



**Rex**® TableTop® and MatTop® Chains

# TableTop® Chain

Maintenance Manual

Maintenance Manual



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## **Rex® TableTop® and MatTop® Chains**

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### **Introduction**

The information contained in this manual will allow you to install, operate and maintain your Rex® TableTop® chain in a manner which will insure smooth operation and maximum life.

TableTop® chains can be used in straight running, side-flexing or Multiflex applications. A sample of each chain style is shown below.



**Straight Running Chain**



**Side-flexing Chain**



**Multiflex Chain**

Please contact Rexnord Application Engineering if you need assistance at 262.376.4800.

**Safety Information**

**PRODUCT SAFETY:** Products designed and manufactured by Rexnord are capable of being used in a safe manner; but Rexnord cannot warrant their safety under all circumstances. **PURCHASER MUST INSTALL AND USE THE PRODUCTS IN SAFE AND LAWFUL MANNER IN COMPLIANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS AND LAWS AND GENERAL STANDARDS OF REASONABLE CARE; AND IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**

**SAFETY DEVICES:** Products are provided with only safety devices identified herein. **IT IS THE RESPONSIBILITY OF PURCHASER TO FURNISH APPROPRIATE GUARDS FOR MACHINERY PARTS** in compliance with MSHA or OSHA Standards, as well as any other safety devices desired by Purchaser and/or required by law; and **IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**

**General Safety Precautions**

- To avoid personal injury, all machinery must be turned off and locked out, prior to chain installation, inspection, maintenance and removal
- Always use safety glasses to protect eyes. Wear protective clothing, gloves and safety shoes
- Support the chain to prevent uncontrolled movement of the chain and parts
- Maintain tools in proper condition and assure their proper use. Use of chain assembly tools is recommended when applicable
- Do not attempt to connect or disconnect chain unless chain construction is clearly known and understood
- Do not use any sections of damaged chains because they may have been overloaded and yielded



If any flame cutting, welding, etc. is to occur in the conveyor vicinity, take adequate precautions to insure that no burning of any chain or other components occurs. If adequate protection can not be provided, remove the chain and other plastic components from the conveyor and store in a safe location. Thermoplastic and similar materials can burn and give off toxic fumes.

**DO NOT INSTALL, OPERATE OR PERFORM MAINTENANCE ON THIS PRODUCT UNTIL YOU READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED IN THIS MANUAL.**

## Chain Materials

### **AS (Anti-Static)**

- An electrically conductive acetal formulated to reduce or eliminate nuisance static charge
- ALWAYS contact Rexnord Application Engineering for assistance
- Temperature range dry 0° to +180° F; wet +150° F (dry -18° to +82° C; wet +66° C)

### **BWR (Black Wear Resistant)**

- Specially formulated nylon composite with excellent wear characteristics
- BWR may extend chain life up to 5 times in comparison to other plastic materials in applications such as conveying rough machined parts
- Not intended for wet applications due to expansion
- Temperature range dry -40° to +180° F (dry -40° to +82° C)

### **CR (Extreme Chemical Resistant)**

- Fluorinated polymer which is chemically resistant to high concentrations of oxidizing agents, acids and bases
- Temperature range dry +40° to +240° F; wet +212° F (dry +4° to +116° C; wet +100° C)

### **D & WD (Acetal)**

- Plain acetal available in gray and white
- Temperature range dry -40° to +180° F; wet +150° F (dry -40° to +82° C; wet +66° C)

### **DUV (Ultraviolet Resistant)**

- Specially formulated acetal
- Used for outdoor applications with direct exposure to the sun or UV radiation
- Temperature range dry 0° to +180° F; wet +150° F (dry -18° to +82° C; wet +66° C)

### **ESD (Electrostatic Dissipative)**

- Polypropylene formulated for conveying sensitive products such as electronics and computer chips where controlling static charge or static decay is critical
- ALWAYS contact Rexnord Application Engineering for assistance
- Temperature range dry 0° to +180° F; wet +182° F (dry -18° to +82° C; wet +82° C)

### **FR (Flame Retardant)**

- Flame retardant polyester that meets the requirements of UL Standard 94 V-0 rated combustion
- Temperature range dry 0° to +180° F; wet +140° F (dry -18° to +82° C; wet +60° C)

### **HP™ & WHP (High Performance)**

- Patented blend of acetal specifically formulated for dry running conveyors due to excellent friction characteristics
- Available in dark gray and white
- Temperature range dry 0° to +180° F; wet +150° F (dry -18° to +82° C; wet +66° C)

### **HS (Heat Stabilized)**

- Nylon resin designed for environments that contain hot water spray (rinser, sterilizer and pasteurizer applications)
- Temperature range dry -40° to +220° F; wet +212° F (dry -40° to +104° C; wet +100° C)

## Chain Materials

### **LF & WLF (Low Friction)**

- Patented blend of acetal that provides good wear resistance and long service life due to the low coefficient of friction
- Available in tan and white
- Temperature range dry -40° to +180° F; wet +150° F (dry -40° to +82° C; wet +66° C)

### **MR (Melt Resistant)**

- A nylon material with a high melting point used to prevent hot objects (product temperature up to 375° F (190° C)) from melting the top of the chain
- Not intended for wet applications due to expansion
- Temperature range dry -80° to +220° F (dry -62° to +104° C)

### **P (Chemical Resistant)**

- A polyester formulated to reduce or eliminate material degradation in applications where chemicals such as chlorine and phosphorous are present in moderate concentrations
- Temperature range dry 0° to +180° F; wet +140° F (dry -18° to +82° C; wet +60° C)

### **PS™ (Platinum Series™)**

- A blend of acetal specially formulated for high speed conveying applications (patent pending)
- Temperature range dry -40° to +180° F; wet +150° F (dry -40° to +82° C; wet +66° C)

### **S (Carbon Steel)**

- A strong, abrasion resistant, fine grained, hardened carbon steel with a smooth finish
- Used in applications requiring high strength, high impact resistance and a hardened chain surface such as part handling
- Not intended for wet applications due to corrosion
- Temperature range dry -40° to +350° F (dry -40° to +177° C)

### **SS (Stainless Steel)**

- Non-magnetic, corrosion resistant, abrasion resistant austenitic stainless steel
- Temperature range dry -100° to +800° F; wet +212° F (dry -73° to +427° C; wet +100° C)

### **SSB (Low Magnetic Stainless Steel)**

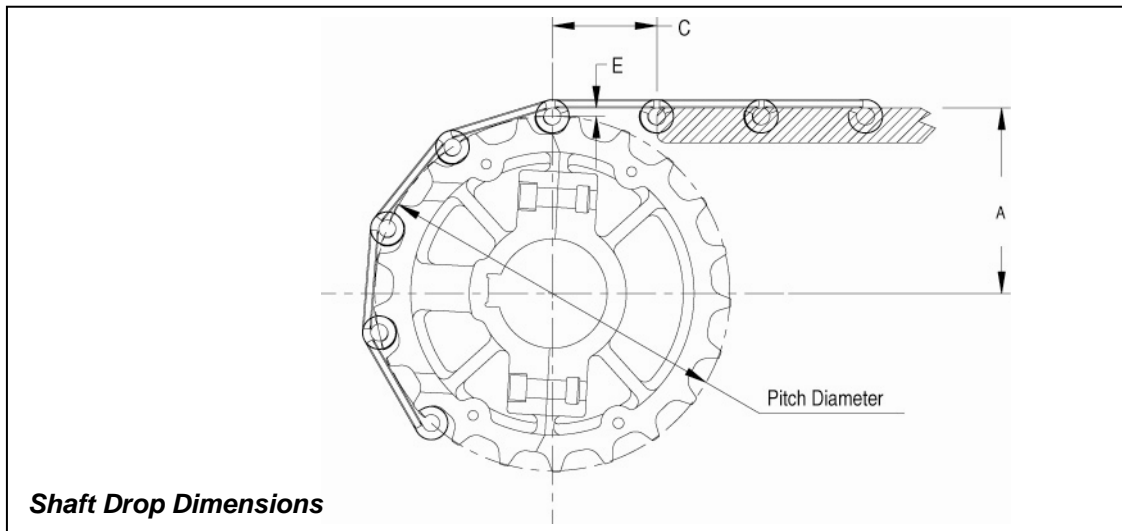
- A special austenitic stainless steel which allows a magnetic field to pass through without affecting chain tension or drive requirements
- Since materials vary in strength, refer to the product catalog for specific chain / material strengths when changing out materials
- Temperature range dry -100° to +800° F; wet +212° F (dry -73° to +427° C; wet +100° C)

### **WX (Abrasion Resistant Nylon)**

- A nylon material formulated to be used in abrasive applications where chain is subjected to abrasives such as glass, sand and dirt
- Not intended for wet applications due to expansion
- Temperature range dry -40° to +180° F (dry -40° to +82° C)

## Installation / Preliminary Checks (Prior To Chain Installation)

- **Identify chain and sprockets**  
Chain identification can be found on the underside of the link/top plate. Sprocket identification can be found on the face of the sprocket. Detailed information on each chain and sprocket can also be found in the product catalog (8rxCAT-en)
- **Check sprocket and wearstrip position**  
Ensure that sprockets, carry and return wearstrips are properly positioned. Refer to drawing below and table on next page for dimensions
- **Sprocket and wearstrip position**  
The distance from the end of the wearstrip to the sprocket shaft centerline should equal dimension "C"; otherwise, the wearstrip will interfere with the free articulation of the chain as it enters (or exits) the sprocket
  - ⇒ The leading edges of the wearstrips should be beveled
  - ⇒ The following formulas and dimensions used in conjunction with the figure will give the proper shaft and wearstrip positioning:
    - ♦ Sprocket Location for Conventional Chains
      - A = (Pitch Diameter/2) + E
      - C = One Chain Pitch (which ensures support under chain at all times)
        - See table on page 7 for E & C dimensions



### Example

For an 820 chain utilizing a 25T sprocket:

$$A = (\text{Pitch Diameter}/2) + E = (6.032 \text{ in}/2) + 0.125 \text{ in} = 3.141 \text{ in}$$

$$C = 1.50 \text{ in}$$

### Metric:

$$A = (\text{Pitch Diameter}/2) + E = (153.21 \text{ mm}/2) + 3.18 \text{ mm} = 79.78 \text{ mm}$$

$$C = 38.1 \text{ mm}$$



### Tolerances

$$A = +0.03 \text{ in} / -0.00 \text{ in} \text{ (+0.8mm / -0.0 mm)}$$

$$C = +0.25 \text{ in} / -0.00 \text{ in} \text{ (+6.3 mm / -0.0 mm)}$$



Installation / Preliminary Checks (Prior To Chain Installation)

**Shaft Drop Values**

<b>SHAFT DROP VALUES</b>				
<b>Chain Series</b>	<b>“C” Dimension</b>		<b>“E” Dimension</b>	
	<b>in</b>	<b>mm</b>	<b>in</b>	<b>mm</b>
LPC279®	1.50	38.1	0.470	11.94
770	1.00	25.4	0.141	3.58
812	1.50	38.1	0.125	3.18
815	1.50	38.1	0.125	3.18
820	1.50	38.1	0.125	3.18
821	1.50	38.1	0.125	3.18
LBP821	1.50	38.1	0.125	3.18
831	1.50	38.1	0.094	2.39
843	1.00	25.4	0.234	5.94
845	1.00	25.4	0.234	5.94
863	1.50	38.1	0.406	10.31
866	1.50	38.1	0.406	10.31
879	1.50	38.1	0.109	2.77
880	1.50	38.1	0.141	3.58
881	1.50	38.1	0.125	3.18
882	1.50	38.1	0.188	4.78
LBP882	1.50	38.1	0.188	4.78
LBP883	1.50	38.1	0.188	4.78
963	1.50	38.1	0.406	10.31
1050 TAB & Magnetflex®	1.00	25.4	0.138	3.51
LPC®1050	1.00	25.4	0.470	11.94
1055 TAB & Magnetflex®	1.00	25.4	0.140	3.56
LPC®1055	1.00	25.4	0.470	11.94
1757	1.50	38.1	0.530	13.46
LBP1757	1.50	38.1	0.940	23.88
1843	1.00	25.4	0.266	6.76
1844	1.00	25.4	0.266	6.76
1863	1.50	38.1	0.406	10.31
1864	1.50	38.1	0.406	10.31
1873	1.50	38.1	0.406	10.31
1874	1.50	38.1	0.438	11.13
1883	2.00	50.8	0.480	12.19
3873	1.50	38.1	0.406	10.31
4873	1.50	38.1	0.406	10.31
4874	1.50	38.1	0.438	11.13



Refer to Engineering Manual (page EM - MF - 24) for dimensional information on Multiflex chains.

# Rex® TableTop® and MatTop® Chains

## Installation / Preliminary Checks (Prior To Chain Installation)

- **Align drive and idler sprockets**

Make sure that the drive and idler sprockets are aligned axially with the center of the chain. Lock the sprockets in place using the keyway and setscrews



Rexnord recommends rotating shafts with bearings. If bearings are not used, the following are guidelines for operating Rex® TableTop® sprockets on stationary shafts:

Sprocket	Maximum Recommended Chain Speed	
	FPM	MPM
N - Acetal	0 - 50	0 - 15
UHMWPE	0 - 50	0 - 15
NS - Nylon, Split	0 - 100	0 - 30
LF Bushing (Idler Wheel)	0 - 300	0 - 90
Bronze Bushing	0 - 500	0 - 150
Bearings	Recommended for Speeds > 300	Recommended for Speeds > 90



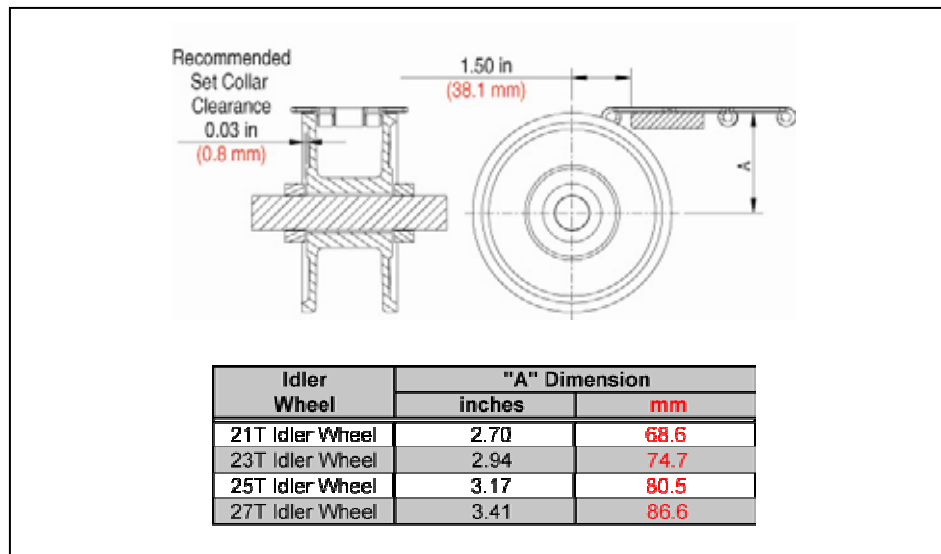
If multiple strands share a tail shaft, key only one sprocket and allow others to rotate. Collars should be utilized to prevent axial floating.

- **Idler Wheel and Sprocket Locations (Stationary Shafts Only)**

The idler wheels can only be used in place of tail shaft sprockets on Rex® TableTop® one piece unit link chains.



- ⇒ Idler wheels should not be used with roller base chains
- ⇒ For proper location and smooth operation, the idler wheels should be mounted slightly below the top of the wearstrips



## Rex® TableTop® and MatTop® Chains

### Installation / Preliminary Checks (Prior To Chain Installation)

- Inspect guide clearance in both straight and corner sections**  
 Check the carry and return wearstrips at several locations to ensure proper guide clearance. Check corner tracks and discs for proper thickness. Make sure there is adequate clearance for chain TABs (see table below for critical dimensions). Ensure straight and curved sections are lined up properly with smooth transitions. Adjust all items as required

#### Straight Running

Chain Style		812 815 820 831	821	1864	866	843	863 963	863T
		Guide Clearance	in	1.75	5.50	1.38	1.63	0.94
mm	44.5		139.7	35.1	41.3	23.9	36.5	33.3

#### Side-flexing

Chain Style		879 880 881	770T 879T 880T 880BO 881T	882	882T 883T	279	1843	1863 1874 4874 1873 4873 3873	1883	1050 1055		
		Hold Down Style	Bevel	TAB	Bevel	TAB	LPC®	TAB	TAB	TAB	Magnetflex®	TAB
Guide Clearance Straight	in	1.75	1.81	2.44	2.38	1.75	0.88	1.31	1.66	1.73	1.81	1.73
	mm	44.5	46.0	62.0	60.5	44.5	22.3	33.3	42.2	44.0	46.0	44.0
Guide Clearance Corner	in	1.63	1.75	2.28	2.28	1.75	0.84	1.38	1.72	1.73	1.75	1.73
	mm	41.1	44.5	57.9	57.9	44.5	21.3	34.9	43.7	44.0	44.5	44.0
Corner Wearstrip Thickness	in	0.38	0.38	0.63	0.63	0.61	0.38	0.75	0.90	0.51	0.38	0.61
	mm	9.7	9.7	15.9	15.9	15.5	9.7	19.1	22.0	13.0	9.7	15.5



Refer to Engineering Manual (page EM - MF - 15) for dimensional information on Multiflex chains.

## Installation / Preliminary Checks (Prior To Chain Installation)

- **Insert section of chain**

Run a short section of chain (about 2 ft or 0.5 m long) by hand through each conveyor (carry and return) and over each sprocket. Make sure there are no tight spots or obstructions such as sharp edges, uneven wearstrips, protruding bolts or screws or misaligned sprockets. Adjust all items as required

Transfers are very critical! Check all transfer locations by laying chain in the tracks and sliding products through the transfer by hand. Adjust wearstrips, sprockets, corner tracks, deadplates, and guide rails as required

- **Inspect conveyor**

Clean the entire conveyor and remove any abrasives such as welding splatter, construction debris, dirt or metal chips that are present on the conveyor frame or embedded in the wearstrips. If wearstrips are damaged or embedded with debris, replace them as necessary



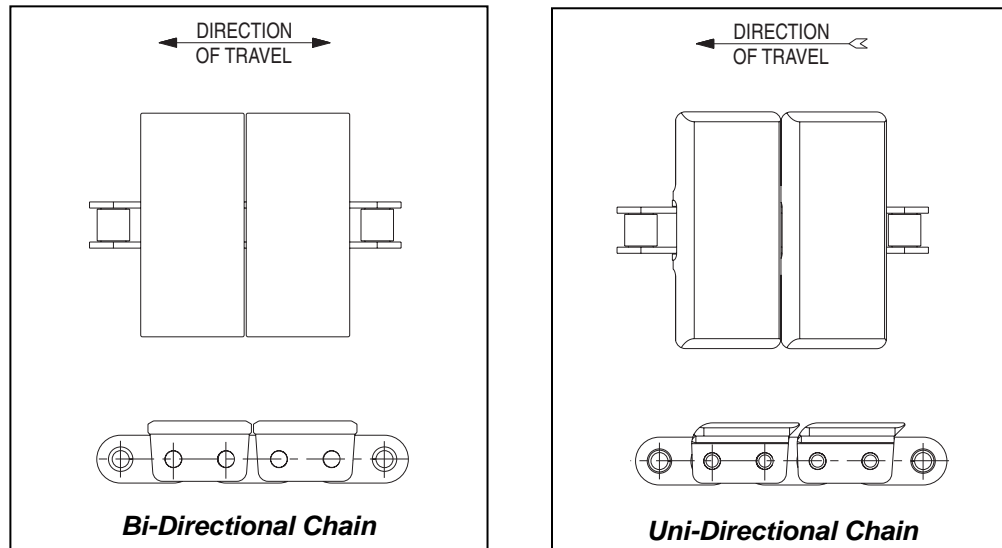
To avoid personal injury, all machinery must be turned off and locked out, prior to chain installation, inspection, maintenance or removal.

Care should be used when handling the chain to avoid crushed or pinched fingers. Keep the chain under control at all times.

The chain can easily be twisted, causing permanent deformation. Make all chain connections on the conveyor frame.

## Installation – Chain

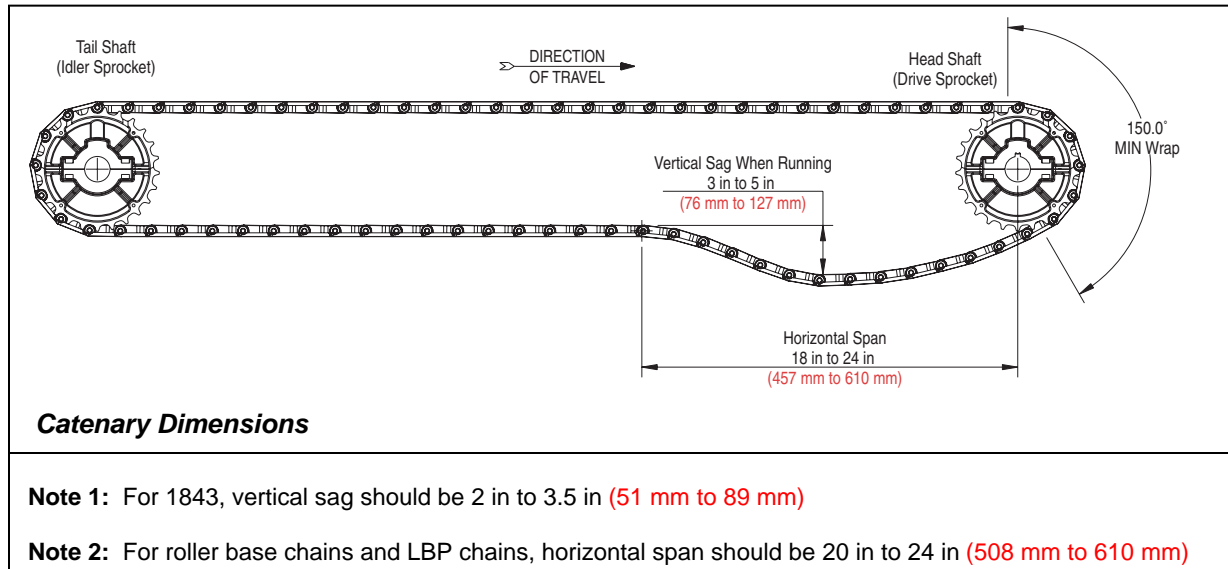
- For side-flexing applications requiring lubrication, apply a light coating of mineral oil or grease to the inside corner wearstrips before installing chain
- If reinstalling used chain it is recommended to oil any roller base chain
- Thread the chain onto each conveyor in 10 ft (3.048 m) sections as shipped from the factory
- For the preferred direction of travel, see arrows on the chain links (see example below)



- Be careful to avoid twisting and damaging the chain. Make all connections on the frame at either the drive or idler sprocket locations
- Install chains hand tight. The catenary sag of each conveyor needs to be checked later (see pages 12 & 19)

## Installation - Catenary Sag

- The function of the catenary is to allow a place for excess chain to accumulate
- Rex® TableTop® chains should never be run tight
- The catenary sag should be measured when running with product
- If the catenary sag is excessive or increases due to normal wear, it should be adjusted by removing links to obtain the proper sag

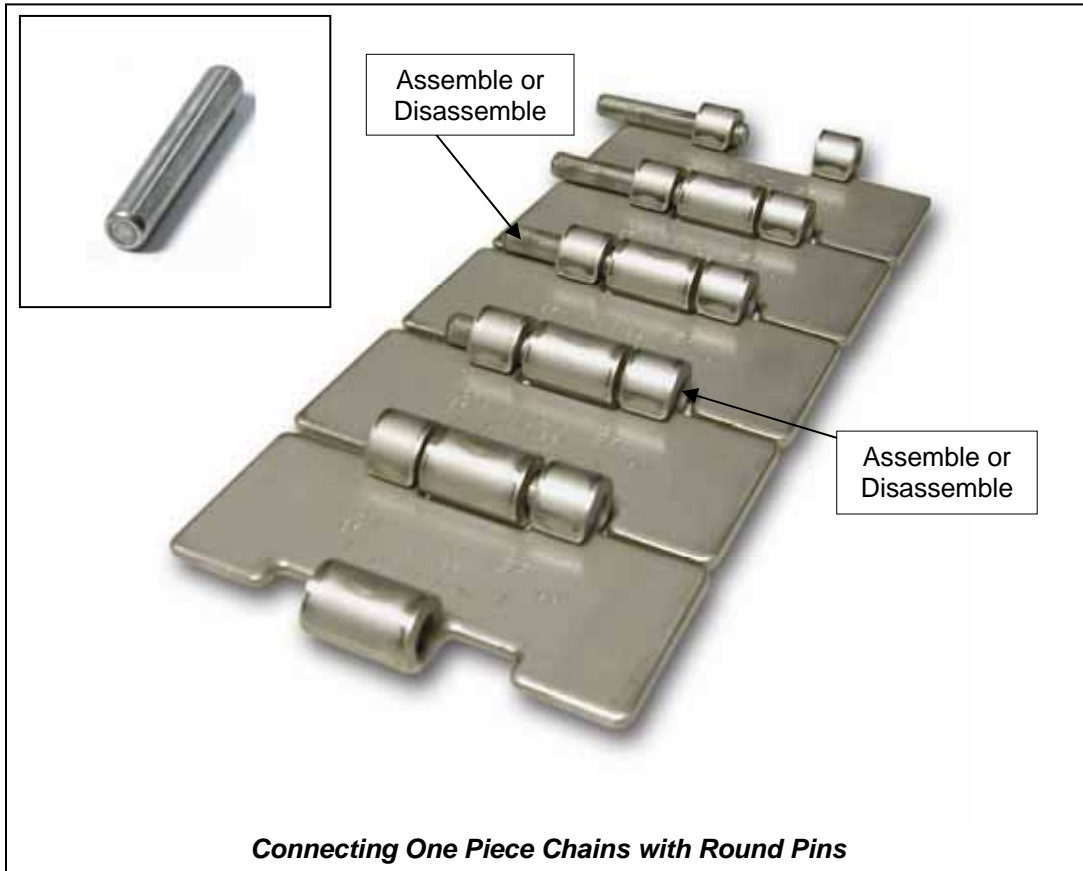


### Installation / Disassembly – Chain

- **Connect the chain / One Piece Chains with Round Pins (812, 815 & 881)**

Tools required: drift pin and hammer

- ✓ To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into either one of the double eyes in the appropriate end link. Position the single eye of the other end link between the double eyes. Then drive pin through the single eye and into the adjacent double eye, using a drift punch and hammer, until connecting pin is centered in the link.



The chain should be hand tight when installed. Chain should never be over tensioned.

When installing the last section, separate the chain to required length using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.

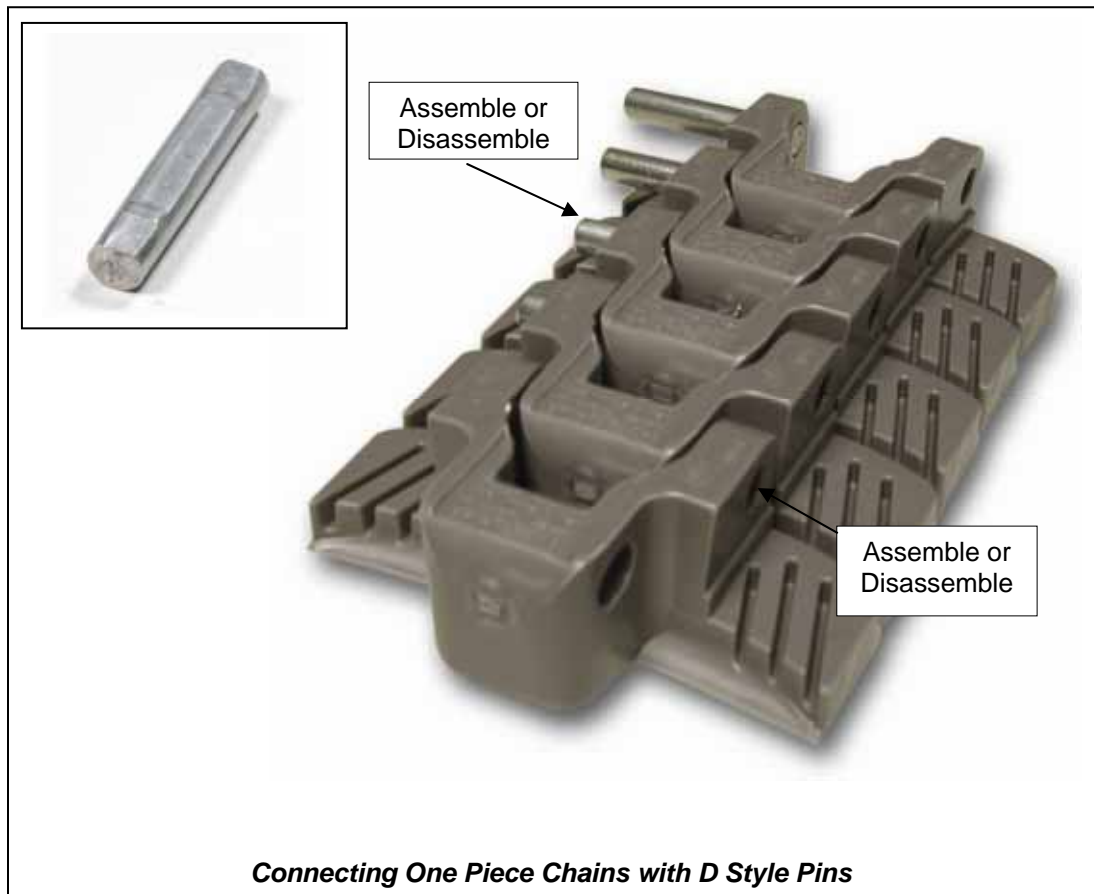
## **Rex**® TableTop® and MatTop® Chains

### Installation / Disassembly – Chain

- **Connect the chain / One Piece Chains with D Style Pins (279, 770, 879, 880, 882, 1050 & 1055)**

Tools required: drift pin and hammer

- ✓ To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into either one of the double eyes in the appropriate end link. Take care in positioning the flat of the pin to match up with the flat on the link hole. Position the single eye of the other end link between the double eyes. Then drive pin through the single eye and into the adjacent double eye, using a drift punch and hammer, until connecting pin is centered in the link.



The chain should be hand tight when installed. Chain should never be over tensioned.

When installing the last section, separate the chain to required length using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.



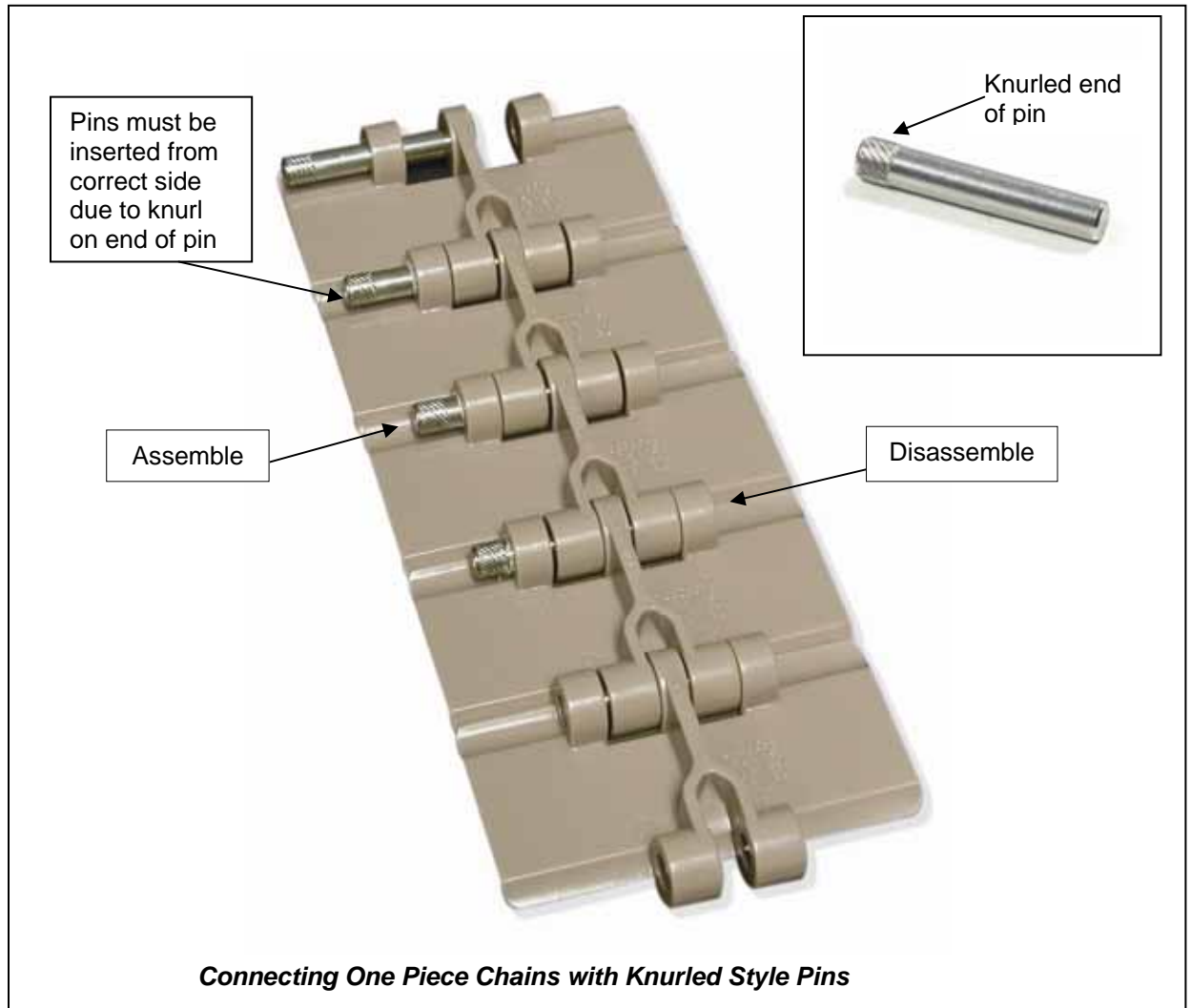
## Rex® TableTop® and MatTop® Chains

### Installation / Disassembly – Chain

- **Connect the chain / One Piece Chains with Knurled Style Pins (820, 821, 831, 1700, 1701, 1702, 1755, 1757, 1765, 2500 & 2550)**

Tools required: drift pin and hammer

- ✓ To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into the correct side of the chain (as shown below). Always insert smooth (un-knurled) end of pin first. Position the links together, then drive pin into the hinge using a drift punch and hammer, until connecting pin is recessed into the link like adjacent pins.



CAUTION

The chain should be hand tight when installed. Chain should never be over tensioned.

When installing the last section, separate the chain to required length using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.

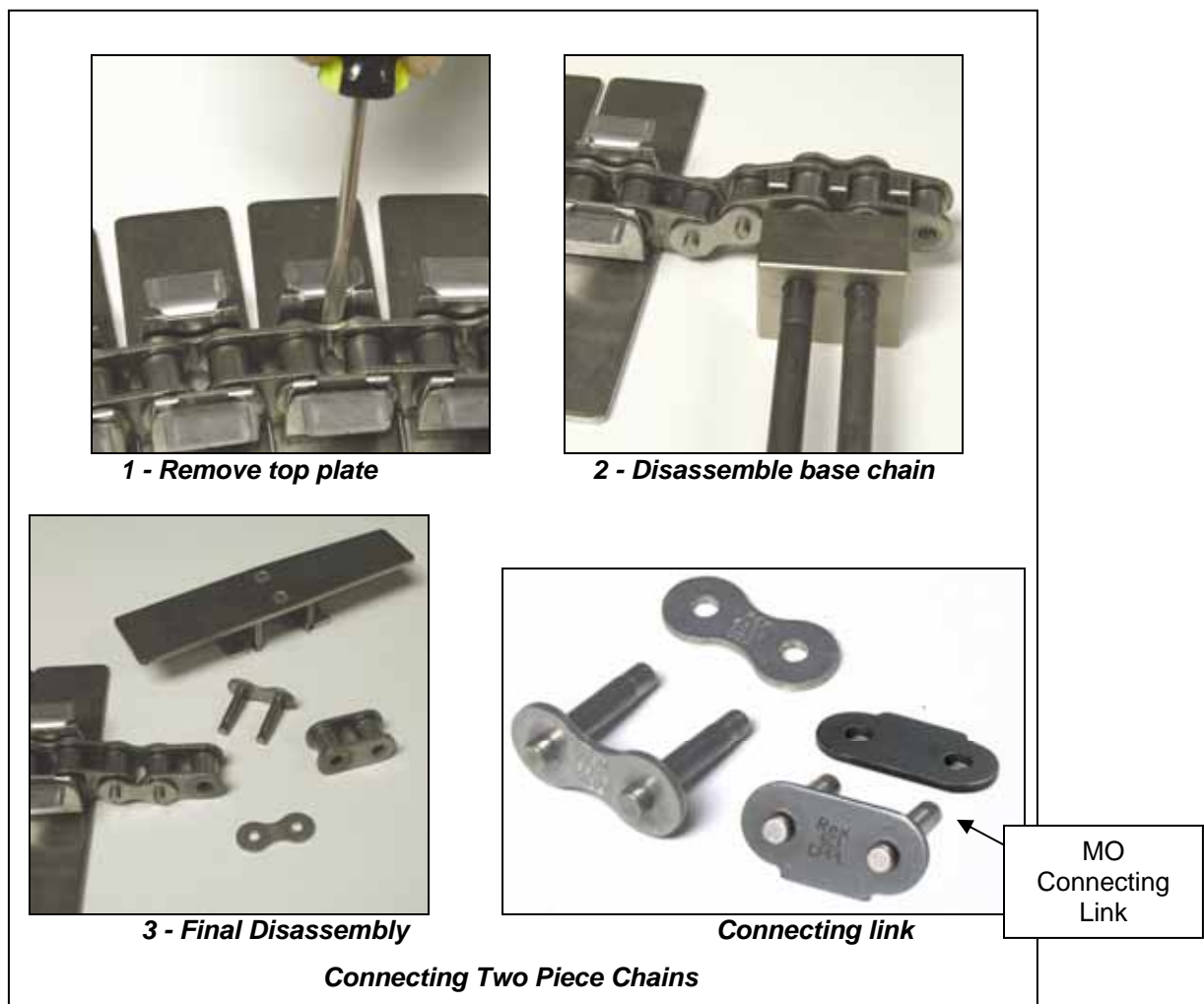
## Rex® TableTop® and MatTop® Chains

### Installation / Disassembly – Chain

- **Connect the chain / For Two Piece Chains**  
(843, 845, 863, 866, 963, 1843, 1844, 1863, 1864, 1873, 1874, 1883, 3873, 4873 & 4874)

Tools required: screw driver and chain breaker

- ✓ Connect each 10 ft (3.048 m) section using the included connecting link. Position the male portion of the connecting link through the corresponding end roller links of the two sections which are being connected. Position the female portion of the connecting link over the male portion. Ensure that the connecting link “flats” (if applicable) are in the down position (away from the top plate). Snap the white top plate (if applicable) in place over the extended pin ends to secure the connecting link.



- ✓ Connecting link styles may vary by chain series.

## **Installation / Disassembly – Chain**



CAUTION

The chain should be hand tight when installed. Chain should never be over tensioned.

To install the last section of chain, separate the chain to required length using a chain breaker to push the appropriate connecting pins out of the roller base chain. See page 18 for chain breaker styles. Make final connection to complete the chain loop.



For plastic two piece chains, white top plates are provided to aid in the location of the connecting links in assembled chain loops. The connecting link may contain a “flat” portion on the MO pin plate to aid in identification of the connecting link.

While 866 chain is a two piece design, it contains a cotter pin and therefore, cotter pins must be removed to disassemble the chain. This also means every link is a connecting link.

## **Rex®** TableTop® and MatTop® Chains

### Installation / Disassembly – Chain Breakers for Two Piece Chains

For roller base chains, two styles of roller chain breakers are available as shown below. They simplify the disassembly of the roller base chain when it must be taken apart at a location other than a connecting link.

Place the corresponding roller chain pin link in the “jaw” of the chain breaker and turn the pin(s) in order to push the chain pin(s) out of the sidebar on one side of the pin link.

- ✓ After disassembly, dispose of the damaged pin link. Use only a new connecting link when re-connecting the chain.

#### **Rex® Vise Roller Chain Breaker**

- For use with 863, 963, 1863, 1864, 1873, 1874, 3873, 4873 & 4874 chains only
- Can also be used for the disassembly of No. 60 ANSI roller chains
- Part #SK12776



#### **Rex® Roller Chain Breaker**

- For use with 843, 845, 863, 963, 1843, 1844, 1863, 1864, 1873, 1874, 3873, 4873 & 4874 chains
- Can also be used for the disassembly of No. 25 through 60 ANSI roller chains
- Part #CB1



## Start Up

1. Start the conveyors and run **without** product for 30 minutes to 1 hour.

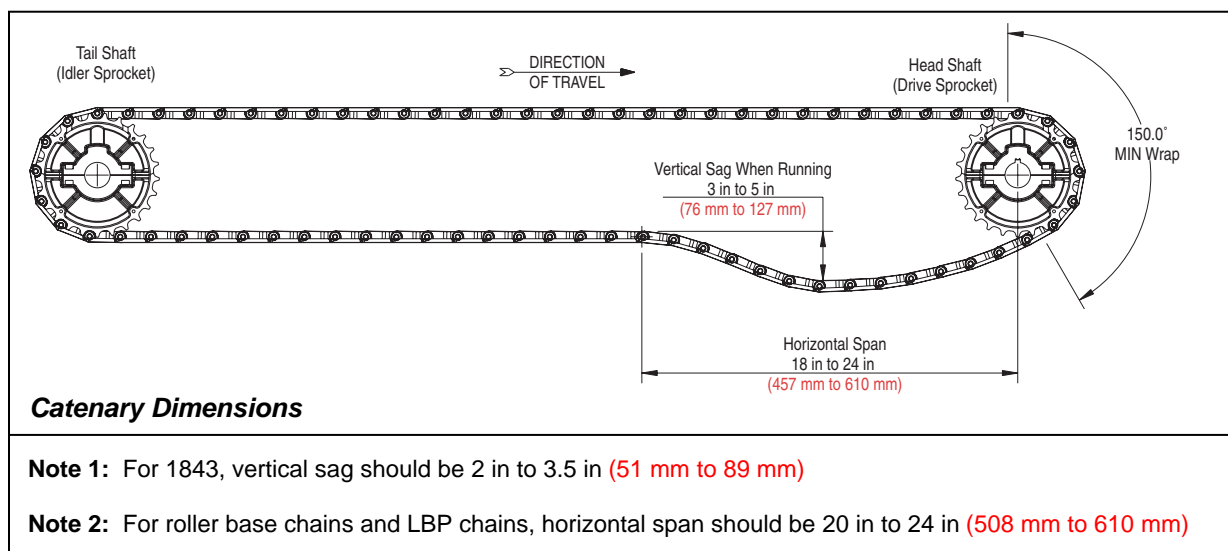
Listen for unusual noises such as clicking or banging and also look for signs of unusual operation. Refer to the Trouble Shooting Guide for possible corrections if unusual noises occur or the system is not running smoothly.

2. Repeat step 1 **with** product.

3. Check the catenary sag. When running, the catenary sag as shown below:

⇒ The function of the catenary is to allow a place for excess chain to accumulate

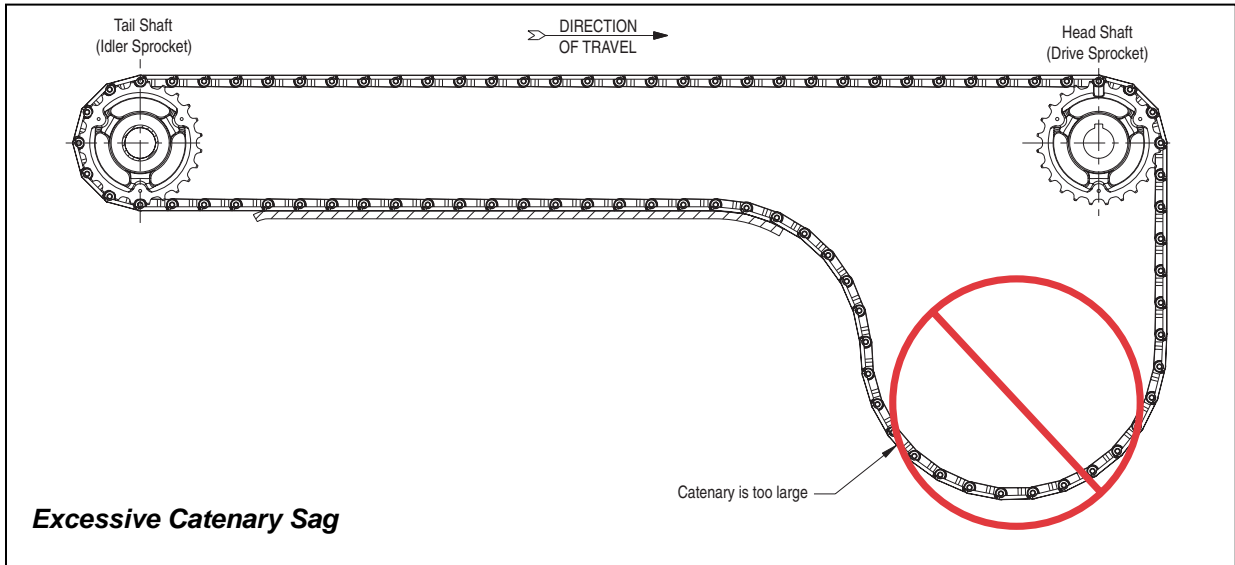
⇒ The catenary sag should be measured when running with product



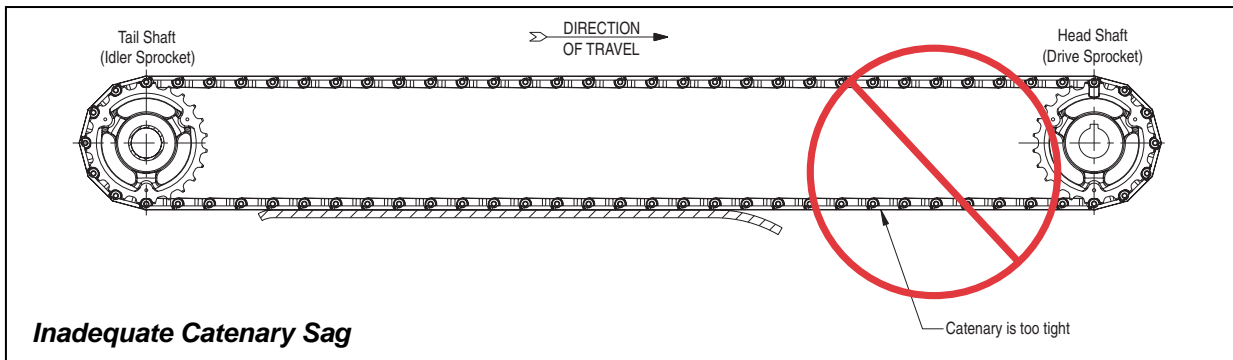
For incline conveyors between 0 to 15 degrees the catenary should be allowed to form at the idle end of the conveyor. For larger angles, use a take-up to control the depth of the catenary. The depth should not exceed 6.00 in (150.0 mm).

## Start Up

⇒ If the catenary sag is excessive or increases due to normal wear, it should be adjusted by removing links to obtain the proper sag



⇒ Rex® TableTop® chains should never be run tight



## **Rex®** *TableTop® and MatTop® Chains*

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### **Start Up**

4. Check transfers to ensure smooth product handling.
5. Frequent inspection and adjustment is recommended during the initial run-in period to avoid any future problems.

As the chains operate, they will elongate due to normal wear. This elongation will be absorbed in the catenary. The catenary must be checked and chain should be adjusted to insure the proper sag.

ALL Rexnord chains operate under true chain principles irrespective of load, speed or conveyor length. A catenary is all that is required for proper chain-sprocket interaction.

## Maintenance – Lubrication

### Lubrication

Lubrication is recommended whenever the application permits. It not only reduces friction, thereby reducing chain tension; but also, greatly improves the wear life of the chain and wearstrips. Lubrication offers a constant cleaning effect of both the chain and wearstrip and can also reduce static.



For more information on lubrication types, compatibility or methods, contact a lubricant manufacturer.

### General Recommendations

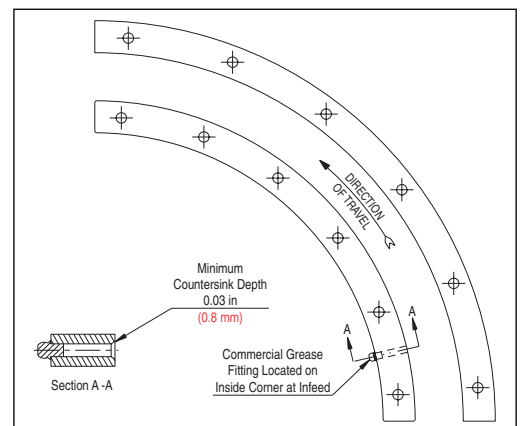
- Lubrication should be applied to both the chain and wearstrip
- The lubricant must be applied at the entrance of the inside corner track
- Metal side-flexing chains should **ALWAYS** be lubricated in the corners, unless corner discs are utilized
- Depending upon the application, lubrication requirements may vary. Lubricant quality and lubrication frequency can have a great affect on the longevity of the chain. For most common applications, any ISO 68 grade lubricant is satisfactory. For applications with special considerations such as high temperature, chemical compatibility, or FDA requirements, please contact your lubrication supplier

### General Types of Lubricants

- Water - Only utilize with corrosion resistant materials. Can be used as a general lubricant; however, it is not as effective as other types due to friction and cleanability properties
- Water soluble lubricants and soaps - Only utilize with corrosion resistant materials. These are excellent lubricants which also help clean the chain
- Oil base lubricants - These are vegetable, mineral oils or grease which offer high lubricity. Can be used with plastic or metal materials. Recommended to be used on all metal chains whenever practical. Food grade oils are available

### Selective Lubrication

In some applications, the presence of a lubricant can not be tolerated. For these applications, it is recommended to utilize chains made of PS™ or HP™ acetal material with Nylatron® corners, which offers the lowest coefficient of friction.





## Maintenance - Lubrication (Other Considerations)

### **Metal Unit Link Chains**

#### **Carbon Steel**

- Light lubricant and rust preventative is applied at the factory to prevent corrosion during shipping and storage
- Chains should be lubricated upon installation and re-lubricated when necessary
- Metal side-flexing chains should **ALWAYS** be lubricated in the corners, unless corner discs are utilized

#### **Stainless Steel**

- Stainless steel chains are supplied dry from the factory
- Lubrication will greatly increase their wear life and help reduce noise
- Metal side-flexing chains should **ALWAYS** be lubricated in the corners, unless corner discs are utilized

### **Rex**® TableTop® Chains with Roller Base Chains

Top plates can be either plastic or metal with the following types of base chains:

#### **Carbon Steel Base Chains**

- Base chains are supplied with lubricant and rust preventative
- Base chains do not need to be lubricated when installed; however, they are not lubed for life
- Base chains must be re-lubricated when necessary
- The thrust surface of side-flexing metal top plate chains should **ALWAYS** be lubricated in the corners which will help reduce noise as well as lubricate the chain

#### **Stainless Steel Base Chains**

- Stainless steel base chains are supplied dry from the factory
- Lubrication will greatly increase chain wear life and help reduce noise
- The thrust surface of side-flexing metal top plate chains should **ALWAYS** be lubricated in the corners which will help reduce noise as well as lubricate the chain

## Maintenance – Cleaning

In many applications a build-up may occur such as grease, dirt, debris or even spilled product like syrup, beer or soda. This may cause problems as listed below. Therefore, a thorough and regular cleaning procedure is very important to the successful operation of any conveyor line.

- Damage to the conveyed product
- Increased horsepower requirements
- Chain pulsation
- Excessive chain wear on the flights and in the joint or hinge areas
- Rapid wear on the wearstrips
- Accelerated sprocket tooth wear



If conveyors are going to sit idle for a long time before start-up, they should be covered with plastic or drop cloth to minimize dirt and debris that can settle into chain and tracks.

### **Recommended Cleaning Frequency**

- Lubricated lines – lubrication generally provides a continual cleaning action, therefore, a weekly cleaning is recommended
- Dry running lines – without the constant cleaning action of a lubricant, dirt and debris may build-up; therefore it is recommended that these lines be cleaned daily to obtain maximum sanitation and performance

### **General Guidelines for Cleaning Solutions**

- Recommended pH of 4-10
- With plastic chains, avoid phosphoric acid (found in most stainless steel cleaners). Avoid chlorine (bleach), ammonia and iodine
- Most hydrocarbons (mineral spirits, etc.) will not attack acetal chains
- Refer to page 32 to determine the compatibility of cleaners used on chains



All cleaners and lubricants must be compatible with chain, wearstrip and sprocket materials. See the corrosion resistant guide on page 32. If chemicals are not listed, contact application engineering for assistance or consult with the cleaner/lubricant manufacturer for recommendations regarding compatibility with the different materials.

## Maintenance – Cleaning

### Methods of Cleaning

- Periodic high pressure water rinse or steam cleaning should prove satisfactory. Spray the chain in place on the conveyor, both the carry and in the return sections. This is usually done with the conveyors running, but the chain can be stationary. For easy access to the underside of the carry and return chains, some manufacturers provide “clean out” holes in the side frames



CAUTION

It is recommended that steam should **NOT** be held on chains for prolonged periods. Chains may deform or become permanently damaged.



CAUTION

Keep water, steam and chemicals away from electrical disconnects, motors, photo eyes, or any other moisture sensitive equipment.

- Warm water and soap are commonly used to clean the conveyor



In some cases, such as PET bottle lines, cleaners or combination cleaner/lubricants are applied continuously or intermittently. Several types of automatic application systems are available.



The main objective is to clean the chain carrying surface and underside as well as the wearstrips and tracks.

- Chemical cleaners may be used if they are compatible with the chain material, refer to page 32 for guidelines

Strong caustic agents should not be used with plastic chains.



CAUTION

**ALWAYS** thoroughly rinse all cleaning agents completely off of the chain and conveyor frame. Make sure that the underside of the chain is also rinsed thoroughly.

- In extreme situations, it may be necessary to periodically clean the chains with a soft bristle brush. In these situations, clean the chain in place on the conveyor, both on the carry and in the return sections
- Inspect conveyors often. Remove broken or jammed containers or pieces of containers as soon as they are detected. Use cleaning solutions to clean away excessive spillage

## **Maintenance – Inspection**

In the course of conveyor operation, periodic inspection of the chain, sprocket and conveyor system is required to detect faults and make repairs before serious damage may occur. It is important to set up a regular inspection and maintenance schedule. The conveyors should be inspected while the system is running as well as when it is shut off.

If any of the following problems are detected during inspection, refer to the Trouble Shooting Guide on page 33 to determine the cause of the problem and correction action.

- While the conveyor is running, listen for and locate the sources of any unusual noises such as clicking or banging
- Look for unusual or excessive wear patterns on the chain or wearstrips
- Look for unusual or excessive debris, such as wear debris, product debris or broken container debris, especially glass
- Inspect chain for top surface flatness, especially at transfer locations
- Look for excessive gaps between flights due to jam up condition
- Periodically measure the chains for normal wear. Chains may wear due to hinge/joint wear, flight wear from wearstrips or thrust surface wear from corners. Refer to Replacement Guide on page 28 & 29
- Look for pulsation or jerky chain operation
- Examine sprockets for signs of excessive wear, debris build-up in tooth pockets or possible chain misalignment
- Check dead plate and turn table clearance
- Insure that corner turn discs, if used, are properly aligned and turning freely. Lubricate bearings as required
- Inspect lubrication system, if applicable, for proper operation
- Check the inside curves and the supporting conveyor frame for excessive heat build up which may indicate an obstruction in the curve or a high friction area
- If rollers are used in the return, check to insure rollers are free turning

## **Rex® TableTop® and MatTop® Chains**

### **Maintenance – Inspection**

Rex® TableTop® chains require very little maintenance. The following table provides suggested maintenance checks and the interval at which they should be performed. This assumes the conveyor runs three shifts per day, seven days per week. This is only a guideline. Each application and its environment may call for slightly different maintenance intervals.

<b>Maintenance And Inspection Interval Guidelines</b>				
<b>Maintenance Item</b>	<b>Interval Between Checks</b>			
	Weekly	Monthly	Semi-annually	Annually
Clean conveyor of debris if necessary	X			
Check catenary sag, adjust as necessary		X		
Check chain for unusual grooves or wear		X		
Check to make sure return rollers are spinning			X	
Measure chain elongation (see page 28 & 29)				X
Disconnect chain and check sprockets for wear				X

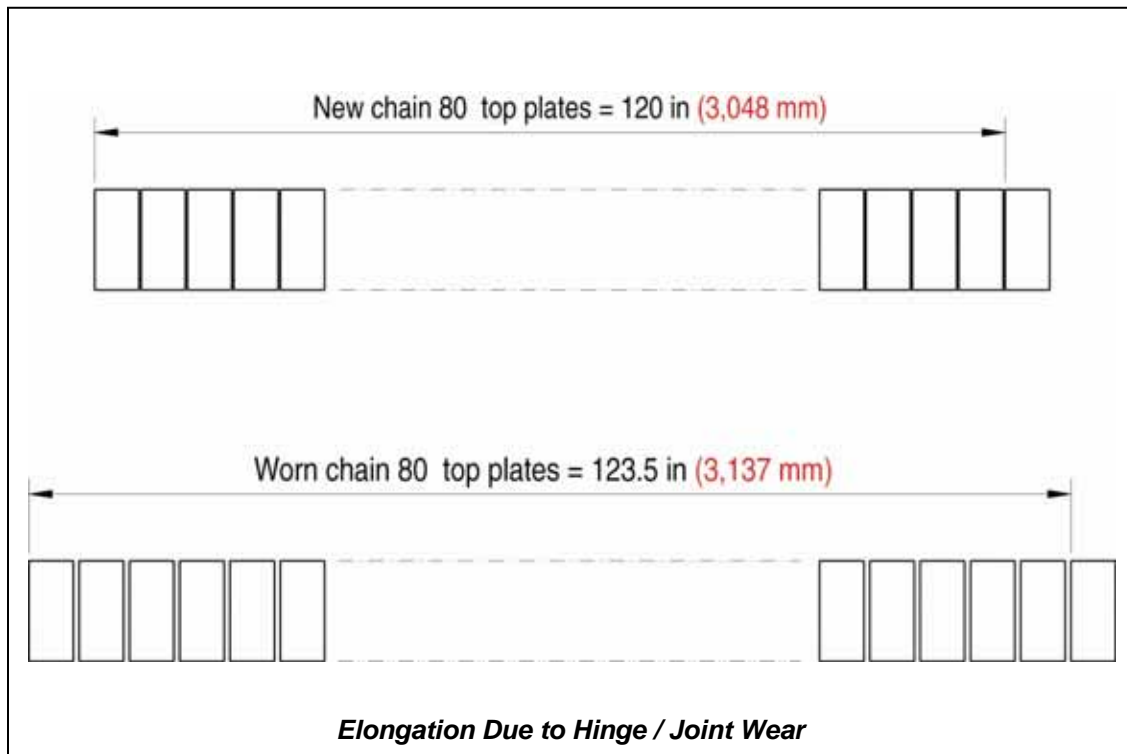
## **Rex® TableTop® and MatTop® Chains**

### **Replacement Guide**

For optimum chain and sprocket performance, it is recommended that both the chain and sprockets be replaced at the same time. The wearstrips should also be replaced if worn, damaged or embedded with debris.

The chain should be replaced when any of the following occurs:

- The chain starts jumping the sprocket teeth
- The chain has “stretched” or “elongated” beyond the dimensions shown on next page



## Replacement Guide

**Replace chain when "X" # of links measures "Y" or larger**

Chain Pitch		Rex® Chain Series	"X" # of Links or Top Plates	"Y" Maximum Allowable Chain Elongation	
in	mm			in	mm
1/2 or 0.50	13	7526	120	62.0	1575
19/32 or 0.59	15	1500	120	73.0	1854
3/4 or 0.75	19	5930, 6930, 8500	120	93.0	2362
1	25	(843, 845, 1843, 1844)* 1050, 1055, 770 2100, 7700, 7720	120	123.5	3137
1-1/4 or 1.25	32	7956	80	103.0	2616
1-1/2 or 1.50	38	279, 812, 815, 820, 821, 831, 866, 879, 880, 881, 882, 883, 1757 (863, 963, 1863, 1864, 1873, 1874, 3873, 4873, 4874)** 4700, 5700, 9600	80	123.5	3137
1-17/32 or 1.53	39	5960	80	126.0	3200
1-37/64 or 1.58	40	1755	80	130.5	3315
1-31/32 or 1.97	50	1700, 1701, 1702, 1765	60	122.0	3099
2	51	2010, 6080, (1883)***	60	123.5	3137
2-1/4 or 2.25	57	5990	50	116.0	2946
2-1/2 or 2.50	64	3000	50	129.0	3277
3	76	2500, 2550	40	123.5	3137

***It is recommended to inspect and/or replace sprockets when the chain is replaced***

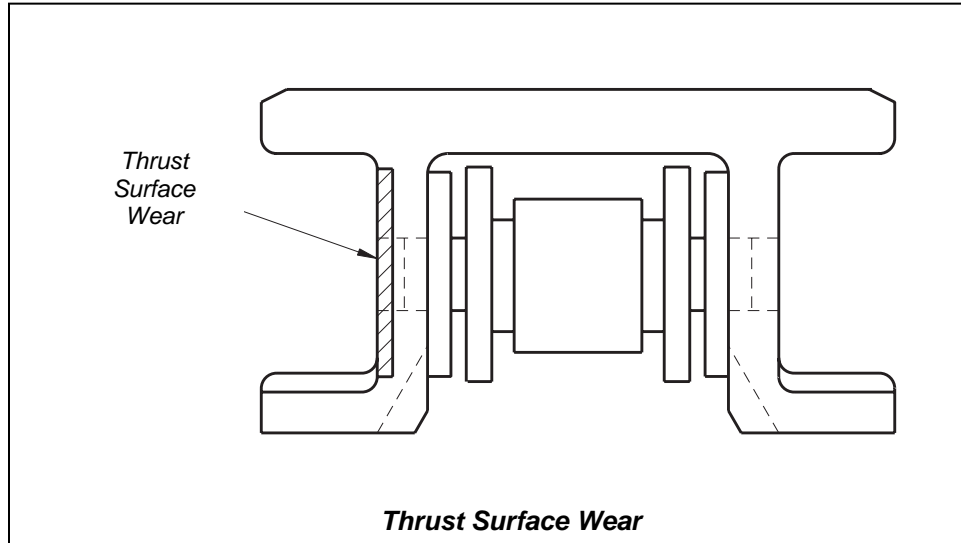
\*Two piece base chain (1/2 in) top plate is measured the same as 1 in pitch chain

\*\*Two piece base chain (3/4 in) top plate is measured the same as 1-1/2 in pitch chain

\*\*\*Two piece base chain (1 in) top plate is measured the same as 2 in pitch chain

### Replacement Guide

- The top plates have worn to 1/2 their original thickness
- When flight wear starts causing product transfer problems
- The conveying surface becomes uneven through wear
- The chain thrust surface wears away and exposes the pins or other metal parts which may cut into corner tracks and other conveyor components



- ✓ When replacing chains insure that the correct material and style are specified. Refer to specifications of the OEM to determine the correct material and style.
- ✓ When installing replacement chain, follow the entire procedure outlined in the installation section on pages 6 to 18.



## Replacement Guide

- **Wearstrips should be replaced when:**

- ⇒ The surface has worn away and/or exposed any screws, rivets or other types of fasteners
- ⇒ The surface has become rough
- ⇒ The surface is embedded with abrasive particles



*Grooved wearstrip*

- **Sprockets should be replaced when:**

- ⇒ Tooth profile becomes hooked due to wear
- ⇒ Chain jumps on sprocket



*Hooked tooth profile*



It is recommended that sprockets be inspected and replaced as necessary when chain is replaced.

## Corrosion Resistance Guide

Common or Chemical Name	Carbon Steel	Austenitic	Acetal	Nylon & Nylatron®	Polyester	Chemically Resistant Fluorinated Polymer	Polypropylene	Polyethylene	Neoprene	EPDM
	S	SS, SSB	AS, DUV, HP™, LF, PST™, WD, WHP, WLF	BWR, HS, MR, WX	P, FR	CR	ESD	UHMWPE		
Acetic Acid (over 5%-up to 50%)	U	M	U	M	S	S	S	S	M	S
Acetone	U	S	S	S	S	U	S	S	M	S
Alcohol	S	S	S	S	S	S	S	S	S	S
Ammonia	M	S	U	S	S	S	S	S	S	S
Beer	S	S	S	S	S	S	S	S	S	S
Beverages-Soft Drinks	S	S	S	S	S	S	S	S	S	S
Benzene	S	S	S	S	S	S	M	M	M	U
Brine (pickle)	U	M	M	M	S	S	S	S	S	S
Carbon Tetrachloride	M	M	S	S	S	U	M	M	U	U
Chlorine	U	U	U	U	S	S	S	S	U	M
Citric Acid	U	S	M	M	S	S	S	S	S	S
Cyclohexane	-	--	S	--	--	S	U	U	S	S
Ethyl Chloride	-	S	S	S	S	S	M	M	M	M
Formaldehyde	S	S	S	S	S	M	S	S	S	S
Formic Acid	U	U	U	U	S	S	S	S	M	M
Fruit Juices	U	S	S	S	S	S	S	S	S	S
Gasoline	S	S	S	S	S	S	M	M	S	U
Hexane	-	S	S	--	S	S	S	U	S	U
Hydrochloric Acid (up to 2%)	U	U	U	U	S	S	S	S	M	S
Hydrochloric Acid (up to 37%)	U	U	U	U	S	S	M	S	U	M
Hydrogen Peroxide	U	S	U	U	S	S	S	S	M	S
Iodine	U	U	U	U	U	M	M	M	U	U
Isopropanol (isopropyl alcohol)	S	S	S	S	S	S	S	S	S	S
Lactic Acid	U	S	S	M	S	M	S	S	S	S
Methylene Chloride	-	S	S	--	U	M	S	U	U	U
Milk	S	S	S	S	S	S	S	S	S	S
Muriatic Acid	U	U	U	U	S	S	M	S	U	M
Nitric Acid (low concentrations)	U	S	U	U	S	S	S	S	M	S
Oil (vegetable or mineral)	S	S	S	S	S	M	S	S	S	U
Ozonated Water	S	S	M	U	S	S	M	S	U	S
Paraffin	S	S	S	S	S	S	S	S	S	U
Phosphoric Acid (up to 10%)	U	S	U	U	S	S	S	S	S	S
Soap and Water	M	S	S	S	S	S	S	S	S	S
Sodium Chloride	U	M	S	S	S	S	S	S	S	S
Sodium Hydroxide (up to 25%)	U	S	S	U	U	M	S	S	S	S
Sodium Hypochlorite (Bleach)	U	U	U	U	S	S	S	S	U	S
Stearic Acid	U	S	M	S	S	S	S	S	S	M
Sulphuric Acid (up to 40%)	U	U	U	U	S	S	S	S	M	S
Toluene (Toluol)	S	S	M	S	S	M	S	U	U	U
Turpentine	-	S	S	S	S	S	S	U	S	U
Vegetable Juices	M	S	S	S	S	S	S	S	U	S
Vinegar	U	S	S	S	S	M	S	S	S	S
Water (fresh)	U	S	S	S	S	S	S	S	S	S
Whiskey	S	S	S	S	S	S	S	S	S	S
Wine	S	S	S	S	S	S	S	S	S	S
Xylene	S	S	S	S	S	S	U	M	U	U



### General Rules of Thumb:

With acetal products, do not use cleaning or lubricating agents with a pH below 4 or above 10.

This table is based on data available by various material suppliers.

**Trouble Shooting Guide**

**Symptom**

1. Rapid or unusual wear pattern



**Grooved wear pattern**

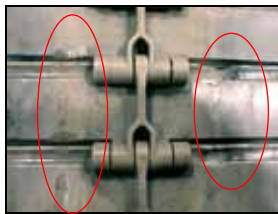
**Cause**

- A. Sprocket misalignment
- B. Obstruction cutting or scraping the chain
- C. Improper wearstrip material selection for the application
- D. Build up or embedding of abrasive materials on the surface of the wearstrips
- E. Inadequate guide clearance in which guide tracks may be interfering with the chain

**Correction**

- A. Correct the shaft mounting position and sprocket alignment – see page 6
- B. Locate the origin of the cutting and remove the obstruction. Replace any wearstrips that have foreign particles embedded in them
- C. See page EM-TT-5 in Engineering Manual for wearstrip material selection
- D. Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
- E. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 9. Pull a short piece of chain through the tight section before reinstallation. Check that there is a smooth transition between straight and curved sections. Also insure that there is clearance for the TABs through out the entire conveyor

2. Uneven wear pattern on the **bottom** of the chain flights or top plates



**Gouges on chain**

- A. Chain is riding uneven in the track
- B. Grooved wearstrips
- C. Obstruction in carry way



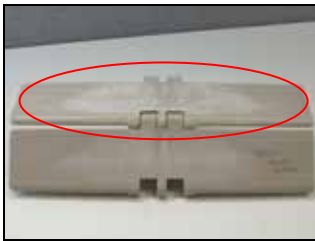
**Grooved wearstrip**

- A. Check to insure the wearstrips are even and level. Modify the wearstrips as required by adding or deleting shims
- B. Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
- C. Remove obstructions

**Trouble Shooting Guide**

**Symptom**

3. Rapid or unusual wear pattern on **top** of chain flights or top plates



***Scalloped due to stalled return roller***

**Cause**

- A.** Improper return roller diameter
- B.** Roller has stopped spinning freely

**Correction**

- A.** Refer to page EM-TT-24 for the minimum back-flex radius
- B.** Insure that all return rollers are spinning freely. Utilize Marbett® bi-material rollers

**Notes:**

- Unusual wear patterns on the top of the chain usually indicate return way problems
- Unusual wear patterns on the bottom of the chain usually indicate carry way problems
- Excessive wear on the thrust surface of the chain usually indicates corner track or disc problems
- Excessive wear on the edges of the chain usually indicate tracking problems or inadequate clearance

**Trouble Shooting Guide**

**Symptom**

**Cause**

**Correction**

4. Scratching or scuffing on the chain

- A. Normal wear
- B. Abrasive product or environment

A. All chains will experience some superficial surface scratching. This occurs on both dry and lubricated lines; however, it is most apparent in dry running conditions. The overall performance of the chain is not affected due to these superficial scratches  
B. See page EM-TT-5 in Engineering Manual for chain and wearstrip material selection

5. Shavings of plastic debris is observed on chain or conveyor



***Shavings due to abrasive wear***

- A. Sharp edge or obstruction on wearstrip of the frame may be scratching the chain links
- B. Abrasive materials are embedded in the surface of the wearstrips or corner tracks
- C. High speed and/or poor lubrication
- D. Rough surface finish on the wearstrip or corner track
- E. Tight spots or chain binding within the path of chain travel
- F. Normal break-in wear

A. Locate the origin of the cutting and remove the obstruction  
B. Remove abrasive build-up or replace wearstrips with a harder material, if necessary  
C. Reduce speed or reduce friction with improved lubrication. If neither of these options is practical, select a chain/wear strip combination with lower friction values  
D. Grind, polish or replace wearstrips as required to ensure a smooth finish  
E. Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 9  
F. Periodic cleaning during the break-in phase is recommended to minimize the accumulation of dust debris

**Trouble Shooting Guide**

**Symptom**

6. Wear debris accumulation or “dusting”



***Abrasive sprocket pocket wear***

**Cause**

- A. High speed and/or poor lubrication
- B. Rough surface finish on the wearstrip or corner track
- C. Abrasive materials are embedded in the surface of the wearstrips or corner tracks
- D. Abrasive environment or application
- E. Sharp edge or obstruction on wearstrip of the frame may be scratching the chain links
- F. Normal break-in wear

**Correction**

- A. Reduce speed or reduce friction with improved lubrication. If neither of these options is practical, select a chain/wear strip combination with lower friction values
- B. Grind, polish or replace wearstrips as required to ensure a smooth finish
- C. Remove abrasive build-up or replace wearstrips with a harder material, if necessary
- D. If abrasive particles are present due to the application it is recommended to utilize a harder wearstrip to reduce or eliminate embedding of abrasive particles. See page EM-TT-5 in Engineering Manual for chain and wearstrip material selection
- E. Locate the origin of the cutting and remove the obstruction
- F. Periodic cleaning during the break-in phase is recommended to minimize the accumulation of dust debris

7. Rapid sprocket wear



***Abrasive sprocket tooth wear***

- A. Abrasive environment
- B. Incorrect shaft location
- C. Incorrect sprocket selection



***Worn sprocket teeth***

- A. Clean conveyors frequently to reduce the amount of abrasives present. Contact Engineering to review sprocket material options
- B. Correct the shaft mounting position and sprocket alignment – see page 6
- C. Use hardened sprocket teeth where required

Trouble Shooting Guide

**Symptom**

**Cause**

**Correction**

8. Chain jumping on sprocket teeth

- A. Excessive chain elongation
- B. Improper shaft positioning or sprocket misalignment
- C. Foreign material lodged in the sprocket tooth pockets or worn sprockets
- D. Sprockets have developed a hooked tooth profile

- A. Replace the chain and sprockets as required – see page 28 & 29
- B. Correct the shaft mounting position and sprocket alignment – see page 6
- C. Clean or replace the sprockets as required
- D. Replace the chain and sprockets as required – see pages 28-31. Use hardened sprocket teeth where required

9. Premature chain elongation



*Joint wear*

- A. No catenary or an improper catenary sag may cause additional tension on the chain
- B. Abrasives getting into the chain joints
- C. High load

- A. Allow for proper catenary within the conveyor. Refer to pages 12 & 19 for proper catenary dimensions
- B. Clean or replace the chain as required
- C. Remove the source of the high loads. Replace the damaged links. Check chain loading

10. Broken top plates or TABs



*Bent TABs*

- A. Obstructions in conveyor frame, product jam or improper guide clearance
- B. Tight corner radius
- C. Chemical attack
- D. Impact loading
- E. Improper wearstrip support

- A. Locate and remove obstruction. Check guide clearance – see page 9. Replace broken links as required
- B. Make sure corner tracks (or discs) comply with the minimum side-flex radius – see pages EM-TT-16
- C. Refer to corrosion resistance guide – see page 32
- D. Remove the source of impact loading. Consult Application Engineering for proper chain selection for applications involving impact loading
- E. Consult EM-TT-15 thru 17 for recommendations

**Trouble Shooting Guide**

**Symptom**

**Cause**

**Correction**

11. Chain is squealing or chattering

- A.** Chain is trying to pass through a tight section of the conveyor
- B.** Improper corner radius
- C.** Rough surface finish on the inside corner track
- D.** Improper corner track material selection
- E.** Improper corner track selection
- F.** Vibration within conveyor frame

- A.** Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 9. Pull a short piece of chain through the tight section before reinstallation. Check that there is a smooth transition between straight and curved sections. Also insure that there is clearance for the TABs through out the entire conveyor.
- B.** Make sure corner tracks (or discs) comply with the minimum side-flex radius – see pages EM-TT-16
- C.** Check to insure that there is a smooth finish on the wearstrips where they contact the chain (i.e. no rough saw cuts or machining marks). Replace corner tracks as necessary
- D.** Check to insure that there are no foreign particles embedded in the corner tracks. Nylatron® or metal may provide a harder surface
- E.** Selective lubrication or corner discs may be required
- F.** Make sure structure is solid and secure



**Trouble Shooting Guide**

**Symptom**

**Cause**

**Correction**

12. Plastic chains appear cracked or are discolored (white residue is found on the chain)

- A. Chemical attack due to product spillage
- B. Use of strong chemical cleaners or lubricants

- A. Refer to corrosion resistance guide – see page 32
- B. Refer to corrosion resistance guide – see page 32. Review methods of cleaning – see page 24 & 25



**Chemical attack**

**Chemical attack**

13. Metal chains or pins appear pitted or corroded

- A. Chemical attack due to product spillage
- B. Use of strong chemical cleaners or lubricants

- A. Refer to corrosion resistance guide – see page 32
- B. Refer to corrosion resistance guide – see page 32. Review methods of cleaning – see page 24 & 25



**Corroded pin**

14. Products tip or are unstable at chain transfers

- A. Incorrect speeds at transfers
- B. Incorrect chain elevation at discharge conveyor
- C. Improper guide rail location

- A. It is recommended to keep infeed and discharge conveyor speed differentials minimized
- B. Ensure that proper chain heights are set on adjacent strands to prevent tippage
- C. Adjust guide rails as required

Trouble Shooting Guide

**Symptom**

**Cause**

**Correction**

15. Base chain is failing or showing signs of rapid elongation

**A.** Base chain components are deforming due to excessive load or jam up condition

**A.** High chain tension causes pins or bushings to deform. Contact Engineering to run chain tension calculations. Replace chain as necessary



**Evidence of overload – deformed bushing**



**Evidence of overload – deformed pin**

16. Chain is melting on the thrust surface and/or the underside of the top plate

**A.** Chain is experiencing a PV failure – plastic material melts due to excessive load and/or high speed  
**B.** Improper guide clearance

**A.** Selective lubrication, different wearstrip material, different top plate material, etc. may be required. Contact Engineering to run chain tension calculations  
**B.** Make sure that there are no tight spots. Check to assure that proper guide clearances are provided – see page 9



**PV failure**



**PV failure**

17. Chain does not articulate freely

**A.** Pins are bent due to high load  
**B.** Tight joints due to foreign material in hinge

**A.** Remove the source of the high loads. Replace the damaged links. Check chain loading  
**B.** Clean conveyors frequently to reduce the amount of contaminants present

**Trouble Shooting Guide**

<b><u>Symptom</u></b>	<b><u>Cause</u></b>	<b><u>Correction</u></b>
<b>18. Pulsation</b>	<b>A.</b> Build up of foreign material on the wearstrips <b>B.</b> Idler sprockets do not turn freely due to bad bearing or improper fit on bushed sprockets <b>C.</b> Improper catenary <b>D.</b> Inadequate guide clearance <b>E.</b> Non uniform coefficient of friction <b>F.</b> Debris causes “sticking” locally <b>G.</b> Return rollers may be too small or spacing may be incorrect <b>H.</b> Water accumulation in the return pan	<b>A.</b> Lift the chain from the track and clean as necessary <b>B.</b> Lift the chain free of the tail sprocket and make sure that it spins freely without excessive drag. Rebore if necessary. Clean the shaft <b>C.</b> Make sure the catenary stays at the head end and is appropriately sized. Refer to pages 12 & 19 <b>D.</b> Check to be sure the chain is not being “pinched” by the side guides. Refer to page 9 for proper guide clearance <b>E.</b> If the conveyor is lubricated, clean the conveyor and reapply a uniform coating of lubricant. Insure that the same wearstrip material is utilized on the same conveyor <b>F.</b> Clean the wearstrips as necessary <b>G.</b> Check on pages EM-MT-30 & 31 and EM-TT-24 for proper roller diameter and proper spacing dimension <b>H.</b> Insure chain does not have to “cut” though a build up of water. Vacuum breakers should be utilized in stainless steel return pans; refer to page EM-MT-32
<b>19. Static electricity problems (nuisance static only)</b>		<b>A.</b> Consult Application Engineering for recommendations
<b>20. Chain moves laterally along the straight sections of the conveyor</b>	<b>A.</b> Conveyor section fit is incorrect <b>B.</b> Sprockets are misaligned <b>C.</b> Chain is hitting a guide rail mounted too low	<b>A.</b> Using a flat bar, make sure the frame is parallel and wearstrips are inline <b>B.</b> Insure that the sprockets are properly aligned <b>C.</b> Check the clearance of the chain and guide rails. Raise guide rails where necessary



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