

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 (standard type)	Resin (standard type)	Metal (aluminum, helical)
Eccentricity (mm)		0.5	0.25
Eccentricity (degrees)		5	5
Deviation in shaft direction (mm)		±0.4	±0.25
Allowable torque (N·m)		0.8	1
Torsion rigidity (Nm/rad)		16	8.2
Moment of inertia (kg·m <sup>2</sup> )		1.2 × 10 <sup>-7</sup>	7 × 10 <sup>-7</sup>
Weight (g)		4	13

Note: Note: The above specifications are for the coupling by itself. When the coupling is used together with a Rotary Encoder, allow for the precautions for all Rotary Encoders and for the specifications of the Encoder.

Characteristics

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

Coupling Suitability Table

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

Couplings Rotary Encoder Model/shaft dia.	Specification Shaft interior (tolerance <sup>*)</sup> 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.
		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.		○	---	---	---	---	---	---	---	---
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.		---	○	---	---	---	---	---	---	---

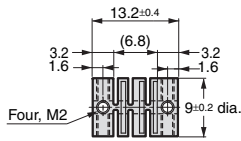
\*Tolerance conforms to JIS standard: JIS B 0401. →Refer to page 2.

(Unit: mm)

## Coupling Dimensions

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

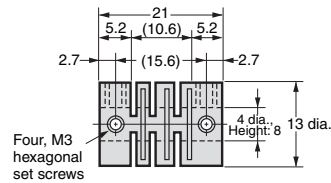
### E69-C02B



Material: Glass-reinforced PBT

Applicable model: E6J-C

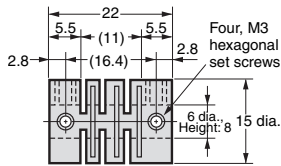
### E69-C04B



Material: Glass-reinforced PBT

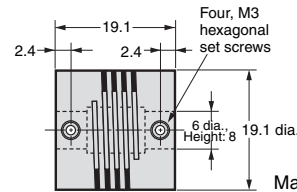
Applicable model: E6A2-C, E6J-A

### E69-C06B



Material: Glass-reinforced PBT

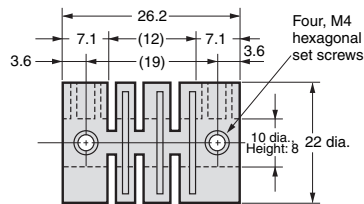
### E69-C06M



Material: Extra-super duralumin

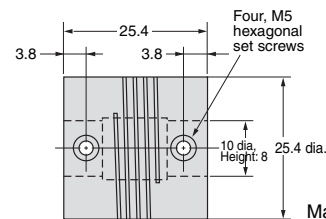
Applicable model: E6B2-C, E6C2-C, E6D-C, E6CP-A

### E69-C10B



Material: Glass-reinforced PBT

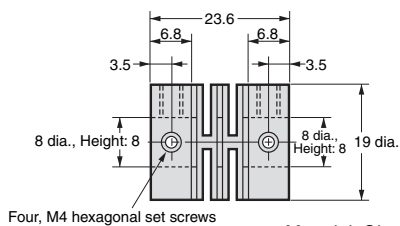
### E69-C10M



Material: Extra-super duralumin

Applicable model: E6F-C, E6F-A

### E69-C08B

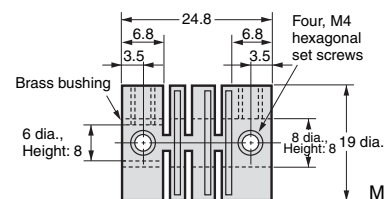


Material: Glass-reinforced PBT

Applicable model: E6C3-A, E6C3-C

### E69-C68B

Model with Different End Diameter

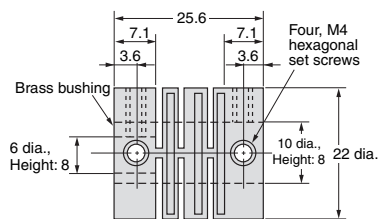


Material: Glass-reinforced PBT

Applicable model: E6B2-C, E6C2-C, E6C3-C, E6D-C, 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, 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, △: Suitable and sold separately, ---: Not suitable.

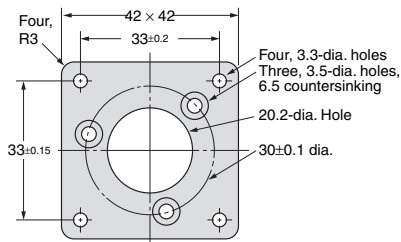
Rotary Encoder Model	Type Model Remarks	Flange					Servo Mounting Bracket			
		E69-FBA	E69-FCA	E69-FCA03	E69-FBA02	E69-FCA02	E69-FCA04	E69-1	E69-2	
E6A2-C		---	---	---	---	---	---	○ Provided with the E6A2-CWZ.	---	
E6B2-C		△	---	---	△	---	---	---	△	
E6C2-C		---	△	---	---	△	---	---	△	
E6C3-C		---	---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

### Flange Dimensions

(Unit: mm)

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

#### E69-FBA

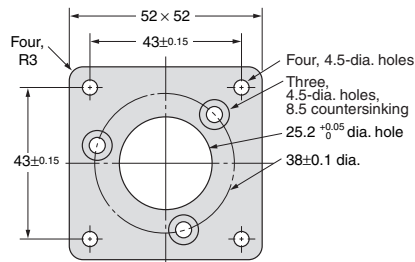


Material: SPCC  
Thickness: 3.2

Applicable model: E6B2-C

Note: Three phillips screws M3 × 6 provided

#### E69-FCA

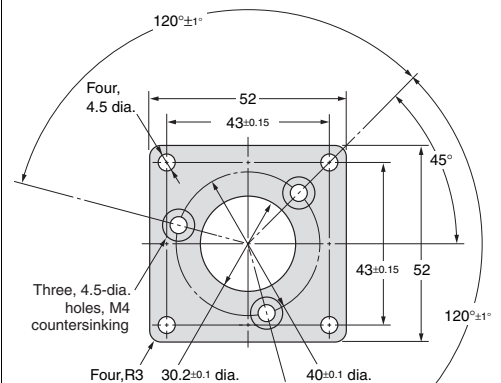


Material: SPCC  
Thickness: 3.2

Applicable model: E6C2-C

Note: Three phillips screws M4 × 8 provided

#### E69-FCA03

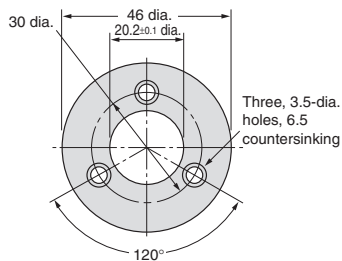


Material: SPCC  
Thickness: 3.2

Applicable model: E6C3-A, E6C3-C

Note: Three phillips screws M4 × 8 provided

#### E69-FBA02

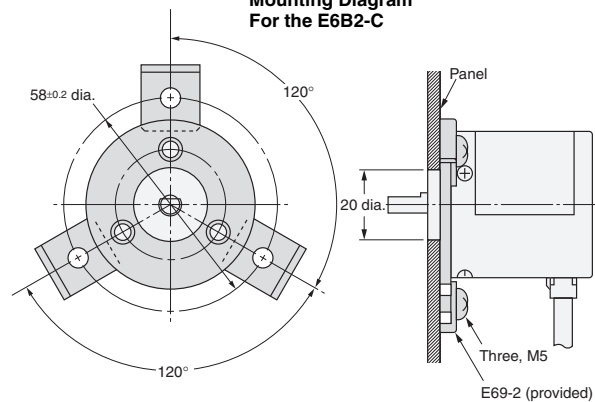


Material: SPCC  
Thickness: 3.2

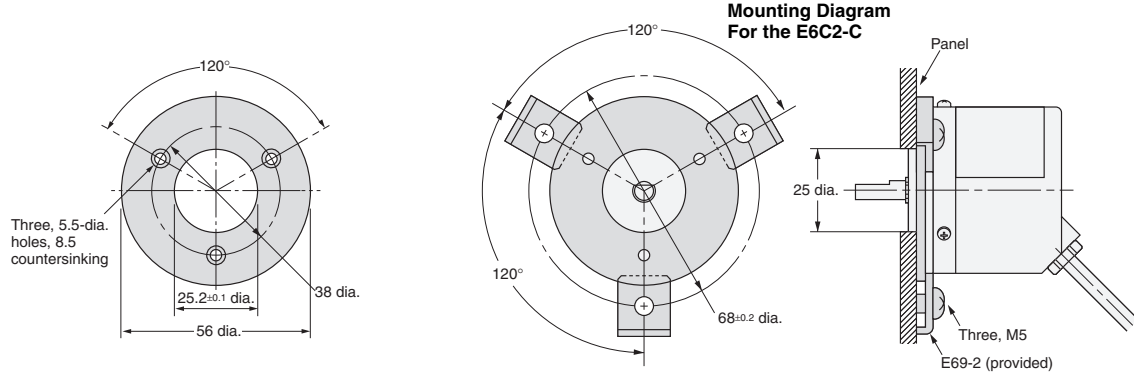
Applicable model: E6B2-C

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

#### Mounting Diagram For the E6B2-C



## E69-FCA02

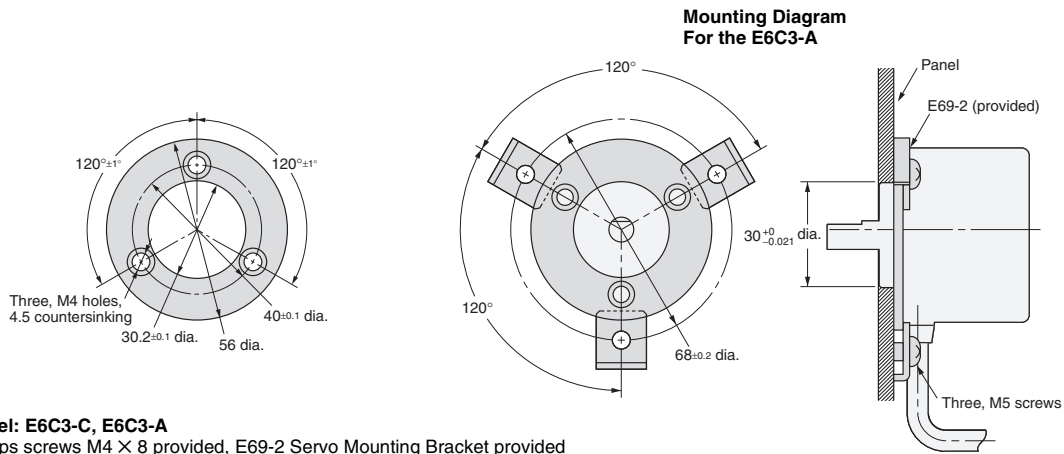


Material: SPCC  
Thickness: 3.2

**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**

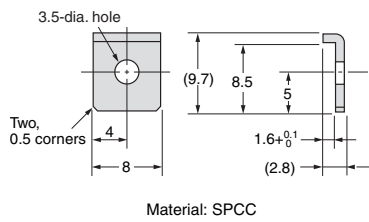
Note: Three phillips screws M4 × 8 provided, E69-2 Servo Mounting Bracket provided

## Servo Mounting Bracket Dimensions

(Unit: mm)

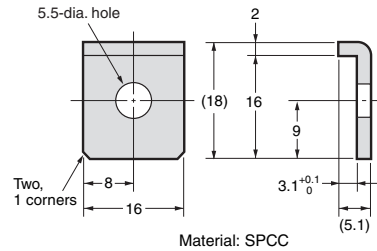
Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

### E69-1 (Three brackets in a set.)



**Applicable model: E6A2-C**

### E69-2 (Three brackets in a set.)



**Applicable model:**  
E6B2-C, E6C2-C,  
E6C3-CWZ□H, E6D-C,  
E6F-C, E6CP-A,  
E6C3-A, E6F-A

## Terms and Conditions Agreement

### Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

### Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

### Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

### Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

### Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

### Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

### Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2015.4

In the interest of product improvement, specifications are subject to change without notice.

**OMRON Corporation**  
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2015 All Right Reserved.