Installation & Maintenance Manual

Model: Live Roller Spur Direct Current (RLSDC)

IMPORTANT SAFETY INFORMATION ENCLOSED
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WARNING!
To reduce the risk of injury, it is important to familiarize all personnel involved with the operation and maintenance of your material handling equipment to its function. Furthermore, all guarding and safety measures shall remain in place during operation and only qualified personnel should attempt to remove them for maintenance, adjustments, and upkeep.
INTRODUCTION
Thank you for purchasing a Bastian Automation Engineering (BAE) ZiPl ine material handling system! The following manual will serve as a guide for installation, part replacement, and general maintenance to your material handling equipment. It is important that the manual be read and followed as it provides important safety information.

APPLICATIONS
The ZiPl ine Live Roller Spur DC Conveyor (RLSDC) is a very quiet, low profile, and energy efficient conveyor. It utilizes brushless 24 VDC motors along the length of the conveyor. Rollers in this conveyor are driven by one another with high tensile O-rings. This model is used as a transfer to or from a straight line conveyor to divert products in a different direction.

RECEIVING AND UNPACKING
When you receive your equipment please review the following:

□ 1. Check the quantity of items received against the bill of lading.
□ 2. Make a visual inspection of all equipment to determine if shipping damage has occurred. If damage has occurred, please note the damage on the equipment shipping log and return the log to BAE.
□ 3. Place all shipments received close to installation area.
□ 4. Remove crating and check accessories that may be included in the system.

INSTALLATION INSTRUCTIONS

WARNING!
Ensure that your standard material handling system has been securely fastened to the floor, conveyor frame, or other mounting surface before commencing full operation.

MATCH-MARK NUMBERS
Match-Mark numbers are stickers located on the side frame of each conveyor bed that provide information to correctly sequence the conveyor system. Match-Mark stickers include the following information: SN, Model, Mark Number, Match, Piece Count, and Flow.
FLOOR MOUNTS

In order to install floor supports, you will need:

- **Angle Adjustment Bracket**
- **Upper Leg Support**
- **Lower Support Leg**
- **Adjustment Bolt and Nut**

### Table Description

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN</td>
<td>Internal project job number</td>
</tr>
<tr>
<td>MODEL</td>
<td>Identifies type of conveyor (Ex. BZPDC)</td>
</tr>
<tr>
<td>MARK NUMBER</td>
<td>Specifies location and placement within the system layout</td>
</tr>
<tr>
<td>MATCH</td>
<td>Specifies conveyor orientation relative to other connecting pieces within the same Mark Number. ‘Start’ refers to the beginning side for its respective Mark Number. Sides labeled with the same Match and within the same Mark Number section should be aligned with each other. See red circles in Figure 1 below.</td>
</tr>
<tr>
<td>PIECE COUNT</td>
<td>Defines unit number within its respective Mark Number. (Ex. ‘Piece Count: 2 of 2’ refers to conveyor piece 2 out of 2 total pieces for that Mark Number)</td>
</tr>
<tr>
<td>FLOW</td>
<td>Refers to the direction of product flow along the conveyor system</td>
</tr>
</tbody>
</table>

Refer to the “Match-Mark” numbers on the conveyor sections and position them in sequence near the area of installation. It is important that the conveyors be placed in the correct sequence to ensure the proper functioning of the system. An example is shown in Figure 1.

![Figure 1: Proper Sequence of Match-Mark Sticks on Conveyor Bed Sections](image-url)
To ensure proper floor support installation do the following:

1. Determine the desired conveyor roller height for the product to align with pre-existing systems.
2. **Figure 2** shows the bolts used for adjustment on each floor support. Adjustability is possible for both the angle of the support bracket and the height of the leg according to the ranges specified in **Table 1**.

![Diagram of floor support with adjustable parts](image)

**Figure 2: Floor mounts contain multiple adjustable parts to get the exact elevation and angle necessary**

<table>
<thead>
<tr>
<th>Adjustment Type</th>
<th>Adjustment Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height Adjustment</td>
<td>± 5 inches *</td>
</tr>
<tr>
<td>Angle Adjustment</td>
<td>± 20° **</td>
</tr>
</tbody>
</table>

* The height adjustment should only be used to maintain a consistent Top of Roller (TOR) height throughout a conveyor System
**The angle adjustment used for inclined and declined conveyor sections should be calculated in order to prevent products from tipping due to a slope that is too steep
3. **Determine the conveyor location in the system using Match-Mark numbers and identify floor support configuration.**

*Figure 3* shows the appropriate placement of the floor mount based on the position of the conveyor in the system.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Used when connecting two conveyors in the same section</td>
</tr>
<tr>
<td>B</td>
<td>Used for End conveyor</td>
</tr>
</tbody>
</table>

![Figures showing configuration A and B](image)

*Figure 3: Two possible configurations for securing conveyors using floor mounts*

i) When using floor mount **Configuration A** for interior conveyor sections, be sure to use the connecting splice plate assembly bracket and guide rail splice assembly bracket provided as shown in *Figure 4*.

![Close-up of configuration A](image)

*Figure 4: Example of a shared floor mount with bracket connections (Configuration A)*
ii) The splice plate used in the splice plate assembly is shown in Figure 5.
Notice the two different through-hole types. The square hole is to be used when the splice plate is assembled for the bottom rail splice, while the round hole is for the top rail connection as seen in Figure 4.

Figure 5: Splice plate

iii) For conveyor ends, floor mount Configuration B is shown in detail in Figure 6.

Figure 6: Example of floor mounts connection to the end conveyor section (Configuration B)
4. **Install leg braces if necessary**

   Leg Braces are necessary for all conveyors using floor supports over 36” for the Top of Roller (TOR) height as seen in Figure 7. The leg braces provide additional support for applications placed at higher elevation. The leg braces are connected to the conveyor diagonally from one side of the conveyor to the other using carriage bolts attached to the leg bracket.

![Figure 7: A representation of the leg braces necessary for conveyors with TOB/TOR dimensions greater than 36”](image)

**SERVICE INSTRUCTIONS**

In order to prolong the life of your material handling equipment and reduce the risk of potential safety hazards, it is vital that a preventative maintenance program be set in place and followed. The following instructions will help identify key areas requiring maintenance.

**WARNING!**

To access an area of the equipment, the system must be stopped and the lockout/tagout procedure must be followed. It is extremely important that all employees respect lockout/tagout devices. Only the person(s) who applied these devices can remove them.
LOCKOUT/TAGOUT PROCEDURE
Before beginning service or maintenance, the following steps must be performed in sequence and conform to all specific provisions of the employer’s energy-control procedure.

1. Prepare for shutdown by checking the equipment and removing any products.
2. Shut down the machine.
3. Disconnect or isolate the machine from the energy source(s).
4. Apply the lockout/tagout device(s) to the energy-isolating device(s).
5. Release, restrain, or otherwise render safe all potential hazardous stored or residual energy. If a possibility exists for reaccumulation of hazardous energy, regularly verify during the service and maintenance that such energy has not reaccumulated to hazardous levels; and
6. Verify the isolation and de-energization of the machine.

REMOVE/REPLACE ROLLERS
Replacing rollers is best accomplished with the use of a small diameter punch and putty knife as shown in Figure 8 and Figure 9. They can be found in general hardware stores or provided by BAE for convenience.
1. Follow the “Lockout/Tagout Procedure” on page 10 to prepare the working area.
2. Remove side covers from the section of conveyor that applies.
3. There are two types of rollers that can be removed:
   a. Idler Rollers – groove side will be spring loaded
   b. Motor Driver Roller (MDR) – groove side will be spring loaded
4. If the roller being removed is a MDR, remove the MDR nut and washer shown in Figure 10.
5. Apply pressure to the end of the applicable spring loaded roller hex shaft with the small diameter punch until the shaft clears the frame rail.
6. While applying pressure to the shaft, pull up on the roller so once the shaft clears the frame, the roller can be removed.
7. To reinstall the roller, slide one end of the roller into the frame (preferably the side opposite of the grooves).
8. Place the putty knife centered over the shaft mounting hole as shown in Figure 11.
9. Apply pressure on the spring shaft with the putty knife using a prying motion and push on the shaft to clear the frame as shown in Figure 12.

10. Push down on the roller body until it slides down the putty knife and into the correct mounting hole. (Note: The putty knife will help prevent the hex shaft from scratching the frame).

11. If a MDR was removed, replace the washer and nut. Tighten the MDR nut to 308 inch-pounds.
REPLACE DRIVE BANDS
1. Follow the “Lockout/Tagout Procedure” to prepare the working area.
2. Refer to the “Remove/Replace Roller Procedure” and remove the two rollers coupled by drive bands.
3. Remove the leading or trailing roller to reduce the tension caused by drive bands.
4. If applicable, remove the Motor Driven Roller (MDR) by doing the following.
   a. Remove the MDR nut and washer.
   b. Remove the MDR and slide the drive bands off.
5. Slide new drive bands on.
6. Reinstall the removed rollers and MDR with the nut and washer. Tighten the MDR nut to 308 inch-pounds.
MAINTENANCE
Refer to the Exploded View and Recommended Spare Parts sections for part identification and location. The associated Bill of Materials provides all information pertinent to each part and identifies critical spare parts.

MECHANICAL SERVICE
• A visual and auditory inspection of the equipment should be performed to identify oil leakage or any unusual noise that may indicate that there is a problem with the equipment.
• Check all nuts and bolts to ensure bolts remain tight. MDR nuts should be torqued to 308 inch-pounds. Please note that loose fasteners may result in injury, equipment malfunction, or permanent damage to the system.
• Check bushings at pivot locations for excess wear or slop and replace as needed.
• O-rings/bands should be inspected for excessive wear, stretching or slip and replaced as necessary.
• Belts and tracking belts should be inspected for excessive wear or improper tracking if applicable.

MECHANICAL EQUIPMENT

Fasteners
All bolts and nuts should remain tight. Loose fasteners may result in injury, equipment malfunction, or permanent damage to the system.

MDRs, Motors, and Gearboxes
It is imperative to check that MDR nuts are fully tightened down to 308 inch-pounds.

Bearings
Inspect, clean, re-grease, or replace all bearings as necessary. The recommended interval for maintenance is at least once every 6 months.

WARNING!
To access an area of the equipment, the system must be stopped and the lockout/tagout procedure must be followed. It is extremely important that all employees respect lockout/tagout devices. Only the person(s) who applied these devices can remove them.
ELECTRICAL SERVICE

- Electrical connections must be made in accordance with local regulations.
- Keep sensors free from dust, grease, and other debris and make sure mounting brackets are secure.
- Inspect panels regularly for loose wires or connections and tighten as required.
- Keep panels free of dust by wiping them down regularly.
- Refer to separate electrical manuals provided for additional maintenance procedures. All electrical procedures must be carried out in accordance with that manual.

ELECTRICAL EQUIPMENT

Power Supplies
The control cards are powered from field mounted power supplies that convert 460V AC into 24V DC power. They are capable of powering 40A of DC current, or approximately 20 motors. Each power supply has two, 20A services. A 20A, DC power supply, if used, is capable of powering a maximum of 15 motors. If the disconnect for a power supply is turned off, the motors for the area near that power supply will lose power. Once the motor power is cut, the network communication is also cut. Therefore, if any maintenance needs to be done during production, all network communication in that e-stop zone will cease. Please contact BAE for more information on detailed e-stop zone definition. An example of an e-stop zone is shown in Figure 13.

It is crucial that the 24V DC common tap connections be set up correctly. The common tap connection is shown in Figure 14.

Figure 13 (above): Example of an e-stop zone
Figure 14 (left): Example of an e-stop zone
Control Cards
Control cards drive the logic for the system. There are ports for the MDR and photo-eye sensors. Figure 15 shows the available ports.

![Figure 15: The ports for the MDR and sensors](image)

Figure 16 displays the correct settings for the card’s DIP (dual inline package) switches. The DIP switch settings are only read during powering up, so the system must be reset to be affected by changes. The settings not outlined will be determined by the specific application and MDR specifications. If required, change the selected DIP switch setting by moving the corresponding switch to the opposite end. Only SW2, SW6, and SW7 should be adjusted when appropriate.

![Figure 16: The standard DIP settings for the control cards](image)

The speed, acceleration, and deceleration of the MDR is also determined by the control card. Each aspect is modulated by dials located on the front of the card. Figure 17 shows each dial and what each setting means in addition to displaying the recommended positions highlighted with the blue box unless otherwise specified by BAE representatives.

If required, adjust the selected setting dial to the correct position based on the options below. The deceleration dial must be adjusted according to the motor model used (ie. EC100).
Troubleshooting
If errors or problems still exist after following the troubleshooting table below, please contact Bastian Automation Engineering directly by calling 317-467-2583.

<table>
<thead>
<tr>
<th>ERROR</th>
<th>CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulation zone not functioning</td>
<td>Poor photo-eye alignment</td>
<td>• Ensure photo-eye is properly aligned with reflector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and the product is in its path</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ensure photo-eye is set to dark operation (D)</td>
</tr>
<tr>
<td></td>
<td>MDR wire harness not connected properly</td>
<td>• Ensure that the MDR harness connector is insert-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ed properly into the card</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inspect the MDR wire harness for visible damage</td>
</tr>
<tr>
<td>Conveyor flow direction, speed, or</td>
<td>Incorrect DIP switch settings</td>
<td>• Refer to standard settings in Figures 15 &amp; 16 unless</td>
</tr>
<tr>
<td>acceleration incorrect</td>
<td></td>
<td>otherwise specified by BAE</td>
</tr>
<tr>
<td>Error or fault lights appear on the</td>
<td>Incorrect DIP switch settings</td>
<td>• Refer to standard settings in Figures 15 &amp; 16 unless</td>
</tr>
<tr>
<td>control card</td>
<td></td>
<td>otherwise specified by BAE</td>
</tr>
<tr>
<td></td>
<td>Red error light – MDR wire harness not</td>
<td>• Ensure that the MDR harness connector is fully</td>
</tr>
<tr>
<td></td>
<td>connected properly</td>
<td>inserted into the card</td>
</tr>
<tr>
<td>Conveyor will not run</td>
<td>MDR wire harness not connected properly</td>
<td>• Ensure that the MDR harness connector is insert-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ed properly into the card</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inspect the MDR wire harness for visible damage</td>
</tr>
<tr>
<td></td>
<td>MDR not receiving power</td>
<td>• Inspect electrical harnesses for damage or loose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Check that the power supply is receiving power</td>
</tr>
</tbody>
</table>
RECOMMENDED PREVENTATIVE MAINTENANCE SCHEDULE
A preventative maintenance program is recommended for adding longevity to your material handling equipment and to help reduce safety hazards. If a problem does arise, contact your maintenance department or other qualified personnel.

Daily
□ 1. A visual and auditory inspection of the equipment should be made to check for oil leakages, loose hardware, or any unusual noise that may indicate that there is a problem with the equipment.
□ 2. Check the system to make sure that any product that might interfere with the operation of the system is removed or shifted to an appropriate location.
□ 3. Before initial startup, make sure that all personnel are clear of pinch points and aware the system is starting up.

Weekly
□ 1. Inspect for product or debris build-up around and on belt and tracks. Clean if necessary.
□ 2. Verify that all rollers, cam followers, and actuating devices are working properly.

Monthly
□ 1. Check for loose bolts, nuts, fittings, and sensors. Tighten if necessary.
□ 2. Test proper functioning of all limit switches.
□ 3. Inspect limit switches and proximity switches regularly.
SERVICE LOG
To improve the ability to diagnose and correct technical problems, it is strongly recommended that operators and maintenance staff complete the service log when problems arise. A sample service log is provided below.

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>DESCRIBE PROBLEM</th>
<th>ACTION TAKEN</th>
<th>BY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
Figure 18: RLSDC Assembly
RECOMMENDED SPARE PARTS
To order spare parts contact your dealer or Bastian Automation Engineering directly or visit our [website](https://www.bastiansolutions.com).

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
<th>PART IMAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MDR CARD ASSEM</td>
<td>00308T OR 00500</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>SPLICE PLATE ASSEM</td>
<td>00342</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>GUIDE RAIL SPLICE ASSEM</td>
<td>00393</td>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
<tr>
<td>4</td>
<td>SIDE COVER</td>
<td>00335</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td>5</td>
<td>ALUM RAIL</td>
<td>00349</td>
<td><img src="image5.jpg" alt="Image" /></td>
</tr>
<tr>
<td>6</td>
<td>O-RINGS</td>
<td>00305</td>
<td><img src="image6.jpg" alt="Image" /></td>
</tr>
<tr>
<td>7</td>
<td>IDLER ROLLERS</td>
<td>00488</td>
<td><img src="image7.jpg" alt="Image" /></td>
</tr>
<tr>
<td>8</td>
<td>MOTOR DRIVEN ROLLER (MDR)</td>
<td>SEE TABLE BELOW</td>
<td><img src="image8.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
MOTOR DRIVEN ROLLER (MDR) PART NUMBERS

<table>
<thead>
<tr>
<th>BAE #</th>
<th>Ratio</th>
<th>BF Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>00483-14.5</td>
<td>16:1</td>
<td>14.5&quot;</td>
</tr>
<tr>
<td>00483-20.5</td>
<td>16:1</td>
<td>20.5&quot;</td>
</tr>
<tr>
<td>00483-26.5</td>
<td>16:1</td>
<td>26.5&quot;</td>
</tr>
<tr>
<td>00484-14.5</td>
<td>24:1</td>
<td>14.5&quot;</td>
</tr>
<tr>
<td>00484-20.5</td>
<td>24:1</td>
<td>20.5&quot;</td>
</tr>
<tr>
<td>00484-26.5</td>
<td>24:1</td>
<td>26.5&quot;</td>
</tr>
<tr>
<td>00485-14.5</td>
<td>12:1</td>
<td>14.5&quot;</td>
</tr>
<tr>
<td>00485-20.5</td>
<td>12:1</td>
<td>20.5&quot;</td>
</tr>
<tr>
<td>00485-26.5</td>
<td>12:1</td>
<td>26.5&quot;</td>
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<td>00486-14.5</td>
<td>16:1</td>
<td>14.5&quot;</td>
</tr>
<tr>
<td>00486-20.5</td>
<td>16:1</td>
<td>20.5&quot;</td>
</tr>
<tr>
<td>00486-26.5</td>
<td>16:1</td>
<td>26.5&quot;</td>
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<tr>
<td>00487-14.5</td>
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<td>14.5&quot;</td>
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<td>9:1</td>
<td>20.5&quot;</td>
</tr>
<tr>
<td>00487-26.5</td>
<td>9:1</td>
<td>26.5&quot;</td>
</tr>
</tbody>
</table>

For information on replacement parts that are not listed, contact your dealer or Bastian Automation Engineering directly. Have the serial number of the conveyor requiring spare parts available.

THANK YOU!
Thank you for your purchase of a ZiPline conveyor system! We appreciate the opportunity to provide you with a quality solution that will fulfill your material handling needs. If you have any questions regarding your equipment or the information contained within this manual, please contact Bastian Automation Engineering directly and we will be happy to assist you. We look forward to providing you with your next material handling solution again in the future!
WARRANTY

Bastian Automation Engineering (BAE), LLC. warrants that equipment designed and sold by BAE will be free from defect in material and workmanship for a period of one year from date of shipment or 4,200 hours of operation, whichever comes first. Buyer must supply immediate written notice describing the equipment, defect, and date which it is found. BAE reserves the right to inspect all equipment and parts at the buyer’s location. Buyer will be responsible for cost of labor for defective part removal and installation of replacement. BAE will provide replacement parts in the event of a failure.

Obligation on the part of BAE does not extend to failure or damage due to abuse, neglect, accident, improper repair, maintenance, installation or adjustment, exposure to corrosive material, or alteration by persons other than BAE personnel.

NOTICE: In the event of motor failure, please contact the nearest authorized service center of the motor manufacturer. The warranty on the motor may become void if tampered with or disassembled by anyone other than the authorized representative or the motor manufacturer.
OPTIONAL EQUIPMENT GUIDE

CEILING HANGERS
If conveyors are to be used in an overhead application, ceiling hangers may have been supplied in place of floor supports. Figure 19 shows a model of a conveyor section that has fully assembled ceiling hanger mounts. Ceiling hangers should be mounted at section joints.

Figure 19: The standard, double guide rail after proper installation

1. Install the cross tube support to the bottom of the conveyor frame at section joints using two cross tube clamps with each tube. Use the 3/8"-16 carriage bolts and 3/8"-16 wiz nuts provided by BAE.
2. Ensure that the cross tube clamps are tightened to the cross tube at the proper angle to allow for any need conveyor incline or decline.
3. Secure the ceiling hanger cross tube assembly to the ceiling hanger uprights by placing the uprights through the upright holes shown in Figure 20. (Note: Ceiling hanger uprights not shown.)
4. Bolts may be loosened at any time in order to readjust the position of the guide rail support assembly. It is critical that all bolts be retightened for safety. (Note: Ensure equipment is turned OFF if adjusting the position of the guide rail).

Figure 10 on the following page provides a visual of the assembly in an exploded state.
GUIDE RAIL HANGERS

If conveyors are to be used in an overhead application, guide rail supports may have been supplied. Figure 21 shows how a guide rail hanger support mounts to a conveyor section.

1. Install the guide rail base plates to the bottom of the conveyor using the 3/8"-16 carriage bolts provided by BAE. It is general practice to have at least one vertical support every five feet.
2. Insert the guide rail upright into the guide rail base plate and tighten the 3/8"-16 bolt to hold it in place.
3. Slide the guide rail bracket down onto the guide rail upright. Space the guide rail brackets so that they align with the placement of the guide rails. Tighten the 5/16"-18 bolts on the guide rail brackets to clamp the guide rail brackets in place.
4. Insert the 5/16"-18 bolt provided into the guide rail and attach the guide rail to the guide rail bracket.
5. Bolts may be loosened at any time in order to readjust the position of the guide rail support assembly. It is critical that all bolts be retightened for safety.

(Note: Ensure equipment is turned OFF if adjusting the position of the guide rail).
Figure 21: An exploded view of the guide rail hanger assembly

VARIATIONS IN GUIDE RAILS:

Table 2 provides a list and description of the various guide rail options that may accompany a system.
FIXED SOLID GUIDE RAILS
If the product being conveyed is tall and at risk of tipping, solid fixed guide rails may have been supplied. Figure 22 shows an example of a solid fixed guide rail mounted to a conveyor section.

SINGLE ADJUSTABLE GUIDE RAILS
Single Adjustable guide rails may have been provided for smaller products. Figure 23 shows an example of a single adjustable guide rail mounted to a conveyor section.

DOUBLE ADJUSTABLE GUIDE RAILS
Double adjustable guide rails may have been provided for taller products. Figure 24 shows an example of a double adjustable guide rail mounted to a conveyor section.
VARIATIONS IN FLOOR SUPPORTS:
The following provides a description of the different floor support options that can be accompanied by a system.

FLOOR SUPPORTS TABLE OF RANGES

<table>
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<th>HEIGHT RANGE (INCHES)</th>
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POLY-TIER SUPPORTS
Poly-tier supports provide sturdy support for multi-level conveyor lines. It is important to note that this may require additional warnings for low clearances if work needs to be done beneath the conveyors. Figure 25 shows an example of poly-tier supports used to mount to a conveyor section.

Figure 25: An example of Poly-tier supports

1. Determine the desired conveyor location and height to align with existing conveyor systems.
2. Adjust and tighten the poly-tier support braces to the poly-tier uprights needed for all conveyor levels using the height adjustment bolts as shown in Figure 26.

Figure 26: Poly-tier support mounts
3. Place the desired conveyor bed sections on the correct poly-tier support brace cross-bars.

4. Align the poly-tier cross-bar clamps shown in Figure 27 with side frame mounting holes on each conveyor section.

![Figure 27: Poly-tier cross-bar clamp](image)

5. Tighten the poly-tier cross-bar clamps using the carriage bolts until the clamp teeth secures the conveyor section to the poly-tier support brace as shown in Figure 28. (Note: Conveyor bed not shown in image for clarity.)

![Figure 28: Example of a poly-tier mount with clamps (conveyors not shown for clarity)](image)