## Accessories

### Couplings

**Coupling Materials and Characteristics**

OMRON provides two types of couplings for different application conditions: Resin and metal. Select the best type for the application.

As a general rule, use metal couplings for high resolution and resin couplings for low resolution. (As a rough guide, a high resolution is one that exceeds 3,600 ppr.) Even for applications requiring relatively low resolution, a metal coupling will provide more reliability in applications involving rapid acceleration/deceleration or for Encoders with high starting torque.

#### Characteristics

<table>
<thead>
<tr>
<th>Material</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resin (standard type)</td>
<td>• Low cost.</td>
<td>• Low torsion rigidity and thus not suitable for high resolution.</td>
</tr>
<tr>
<td></td>
<td>• Easy shaft alignment when mounting.</td>
<td>• Mounting is possible even if the shafts are greatly misaligned, which can cause damage from fatigue over long periods of application.</td>
</tr>
<tr>
<td></td>
<td>• Lightweight and low moment of inertia, placing a smaller load on the drive system.</td>
<td></td>
</tr>
<tr>
<td>Metal (aluminum, helical)</td>
<td>• High torsion rigidity and thus suitable for high resolution.</td>
<td>• High cost.</td>
</tr>
<tr>
<td></td>
<td>• Transmitted allowable torque is large.</td>
<td>• Heavy and thus place a large load on the drive system.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The allowable shaft misalignment is small, so accurate positioning is required when mounting.</td>
</tr>
</tbody>
</table>

#### Coupling Suitability Table

- ○: Suitable and provided with product, Δ: Suitable and sold separately, ---: Not suitable.

<table>
<thead>
<tr>
<th>Couplings</th>
<th>Specification</th>
<th>Resin, standard type</th>
<th>Resin, different end diameter</th>
<th>Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary Encoder</td>
<td>Model/Shaft dia.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E6A2-C 4 dia.</td>
<td>---</td>
<td>○</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>E6B2-C 6 dia.</td>
<td>---</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
</tr>
<tr>
<td>E6C2-C 6 dia.</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
<td>Δ</td>
</tr>
<tr>
<td>E6C3-C 8 dia.</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
<td>Δ</td>
</tr>
<tr>
<td>E6D-C 6 dia.</td>
<td>---</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
</tr>
<tr>
<td>E6F-C 10 dia.</td>
<td>---</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
</tr>
<tr>
<td>E6H-C</td>
<td>Hollow shaft interior dia.: 8 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E6J-C 2 dia.</td>
<td>○</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>E6CP-A 6 dia.</td>
<td>---</td>
<td>○</td>
<td>Only Pre-wired Models</td>
<td>---</td>
</tr>
<tr>
<td>E6C3-A 8 dia.</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>E6F-A 10 dia.</td>
<td>---</td>
<td>Δ</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>E6J-A 4 dia.</td>
<td>---</td>
<td>○</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*Tolerance conforms to JIS standard: JIS B 0401. Refer to page 2.*

### Comparison of Specifications for 6-mm Shafts

<table>
<thead>
<tr>
<th>Material</th>
<th>Resin (standard type)</th>
<th>Metal (aluminum, helical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eccentricity (mm)</td>
<td>0.5</td>
<td>0.15</td>
</tr>
<tr>
<td>Eccentricity (degrees)</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Deviation in shaft direction (mm)</td>
<td>±0.4</td>
<td>±0.15</td>
</tr>
<tr>
<td>Allowable torque (N·m)</td>
<td>0.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Torsion rigidity (Nm/rad)</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>Moment of inertia (kg·m²)</td>
<td>$1.2 \times 10^{-2}$</td>
<td>$6 \times 10^{-2}$</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>4</td>
<td>12</td>
</tr>
</tbody>
</table>
**Rotary Encoders**

**Coupling Dimensions**

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

**E69-C02B**

- Dimensions:
  - Four, M2 hexagonal set screws
- Material: Glass-reinforced PBT
- Applicable model: E6J-C

**E69-C04B**

- Dimensions:
  - Four, M3 hexagonal set screws
- Material: Glass-reinforced PBT
- Applicable model: E6A2-C, E6J-A

**E69-C06B**

- Dimensions:
  - Four, M3 hexagonal set screws
- Material: Glass-reinforced PBT

**E69-C06M**

- Dimensions:
  - Four, M3 hexagonal set screws
- Material: Extra-super duralumin

**E69-C10B**

- Dimensions:
  - Four, M4 hexagonal set screws
- Material: Glass-reinforced PBT
- Applicable model: E6F-C, E6F-A

**E69-C10M**

- Dimensions:
  - Four, M5 hexagonal set screws
- Material: Extra-super duralumin
- Applicable model: E6F-C, E6F-A

**E69-C08B**

- Dimensions:
  - Four, M4 hexagonal set screws
- Material: Glass-reinforced PBT
- Applicable model: E6C3-A, E6C3-C

**E69-C10B Model with Different End Diameter**

- Dimensions:
  - Four, M4 hexagonal set screws
- Material: Glass-reinforced PBT

**E69-C68B**

- Dimensions:
  - Four, M4 hexagonal set screws
- Material: Glass-reinforced PBT

**E69-C610B Model with Different End Diameter**

- Dimensions:
  - Four, M4 hexagonal set screws
- Material: Glass-reinforced PBT

---

**Standard hole dimensions (mm)**

<table>
<thead>
<tr>
<th>Min.</th>
<th>Max.</th>
<th>Height: 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>3</td>
<td>+14</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>+18</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>+22</td>
</tr>
</tbody>
</table>

---
Flanges and Servo Mounting Brackets

<table>
<thead>
<tr>
<th>Flange and Servo Mounting Bracket Suitability Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐: Suitable and provided with product, Δ: Suitable and sold separately, ---: Not suitable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotary Encoder Model</th>
<th>Type</th>
<th>Flange</th>
<th>Servo Mounting Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td>E6A2-C</td>
<td>⬞</td>
<td>⬞</td>
<td>⬞</td>
</tr>
<tr>
<td>E6B2-C</td>
<td>Δ</td>
<td>⬞</td>
<td>⬞</td>
</tr>
<tr>
<td>E6C2-C</td>
<td>⬞</td>
<td>Δ</td>
<td>⬞</td>
</tr>
<tr>
<td>E6C3-C</td>
<td>⬞</td>
<td>⬞</td>
<td>Δ</td>
</tr>
<tr>
<td>E6D-C</td>
<td>⬞</td>
<td>⬞</td>
<td>⬞</td>
</tr>
<tr>
<td>E6F-C</td>
<td>⬞</td>
<td>⬞</td>
<td>⬞</td>
</tr>
<tr>
<td>E6H-C</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Hollow-shaft Model; Flange not required.

<table>
<thead>
<tr>
<th>Remarks</th>
<th>E6A2-C</th>
<th>E6B2-C</th>
<th>E6C2-C</th>
<th>E6C3-C</th>
<th>E6D-C</th>
<th>E6F-C</th>
<th>E6H-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>E69-2 Servo Mounting Bracket provided.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Flange Dimensions**

(Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.)

### E69-FBA

- Material: SPCC
- Thickness: 3.2
- Applicable model: E6B2-C
- Note: Three phillips screws M3 × 6 provided

### E69-FCA

- Material: SPCC
- Thickness: 3.2
- Applicable model: E6C2-C
- Note: Three phillips screws M4 × 8 provided

### E69-FBA02

- Material: SPCC
- Thickness: 3.2
- Applicable model: E6B2-C
- Note: Three phillips screws M3 × 10 provided, E69-2 Servo Mounting Bracket provided
Rotary Encoders

E69-FCA02

- Material: SPCC
- Thickness: 3.2
- Applicable model: E6C2-C
  
  Note: Three phillips screws M4 × 10 provided, E69-2 Servo Mounting Bracket provided

E69-FCA04

- Material: SPCC
- Thickness: 3.2
- Applicable model: E6C3-C, E6C3-A
  
  Note: Three phillips screws M4 × 8 provided, E69-2 Servo Mounting Bracket provided

Servo Mounting Bracket Dimensions

(Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.)

E69-1 (Three brackets in a set.)

- Applicable model: E6A2-C
  
  Material: SPCC

E69-2 (Three brackets in a set.)


Material: SPCC
**Read and Understand This Catalog**

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