear out Minimum of particles | High conductivity Fast discharge Easy to mount | No elongation High resistance to chemicals and abrasive particles. Heat resistant Low wear out | No elongation Very high resistance to abrasive particles Heat resistant Low wear out |
| Disadvantages | Poor resistance to solvents (petroleum, white spirit) Limited temperature range Wear out at heavy accumulation | Higher friction More difficult to mount | Should not be used in wet applications | Limited temperature range Higher elongation | Some particle generation may occur | Difficult to mount, with only straight lengths High friction Generates particles in dry environments | Special mounting procedure High friction Generates particles in dry environments |
| Colour | Black | Natural white | Grey | White | Black | Natural | Natural |
| Suitable application areas | All industries Medium speed Medium load | Greasy environments Water (washing machines) Chemicals High load Heat resistant | High speed High load | All types of clean production | Environments sensitive to static electricity | High load Heat/cold | Aggressive particles High load Heat/cold |

Attaching the slide rail in straight sections

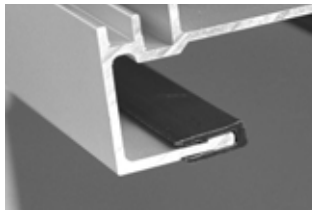
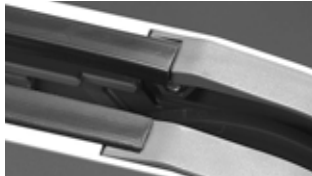
Tools required

Slide rail installation tool:

| | | | | |
|----------|-------------------|----------|----------|----------|
| XS-XL | X85, X180/X300 | XM | XH | XK |
| XLMR 140 | XBMR 170 | XMMR 140 | XHMR 200 | XKMR 200 |

Procedure

- 1 Start at an idler end unit. Separate the top and bottom flange of the slide rail at the end of the rail and press it into place.
- 2 Make sure that you mount the slide rail so that it snaps on to the beam. The different types of slide rail do not look alike, so check which flange should be on top.
- 3 Use the slide rail mounting tool to press the slide rail into place. One end of the tool is used when slide rail is mounted onto only one side of the beam, and the other end is used when you mount slide rail onto the second side.
- 4 Do not forget to mount slide rails both underneath and on the upper side of the beam (unless top running chain only)



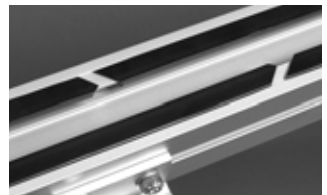
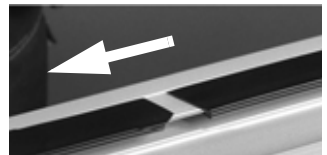
Joining slide rails

Tools required

Cutting pliers

Procedure

- 1 Cut both slide rail ends in a 45° angle. The beginning of a new slide rail section (in the direction of travel) must be cut back a small angle.
- 2 Allow a space of approximately 10 mm between two slide rail ends. The arrow indicates travel direction.
- 3 Do not place two slide rail joints opposite each other. Make sure there is a distance of at least 100 mm between them to make the chain run smoother.



This does not apply to slide rail that begins by an idler unit or after a drive unit, where joints are always parallel.

Comments

- Try to let the slide rail run in as many continuous lengths as possible, except in circumstances stated below:
- It is recommended to use short slide rails (2–3 m) where chemicals may have an effect on the slide rail composition.
- It is important to cut the slide rail and allow for elongation in high load areas. Cutting is required in wheel bends (see below), by idler units and where the conveyor will be heavily loaded, especially by the drive units. This prevents the slide rail from stretching out and entering into the drive unit, which may block the chain.
- Never join slide rail in horizontal or vertical bends, since forces are higher on the slide rail in these sections. Instead, place the joint before the bend.
- Avoid joining slide rails on top of conveyor beam joints.

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A. Installation of plastic slide rail and support rail (continued)

Mounting slide rail in wheel bends

Tools required

Cutting pliers

Before wheel bend

- 1 Cut the slide rail end at a 45° angle.

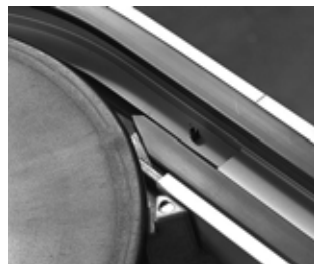


- 2 The slide rail must be longer than the conveyor beam itself, and there should be a 10 mm distance between the slide rail and the wheel of the bend. Make sure that the end of the slide rail is not bent up or down.

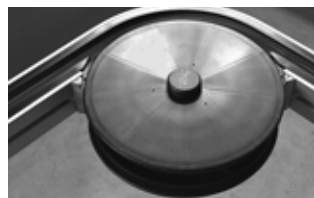


After wheel bend

- 3 Cut the slide rail at a 45° angle with a short back cut. The slide rail must be longer than the conveyor beam itself, and there should be a 2 mm distance between the slide rail and the wheel of the bend.



- 4 In the outer bend, make sure that the slide rail is properly connected to the conveyor beam profile.



Horizontal plain bends

In plain bends with small radii, the slide rail for the inner bend should be cut so that it is only 10 mm wide in the bend. This is to prevent an uneven slide rail surface. Stretch the rail while mounting.

Important

Plain bends with small radii should be avoided, if at all possible. Always consult FlexLink Systems for design assistance.

Mounting support rail in plain bends

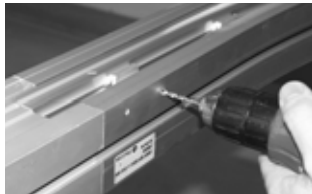
The friction in plain bends can be significantly reduced by using support rails in the inner beam profile.

Tools required

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| Soft hammer |
| Knife |
| Drill 4,2 mm |
| Clamp |
| Screwdriver |
| Sheet metal screws ISO 7049 4,2x9,5 |

Procedure

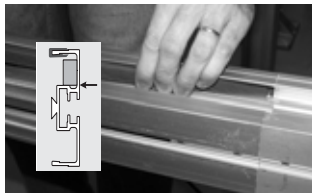
- 1 Drill two holes (4,2 mm) in the beam at the entry and exit of the bend. Drill additional holes every 200–300 mm.



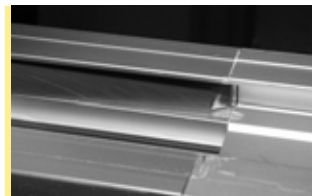
- 2 Cut both ends of the rail at a 45° angle.



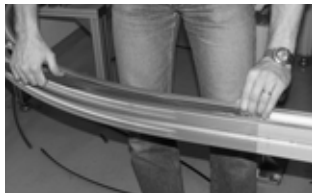
- 3 Press the support rail into place at one end of the bend. It is important that it is mounted against the bottom flange of the beam.



- 4 Make sure that the rail starts exactly at the joint between the bend and the straight conveyor beam.



- 5 Press the rest of the support rail in place.



- 6 Clamp the rail.



- 7 Fix with BSS ST 4,2x9,5 sheet metal screws (never use screws longer than 9,5 mm).



Anchoring the slide rail

The beginning of each slide rail section must be fixed to the beam, since the chain will cause the slide rail to be pushed forward. Slide rail which moves into a wheel bend or a drive unit can block the chain completely.

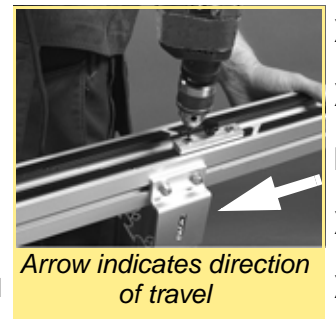
There are two different methods for fixing slide rail to the conveyor beam, using *aluminium rivets* or *plastic screws*. Either method can be used, but the riveting method is more secure if the conveyor will run with high operational speed or be heavily loaded.

Tools required

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| Hand drill |
| Drill fixture for slide rail: Part #3924774 (drill diameter 3,2 mm): XS* Part #3920500 (drill diameter 4,2 mm): XS**-XL-X85/XM-XH-XK-X180/X300 * Rivet method only **Plastic screw method only |
| Countersink |

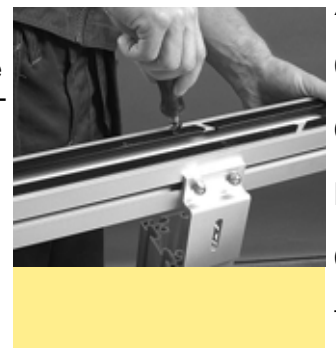
Procedure – drilling

- 1 Drill two holes near the beginning of each slide rail section. Use the drill fixture to ensure clean-cut holes and the correct location of the holes.



The holes must be at the leading edge of the joint piece, in the direction of travel, to hold the slide rail in place when the conveyor is in use. Use a well sharpened drill bit.

- 2 Use a countersink to deburr and countersink the holes. Also make sure that there are no metal filings left underneath the slide rail.

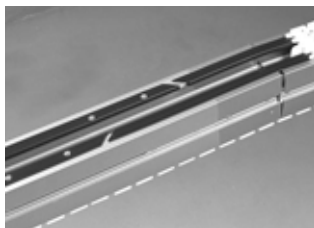


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GRX
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A. Installation of plastic slide rail and support rail (continued)

Slide rail in conveyor beam section XLCH 5 V

- 1 When using articulated beam section XLCH 5 V, the slide rail must be mounted across the entire beam section, and cut off at the beginning of the following beam section.



Anchoring slide rail using plastic screws

Tools required

| | | |
|--------------------|--------------------------------------|---------------|
| Pliers/screwdriver | | |
| Knife | | |
| Hammer | | |
| Plastic screws: | XS-XL-X85/XM-XH-X180/X300: XLAG 5 | XK: XWAG 5 |

Procedure

- 1 Press or screw the screws into the holes using a pair of pliers or a screwdriver.
- 2 Cut off the screw heads by using a knife and a hammer. Cut should be made away from the joint, in the direction of chain travel.



- 3 Make sure the slide rail surface is smooth and that screws do not protrude over the surface of the slide rail. If the surface should be uneven, file the edges smooth.



- 4 Keep a distance of approximately 30 mm between screws and idler unit. This is in case the idler unit has to be removed after conveyor system assembly.



Anchoring slide rails using aluminium rivets

Tools required

Rivet crimping pliers
XS: Part #3924776,
XL-X85/XM-XH-XK-X180/X300: Part #5051395
or
Rivet crimping clamp
XS: Part #3924770
XL-X85/XM-XH-XK-X180/X300: Part #3923005

Aluminium rivets:
XS: XLAH 3x6
XL-XM-XH: XLAH 4x6
XK-X180/X300: XLAH 4x7 (brown colour)

Procedure

- 1 Insert rivets in the holes, using rivet crimping pliers or a rivet crimping clamp. For type of rivet, see above.

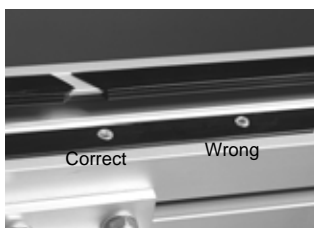


- 2 If working space is limited, the rivet crimping clamp might be easier to use. The two crimping tools perform the same task, but the pliers are more efficient and easier to use.

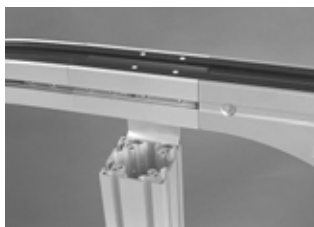


- 3 Check that the rivets do not protrude over the surface of the slide rail.

Check both top and underneath surface of slide rail for protruding metal.



- 4 Keep a distance of approximately 30 mm between rivets and idler unit. This is in case the idler unit has to be removed after conveyor system assembly.



Slide rail installation – conveyor beam XKCB N

Conveyor beam Type XKCB N has additional flanges for slide rail “inside” the beam. Attaching slide rail to these flanges is slightly different from the standard procedure. This also applies to XK plain bends (see next page).

Tools required

- Cutting pliers
- Hammer
- Screwdriver
- Clamp
- Knife
- Drill 4,2 mm
- Drill fixture Part #3920500
- Plastic screws XWAG 5

Procedure

- 1 Cut the slide rail at a 45° angle.



- 2 Mount slide rail on the lower flange of the conveyor beam.



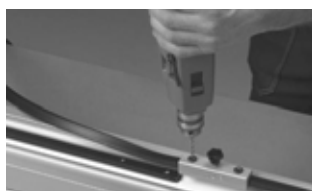
- 3 Drill holes for plastic XWAG 5 screws.



- 4 Use a screwdriver to insert the screws. Cut off the screw heads using a knife and a hammer. File off protruding edges.



- 5 On the upper flange of the slide rail, use the drill fixture to drill two holes in the slide rail before it enters the XKCB N beam.



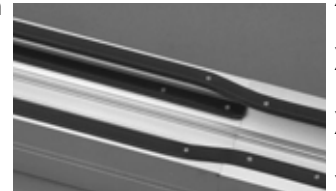
- 6 Use a screwdriver to insert the screws. Cut off the screw heads using a knife and a hammer. File off protruding edges.



- 7 Use a clamp to press the slide rail on to the beam flange where the type N beam begins.



- 8 Drill one additional hole in each slide rail at the beginning of the type N beam section.



- 9 Install the chain as shown in the picture.



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A. Installation of plastic slide rail and support rail (continued)

Installation of slide rail in XK plain bends

Plain bends increase the tension in the chain and cause higher stress on the slide rail. It is therefore recommended that slide rail be used on both the upper and lower flanges in XK horizontal plain bends. Start by installing the lower slide rail.

Tools required

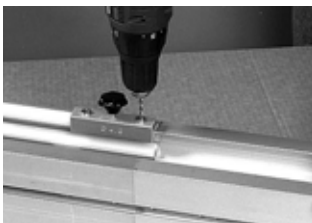
| |
|-------------------------------|
| Cutting pliers |
| Knife |
| Hammer |
| Screw driver |
| Drill 4,2 mm |
| Drill fixture (Part #3920500) |
| Plastic screws XWAG 5 |

Procedure

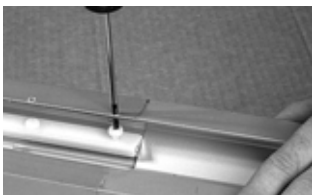
- 1 Mount slide rail on the lower flange of the conveyor beam. Cut the slide rail at a slight angle, to ensure a smooth entry of the chain.



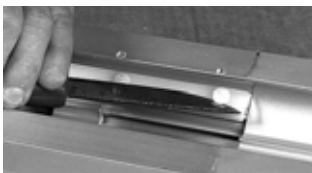
- 2 Temporarily install a piece of upper slide rail. Use the drill fixture to drill holes in the slide rail on the upper and lower flange. Use a drill bit that is long enough to drill through both flanges.



- 3 Anchor the lower slide rail to the beam using XWAG 5 plastic screws.



- 4 Cut off all screw heads. File off protruding edges.



- 5 Remove and discard the temporary piece of upper slide rail and install the full length of upper slide rail. Test the chain track.



Installation of slide rail in X180/X300 plain bends

The centre beam in X180/X300 plain bends has an additional pair of flanges for slide rail inside the beam, similar to the XK beam type N. Installation is similar to that described for slide rail in XK plain bends.

Note

For the slide rail inside the beam (inner bend only), plastic screws must be used for anchoring.

Plastic screw XLAG 5 or aluminium rivet XLAH 4x7 can be used for the upper slide rails.