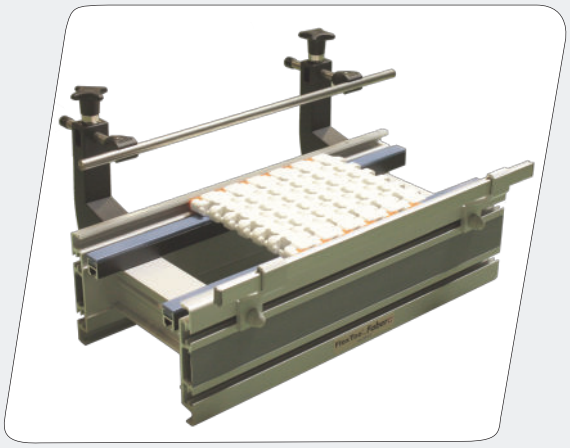
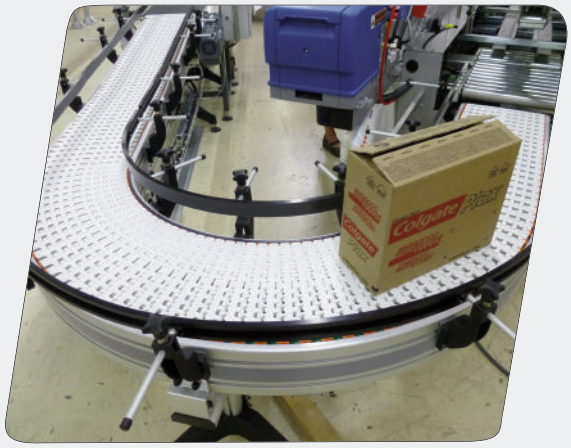
h MOOVITIQUE





MODULAR CONVEYORS FLEXTOO®

INSTALLATION & MAINTENANCE GUIDE

ELCOM / FABER / TRANSEPT

hellomoov

un mouvement d'avance

You have just received your conveyor. We congratulate you for your choice.
We advise you to check the contents of the crate(s) against our delivery note and inspection report. In case of damage due to transport, a model letter is downloadable at this address
https://lc.cx/mRB3

European conformity of Flextoo ® modular conveyor elements
European Directive 2006/45/EC translated into French law - decree of 7.11.2008In application of articles R4311-4 to 15 of the French Labour Code, Faber certifies that Flextooe® conveyor modules comply with the Essential Health and Safety Requirements (Chapter 2).

Note: conveyors are considered as "quasi-machines" because they do not generally ensure the process alone (incorporation into a packaging line, management of product arrivals and evacuation, layout of workstations, control and protection devices by the integrator). The invoice for our equipment is accompanied by its certificate of incorporation.

Reasonably foreseeable misuse :
Flextoo modular conveyors are not intended for the transport of people. They are not designed to be used as a means of access: it is forbidden to climb on the conveyor, whether it is running or stationary. The feet used must comply with the rules of the trade. Whenever the geometry of the installation requires it, the conveyor feet must be fixed to the floor (the bases of the square feet are drilled or pre-drilled for this purpose).

Service bodies :
As a rule, our electrical supply is limited to geared motors. On request, we can supply "on/off" control boxes (in accordance with EN 60204-1 /10.2). It is up to the integrator to complete, if necessary, depending on the environment, with additional stop or consignment controls, as well as disconnection means (Annex 1-1.2.2 and following).

Installation, adjustment, maintenance, repair :
The installation of the belt is usually done with a drive module, the removable part of which is fixed by screws. The drive modules have side guards to protect the slack side of the belt. For modules with transmission, a screw-fixed protective cover is provided. Curved modules with wheels are equipped with a cover between the plates. All these covers must be fitted at installation, and their correct fitting checked regularly. (Appendix 1 -.1.4.2.1). The drive modules with transmission have an integrated torque limiter, which limits the forces applied to the belt. The correct setting of this clutch does not mean that the various entry points do not need to be sealed.

Risk analysis :
- The " slack side" of the belt are only encased laterally, to avoid creating reentrant points at the periphery of the belt winding on the sprocket. In the particular case of transfer at the end of the conveyor, there is an inward point between the belt and the transfer plate. User personnel must be informed and protected from this risk of entrapment.
- Risk of catching or pinching by the belt: In the case of personnel working close to the conveyor, there is a moderate risk of catching loose clothing, ties, untied hair, etc., or of pinching, which should be controlled by appropriate instructions or protection: The presence of cleats prevents any slipping. Consequently, any device perpendicular to the movement of the belt (guide support, foot, etc.) creates a dangerous point. The integrator must take into account the control of this risk
- Static electricity risks: in case of explosive environment, the materials of the belt, the sliding profile and the sprockets can be antistatic (on request only). In the following pages, you will find detailed instructions for installation (Appendix 1
-. If the conveyor is pre-assembled in our factory, a test report with noise levels and speed is included in the delivery (Appendix 1 - 1.7.4.6).

Introduction

The main objective of this documentation is to help users of our equipment, with little or no experience, to easily install Flextoo conveyors. Each chapter details, with the help of numerous illustrations, the assembly of the various components. Most of the pictures show components from the FS series, but all other ranges can be assembled in a similar way.

Contents

This document is divided into 4 parts:

- Preparation of the mounting site
- Tools & Hardware
- Assembly
- Start-up & testing

Preparation

The following steps are recommended:

- Review the entire installation plan.
- Check that you have all the necessary tools.
- Check that all necessary components are available.
- Clear the space required for the installation.
- Check that the floor is flat and firm enough for the feet to be effectively fixed.

Assembly order: checklist. (some steps may not be necessary)

- Cut the beams to length (or check the cuts made against the plan).
- Assemble all legs and aluminium beams together.
- If necessary, assemble the individual conveyor tracks and mount them on the frames.
- Install the drive and return modules at the ends of the conveyors.
- Fit and secure the sliding profiles.
- Tighten the torque limiter if necessary.
- Check that nothing is in the way of the belt.
- Assemble the required length of belt and fit it into the conveyor(s)
- Mount the side guide brackets.
- Install the side guides and other accessories
- Adjust the torque limiter
- Read the final recommendations at the end of this manual

Tools needed :

To assemble your conveyor, you need to prepare the following tools. Not all of them are necessary, but they can make your work easier.

Hand tools:

- Flat and hexagonal spanners
- Cutting pliers for the guide profile
- Pin punch
- Tape measure or ruler
- Rivet pliers

and if possible :

- Socket spanner or ratchet
- Screwdrivers
- Pliers
- Cutter
- Mallet
- Spirit level
- Drill
- Drill guides

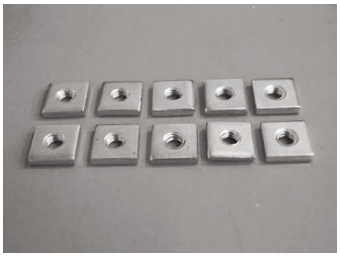
/ Fasteners

Standard Fasteners

M8 = Washer, Counter sunk,
Cap screw, Nut,
Log nut.

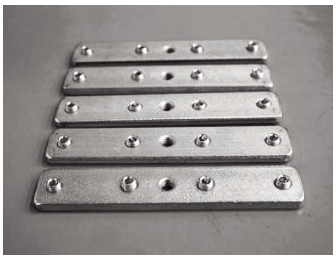
M6 = Washer, Counter sunk,
Cap screw, Nut,
Log nut.

Square Nut



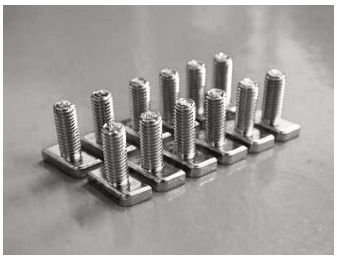
Square nut can be slotted into T-slot of FlexMove conveyor and support beams . They do not stay in place in vertical positions and have to be inserted from the end of beam. Remember to put in a sufficient number before completing the assembly.

Connecting Strip



Connecting strips are used for joining end to end of beams. Use Allen key and set screws when attaching the connecting strip to the beam.

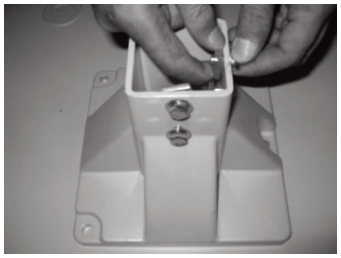
T-bolt



T-bolts can be entered from the beam side, and when turned 90 degree they will stay in place after tightening with nuts and washers. The indication groove in the T-bolt should be at 90 degree to the conveyor T-slot. T-bolts are used when attaching support brackets, guide rails and drip trays to the conveyor beam. Do not use T-bolts with support beams!

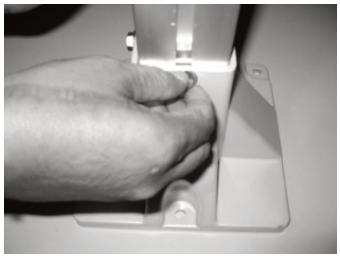
/ Foot installation

Step 1



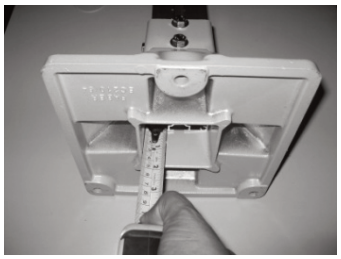
Insert hex head screws and washers into the holes on the side of the foot.
Use the screws to fasten foot connecting strips or square nut to the inner side of the foot.
Tighten loosely.

Step 2



Slide the connecting strips or square nuts into the structural beam T-slots.

Step 3



Raise the beam from the bottom of the foot approximately 40-50 mm, to allow for height adjustment later in the assembly.

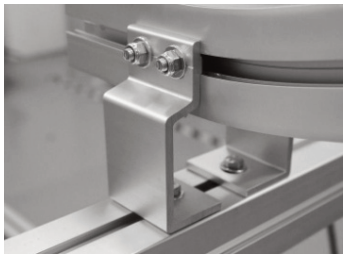
Step 4

Tighten the screws using a wrench.

Conveyor Installation

Conveyor beams are mounted on to the support structure by means of support brackets. There are three different types of conveyor beam support brackets They all serve the same purpose but are connected to the structural beams in different ways.

Option 1



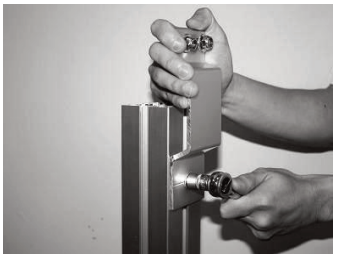
Horizontal beam support brackets (60mm or 80mm) are used for horizontal support structure mounted to 64x64mm or 80x80mm support beams. These brackets can also be used as drip tray connectors.

Option 2

Vertical beam support brackets are used with vertical support beams and are made from aluminum.

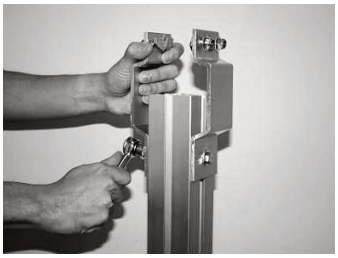
/ Mounting conveyor beam support bracket

Step 1



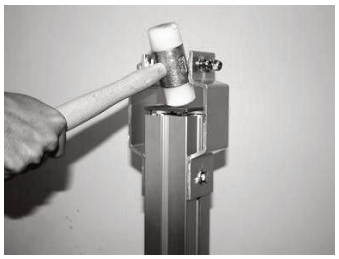
Attach screws, nuts and washers to the support bracket before mounting. (Screws and square nuts are support beam fasteners, T-bolts and nuts are conveyor beam fasteners.) Slide the square nuts of one support bracket into the support beam T-slots. Tighten the screws. Make sure that the support bracket is aligned with the beam cross-section as shown in the drawing.

Step 2



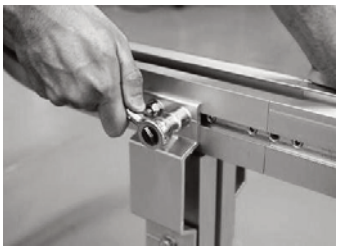
Insert the square nuts of the second support bracket into the support beam T-slots. Slide the bracket down so that it does not protrude above the cross-section of the beam.

Step 3



Use a soft hammer or mallet to mount an end cap on to the support beam.

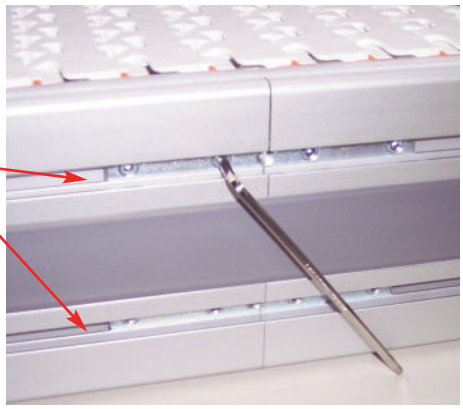
Step 4



Mount the first support bracket to the conveyor beam. Pull the second bracket up and insert the T-bolts into the conveyor beam T-slot. Tighten the nuts.

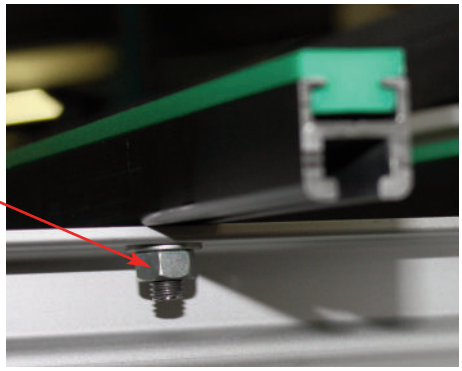
Whenever possible, we deliver Flextoo® conveyors completely assembled.
Depending on their size, it may be necessary to split them for transport.
To reassemble these modules, connecting plates are used
in the 2 outer grooves.

The assembly is made using using the M8 set screws supplied with the splices.



The drive module is located at the arrival of the conveyor
(= the geared motor pulls the upper belt strand).
The groove cover profile is usually installed after the structure has been assembled.

Do not forget to tighten the fixing nuts of the support profile
of the upper belt strand

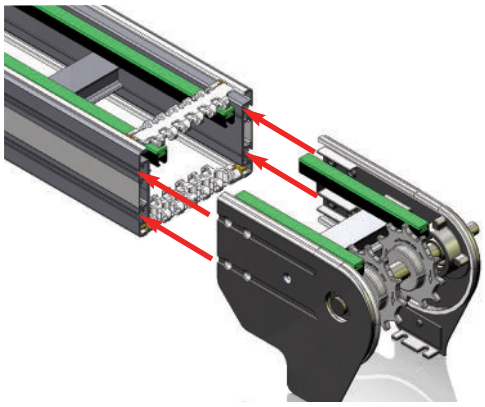


/ Drive unit & idler end unit installation

Dive module

Assemble the drive module to the end of the conveyor:
Remove the Hc screws from the 4 connecting plates sufficiently so as not to interfere with proper positioning. Put on the drive module.

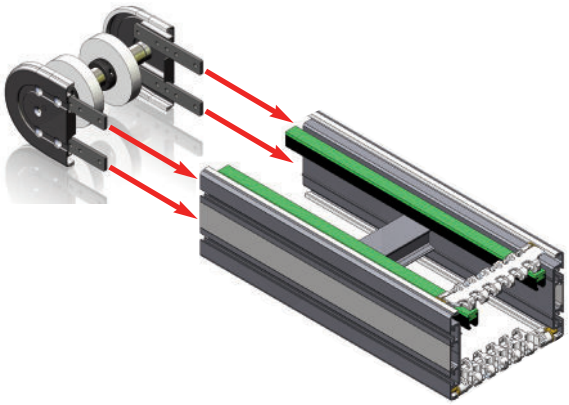
Tighten the 8 screws



Idler module

Unscrew the Hc screws of the 4 connecting plates sufficiently so as not to interfere with proper positioning. Insert the return module.

Tighten the 8 screws



⚠ Opening between the belt links can create a risk of pinching during operation.
This risk must be controlled (preferably in an inaccessible area).

The risk must also be controlled in the event of a transfer plate at the end of the conveyor (creation of an infeed point).

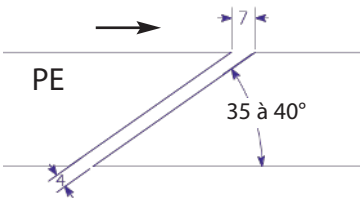
Fixing the sliding profile on the right beams *(if the conveyor is not pre-assembled)*

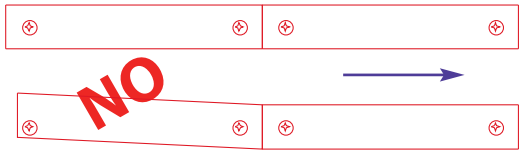
The profiles are clipped laterally by hand. The profiles must be fixed to avoid the risk of being pulled by the belt:
- on the return side of the conveyor for the upper strand,
- on the drive side for the return strands.

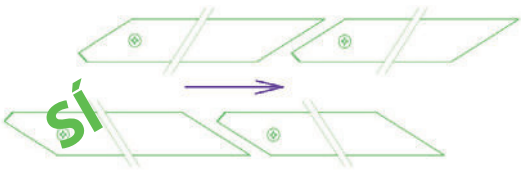
Whenever possible, it is recommended to make bevelled cuts on the sliding profile, while ensuring the continuity of the belt guidance. An expansion margin is required for each cut (0.2mm/m/°C), i.e. for PE HD 1000 Length 3m, between 20 and 30°C : expansion = 6 mm minimum.

All entries must be deburred.
In the event of a significant temperature difference, it is preferable to reduce the unit lengths to avoid excessive length deviations.
Insufficient space can block the carpet by a "corner" effect.

As far as possible, it is recommended to make cuts on the sliding profile at an angle, while ensuring the continuity of the support of the belt.

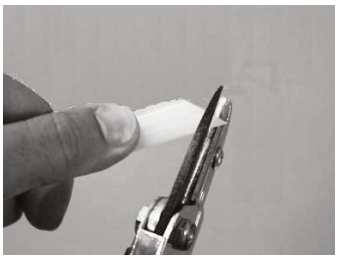






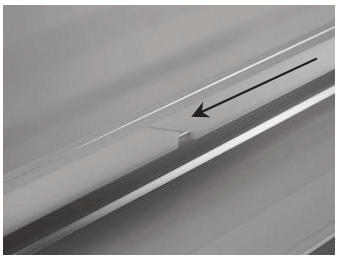
/ Slide rail installation

Step 1



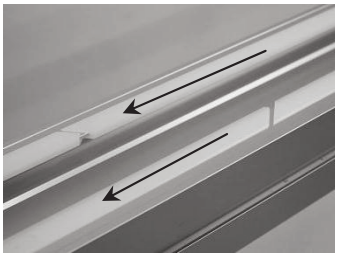
Cut both slide rail ends in a 45□ angle. The beginning of a new slide rail (in the direction of travel) must cut back a small angle.

Step 2



Allow a space of approximately 2mm to 5mm between two slide rail ends. The travel direction is indicated by arrow.

Step 3

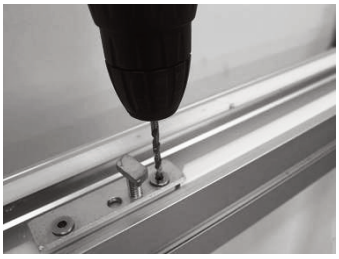


Do not place two slide rail joints opposite each other. Make sure there is a distance of at least 100 mm between them to make the chain run smoother.
This does not apply to slide rail that begins by an idler unit or after a drive unit, where joints are always parallel.

Try to let the slide rail run in as continuous lengths as possible by reducing number of breaks, except in circumstances stated below:
□ It is recommended to use short slide rails (2□3m) 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 following page), at idler units and where the conveyor will be heavily loaded, especially at drive unit. This prevents the slide rail from stretching out and entering into the drive unit, which may block the chain movement.
□ 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.

/ Drilling slide rail

Step 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. For drill bit radius, see table. 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 4.3mm drill-bit. The arrow indicates running direction.

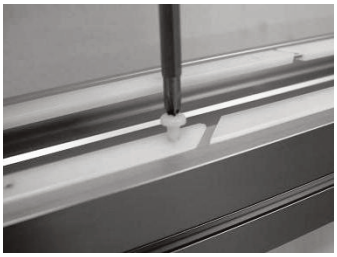
Step 2

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

Fixing 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. Riveting method is more secure if the conveyor will run with high operational speed or be heavily loaded.

Step 1 □ Nylon Screw



Screw or press the nylon screws into the holes using a screwdriver or a pair of pliers.

Step 2 □ Nylon Screw

Cut off the head of nylon screws by using soft hammer and knife. Remember, cut must be made away from the joint, in the direction of chain travel.

Step 3 □ Nylon Screw

After cut, make sure the slide rail surface is smooth and the nylon screws do not protrude over the slide rail surface. File the protrude edge if uneven surface is found.

Step 1 □ Aluminium Rivet

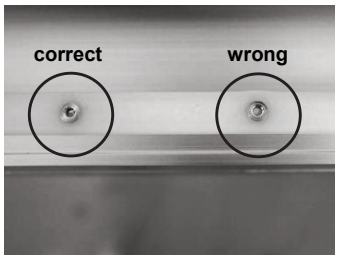
Insert the aluminium rivets into the holes.

Step 2 □ Aluminium Rivet

Clamp the aluminium rivet by using crimping pliers.

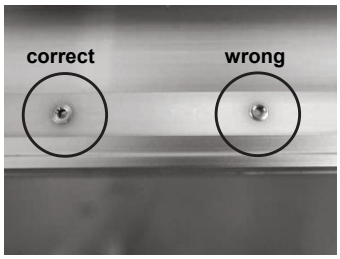
/ Checking slide rail after fixed

Slide Rail Checking 1



Ensure slide rail do not protrude due to the over pressed during rivet process.

Slide Rail Checking 2

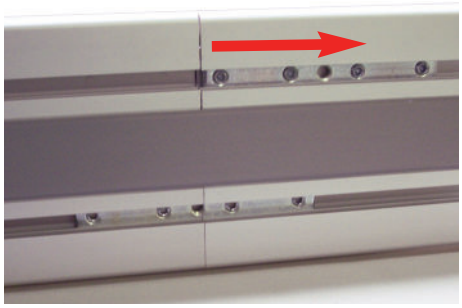


Check that the rivets do not protrude over the surface of the slide rail. Check both top and underneath surface of slide rail for protruding metal.

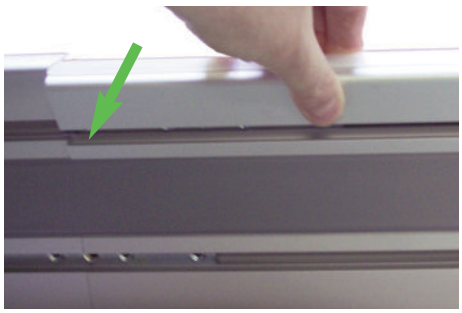
Opening of the intervention area, deglaving/assembling the belt

a) initial assembly

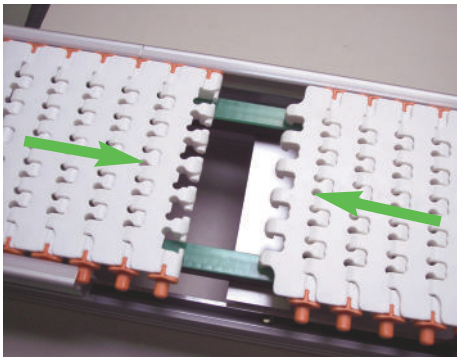
1) Unscrew the 2 upper connecting plates of the intervention area (only one side of the conveyor is required)



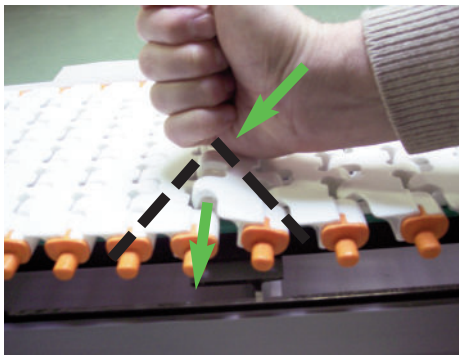
2) Slide the connecting plates sideways



3) Remove the removable upper part of the conveyor side panel

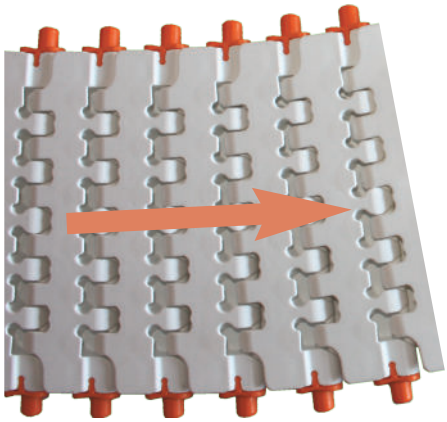


4) Thread the belt into the structure and bring the 2 ends into the intervention zone



5) the belt is clipped by positioning the perpendicular links and then by vertical pressure.

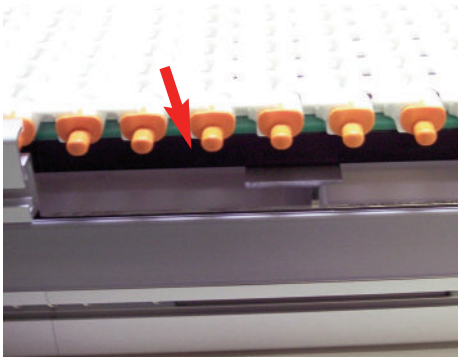
6) Close the intervention area and replace the connecting plates



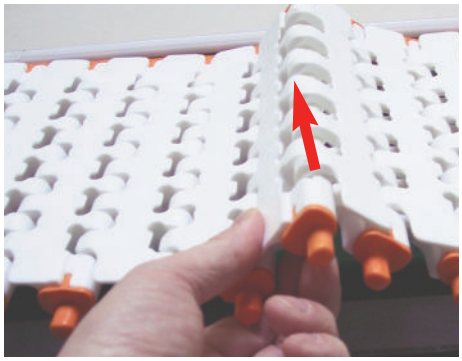
travel direction

/ Belt installation

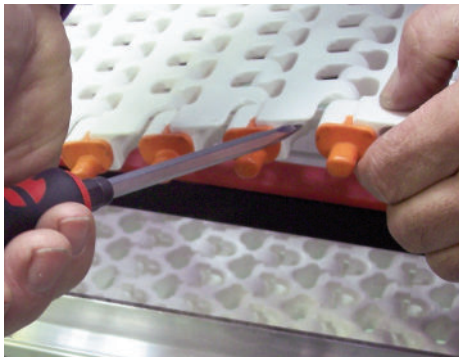
b) disassembly of the belt to adjust its length or replace it: follow steps 1 to 3 on the previous page



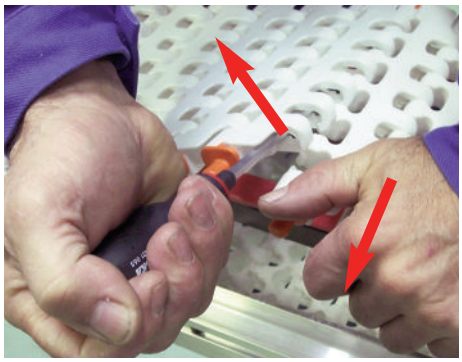
4) Pull the belt towards you to release it from the opposite slide

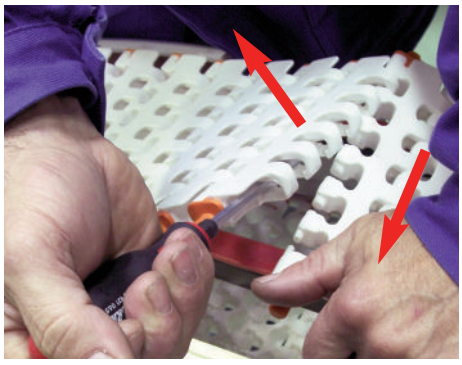


5) Lift a hinge



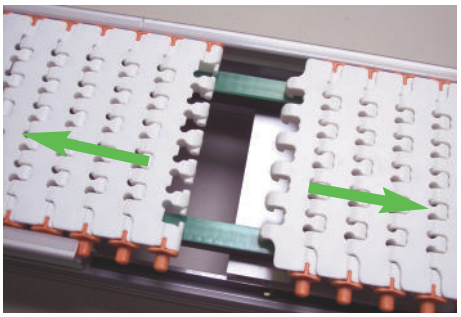
6) Insert a metal pin into the belt





7) Hold firmly with one hand and shoot with the other following the arrows.

The belt comes off even more easily when the 2 links are close to a perpendicular position.
The belt can contract longitudinally to provide the necessary space



/ Length adjustment of the conveyor belt

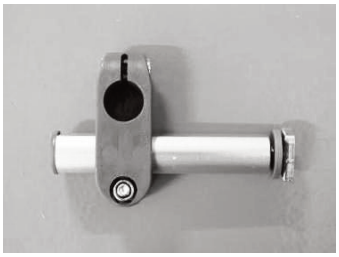
End modules

1) This length can be adjusted at the drive module. (In case of difficulty of access, an intervention module placed in an accessible place facilitates this operation: see previous page)
2) The transmission housing is dismantled, the torque limiter loosened. The belt can then move freely into the beam. For modules without transmission, remove the motor.
3) The belt is pulled at the soft strand, blocking its upper strand (at the drive module to avoid deforming the beam)
5) Remove all excess links.
6) Reassemble the belt
7) Remove the upper strand clamp, reassemble the soft strand protection housing. Adjust the torque limiter.
8) Reassemble the transmission housing if necessary. The conveyor is operational again.

Install the lateral guide

The lateral guides are used to guide the transported products, but also as a guardrail. They are assembled to the conveyor by supports on each side. Follow the instructions below depending on the type of support used in your application. The supports are mounted in steps of 500 to 1000 mm, depending on the product being conveyed and whether or not there is accumulation. A too large step can cause the lateral guides to deform.
The images below show one of the support solutions. The examples on the following page are mounted in a similar way.

Step 1 □ Adjustable Guide Rail Bracket



Fasten a adjustable guide rail bracket support to the conveyor beam using T-bolt.

Step 2 □ Adjustable Guide Rail Bracket

Attach the guide rail to the clamp. Tighten the screw. Remember; do not over tighten the screw. After this, tighten all the screw of the bracket to fix it□s position.

Assembly with Different Guide Rail Support

Option 1

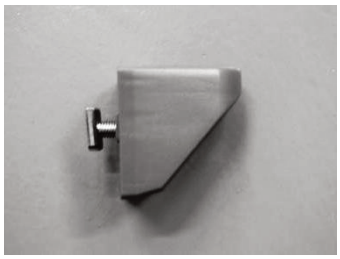
Option 2

Note: Tighten all the screws when the position is justified.

/ FGRB-48x12V heavy duty guide rail bracket assembly

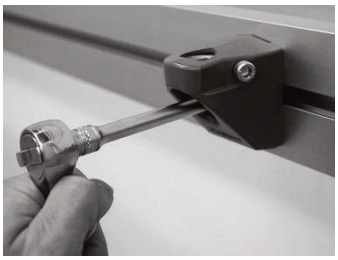
Without spacer

Step 1



Prepare the heavy duty guide rail bracket with T-bolt.

Step 2



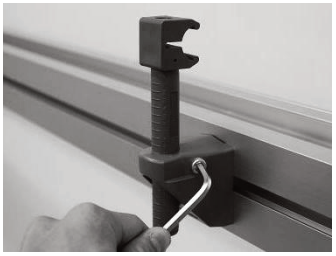
Attach the bracket onto conveyor beam and tighten with long wrench.

Assembly with Different Guide Rail Support

Option 1

Option 2

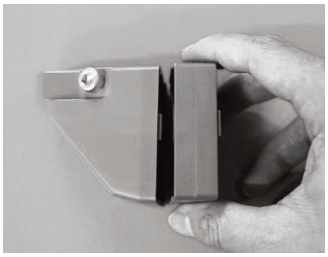
Option 3



Note: Tighten all the screws when the position is justified.

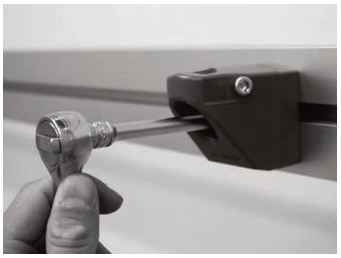
FGRB-48x12V Spacer Assembly

Step 1



Attach the spacer onto FGRB-48x12V and prepare the bracket with T-bolt.

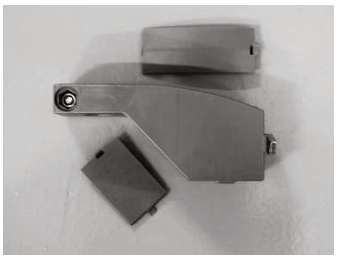
Step 2



Attach the bracket onto conveyor beam and tighten with long wrench.

/ FGRB supports

Step 1 - Method 1



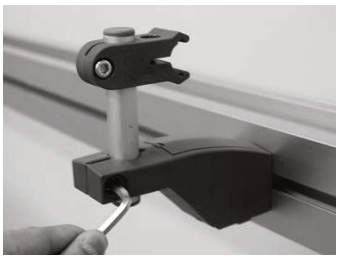
Open the upper and lower caps and prepare the FGRB-40 heavy duty guide rail bracket with T-bolt.

Step 2 - Method 1

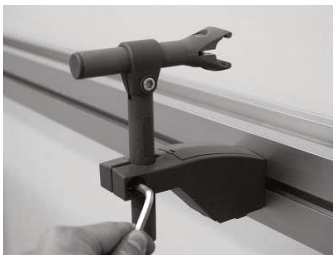
Attach the bracket onto conveyor beam and tighten with long wrench.

Assembly with Different Guide Rail Support

Option 1

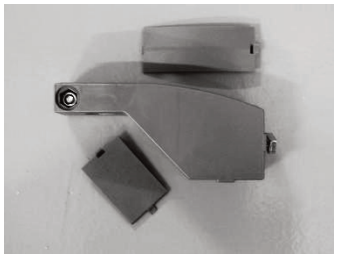


Option 2



Note: Tighten all the screws when the position is justified. Remember to assemble the upper and lower caps onto the bracket

Step 1 □ Method 2



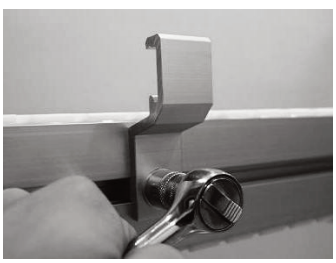
Open the upper and lower caps and prepare the FGRB-40 heavy duty guide rail bracket with T-bolt.

Step 2 □ Method 2

Attach the bracket onto conveyor beam and tighten with long wrench. After this, close both caps of the bracket.

Fixed Guide Rail Bracket Installation

Step 1 □ Fixed Guide Rail Bracket



Fasten a fixed guide rail bracket support to the conveyor beam using T-bolt.

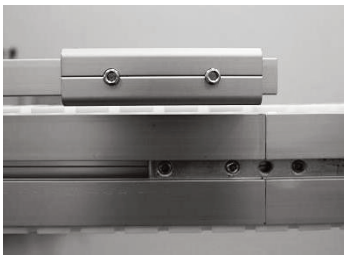
Step 2 □ Fixed Guide Rail Bracket

Attach the guide rail to the bracket. Clamp the spring pin into the slot between bracket and guide rail to fixed the position.

/ Guide rail connecting installation

Connecting of aluminium guides. The "aluminium connecting plate" solution is recommended because of its solidity.

Step 1 □ Rail Connecting

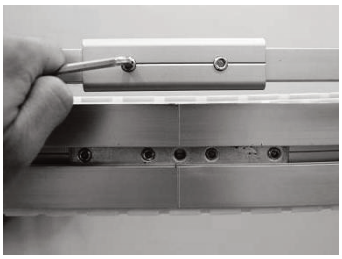


First, fully slot the guide rail sleeve into either one of the guide rail profile that you are going to join.

Step 2 □ Rail Connecting

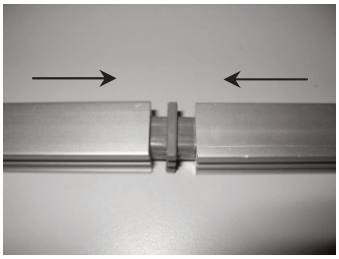
Now, align these 2 profiles closely in parallel.

Step 3 □ Rail Connecting



Finally, move the guide rail sleeve into second profile. Tighten when the location is justified.

Step 1 □ Connecting Plug



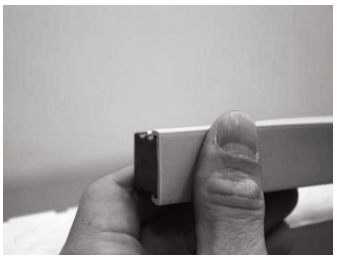
Connecting plugs are pressed into two guide rail ends with soft hammer.

Guide Rail Cover Installation

Step 1

To prevent products from being scratched, a plastic guide rail cover can be snapped on to the inside of the guide rail.

Step 2



Make sure that all cover joints are smooth, so that products do not get caught or damaged. Do not join covers on top of guide rail joints.

/ Final preparations

Plug Beam Ends
Ensure that end caps have been fitted to all aluminium profile ends. The beam profiles should be deburred before fixing end caps. It may be necessary to fix the cap into position using a soft-faced hammer.

Anchor feet to the floor
After the assembly of all components it may be necessary to anchor the conveyor support feet to the floor. Use a type of fastener that is right for the kind of floor where the conveyor is installed.
Instability of the conveyor during operation may result in a dangerous operating environment or damage the conveyor components.

Other preparations
- Adjust the height of the structural beam if necessary.
- Make sure that the installation is stable and that all screws have been properly tightened.
- Use a plummet and/or water-level to make sure that the construction is not askew.
- Make sure that all electrical equipment and power supply are properly connected.
- Make sure that the conveyor is running in the correct direction before starting the conveyor! Never run the conveyor with tightened slip clutch until you have ensured that the running direction is correct.
- Tighten the slip clutch to a suitable friction.
- Make sure that the transmission cover is attached to the drive unit.
- In pallet installations, make sure that all pneumatic equipment is properly connected.

Remember that conveyor chains should always be pulled, not pushed, by the drive unit.

Start-up and Testing

Safety considerations
To eliminate the risk of accidents, it is important to be aware of certain areas of the conveyor where special caution is required, during installation, operation and maintenance. Some areas present a higher danger to personal safety, and because of this various kinds of safety devices need to be installed.

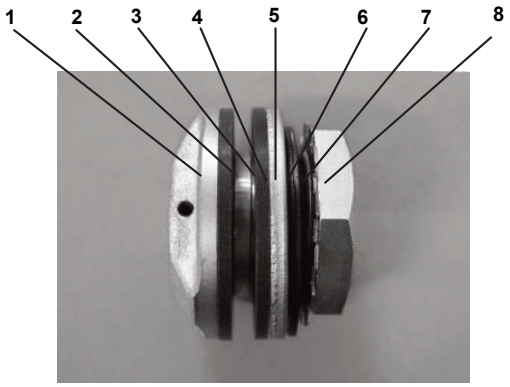
- All pinch and shear points as well as other exposed moving parts that present a hazard to employees at their workstations or their passageways must be safeguarded.
- Cleated conveyor chains are more susceptible of creating pinch and shear points than plain chain.
- When two or more pieces of equipment are interfaced, special attention must be given to the interfaced area to ensure proper safeguarding.
- For overhead equipment, guards must be provided if products may fall off the equipment for some reason. The same applies to all incline, decline and vertical conveyors.

Safeguarding can be achieved by:
Location – locate the hazardous area out of reach of the personnel involved.
Guards – mechanical barriers preventing entry into the hazardous area or protecting against falling goods.
Control devices – machine controls preventing or interrupting hazardous conditions.
Warnings – instructions, warning labels, or sound or light signals, alerting on hazardous conditions.
Warnings shall be used when other means of safeguarding will impair the function of the installation.

⚠ It must be difficult to bypass or inactivate safeguards during operation! Safety devices should be designed to minimize discomfort or difficulties for operators.

/ Torque limiter adjustment

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 conveyor
- Prevent damage to the products on the conveyor12345678



Name of parts

1. Hub	2. Friction Facing
3. Bushing	4. Pressure Plate
5. Disk Spring	6. Lock Washer
7. Pilot Plate	8. Adjustable Bolt

Torque Limiter Manual

1.Assembly
2.Machining accuracy on center member
3.Run-in
4.Torque setting
5.Tightening method for adjustable nut and bolts
6.Replacing the friction facing
7.Maintenance and precaution

Assembly of Torque Limiter

Wipe off oil, rust and dirt from each part before assembling your Torque Limiter. Then, assemble as follows. Note that all units are assembled with a sing disk spring. An additional disk spring is packed separately for use as necessary.

Machining accuracy on center member

Machine the center member friction surface and bore at 3S~6S

Run-in

Usually, run-in operations for the Torque Limiter are not necessary. Of a stable slip torque is required, however, make sure to completely hand tighten th adjustable nut or bolts. Then tighten 60 degree more and run or rotate the Torque Limiter approximately 500 revolutions. If the rotation speed is high, ru several times to reach 500 revolutions.

Torque setting

After installing the Torque Limiter to your machine, tighten the adjustable nut or bolts but not too tight. Then, test several times by gradually tightening th bolts to find the appropriate tightening value. Correlation between the adjustable nut or bolts tightening value and slip torque are illustrated below. Slip torques vary depending on the friction surface. Graphs only show rough figures, so test with a slightly weaker torque first, then gradually tighten to find th appropriate torque suitable for your machine. This is the most practical way.

Tightening method for adjustable nut or bolts

The adjustable nut for Torque Limiter is a hexagon head nut. Tighten it with a spanner wrench to the rated angle then bend the lock washer to prevent th adjustable nut from loosening.
The adjustable nut has 3 pieces. Of adjustable bolts. Place the pilot plate and disk spring in contact with each other, and tighten the adjustable nut manu until there is no backlash between their faces. Then retighten the adjustable bolts to the appropriate angle.

Replace the friction facing

Change the friction facing when they reach roughly half the thickness of dimension described above.1.25mm for L250. Before replacing the friction facin each part must be completely free of oil, rust and dirt. Also, reassemble the Torque Limiter according to the structure drawing.

Maintenance and precautions after the replacement procedure

Periodically inspect the torque setting, for the initial torque setting may be affected by changes in friction, ambient temperature, humidity and other conditions.
Replace the friction facing and bushing if they wear. Their replacement parts are in stock.
Keep the Torque Limiter free from water and oil. This will maintain the effectiveness of torque and prevent the equipment or load from falling and causing serious accidents.

Safety

WARNING!

- Before carrying out maintenance, make sure there is no load or turning force applied to the machine.
- Inspect operation periodically for overloads.
- Comply with Ordinance on Labor Safety and Hygiene 2-1-1 general standards.
- Comply with this manual when conducting unit installation, removal, maintenance and inspection.

CAUTION!

- Read this manual thoroughly before servicing the unit, and handle the unit correctly.
- Design he equipment so that it can tolerate load and rotational force when overloaded.
- Mechanical parts may wear depending on the rotation speed and slipping time. Check the operation periodically, and for any mechanical failure, cor us.
- This manual is an essential part of the unit, and it should remain with the unit at all times including when redistributed.

Start-up and Maintenance Schedule

The chains are made of acetal resin which has an excellent combination of strength, wear, chemical resistance, impact strength and temperature range. Chain failures like breakage and high wear might occur if the actual pull is higher than the permissible chain limit. There is also high risk of slip-stick effect if the conveyor is running at high chain tension.

The chain running on the right direction is very important. The chain top and bottom is like and arrow and the conveyor must travel toward the arrow. The chain should run without pre-tension. Pre-tension might result in uncontrolled chain pull and lead to chain failure. For this reason, it is important that there is a visible chain slack at the bottom of the drive unit when the conveyor is running.

The chain has good impact strength a broken link is a sign that something is wrong along the conveyor. Frequent failures are broken cleat link caused jamming at the loading or unloading of the conveyor.

Slide rail lubrication

Lubrication of the surface between the slide rail and chain will result in low coefficient of friction, less noise and linger running life. It is especially applicable for plain bend. But, it is not compulsory as the chain and slide rail materials are self-lubricant.

Wear

The degree of wear on a conveyor depends on a number of factors, such as:

- Running time
- Load, contact pressure
- Speed
- Product accumulation
- Sharp or rough products
- Chemicals
- Foreign particles, e.g. chips, grinding particles, broken glass, sand, sugar
- Temperature
- Plain bends

Try to minimize the running time for the conveyor by stopping it when there is no transport. Multiple horizontal and vertical plain bends in a conveyor will often result in increased wear. One reason is that the friction losses are large in plain bends. Also, the contact surface between chain and slide rail is small and the chain pull is acting towards the slide rail in the bends.

Chain Elongation

Acetal resin is an elastic material. In addition to the elastic elongation, the chain will exhibit elongation because of material creeping. The magnitude of chain elongation will depend on the chain tension. The chain elongation will show up at the bottom of the drive unit. Too much of the chain slack may cause high wear at the drive unit entry point. Chain slack of up to 150mm is a acceptable during normal running but any slack longer than that is not advisable. The chain slack might also hit on any part below it and this depend on the drive unit configuration. For this case, the chain slack should be shortened much earlier. In normal case, chain should be shortened after run-in time of 40 hours. The next inspection should be made only after 200 hours of running and then every 1600 hours. More frequent inspections are recommended if the conveyor is long and on high load.

Inspection

Visual check the slide rail in horizontal and vertical bends after every 200 hours or operation. The chain can stay in place during the inspection. Replace any worn out slide rail. Remove the chain from the conveyor and inspect the slide rail carefully once every 1500 hours or operation. Check for any worn out slide rail and any other unusual condition and make necessary replacement. You must also clean up the dirt accumulation in the conveyor beam especially before all plain bend, wheel bend, drive unit and idler end.

Drive unit

Each drive unit can be equipped with different gear motor brands. Please follow the maintenance recommendations from the manufacturers.

Proposal Schedule

Maintenance is recommended to carry out every 3rd, 6th and 12th month and subsequently every 6th month considering the running condition. Following are the recommended actions to be carried out:

First 3rd month:

- Shortened the chain.
- Visual inspection on the running wear of the slide rail, sprocket, wheel and chain guides.
- Checking on any high wear part on the conveyor and rectify it when necessary.
- Clean up any foreign accumulation that might block the smooth flow of the conveyor.
- Checking on the gearbox oil level and top up when necessary.
- Checking all parts joint for support structure, slide guide and conveyor for loosen joint, rectify when necessary.

First 6th month:

- Shortened the chain.
- Visual inspection on the running wear of the slide rail, sprocket, wheel and chain guides.
- Checking on any high wear part on the conveyor and rectify it when necessary.
- Clean up any foreign accumulation that might block the smooth flow of the conveyor.
- Checking on the gearbox oil level and top up when necessary.
- Checking all parts joint for support structure, side guide and conveyor for loosen joint, rectify when necessary.

First 12th month:

- Shortened the chain.
- Visual inspection on the running wear of the slide rail, sprocket, wheel and chain guides.
- Checking on any high wear part on the conveyor and rectify it when necessary.
- Clean up any foreign accumulation that might block the smooth flow of the conveyor.
- Checking on the gearbox oil level and top up when necessary.
- Checking all parts joint for support structure, side guide and conveyor for loosen joint, rectify when necessary.

Safeguarding
All pinch and shear points as well as other exposed moving parts that present a hazard to users is recommended to safe guarded. Cleat conveyor chain is more susceptible of creating pinch and shear points that plain chain.
When two or more pieces of equipment are interfaced, special attention must be given to the interfaced area to ensure proper safeguarding.
For overhead conveyor, guards must be provided if products fall off the conveyor for some reason. The same applies to all incline, decline and vertical conveyors.

Considerations
When correctly applied, the conveyor components are safe to use or maintain. It is however necessary for those responsible to design, installation, operation and maintenance to be aware of certain areas when special caution is required:

End drive unit
The chain slack of normal direct drive must be maintained during the system lifetime.

Idler unit
The opening between links when they turn around idler could be risk. The idler end should not be accessible during conveyor operation.

Catenary drive unit
The bridge area where the chain goes down should not be accessible during conveyor operation.

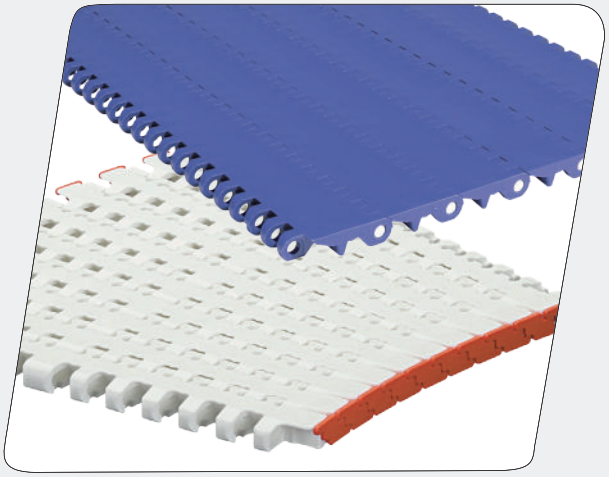
Troubleshooting

Symptom	Cause	Corrective action
Jerky running	- Damage or badly fitted slide rail. - Wrongly adjusted slip clutch. - Worn transmission parts. - Conveyor chain is too tight or loose. - Dirty conveyor	- Inspect and replace as necessary. - Check and adjust slip clutch. - Check/replace transmission chain, chain drive sprocket. - Tension conveyor chain correctly. - Clean conveyor chain/slide rail.
Drive unit is running, conveyor chain is not running	- Wrongly adjusted slip clutch. - Friction discs in slip clutch are worn or contaminated. - Damage/badly fitted slide rail. - Transmission products are not fitted.	- Check adjustment of slip clutch. - Check and replace if necessary. - Check the free running of the conveyor chain. - Check and fit.
Motor overheating on drive unit	- Overload conveyor. - Gearbox leaking oil. - Dirty conveyor.	- Remove products from conveyor and test run. - Check actual conveyor load against recommended loading. If possible break to more drives. - Check output shaft seal and area around motor/gearbox interface. - Clean the conveyor chain with warm water 50 degree.
Noise	- Worn or damaged bearings in drive unit. - Damage/badly fitted slide rail. - Excessive conveyor speed. - Incorrect conveyor chain tension.	- Check/replace drive unit. - Check the free running of the conveyor chain, especially in slide rail joints. - Check actual load against recommended loading. - Lengthen/shorten conveyor chain
Abnormal wear of plastic parts	- Overloaded conveyor. - Ambient temperature too high. - Foreign object dropped on the conveyor chain.	- Remove products from conveyor and test run. - Check the free running of the conveyor chain. - Check actual conveyor load against recommended loading. If possible break the conveyor into more drives. - Check against recommended temperature for conveyor. - Replace the broken section of chain.
Clutch Ratcheting or slipping	- Excessive or accumulated load. - Improper ratchet clutch tensioning. - Damaged or missing chain assembly parts. - Accumulation of conveyed material or foreign objects inside of casing.	- Avoid load buildup by running conveyor continuously. - Do not manually surge load conveyor. - Refer to ratchet clutch adjustment in Maintenance. - Review belt and repair or replace as required. - Reverse conveyor placing ball of newspaper or a rag on belt to act as wipeout for accumulated material.

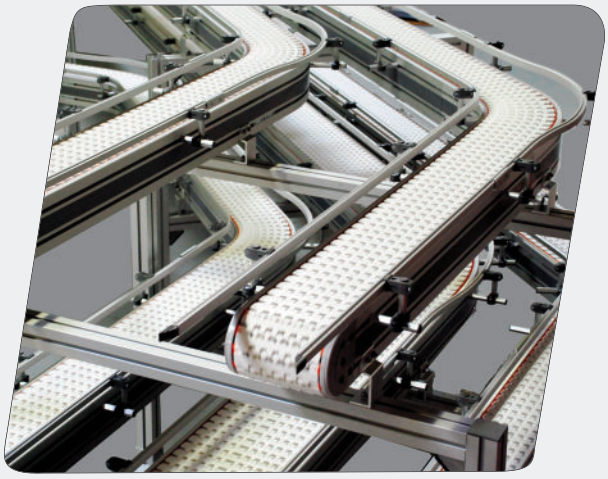
MOOVITIQUE

FABER, is also :

Screws, tools, twisters
for packaging lines



Modular belts for conveyors



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