FLAT WIRE CONVEYOR BELT TECHNICAL MANUAL

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Version 1.5

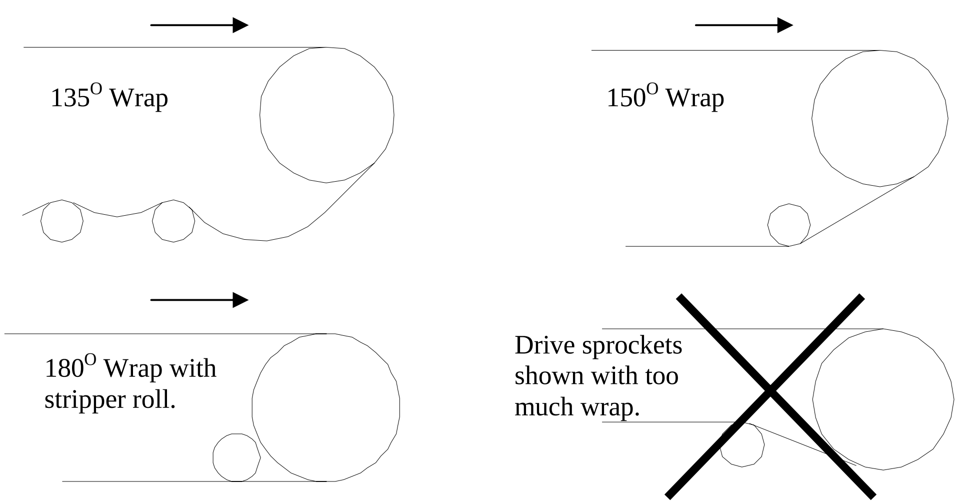
DRIVE SYSTEMS
FOR FLAT WIRE CONVEYOR BELTING

Flat wire conveyor belts can be driven by either a sprocket system or a pulley system.

SPROCKET DRIVEN CONFIGURATIONS

Sprocket driven systems provide a positive drive of the belt that prevents slippage between the belt and the sprockets and results in less power loss. The sprocket teeth also help maintain belt alignment. Compared with pulley driven systems, sprocket systems tend to be easier to maintain and are generally lower in cost.

Sprocket driven systems use a very simple arrangement where the belt wraps around the sprocket anywhere from 135^O to 180^O. The amount of belt wrap will affect the life of the drive sprockets. With a larger belt wrap, more sprocket teeth will engage the belt and distribute the drive tension over a greater number of teeth. However, if the belt wraps around the sprockets more than 150^0 the belt may resist releasing from the sprocket. Therefore it may be necessary to use a stripper roll or plate to strip the belt from the sprocket. Even with a stripper roll, do NOT increase the belt wrap beyond 180^O.



PULLEY DRIVEN CONVEYORS

Pulley driven systems provide a friction drive which evenly distributes the drive tension across the width of the belt and does not subject the belt to rod wear as in sprocket driven systems. Pulley systems can generally handle larger loads than sprocket systems. However, pulley systems can have problems with tracking. Therefore, accurately aligning the conveyor is of even greater importance with friction driven belts than with sprocket driven systems.

Because power is transferred by friction, it is important to maximize the amount of friction between the pulley and the belt. There are three ways to do this. First, use as large a diameter of a pulley as possible. Second, provide as much belt wrap as possible, and finally, increase the coefficient of friction between the pulley and the belt by lagging the pulley. It is also necessary to always use **FLAT FACED PULLEYS**. Use of crowned pulleys will distort the belt and render it unusable.

CALCULATING DRIVE TENSION
FOR STRAIGHT RUNNING FLAT WIRE CONVEYOR BELTING

Drive tension is used to determine the maximum load a belt can handle without premature fatigue or failure. The following equation can be used for rough calculations. It cannot be used for Key-Turn^{tm} radius belting. Please consult Keystone for application assistance on Key-Turn^{tm} belting or when approaching the maximum tension on straight running belts.

1. Determine the drive tension (T_d) as shown below:
   $T_d = (F \times B \times L)(2W_B + W_L)$
   Where
   - T_d = Drive Tension (lbs.)
   - W_B = Weight of Belt (lbs/ft^2)
   - W_L = Weight of Load on Belt (lbs/ft^2)
   - F = Friction Factor (see Table, below)
   - B = Belt Width (feet)
   - L = Conveyor Length (ft.) (c/l of drive shaft to c/l of tail shaft)

2. Calculate the drive tension per foot of belt width by dividing T_d by the belt width (B).
3. If using the belt at an elevated temperature, multiply the maximum allowable tension per foot of width (given below), by a factor from the table below to get the working tension at an elevated temperature.
4. Compare the calculated value from Step 2, with the maximum allowable tension found in Step 3. The calculated value cannot exceed the maximum allowable tension.
5. Use the calculated value for T_d and the formulas on page 3 to determine the number of sprockets needed to drive the belt. For heavy loads it may be necessary to place a sprocket in every drive opening, or to use a pulley driven system.

Design.	Mesh	Weight (lbs./sq ft)	Maximum Tension (lbs./ft. of width)	Design.	Mesh	Weight (lbs./sq ft)	Maximum Tension (lbs./ft. of width)
S1 S2	1”x 1”	1.85	480	H1 H4	1”x 1”	3.50	1350
S3 S4	½”x 1”	2.20	660	H2 H5	½”x 1”	3.90	1750
S5	½”x ½”	3.25	750	H3	½” x 1”mod	4.85	1750
S6 S7	½”x 1”mod	2.50	660				
S8	¾”x 1”	2.00	550	Key-Turn^{tm}		Consult Keystone	

Note: The figures for maximum allowable tension are given for drum driven applications. In order for the belt to withstand these tensions, it is necessary to place a sprocket in every drive opening. Consult Keystone for the maximum number of sprockets for a given belt width.

ELEVATED TEMPERATURE (F) vs. STRENGTH								
	500	600	700	800	900	1000	1100	1200
Galvanized Low Carbon	1.0	N/A						
C1050 High Carbon	1.0	1.0	0.9	0.6	0.3	N/A		
T-304 Stainless Steel	1.0	1.0	1.0	0.9	0.8	0.7	0.6	N/A
T-316 Stainless Steel	1.0	1.0	1.0	0.95	0.85	0.8	0.7	0.6

Friction Factors Between Belt & Belt Support	
BELT SUPPORT	FRICTION FACTOR
Ball Bearing Rollers	0.10
Sleeve Bearing Rollers	0.15
Plastic Faced Slider Bed	0.20
Steel Slider Bed – Lubricated	0.30
Steel Slider Bed - Unlubricated	0.35

Friction factor should be increased at elevated temperatures. Consult Keystone for values.

SPROCKET SELECTION
FOR FLAT WIRE CONVEYOR BELTING

SPROCKET DIAMETER AND NUMBER OF TEETH

Sprocket life is related to the number of teeth on the sprocket. Larger diameter sprockets have more teeth which spread the load over a greater number of teeth. This leads to longer sprocket life.

NUMBER OF SPROCKETS

To calculate the minimum number of drive sprockets for a conveyor system

1) Divide the drive tension (T_d) by the maximum load per sprocket (see table).
2) Divide the belt width (B) in inches, by 6 and add 1.

Conveyor Belt	**Maximum Pounds of Drive Tension per Sprocket**
Standard Duty Belts	1 sprocket for every 70 lbs
Heavy Duty Belts	1 sprocket for every 190 lbs
Decrease the maximum loading per sprocket for elevated temperatures using the table, above.	

Sprocket Type	Max. Belt Speed
Cast Sprockets	120 fpm
Machined Tooth Sprockets	250 fpm

The larger of the two numbers is the minimum number of sprockets needed. However, these loads are a belt strength limitation as sprocket teeth can withstand much heavier loads than the conveyor belt. Ideally, for maximum belt and sprocket life, the load limits above should be reduced by 25%.

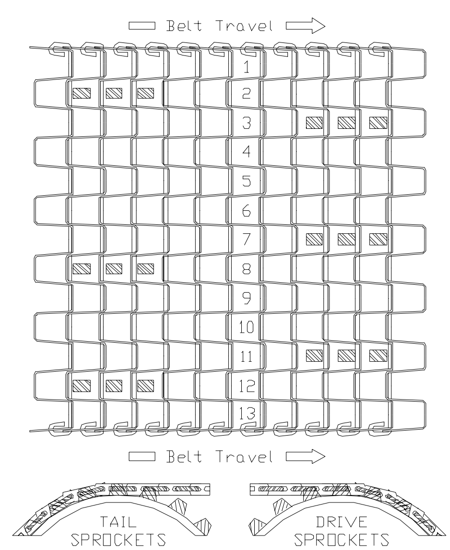
TAIL SPROCKETS

Spacing of tail or idler sprockets should be between 6 and 9 inches. Tail sprockets should have plain bores, except the center sprocket which should be keyed to insure shaft rotation. Plain bore sprockets should be collared to prevent lateral movement.

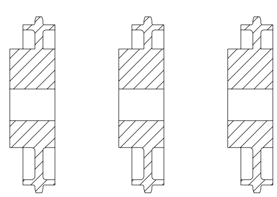
Never exceed a drive sprocket spacing of 6 inches, even for light loads.

PLACEMENT OF SPROCKETS

Proper sprocket location is essential for smooth belt operation. Sprocket teeth must always drive against the connector rods. This may be accomplished by placing the drive sprocket so that the teeth are in the odd numbered openings and the tail sprocket teeth in the even numbered openings.



- When mounting sprockets, the long side of the hubs MUST FACE IN THE SAME DIRECTION. As shown below.



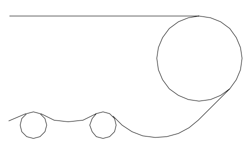
- Drive sprockets cannot be located in the outside mesh openings in belt specifications S3, S7, H4, and H5.
- Never use tail sprockets to power another conveyor.

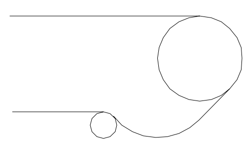
RECOMMENDED TAKE-UP SYSTEMS
FOR FLAT WIRE CONVEYOR BELTS

In order to gain the most life from a flat wire conveyor belt, the amount of tension on the system should be kept to a minimum. When the conveyor is not running, the belt should **not** be under tension. When driven, the tension on the belt should be just enough to move the belt when fully loaded. Over time, this tensioning will stretch the belt. Temperature fluctuations will also cause the belt to stretch and contract. A take-up system should be designed to handle the fluctuations in the belt length. Below are a few examples of take-up systems.

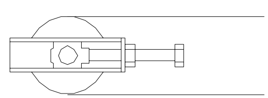
> ***PARALLEL ADJUSTMENT:*** *When designing a take-up system, be sure that both sides of the conveyor are adjusted evenly and remain parallel. A take-up system which does not remain parallel will result in poor belt tracking and significantly reduced belt life.*

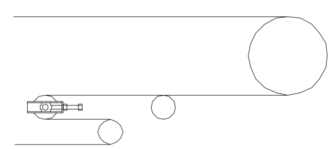
CATENARY TAKE-UP: For short conveyor systems without much fluctuation in the belt length, this is the simplest and most cost effective take-up system. Excess belt is simply allowed to loop after the drive sprocket and along the entire return side of the conveyor.



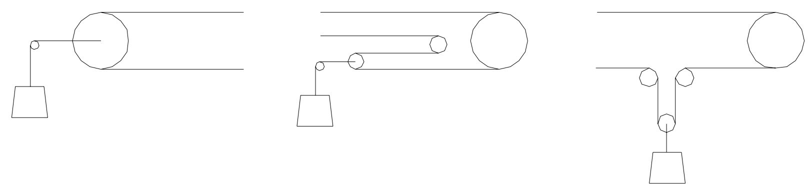


MANUALLY ADJUSTED TAKE-UP: For longer conveyors, or those in which temperature can cause the belt to both expand and contract, a manually adjusted take-up is the least expensive and most widely used. Unfortunately, it is also the least effective. The location of the tail shaft or pulley is adjusted forward or backwards to lengthen or shorten the conveyor. Problems occur when the tail shaft is not adjusted evenly and is no longer parallel to the drive shaft causing tracking problems, or if the tail shaft is moved too far, placing the belt under tension.





COUNTER-WEIGHT TAKE-UP: This system uses gravity to automatically adjust the belt length depending on the conditions. A counterweight is hung from either the tail shaft, tail pulley, or a secondary roll at the drive end. When designing a counter-weight system, friction must be kept to a minimum and the counter-weight must move both sides of the take-up evenly. Care should be taken to insure the take-up doesn't tension the belt. If the space is available, Keystone recommends this type of take-up system.



MECHANICAL TAKE-UP: A pneumatic or hydraulically actuated cylinder can also be used to provide an automatic take-up system. Designs for this style would be similar to the counter-weight take-up, replacing gravity with the mechanical power of a cylinder. The benefits of a mechanical system are that it is easier to adjust than the counter-weight system, and doesn't require the vertical space. Care should be taken to insure the take-up doesn't tension the belt.

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RECOMMENDED BELT SUPPORTS
FOR FLAT WIRE CONVEYOR BELTS

Belt life can be significantly affected by the support under a belt. In general, the more support given a belt, and the lower the friction between the belt and the support surface, the longer the belt will last. Supports should be designed to fully support the belt **and** the product being conveyed. If supports are used intermittently, such as roller supports, they should be spaced so as to minimize the amount of sag.

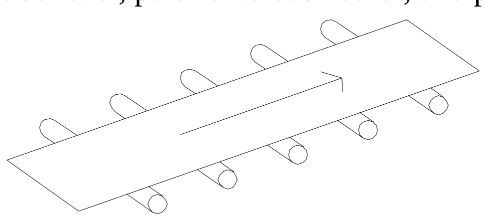
Any system should fully support the belt across the entire width. The supports used should be level across the width. Supports can be faced or lubricated with other materials to reduce friction. UHMW Polyethylene is an effective material for reducing the friction between the belt and the support, although it cannot be used when the ambient temperature is above 180^{o}F.

All supports should be smooth and without sharp edges to prevent the belt from snagging. Closed-sided supports should provide enough clearance between the edge of the belt and the support sides so as to prevent the belt from dragging against the supports. Keystone recommends approximately 1/2” to 2” between the edge of the belt and the conveyor edge, depending upon the belt width and length.

In heavy load or high speed applications, wear between the belt and the support surface can be an issue. To reduce this wear, the surface finish of the support should be smooth and if possible, lubricated. If wear is a concern, care should also be taken to use dissimilar materials. Identical materials can have a higher coefficient of sliding friction than two dissimilar materials.

Depending on the application, a number of different belt support styles may be used.

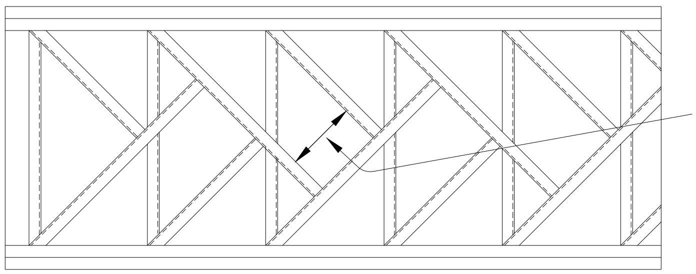
ROLLER SUPPORT: Roller supports, when spaced properly, are the most effective means of supporting a belt. Roller supports minimize the amount of friction between the belt and the rollers, resulting in less tension. Ball bearing supports will result in less friction when compared with sleeve bearing rollers. Rollers should be flat faced, not crowned. Rollers on the loaded side should be vertically adjustable to allow leveling of the belt. On the return side, rollers near the idle end should be horizontally adjustable for tracking purposes. (refer to the section on Belt Tracking). All rollers must be level, parallel to each other, and perpendicular to the belt travel.



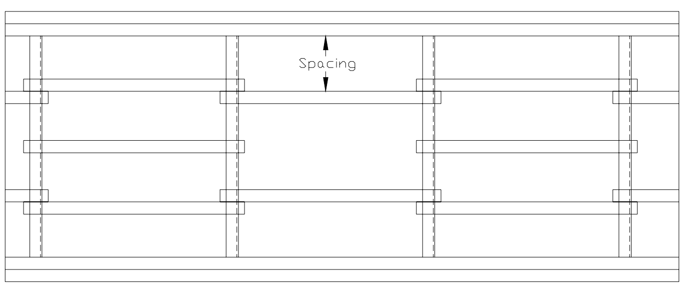
ROLLER SUPPORT SPACING: On the loaded side, rollers should be spaced close enough together to fully support the belt and the load being carried with little or no belt sag between rollers.

Spacing on the return side is not critical, but Keystone recommends that rollers be kept no more than 3 or 4 feet apart.

HERRINGBONE SUPPORTS: A herringbone pattern of belt support is the next best option after rollers. The herringbone will evenly support the belt across the entire width while still allowing air or liquid to pass through. Herringbone supports should be spaced between 6” and 15” apart, depending upon the loading. Generally, 2” angle iron works well, although other materials may be required for specific applications. In general, it is best to use a support material that has a low coefficient of friction, and is different than than the belt material. Similar materials have higher rates of wear.



LONGITUDINAL SUPPORT: Longitudinal supports provide an economical solution to supporting the belt, while still allowing air and liquid to pass through. The major drawback to longitudinal supports as opposed to a herringbone pattern is its tendency to wear grooves into the belt. Because the belt is intermittently supported across its width, wear will be greater at those locations where the belt contacts the supports. To reduce this effect, the supports should be staggered (see drawing below). Supports should be placed parallel to the direction of the belt’s travel and spaced 6” to 15” apart. It is important to insure the supports are properly aligned to prevent the belt from creeping from one side to the other.



SOLID BED: If the free flow of air or liquid is not important, a solid slider bed is the most economical method for supporting the belt. However, due to friction between the belt and the slider bed, this method will result in the highest belt tension and reduced belt life.

ALIGNMENT AND TRACKING
FOR FLAT WIRE CONVEYOR BELTING

Since the majority of belting problems are alignment related, it is extremely important to have a properly aligned conveyor system. Improperly aligned systems will result in excessive wear and edge damage. Misaligned systems can also lead to premature wearing of the sprockets and have been known to cause damage to the product being conveyed.

If a good alignment is not completed before using a flat wire belt, longitudinal pitch can be permanently distorted causing the belt to track to one side. Improper handling of the belt before and during installation can also damage the belt so as to create alignment problems. Properly aligning a conveyor system prior to running the belt, along with periodic inspections will lead to a longer belt life.

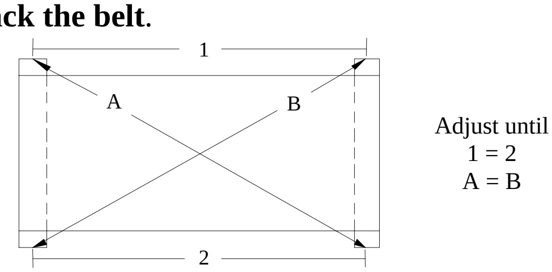
A rule of thumb to follow is **the belt will move to the side of the conveyor it contacts first**.

- If a belt is running over rollers and one is skewed, the belt will track to whichever side is skewed toward the tail end of the conveyor.
- If the conveyor bed is not level, the belt will track to the higher side.
- If there is a build-up of material between the bed and the belt on one side, the belt will track to that side.

A second rule of thumb is that the belt will run in a direction perpendicular to the roll over which it passes. Keystone also recommends that the belt length to width ratio be no less than 5:1 as tracking problems are more likely to occur with wide belts which have a short length.

ALIGNING A SYSTEM

1. Align the head and tail shafts (or rolls) so that they are level, perpendicular to the direction of belt travel, and parallel to each other. Check the parallelism of the shafts by comparing the distance between the centers of the shafts in a straight line and on the diagonal. The straight line distance on the left side should equal the straight line distance on the right side, as should the diagonal distances from left to right and from right to left.
   After these shafts have been aligned, they should be fixed and pinned in place. **Never use the head or tail shafts to track the belt**.



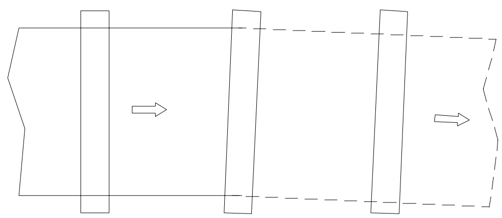
2. Next adjust the conveyor bed or rolls so that they are level and parallel to the drive and tail shafts. This should be done on both the loaded side and the return side of the conveyor. Conveyor rolls should be level to ±1/32”. All rollers should be flat faced.

3. Inspect the rolls for debris, excessive wear, and roundness. All rolls should turn freely and should be neither bent nor bowed.

4. Any surfaces over which the belt will travel should be checked for sharp edges or obstructions. Any edges should be filed smooth. These surfaces should also be level and parallel to each other and the direction of belt travel.
5. Keystone does not recommend the use of alignment guides contacting the edges of a flat wire belt, as they can cause premature wear. If the conveyor does have edge guides, enough clearance should be provided for the belt to shift without catching or rubbing on the edge guides. See page 5 for a chart on the amount of clearance recommended.

TRACKING A BELT

The best way to track a flat wire belt is to use several adjustable support rolls on the **return** side of the conveyor just before the tail shaft. These rolls can be skewed either forward or backwards, on a horizontal plane to track the belt. The belt will track so it runs perpendicular to the roll.



NEVER USE THE DRIVE OR TAIL SHAFTS (END ROLLS) TO TRACK THE BELT. This can cause the belt to stretch on one side leading to permanent tracking problems.

DRIVE AND TAIL SHAFTS

Drive shafts should be of sufficient diameter and supported by enough bearings to prevent the shaft from sagging. If the shaft sags the center sprockets may not engage the belt leading to premature wear of the outer sprocket teeth and stretch the outside edges of the belt.

The following formulas can be used as a guide to determine the proper shaft diameter for driving flat wire conveyor belting. These formulas are given for light and medium duty operating. For heavily loaded systems, or one in which the belt will be starting and stopping, increase the shaft size by 25% or more. The Dodge Bearing Engineering Catalog provides a much more comprehensive discussion of determining shaft sizes.

1. First, calculate the Total Drive Tension, T_d on the system (see page 2).
2. Determine the horsepower needed to drive the system.

$$H_p = \frac{T_d \times S_b}{33{,}000} \times SF$$

Where S_b = Belt Speed (ft/min)
SF = Safety Factor (usually 2-3)

3. Calculate the Shaft Diameter

$$D = 4.3\sqrt[3]{\frac{H_p}{N}}$$

Where N = Revolutions per minute

OR

$$D = 0.283\sqrt[3]{T_d \times D_p}$$

Where D_p = Pitch Diameter of Sprocket (Feet)

The above formula is calculated using a safety factor of 3. If you would rather use a safety factor of 2, use a multiplier of 0.247 instead of 0.283.

4. Distance Between Shaft Supports or Bearings
   For diameters less than 2 inches, the spacing between shafts can be about 8 feet. For larger diameters, use the formula below.

$$L = 5.2\sqrt[3]{D^2}$$

L = Distance between bearings, in **FEET**
D = Shaft Diameter in **INCHES**

If using the Dodge Bearing Engineering Catalog, the torque (bending moment) on the drive shaft can be calculated by multiplying the Drive Tension T_d by ½ the pitch diameter of the sprockets being used.

Please Note: Keystone Manufacturing will assume no responsibility for the design of any specific system, unless Keystone provides an application specific, written recommendation.

TROUBLESHOOTING GUIDE

SYMPTOM: Belt Runs to One Side of Conveyor at a Given Point

POSSIBLE CAUSE	SOLUTION
Idler rolls just prior to the trouble point are not perpendicular to the belt travel.	Adjust the idler rolls so they are perpendicular to the travel.
Idler rolls just prior to the trouble point not level.	Adjust the idler rolls so they are level within ± 1/32”
Idler rolls just prior to the trouble point sticking or built up with debris.	Clean and lubricate the idlers.
Conveyor frame bent or not level	Check the level and straightness of the conveyor frame and fix if necessary

SYMPTOM: Same Section of Belt Runs to One Side at all Points of Conveyor

POSSIBLE CAUSE	SOLUTION
That section of belt has become damaged.	Replace the section of belt which is causing the problem.

SYMPTOM: Belt Wearing Along One Side

POSSIBLE CAUSE	SOLUTION
Conveyor not aligned properly. Belt not tracked properly.	Check the alignment of the conveyor (see the section on alignment and tracking)

SYMPTOM: Belt Tracking to One Side Along Entire Conveyor

POSSIBLE CAUSE	SOLUTION
Conveyor not aligned properly. Belt not tracked properly.	Check the alignment of the conveyor (see the section on alignment and tracking)
Uneven Loading of Belt	Adjust the loading on the belt.
Distance from the return rollers to the tail shaft is too large.	Reduce the distance or provide support for the belt across this distance.

SYMPTOM: Belt Stretching on One Side

POSSIBLE CAUSE	SOLUTION
Drive and Tail Sprockets not Parallel	Check the alignment of the drive and tail sprockets (see the section on alignment and tracking).

SYMPTOM: Belt Stretching

POSSIBLE CAUSE	SOLUTION
Excessive Heat	Reduce temperature or choose belt material more suited to temperature.
Tension too high	Reduce the load on the belt. The belt should not be tensioned on the return side.

SYMPTOM: Sprocket Teeth Wearing

POSSIBLE CAUSE	SOLUTION
Belt tension too high.	Reduce the load on the belt. The belt should not be tensioned on the return side.
Belt tracking to one side and riding on sprocket teeth.	Check the alignment of the conveyor (see the section on alignment and tracking)
Sprockets not mounted so they engage the belt in the center of the openings.	Tighten set screws (drive sprockets) Place collars on either side of sprockets to hold in place (tail sprockets)
Not enough sprockets	Add more sprockets

SYMPTOM: Sprocket Teeth Not Engaging Belt

POSSIBLE CAUSE	SOLUTION
Keyway of shaft driving sprockets not cut straight	Replace shaft
Sprockets not mounted with hubs facing same direction.	Remount sprockets so all the hubs are facing the same direction.
Shaft driving sprockets is bowing	Replace with larger shaft or add additional support bearings.

SYMPTOM: Belt Not Releasing From Drive Sprockets

POSSIBLE CAUSE	SOLUTION
The belt is wrapping more than 150^{o} around the drive sprockets.	Limit belt wrap to 150^{o}. Add a stripper roll to pull the belt from the sprocket.
Belt tension is too high	Reduce the load on the belt. The belt should not be tensioned on the return side.

SYMPTOM: Belt Riding up on Sprocket Teeth

POSSIBLE CAUSE	SOLUTION
Belt tension too high	Reduce the load on the belt. The belt should not be tensioned on the return side.
Longitudinal pitch of conveyor belt too short	Check the longitudinal pitch (distance from one connecting rod to the next rod). East coast pitch is 1.084”. West coast pitch is 1.054”. For True ½” x ½” belts it is 0.542”
Sprockets for a standard duty belt are being used to drive a heavy duty belt.	S-Series Sprockets for standard duty belts will **not** work on a heavy duty belt.

SYMPTOM: Belt or Support Surface is Wearing

POSSIBLE CAUSE	SOLUTION
There is too much friction between the belt and the support surface.	Lubricate the support surface to reduce the friction.
	The support surface is rough, causing the belt to wear.
	Check for debris between the belt and the supports. Debris of even relatively soft materials can have sharp edges which will cause a belt to wear quickly.
	The belt and the support surface are made of the same or similar materials. Change the support bed to a lower friction, dissimilar material.
Longitudinal supports are wearing grooves into the underside of the belt.	Add more supports across the width of the belt or stagger the supports. See the section on belt supports.

GLOSSARY OF TERMS

BELT WIDTH: The overall distance across a belt, measured from the outside end of a rod on one side of the belt to the outside end of the rod on the opposite side of the belt.

CLINCHED SELVAGE: Manner of locking the connecting rods where the rod end is looped back through an extra hole on both edges of the belt and bent so that it is parallel with the strip.

DRIVE SPROCKETS: Found at the discharge end of a conveyor, drive sprockets are under power and should pull the loaded conveyor. Drive sprockets must be keyed to the drive shaft, and are always located in an odd numbered belt opening.

DRIVE TENSION (T_d): The amount of tension or pull that a belt can handle without leading to premature fatigue or failure. Drive tension calculations can be found on page 15.

INTERNAL WELDS: Resistance welds between every other connecting rod and the flat strip in the 2nd opening from each edge of the belt. On true 1/2" x 1/2" belts, this weld is on every 3rd connecting rod. (See graphic, page 6).

LATERAL PITCH: The distance from the center of one drive opening to the center of the next drive opening (odd numbered openings), measured across the width of the belt. This measurement can vary with the belt width and mesh size.

LONGITUDINAL PITCH: The distance from the center of one rod to the center of the next rod. East coast pitch is 1.084 inches. West coast pitch is 1.054 inches (only applicable for standard duty belts). Pitch for True 1/2" x 1/2" mesh is 0.542 inches.

MACHINED HUBS: Sprockets having had their hubs machined to reduce their overall width. This allows closer spacing of sprockets across the width of the belt in heavy load applications.

OPENINGS: Each rectangular open area enclosed by the strip. The number of openings is determined by counting across the width of the conveyor and must always be an odd number.

SELVAGE: The manner in which the rod end is finished on either edge of a belt.

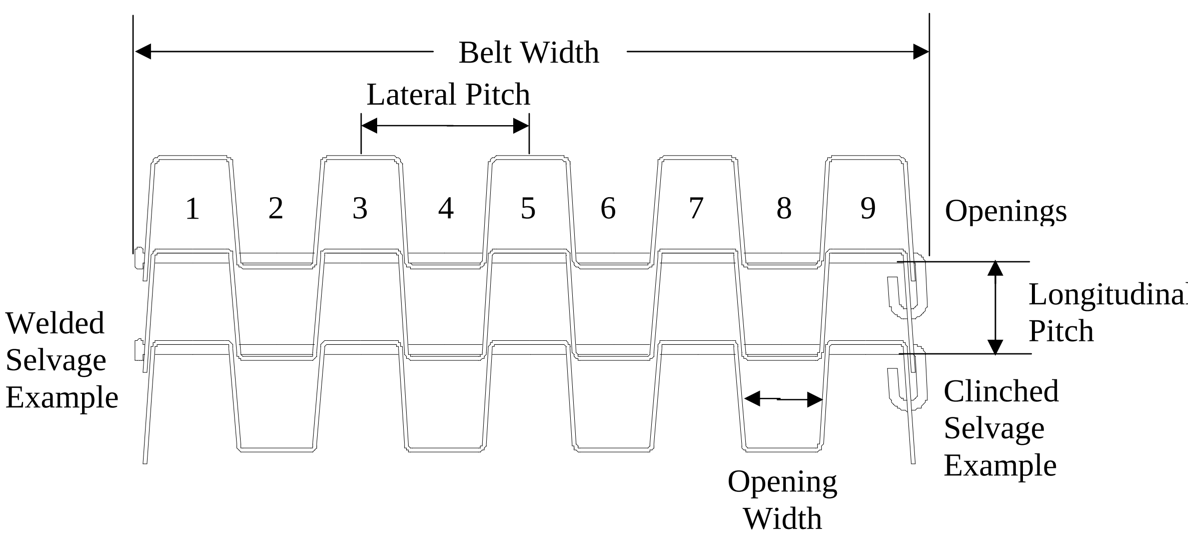
TAIL SPROCKETS: Also known as idler sprockets, they are located at the input end of a conveyor and are not under power. Keystone recommends that tail sprockets be left to rotate freely, except the center sprocket which should be keyed to insure tail shaft rotation.

WELDED SELVAGE: Manner of locking the connecting rods where the rod end is heated and formed into a button-head

HOW TO IDENTIFY A BELT

In order to identify a belt for replacement, follow these 7 steps.

1. Measure the overall belt width, including the rods, as shown below.
2. Count the number of openings across the width of the belt. This will always be an odd number.
3. Determine the belt gauge (standard duty or heavy duty).
   a) Determine the height of the strip by placing the belt flat on a table and measuring from the table to the top of the belt. A standard duty belt will measure 3/8" and a heavy duty belt will measure 1/2", OR
   b) Measure the diameter of the connecting rod. Standard duty rods can be 0.105" or 0.120" and heavy duty rods are 0.192"
4. Determine the mesh size by measuring the width of the 2nd opening from the belt edge. Be sure to measure at the middle of the opening, as shown below.
5. Measure the longitudinal pitch of the belt, as shown below.
6. Determine the selvage of the belt by visual inspection. This will be either clinched or welded. Please refer to the diagram below. An example of welded selvage is on the left side, and a clinched selvage example is on the right side of the belt.
7. Determine the belt material. Because stainless steels are not magnetic, a magnet can narrow the choice to either a carbon or a stainless steel. Beyond this, material determination can be done by application.
   a) High carbon belts are generally used for temperature ranges between 500^0F and 800^0F, and can withstand abrasive environments better than galvanized belts. Galvanized steel belts are a lower cost, low temperature alternative to high carbon belts and are resistant to rust.
   b) Stainless steel belts will either be Type 304 or Type 316. While more expensive, Type 316 stainless steel belts offer greater resistance to corrosion and are stronger than Type 304 belts at higher temperatures.



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