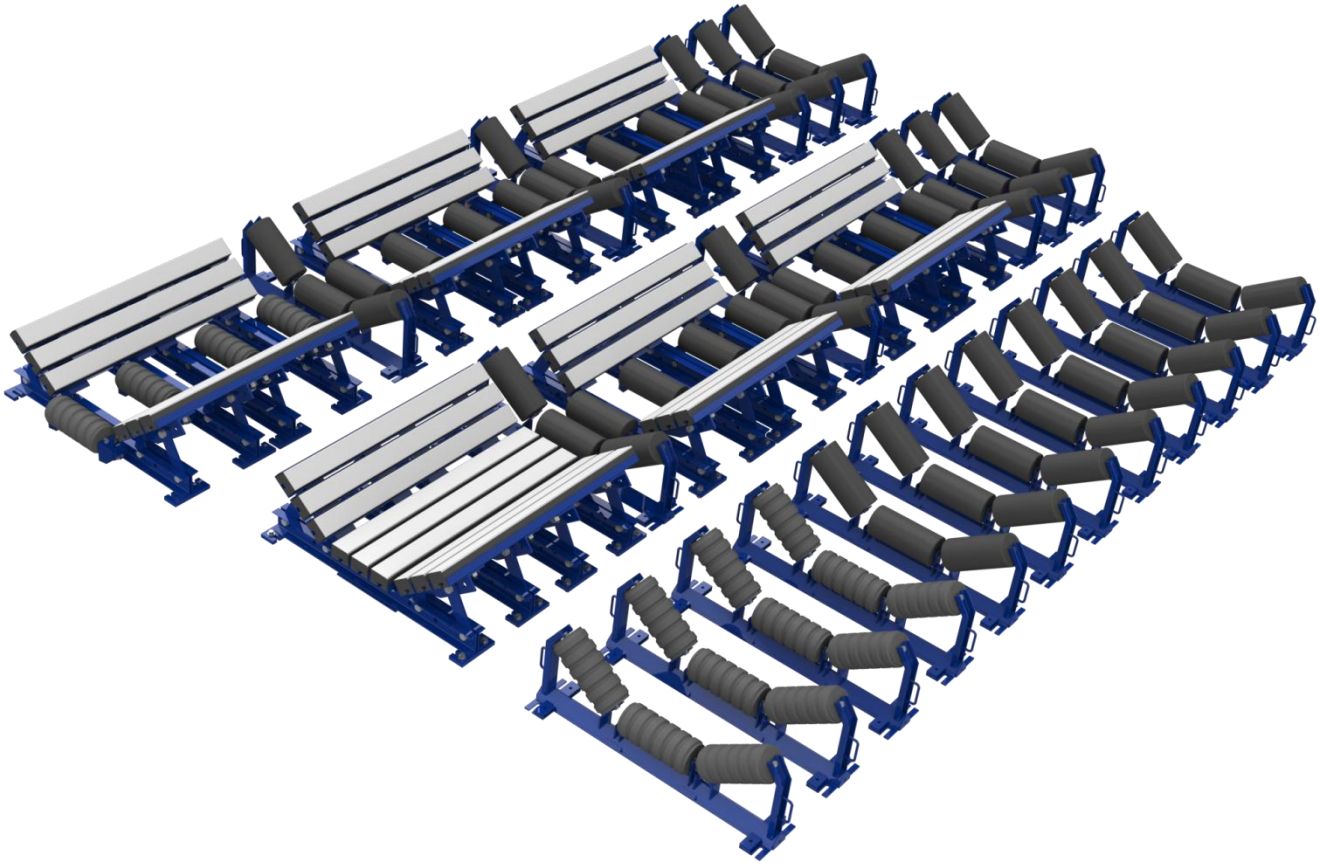
BENETECH®

Belt Support

Installation Guide



! IMPORTANT !

BENETECH, INC. HEREBY DISCLAIMS ANY LIABILITY FOR, BUT NOT LIMITED TO:

- **IMPROPER INSTALLATION OF EQUIPMENT**
- **IMPROPER SIZING OF EQUIPMENT**
- **DAMAGE DUE TO CONTAMINATION OF MATERIAL**
- **USER'S FAILURE TO INSPECT EQUIPMENT**
- **USER'S FAILURE TO MAINTAIN EQUIPMENT**
- **USER'S FAILURE TO TAKE REASONABLE CARE OF THE EQUIPMENT**
- **INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN.**

BENETECH, INC.'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

! SAFETY !

Review and understand all safety rules given herein along with local and Governmental standards and regulations. Know and understand the American National Standards Institute (ANSI) z244.1-1982 lockout/tagout procedures, the American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements and the Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, Control of Hazardous Energy Source (Lockout/Tagout); Final Rule.
Also observe all local and Governmental regulations concerning entry into confined spaces, welding, cutting, grinding, wash-down procedures and all Personal Protective Equipment (PPE) regulations.

The following notations are used throughout in this manual.

! DANGER !

Danger: Denotes immediate hazards that will result in severe personal injury or death.

! WARNING !

Warning: Denotes hazards or unsafe practices that could result in personal injury.

! IMPORTANT !

Important: Denotes instructions that must be followed for proper installation and/or operation of equipment.

NOTE

Note: Denotes general items to assist the reader/ installer/ operator.

! WARNING !

Remove all tools, parts, trash, and foreign objects from the installation area and conveyor belt before turning on the conveyor. Failure to do so can result in serious injury to personnel or damage the belt and conveyor.

***

Please pay close attention to all of these items and warnings.
They have been included here for your safety and for ease of installation.

All safety rules defined in this document and all owner/employer as well as State and Federal safety rules must be strictly adhered to when working on/with this, or any, conveyor plow system.

! DANGER !

Do not touch or go near the conveyor belt or conveyor accessories when the belt is running. Your body or clothing can get caught and you can be pulled into the conveyor, resulting in severe injury or death

! DANGER !

Before installing, servicing, or adjusting the bed, turn off AND lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

! DANGER !

If this equipment is to be installed in an enclosed area, observe all confined space entry regulations and test the atmosphere for gas levels and dust content levels before using a cutting torch, welding equipment or electric hand tools. Using a torch, welding, grinding or drilling in an area with gas or dust may cause an explosion and/or fire resulting in serious injury or death.

! WARNING !

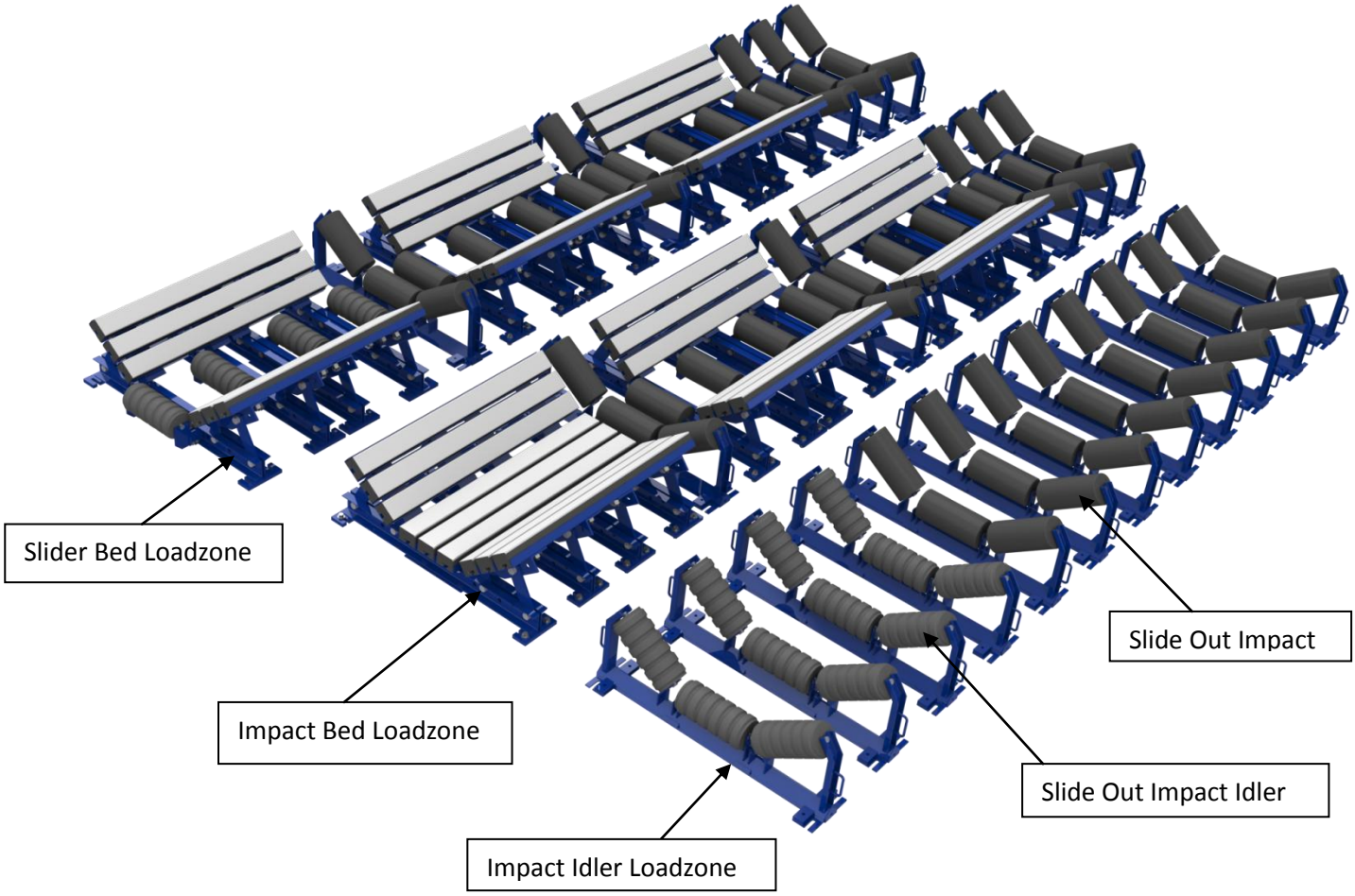
Before using a cutting torch, welders, or grinding equipment, cover the conveyor belt with a fire retardant/resistant cover. Make sure a water source/fire hose is readily available AND OPERATIONAL. Failure to do so can allow the belt to catch fire.

! WARNING !

Conveyor plows are heavy and may require two people to lift. Attempting to lift the plow without assistance could result in injuries or damage to the equipment.

Table of Contents

Belt Support Optional Arrangements



Belt support Arrangement Information	
Description	**Function**
Slider Bed Loadzone	Steadies belt and reduces belt friction by using center rollers.
Impact Bed Loadzone	Absorbs initial impact, followed by Slider Beds for friction reduction.
Impact Idler Loadzone	Basic belt support, absorbs some of the impact from loading material.
Slide out Impact Roll Idler	Impact Idler designed to separate in to sections for easy removal.
Slide Out Carrying Idler	Troughing carrying idler designed to separate into sections for easy removal.

Before Installing Belt Support Components

1. Inspect ALL shipping containers for damage and correct number of items (skids, pallets, cartons, boxes, etc.) being delivered. Report damage and/or shortages to delivery service immediately and fill out delivery service's claim form. Keep ALL damaged goods for examination. Benetech Inc is NOT responsible for damage occurring during transit.

2. All Benetech Inc. Belt Support Components are shipped from our facilities assembled. Care should be taken while dissembling the units to ensure no parts are lost or damaged as the equipment is moved to its desired location. Dispose of shipping containers in an approved manner.

3. If any items are missing, IMMEDIATELY contact BENETECH, INC. or an authorized representative.

4. Gather tools. Minimum tools required for installation are:
- Tape measure/ String
- Torch/Hole Saw
- Level/Straight Edge
- Welder/Drill
- Open/Box End Wrenches
- Socket Set
- Marker/Soapstone (Welders chalk)

5. If using a cutting torch or welding, test atmosphere for gas level or dust content. Cover conveyor belt with fire retardant cover. Verify locations of fire extinguishers and operational water hoses prior to begin cutting/welding operations.

! WARNING !

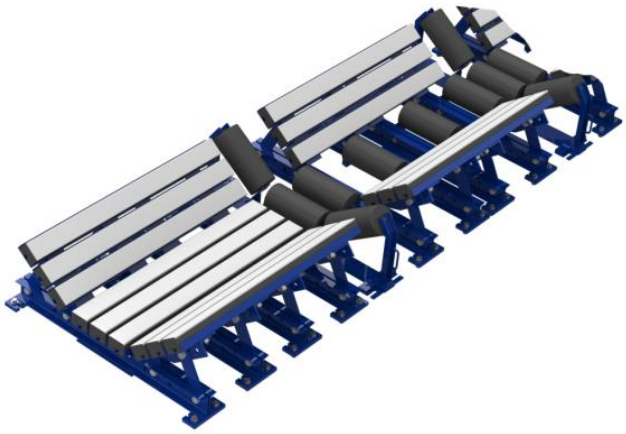
Before installing equipment, turn off AND lock out/tag out all energy sources to the conveyor and conveyor accessories according to ANSI standards and local plant regulations. Failure to do so could result in serious injury or death.

If equipment will be installed in an enclosed area, the atmosphere in the structure/area must be tested for gas levels and dust content levels before using a cutting torch, welding equipment, grinding equipment or electric powered tools. Using a cutting torch, welding, drilling or grinding in an area with gas or dust may cause an explosion.

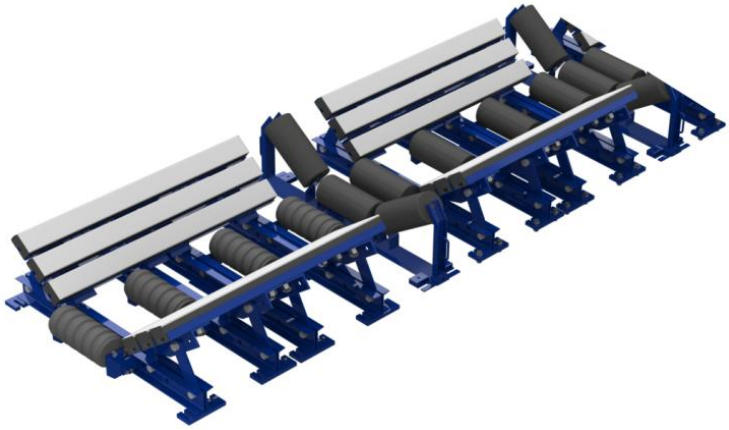
Product Overview

Efficient belt conveyor systems require properly designed and maintained belt support components to contain dust and spillage in load zones. Specific Idler spacing is required at minimum, however products designed specifically to absorb the impact of loading material are ideal to prevent belt damage and will increase a belt's lifespan. Benetech offers a line of different solutions for specific operation and customer needs.

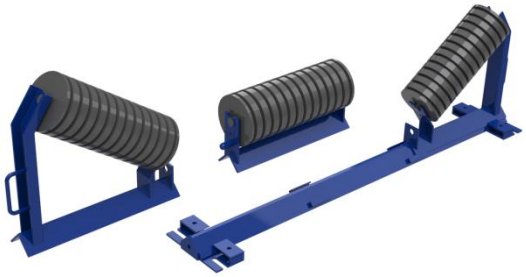
The ***Warrior Impact*** *Bed* is placed after the first full trough idler, directly underneath the belt's loading point. If more than one loading point exists, it is acceptable to place *Warrior Impact Beds* under each one.

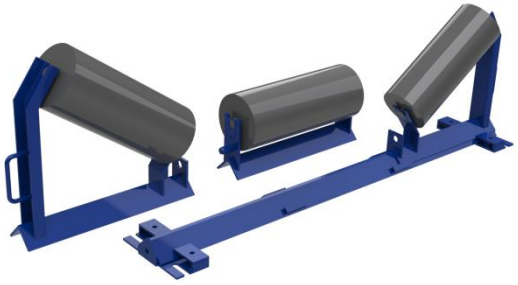


The ***Warrior Roll & Guide*** is a split between Idler and Impact bar shock absorbing capability. The bars support the belt while the rollers reduce friction. It is normally used in line with a Warrior Impact Bed, but can also be used as the primary loadzone support if Impact Rolls are installed.



The ***Slide Out Idler*** is a troughing idler divided into three sub sections allowing the troughed ends to be pulled straight out. It is ideal for larger belt widths and loadzones where idler spacing is close or where impact bed components are used.



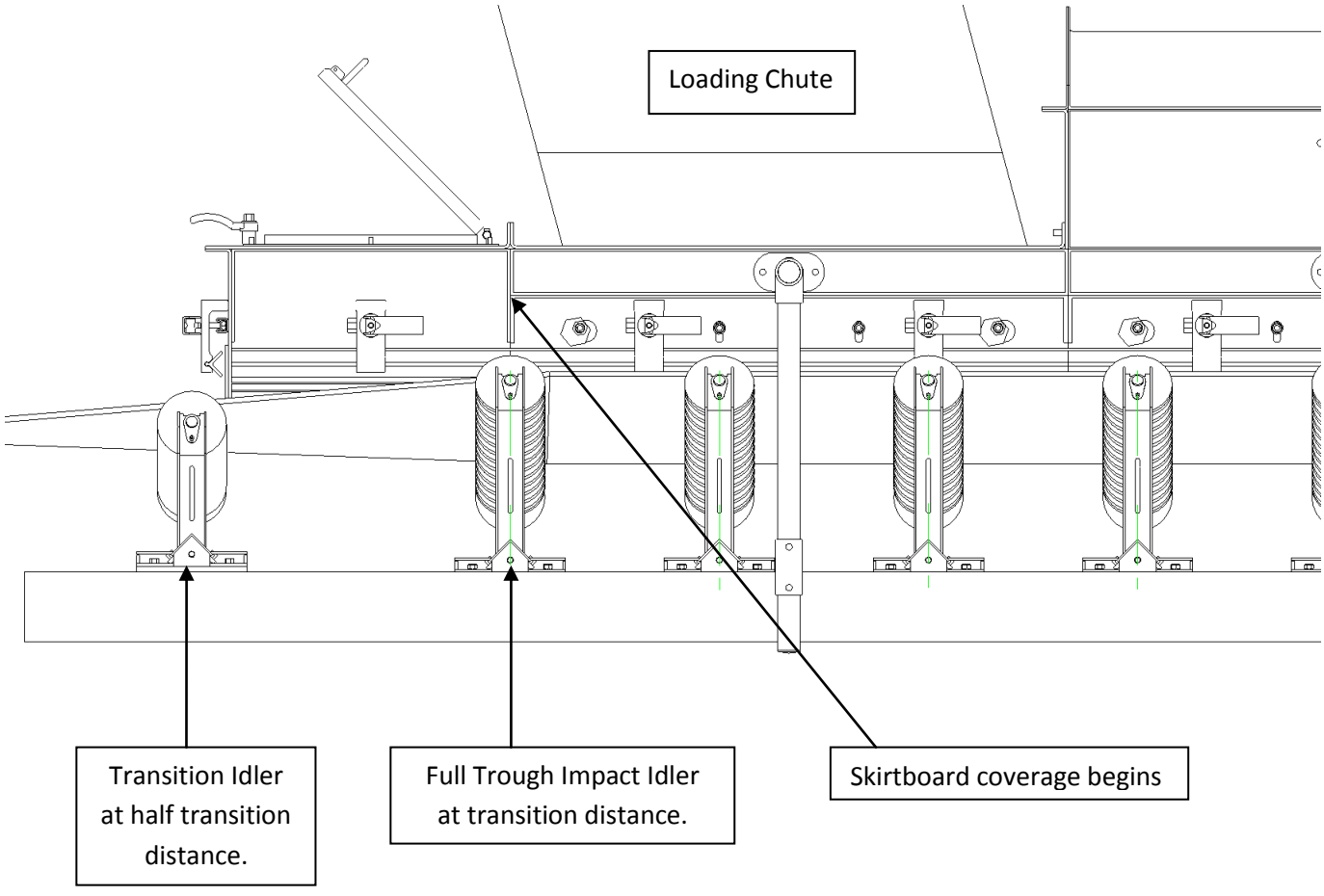


Installation Instructions – LoadZone Idlers

Hose down the work area prior to commencing any deconstruction. Use this time to inspect the stringer and decking where the new parts are to be installed. If the stringer or support system show signs of corrosion, it may be necessary to replace these structural parts before installing your Benetech Belt Support components.

Correct positioning of the LoadZone support is critical to maintain a working seal between the belt and the skirting system. The FULL TROUGH idler should be placed at the distance shown on page 9, while the transition Idler should be placed at HALF that distance.

If the existing equipment layout *doesn't* allow correct spacing of the transiton distance, place the full trough idler just before the loading chute, and begin the skirtboard coverage at that point.

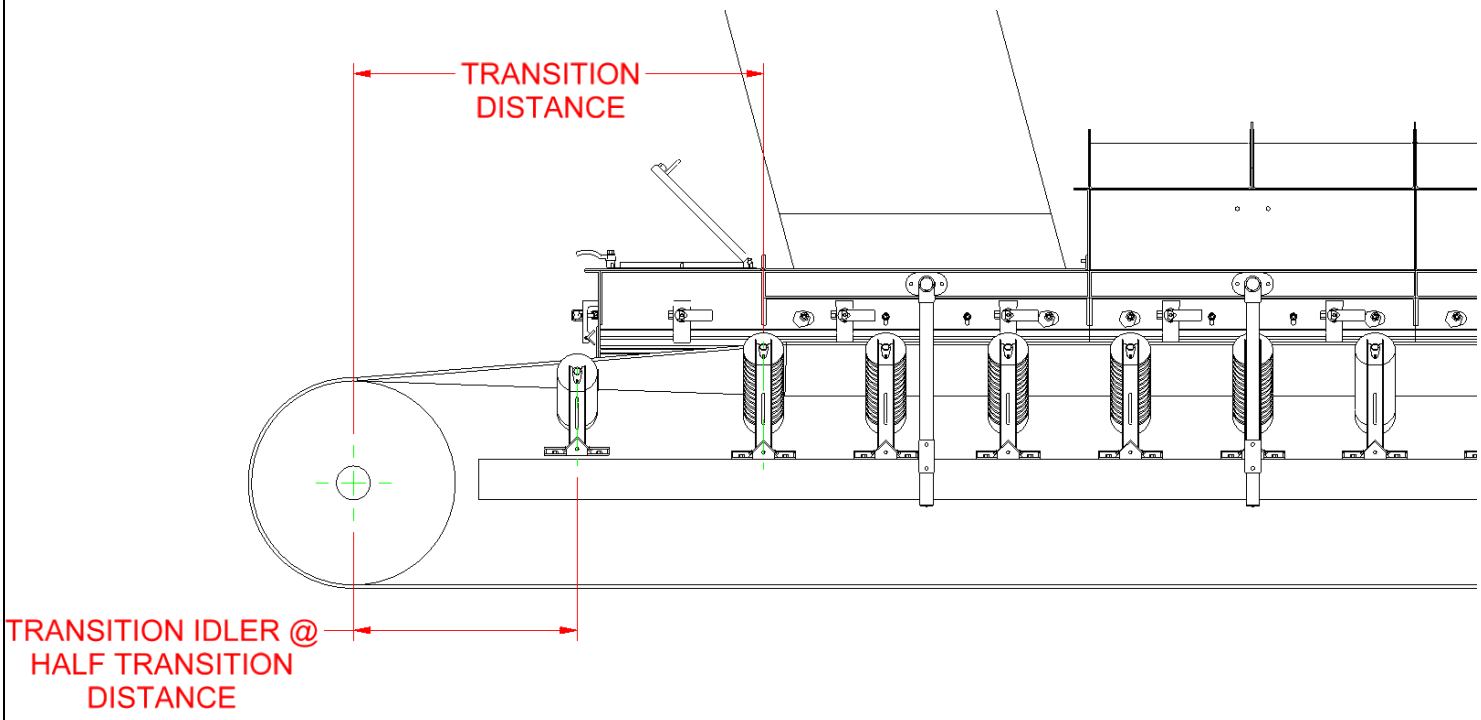


Setting Transition Distance

(Table from CEMA book 5th Edition)

b = Belt width

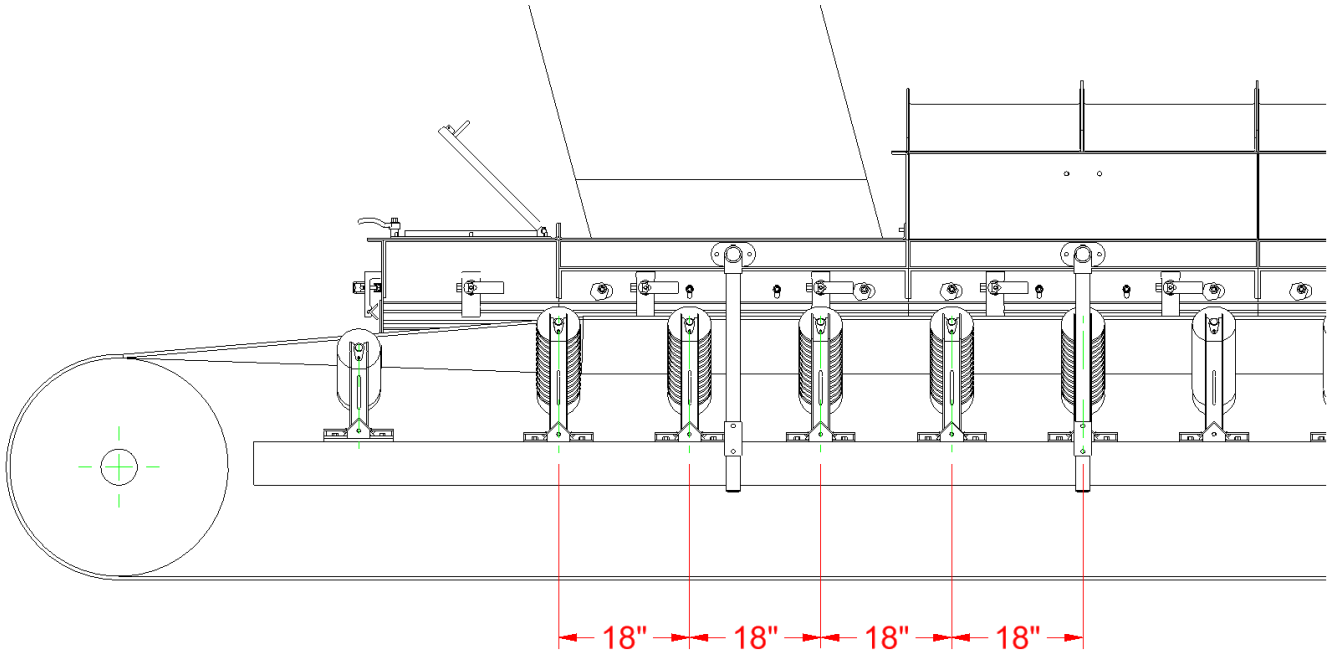
Transition Distance Table			
Trough Angle	**Tension Rating %**	**Fabric Core Belt Distance**	**Steel Core Belt Distance**
20°	Over 90	0.9b	2.0b
	60 to 90	0.8b	1.6b
	Less than 60	0.6b	1.0b
35°	Over 90	1.6b	3.4b
	60 to 90	1.3b	2.6b
	Less than 60	1.0b	1.8b
45°	Over 90	2.0b	4.0b
	60 to 90	1.6b	3.2b
	Less than 60	1.3b	2.3b



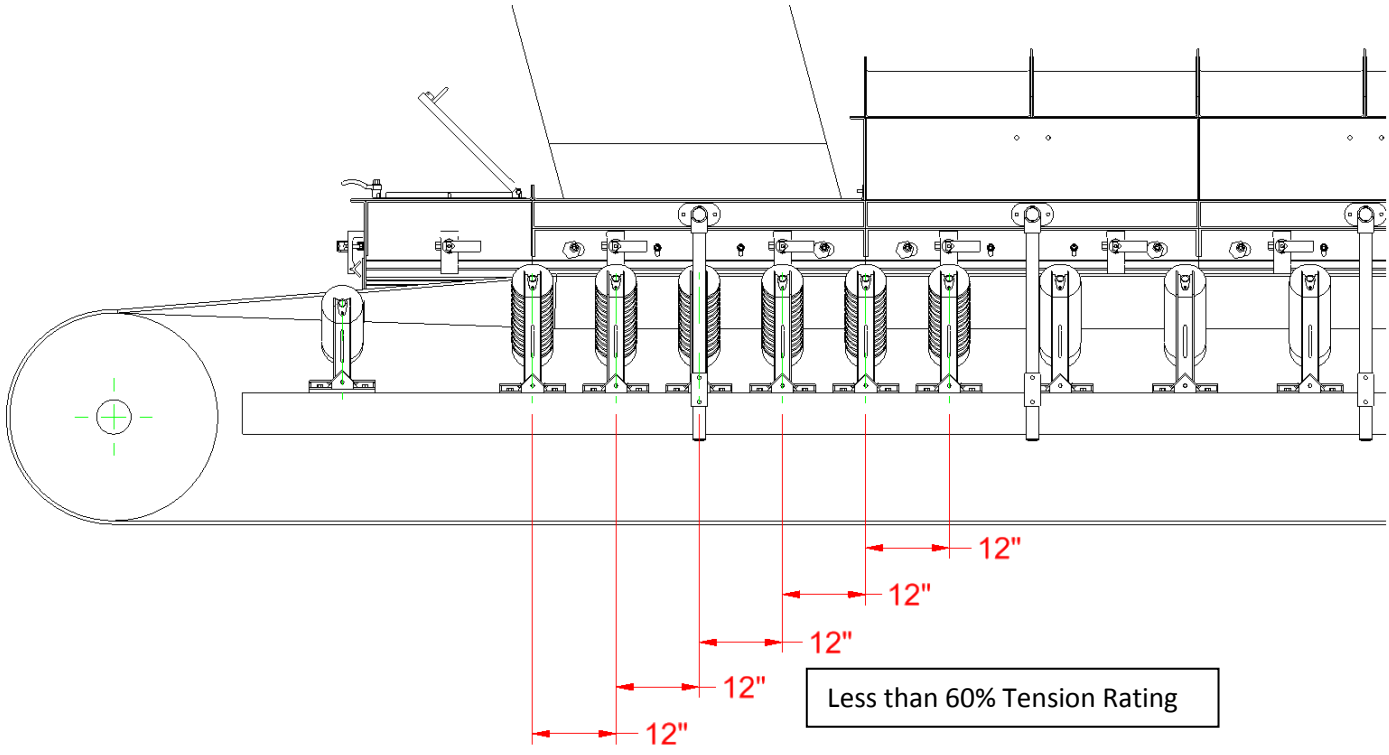
Correct Idler Spacing

Idlers in the LodeZone should be placed 18” apart for belts with a tension rating of 60% or more. Closer spacing wont be necessary unless spilliage occurs or the tension rating is below 60%.

If tesnion rating is below 60%, space the LoadZone Idlers at 12” centers.



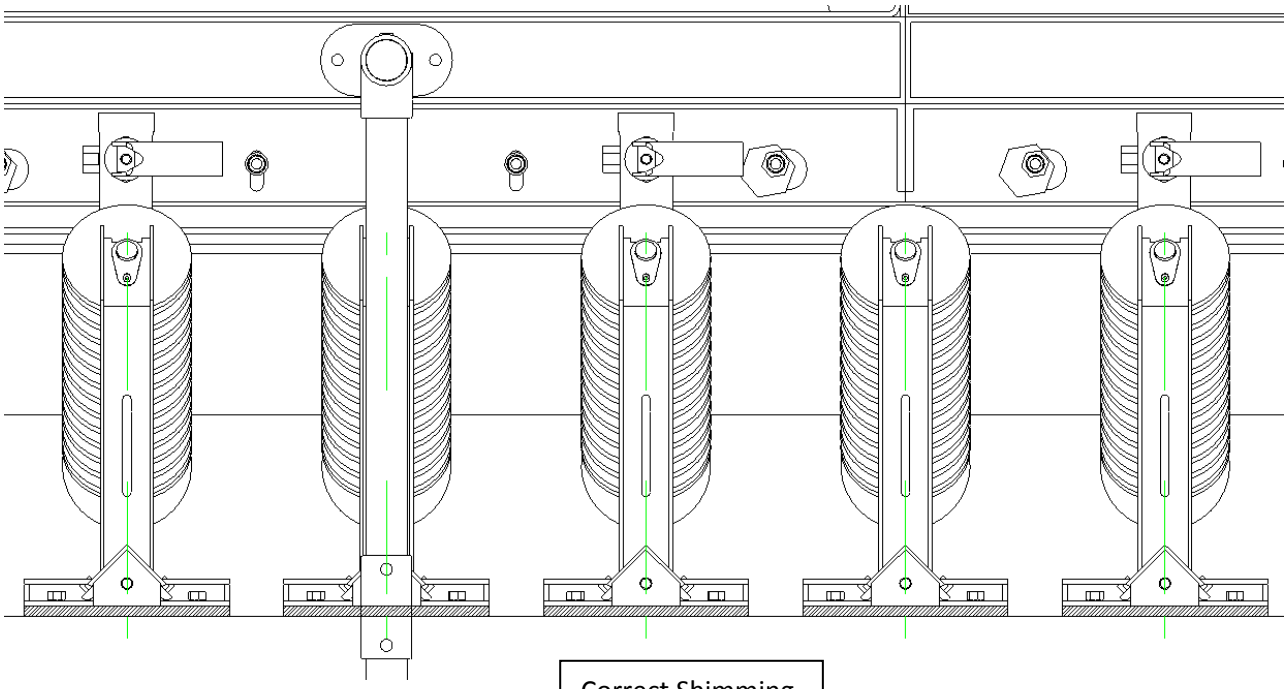
60% + Tension Rating



Less than 60% Tension Rating

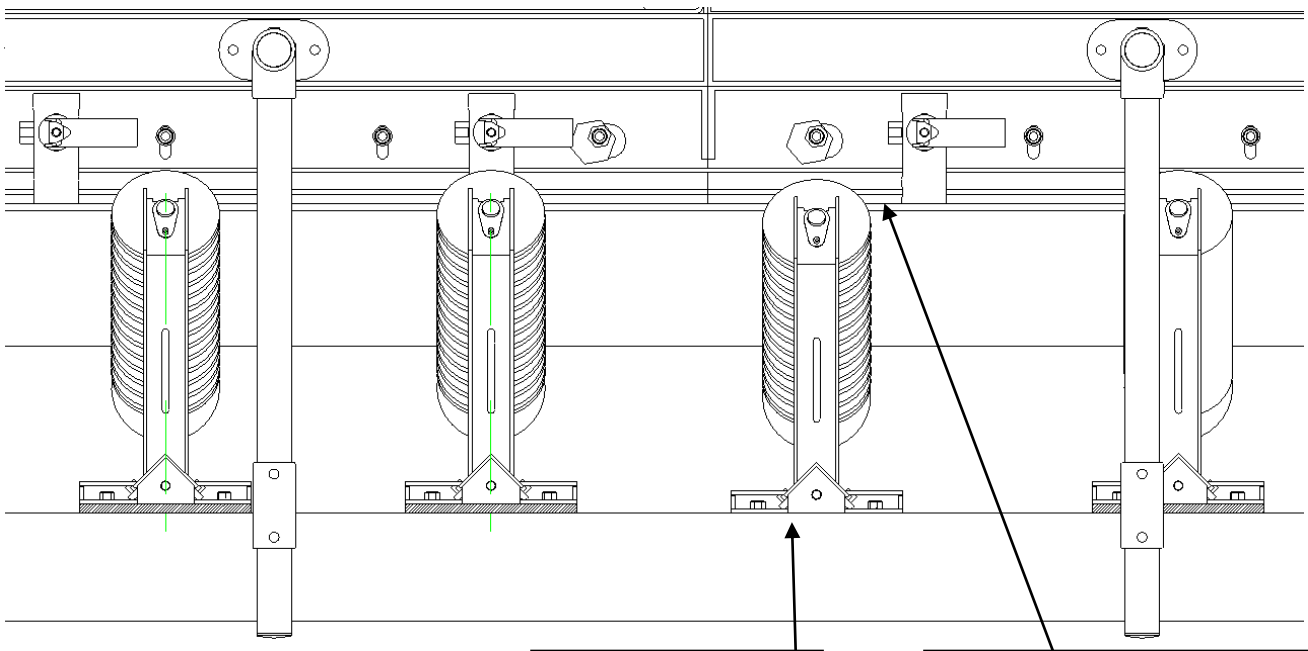
Correct Idler Alignment

Idlers should all be shimmed to the exact same height. Any deviation in height will cause a weak spot in the belt support allowing material to spill from under the skirt seal

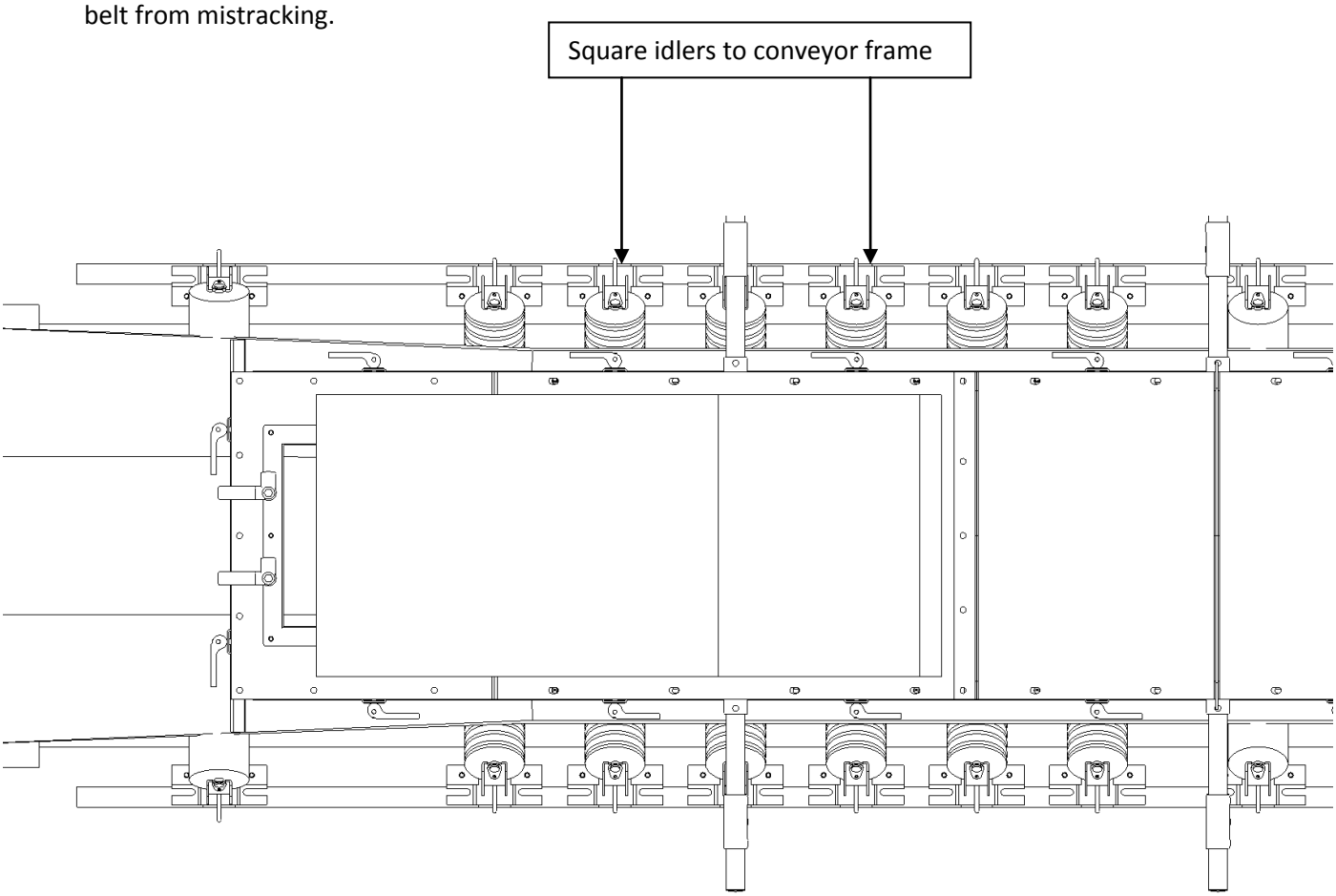


Correct Shimming

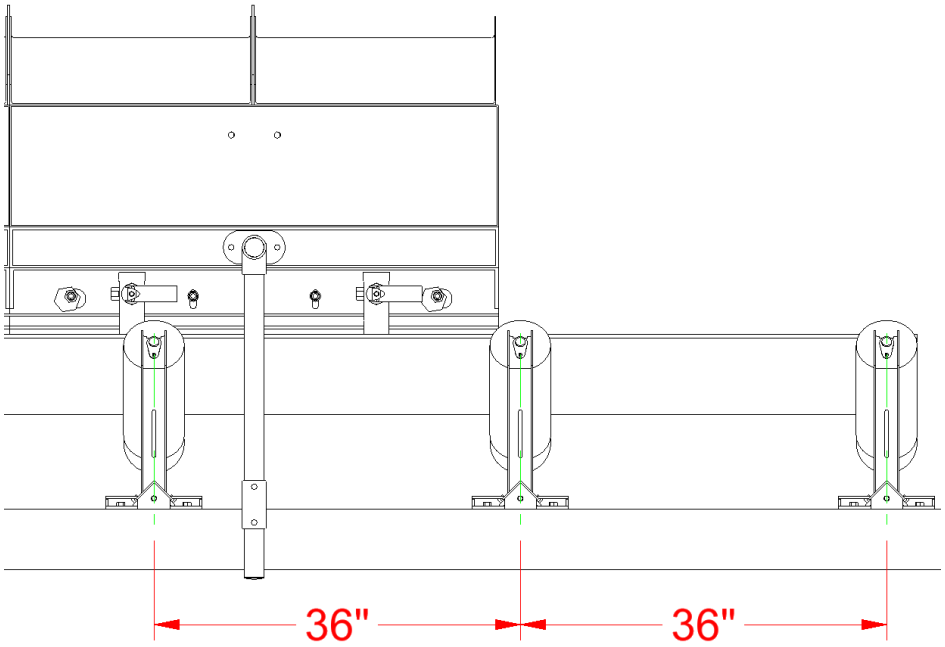
=



All idlers along the conveyor MUST be squared with the conveyor frame and pulley to stop a conveyor belt from mistracking.



After the LoadZone, idler spacing can be increased to 36”



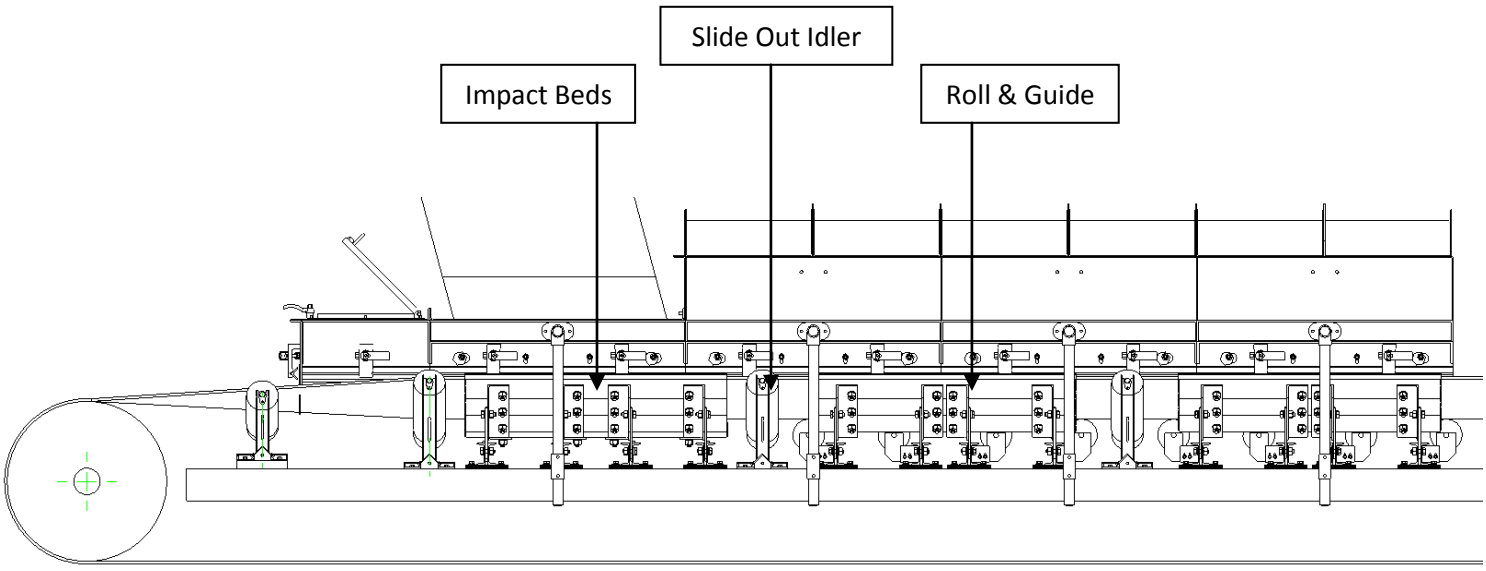
Installation Instructions
Warrior Impact Bed Belt Support

Hose down the work area prior to commencing any deconstruction. Use this time to inspect the stringer and decking where the new parts are to be installed. If the stringer or support system show signs of corrosion, it may be necessary to replace these structural parts before installing your Benetech Belt Support components.

The Benetech *Warrior Impact Bed* is designed to sit beneath conveyor belts at loading points where the discharge impact is most abusive. It cradles the belt and provides stability and shock absorption to prevent spillage and pre-mature belt wear.

The *Warrior Impact Bed* should be placed after the first full trough idler, directly underneath the belt's loading point. If more than one loading point exists, it is acceptable to place *Warrior Impact Beds* under each one.

Each *Warrior Impact bed* should be followed by a Benetech Slide out Idler, and then a Warrior Roll & Guide Support Bed. These components are necessary for optimum performance.

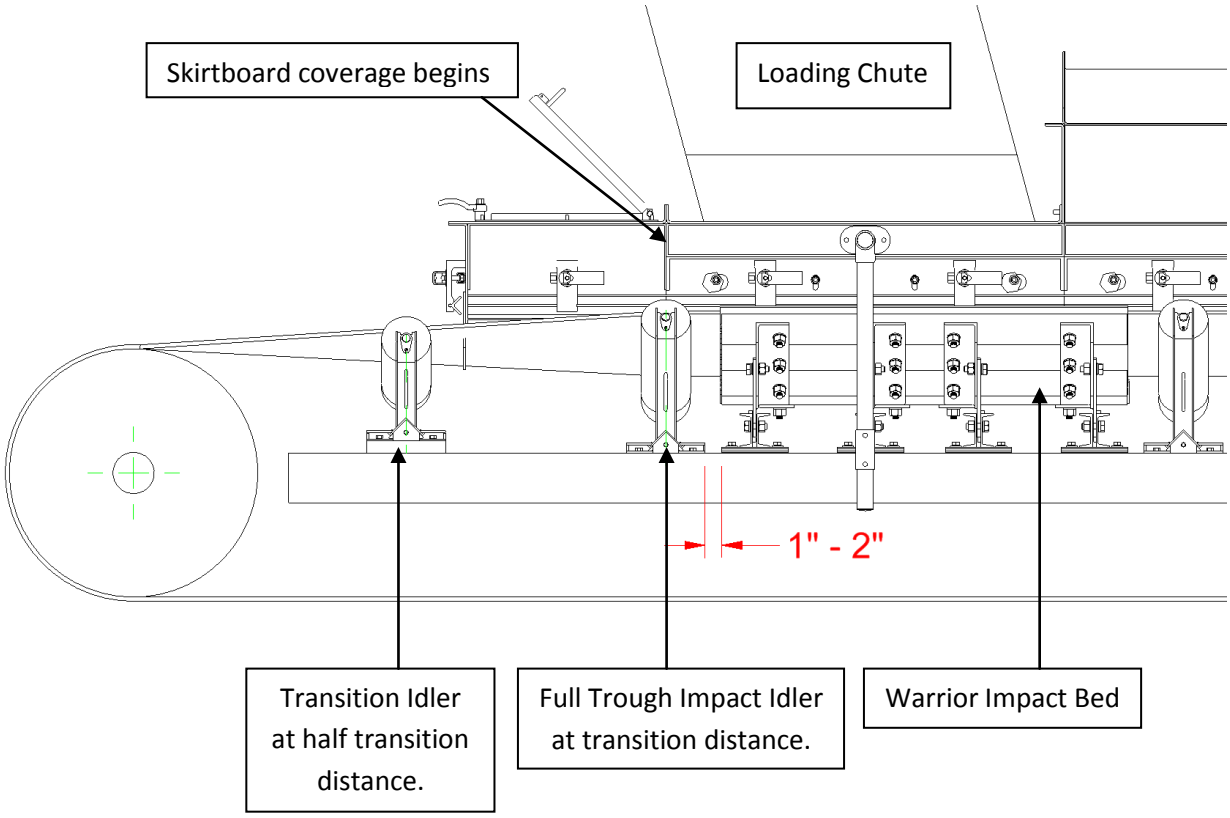


Positioning Warrior Impact Bed Belt Support

Correct positioning of the LoadZone support is critical to maintain a working seal between the belt and the skirting system. The FULL TROUGH idler should be placed at the distance shown on page 9, while the transition Idler should be placed at HALF that distance. See page 9 for details on Transition Idler and Full Trough Idler positioning.

If the existing equipment layout *doesn't* allow correct spacing of the transition distance, place the full trough idler just before the loading chute, and begin the skirtboard coverage at that point.

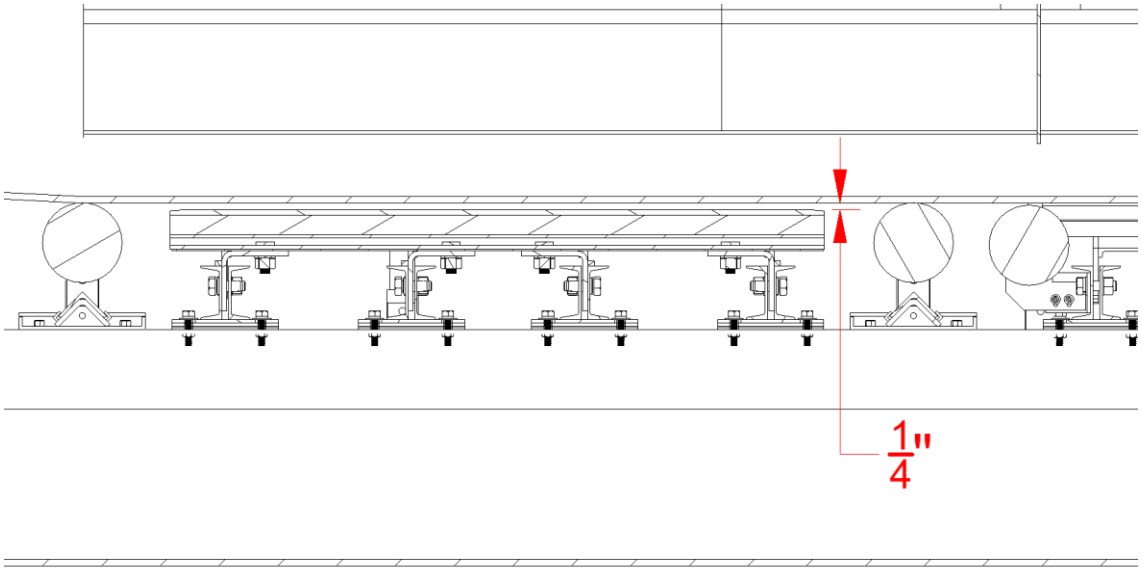
The Warrior Impact Bed should be place 1"-2" from the full trough Idler.



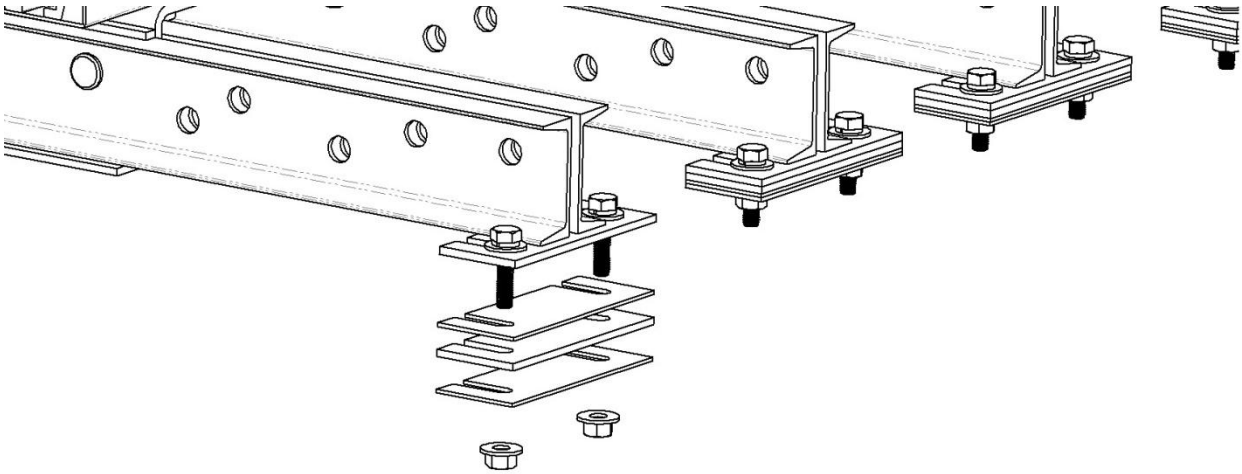
Correct Impact Bed Alignment

IMPORTANT: Benetech Inc.'s belt support products should only be used alongside Benetech Troughing Idlers. If idlers from other manufacturers are used, there is a risk that the belt will sit lower causing contact and high friction with the Impact/Roller beds. Excessive heat created by high friction can create situations where fire and explosions can occur.

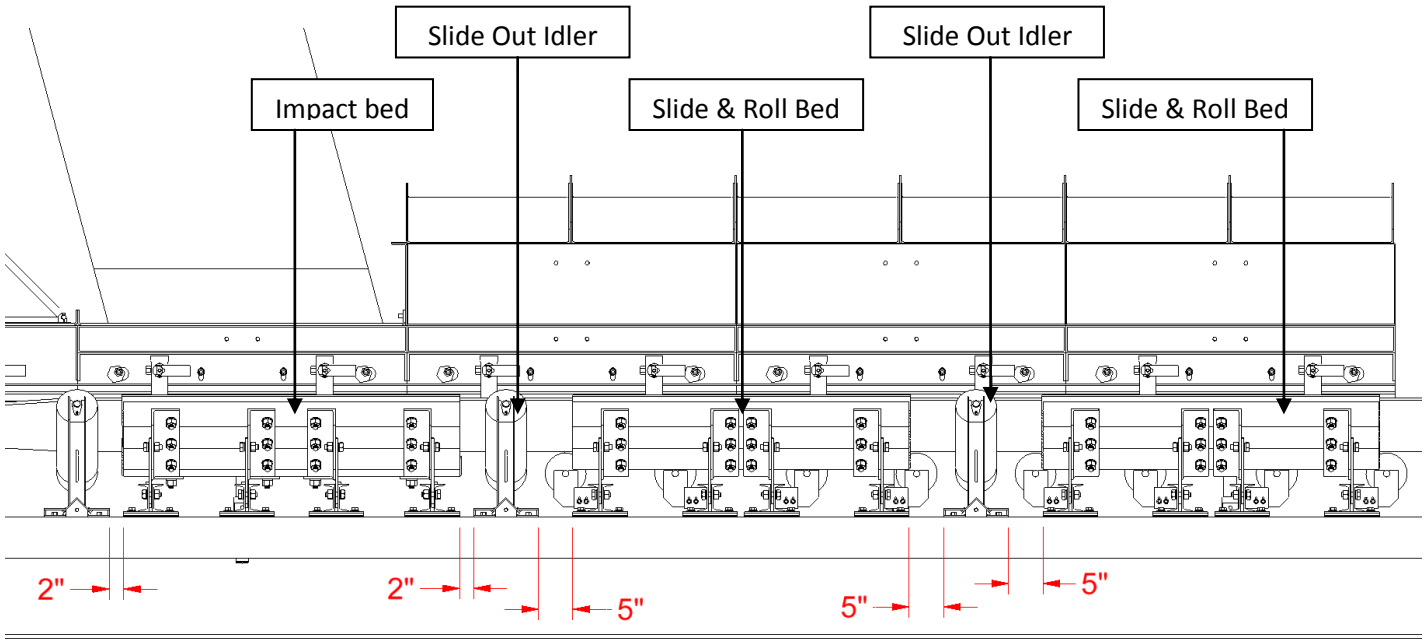
The Impact Bars should be ¼" below the belt when the belt is NOT under load. Measure the height and shim the Idlers accordingly.

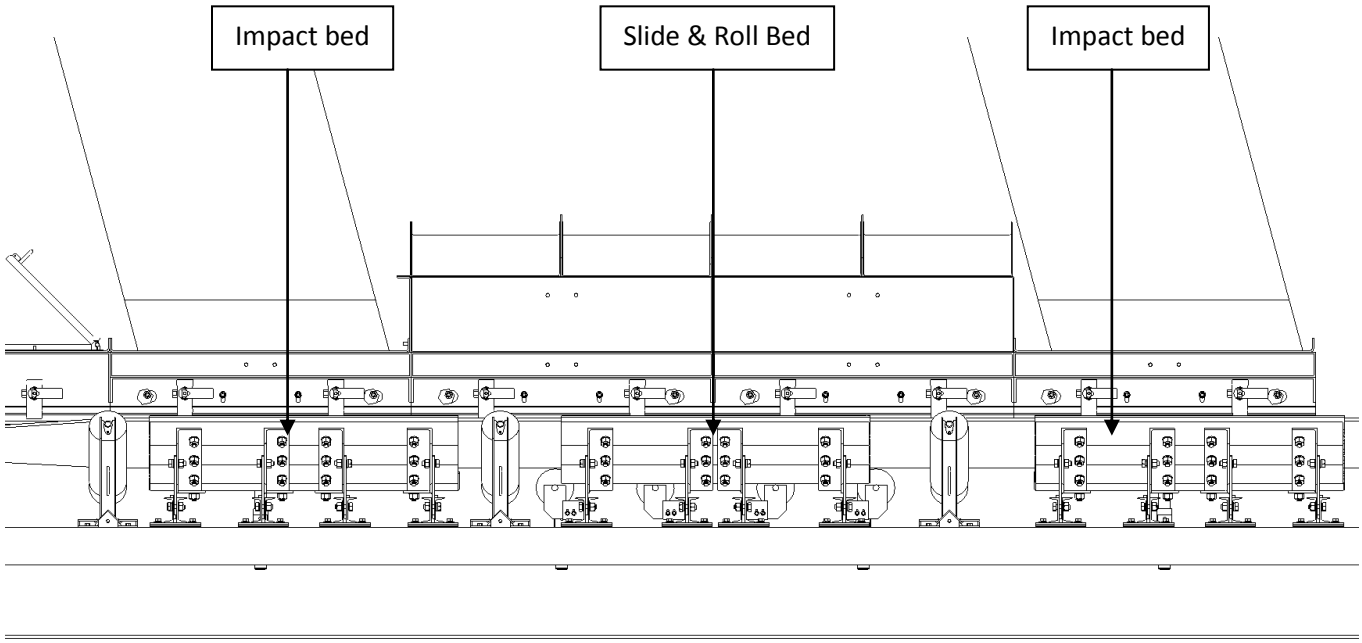


A shim kit is supplied with each *Warrior Impact Bed*. If the roll diameter of the idlers being used is 5", the shims should be left off. If the roll diameter is 6", the shims must be installed.



Two *Warrior Roll & Guide Beds* should be installed following each *Warrior Impact Bed*, each separated by one (1) slide out Idler. If a conveyor system contains more than one LoadZone, a *Warrior Impact Bed* can be placed under each and should be followed by two (2) *Slide & Roll Beds.* If there is not enough space for two (2) *Roll & Guide Beds,* it is acceptable to install only one as the following Impact Bed should provide adequate support.





Dual LoadZone Layout

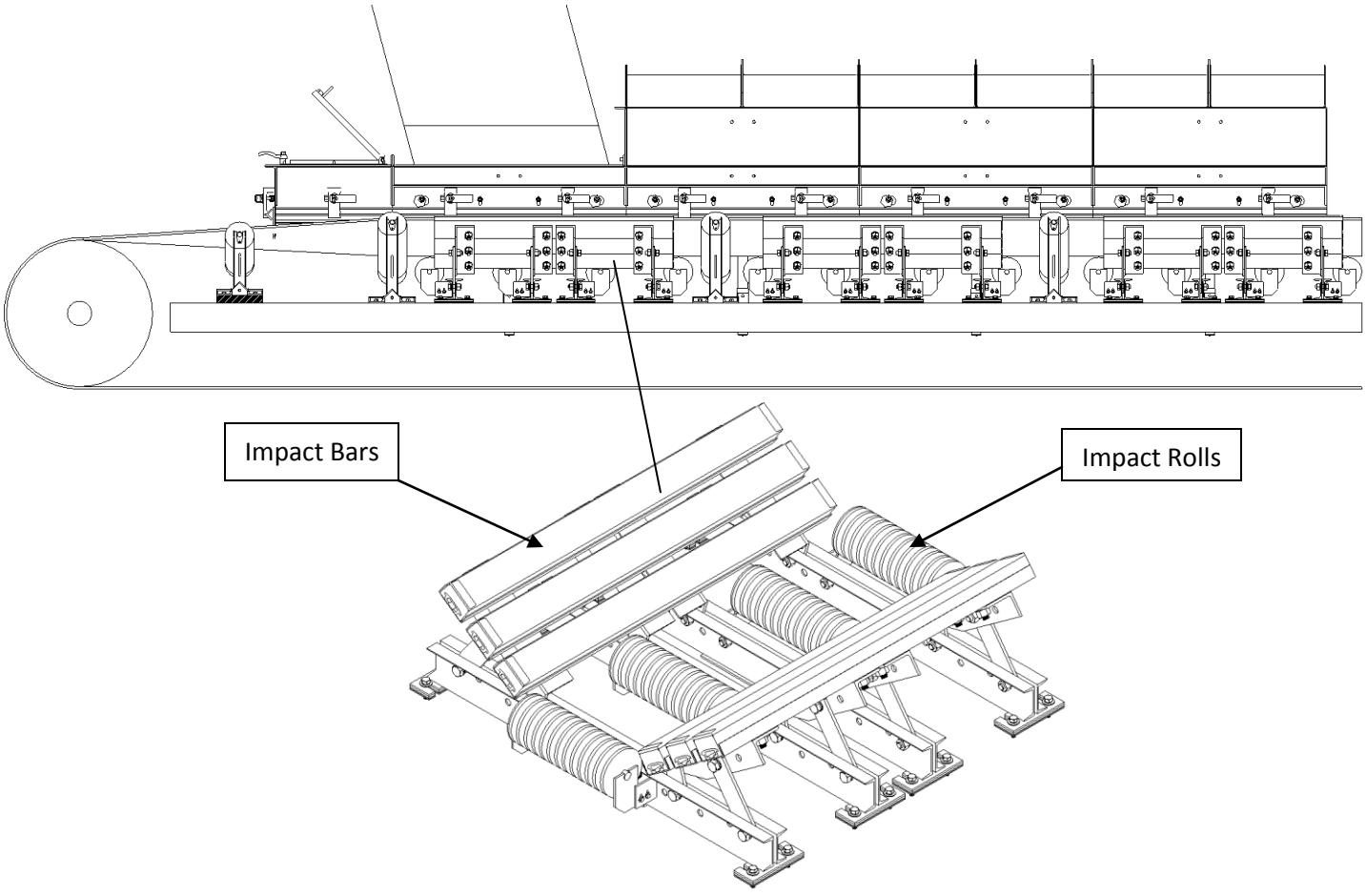
Installation Instructions
Warrior Slide & Roll Belt Support

Hose down the work area prior to commencing any deconstruction. Use this time to inspect the stringer and decking where the new parts are to be installed. If the stringer or support system show signs of corrosion, it may be necessary to replace these structural parts before installing your Benetech Belt Support components.

The Benetech *Warrior Roll & Guide Bed* is generally placed after an Impact Bed to stabilize loading material after the initial impact. It cradles the belt and provides stability and shock absorption to prevent spillage and pre-mature belt wear.

However, *Warrior Roll & Guide Beds* can be fitted with rubber impact rolls and used in place of the standard impact bed assembly. This arrangement provides the low friction benefit of standard Impact idlers with the stability and support of the impact bars.

Each Impact *Warrior Roll & Guide* should be followed by a Benetech Slide out Idler, and then a standard *Warrior Roll & Guide Support Bed*. These components are necessary for optimum performance.

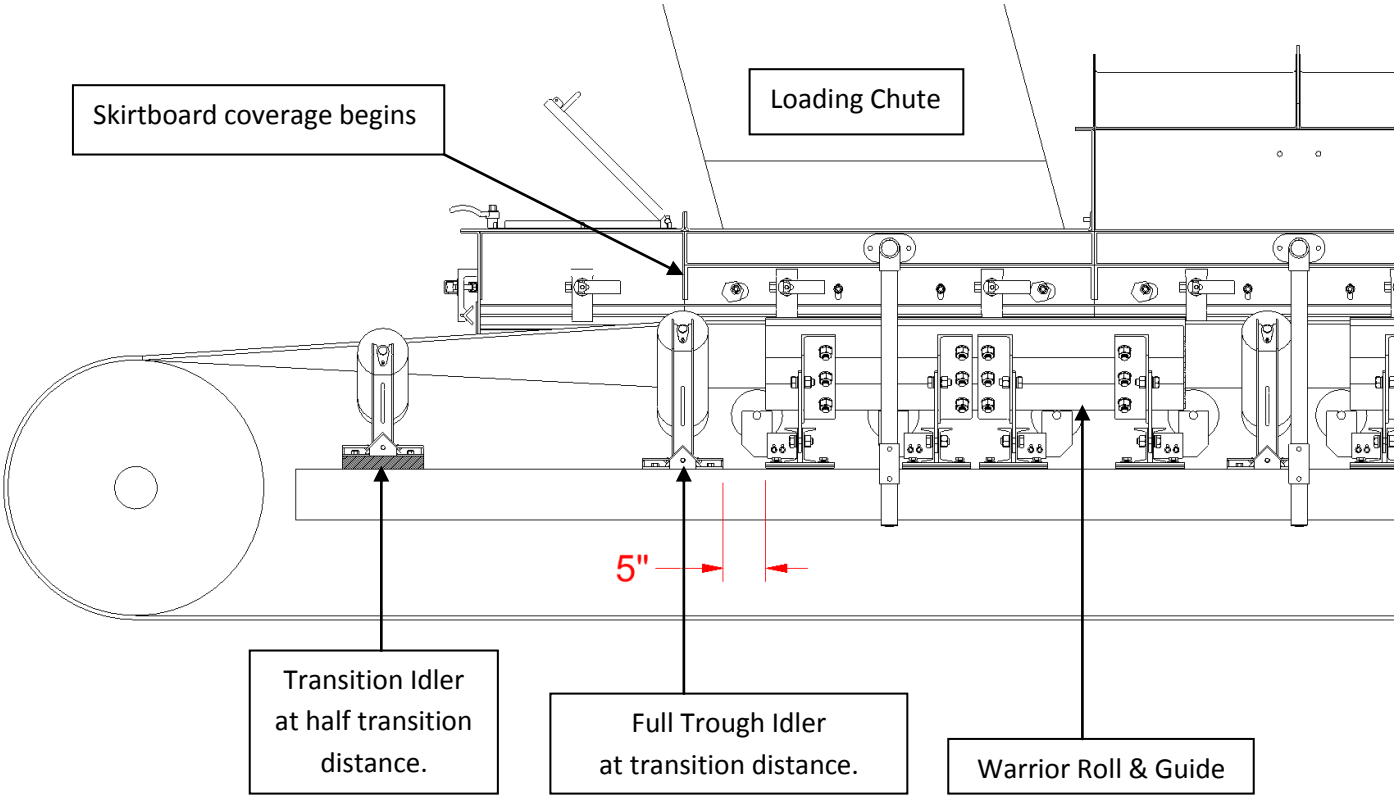


Positioning Warrior Roll & Guide Bed Belt Support

Correct positioning of the LoadZone support is critical to maintain a working seal between the belt and the skirting system. The FULL TROUGH idler should be placed at the distance shown on page 9, while the transition Idler should be placed at HALF that distance. See page 9 for details on Transition Idler and Full Trough Idler positioning.

If the existing equipment layout *doesn't* allow correct spacing of the transition distance, place the full trough idler just before the loading chute, and begin the skirtboard coverage at that point.

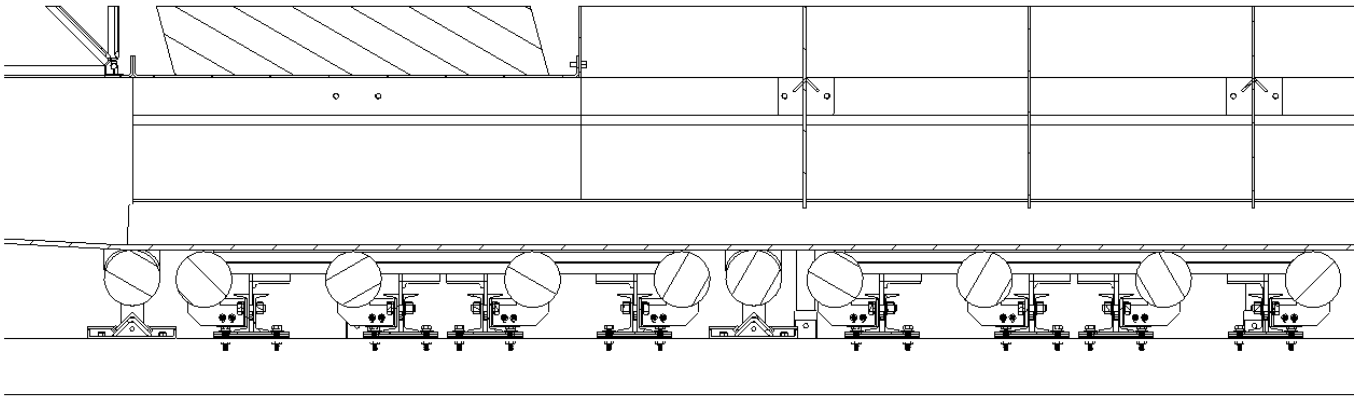
The Warrior Roll & Guide should be placed about 4" from the full trough Idler.



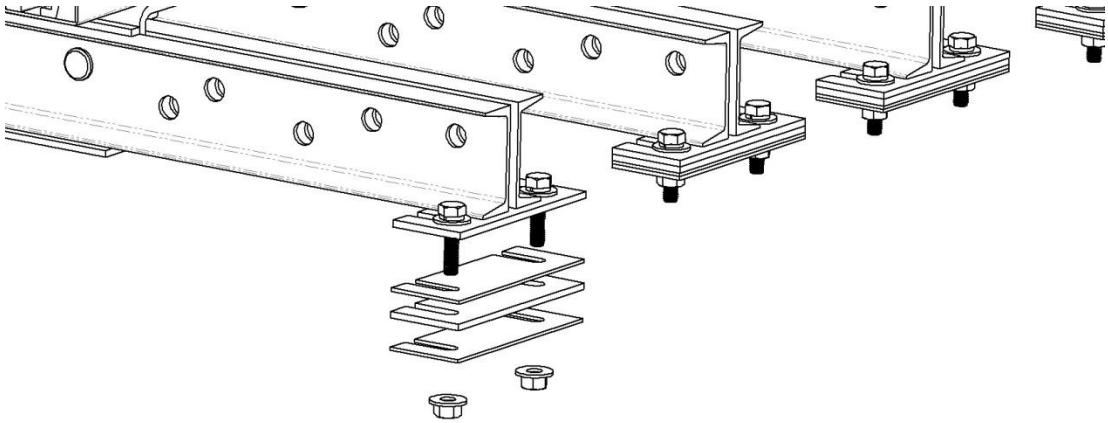
Correct Warrior Roll & Guide Alignment

IMPORTANT: Benetech Inc.'s belt support products should only be used alongside Benetech Troughing Idlers. If idlers from other manufacturers are used, there is a risk that the belt will sit lower causing contact and high friction with the Impact/Roller beds. Excessive heat created by high friction can create situations where fire and explosions can occur.

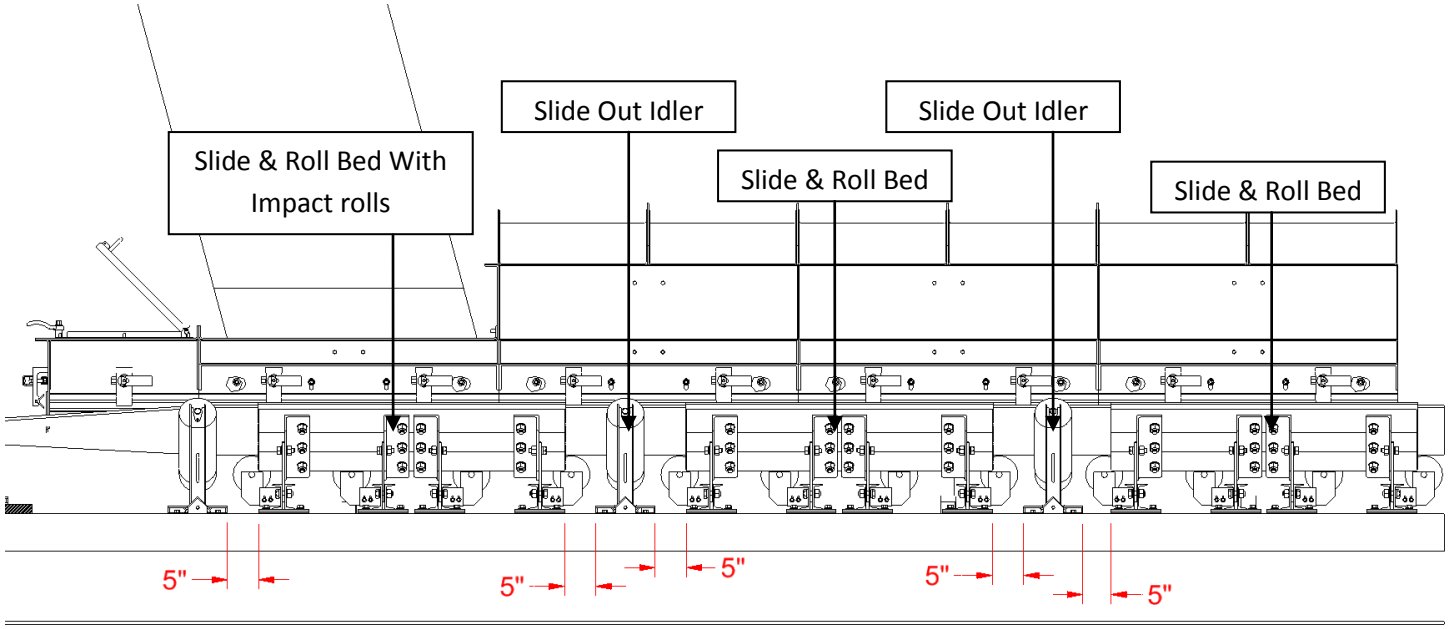
Adjust *Roll and Guide* rollers upward until they contact the belt.

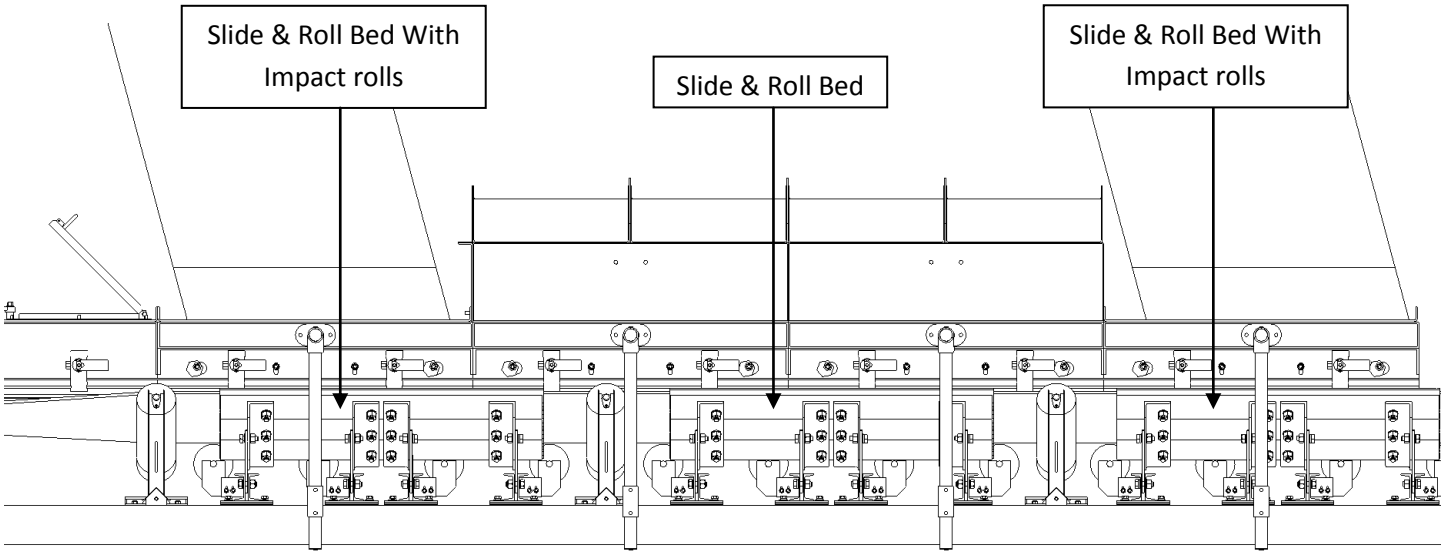


A shim kit is supplied with each *Warrior Roll & Guide*. If the roll diameter of the idlers being used is 5", the shims should be left off. If the roll diameter is 6", the shims must be installed.



Two standard *Warrior Roll & Guide Beds* should be installed following each impact *Warrior Roll & Guide* each separated by one (1) slide out Idler. If a conveyor system contains more than one LoadZone, an impact *Warrior roll & Guide* can be placed under each and should again be followed by two (2) standard *Roll & Guide* beds. If there is not enough space for two (2) standard beds, it is acceptable to install only one.





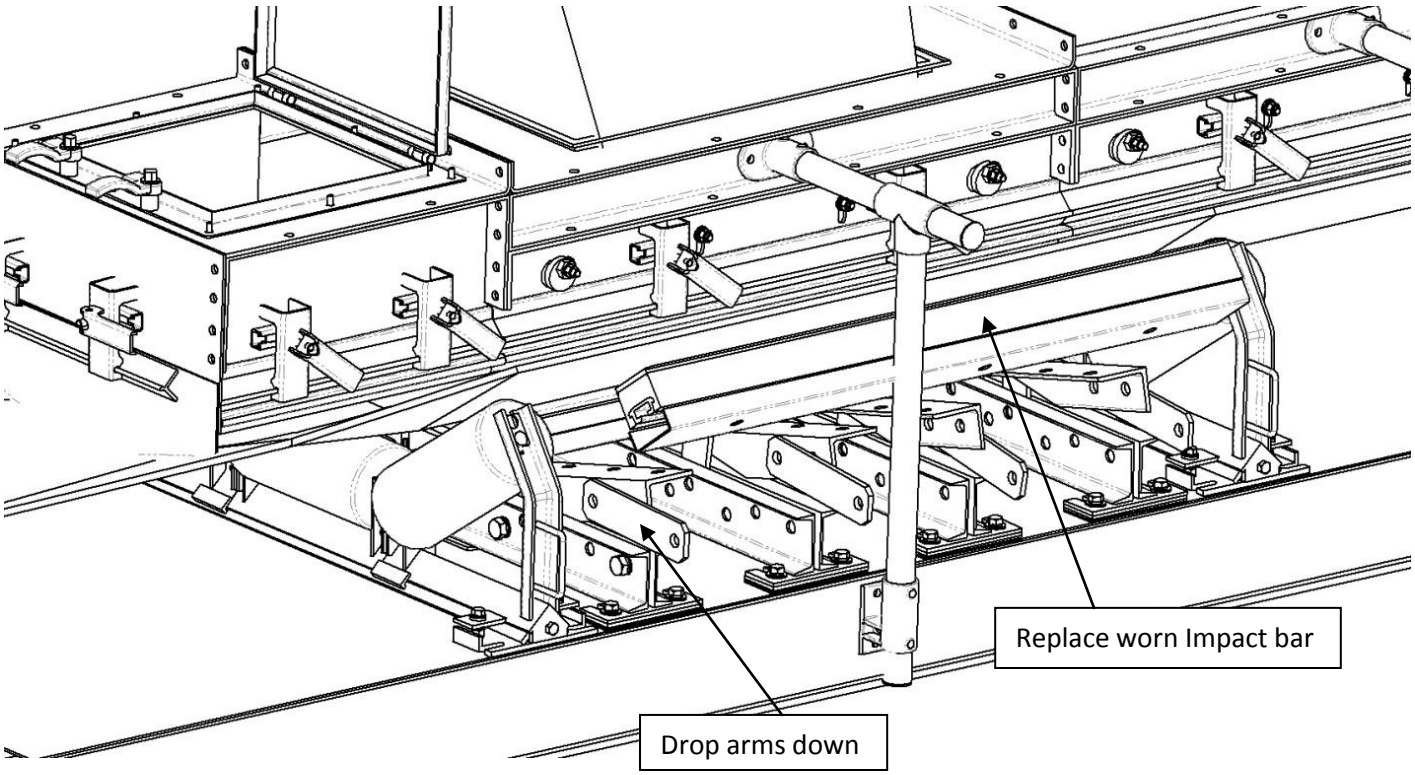
Impact Bar Replacement

This process is the same for both *Warrior Impact Beds* and *Warrior Roll & Guide Beds*.

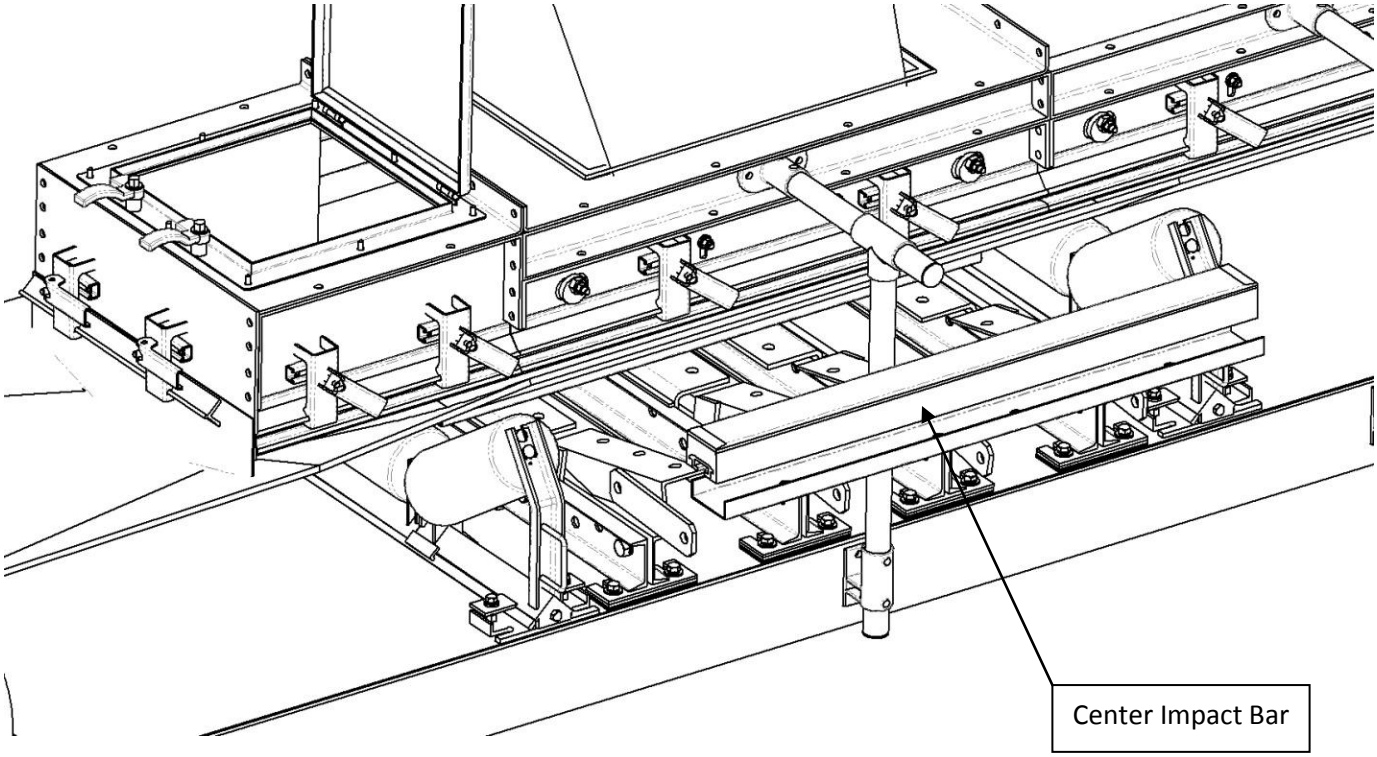
Periodic visual checks should be made once the Benetech belt support products are in use. Operators should check for loosening hardware and impact bar wear. The center bars on the *Warrior Impact Bed* are likely to face higher friction than the bars on the side, and therefore are more likely to show wear. However, the material used on top of the bars can be expected to last at least 12 months before requiring replacement.

For replacement bars, contact BENETECH, INC. or an authorized representative. See page 3 for part number information.

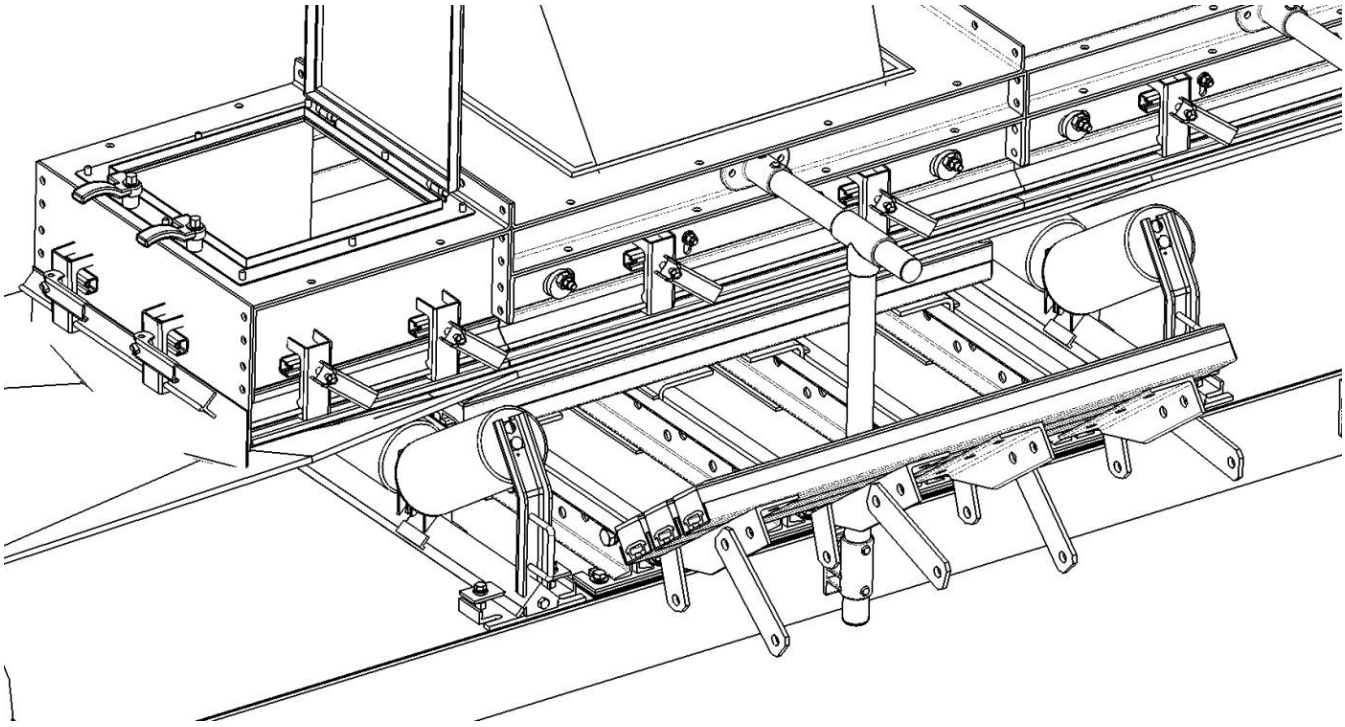
To replace the troughing bars, simply unbolt and drop the arms down. At this point it's possible to remove the worn troughing impact bars.



To replace the center bars, remove the side bars as described above, then unbolt and remove the center bars.



Alternatively, the side arms can be removed with the bars still attached.



! DANGER !

Excessive heat created by excessive friction due to blades being improperly tensioned can create situations were fire and or explosions can occur

! WARNING !

Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

! WARNING !

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.