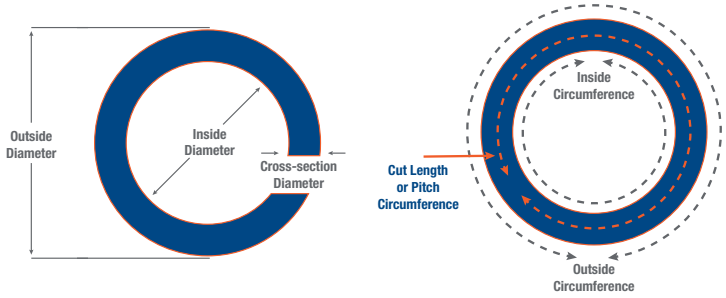
Eagle O-Ring Belt Length Equation

Eagle O-Rings and endless belts are ideal for line shaft, live roller and motion transfer conveyors. The polyurethane O-Rings offer a high coefficient of friction while remaining elastic with excellent memory. With stock sizes of 1/8", 3/16", 1/4", 5mm and 6mm, it is important to choose the correct size for maximum effectiveness. This sheet contains three methods to help you effectively calculate the correct O-Ring length.



Method One: Determining belt length if you know the ID, OD IC or OC of existing belt. Existing belt must be new.

ID = Inner Diameter
OD = Outer Diameter
IC = Inner Circumference
OC = Outer Circumference
T = Cross-section diameter, V-belt Height, or flat belt thickness

If you know the ID
Cut Length=(ID+T)*π

If you know the IC
Cut Length=IC+(T*π)

If you know the OD
Cut Length=(OD-T)*π

If you know the OC
Cut Length= OC-(T*π)

Method Two: Determining belt length using a string around the belt path.

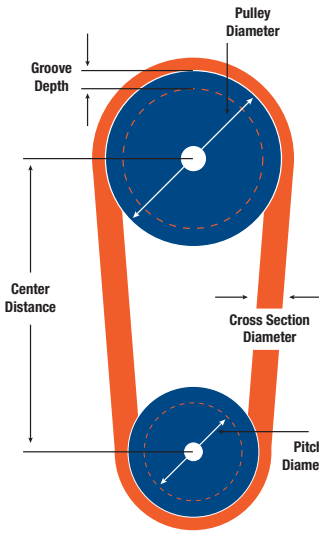
S=String Length
D=String Diameter
T = Cross-section diameter, V-belt Height, or flat belt thickness

$$\text{Cut Length} = \frac{S-(D+T)*\pi}{(1+\%\ \text{Tension})}$$

Method Three: Determining belt length between two pulleys.

D_1 = Pitch Diameter Pulley 1*
D_2 = Pitch Diameter Pulley 2*
C= Center Distance between pulleys

$$\text{Cut Length} = \frac{2C + \pi\left(\frac{D_2+D_1}{2}\right) + \left(\frac{D_2+D_1}{4C}\right)^2}{1 + \%\ \text{Tension}}$$



* Pitch Diameter for V-Groove Pulleys can be obtained from pulley manufacturers. For round and flat belt pulleys calculate the pitch diameter as follows:

D = Pulley OD
G = Groove Depth
T = Cross-section diameter, V-belt Height, or flat belt thickness

Pitch Diameter=D-2G+T

Percent tension for urethane belts range from 1-10%, Contact AE's for specific application needs.

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