Guide Rollers
Flat / Flanged Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Surface Treatment</th>
<th>Bearing Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTMRA</td>
<td>1045 Steel</td>
<td>Electrically Polished</td>
<td>Black Oxide</td>
</tr>
<tr>
<td>FTMRB</td>
<td>1045 Steel</td>
<td>Mirror Polished</td>
<td>Black Oxide</td>
</tr>
<tr>
<td>FTMRG</td>
<td>1045 Steel</td>
<td>Mirror Polished</td>
<td>Aluminum Alloy Clear Anodize</td>
</tr>
<tr>
<td>FTMRN</td>
<td>1045 Steel</td>
<td>Mirror Polished</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

Selection Method

(1) Calculate the Required Tangential Force

Formula for the required tangential force

Required Tangential Force (N) = 9.8 (constant value) x Object (kg) x Rolling Friction Coefficient

Rolling Friction Coefficient Chart

<table>
<thead>
<tr>
<th>Material</th>
<th>0.02–0.05</th>
<th>0.01–0.02</th>
<th>0.005–0.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>0.05–0.03</td>
<td>0.01–0.02</td>
<td>0.005–0.04</td>
</tr>
<tr>
<td>Cardboard</td>
<td>0.05–0.03</td>
<td>0.01–0.02</td>
<td>0.005–0.04</td>
</tr>
<tr>
<td>Plastic</td>
<td>0.05–0.03</td>
<td>0.01–0.02</td>
<td>0.005–0.04</td>
</tr>
<tr>
<td>Rubber Lining</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Above values vary by roller pitch or condition of roller surface, etc.

Sample Calculation: When carrying a cardboard box of weight 40 (kg)

- From the above chart of Rolling Friction Coefficient, maximum friction coefficient for cardboard is 0.10.
- Required tangential force = 9.8 x 40 (kg) x 0.10 = 39.2 (N)
- Rolling friction coefficient depends on the material of the object. Refer to the table above.

(2) Select the Model Provisionally

Select the model that matches the carrying speed from the specification table on the right page.

Example: When carrying all the objects at the speed of 20 m/min, MOR57–Length=20.

(3) Determine the Number of Required Rollers

Determine the number of required rollers considering the following two elements.

Motor Roller Tangential Force (Start-up or at rated output)

Carried weight and Roller allowable static load (Please see the standards table "Roller Strength (N)" on right)

- Calculate the required tangential force
  - Calculating Capacity (N) = Tangential Force of the Motor Roller (N) x 0.9 (Constant value)
  - Determine the number of required rollers

The Number of Required Rollers = Required Tangential Force (N) / Calculating Capacity (N)

Sample Calculation: Required tangential force for carrying is 39.2 (N) from the sample calculation above.

When MOR57–Length=20

- Calculating capacity is 55 (N) (Starting tangential force) x 0.9 = 49.5 (N).
- The number of required rollers is 39.2 (N) (Required tangential force) / 49.5 (N) (Calculating capacity) = 0.79 (pcs)...1 roller is required to carry.

(4) Determine the Length of the Rollers

Determine the length of the rollers from the size of the bottom surface (length and width) of the object

Sample Calculation: When the length of the bottom surface is 400 mm and the width is 500 mm

- The width of the object is 400 mm + Margin 100 mm = 500 mm
- If rollers that in this case, the part numbers must be MOR57-500-20

Caution in Selection

- The calculated value using carrying tangential force gives the minimum value for required tangential force needed to carry the work. Transfer capability could vary depending on roller level differences, carried object surface shape and condition, etc. Please use more rollers depending on usage conditions and carrying weight.
- When motor rollers are loaded at all times, use rated tangential force in calculating for selection.
- The object is assumed to start from on the motor rollers.

Features

- Built-in motor and gear enables space savings for driving mechanisms.
- Requires no maintenance such as lubrication.
- With multiple motor rollers used depending on transfer load size, one of the rollers in trouble does not result in production line shutdown.

Circuit Layout Diagram

3 Phase, 200V

For NO rotation, switch while motor roller lead wire and black wire.
- For NeRA rotation, switch while motor roller lead wire and black wire.
- NeRA / NeRA rotation can be changed by switch.
- When red, white and black wires are connected in the identical manner, the rollers will rotate in the same direction.