

B. W. SINCLAIR, INC.

BULK MATERIAL HANDLING

P. O. Box 1111
13923 U.S. Hwy. 287 North (76310-8178)
Wichita Falls TX 76307-1111
Phone 940-766-2556
Fax 940-766-0430

E-mail: sales@bwsinclair.com
Web: www.bwsinclair.com

FLEXIBLE SIDEWALL BELT CONVEYORS INSTALLATION AND MAINTENANCE

INTRODUCTION

The installation of a **Sinclair** flexible sidewall belt must be carefully planned. Conventional methods of handling and stringing may be insufficient for all but short, narrow conveyors with less than two vertical bends.

Due to the unique shape, weight, and value of the belting, it is extremely important the proper methods and equipment be utilized. **Sinclair** has prepared these suggestions to assist in the successful installation of your conveyor.

BELT STORAGE

For proper protection, the belting should be stored in its original shipping crate or container until ready for installation.

Normally, the belts will be festooned back and forth along the length of crating or container in an accordion fashion. The belt will be packaged at the factory with sufficient supports to prevent settling or shifting during normal shipping and handling.

Belts should be stored in dry, heated environments away from direct sunlight. Extreme temperature variations can have an adverse effect on a belt over long periods of time. The ideal storage range is between 50 degrees F and 70 degrees F.

CONVEYOR ALIGNMENT

The following items must be checked to ensure optimum belt performance:

- A. The conveyor must be true relative to the centerline.
- B. The conveyor must be level from side to side.
- C. All carrying and return idlers, deflection wheels and pulleys must be square with the frame. In addition, they must be perpendicular to the belt centerline and parallel to one another.
- D. Belt ends need to be examined to make sure they are squared.
- E. Sufficient clearance must be provided on both sides, under and below the head, tail, and bend sections.

FLEXIBLE SIDEWALL BELT CONVEYORS

INSTALLATION AND MAINTENANCE

HANDLING AND SECURING BELT DURING INSTALLATION

There are a number of ways to pull or place the belting onto the conveyor:

- A. Thread a rope or cable opposite the direction of belt travel around the idlers and pulleys, then link the rope or cable to the new belt by means of a lead plate or belt clamp to evenly distribute the tension over the width of the belt for drawing the belt into its final position.
- B. Attach the new belt to the end of the old belt that has been cut for replacement, and use the old belt to pull the new belt into place.
- C. Pull the belt in place by hand.

Method (A) is the most preferred of all those available.

DIRECTION OF INSTALLATION

The preferred method for stringing the belt is to pull the belt from the tail or horizontal loading section along the conveyor profile in the direction the belt will travel in operation.

BELT TENSIONING/TRACKING/TRAINING

Make sure the belt has a sufficient amount of tension prior to making any adjustments! On any belt conveyor, the proper tension must be applied to 1) provide for adequate friction at the drive pulley and 2) prevent excessive sag between the individual conveyor components (pulleys and/or idlers). In accomplishing items 1 and 2, the belt is more easily trained once the framework and conveyor components are square and level. *Conveyor belts should be operated at the lowest tension that will accomplish the desired results in items 1 and 2 in order to maximize the potential life of the belt and the splice.*

The standard procedure for providing adequate friction at the drive pulley is to slacken the tension on the belt operating unloaded until the drive pulley just begins to slip against the belt and then immediately reapply only the amount of tension necessary to eliminate the slippage.

With adequate tension applied to provide the necessary driving friction, the next step is to check all points on the conveyor for excessive sag. The maximum allowable sag on both the carrying and return sides of the conveyor should be limited to two percent (2%) of any unsupported span. Usually, since tensions are generally lowest at the tail of the conveyor, if checked at the tail, the sag will be acceptable throughout the entire system.

On inclined conveyors or conveyors with inclined sections, the weight of the belt alone on the inclined section will generally provide enough tension at the drive pulley for the proper friction. In fact, on most conveyors with inclined sections, it may be impossible to decrease the tension enough to allow any slippage. In these cases, the determining factor of adequate tension will naturally be only the belt sag.

Belt tension for proper sag should always be checked prior to any operation of the belt. Since there will probably be some belt elongation (stretch) as the belt is operated, the tension should be checked on a regular basis to continually ensure the proper operating conditions.

Training a flexible sidewall belt is a process of adjusting deflection wheels, bend pulleys, idlers, head and tail pulleys, as well as loading conditions, in a manner which will correct any tendency of the belt to run other than centrally.

FLEXIBLE SIDEWALL BELT CONVEYORS INSTALLATION AND MAINTENANCE

When all portions of the belt run off through a part of the conveyor length the cause is probably the alignment or leveling of the conveyor structures, idlers or pulleys in that area.

For “L”, reverse “L” and “Z” shaped conveyor designs, the belts are predominantly tracked by the deflection wheel assemblies and bend pulleys at the upturn and downturn points.

First, the head and tail pulleys should be properly aligned. Next, belt training can be done by means of one of the following:

- (1) Adjustment of deflection wheels.**
- (2) Adjustments of bend pulleys.**
- (3) Adjustment in direction of belt travel for roller curve.**
- (4) Placement of flat guide rollers at the sides of belt only on the return side.** Note: Normally, guide rollers are not necessarily required if the structure and alignment are properly completed. Guide rollers should only be used if all other attempts are unsuccessful.

SEQUENCE FOR TRAINING

First, movement of the belt should be slow and intermittent so that any tendency of the belt to run off may be quickly observed and the belt stopped before damage occurs.

The first corrections must be made at the points where the belt is in danger of being damaged!

The best procedure for training a flexible sidewall belt is to start with the return run and work towards the tail pulley. This assures early centering of the belt on the tail pulley so that it can be centrally loaded. Normally, the belt can be trained properly onto the tail pulley by manipulation of the deflection wheels, bend pulleys and then, if necessary, return idlers.

To train the top run, follow the same procedure in the direction of belt travel.

When the empty belt is satisfactorily trained, good operation with a load should result. However, when initially operating the belt under load, extreme care should be taken, as when first tracking the empty belt to ensure the belt will train consistently under the heavier operating tensions. Disturbances that appear with a load are usually due to off-center loading or material build-up on pulleys or return idlers.

If you know the equipment is properly aligned, training action should be taken slowly and in small steps because the belt requires some time to respond to corrective measures. Training efforts should begin at some point preceding the run-off and then gradually proceed forward, in the direction of belt travel, until the run-off condition has been corrected.

TROUBLESHOOTING FOR SIDEWALL BELTING

Please consult the following brief list of common problems related to flexible sidewall conveyors.

1. *Belt runs off at tail pulley.* Check belt tension and adjust. Check tail pulley alignment to insure it is square with frame. Insure that load is centered on belt. Remove any accumulated material build-up.

FLEXIBLE SIDEWALL BELT CONVEYORS INSTALLATION AND MAINTENANCE

2. *Belt runs off along entire frame.* Check that load is centered on belt. Check square alignment of idlers and pulleys. Remove accumulated material build-up. Improve housekeeping.
3. *Belt runs off at head pulley.* Check head pulley alignment to insure it is square with frame. Remove accumulated material build-up. Check head pulley lagging and replace if unevenly worn.
4. *Belt slip.* Check head pulley lagging. Adjust counterweight or screw tension.
5. *Splice failure.* Check to insure that belt tension is not excessive. Consult SINCLAIR. Use correct fasteners or vulcanizing procedures.
6. *Excessive belt wear.* Reduce material impact at load zone. Reduce loading velocity. Check that belt is not being used to handle materials for which it was not designed.
7. *Conveyor frame or structure crooked.* Straighten in affected area. Realign belt-carrying components.
8. *Spilled oil or grease, over-lubrication of idlers.* Improve housekeeping, reducing quantity of grease used.

LUBRICATION

The carrying and return idlers normally supplied on **SINCLAIR** flexible sidewall conveyors are fitted with “thru-lubrication” fittings so that complete lubrication of all idler bearings can be accomplished from either side of the conveyor. The system connecting the idler bearings provides a metered amount of grease to each bearing when the lubricant is introduced from either end. Relief holes are provided in each bearing seal assembly to purge air, foreign material and contaminated grease from each bearing.

CAUTION!! Best results will be obtained if the idlers are re-greased with the conveyor running. Personnel should wear suitable clothing and exercise EXTREME CARE when wiping fittings and attaching grease hose to the fittings.

SINCLAIR-furnished idlers come “factory-greased” with lithium soap multipurpose industrial grease, especially compounded to resist corrosion and provide oxidation resistance. *Any lubricant* that meets the basic description below is acceptable for the re-lubrication:

NLGI NO.	1
STRUCTURE:	Smooth
SOAP TYPE:	Non-Lead Lithium, 12 Hydroxystearate
COLOR:	Brown
DROP POINT:	340 degrees F.(min)
MINERAL OIL:	89%
VISCOSITY:	75 SUS @ 210 degrees F.
EXAMPLE:	Mobil Corp. Mobilux-EP1

CAUTION!! Do not operate the conveyor without SAFETY GUARDS in place and properly adjusted.

WARNING!! Lock out equipment power prior to any maintenance.