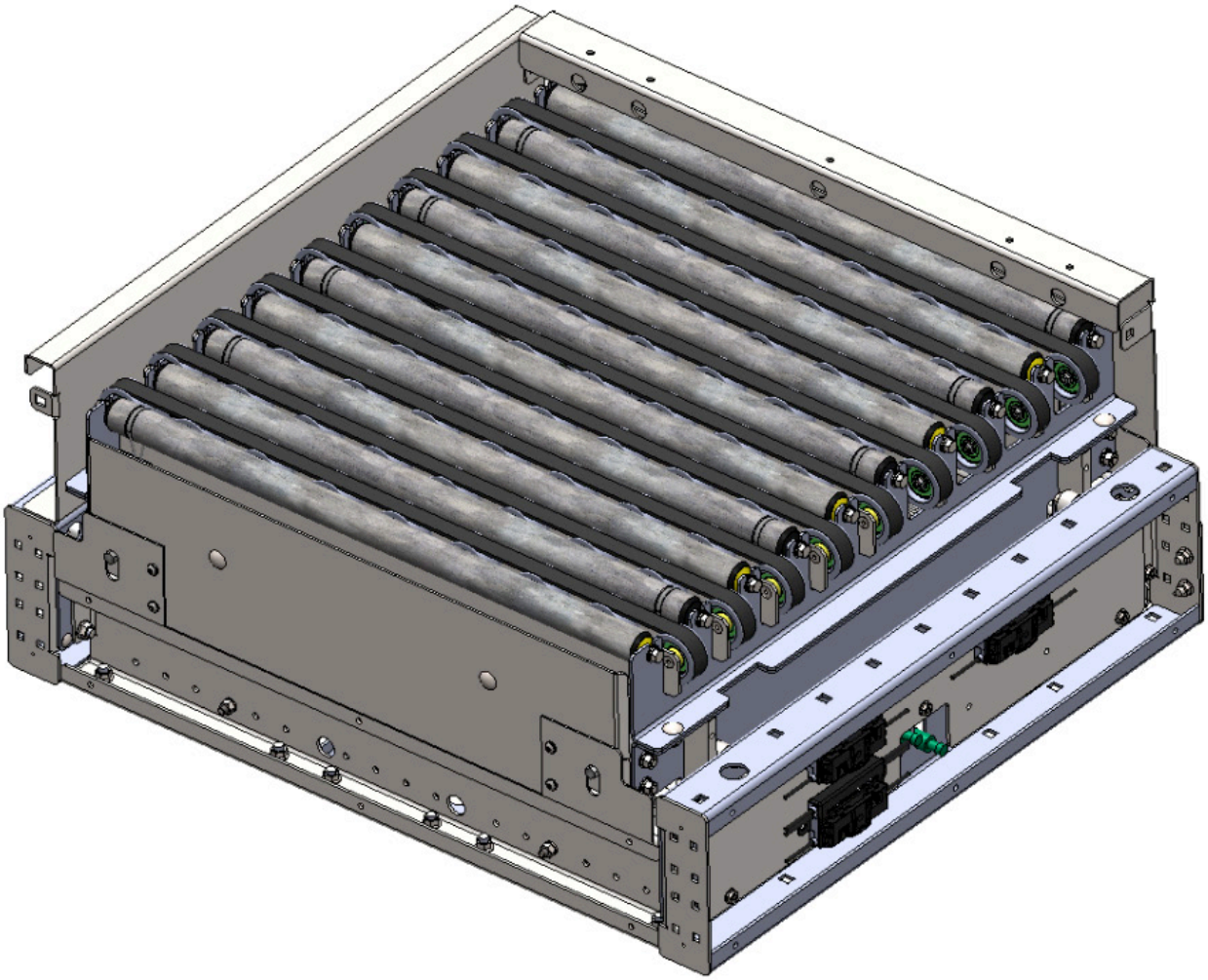
HILMOT

A TREW Company

HCAT 90 - 24VDC MOTORIZED DRIVE ROLLER
RIGHT ANGLE ELECTRIC LINEAR ACTUATED (ELA) TRANSFER



INSTALLATION & MAINTENANCE MANUAL

11925 W Carmen Ave Milwaukee, WI 53225 **www.hilmot.com**

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OVERVIEW

Theory Of Operation

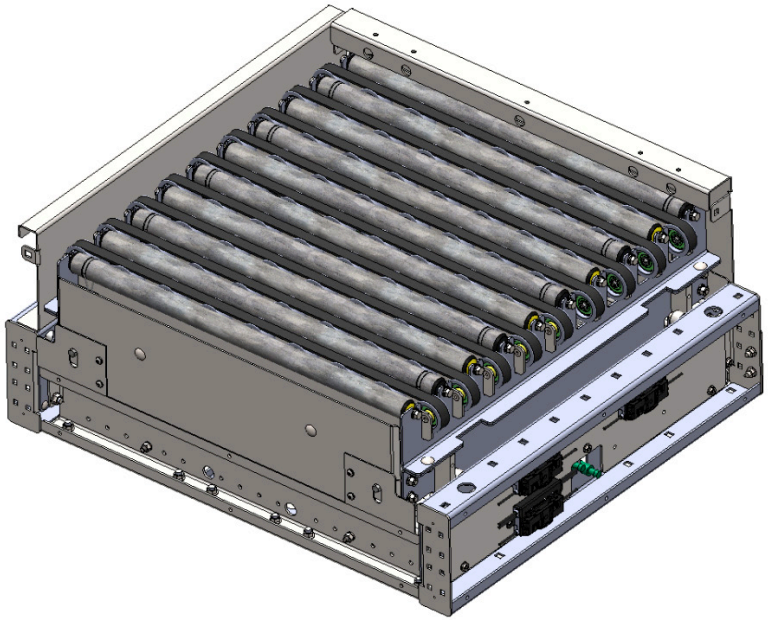

Figure 1

The Hilmot HCAT90 right angle transfer provides the ability to divert packages off a conveyor system at low to moderate rates. Applications include pick modules, sortation, or other situations where a small footprint is required.

The HCAT90 consists of fixed belt strands, powered rollers fitted between the belt strands, and a lifting mechanism that raises and lowers the powered rollers.

In a sorting application, the package can be diverted off the conveyor in motion to achieve higher rates. The package path will follow an angled trajectory during the divert process, and the receiving conveyor mouth must be wide enough to accommodate the package in motion.

For an order picking application, or other situations where the package reversed direction after diverting from the main conveyor line, the package must stop on the HCAT90 prior to diverting.

All actuated motions of the HCAT90 are directed by an external control system.

COMPONENTS

HCAT90 Intermediate with Transition Rollers

The intermediate section contains the rollers that transfer the product 90 degrees. This section moves up and down in a controlled manner when product needs to be transferred. The intermediate section can be seen in the ***image below***.

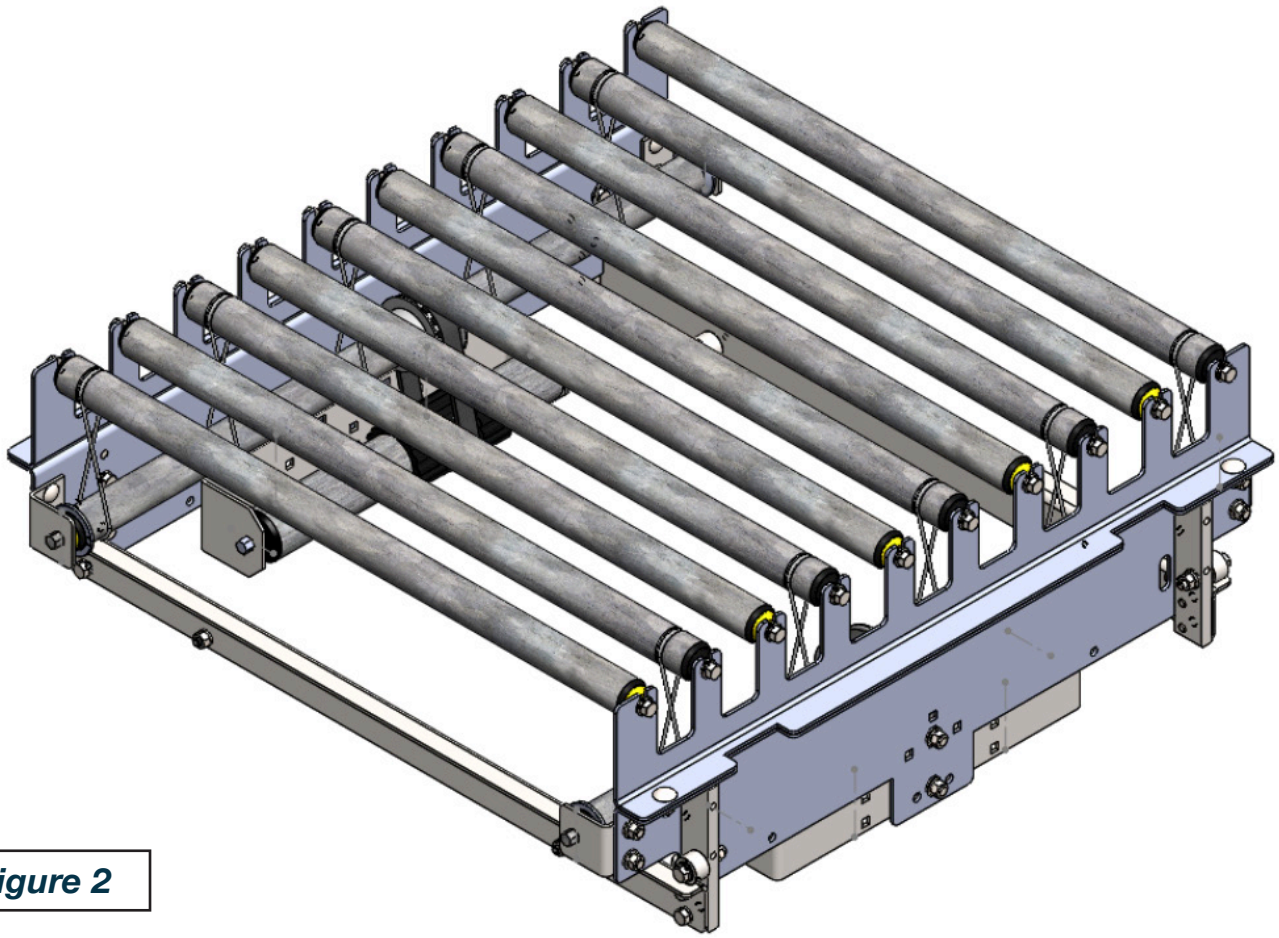

Figure 2

HCAT90 Stringer Mounting Assembly

The Stringer Assembly contains the stringers that contain the belt that moves the products. It can be seen in the figure below:

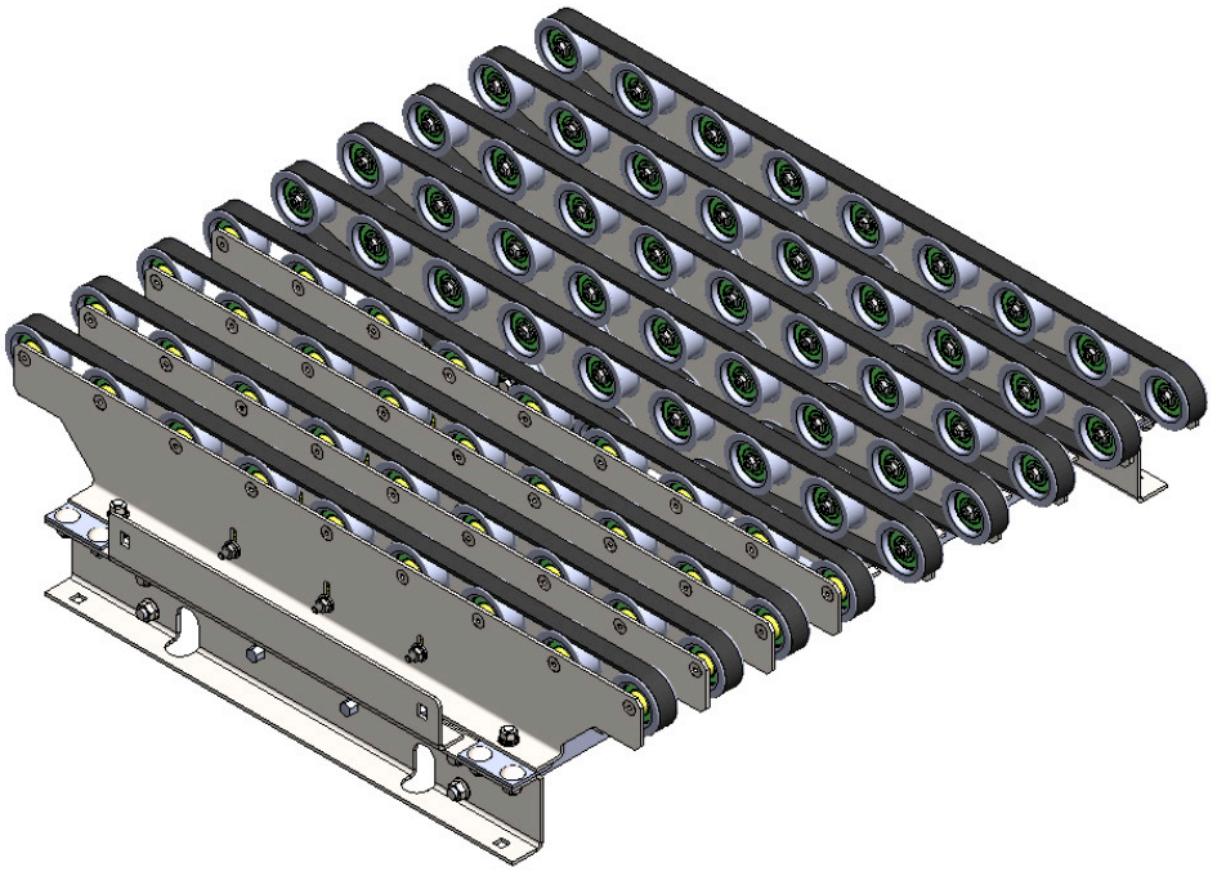

Figure 3

HCAT90 Stringer Assembly

The Stringer Assembly contains the stringer plate and pulleys that contain and guide each individual belt. Belt tensioning is adjusted in this assembly. An individual stringer assembly can be seen in the figure below:

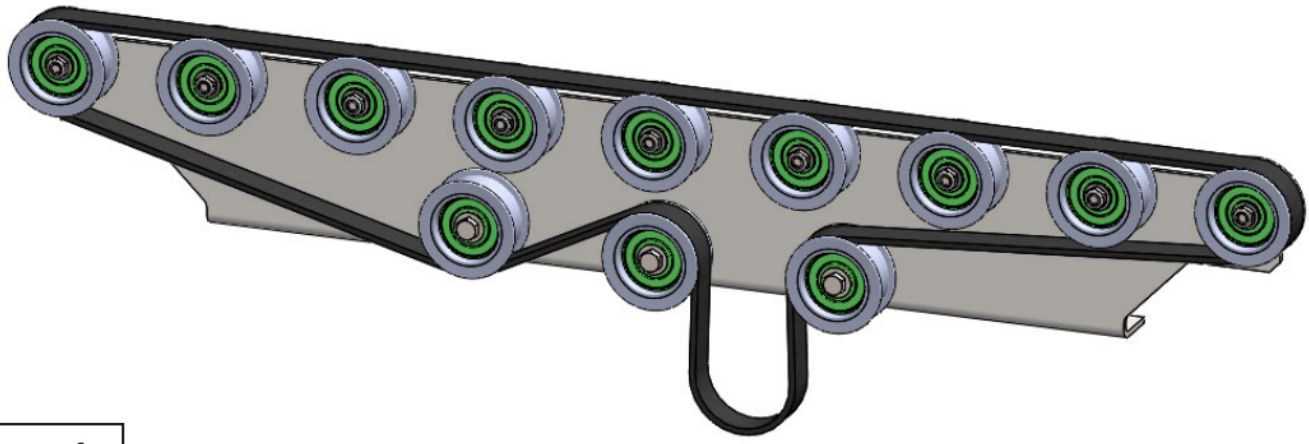

Figure 4

HCAT90 Linear Actuator ASM

The drive motor for the HCAT90 can be seen in the center or the following bottom-up view of the HCAT90 transfer. This figure also shows the location of the Strand Drive roller.

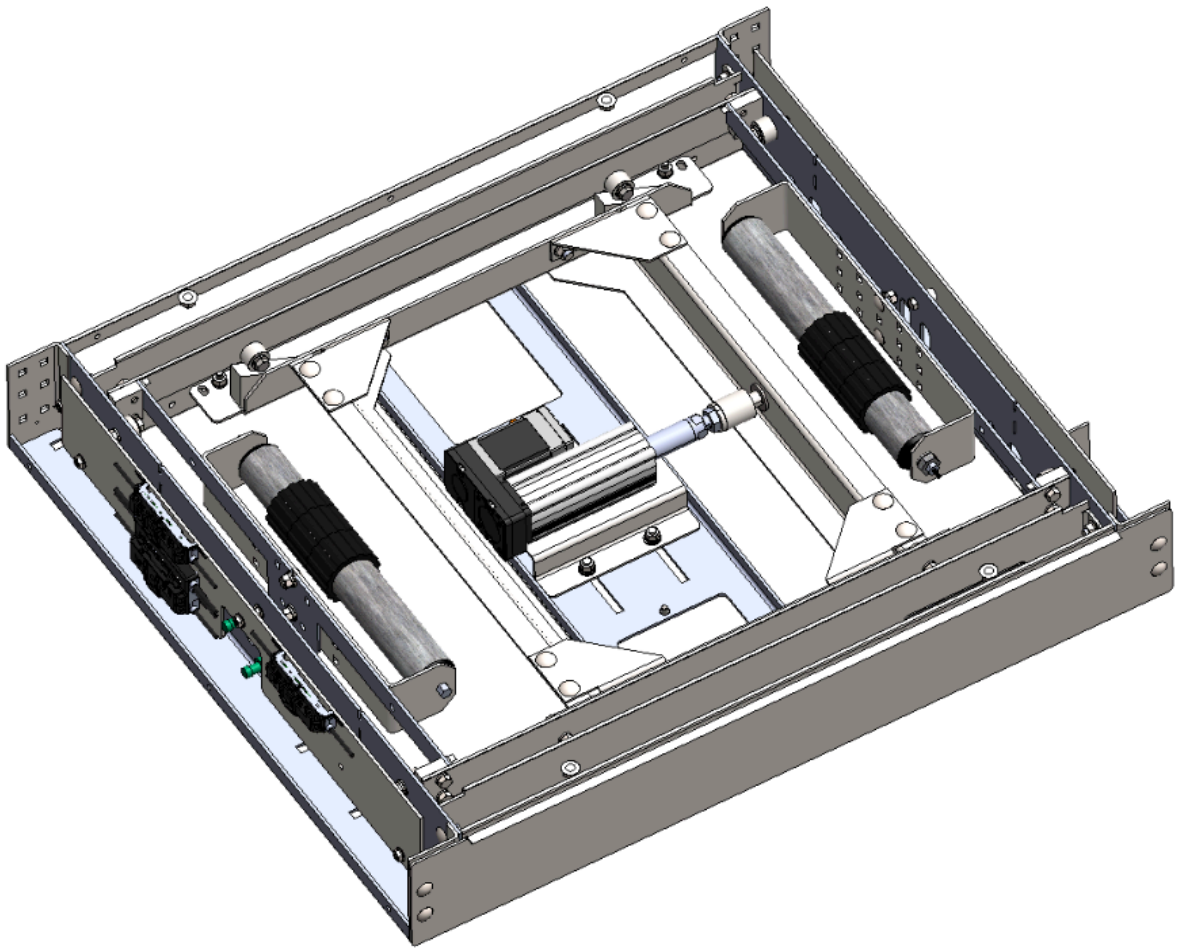

Figure 5

Roller Types Used

The HCAT90 contains a Top Surface roller and a Stand Drive roller. The Top Surface rollers are all line shaft driven from below by a timing belt that links two types of rollers. These two types of rollers can be seen in the figures below:

Figure 6: Top Surface Roller

Figure 7: Strand Drive Roller

Replacement of MDR

1. Turn off and Lockout / Tag-out all power to the conveyor section

2. Make sure that the Gear Ratio matches that of the roller that is being replaced. Standard Gear Ratios would include: 12:1, 16:1, 24:1, 36:1, 64:1, and 96:1. This is important if the conveyor system is comprised of more than one speed

3. The replacement roller should include:
   - **a** Motorized Drive Roller with a length appropriate for the given BF and a specified Gear Ratio
   - **b** Hardware kit
     - **i.** star washers – qty. 2
     - **ii.** motor nut
     - **iii.** motor instructions

4. Install a star washer on the threaded motor shaft. Fold the wires perpendicular to the connector and fan the wires down the backside of the connector. When folding the wires over the top of the connector use care not to put too much stress on the connector pins and try not to overlap and wires on top of other wires. This will allow the connector to easily pass through the washer. This procedure is called the “Fold and Fan” method.

If the wires are bent at the connector it will most likely drive the star washer over the wire can cause damage to the insulation on the wires leading to failure of the MDR.
See image below for instruction:

Figure 8: Fan & Fold Method

5 Utilizing the fold and fan method described above insert the MDR connector into the hex hole and gently pull the cable extending from the motor through

6 Insert the threaded hex shaft into the hex hole. Push the spring-loaded idler shaft inwards and line the roller up with the hole. Release the idler shaft and allow it to pop into the hole in the frame. See **image below** for an exploded view of the process

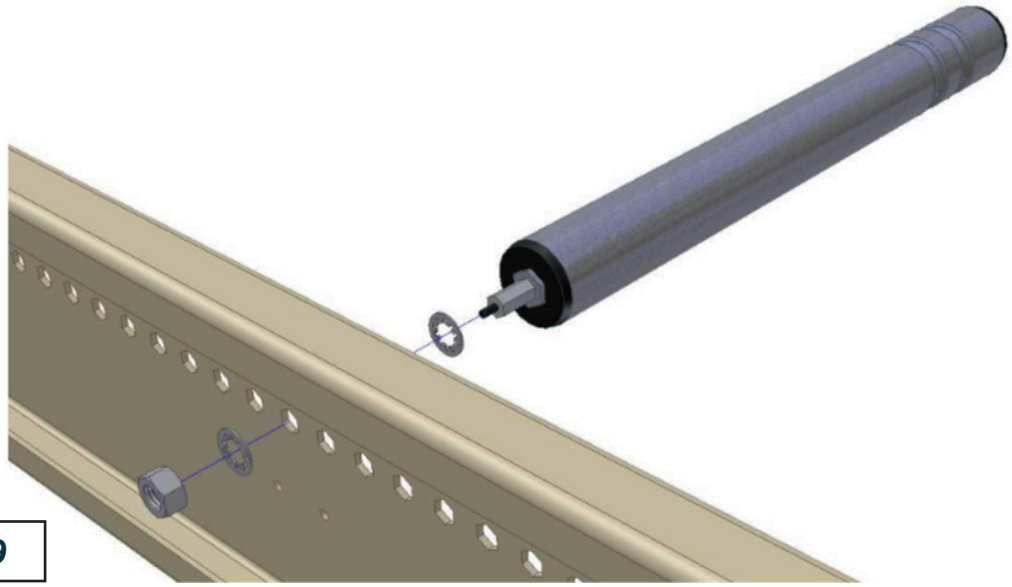

Figure 9

7 The motor nut threads on to the motorized drive roller shaft must be set to a given torque level. ***See Page 2.9 for more information.***

Note: Torque is critical. Failure to properly torque the MDR will result in the shaft spinning in the frame, twisting of the wires and failure of the MDR. Exceeding this torque specification will also result in the conditions above.

8 Tools required to achieve proper torque can be seen ***below***

Figure 10

9 Plug the motor cable into the motor control card

10 Turn on power to the conveyor section

⚠ WARNING

These checks must be performed with the power to the conveyor section turned **"ON"**. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

11 Check to see if roller operates by blocking the photo eye sensor of the zone that is being serviced. Check the photo eye sensor located upstream with respect to flow as well.

12 If the MDR does not operate review the **Troubleshooting Section**

Proper Torque

Gear Ratios Vary.

EC110 and EC100:
30 ft-lbs +/- 5 ft-lbs
(40.7 N-M +/- 6 N-M)

EC310:
50 ft-lbs +/- 5 ft-lbs
(67.8 N-m +/- 6 N-m)

Figure 11

ITOH:
22.5 ft-lbs +/- 5 ft-lbs
(30.5 N-M +/= 6 N-M)

Carrier Roller

The carrier roller is used to support the weight of the product and to transfer the torque generated by the motorized drive rollers via o-belts, chain, timing belts, strip belts, or full-width belts. Generally, no more than nine carrier rollers per motorized drive roller are used in each zone.

Replacement of Carrier Roller:

⚠ WARNING

Before performing any maintenance or lubrication services, review and adhere to the lockout/tagout procedure in the Safety Section to ensure that the equipment is safe to work on. Failure to follow these instructions may result in serious personal injury and/or equipment damage.

1. Turn off and Lockout / Tag-out all power to the conveyor section
2. Use an appropriate tool to push in the spring loaded axle on the roller and free that side of the axle from the frame of the conveyor
3. Carefully disengage the opposite end of the roller from the frame. Make sure the axle is not pinched on the frame causing damage during removal
4. Remove the disengaged roller entirely from the frame section
5. Insert the axle of the replacement roller through the conveyor frame
6. Use an appropriate tool to push in the spring loaded axle and lower the roller into position, aligning the axle with the hex hole in the conveyor frame
7. Unlock and turn on the power to the conveyor section

HCAT90 Timing Belt

Belt Tightening

The timing belt must be tightened to a point where the current reading through the motor control card does not exceed the amp draw listed in the ***table below*** under no load. The belt does not need to be extremely taut to operate.

Roller Type	Amp Draw
EC100	1.4A
EC110	2.5A
EC310	3.0A

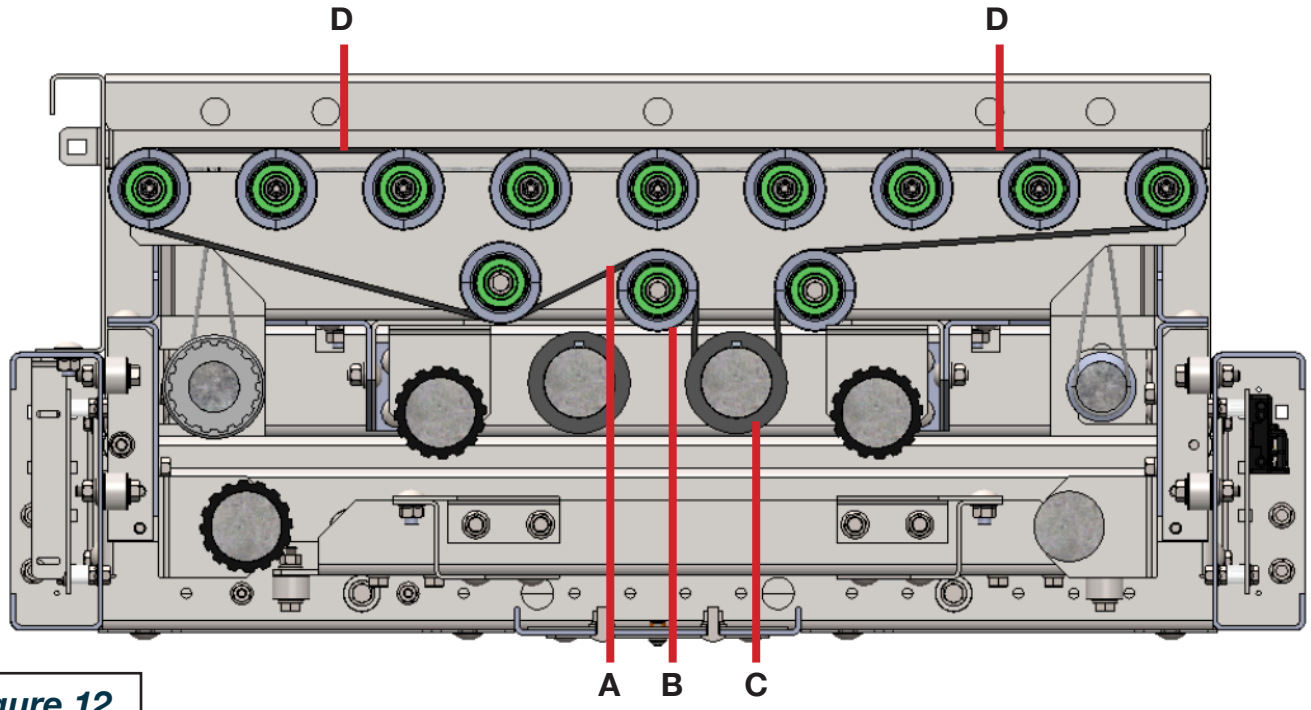

Figure 12

ITEM	DESCRIPTION
A	ADJUSTABLE IDLER PULLEY - A
B	ADJUSTABLE IDLER PULLEY - B
C	MOTORIZED DRIVE ROLLER
D	TRANSFER STRAND TIMING BELT/DEFLECTION POINT

Strand Belt Replacement

1. Turn off and Lockout / Tag-out all power to the conveyor section
2. Disconnect motor roller cable from motor control card for the transfer strand belts
3. First loosen the bolts and nuts at location B. Bolts need only to be loosened to the point that the pulley is allowed to move freely in the slot of the strand channel
4. If the belt is still unable to be removed, it may also require loosening the bolt at location A
5. Replace worn belt with new belt. Note: the new belt may be slightly smaller than the old belt. The old belt being replaced will exhibit a small amount of permanent stretch due to tension & use
6. Tighten the bolt that holds the pulley at location A first
7. Use the pulley at location B for the fine adjustment
8. Plug the motor cable back into the motor control card & power up the conveyor
9. Check the belt tightness lifting up slightly on the belt (Location D). The table below shows the deflection the belt should have per zone size of the HCAT90

ZONE SIZE(in.)	DEFLECTION(in.)
24	0.75
30	1
36	1.25

⚠ WARNING

These checks must be performed with the power to the conveyor section turned **"ON"**. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

10 The correct amount of tension in the belt will be achieved when the current is XX amps. Current can be measured by using a calibrated a digital multimeter. See ***Table 1 (top table on 2.11)*** for more details. Current readings should be taken when no load is on the conveyor. The Low current readings are expected. (Image below shows the proper location to measure the current.)

11 If the current is above the specified amperage for the roller, follow the loosening procedure in steps 3 & 4 above until the correct current is achieved

Figure 13

Drive Belts (O-Bands)

MDR conveyor utilizes drive belts to connect individual rollers together to create a Zone. The drive belts can be O-bands or V belts, depending upon load and speed requirements of the conveyor.

Over time the drive belts can exhibit wear. O-bands can also wear or stretch, and will eventually exhibit excessive slippage in the roller groove. When this occurs, the rollers in the zones may not rotate and consequently, will not convey the product.

Replacement of O-Bands

1. Remove the roller having the affected O-band, following procedures for roller removal discussed earlier in this manual
2. Remove the (2) adjacent rollers. At this point, the affected O-band can be removed.
3. Place new O-bands over the grooved end of the roller(s) and re-install the rollers.

Proximity Sensors

There are two proximity sensors that provide control feedback, indicating the vertical position of the transfer mechanism, or cam. The sensors are adjusted at the factory, but field adjustment may be required from time to time. These sensors and their flag component can be seen in ***Figure 14***.

Proximity Sensor Adjustment

Correct positioning of the proximity sensors will allow the sensors to detect the flag at the max position and the divert bank at the minimum position respectively. To check the sensor position alignment, the cam lifting rollers should be rotated and the sensor detection lights should be monitored. When the cam is nearly in the up position, the “up position” proximity sensor light should blink on and remain on. When the cam is nearly in the down position the down position proximity sensor will blink on and remain on. If the sensors are operating correctly, then both should be detecting what little travel remains on the roller frame section in the up and down positions. If adjustment is required, loosen the nuts and bolts while retaining the flag, and adjust the vertical position of the flag to achieve the desired result.

Note: Adjustment of the sensor performance affects the control operation of the transfer. Proper mechanical performance of the transfer is achieved when the control system is capable of raising the rollers to its upper most position and also capable of lowering the rollers to the lowest position.

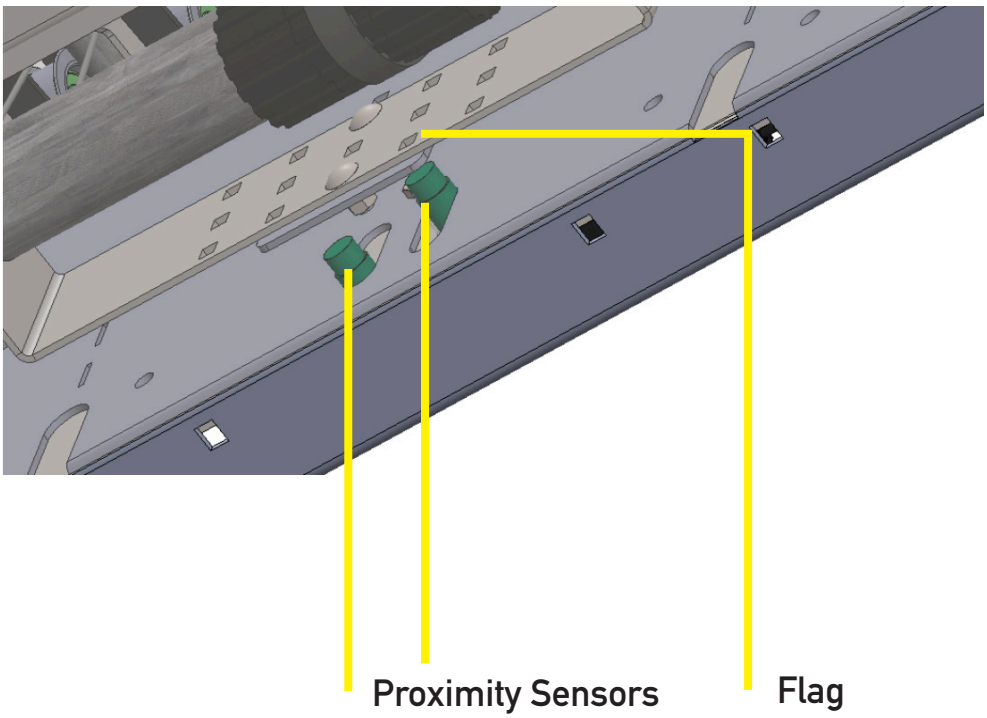

Figure 14

PREVENTATIVE MAINTENANCE

The performance and reliability of the equipment described in this document is dependent upon the implementation of a preventive maintenance (PM) program operating under Hilmot approved loading conditions.

Hilmot's PM program consists of equipment service operations that are performed by qualified maintenance specialists. These service operations include periodic cleaning, lubrication and various mechanical adjustments. This program also educates and instructs specialists to identify and to correct any abnormal operating conditions such as whining or screeching sounds, burning smells, or any visual obstruction or component damage. Service operation details can be found in subsequent sections in this document.

The likelihood of future equipment operational failures will be low if a regular maintenance program is followed. However, some failures will inevitably occur. To minimize these anticipated future issues, it is suggested that the following maintenance records be kept for each type of equipment so that Hilmot's service desk can be of assistance:

a) Date of Inspection
b) Inspection Results
c) Equipment Services
d) Repair History
e) Part Replacement
f) All operational anomalies

The preventative maintenance instructions in this document contains important warning messages. To mitigate the risk of injury, critical warnings will be boxed with a warning label. An example of a critical warning message is shown below:

⚠ WARNING

Before performing any maintenance or lubrication services, review and adhere to the lockout/tagout procedure in the Safety Section to ensure that the equipment is safe to work on. Failure to follow these instructions may result in serious personal injury and/or equipment damage.

Maintenance Precautions

⚠ WARNING

You must read and understand these precautions completely before operating, setting up, running, or performing maintenance on the equipment. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

1. Review and adhere to all Plant Safety rules

2. All maintenance operations must be performed when the equipment is shut down and the power is locked out. Do not perform maintenance operations when the system is running
   - Never attempt to clear product jams while the equipment is running

3. Review the system. Identify and record appropriate service information

4. Use appropriate tools when making any service operations

5. Verify that all electrical connections and wires are secure. Verify that these electrical components do not interfere with the normal operation of the machine

6. Verify that all safety guards are present and are functioning. Safety guards should not be removed without Trew's authorization
   - Do not operate the equipment in the absence of the safety guards

7. Observe and adhere to all warning labels

8. Do not start the equipment until all operations and maintenance personnel are notified and clear of the device
   - Keep hands, hair and clothing clear of any moving parts

Cleaning and Inspection

Proper cleaning and periodic inspections are important in prolonging the useful life of the equipment. In general, cleaning is performed for the following reasons:

1. To allow heat to dissipate (motors and gearboxes)
2. To prevent wear on moving parts
3. To prevent binding

Hilmot's periodic cleaning schedules may be modified once operational confidence has been established. Before modifying any cleaning schedules, however, it is recommended that Hilmot be contacted so that any equipment warranties are not breeched.

Hilmot's Preventative Maintenance plan contains daily, weekly, before and after high operation usage periods and monthly inspections. These periodic inspections should be documented for troubleshooting solving purposes. Detailed Inspection instructions can be found in the following sections.

Daily Inspection

Walk the entire length of conveyor system and observe the following:

1. With the conveyor running, listen for abnormal noises that could indicate:
   - Worn bearings in rollers, motors, reducers, etc.
   - O-Belt making contact due to misalignment or improper adjustment.
2. With the conveyor shut down, look for the following:
   - Strings or other foreign material wrapped around bearings, shafts, or rollers. Remove all foreign material immediately.
   - Shavings or belt dust under conveyor that would indicate misaligned or damaged components.
   - Oil leakage that would indicate faulty bearings or seals in rollers, motors, reducers, etc
3. Check pneumatic regulators for proper setting and listen for air leaks

Weekly Inspection

1. Visually inspect device wheels for wear, improper alignment, or buildup of foreign materials and repair/clean as required
2. Visually inspect all motors
3. Check pneumatic water traps and drain as required

Inspection Every 4 Months

1. Clean and lubricate all flanged bearings
2. Check all set screws and tighten as necessary. Set screws can loosen during normal operation
3. Check all bolted connections and tighten as needed. Bolted connectors may work loose during normal operation

⚠ WARNING

Before performing any maintenance or lubrication services, review and adhere to the lockout/tagout procedure in the Safety Section to ensure that the equipment is safe to work on. Failure to follow these instructions may result in serious personal injury and/or equipment damage.

Replacing Rollers

1. Turn off and Lockout/Tagout all power to the conveyor
2. Use a tool to push in the spring loaded axle on the roller to free one end of the axle from the frame of the conveyor
3. Carefully disengage the opposite end of the roller from the frame and remove. Make sure the axle is not pinched on the frame causing damage during removal
4. Insert the axle of the replacement roller through the hole on the conveyor frame
5. Use tool to compress the spring loaded axle on the roller and lower the roller into its proper position
6. Release the spring loaded axle and make sure it fully engages in the hole in the frame

⚠ WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Lubrication

Check the following maintenance items immediately after start-up, during initial run-in, at 100 hours, and thereafter at 500 hour intervals under average conditions. Under adverse conditions, more frequent maintenance checks should be performed.

Flanged Bearings & Grase Bearings

Standard speed reducers are sealed and maintenance free. They incorporate a pressure compensating chamber, which eliminates the lengthy preparation normally required to put a reducer into service and prevents atmospheric contamination. These reducers are properly filled at the factory with sufficient lubrication for all mounting positions. The lubricant is Mobil SHC--634, a synthesized hydrocarbon formulated for extremely long life. Refer to the manufacturers instructions for more information.

⚠ WARNING

Before performing any maintenance or lubrication services, follow the lockout/tagout procedure in the Safety section to ensure that the equipment is safe to work on. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

In an atmosphere that contains abrasive particles, it is better not to have conventional lubricants on the surface of the chain that collect or retain abrasive particles. Use dry lubricants such as molybdenum disulfide or deflocculated colloidal graphite in a volatile carrier.

Motors and Carrier Rollers

All motors and carrier rollers are equipped with sealed bearings. No additional lubrication is required.

⚠ WARNING

Be sure to replace the drive guarding after inspection or maintenance. Failure to follow this instruction may result in serious personal injury and/or equipment damage

⚠ WARNING

Before attempting to repair or replace a drive roller, drive card, controller device, or any other device connected to these components, be sure that power to the controls is locked out to prevent premature or accidental start-up. Failure to follow this instruction may result in serious injury, and/or equipment damage.

Motor Control Card Replacement

1. Turn off and lock out the power supply to the conveyor
2. Remove the auxillary power cable from the card
3. Remove the drive roller cable connector and the control cable or com-link from the drive card
4. Remove drive card and mounting bracket from the conveyor
5. Remove drive card from mounting bracket
6. Inspect the original card and observe for the Faulty Red LED lighting
7. Set the switches and jumpers on the new card to match the old one
8. Replace old drive card with spare drive card
9. Carefully connect the control cable or com-link and drive roller cable to the card
10. Reconnect the ribbon cable
11. Unlock the power supply and turn the conveyor on

Note: Only follow motor card bracket steps if applicable, as motor card brackets are not used on Intermediate Set High.

SUPPORT

When troubleshooting equipment problems, it is essential to completely understand how the system functions during normal operation. Thoroughly review the operational description, the circuit drawings, and the electrical diagrams sent with your equipment. Once the system operation is understood, it is usually best to start at the problem, and then work back to the source.

Procedures are discussed at length in the following pages; however, there are certain guidelines that should be followed for all troubleshooting problems.

1. Locate the problem
2. Listen and observe
3. Identify problem as electrical, mechanical, or pneumatic
4. Determine symptoms through observations
5. Think and act with caution and clear thinking
6. List short and long term solutions
7. Select a solution or possible solutions
8. Implement and document one solution at a time

Troubleshooting a Dead Zone on the Conveyor

Perform the following visual checks prior to any troubleshooting:

1. Visually check and confirm that all wires are intact and all connectors are secure
2. Visually check and confirm that there are no obstructions to the rollers
3. Inspect the photo eye sensor and check for proper operation as described in the Preventative Maintenance section of this manual

⚠ WARNING

These checks must be performed with the power to the conveyor section turned **"ON"**. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

Controller Check

The controller (typically Programmable Logic Controller (PLC)) typically controls multiple zones, merges, and sorting areas. If a relatively large area of the conveyor system is not functioning, especially in a PLC controlled area, there may be an issue with the controller.

Check the input voltage into the controller. If no voltage is detected, check the in-line fuse. If the in-line fuse is functional, check the power supply.

Power Supply Check

The power supply typically supplies voltage to multiple zones. If the power supply is defective, all zones supplied will be inoperative. If only one or two zones are inoperative, check the individual connection cables and connectors going to each card.

Check the input voltage into the power supply. Check the power supply fuse or the circuit breaker. Replace if defective.

Motor Control Card / Motorized Drive Roller Checks

This check determines if the motor control card and the motorized drive roller are functional and must be done with power to the conveyor turned on.

⚠ WARNING

These checks must be performed with the power to the conveyor section turned **"ON"**. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

1. Determine which motor control card is being used at the zone location

2. Refer to corresponding vendor information to determine which input pins are designated '24VDC' input, '0VDC' input, and 'Run' input

3. Jumper across the '0VDC' and 'Run' pins (NPN) using a suitable jumper wire. The motorized drive roller may rotate

4. Jumper across the '24VDC' and 'Run' pins (PNP) using a suitable jumper wire. The motorized drive roller may rotate. If the motorized drive roller rotates in either "Step 3" or "Step 4", check the photo eye sensor, the com-link cable/connection (if applicable) or the controller cable/connection (if applicable). If the motorized drive roller does not rotate, proceed to Step 5

5. This procedure requires use of an exact spare motor control card (be attentive of NPN and PNP signal differences in the card). It is not necessary to remove the drive card from the mounting fixture for this check.
   - **a** Turn off and lock out the power to the conveyor section.
   - **b** Remove connectors from existing motor control card one at a time and install in the exact corresponding connector on the spare motor control card.
   - **c** When all connectors have been installed on test motor control card, and connections have been checked and secured, place the spare motor control card in a safe position so it cannot be damaged by the rotating motorized drive roller.
   - **d** Unlock and turn on power to the zone, and cover the adjacent upstream sensor.

If the motorized drive roller rotates, the motor control card is defective. Replace the motor control card using the procedure **Motor Control Card** section of this manual. If the motorized drive roller still does not rotate, the motorized drive roller is defective. Replace the motorized drive roller using the procedure in the **Motorized Drive Roller (MDR)** section of this manual.

No Voltage to the Motor Control Card

This check determines if there is power being supplied to the motor control card and must be done with power to the conveyor turned on.

⚠ WARNING

These checks must be performed with the power to the conveyor section turned **"ON"**. Only qualified electricians should be allowed to perform these checks. Failure to follow this instruction may result in serious personal injury and/or equipment damage.

1. Determine which motor control card is being used at the zone location
2. Refer to corresponding vendor information to determine which input pins are supplying the '24VDC' input (pin '0V' and pin '24 V') and check the voltage across these pins using a multi-meter
3. If the voltage is not between 24-26VDC, check the downstream zone motor control card for voltage. If the same condition exists (voltage is not between 24-26VDC), check the Power Supply
4. If the voltage is between 24-26VDC, check the power cable wiring and connector

Appendix A gives a general troubleshooting guide for some of the common problems that might be seen with Motorized Drive Roller conveyor. Note: The troubleshooting guide does not cover issues involving zones controlled by a programmable logic controller.

Symptom	Probable Cause	Corrective Action
Zone will not run (dead zone)	Mechanical Transmission	Insure proper mechanical connection (O-bands, drive chain loops, timing belts, etc.) between MDR & carrier rollers
	No voltage to motor control card	Check voltage across motor control card
		Check power supply
		Inspect interconnect wiring for loose wires
	Motor control card dip switch settings are incorrect	Verify dip switch settings according to electrical interconnect drawing
	Motorized drive roller is defective	Replace motorized drive roller
	Photo-eye sensor incorrectly wired	Verify wiring according to connection diagram
	Disconnected photo-eye sensor	reconnect photo-eye sensor
	Faulty communication cable	Replace communication cable
		Replace motor control card
	DC common is not connected between power supplies	Verify DC common are connected
Zone will not run (dead zone)	Motor control card dip switch settings are incorrect	Verify dip switch settings according to electrical interconnect drawing
	Faulty power supply	Replace power supply
Zone will not run (dead zone)	Photo-eye sensor misaligned on upstream zone	Align photo-eye sensor, clean photo-eye sensor lens

Symptom	Probable Cause	Corrective Action
Zone runs continuously (continued)	Disconnected photo-eye sensor	Reconnect photo-eye sensor
	Faulty communication cable	Replace communication cable
		Replace motor control card
Motorized drive roller makes excessive noise	Faulty motorized drive roller	Replace motorized drive roller
Zone runs at a different speed than rest of conveyor	Gear ration of MDR is incorrect	Verify proper MDR, and replace if needed
	Speed potentiometer on motor control card is incorrect	Using a terminal screwdriver, adjust potentiometer on motor control card
	Motorized drive roller is defective	Replace motorized drive roller
Large batch of zones do not operate	Faulty power supply	Replace power supply
	Breaker blown at main panel	Reset breaker - if problem persists call for servicing
	Breaker blown at local power supply	Reset breaker - if problem persists call for servicing
	Disconnect switched at local power supply	Turn disconnect to ON position
	Interconnect wires - loose connection	Check wiring
Boxes run into each other	Photo-eye sensor not operating	Verify photo-eye sensor wiring
		Verify proper photo-eye sensor alignment
		Clean photo-eye sensor lens

Symptom	Probable Cause	Corrective Action
Boxes run into each other (continued)	Dead zone	See: zone will not run (dead zone)
	Speed set too high	See: zone runs at different speed than rest of conveyor
	Package larger than zone	Verify package size to original conveyor specifications
	Photo-eye sensor location is incorrect	Move photoeye sensor to proper location specified conveyor purchase
	Motor control card dip switch settings are incorrect	Verify dip switch settings according to electrical interconnect drawing
Green lights on card not lit	Motor control card is faulting	See: motor control card section of this maintenance manual for fault information
	No voltage to motor control card	Check voltage across motor control card
		Check power supply
		Inspect interconnect wiring for loose wires
Product bounces sporatically while in transportation	Conveyor sections do not have smooth transition at conveyor connection	Readjust conveyor height
	Debris on conveyor	Remove debris from conveyor
	Debris on conveyed product	Remove debris from conveyed product
Irregular movement of package while in transporation	Package large than zone	Verify package size to original conveyor specifications
	Different zone speeds	See: zone runs at different speed than rest of conveyor

Support

If you need further assistance:

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support@hilmot.com

Phone:
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Monday - Friday, 8:00am - 5:00pm CT