BenEFits of Belt Drives:

- Little or no maintenance
- Lower cost than chain drives
- Quiet
- Efficient

Today's timing belts are reinforced with various tensile cords, such as polyester, fiberglass or aramid, making them stronger than ever.

Terms Used When Describing Belts and Pulleys:

Pitch Diameter: The drive pulley diameter
Center Distance: Distance between two pulleys' centers
Pitch: Distance measured along the pitch line of the timing belt from one tooth center to the adjacent tooth center.
Belt Length: Total length of the belt if cut in half and laid flat.

Step 1. Determine the peak torque for your drive. This is usually the motor starting torque, but may also be any unusual momentary or shock load which may occur during normal operation.

Step 2. Determine the largest pulley diameters that can be utilized, considering the space limitations and drive ratio of your system. This helps to increase the torque capacity of the drive and extend the service life of the belt.

Step 3. Calculate the teeth in mesh (T.I.M.) using formula 5 in Table 1. Consult Table 2 for the teeth in mesh factor. Divide the peak torque (from Step 1) by the T.I.M. factor to determine the drive torque by using formula 7 in Table 1.

Step 4. Calculate the belt pitch length based on the design center distance of your drive using formula 2 in Table 1.

Step 5. Divide the belt pitch length by the tooth pitch selected and round the result to the nearest whole number. This is the number of teeth on the belt for your application. Adjust the nominal center distance of your design to match the belt using formula 1 in Table 1.

Step 6. Using formula 6 in Table 1, calculate the effective tension (T_e) on the drive using the pitch radius and design torque of the smallest loaded pulley in the system.

Important note
Always incorporate a means of adjusting center distance to allow for pitch length manufacturing tolerance.