

# Appendixes

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# A. Installation of slide rail and support rail

## Introduction

### 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.

Selection of slide rail: see "Conveyor engineering guidelines", page 39.

## Slide rail in straight sections

### Attaching the slide rail

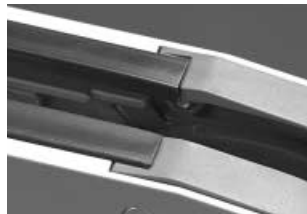
#### Tools required

Slide rail installation tool:

XS-XL	XM	XH	XK	XB
XLMR 140	XMMR 140	XHMR 200	XKMR 200	XBMR 170

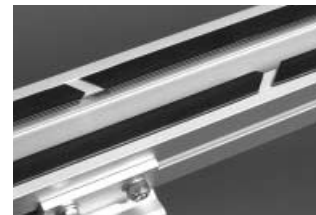
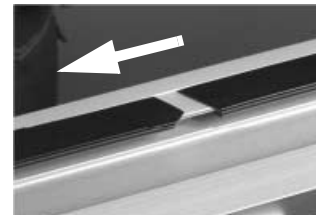
#### Procedure

- 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. (The XB tool has three widths.)
- 4 Do not forget to mount slide rails both underneath and on the upper side of the beam (unless top running chain only).



#### 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.

### Joining slide rails

#### Tools required

Cutting pliers

## Slide rail in straight sections (continued)

### 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 con-

veyor 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.

## Slide rail in bends

### Mounting slide rail in wheel bends

#### Tools required

Cutting pliers

#### Before wheel bend

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



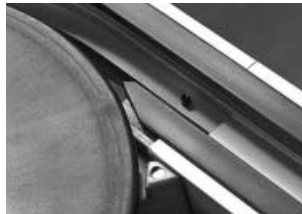
- 2 The slide rail must be longer than the conveyor beam itself, and there should be a 10 mm distance between the slide rail and the wheel of the bend. Make sure that the end of the slide rail is not bent up or down.



#### After wheel bend

- 1 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.



- 2 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

Soft hammer

Knife

Drill 4,2 mm

Clamp

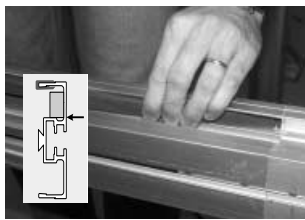
Screwdriver

Plastic screw XLAG 5

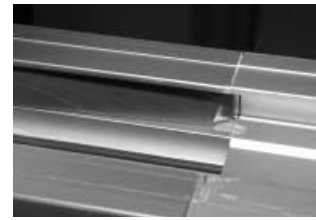
## Slide rail in bends (continued)

### 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 4,3x9,5 sheet metal screws (never use screws longer than 9,5 mm).



## Anchoring the slide rail

### Rivets or plastic screws

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

Hand drill

Drill fixture for slide rail:

Part #3924774 (drill diameter 3,2 mm): XS\*

Part #3920500 (drill diameter 4,2 mm): XS\*\*-XL-XM-XH-XK-XB

\* 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.



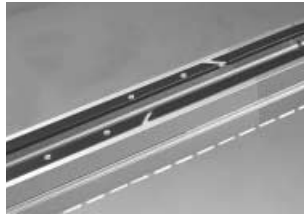
Arrow indicates direction of travel



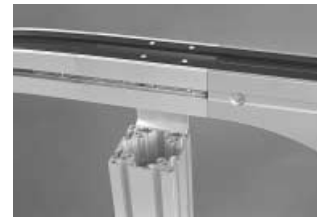
## Anchoring the slide rail (continued)

### Slide rail in conveyor beam section XLCH 5 V

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.



- 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.



### Anchoring slide rails using aluminium rivets

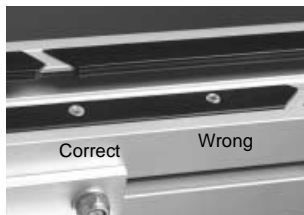
#### Tools required

Rivet crimping pliers  
XS: Part #3924776,  
XL-XM-XH-XK-XB: Part #5051395  
or  
Rivet crimping clamp  
XS: Part #3924770  
XL-XM-XH-XK-XB: Part #3923005

Aluminium rivets:  
XS: XLAH 3x6  
XL-XM-XH: XLAH 4x6  
XK-XB: 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.



### Anchoring slide rail using plastic screws

#### Tools required

Pliers/screwdriver

Knife

Hammer

Plastic screws:	XS-XL-XM-XH-XB: XLAG 5	XK: XWAG 5
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#### 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. Check both top and underneath surface of slide rail for protruding plastic or metal.
- 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.



# Slide rail – System XK

## 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.



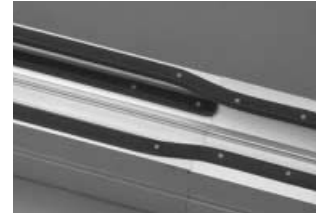
- 6 Use a screwdriver to insert the screws. Cut off the screw heads using a knife and a hammer. File off protruding edges.



- 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.



## Slide rail – System XK (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

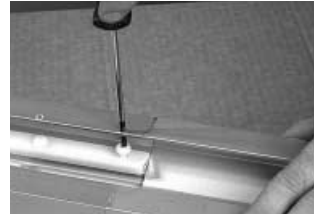
- 1 Mount slide rail on the lower flange of the conveyor beam. Cut the slide rail at a slight angle, to ensure a smooth entry of the chain.



- 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.



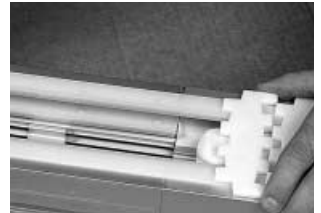
- 3 Anchor the lower slide rail to the beam using XWAG 5 plastic screws.



- 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.



## Slide rail installation – System XB

### Installation of slide rail in XB plain bends

The centre beam in XB 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.

# B. Slip clutch adjustment

## Introduction

The slip clutch on the drive unit is a safety device which allows the chain to stop if the load becomes excessive. It has two purposes:

- Prevent damage to products on conveyor
- Prevent damage to conveyor

### Note

The slip clutch is not a personal safety device. It is primarily intended to protect the equipment.

Where a slip clutch is fitted, it must be adjusted so that it does not slip whenever the drive unit is started under full load. The installation is carried out as follows:

## Preparations for adjustment

- 1 Stop the conveyor.
- 2 Ensure that the conveyor cannot be started accidentally. For example: unplug the electric power plug.
- 3 Remove any load on the conveyor.

### Caution

If you try to adjust the slip clutch when there is still load on the conveyor, the accumulated tension in the chain can cause severe injuries when you release the clutch.

## Adjustment procedure (see Figure 1)

- 1 Remove the drive unit protection cover.
- 2 Use an Allen key, 3 mm, to loosen the screw (1) on the slip clutch so that the adjustment nut (2) can be freely rotated.
- 3 Turn the adjustment nut (2) clockwise with a hook spanner (see Figure 2) until the arrow on the nut is aligned with the desired  $F_{max}$  value (3). See Table 1 for correct values.

Note: On delivery, the clutch is always set to "0".

- 4 Tighten the screw (1).
- 5 Re-install the drive unit protection cover.

Table 1. Adjustment of slip clutch

No.	Traction force, $F_{max}$ (N)			
	XS XL	XM, XH XK, XB	XT	XK H
0	300	300	300	600
1	400	400	400	800
2	500	500	500	1000
3		700	700	1150
4		800	800	1300
5				1550
6		1050	1050	1700
7				
8		1250	1250	2000
9				
10			1400	2200
11				
12			1500	2400
13				
14			1650	2500
Note	Standard and direct drives 1/2": Slip clutches marked 3904324, 5052769, 3925774, 5052827			Standard drives 5/8": Slip clutches marked 3925071, 5052772

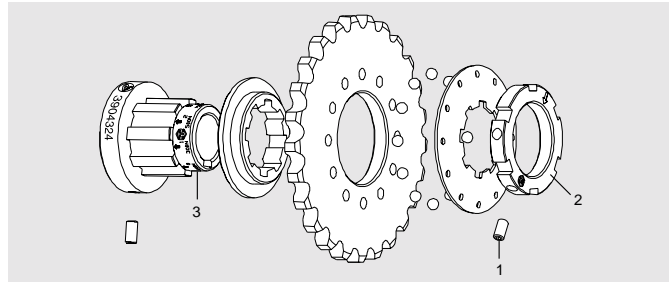


Figure 1. Slip clutch (exploded view)



Figure 2. Hook spanner

# C. Adjustment of chain length – XB

## Chain length adjustment – XBCC 300A175

### Tools required

Allen key 5 mm

Small screwdriver or similar

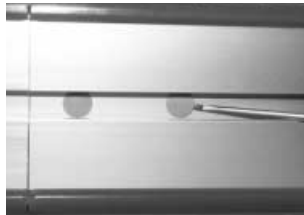
Pin insertion tool for FlexLink chain

### Instructions for chain length adjustment

#### Note

Make sure that the slide rail is cut so that the outer beam sections can be easily removed.

- 1 Remove the plastic plugs in the beam T-slot.



- 2 Use an allen key to loosen each of the four screws a little a time until the outer beam section is loose.



- 3 Remove the outer beam section.



- 4 Remove the screws on the inner beam profile to access the chain.



- 5 Repeat the procedure on the opposite side of the beam if necessary.



- 6 Use the pin insertion tool to remove a steel pin and separate the links.



- 7 From step 5, repeat the procedure in reverse order to put the beam back together again.



# D. Installation of slide strip to front piece

## Introduction

The front piece (XSVF .../.../XKVF..) requires a plastic slide strip (XSVG ..../XKVG ...) to minimize scratches and product wear. Since the slide strip fits easily into the front piece, it is necessary to anchor it to the desired position near the entry end, for example using blind rivets. Any type of aluminium blind rivet with sufficient length can be used.

## Procedure

- 1 Drill two holes for the rivets through the sliding strip and front piece.
- 2 Countersink the holes to ensure that the rivet head will not protrude above the strip surface.
- 3 Install the blind rivets.