Tracking Timing Belts

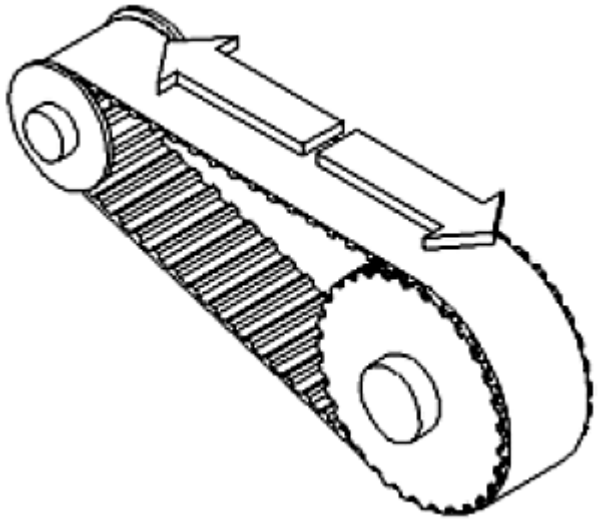
There Are Numerous Solutions To Belt Tracking

Tracking timing belts is inherently different than tracking flat belts. A flat belt is tracked by using a crowned pulley. This crowned pulley is very effective; however the belt must have some elasticity. A timing belt must be inelastic, any stretch would cause the belt to be elongated out of pitch and it would not mesh with the pulleys. As a result, a timing belt has to be tracked mechanically, usually through the use of flanges.

The side forces against the pulley flanges can be minimized in two ways; first, all of the pulleys in the system should be on parallel axis'. Second, the belt should be uniformly pretensioned across all of the cords within the belt. It is generally not practical to make both of these items perfect, but attention to both will make the belts easier to track.

Pulley Flanges

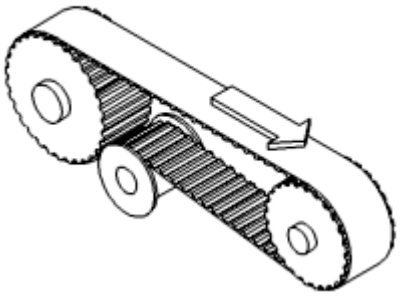
Flanges on a pulley are designed to steer the belt by resisting the lateral force of the belt as it attempts to move in one direction or another on the pulley. It is not necessary to have flanges on each pulley in the system. If the center distances in the drive are short, then two flanges on one pulley are enough to keep the belt tracking straight. For cost purposes, it may be less costly to have two pulleys with one flange each, each being on opposite sides of the belt.



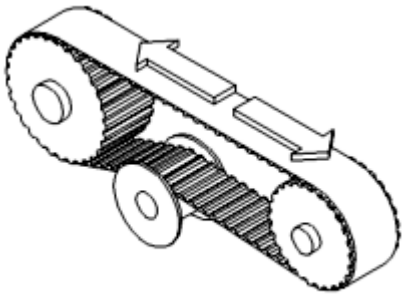
Especially in conveying applications, there are many times that flanges are not allowable on certain pulleys. This is often the case where a product is being conveyed over a pulley, and the flanges, which protrude above the carrying surface of the belt and would interfere with the product. In these cases, the position of the

pulleys with the flanges should be carefully considered.

A back side idler (which can also be used for tensioning) can be utilized. For unidirectional travel, the flanged idler should be placed near the pulley with the belt running onto the pulley. For bidirectional travel, the idler should be placed midway between the two pulleys.

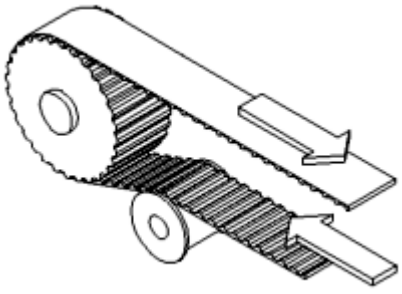


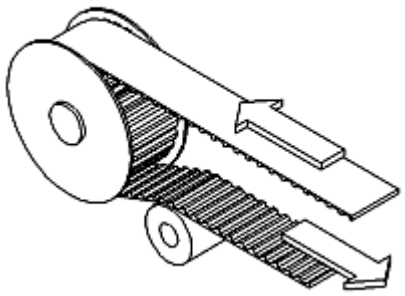
Idler at the entry pulley



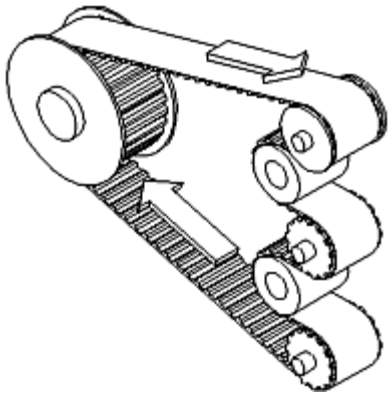
Idler between pulleys

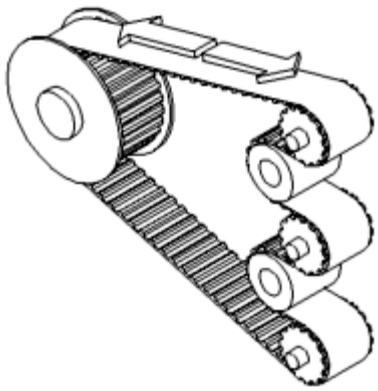
On drives with a center distance of greater than 10 times the diameter of the small pulley, additional flanged idlers may be required. It is possible to properly guide the belt with a smooth adjustable back side idler on the exiting side of the drive and a flanged pulley on the entry side of the pulley. The pulley on the exiting side can be skewed to help track the belt. This system does not function well on a bidirectional drive.





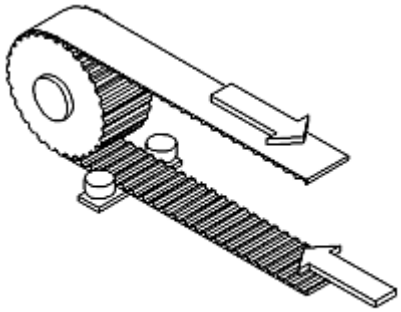
On serpentine drives, the flanges should again be placed at the entry side of the pulley configuration. In the case of a bidirectional serpentine drive, the flanged pulley should be away from the pulley configuration.

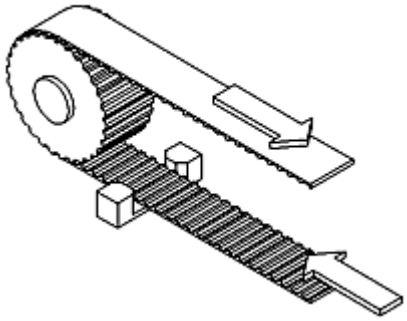




Side Guides For Tracking

If a flanged idler on one of the belt strands is not acceptable, side rollers or guides can easily be used. They should be positioned in the same manner as a flanged idler would.





V-guides or Tracks

Self tracking belts with a v-guide running on the inner surface of the belt are excellent for tracking belts especially where the carrying side, or uninterrupted strand of the belt is very long. These belts incorporate a v-guide on the belt and a corresponding groove in the pulley and slider surface.

Another method which is frequently employed is to have the belt run through and actual groove in the slider surface. The limitation here is that the belt usually needs to rise above the slider surface and this does not leave much edge area in contact for guiding.