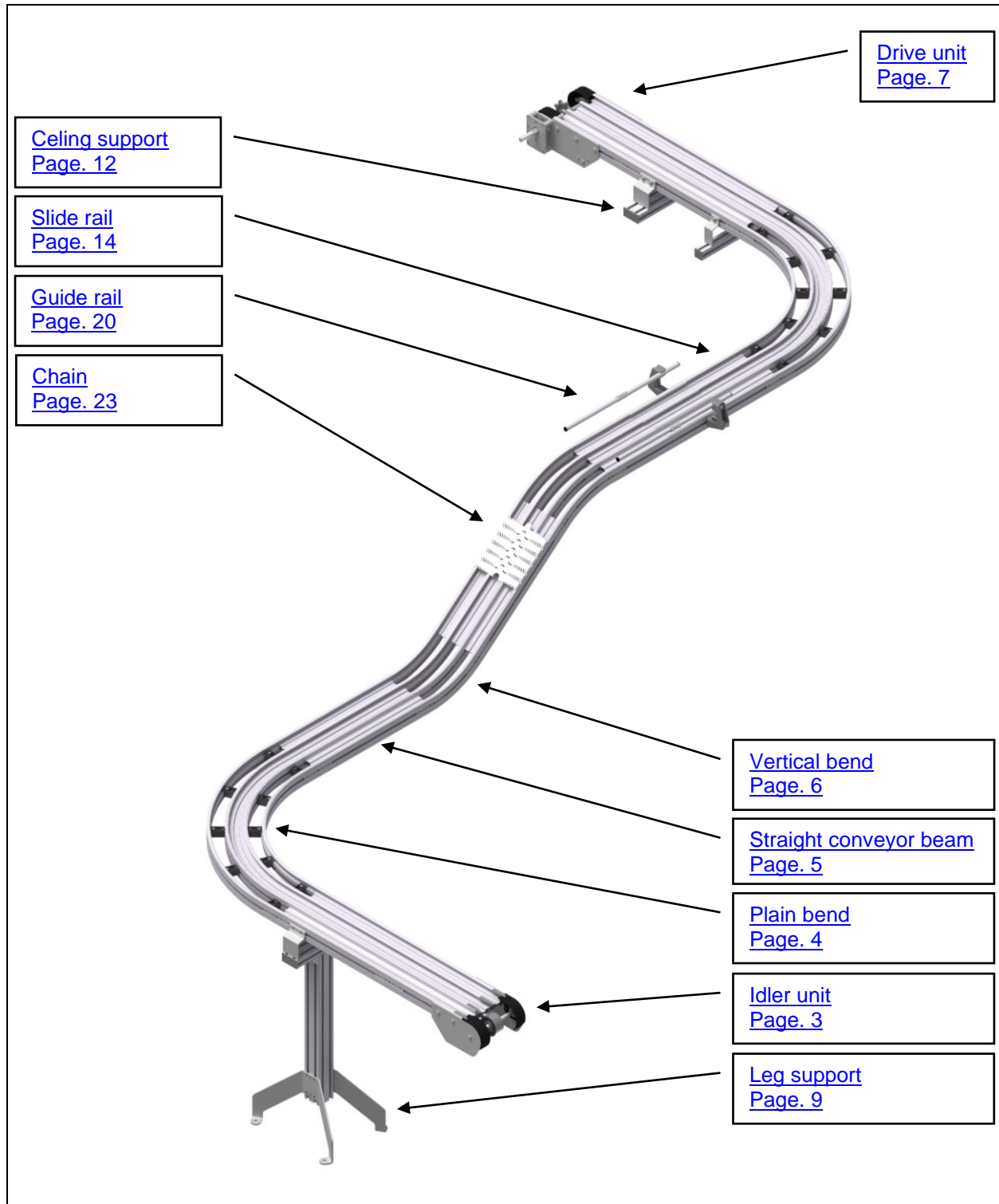


## **Assembly manual S220**



## SAFETY

### Description Carryline® aluminum system

Carryline® conveyors consist of a plastic chain that runs in an aluminum beam. Drive units, curves, idler units, chains, leg supports and guide rail brackets consist of a large amount of standard components which can be combined in many different configurations. (See product catalogue for all standard components.)

### General safety

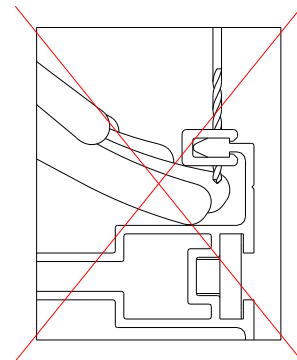
Assembling personnel should be familiar with Carryline® components and all assembly should be performed by technicians who have been trained in the proper use and installation should be in accordance with Carryline® assembly manual instructions. The work shall be done in a place with good lighting and ample floor space around the equipment. Tools shall be of good quality and the correct tools for the task. Some of the tools are special tools, (see the assembly instructions). These special tools can be bought from Carryline® or from a Carryline® distributor. Use personal protective equipment suited for workshop environment. Hearing protection shall be used when working in high noise level environments.

**Warning:** Proper assembly techniques will dictate that all conveyors shall be unpowered while working with them.

Cutting of aluminum extrusions (profiles) shall be performed in a safe manner and with equipment specific for the application. Use personal protective equipment according to the machine manufacturer's recommendations. Remove the cutting chips according to local directives. Don't let the chips and scrap extrusions lay on the floor or work surfaces as these items can present a potentially safety hazard. De-burr edges of the material to prevent cutting injuries

All conveyors should be properly supported during the assembly and fabrication process. Proper support of conveyors under construction is imperative and may at times require temporary supports. This is especially important when constructing systems that are being built at an above average elevation. Adequate and stable supports are extremely important for assembly technician safety.

**Warning:** When drilling the slide rail during installation of wear strips the fingers shall not be placed underneath the slide rail.



Electrical work shall only be made by a certified electrician and shall be performed in accordance with all local regulations and laws.

**Warning:** Special attention should be given to the electrical connection so the conveyor runs in the correct direction. **The chain shall run towards the motor.**

Before starting the conveyor make sure all tools are cleared from the conveyor. Hands and clothes shall not be in contact with the conveyor when running.

**When adjustment is needed after commissioning, all power shall be removed and proper lockout/tagout protocol shall be implemented.**

Transportation of the assembled equipment shall be made with good knowledge of weight and center of gravity. Use lifting equipment as much as possible.

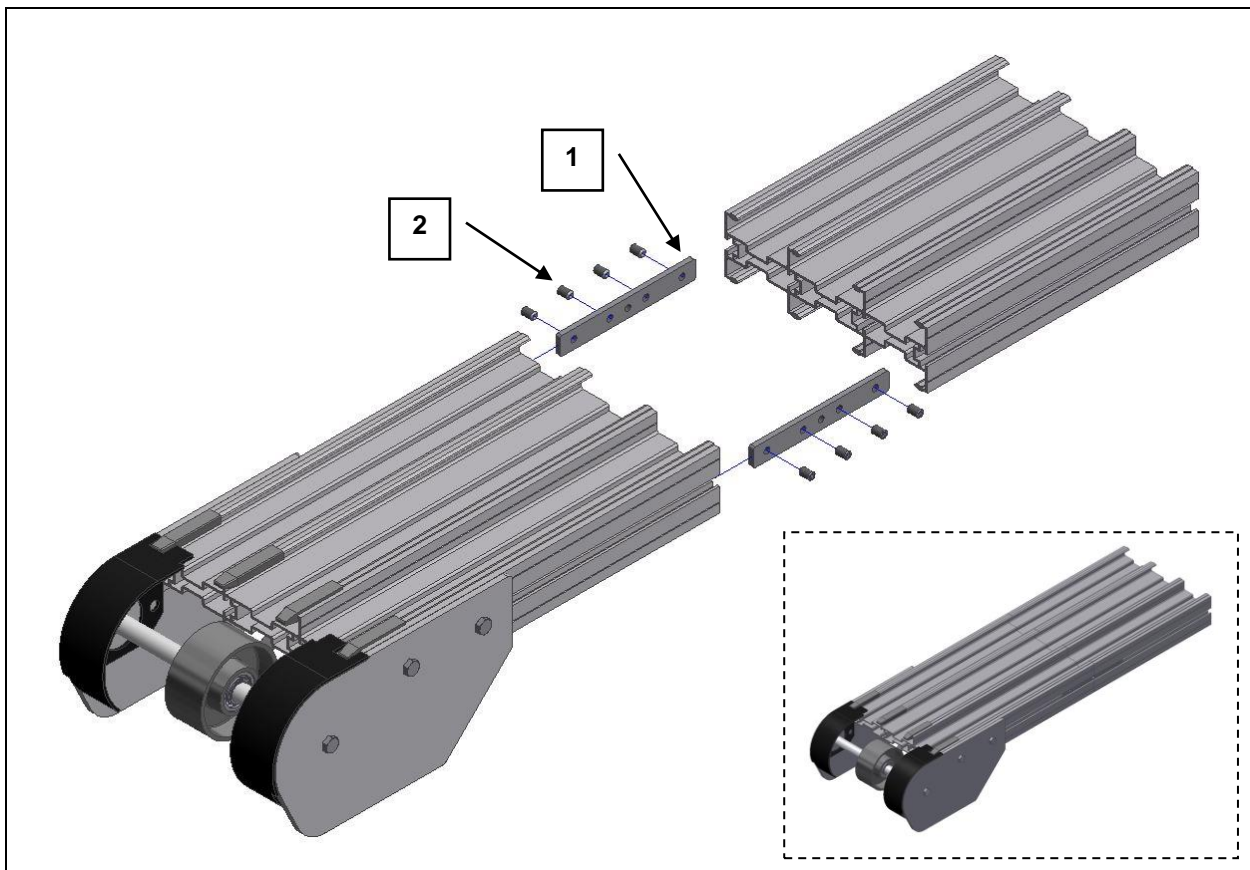
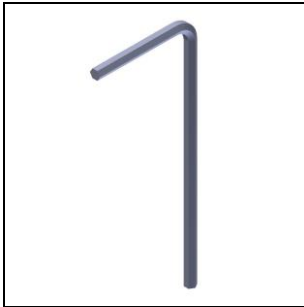
### Idler unit S220

The idler unit is connected to the conveyor with 100-7010 connecting strip (pos.1).

- Mount the connecting strip 75 mm into the idler unit and thereafter to the connecting conveyor.
- Tighten the 100-7030 set screws (M8x12 pos.2).

The following tools are needed during mounting:

- 4 mm hex (Allen) wrench.



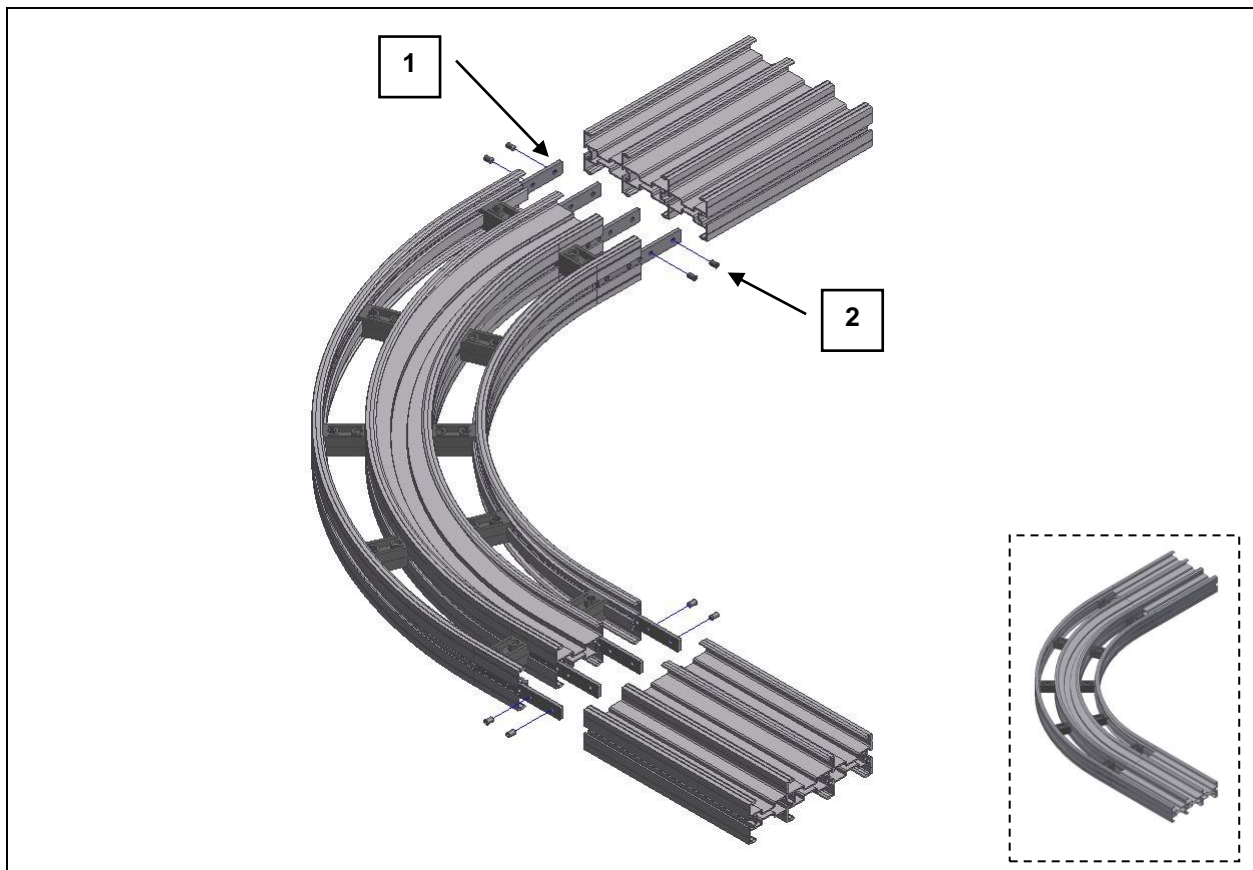
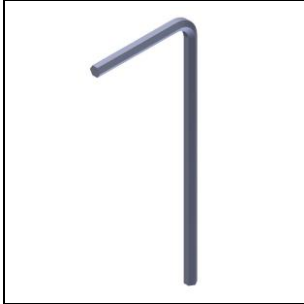
## Plain bend S220

Plain bend is connected to the conveyor with 100-7010 connecting strip (pos.1).

- The plain bend curve is mounted on to connecting conveyor.
- Tighten the 100-7030 set screws (M8x12 pos.2).

The following tools are needed during mounting:

- 4 mm hex (Allen) wrench.



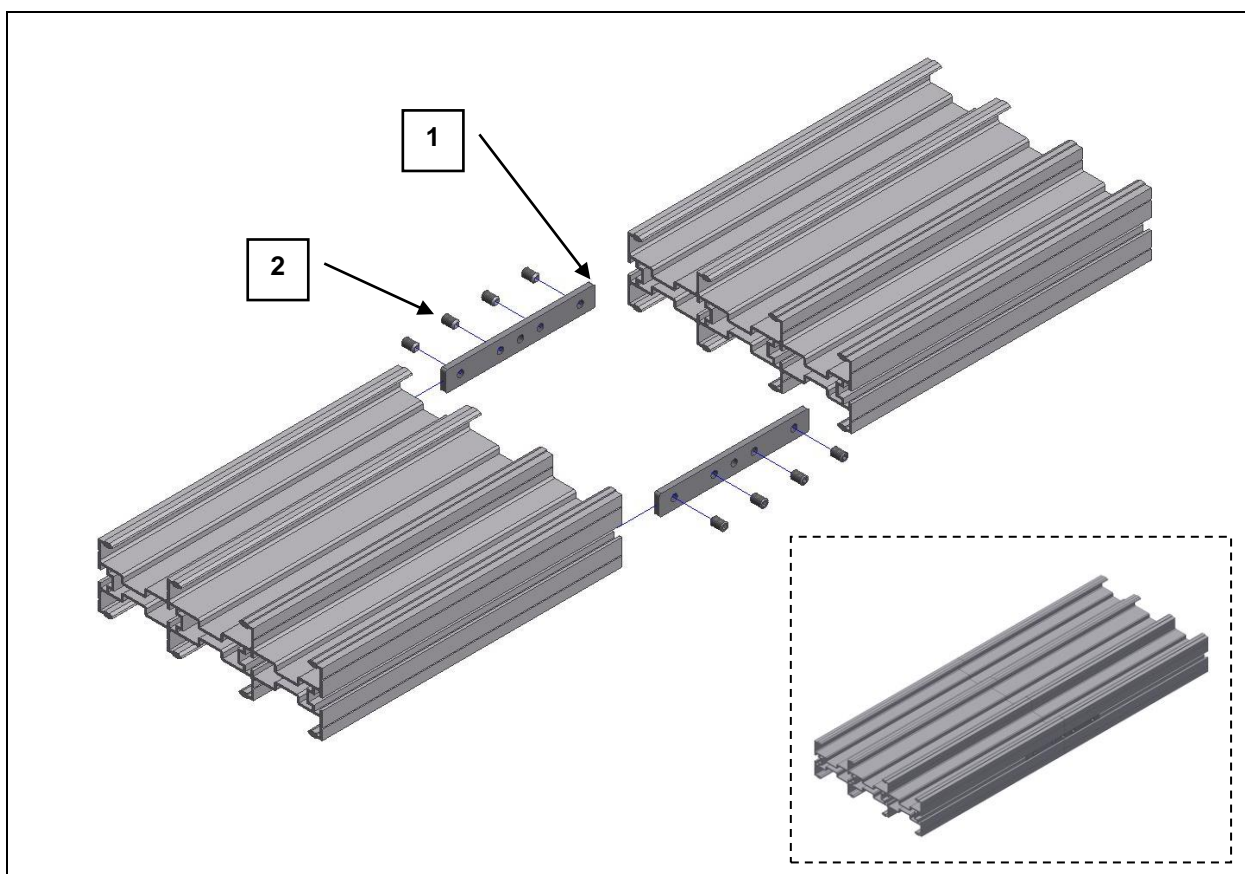
### Straight conveyor beam S220

Straight conveyor beam is connected to the conveyor with 100-7010 connecting strip (pos.1).

- Mount the connecting strip 75 mm into the conveyor beam and thereafter to the connecting conveyor beam.
- Tighten the 100-7030 set screws (M8x12 pos.2).

The following tools are needed during mounting:

- 4 mm hex (Allen) wrench.



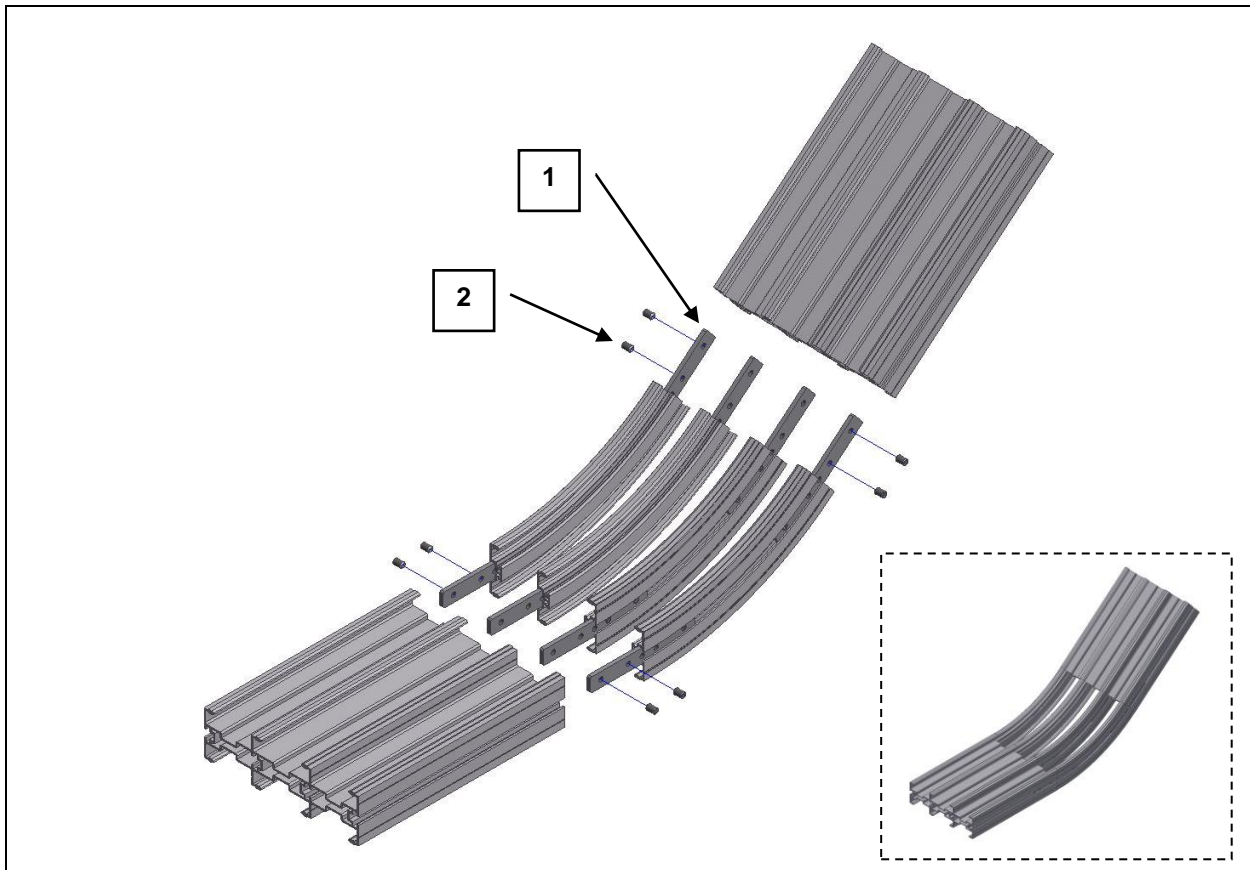
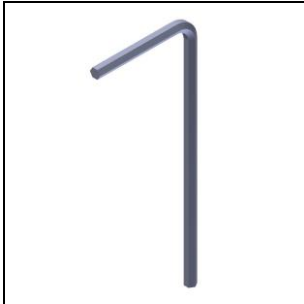
## Vertical bend S220

The vertical bends are connected to the conveyor with the 100-7026 connecting strip for R400 or 100-7027 for R860 (pos.1).

- The vertical curve is mounted on to connecting conveyor.
- Tighten the 100-7030 set screws (M8x12 pos.2).

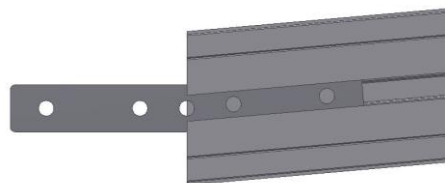
The following tools are needed during mounting:

- 4 mm hex (Allen) wrench.



### Option to vertical bend

- Cut the 830-1000 conveyor beam to the desired angle and bend connection strip 100-7010 to the correct angle.
- Maximum cut angle is 5°.

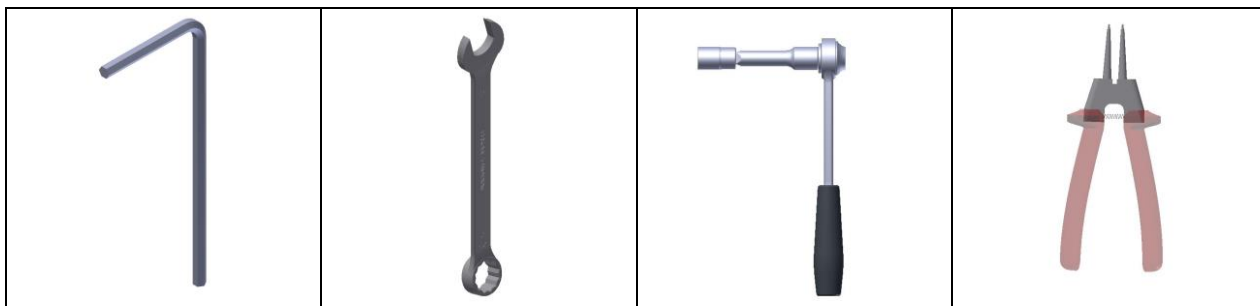


## Drive unit S220

Drive unit is connected to the conveyor with connecting strip 100-7010.

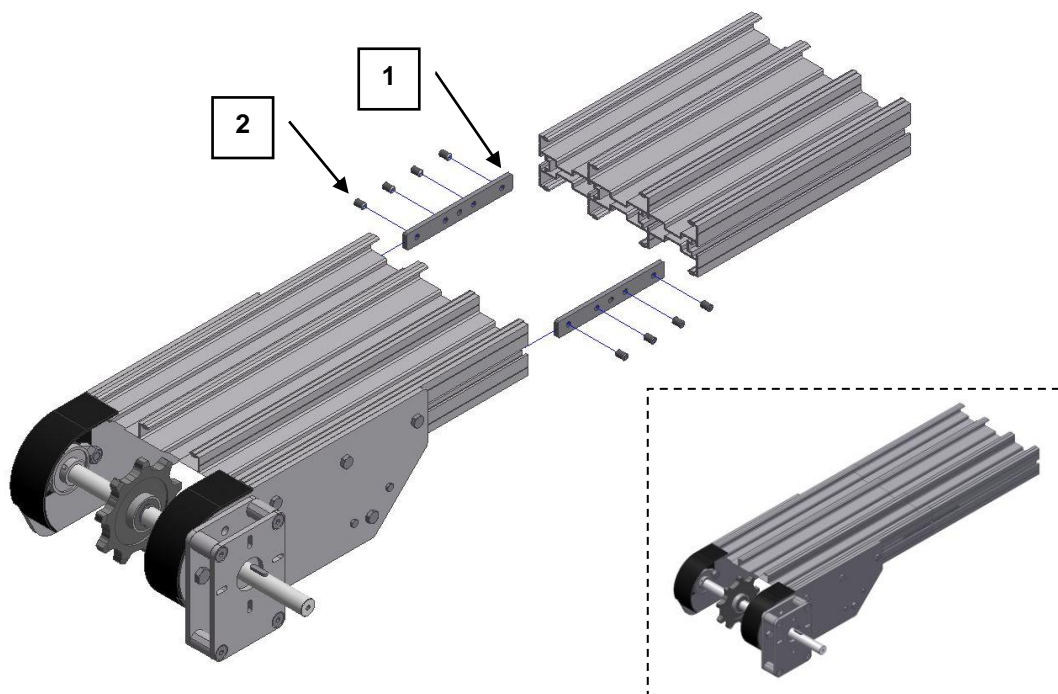
The following tools are needed during installation:

- 4 mm and 2.5 mm hex (Allen) wrench.
- 10 mm wrench.
- Ratchet with 10 mm socket.
- Retaining ring pliers.



1.

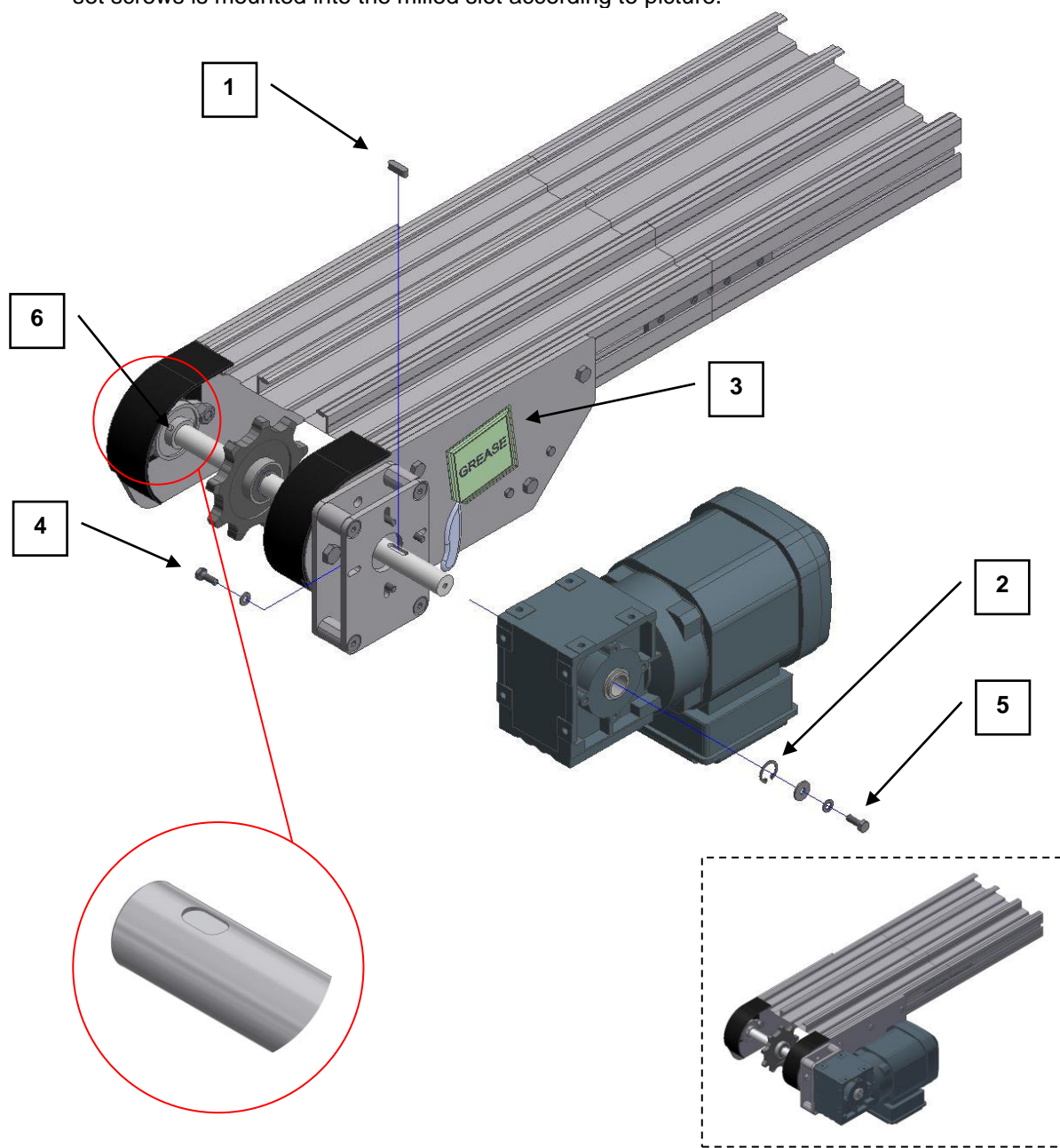
- Mount the 75 mm connecting strip into the drive unit and then to the connecting conveyor.
- Tighten the 100-7030 set screws (M8x12 pos.2).



## Continuation drive unit S220

2.

- Mounting a SEW or other gearmotor is done in the following way.
- Install 6x6x22 square key into drive head shaft (pos.1).
- Ensure that the Ø 20 (pos.2) retaining ring is placed into the correct position in the gearmotor hollow mount.
- Spread a small amount of grease in a thin layer on the shaft (pos.3).
- Mount the gearmotor on the shaft all the way to the motor plate.
- Mount the gearmotor with the 4 - M6x16 (pos.4) bolts and 6.4x12x1.5 washers into the gearmotor and tighten the screws.
- Install the washer 6.4x19.5x4 and spring washer 6.1x12x1.5 onto (pos.5) onto the M6x16 bolt and tighten.
- Tighten both set screws (pos.6) on the bearings to fix the shafts position. Insure that one of the set screws is mounted into the milled slot according to picture.



## Leg support S220

Leg supports are normally mounted on the conveyor with help of T-bolt 100-6060 M8x17 and M8 locking nut.

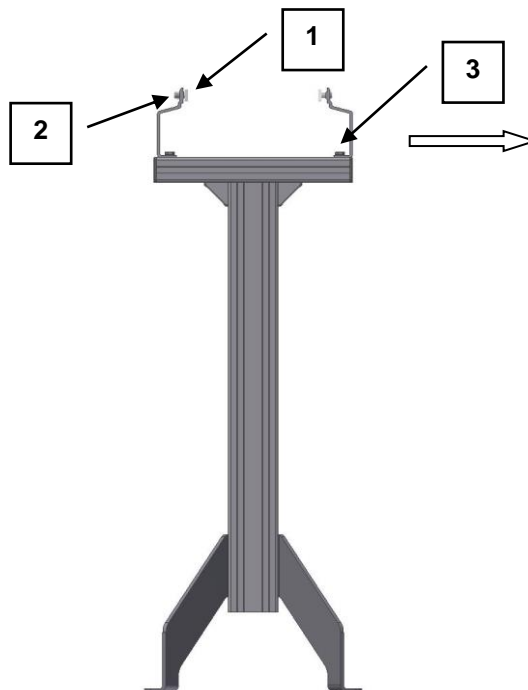
Sometimes it is possible to mount the leg support directly to the 100-7010 connecting strip. In these cases, use a M8x16 bolt.

Following tools are needed during mounting:

- 13 mm Wrench.



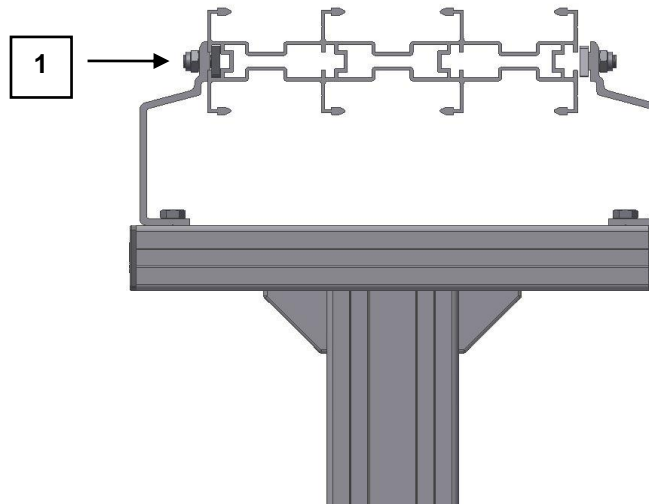
1.
  - Loosely Install the 100-6060 T-bolts (pos.1) and the M8 locking nuts (pos.2) on both leg support brackets.
  - Loosen the 100-1240.bolts on one bracket (pos.3).



## Continuation leg support S220

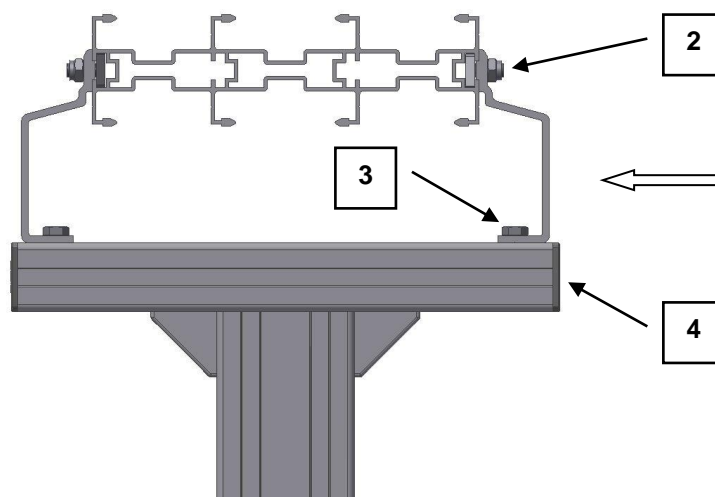
2.

- Mount the leg support on the conveyor by guiding the T-bolts into the conveyor beam and fasten the M8 locking nut (pos.1).



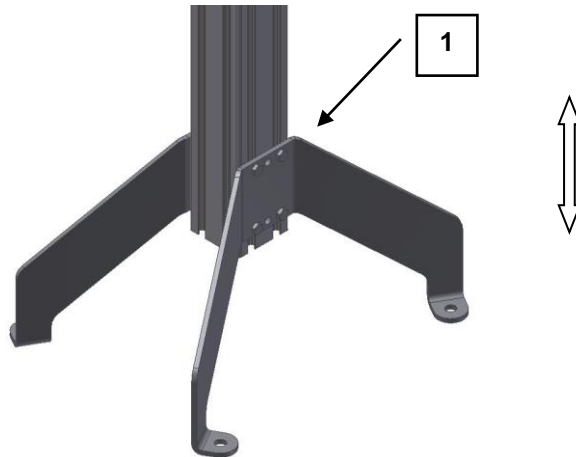
3.

- Mount the other bracket on the conveyor, align the T-Bolts and tighten the M8 locking nuts (pos.2).
- Tighten the bolts at (pos.3).
- Ensure that the 100-2020 end cap (pos.4) is mounted on the leg support.



## Continuation leg support S220

- 4.
- Adjust the height of the leg support by loosen the screws M8x16 (pos.1) and adjust to preferred height.



## Ceiling support S220

Ceiling supports are normally mounted on the conveyor with 100-6060 T-Bolts into the conveyor beam and M8x17 and M8 locking nuts onto the cross beam.

Sometimes it is possible to mount the ceiling support directly to the 100-7010 connecting strips which connect two beams together; in this case you should use M8x16 bolts.

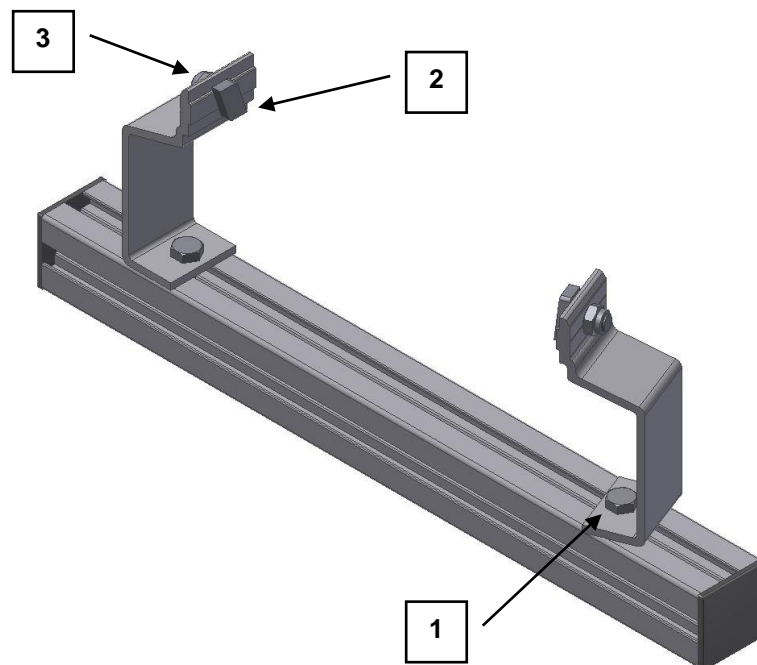
Following tools are needed during mounting:

- Wrench 13 mm.



1.

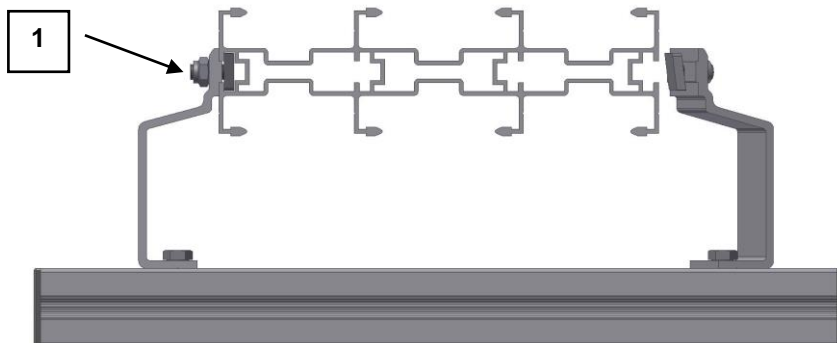
- Loosen the screw (pos.1) on one 100-1220 bracket.
- Mount T-bolt 100-6060 (pos.2) and M8 locking nut (pos.3) lightly on booth brackets.



## Continuation ceiling support S220

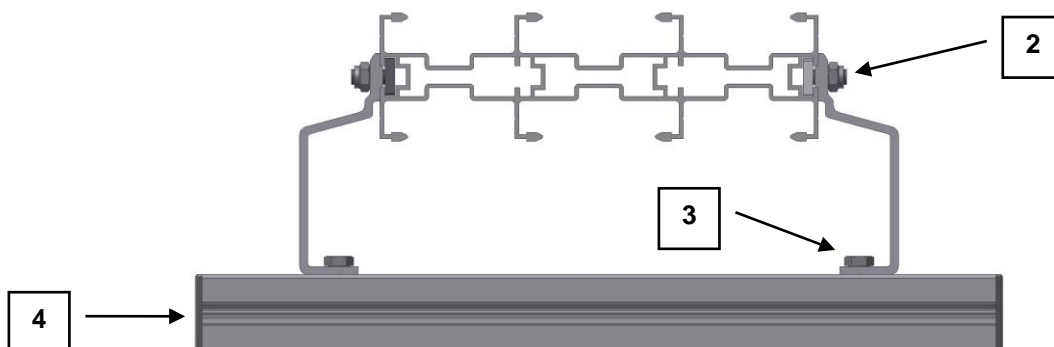
2.

- Mount the ceiling support on the conveyor by aligning the T-bolt into the conveyor beam and fasten the M8 locking nut (pos.1).

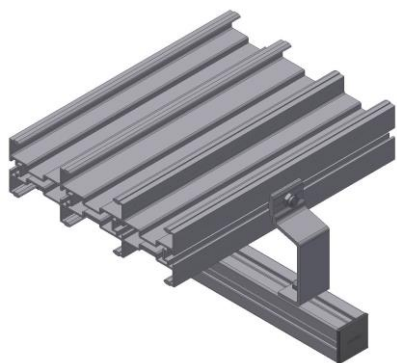


3.

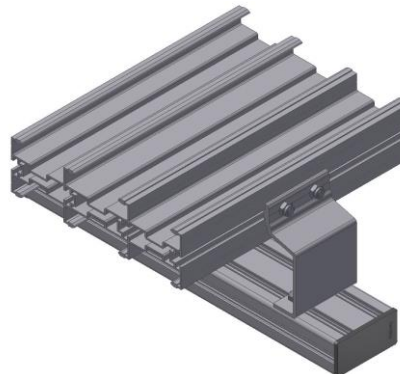
- Mount the other bracket that is not fastened and on the conveyor by aligning the T-Bolt and tightening the M8 locking nut (pos.2).
- Tighten the bolts at (pos.3).
- Install the 100-2010 end caps, (pos.4).



Ceiling support with beam 100-1010



Ceiling support with beam 100-1020



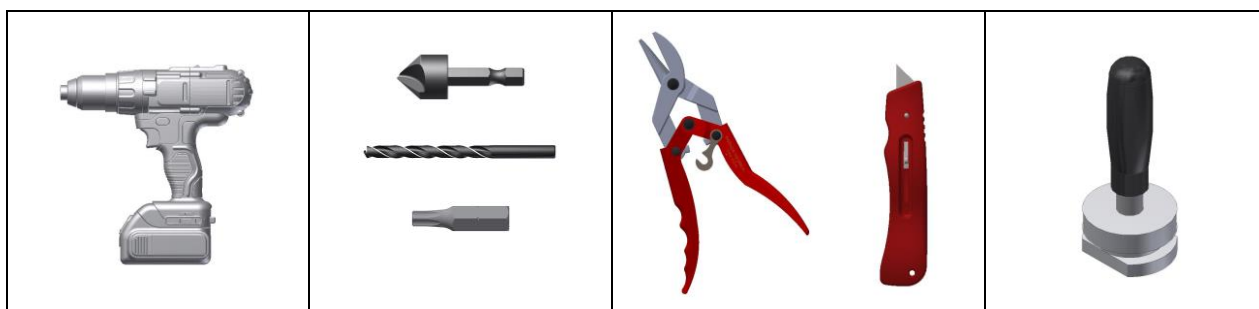
## Slide rails S220

The 400-1000 slide rail is mounted on all four (4) chain track rails (if “Top Running Only” the slide rail is not required on the return chain track rails). First, install the 400-1050 chain guide on the chain tracks at any place the chain will “feed into” the beam.

The slide rail 400-1000 is mounted on the top side and underside of the conveyor beam. The slide rail must be cut if its length exceeds 8 m. Always start with controlling that list ends 400-1050 are mounted.

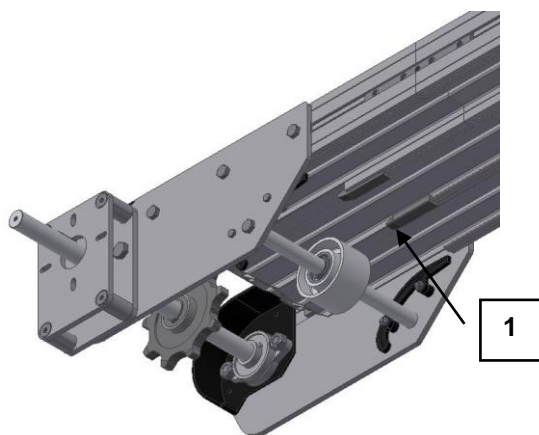
The following tools are needed during installation:

Drill Motor,  $\varnothing$  2.6 mm drill bit (or #38), countersink, torx T10 bit, cutters, utility knife, Carryline 400-1060 slide rail tool.

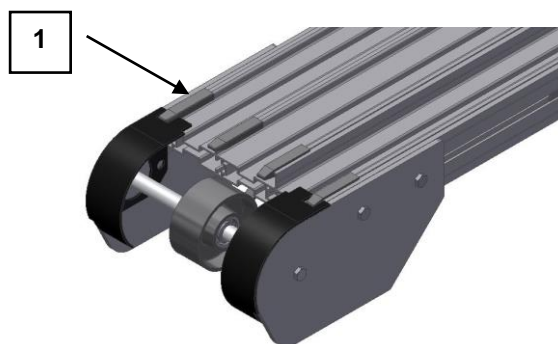


If the proper  $\varnothing$  2.6 mm drill bit is used to drill the holes for the 400-1005 slide rail screws, the screws can be installed without tapping the drilled hole. The screws “cut” their own threads as they are installed.

1.
  - Ensure that the 400-1050 chain guides (pos.1) are mounted under the drive unit.



2.
  - Ensure that the 400-1050 chain guides (pos.1) are mounted on the idler unit top side.



### Continuation slide rail S220

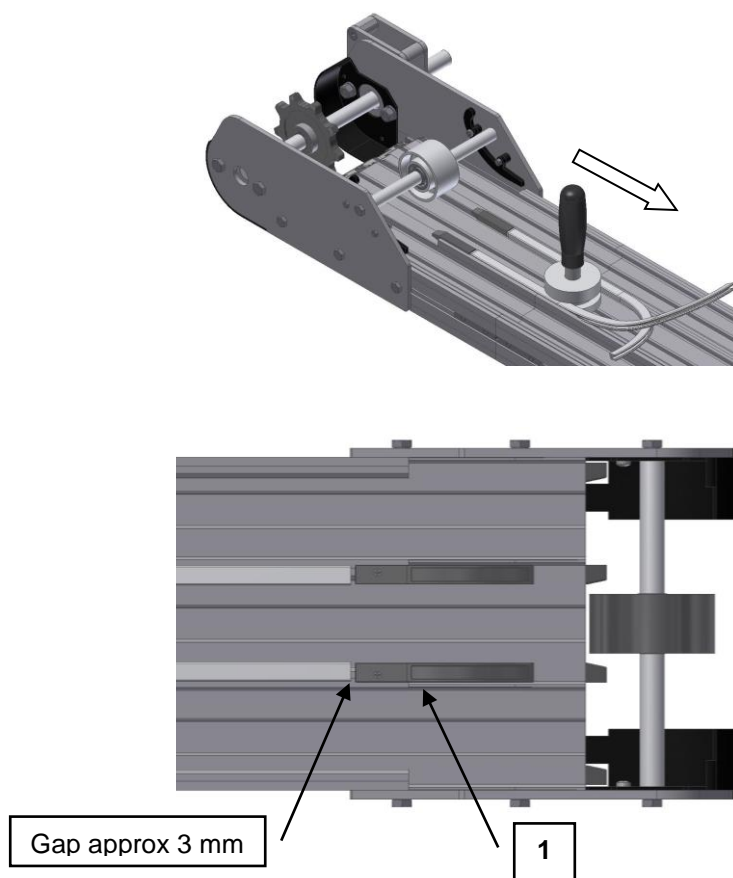
3.

- Chamfer all three edges of all slide rails.
- Un-roll and straighten approximately 300 mm (or 12") of the slide rail.



4.

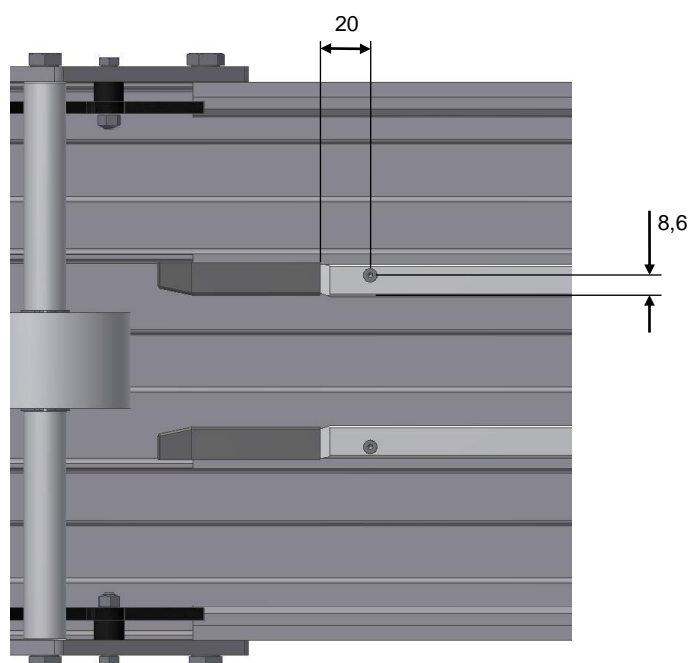
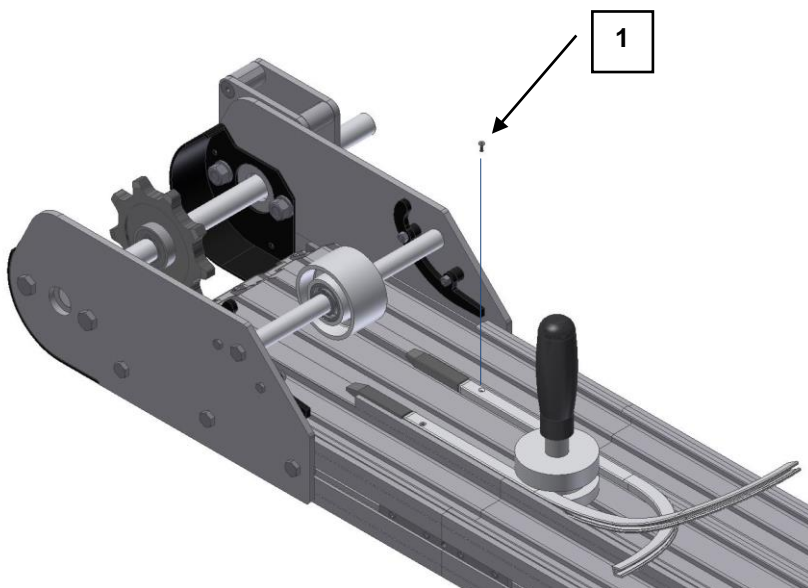
- Use the 400-1060 slide rail installation tool and start both slide rails at the same time.
- Mount the slide rail in the direction from drive unit to idler unit. Cut the slide rail and leave a 3 mm gap to the chain guide (pos.1).



### Continuation slide rail S220

5.

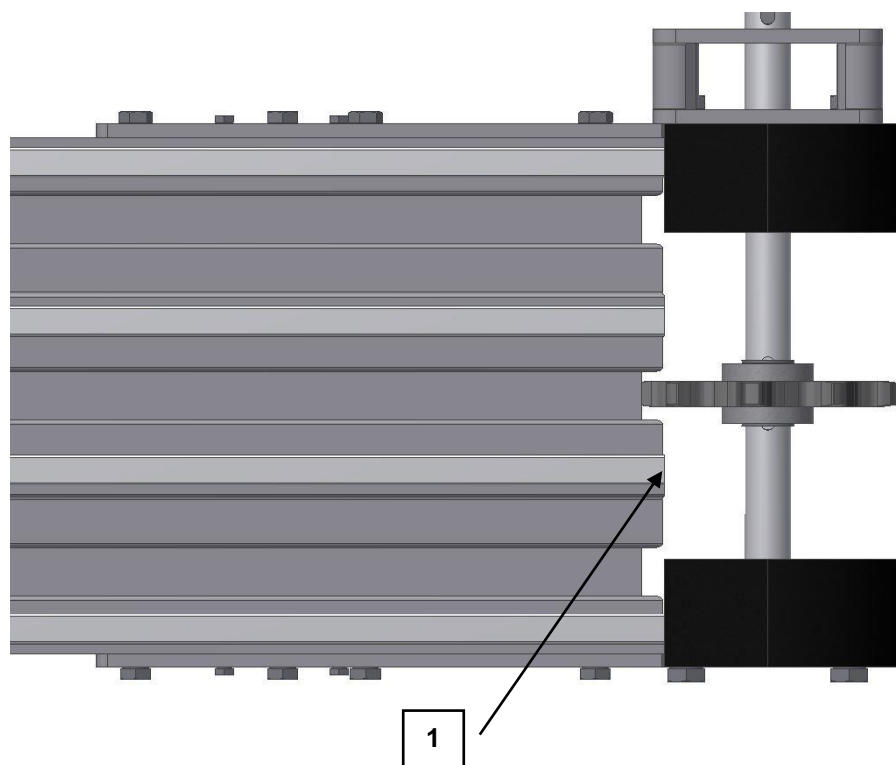
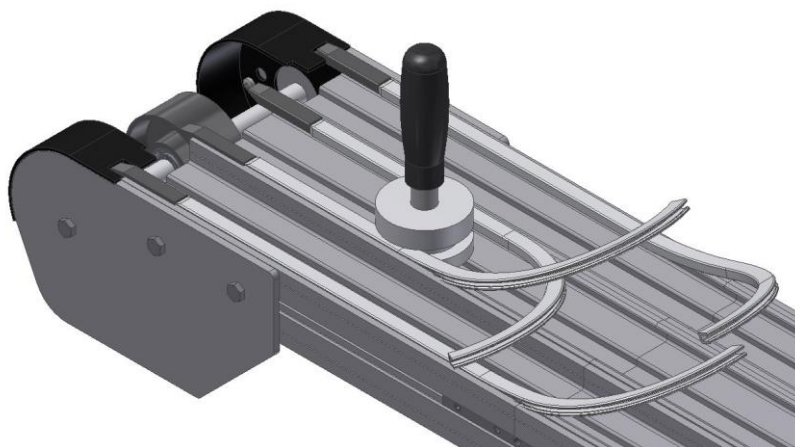
- Drill two Ø 2.6 mm holes approximately 20 mm (3/4") from the starting end of the slide rail, counter sink and screw the slide rail at the drive unit with 400-1005 slide rail screw (pos.1). Feel the fit of the screw making sure the screws flat head is below the slide rail surface.
- After making sure the screw head is properly countersunk, check that the screw has not gone through the slide rail on the back side.



## Continuation slide rail S220

6.

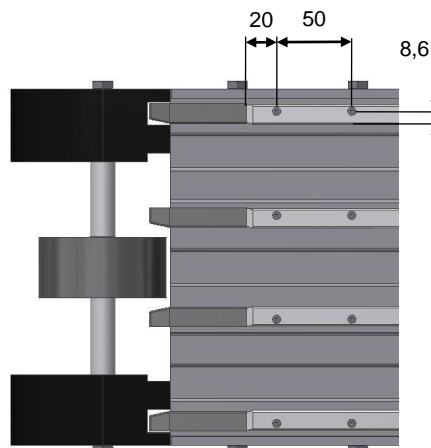
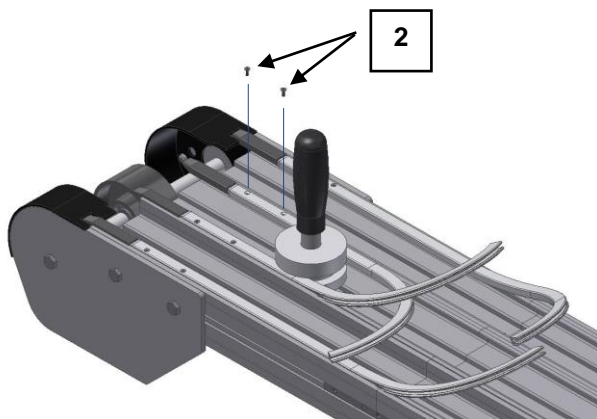
- Turn the conveyor over to install the top side slide as on the underside. Follow the previous steps starting with the chamfering in step 3 above.
- Install the slide rail from idler unit towards the drive unit all the way to the drive end pieces (pos.1).



## Continuation slide rail S220

7.

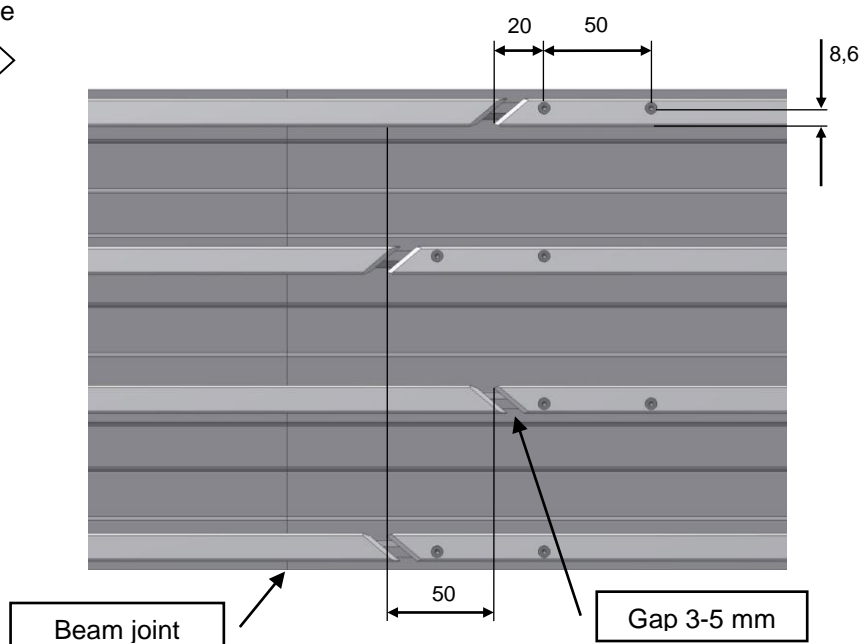
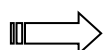
- Drill two (2)  $\varnothing 2.6$  mm holes in each rail, counter sink and screw the slide rail at the idler unit with 400-1005 slide rail screw (pos.2). Taking the same precautions as earlier on the underside.



8.

- If the conveyor is to have “field breaks”, the slide rails shall be installed in the following way.
- Bevel cut the slide at rail  $45^\circ$ .
- Chamfer the edges as described in item 3 above, on the end that is in the direction of chain travel.
- Drill two (2)  $\varnothing 2.6$  mm holes in each rail, counter sink and screw the slide rail with a gap of 3-5 mm. Use 400-1005 slide rail screw.
- Ensure that the screw head is below the slide rail surface and that the screw does not go through the back side.
- To ensure proper installation, use a short piece of chain and move it by hand along the conveyor.

Chain travel direction  
top side

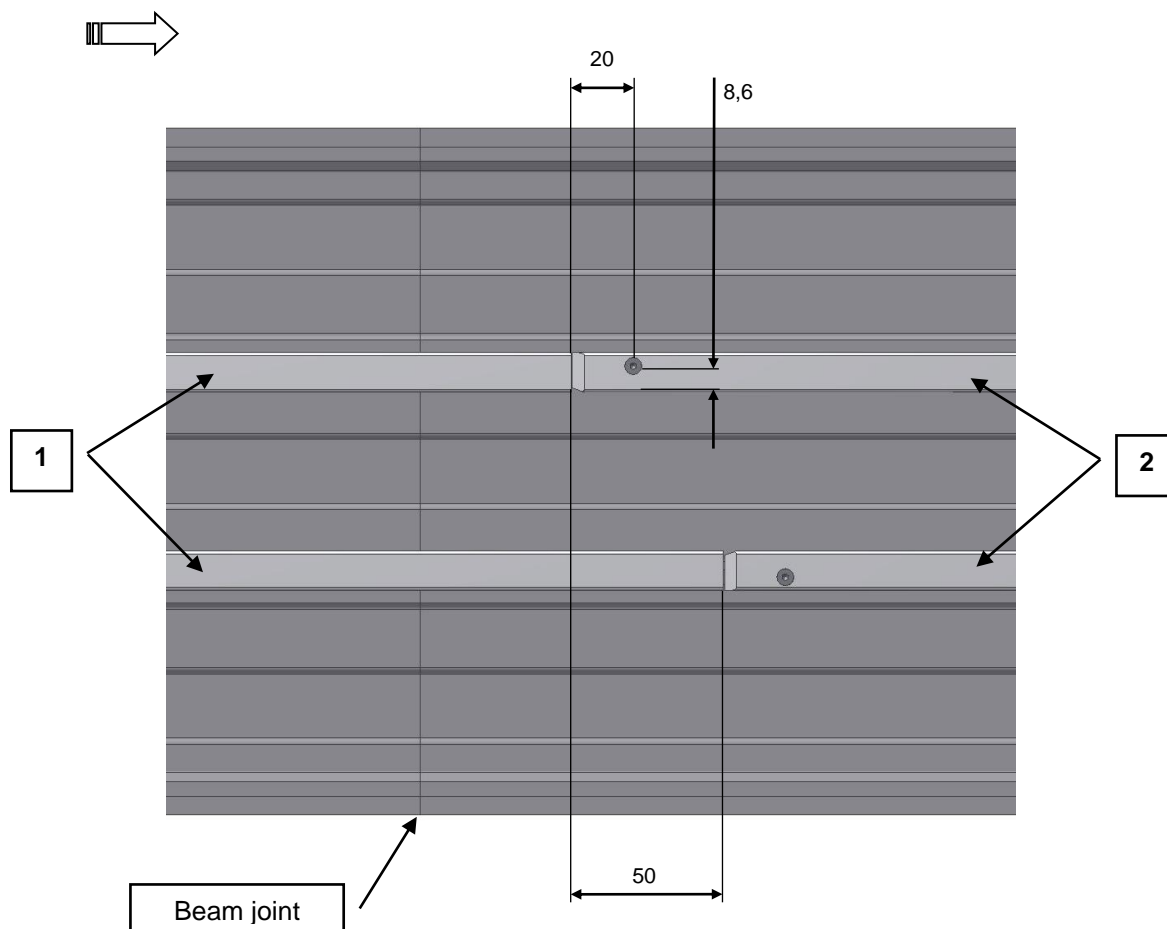


## Continuation slide rail S220

9.

- If the conveyor is to have “field breaks”, the slide rails shall be installed in the following way on the underside.
- Cut slide rail pos.1 straight.
- Cut slide rail pos.2 straight and chamfer the edges as item 3 above details. Chamfer the ends that are in the direction of chain travel.
- Drill Ø 2.6 mm holes, counter sink and screw the slide rail with a gap of 3-5 mm, use 400-1005 slide rail screws.
- Ensure that the screw head is below the slide rail surface and that the screw does not go through the back side.
- To ensure proper installation, use a short piece of chain and move it by hand along the conveyor.

Chain travel direction  
underside



## Guide rail and brackets S220

Guide rail brackets are normally mounted on the conveyor with 100-6060 T-bolt (M8x17) and M8 locking nuts. In some situations it's possible to mount guide rail bracket to 100-7010 connecting strips between two conveyor sections. In that case the M8x16 screw is used.

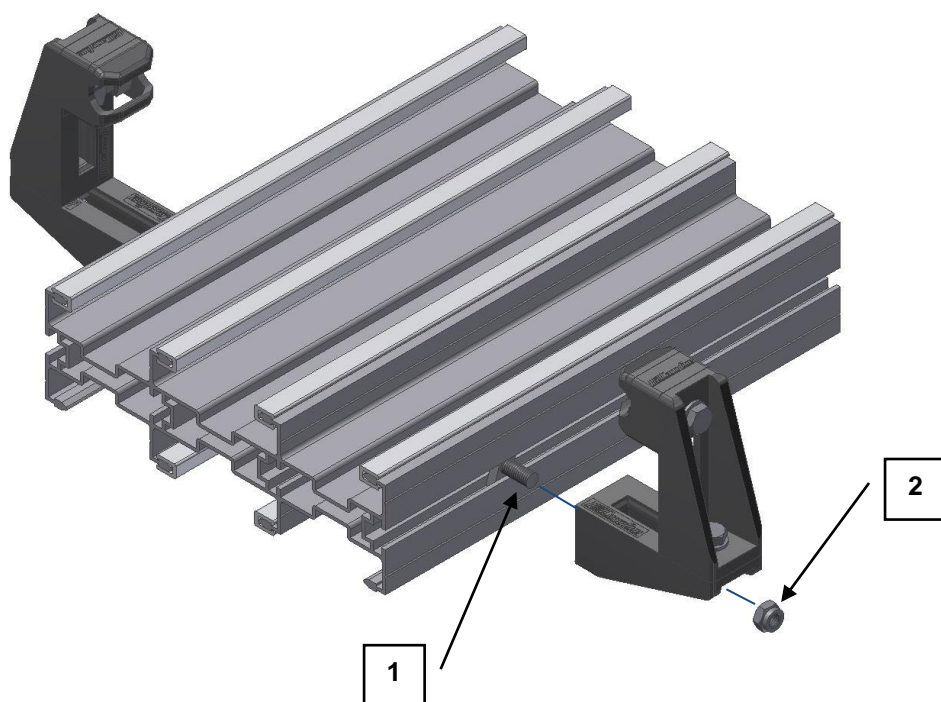
The following tools are needed during mounting:

Drilling motor, Ø 4.2 mm drill bit, T25 torx, ratchet with 13 mm socket, Carryline pliers, hacksaw, and flat file.



1.

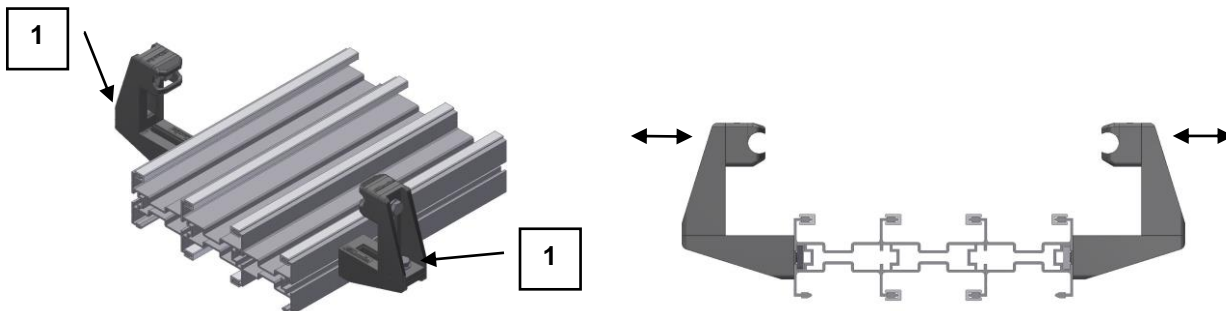
- Mount the guide rail bracket with 100-6060 T-bolt (pos.1) on the conveyor beam and tighten the M8 locking nut (pos.2).



## Continuation guide rail and brackets S220

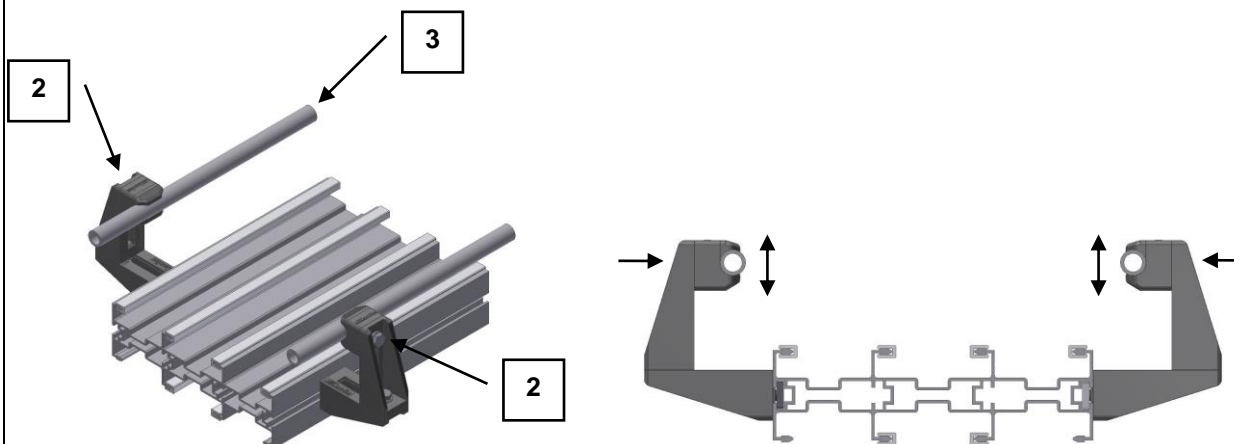
2.

- Loosen the M8 screw (pos.1) on the guide rail bracket and adjust to desired width and then fasten the M8 screw.



3.

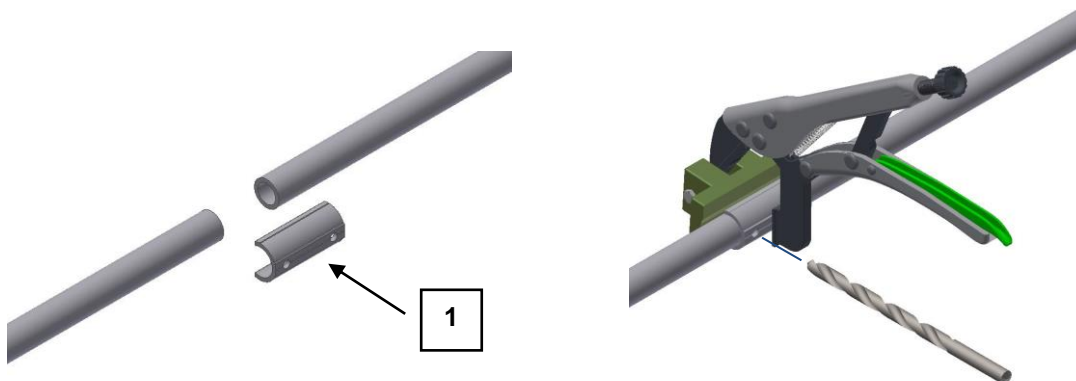
- Loosen M8 screw almost all the way (pos.2) on the 300-1000 guide rail support. (the screw has to almost be removed to open the clamp enough to "snap" in the guide rail.).
- Snap the guide rail (pos.3) into the guide rail support and adjust to desired height on the guide rail.
- Hold the guide rail against the guide rail support with your hand and fasten the M8 screw (pos.2).



#### Continuation guide rail and brackets S220

4.

- Follow these steps when joining guide rails or where field breaks exist.
- Cut the guide rail with a hacksaw and de-burr the sharp edge.
- Assemble the guide rails and place a 300-3091 connecting sleeve (Pos.1).
- Put the connecting sleeve in place and hold with the Carryline pliers and drill two Ø 4.2 mm holes in the guide rail through the connecting sleeve.



5.

- Install the two (2) self-tapping 300-3095 screw (pos.2).
- Install the 300-3070 end caps (pos.3).

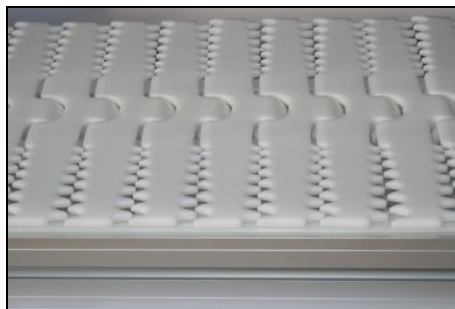


## Chain S220

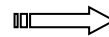
The chain runs on top and underneath into the conveyor beam.  
Observe the direction of chain travel. The pivot point of the chain link is always leading.

**When adjustment is needed after commissioning, all power shall be removed and proper lockout/tagout protocol shall be implemented.**

The following tools are needed during chain installation:  
Polygrip pliers, 8 mm wrench and Carryline screw clamp.



Chain travel direction



### 1a.

- The chain is inserted underneath the drive unit and over the return reefed guides (pos.1).
- The chain body is steered into the conveyor beam (also see 1b).



1



## Continuation chain S220

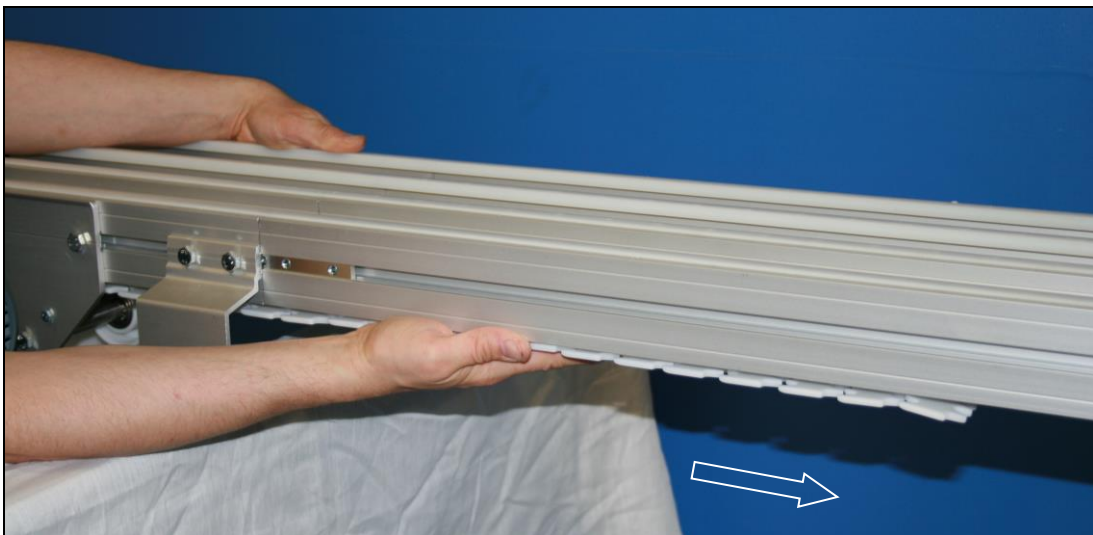
### 1b.

- The drive has been disassembled to allow the chain track to be seen in the following pictures.
- The drive is not to be disassembled as shown to install the chain.



### 2.

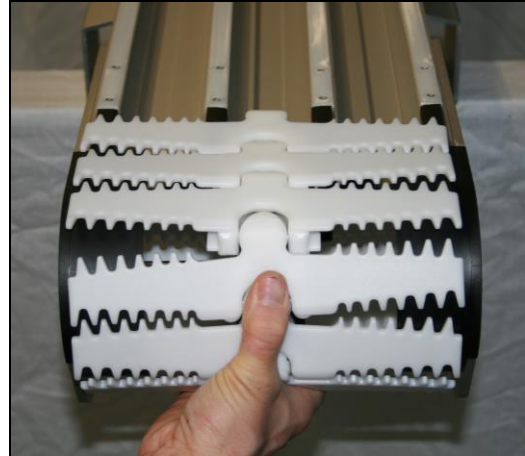
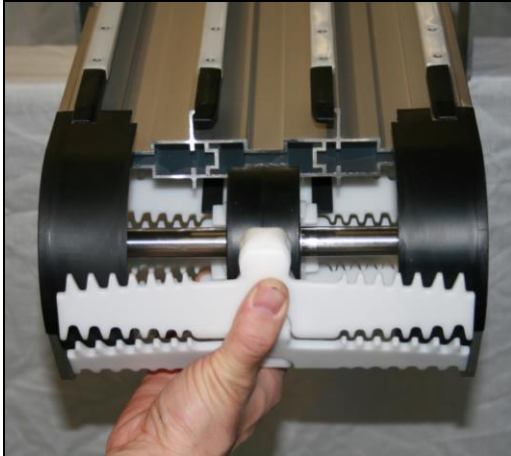
- The chain is dragged through the conveyor beam from the drive unit to the idler unit.



### Continuation chain S220

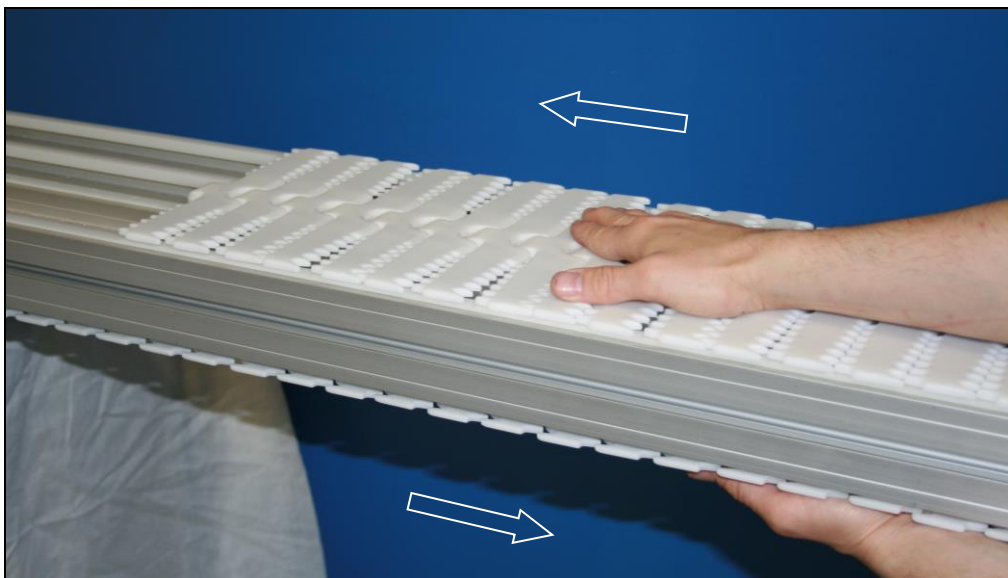
3.

- The chain is pulled around the idler unit.
- Steer the chain into the top side of the conveyor beam.



4.

- The chain is pulled with both hands from idler unit to the drive unit.



### Continuation chain S220

5.

- Drag the chain all the way to the drive sprocket. Make sure that the chain gets engaged on the drive sprocket.



6.

- Remove the motor fan cap.



## Continuation chain S220

7.

The chain is now advanced onto the sprocket and rotated by manually spinning the fan wheel



8.

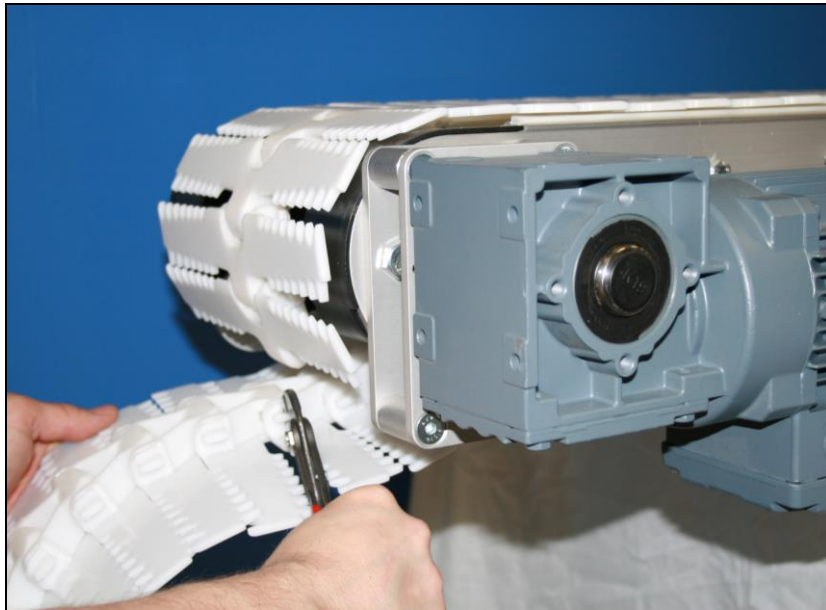
- Advance the chain so it's connected with 2 cogs on the drive wheel.
- Lock the chain underneath with the Carryline screw clamp (pos.1).



### Continuation chain S220

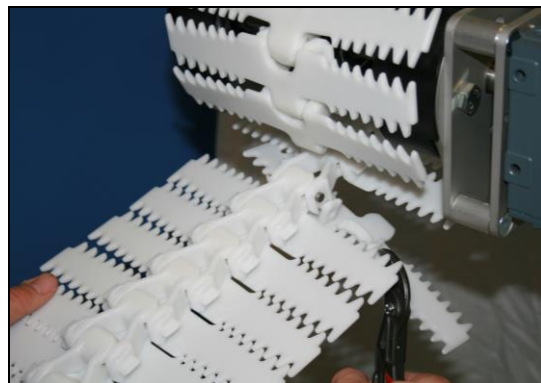
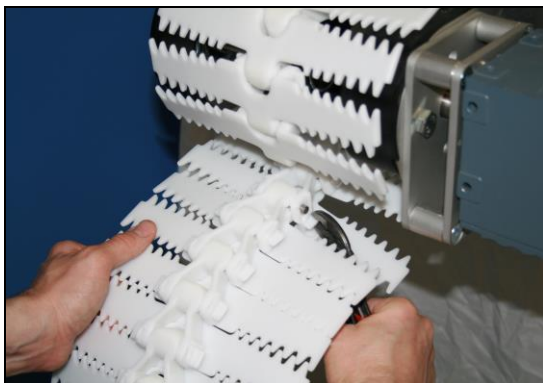
9.

- Stretch the chain by spinning the fan wheel manually again until the chain is stretched up.
- A long conveyor needs to be stretched more than a short conveyor.
- Hold the chain upwards and measure the correct length using the polygrip pliers and hold the topflight by the wing to determine the proper link to disassemble.



10.

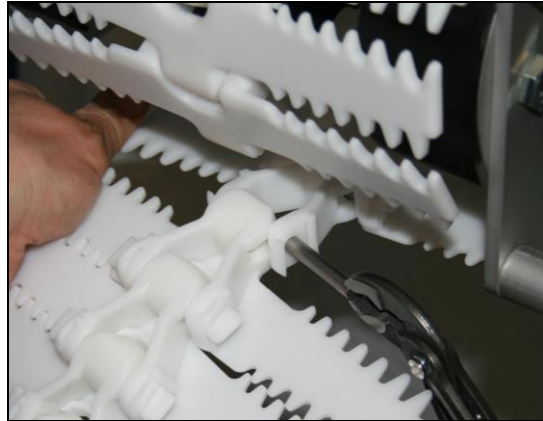
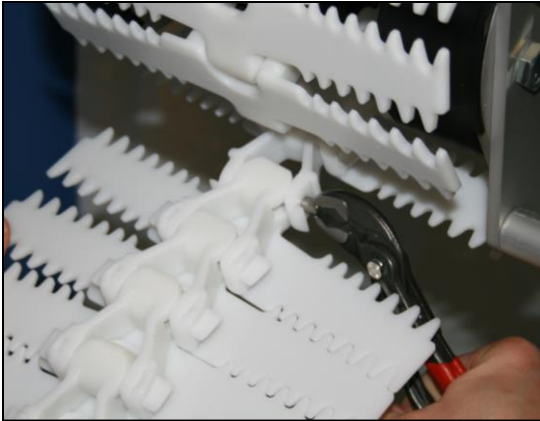
- Bend carefully the topflight until it snaps off the chain body.



### Continuation chain S220

11.

- Pull out the connecting pin with the polygrip pliers to separate the chain.



12.

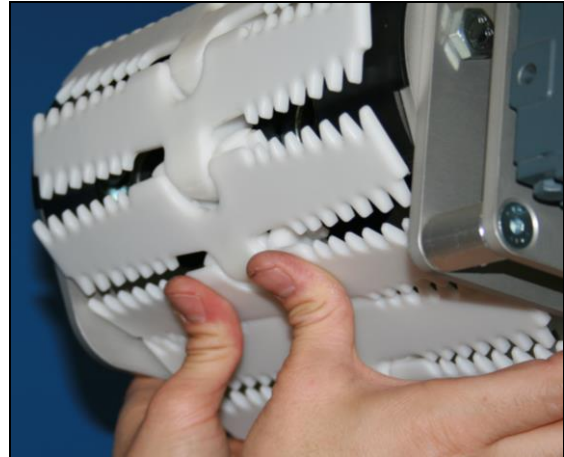
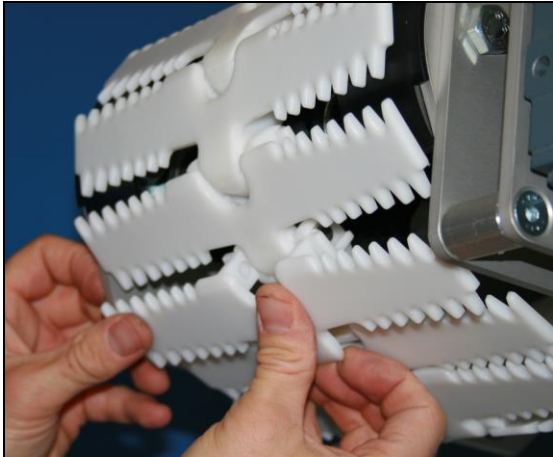
- Align the chain bodies.
- Make sure the pivot plug is still present in the chain link.
- Insert the connecting pin with the polygrip pliers.



### Continuation chain S220

13.

- Reassemble the topflight until its snaps in place.



14.

- If the chain is very stretched its possible to spin the chain backwards with the fan wheel.
- Reassemble the fan cap.
- Take off the Carryline clamp.
- The chain shall now be properly tensioned and there should be no slack under the drive unit.
- When the conveyor has been running for a while it is generally necessary to repeat the above procedures to remove excess chain. This is normal and is necessary because of startup chain stretch.
- System that are heavily loaded may have to undergo this chain removal procedure an additional time.

