

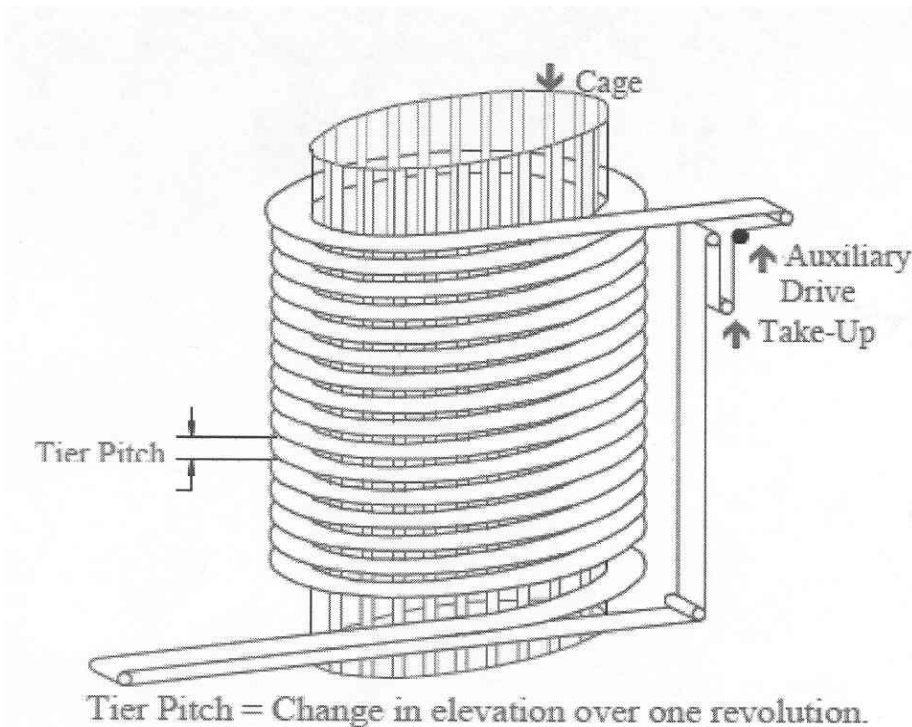
Flexible Rod Belt

Installation Instructions for Existing Systems

In advance of installation it is a good idea to check out the system to prevent time lost at a later stage when installation occurs.

Pre-installation checks should include the following:-

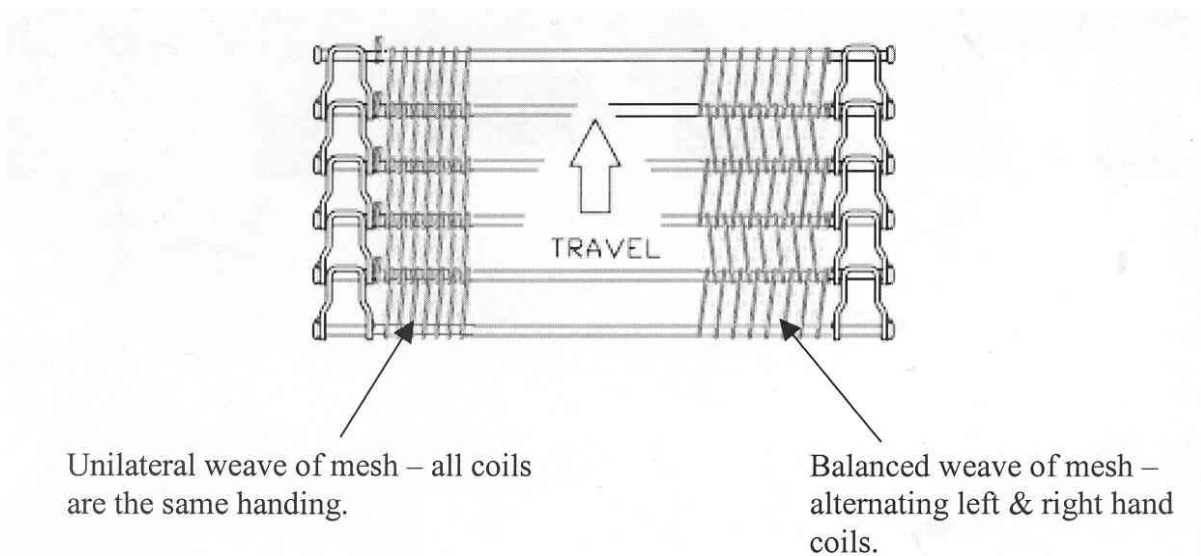
- a. Check that the belt support wear strips are clean & smooth. Also check for worn belt support wear strips and replace where necessary. The wear strips should be seated firmly on the steel support members and any belt lead in positions should be tapered down and securely fixed to prevent the belt catching them.
- b. Dependant upon the type of drum there are points where wear can take place and these we would also recommend rectifying by replacement before a new belt is installed. If the drum design is of the cage bar system as shown in the diagram below then the capping wear strips on the cage bars should be replaced if heavily worn. The replacement capping strips should be rounded or have bevelled edges to prevent the belt button head edges of the belt catching on the corners and running in an overdrive condition. This is particularly important if upgrading from standard "Flexible Rod" to "Tab Edge Flexible Rod" belting. If the design of drum is from a segmented series of slats then these slats should be examined and replaced if severe wear has taken place. All drum wear surfaces should be clean and free from grease and oil, which would reduce contact friction between the belt edges and the drum.



- c. You should consider the relative amount of wear to the parts and consider to what degree the parts will wear further if a new belt is fitted, without the parts being replaced. It could be expensive if worn parts are not replaced which subsequently damage the new belt before the end of its expected life.
- d. Once all system parts have been replaced it is then the opportune time to check throughout the system and clean for debris caused in the construction and replacement of parts, thus preventing the new belt dragging debris into the system.

Preparation for replacement belt installation.

- a. The first action is to identify the position where the belt may be installed and plan all necessary facilities you may require. You can often plan on pulling the belt in from the spiral infeed straight section of conveyor. Therefore you should arrange for the new roll of belt to be set up on a free running axle stand adjacent but back from the infeed so that belt can be pulled from the roll with ease.
- b. A similar axle stand can be employed in the same position but closer to the infeed so that the used belt from the spiral can be wound onto a roll as the new belt is fed into the system.
- c. When assessing the location for installation you should be aware that each roll of belt that is being handled can weigh well in excess of 100 Kg and are supplied in nominal 15 mtr lengths.
- d. Prior to cutting the belt the spiral system take up roller should be locked in position at about mid point of travel to prevent the roller dropping and tripping the drive during the replacement belt installation process.
- e. The new belt should be located on the axle stand with the closed loop of the edge "A" links leading towards the spiral freezer infeed. See sketch below:



- f. When feeding in the replacement sections of belt you will use the normal system drive so it is good practise to check the drum over run after stopping to ensure that the trailing edge of the replacement belt section does not disappear inside the spiral system. If this happens joining on the new section will be come very difficult, if not impossible.

Installation of Replacement Belt Sections

- a. The existing belt should be broken at the infeed straight section by grinding off the button edges of the connecting rods and cutting through the rod and weld at the internal weld position on each link. After which you should withdraw each rod from each edge link (use chain breakers if you experience difficulty) and withdraw the rod through the mesh area.
- b. Then pull the new belt to the trailing edge of the old belt and connect the two together by introducing the new connecting rod from the inside edge (drum side) through the inside edge link, through the mesh and through the outside edge link. Make the final connection with the nut provided. Please remember the nut is always at the outside edge. Trim off the excess thread and weld the nut to the rod. You will then need to weld the nut to the outside edge link, the button on the other rod end to the inside edge link and the rod to the inners of both edge links. Ensure that the belt is extended and laying flat during this welding operation. After welding check that the links fully extend & collapse into the adjacent "A" edge links. Mark this position with a tie on tag through the mesh, as you will need to know when the new belt installation is complete.

TIP: Grind back flush any excessive welding flash on the inner button and outside nut to ensure a flush surface in line with the rest of the rods in the belt - at all positions where the belt sections are joined. If the welds are left rough this can damage the drum and other parts in the belt circuit.

- c. When replacing standard duty belting with heavy duty it will be necessary to open the links of the old belt so that the new belt can be connected. Once connected test to ensure that the links still collapse around the drum and do not lock up.

TIP: When installing a belt with a balanced mesh of weave cut the link so that the coil handing of the mesh aligns as the normal repeat pattern when the new belt is connected. Be sure that additional rolls of belt to be added also align on a right/left/right.... arrangement of coils. There is no requirement for this when installing a belt with a unilateral weave of mesh.

- d. Now continue to add new belt and collect the old belt from the system as each section of new belt is driven in. Join the sections as described in point b) above.
- e. During installation of the replacement belt sections you will need to watch closely that the belting (particularly the new join positions) is not catching on any framework, wear strip edges, panels, access doors, etc. On tall systems you may need ladders or access platforms to observe the new belt installation. This is mainly when a new belt is fitted to an empty system. There are separate instructions for first time belt installation.
- f. If you are observing the installation at higher level please ensure that people never stand on the belt support rails or belt at any point throughout the circuit.
- g. Once you have completed pulling the new belt through the system back to the infeed straight section, first check that no damage has occurred during installation to the leading edge of this first replacement belt section. Repair, remove or replace any damaged parts.
- h. You are now ready to make the final join. Firstly check that the system take up roller is set just above the mid travel point. Then bring the leading edge of the first belt section to overlap the last belt section on the infeed straight conveyor section. Measure and mark the belt and then cut to length ensuring once again that the pattern of coils is maintained when joined. Join as described above at point b) above.
- i. The next step is to clear the area of the sections of old and any excess new sections. Store excess new section lengths as spares for repair.
- j. Firstly check the system fully for any catch points paying particular attention to the belt edges. Then at the infeed and outfeed straight belt runs the belt will want to "swing wide" so checking for obstructions in these areas is essential. If the system has belt flip up or product height detectors check to ensure they are not catching but set correctly relative to the position of the belt. If the system also has belt hold down rails then please ensure that they are set in the order of 6mm-10mm clear of the belt. It's now also a good time to check the drive, and the position of the edge link sprocket positions. Be sure that the sprocket teeth are centred on the edge links. Any flanged or non-flanged support rollers should also be checked to ensure that the belt has a free path and that they are the proper size to match the sprockets.
- k. You are now ready to start the system. Release the lock on the belt take up roller and start the spiral conveyor system at the slowest speed possible whilst checking the operating position of the edge link drive sprockets. Once you are happy that the system has balanced out increase the belt speed gradually to the normal operating speed and observe the position of the take up roller. If it has dropped or risen outside the normal operating travel and is close to operating the safety switches then you will have to stop the conveyor and add or subtract sections of belt accordingly. New belts within the first few weeks of operation will extend in length due to the "bedding in" of the links. If this is the case then once again you may have to cut a section out of the belt so that the take up roller is nominally at the mid point of its travel. It is recommended that a new belt installation should be left running for several hours before any cleaning takes place and product is applied so that internal meshing parts of the belt "polish in" which thus reduces the chances of excessive internal wear later.

TIP: If the take up roller rises this indicates a lowering of belt tension within the circuit and if it suddenly falls this reversely indicates an increase in the belt tension in the system.

Please ensure that the operational recommendations of the machine manufacturer are strictly adhered to regarding overdrive, lubrication, etc.