CONIDRIVE® DESIGN DATA

ALL CONIDRIVE® N10 belt and pulley systems should be designed incorporating the design data shown below to ensure reliability and long-life operation.

CONIDRIVE® N10 belts are available in Endless Style and as Belt Stock.

Ratational Belt Drives
The power transmitting capability is dependent on various parameters; namely torque to be transmitted, the rpm of the smallest pulley (driver), the number of teeth on the driver & driven pulleys and the number of teeth on the belt. However, in all cases, the allowable belt tension values shown in Tables 1, 2 and 4 must not be exceeded. It is advisable to remain below these values if shock loads are anticipated.

Reciprocating Belt Drives
Reciprocating belt drives employing belt stock materials can be selected based on an allowable static load of 8 lbs. per engaging tooth and belt load from static and acceleration forces not to exceed values indicated in Table 4.

Horsepower Calculations
H.P. to be transmitted - 3/4
rpm of small pulley (driver) - 1750
Belt style - 2 row
Small pulley Dia. (mm) - 49.49 (16 teeth)
Large pulley Dia. (mm) - 100.42 (32 teeth)
Center Distance - 150 mm

H.P. = \( \frac{TANGENTIAL \ FORCE \times PULLEY \ DIA. \times \text{rpm}}{14.34 \times 10^6} \)

\[ \text{H.P.} = \frac{400 \times 49.49 \times 1750}{14.34 \times 10^6} \]

\[ \text{H.P.} = 2.41 \]

Therefore, belt/pulley selection can transmit 3/4 H.P. with a theoretical safety factor of 3.21

\[ N = \frac{n}{360} \left[ 180 - \frac{60 (D - d)}{C.D.} \right] \]

\[ N = \frac{20}{360} \left[ 180 - \frac{60 (100.42 - 49.49)}{150} \right] \]

\[ N = 8.968 \]

**Step 1** - Determine no. of teeth in engagement at small pulley

**Step 2** - Calculating horsepower using graphs provided (see next page)
**CONIDRIVE® DESIGN DATA**

- **Table 1 - TANGENTIAL FORCE VS. rpm** - for 2-Row Belt & Pulley Systems

![Graph](image1)

- **Table 2 - TANGENTIAL FORCE VS. rpm** - for 3-Row Belt & Pulley Systems

![Graph](image2)

- **Table 3**
  - Minimum no. of pulley teeth per row - 16
  - Minimum inner idler diameter - 40 mm
  - Minimum outer idler diameter - 50 mm
  
  **NOTE:** Inner idlers must have pockets to receive belt projections.

- **Table 4**
  
<table>
<thead>
<tr>
<th>Belt Width (mm)</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt Stock</td>
<td>650</td>
<td>1300</td>
<td>1950</td>
</tr>
<tr>
<td>Endless Belts</td>
<td>–</td>
<td>650</td>
<td>975</td>
</tr>
</tbody>
</table>

Can't find the sizes you need? Other sizes available on special order.
Conidrive® Systems have distinct advantages over present synchronous drives.
Shown below are some examples of applications with solutions unique to Conidrive® Components.

Conidrive® pulleys are manufactured by SDP as standard catalog items and as custom parts to your specifications.
CONIDRIVE® TIMING BELTS & BELT STOCK

10 mm PITCH
SELF-GUIDING
CONTINUOUS ROLLING ACTION
LOW NOISE & VIBRATION

› MATERIAL:
Polyurethane Reinforced with Steel Tensile Cords

› OPERATING TEMPERATURE:
-30°C to +80°C

› FEATURES:
Self-guiding system: no side flanges needed on pulleys
Nondirectional: same meshing performance in both directions of belt travel
Polygon-free: smooth rolling around pulleys thanks to contact with flat belt area
Noise-minimized & low-vibration: continuous rolling, smooth meshing of conical projections into recesses
Homogenous distribution of forces in the belt: no force components acting laterally thanks to symmetrical cone geometry and balanced tension member arrangement (S/Z winding)

**METRIC COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Fig. 1 Double Row</th>
<th>Fig. 2 Triple Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 6Z13MD0500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>A 6Z13MD0600</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>A 6Z13MD0700</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>A 6Z13MD0800</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>A 6Z13MD0900</td>
<td>900</td>
<td></td>
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<tr>
<td>A 6Z13MD1000</td>
<td>1000</td>
<td></td>
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</table>

TIMING BELT STOCK - 10 mm Pitch

› MATERIAL:
Polyurethane Reinforced with Steel Tensile Cords

› OPERATING TEMPERATURE:
-30°C to +80°C

› APPLICATIONS:
Metering, positioning, conveying and oscillating drives where belt lengths required are longer than standard endless belts.

Priced per Meter

**METRIC COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>No. of Rows</th>
<th>Allowable Static Tensile Load N</th>
<th>Max. Available Length m</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 6Z13MCS</td>
<td>Single</td>
<td>650</td>
<td>50</td>
</tr>
<tr>
<td>A 6Z13MCD</td>
<td>Double</td>
<td>1300</td>
<td>50</td>
</tr>
<tr>
<td>A 6Z13MCT</td>
<td>Triple</td>
<td>1950</td>
<td>50</td>
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</tbody>
</table>
CONIDRIVE® PULLEYS SINGLE • 10 mm PITCH

NO FLANGE
FAIRLOC® HUB
NONCHORDAL ACTION

> MATERIAL:
Aluminum Alloy

> FINISH:
Clear Anodized

> FEATURES:
Self-Guiding
No Flanges Required
No Chordal Effect
Smooth Running
Fairloc® Hub
Nonmarring of Shaft

> SPECIFICATION:
Other sizes available on special order.

**METRIC COMPONENT**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>No. of Cavities Per Row</th>
<th>D O.D.</th>
<th>d Bore Dia. +0.025</th>
<th>L Length ± 0.4</th>
<th>D Hub Dia.</th>
<th>I Hub Proj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 6A14M16S10</td>
<td>16</td>
<td>49.49</td>
<td>10</td>
<td>23</td>
<td>32</td>
<td>13</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>A 6A14M24S10</td>
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<td>74.95</td>
<td>10</td>
<td>23</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>A 6A14M24S12</td>
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<td>74.95</td>
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<td>32</td>
<td>13</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
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<td>13</td>
</tr>
<tr>
<td>A 6A14M36S12</td>
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<td>113.15</td>
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<td>13</td>
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<tr>
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<tr>
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<td>48</td>
<td>151.35</td>
<td>12</td>
<td>23</td>
<td>32</td>
<td>13</td>
</tr>
</tbody>
</table>
CONIDRIVE® PULLEYS DOUBLE & TRIPLE • 10 mm PITCH

NO FLANGES
FAIRLOC® HUB
NONCHORDAL ACTION

> MATERIAL:
Aluminum Alloy

> FINISH:
Clear Anodized

> FEATURES:
Self-Guiding
No Flanges Required
No Chordal Effect
Smooth Running
Fairloc® Hub
Nonmarring of Shaft

> SPECIFICATION:
Other sizes available on special order.

---

**METRIC COMPONENT**

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<th>No. of Cavities Per Row</th>
<th>D O.D.</th>
<th>d Bore Dia. +0.025</th>
<th>L Length</th>
<th>D Hub Dia.</th>
<th>I Hub Proj.</th>
</tr>
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<tbody>
<tr>
<td>A 6A14M16D16</td>
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<tr>
<td>A 6A14M24D16</td>
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<td>16</td>
<td>38.5</td>
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<td>18.5</td>
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<tr>
<td>A 6A14M24D20</td>
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<td>74.95</td>
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<tr>
<td>A 6A14M32D16</td>
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<td>38.5</td>
<td>38</td>
<td>18.5</td>
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<tr>
<td>A 6A14M32D20</td>
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</tr>
<tr>
<td>A 6A14M48D16</td>
<td>48</td>
<td>151.35</td>
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<td>38.5</td>
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<td>18.5</td>
</tr>
<tr>
<td>A 6A14M48D20</td>
<td>48</td>
<td>151.35</td>
<td>20</td>
<td>42</td>
<td>49.5</td>
<td>22</td>
</tr>
</tbody>
</table>

Fig. 1 Double Row

Fig. 2 Triple Row
**CONIDRIVE® MOUNTING PLATES**

**USED IN LINEAR DRIVES**

- **MATERIAL:**
  - Aluminum Alloy - 3.18 mm Thick

- **SPECIFICATION:**
  - Supplied with socket head cap screws and internal lock washers.

---

**TOP PLATE**

- Ø5.6 TYP.
- M5 X .8 TYP.

**BOTTOM PLATE**

- A16A13M100*
  - Single Row
- A16A13M200*
  - Double Row
- A16A13M300*
  - Triple Row