Flat-Spiral Conveyor Belting
Installation Guidelines
Friction Driven

Preparation
Before installing a new belt, always check the conveyor structure;
• Shafts to be at 90° to direction of travel, and horizontal.
• Rollers to be free to rotate.
• Positive Drive Belts—Sprockets to be correctly positioned, and aligned.
• Belt supporting surfaces are smooth and level with adequate belt edge clearance. Check that there are no parts of the structure that can catch the belt.
• If a take-up mechanism is fitted, ensure that it is functioning correctly.

Installation Procedure

<table>
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<tr>
<th>Tools you will need:</th>
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<tr>
<td>• Safety glasses</td>
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<td>• Flat end pliers</td>
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<td>• Side cutting pliers</td>
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<td>• Needle Nose Pliers</td>
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<tr>
<td>• Cable ties/soft wire/rope (optional)</td>
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<td>• Pulling rope (optional—for long new conveyor installations)</td>
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<td>• Necessary tools for conveyor belt take up adjuster</td>
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<td>• Welding set to complete the belt edge at the join strand—required for welded edge finish belt.</td>
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1. First ensure that the electrical supply to the conveyor is turned off and the power supply locked out.
2. Release any conveyor belt tension take up mechanism to allow maximum adjustment during use.
3. There is no top or bottom side to the hooked and welded edge belt version – either side can be up. The ladder edge version should be fitted with the cut tails down and trailing.
4. **Direction of travel** – see diagrams below for each style of edge finish.

![Direction of Travel](image1)

5. The belting should be pulled through the conveyor circuit until the two ends meet. There are 2 approaches to this:

   a) Where the belt is being replaced for a belt in situ on the conveyor. In this instance the existing belt would be cut at the non-drive (normally idle infeed end) and then temporarily attach the lead of the new belt roll to the lagging end of the existing belt. By means of supporting the new belt roll (whether on a roll or layered on a pallet) you will be able to carefully drive the belt (operate at slow speed) into the conveyor using the existing belt – always maintain suitable belt tension to ensure there is no belt slip on the drive roll. Whilst the belt is being driven in the old belt should be collected and layered carefully onto a pallet or suchlike for disposal. Then continue the process from step 6 below.

   b) If fitting the belt to a conveyor where there is no existing conveyor (such as a new installation) then the belt will have to be fed through the conveyor circuit by hand. For long conveyors you will need to attach a steel bar to the leading edge of the belt with cable ties or suchlike (see below). To this bar then attach a pulling rope which is first fed through the conveyor to the discharge. From here the belt can be pulled through the carry way part of the circuit. Once the lead edge of the belt is at the discharge end the rope should then be fed back through the return way of the belt circuit to the infeed end. It can then be pulled (maybe with slow speed drive assistance) to the infeed end. Then continue on from step 6 below.

![Diagram](image2)
6. Where the two ends of the belt meet the excess mesh should be cut off whilst maintaining the correct right/left hand repeat pattern of the coil mesh assembly (see below). A left hand coil at one end of the belt needs to meet a right hand coil at the other end.

7. Temporarily, the two ends can be tied together; this may make assembly easier.

8. The mesh is joined by inserting a cross wire through the intermeshing coils at each end of the belt. For belt edge connection of the 3 styles the procedures are as follows:-
   - **Laddered Edge Belt.**
     The belt will be supplied with a straight cross wire having a ladder finish on one end. Once the mesh ends have been pulled together fully insert the straight wire end of the join wire through the intermeshing coils. Then hook the open ladder of the join wire to the trailing ladder belt edge and close the ladder gently with pliers or similar. Move to the opposite belt edge with the straight wire end protruding. Using pliers bend the straight wire through 90° and form, with the pliers, a ladder loop tail to loop over the trailing belt end cross wire.
   - **Hooked Edge Belt**
     The belt will be supplied with a joining cross wire having a hook loop on both ends. Pull the ends of the belt together (maintaining the left hand to right hand coil pattern) and compress the coils into each other to allow for the loop end of the connecting wire to be inserted through the intermeshing coils. Push the connecting wire through to the full width of the belt allowing the hook end to loop and connect around the 2 intermeshing coils as the cross wire is inserted. Then push and compress the coils on the opposite belt edge to engage the cross wire hook into position, locking the coils together.
   - **Welded Edge Belt**
     The belt will be supplied with a straight cross wire. Pull the ends of the belt together (maintaining the left hand to right hand coil pattern) and insert the join wire to the full width of the belt. Cut the cross wire to length and weld each end to the corresponding coil wire.
Note: If side guards or cross flights are fitted, their pattern and construction need to be taken into consideration.

9. Re-tension the belt enough to maintain adequate drive without over tensioning the belt.

10. Check there are no belt parts or tools left on, or in the conveyor.

11. Remove power lock off and then start the conveyor and test run under slow running conditions before running at normal operating speed.
   - Longer belts may be supplied in sections and therefore multiple belt joins will be necessary.
   - If the belt drive shaft is fitted with chain edge positive drive sprockets then you will have to disengage the geared motor drive from the drive shaft or operate the conveyor in a slow speed mode to allow the return way belt section to be pulled back whilst being driven.
   - If the belt is fitted with side chains and cross rods then it will also be necessary to maintain the side chain pattern when joining the belt. Side chain driven belts are supplied with two sets of chain connecting links.

Operating Notes!

Sometimes a belt can show signs of surging, hunting or jerking. What could be happening may be an effect sometimes referred to as “slip-stick” which can afflict some longer slow running conveyors using many belt styles. The belt can act something like a spring. The idle end of the belt can remain stationary until belt tension increases to the point that static friction is overcome; the belt can then surge ahead and the resulting drop in tension may then allow the belt to slow, or even stop. The cycle of surging can then become repetitive; if this problem persists then consult the designer or manufacturer of the conveyor.

This effect is normally a function of the following:-
   - Low belt speed
   - Belt tension
   - Nature of belt support (coefficient of friction)

To help alleviate some of this effect it may be necessary to change any of the above or a combination of all.