## Lead Screws

**Lead Screws Characteristics, Selection Flow & Application Examples**

### Features of Each Screw Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Slide Screws</th>
<th>Lead Screws</th>
<th>Matched Ball Screws</th>
<th>Preassembled Ball Screws</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td>Fixed bearing adjustment mechanism, etc.</td>
<td>Lockup of Stainless Steel Shaft and a Check Nut</td>
<td>No-grease operation is possible.</td>
<td>(App. Example) Transfer pitch changer (J Type) Fixed screw forliteral</td>
</tr>
<tr>
<td></td>
<td>Also can be applied with electric screw jacks.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Admissible Extrapolated Speed

- Low Speed: High Speed
- High Speed: High Speed

### Admissible Axial Load

<table>
<thead>
<tr>
<th>Type</th>
<th>1.2x10^4 N</th>
<th>1.3x10^4 N</th>
<th>1.4x10^4 N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inframat 5</td>
<td>Infomat 5</td>
<td>Infomat 5</td>
</tr>
</tbody>
</table>

### Price

<table>
<thead>
<tr>
<th>Type</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Lead Screw Selection Flow

1. **Lead Screw Selection Chart**
   - Select by characteristics of each type.

2. **Screw Selection**
   - Shaft End / Shaft Diameter (Shoulder)
   - Screw Pitch Selection

3. **Nut Selection (Configuration)**
   - Confirming Lead Screw Technical Calculations
   - Re-confirming Lead Screw Technical Calculations

4. **Lead Screw Nut Selection Chart**
   - Material and metal type group are set in the Selection Criteria.

5. **Easy Pattern Designing**
   - A compact lead screw kit can easily be designed by sequentially selecting the components from Easy Pattern Designing program.

### Lead Screw Nut Selection Chart

<table>
<thead>
<tr>
<th>Material or Metal Type</th>
<th>Part Number</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>MTS</td>
<td>Regularly used nut type. The round flange group is selected initially. Then a sub-type is selected based on mounting depth constraints.</td>
</tr>
<tr>
<td>Compact</td>
<td>MTS</td>
<td></td>
</tr>
<tr>
<td>Profile</td>
<td>MTSJR</td>
<td></td>
</tr>
<tr>
<td>Tapped Hole</td>
<td>MTSUR</td>
<td></td>
</tr>
<tr>
<td>Skewed Hole</td>
<td>MTSGU</td>
<td></td>
</tr>
<tr>
<td>Rattles Competent</td>
<td>MTRIMR, MTRISH</td>
<td>The standard type is rattles compliant. Suitable when environmental concerns are of importance.</td>
</tr>
<tr>
<td>Anti-Noiseback</td>
<td>MTRBLK</td>
<td></td>
</tr>
<tr>
<td>D4-Free</td>
<td>MTSR</td>
<td></td>
</tr>
<tr>
<td>Pacer</td>
<td>MTRM, MTRSF</td>
<td>A wide type dimension compatible with the standard type. Reduces lubrication maintenance requirements.</td>
</tr>
</tbody>
</table>

## Lead Screw Characteristics, Selection Flow & Application Examples, continued

### Lead Screw Nut Selection Chart (continued)

- **Standard**: MTS
- **Compact**: MTS
- **Profile**: MTSJR
- **Tapped Hole**: MTSUR
- **Skewed Hole**: MTSGU
- **Rattles Compliant**: MTRIMR, MTRISH
- **Anti-Noiseback**: MTRBLK
- **D4-Free**: MTSR
- **Pacer**: MTRM, MTRSF

A lead screw shaft with a miniature lead screw nut is selected for its economy.

### Applications & Purposes

**Applicable Applications**

- For transfer feeding, locating stoppers, and guiding of various work. Adjustments are relatively small, but shock loads in axial direction are anticipated. Additionally, the lead screw scheme is chosen for its economy.

**Selection Criteria**

- **Lead Screw Shaft**: A lead screw shaft is selected specifically for MISUMI Shaft Supports with no radial load being supported. The configuration supports both the end of the shaft with a bearing.

- **Shaft Support Unit for Lead Screws**: A Shaft Support Unit for Lead Screws is selected for the fixed end. Fixed support unit has two radial bearings in pre-mounted arrangement and can bear axial and thrust loads.

- **Shaft Support Unit for Lead Screws**: A Shaft Support Unit for Lead Screws is selected for the shaft support side. Comes with a radial bearing in the end, used as a bearing.

### Lead Screw Nut

- **Lead Screw Nut**: Commonly used round flanged lead screw nut is selected.

### Nut Bracket

- **Nut Bracket**: A Nut Bracket compatible with a lead screw nut is selected.

### Use Condition

- **(1) Applied Load**: 20 kN
- **(2) Maintenance**: Once / Year
- **(3) Positioning Accuracy**: ±0.1 mm
- **(4) Stroke**: 150 mm

### Slide Screw Application Example

A screw feed axis with a stainless steel shaft and a screw nut can be used without greater which is suitable for clean environments. Slide screws are economical and offer smooth motion.

### Application Examples

- **Example 1 Machine Name**: Camera Inspections Unit
- **Example 2 Machine Name**: Sheet Steel Roll Slitter

- **Use Condition**
  - (1) Applied Load: 20 kN
  - (2) Maintenance: Once / Year
  - (3) Positioning Accuracy: ±0.1 mm
  - (4) Stroke: 150 mm

- **Slide Screw Application Example**: A slide screw is utilized as the Z axis.

### Applications & Purposes

- **A slide screw is chosen for fine adjustability, and should be used with as little re-lubrications as possible.**

### Selection Criteria

- **Slide Screw Shaft**: One end stepped type in 304 Stainless Steel material is selected.

### Lead Screw Nut

- **Lead Screw Nut**: Standard Nut with a pilot feature built-in. The pilot is inserted into bores to locate in Z axis applications, etc.

- **Lead Screw Nut**: A Nut Bracket compatible with a lead screw nut is selected.

- **Lead Screw Nut**: An extended nut is selected for the shaft support side. Comes with a radial bearing in the end, used as a bearing.

- **Lead Screw Nut**: A Nut Bracket compatible with a lead screw nut is selected.

- **Lead Screw Nut**: A compact position indicator is selected for lead screw feed amount measurements.

- **Use Condition**
  - **(1) Applied Load**: 20 kN
  - **(2) Maintenance**: Once / Year
  - **(3) Positioning Accuracy**: ±0.1 mm
  - **(4) Stroke**: 150 mm

- **Slide Screw Application Example**: A slide screw is utilized as the Z axis.

### Applications & Purposes

- **A slide screw is chosen for fine adjustability, and should be used with as little re-lubrications as possible.**

### Selection Criteria

- **Slide Screw Shaft**: One end stepped type in 304 Stainless Steel material is selected.

- **MISUMI Shaft Supports** with no radial load being supported. The configuration supports both the end of the shaft with a bearing.

### Use Condition

- **(1) Applied Load**: 20 kN
- **(2) Setup change-over frequency**: Once / Day, or for fast changes, etc.
- **(3) Positioning Accuracy**: ±0.5 mm
- **(4) Stroke**: 150 mm

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There’s more on the web: misumiusa.com

Check out misumiusa.com for the most current pricing and lead time.