V-Belt Quick Selection Guide

1. Determine the drive’s requirements. How much power (Actual Horsepower) do needs to be delivered and at what speed (RPM)? What are the limits on center distance and pulley sizes?

2. From the Service Factor Table, choose the Service Factor most applicable to the specific application. Refer to the table below.

3. Calculate the required Design Horsepower by multiplying the Actual Horsepower by the Service Factor.

4. Use the Design Horsepower and Speed of the Faster Shaft \( \frac{\text{Speed of Driver}}{\text{Speed of Driven}} = \frac{\text{Diameter of Driven}}{\text{Diameter of Driver}} \) to determine which belt section is best suited for the drive. Refer to the figures below.
   - Other factors must also be considered when selecting a belt section. For example, cogged belts can be used on smaller pulleys and can handle higher temperatures but are also more expensive. There are minimum recommended pulley diameters for each belt section. Running the belt on a pulley smaller than recommended will drastically reduce belt life.

5. After selecting a belt section, refer the Belt Drive Design Program found at www.bestorq.com to obtain more information about the required belting. (Note that an authorized email address and password is required to access the program.) The program will determine the nearest stock belt size, belt speed, RPM of the larger pulley, rated HP per belt, number of belts required and arc of contact as well as other information. The following information must be entered:
   - Actual Horsepower
   - Service Factor
   - Belt Cross-Section
   - Smaller Pulley Diameter
   - Smaller Pulley RPM
   - Larger Pulley Diameter
   - Desired Center Distance

6. Following the recommendations given by the design program AND the installation and maintenance guidelines is necessary to maximize belt life.
# Typical Service Factors

**Notes:**
Choose the Driving and Driven Units closest to your application.

- Intermittent Service: 3-5 hours per day or seasonal
- Normal Service: 6-16 hours per day, peak or occasional starting load ≤ 200% rated load
- Continuous Service: starting or peak load ≥ 200% of rated load, 16-24 hours per day

For Idlers add the following to the service factors:
- Inside Slack Side: 0.0
- Outside Slack Side: 0.1
- Inside Tight Side: 0.1
- Outside Tight Side: 0.2

Use a service factor of 2.0 for equipment subject to choking.

## Type of Driving Unit

<table>
<thead>
<tr>
<th>Type of Driving Unit</th>
<th>Intermittent</th>
<th>Normal</th>
<th>Continuous</th>
<th>Intermittent</th>
<th>Normal</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Motors: Normal Torque, Squirrel Cage, Star-Delta Start Synchronous and Split Phase DC Motors: Shunt Wound Multiple Cylinder Engines</td>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
</tr>
</tbody>
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## Type of Driven Unit

- Agitators for Liquids
- Blowers and Exhausters
- Centrifugal Pumps and Compressors
- Fans up to 10 HP
- Light Duty Conveyors

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<tbody>
<tr>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
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- Belt Conveyors for Sand, Grain, etc.
- Mixers
- Fans Over 10HP
- Generators
- Line Shafts
- Laundry Machinery
- Machine Tools
- Punches, Presses, Shears
- Printing Machinery
- Positive Displacement Pumps
- Revolving and Vibrating Screens

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<td>1.1</td>
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- Brick Machinery
- Bucket Elevators
- Exciters
- Piston Compressors
- Conveyors (Drag-Pan-Screw)
- Hammer Mills
- Paper Mill Beaters
- Piston Pumps
- Positive Displacement Blowers
- Pulverizers
- Saw Mill and Woodworking Machinery
- Textile Machinery

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<td>1.2</td>
<td>1.3</td>
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- Crushers (Gyratory-Jaw-Roll)
- Mills (Ball-Rod-Tube)
- Hoists
- Rubber (Calenders-Extruders-Mills)

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<td>1.3</td>
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- Rubber (Calenders-Extruders-Mills)

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