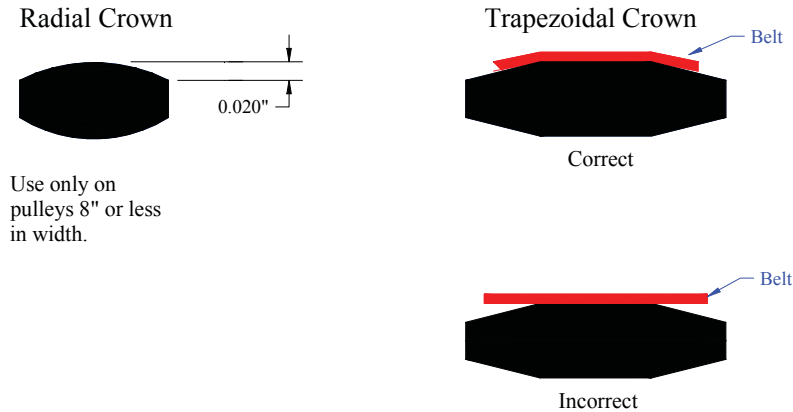
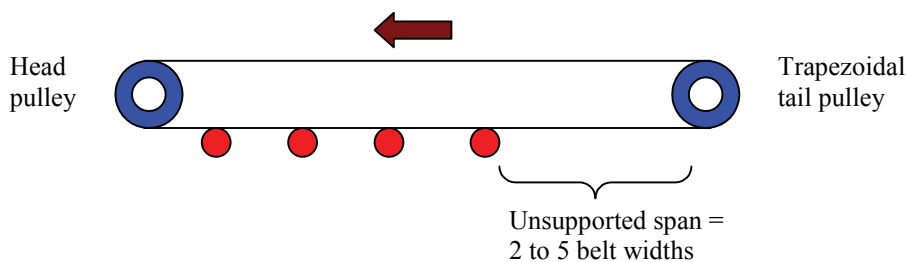


### 2. Roller of Pulley Profile

Another way to track a belt involves the use of either a radial or trapezoidal profile on a roller or pulley. These shapes generate sufficient steering forces to guide a belt. Do not crown a drive roller or pulley when there are other tracking devices on the conveyor. The different arrangements can counteract each other. Do not crown adjacent rollers for the same reason.



A crowned roller or pulley is effective in centering a belt if the approach to the pulley is an unsupported span that is not influenced by the guiding action of angled idlers. This span should be maximized and in the range of 2 to 5 belt widths. If there is no such span, the tracking effect of the roller is essentially non-existent. For example, crowning the head pulley on a trough conveyor belt would be of no benefit because the span between it and the transition roller is usually too short. The trough idlers also create a steering action that can counteract a crowned pulley.

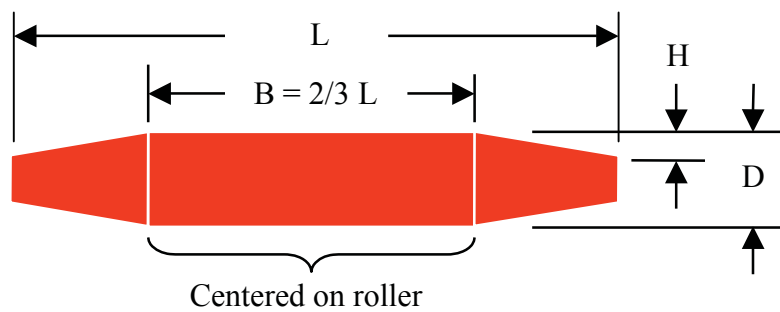


Proper tension must be maintained to ensure that the belt conforms to the profile. If the tension is too high, a stiff belt is used or the profile is incorrect, then high stresses will be concentrated in the center of the belt. This increases wear and shortens belt life.

Only straight, cylindrical profiles should be used on conveyors with a two-pulley drive arrangement and all drive snub rollers. This ensures full belt contact with the pulley or roller. Power transmission is maximized and unnecessary flexure of the belt as it conforms to the profiles on adjacent rollers is avoided.

Straight, cylindrical profiles should also be used with low stretch belts that have high tensile strength members in the carcass, e.g., Kevlar reinforced belting. These types do not easily flex to match radial or trapezoidal crowns.

Dimensional recommendations for a trapezoidal crown are shown in the next illustration. The cylindrical portion should be centered on the roller. Radius the transition from the cylindrical section to the tapered section. Excessive tapers are detrimental to the belt since the belt's edges do not equally share the load.



Dia., D	< 2"	2"-4"	4"-10"	10"-16"	16"-24"
Crown, H	0.008"	0.012"	0.020"	0.028"	0.039"