

Belt Installation & Splicing

Splicing is a skill like any other. It can be learned through training, and it improves with practice. Another major factor in faster, easier splicing is having the right tools for the job (see list at right).

REMINDER: Minimize bending the wire strands at the Z-bends. Do your necessary bending in the straight sections of the wire strands. In addition, used belt. Do not try to reuse splice clips.

Before You Begin Splicing

If you are installing a new belt:

- Disconnect the power to the conveyor system
- Release all tensioning mechanisms
- Thread the belt onto the conveyor
- Check to be sure that the smooth side is “up”
- Check to be sure that the edge loops curve back in the direction opposite to the direction of belt travel
- Remove a strand or two from the new belt to use for full strand splicing
- Tie the two ends of the belt together with cord, twine or wire ties

If you are repairing a belt:

- Disconnect the power to the conveyor system
- Release all tensioning mechanisms
- Tie two undamaged strands together with cord, twine or wire
- Cut out the damaged portion with wire cutters; pick up and dispose of wire pieces immediately
- Orient the new piece of belt correctly by checking the edge loops and Z-bends, then matching everything exactly. (It is easy to install the piece upside down and/or backwards if you aren't careful.)
- Remove a strand or two from the new belt to use for full strand splicing
- Secure the new piece of belt in place with wire ties, and cut off excess belt

Important Note: If a belt has damage in more than one place on account of fatigue, do not try to repair it. Install a new belt. Also, never save old belts to use for repairs because they have already been weakened from use. Purchase several extra feet of new belt to use exclusively for repairs.

For Full Strand Splicing:

1. Begin Splicing In The Center

- Move the two ends of the belt to be spliced to the discharge end of the conveyor unit.
- Confirm that the edge loops are curving back away from the direction of belt travel as shown in Diagram A. If not, check to be sure that the belt is not threaded backwards on the conveyor.
- Lay the strand down between the two belt edges and check to see that the edge loops are going in the same direction as the belt's edge loops. (The strand must also be “right side up” for it to lay flat. You will know immediately if you have installed the splice strand “wrong side up” and will have to start over.)
- BEND the strand from each side enough to INSERT the ends into the two spaces next to the center space (Spaces B and D in Diagram A)
- INSERT the strand ends into the center space of the opposite edge (Space 3 in Diagram B)
- Pull the ends of the strand through until the center space “locks” in place (You should be pulling the strands toward you)

Tools You Will Need:

New Belt
Cord or Wire
Heavy duty Wire Cutters
Wire Ties
Pliers
Allen Wrenches
Straight Edge
Safety Glasses

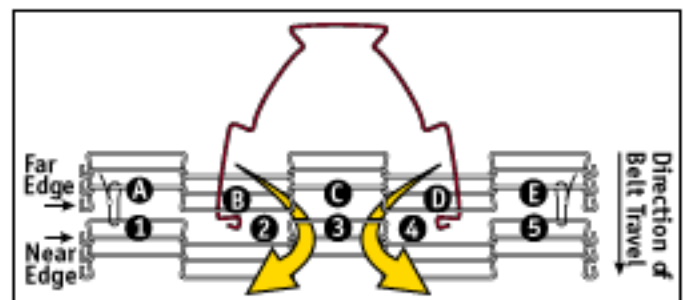


Diagram A

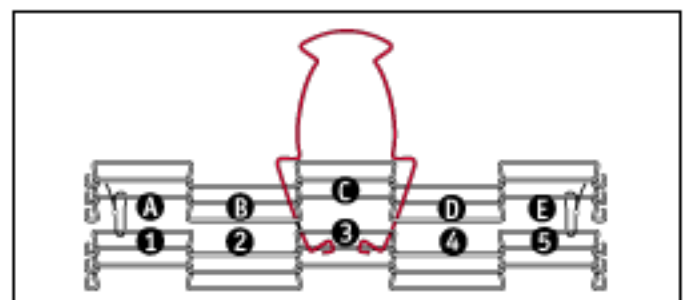


Diagram B

- Use pliers or the Eddie Tool to STRAIGHTEN the wire in the center space (Once the center is connected, you may remove the ties holding the belt edges together)

2. Weave Strand To One Side

- BEND one end of the wire up and INSERT it around the Z-bend in the next space on the edge of the wire closest to you (Space 5 on Diagram C). Always try to avoid bending the wire at the Z-bend!
- BEND the wire toward the center and INSERT around the Z-bend next to the center space (Space D on Diagram D)
- Pull the strand wire through the mesh and STRAIGHTEN it with your pliers
- Repeat these three moves until you reach the side edge of the belt
- Using your pliers, connect the strand's edge loop to the belt's edge loop (on the far edge)
- Connect the edge loop on the near edge of the belt to the strand's edge loop
- STRAIGHTEN the strand with your pliers

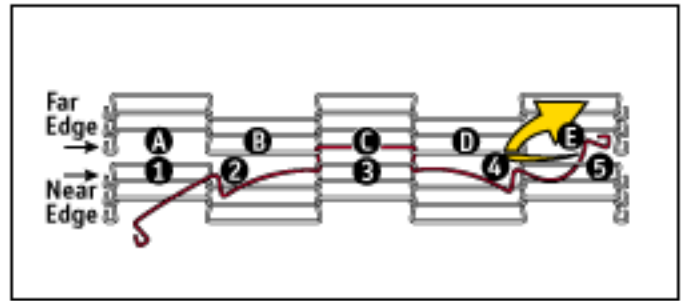


Diagram C

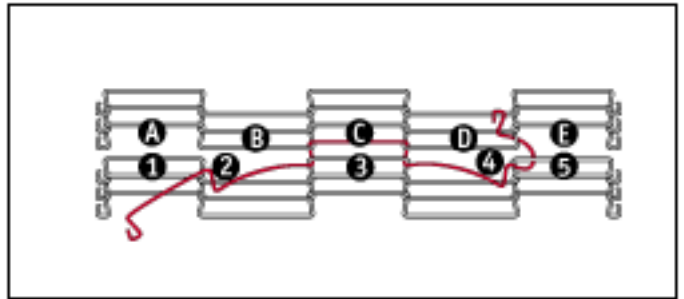


Diagram D

3. Weave Strand To The Other Side

- Repeat the steps in #3, going in the opposite direction, weaving to the other side edge of the belt (Diagrams C through G)
- If you are installing a new belt, you are finished splicing

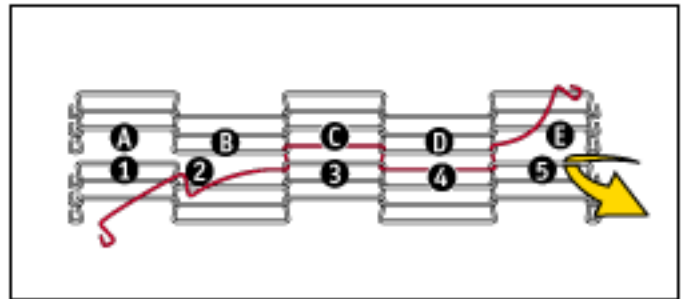


Diagram E

4. Check Drive Shaft Sprocket Alignment

- There should be a 3/16" clearance between all sprockets (and/or blanks) and the Z-bends next to them
- Check alignment of sprocket teeth with a straight edge (only necessary if the sprockets are not keyed to the Drive Shaft)

5. Check Entire Belt Circuit

Z-bends should NOT come in contact with ANY conveyor component (including end rolls, wear strips, transfer support rails or nose bars, etc.) Adjust as needed

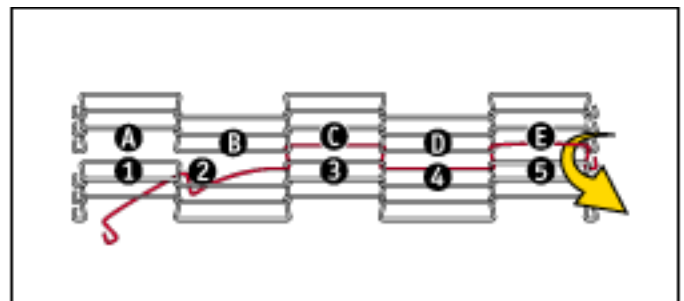


Diagram F

6. Adjust Tension

Flat-Flex is a low tension belt. Use minimal tension... only enough so that drive sprockets properly engage the belt. Run conveyor and check to be sure it runs smoothly.

Note: Too much tension will cause premature belt failure!

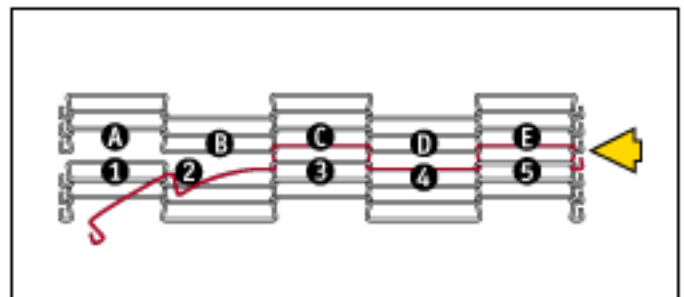


Diagram G

Connecting Double Loop Edges (DLE)

Diagram A

- At the last space before the Double Loop Edge, gently bend the splicing strand in the center of the last space.
- Insert the end of the splicing strand into the double loop edge feed the DLE through the space.

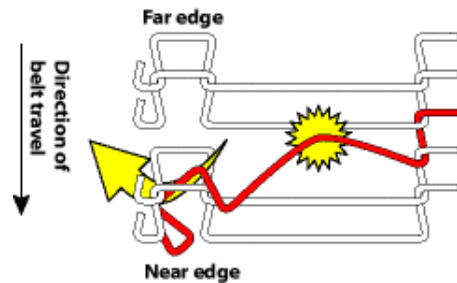


Diagram B

- Insert needle nose pliers from underneath, grab the center of DLE on strand and pull up into space.
- Straighten initial bend

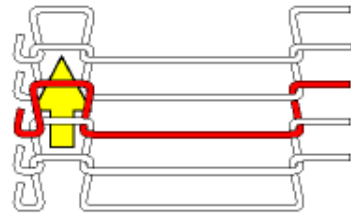


Diagram C

- Flex the belt by pushing down in center of last row of spaces
- Rotate splicing strand so you can push the end up from underneath the last space on far edge.
- Hook DLE over last large space Z-bend.

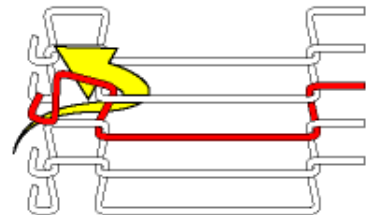


Diagram D

- Connect the splice strand edge hook to the near side loop edge using pliers.

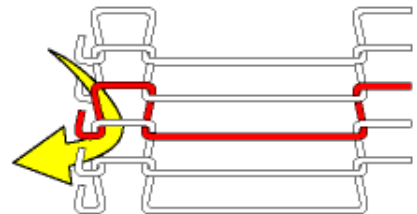
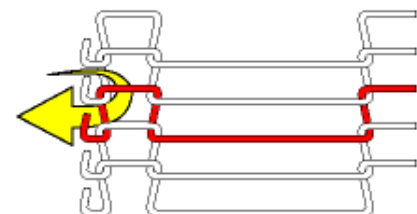


Diagram E

- Connect the far side loop edge by hooking it into the splice strand using pliers.
- Connect the opposite edge of the belt in the same manner... only in mirror image.
- Straighten any bends in wire strands.



Reminder

You may need to rotate splicing strand to thread it around the Z-bends. However, try to avoid bending any strand at the Z-bend itself. You may bend the strand in the center of the large space or may flex the belt by pushing down in the center of the last row of spaces to create enough "slack" to weave the DLE into place.

Note: Double Loop Edges are only available in wire diameters up to .050 inches.

Installing Splice Clips

Splice clips come in two varieties: single space and 3-space clips. The 3-space clip is obviously stronger because its center space is woven into the belt as in the full strand splice method. These two types of clips should be used together, whenever possible to create a stronger splice and to help minimize the spacing gaps in the belt. (For example, a 7-space belt could be spliced using two 3-space clips... whereas, a 9-space belt would use 1 single and two 3-space clips.

Important Note: Two different end loops from adjacent clips cannot be attached to the same Z-bend. Only one splice clip end loop per Z-bend is allowed.

1. Before You Begin Splicing

- Plan out the number, type and placement of splice clips by laying them out in position across the belt.
- Make certain that no two end loops on the clip hook around the same Z-bend and that all end loops point away from the direction of belt travel.

2. Begin installation with the center space

- Insert the appropriate type of splice clip into the center space on the edge of the belt

If installing a single clip, use needle nose pliers to grip the splice clip, and hook the two ends around the Z-bends on either side of the center space

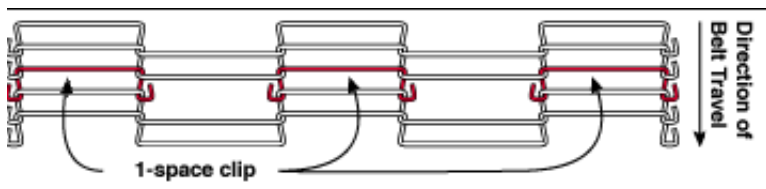
OR-

- If using a 3-space clip, bend the clip in the center and insert the ends into the two spaces next to the center space.

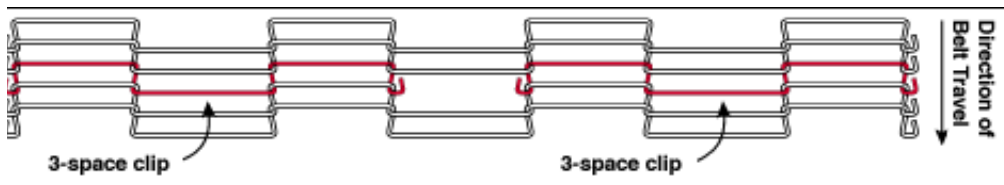
Then insert the ends into the center space of the opposite edge and pull through until the center "locks" into place.

Use the needle nose pliers to grip the end loop, bend the wire up and hook it around the Z-bend on the opposite edge of the belt. Repeat for other end loop.

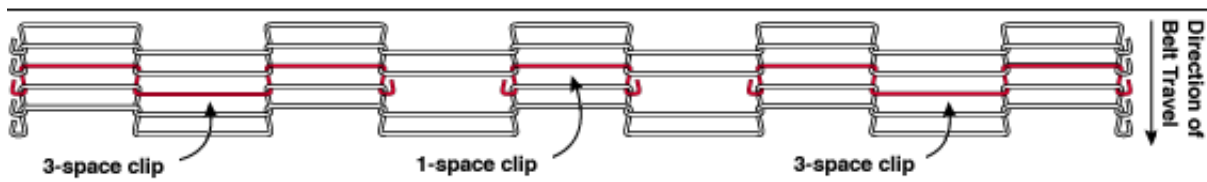
- Straighten the wire with pliers



5-space single loop edge belt



7-space single loop edge belt



How Many Clips?

# of Spaces	Single Clips	Single + 3-Space Clips		
3	2	0		1
5	3	1	+	1
7	4	0		2
9	5	1	+	2
11	6	0		3
13	7	1	+	3
15	8	0		4
17	9	1	+	4
19	10	0		5
21	11	1	+	5
23	12	0		6
25	13	1	+	6
27	14	0		7
29	15	1	+	7
31	16	0		8
33	17	1	+	8
35	18	0		9
37	19	1	+	9
39	20	0		10
41	21	1	+	10
43	22	0		11
45	23	1	+	11
47	24	0		12
49	25	1	+	12

3. Install the next splice clip on an outside edge

If a single clip is used:

Remove the ties holding the edges together

Insert the splice clip through the near edge

Connect the edge loop to the splice clip

Grip the splice clip with your pliers and hook the end around the adjacent edge loop and the first Z-bend on the far edge

-OR-

If a 3-space clip is used:

- Remove the ties holding the edges together
- Bend and insert the splice clip around the second space in from the belt edge, then insert the ends into the opposite edge of the belt. Pull through until center locks in place.
- Using pliers, connect the outside edge loop to the splice clip. Then grip the end of the clip and hook it around the adjacent edge loop. Hook the opposite end to its adjacent Z-bend. Straighten wire with pliers or "Eddie" tool..

4. Install splice clip on the opposite edge

- Install the same type of splice clip on the opposite edge in the same way.

5. Install the remaining splice clips

- Install the remaining splice clips, as appropriate, across the belt. There should be the exact same number and type of splice clips on either side of the center clip (the first clip you installed).

6. Re-tighten the tension.

Important Note: If a belt has damage in more than one place on account of fatigue, do not try to repair it. Install a new belt. Also, never save old belts to use for repairs because they have already been weakened from use. Purchase several extra feet of new belt to use exclusively for repairs.