

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.

Comparison of Specifications for 6-mm Shafts

| Machine specification | Material Resin (standard type) | Metal (aluminum, helical) |
|--|--------------------------------------|------------------------------|
| Eccentricity (mm) | 0.5 | 0.15 |
| Eccentricity (degrees) | 6 | 3 |
| Deviation in shaft direction (mm) | ±0.4 | ±0.15 |
| Allowable torque (N-m) | 0.8 | 1.6 |
| Torsion rigidity (Nm/rad) | 7 | 28 |
| Moment of inertia (kg-m ²) | 1.2 × 10 ⁻⁷ | 6 × 10 ⁻⁷ |
| Weight (g) | 4 | 12 |

Characteristics

| Material | Advantages | Disadvantages |
|--------------------------------------|--|--|
| Resin (standard type) | <ul style="list-style-type: none"> Low cost. Easy shaft alignment when mounting. Lightweight and low moment of inertia, placing a smaller load on the drive system. | <ul style="list-style-type: none"> Low torsion rigidity and thus not suitable for high resolution. Mounting is possible even if the shafts are greatly misaligned, which can cause damage from fatigue over long periods of application. |
| Metal (aluminum, helical) | <ul style="list-style-type: none"> High torsion rigidity and thus suitable for high resolution. Transmitted allowable torque is large. | <ul style="list-style-type: none"> High cost. Heavy and thus place a large load on the drive system. The allowable shaft misalignment is small, so accurate positioning is required when mounting. |

Coupling Suitability Table

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

| Couplings | Specification Shaft interior (tolerance *) exterior dia. Model | Resin, standard type | | | | | Resin, different end diameter | | Metal | |
|---|--|--|-----------------------------|---|-----------------------------|------------------------------|--------------------------------------|---------------------------------------|-------------------------------|--------------------------------|
| | | 2 dia. (Height: 8), 9 dia. | 4 dia. (Height: 8), 13 dia. | 6 dia. (Height: 8), 15 dia. | 8 dia. (Height: 8), 19 dia. | 10 dia. (Height: 8), 22 dia. | 6 dia., 8 dia., (Height: 8), 19 dia. | 6 dia., 10 dia., (Height: 8), 22 dia. | 6 dia. (Height: 8), 19.1 dia. | 10 dia. (Height: 8), 25.4 dia. |
| Rotary Encoder Model/shaft dia. | Model | E69-C02B | E69-C04B | E69-C06B | E69-C08B | E69-C10B | E69-C68B | E69-C610B | E69-C06M | E69-C10M |
| E6A2-C 4 dia. | | --- | ○ | --- | --- | --- | --- | --- | --- | --- |
| E6B2-C 6 dia. | | --- | --- | ○ | --- | --- | Δ | Δ | Δ | --- |
| E6C2-C 6 dia. | | --- | --- | Δ | --- | --- | Δ | Δ | Δ | --- |
| E6C3-C 8 dia. | | --- | --- | --- | Δ | --- | Δ | --- | --- | --- |
| E6D-C 6 dia. | | --- | --- | ○ | --- | --- | Δ | Δ | Δ | --- |
| E6F-C 10 dia. | | --- | --- | --- | --- | Δ | --- | Δ | --- | Δ |
| E6H-C Hollow shaft interior dia.: 8 mm | | Hollow-shaft Model; Coupling not required. | | | | | | | | |
| E6J-C 2 dia. | | ○ | --- | --- | --- | --- | --- | --- | --- | --- |
| E6C-N 6 dia. | | --- | --- | Δ | --- | --- | Δ | Δ | Δ | --- |
| E6CP-A 6 dia. | | --- | --- | ○ Sold separately only for E6CP-AG5C-C. | --- | --- | Δ | Δ | Δ | --- |
| E6C3-A 8 dia. | | --- | --- | --- | Δ | --- | Δ | --- | --- | --- |
| E6F-A 10 dia. | | --- | --- | --- | --- | ○ Only Pre-wired Models | --- | Δ | --- | Δ |
| E6J-A 4 dia. | | --- | ○ | --- | --- | --- | --- | --- | --- | --- |

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

(Unit: mm)

Coupling Dimensions

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

E69-C02B



Material: Glass-reinforced PBT

Applicable model: E6J-C

E69-C04B



Material: Glass-reinforced PBT

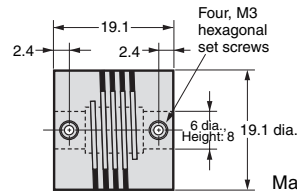
Applicable model: E6A2-C, E6J-A

E69-C06B



Material: Glass-reinforced PBT

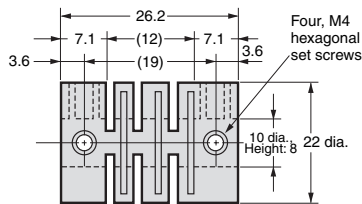
E69-C06M



Material: Extra-super duralumin

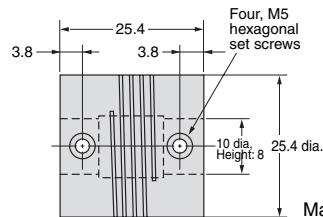
Applicable model: E6B2-C, E6C2-C, E6D-C, E6C-N, E6CP-A

E69-C10B



Material: Glass-reinforced PBT

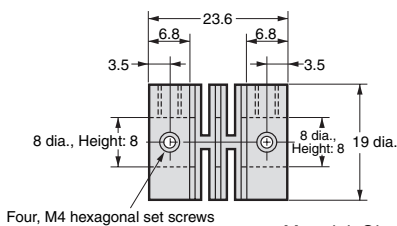
E69-C10M



Material: Extra-super duralumin

Applicable model: E6F-C, E6F-A

E69-C08B



Material: Glass-reinforced PBT

Applicable model: E6C3-A, E6C3-C

E69-C68B

Model with Different End Diameter

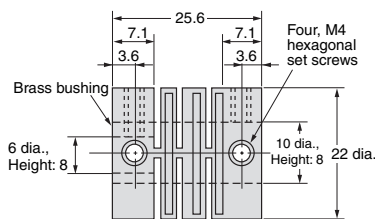


Material: Glass-reinforced PBT

Applicable model: E6B2-C, E6C2-C, E6C3-C, E6D-C, E6C-N, E6CP-A, E6C3-A

E69-C610B

Model with Different End Diameter



Material: Glass-reinforced PBT

Applicable model: E6B2-C, E6C2-C, E6D-C, E6F-C, E6C-N, E6CP-A, E6F-A

| Standard hole dimensions (mm) | | Tolerance (μm) |
|-------------------------------|------|----------------|
| Min. | Max. | Height: 8 |
| --- | 3 | +14 0 |
| 3 | 6 | +18 0 |
| 6 | 10 | +22 0 |

Flanges and Servo Mounting Brackets

Flange and Servo Mounting Bracket Suitability Table

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

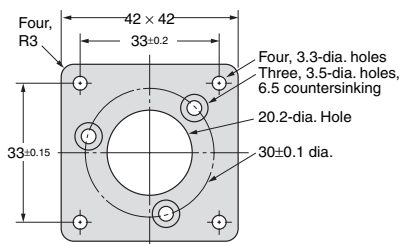
| Rotary Encoder Model | Type Model Remarks | Flange | | | | | Servo Mounting Bracket | | | |
|----------------------|-----------------------|--|---------|-----------|-----------|-----------|------------------------|-------------------------------|-------|--|
| | | E69-FBA | E69-FCA | E69-FCA03 | E69-FBA02 | E69-FCA02 | E69-FCA04 | E69-1 | E69-2 | |
| E6A2-C | | --- | --- | --- | --- | --- | --- | ○ Provided with the E6A2-CWZ. | --- | |
| E6B2-C | | Δ | --- | --- | Δ | --- | --- | --- | Δ | |
| E6C2-C | | --- | Δ | --- | --- | Δ | --- | --- | Δ | |
| E6C3-C | | --- | --- | Δ | --- | --- | --- | --- | Δ | |
| E6D-C | | --- | --- | --- | --- | --- | --- | --- | ○ | |
| E6F-C | | --- | --- | --- | --- | --- | --- | --- | Δ | |
| E6H-C | | Hollow-shaft Model; Flange not required. | | | | | | | | |
| E6C-N | | --- | Δ | --- | --- | Δ | --- | --- | Δ | |
| E6CP-A | | --- | --- | --- | --- | --- | --- | --- | ○ | |
| E6C3-A | | --- | --- | Δ | --- | --- | Δ | --- | Δ | |
| E6F-A | | --- | --- | --- | --- | --- | --- | --- | ○ | |

Flange Dimensions

(Unit: mm)

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

E69-FBA

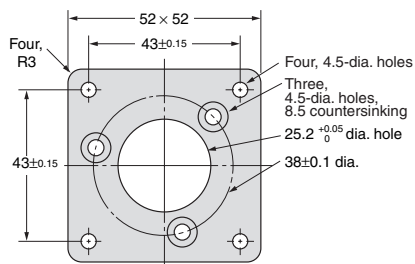


Material: SPCC
Thickness: 3.2

Applicable model: E6B2-C

Note: Three phillips screws M3 × 6 provided

E69-FCA

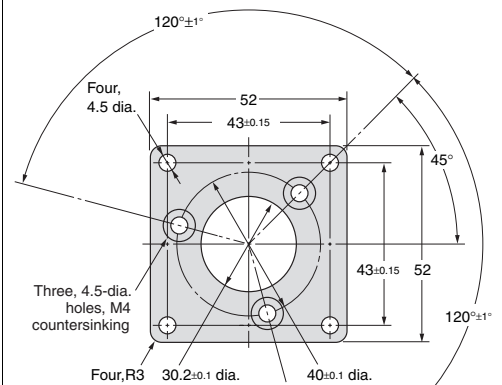


Material: SPCC
Thickness: 3.2

Applicable model: E6C2-C, E6C-N

Note: Three phillips screws M4 × 8 provided

E69-FCA03

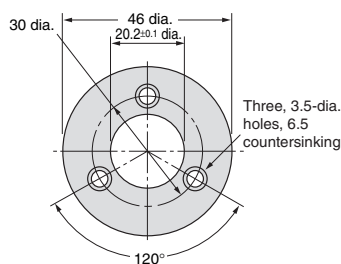


Material: SPCC
Thickness: 3.2

Applicable model: E6C3-A, E6C3-C

Note: Three phillips screws M4 × 8 provided

E69-FBA02

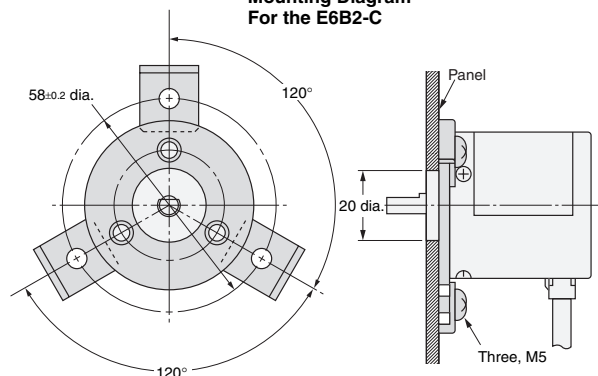


Material: SPCC
Thickness: 3.2

Applicable model: E6B2-C

Note: Three phillips screws M3 × 10 provided, E69-2 Servo Mounting Bracket provided

Mounting Diagram For the E6B2-C



E69-FCA02



E69-FCA04

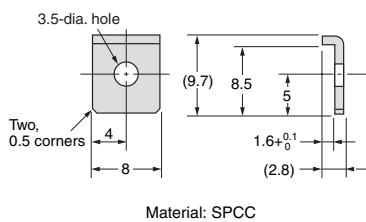


Servo Mounting Bracket Dimensions

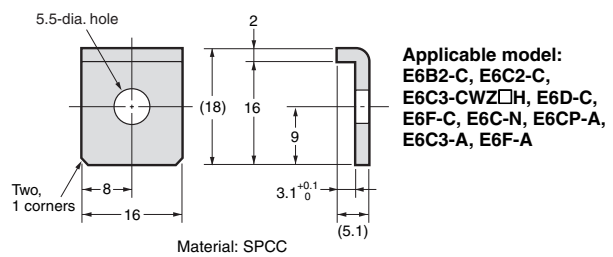
(Unit: mm)

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

E69-1 (Three brackets in a set.)



E69-2 (Three brackets in a set.)



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