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

Material / Machine specification	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·m²)	1.2×10^{-7}	6×10^{-7}
Weight (g)	4	12

Characteristics

Material	Advantages	Disadvantages
Resin (standard type)	• Low cost. • Easy shaft alignment when mounting. • Lightweight and low moment of inertia, placing a smaller load on the drive system.	• 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)	• High torsion rigidity and thus suitable for high resolution. • Transmitted allowable torque is large.	• 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		Resin, standard type					Resin, different end diameter		Metal	
Shaft interior (tolerance *) exterior dia.		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.		---	❍	---	---	---	---	---	---	---

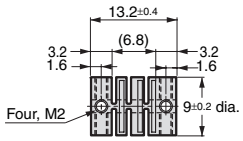
*Tolerance conforms to JIS standard: JIS B 0401. ➜Refer to page 2.

(Unit: mm)

Coupling Dimensions

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

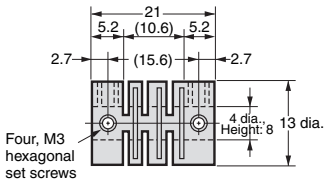
E69-C02B



Material: Glass-reinforced PBT

Applicable model: E6J-C

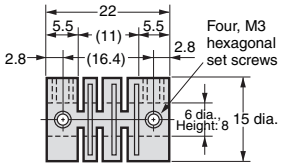
E69-C04B



Material: Glass-reinforced PBT

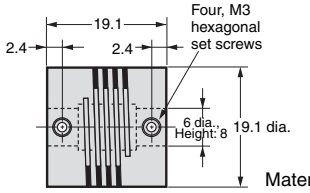
Applicable model: E6A2-C, E6J-A

E69-C06B



Material: Glass-reinforced PBT

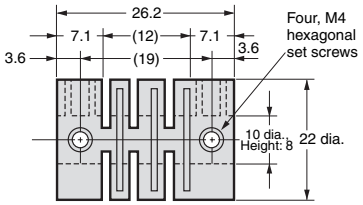
E69-C06M



Material: Extra-super duralumin

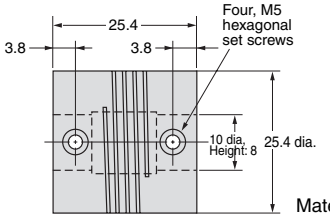
Applicable model: E6B2-C, E6C2-C, E6D-C, E6C-N, E6CP-A

E69-C10B



Material: Glass-reinforced PBT

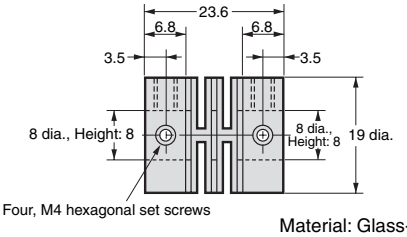
E69-C10M



Material: Extra-super duralumin

Applicable model:E6F-C, E6F-A

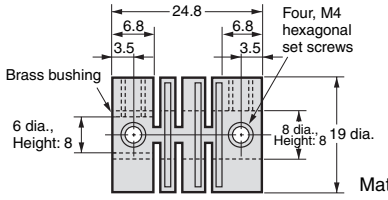
E69-C08B



Material: Glass-reinforced PBT

Applicable model: E6C3-A, E6C3-C

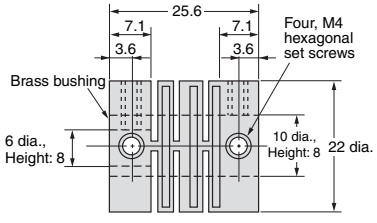
E69-C68B
Model with Different End Diameter



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.

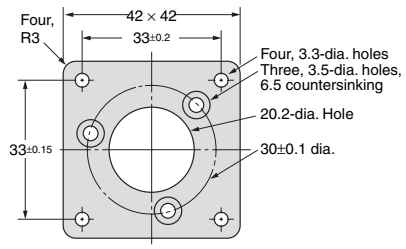
Rotary Encoder Model / Type / Model / Remarks	Flange						Servo Mounting Bracket	
	E69-FBA	E69-FCA	E69-FCA03	E69-FBA02	E69-FCA02	E69-FCA04	E69-1	E69-2
				E69-2 Servo Mounting Bracket provided.				
E6A2-C	---	---	---	---	---	---	❍ Provided with the E6A2-CWZ.	---
E6B2-C	Δ	---	---	Δ	---	---	---	Δ
E6C2-C	---	Δ	---	---	Δ	---	---	Δ
E6C3-C	---	---	Δ	---	---	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.

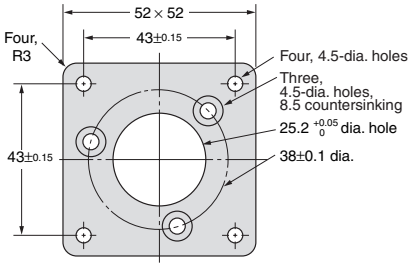
E69-FBA



Material: SPCC
Thickness: 3.2

Applicable model: E6B2-C
Note: Three phillips screws M3 × 6 provided

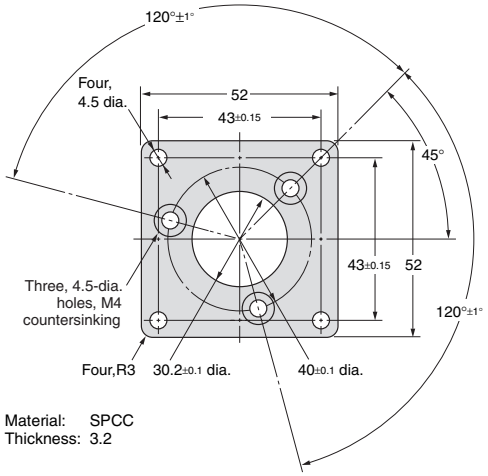
E69-FCA



Material: SPCC
Thickness: 3.2

Applicable model: E6C2-C, E6C-N
Note: Three phillips screws M4 × 8 provided

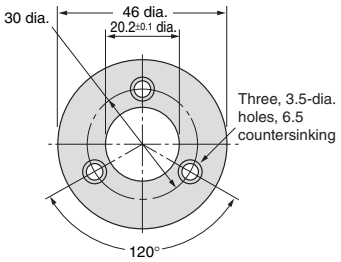
E69-FCA03



Material: SPCC
Thickness: 3.2

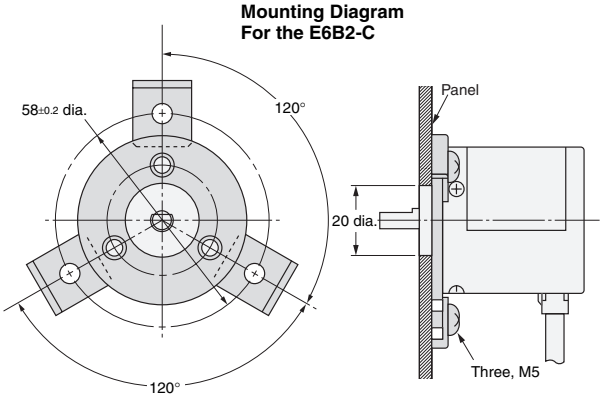
Applicable model: E6C3-A, E6C3-C
Note: Three phillips screws M4 × 8 provided

E69-FBA02



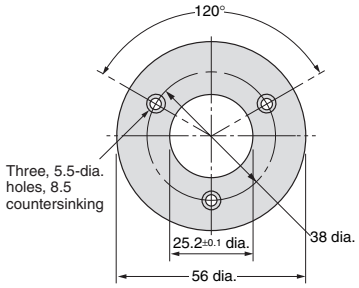
Material: SPCC
Thickness: 3.2

Mounting Diagram For the E6B2-C

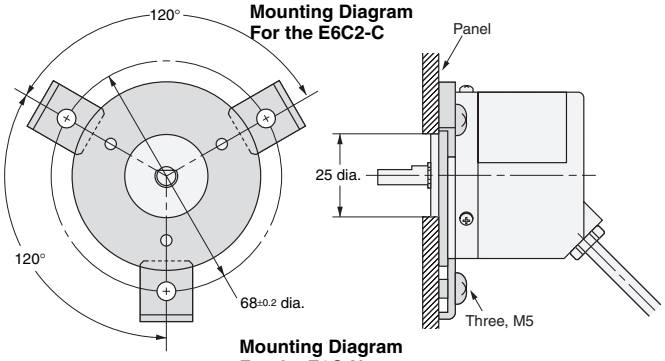


Applicable model: E6B2-C
Note: Three phillips screws M3 × 10 provided, E69-2 Servo Mounting Bracket provided

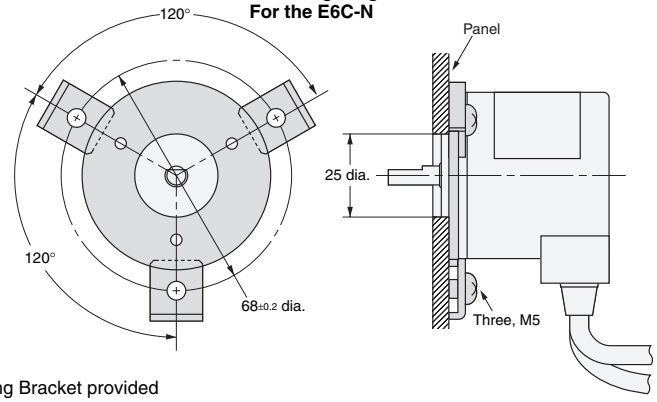
E69-FCA02



Mounting Diagram For the E6C2-C



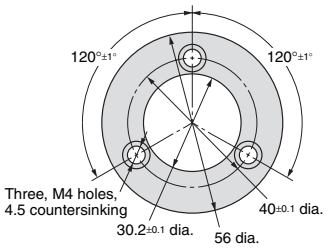
Mounting Diagram For the E6C-N



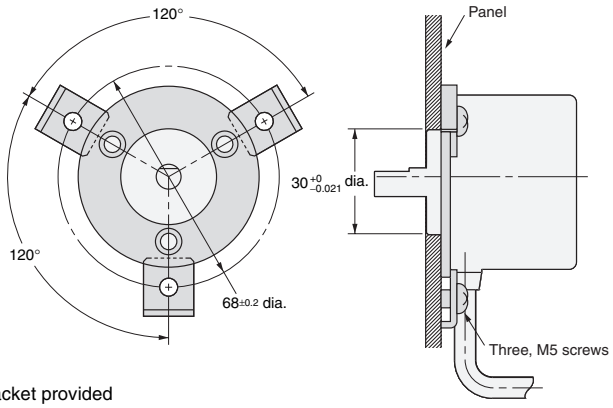
Material: SPCC
Thickness: 3.2

Applicable model: E6C2-C, E6C-N
Note: Three phillips screws M4 × 10 provided, E69-2 Servo Mounting Bracket provided

E69-FCA04



Mounting Diagram For the E6C3-A



Material: SPCC
Thickness: 3.2

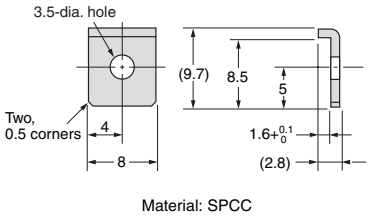
Applicable model: E6C3-C, E6C3-A
Note: Three phillips screws M4 × 8 provided, E69-2 Servo Mounting Bracket provided

Servo Mounting Bracket Dimensions

(Unit: mm)

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

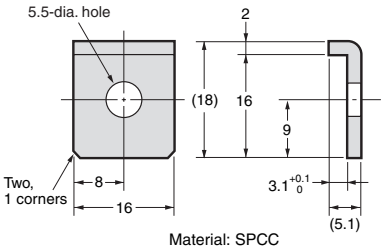
E69-1 (Three brackets in a set.)



Material: SPCC

Applicable model: E6A2-C

E69-2 (Three brackets in a set.)



Material: SPCC

Applicable model: E6B2-C, E6C2-C, E6C3-CWZ□H, E6D-C, E6F-C, E6C-N, E6CP-A, E6C3-A, E6F-A

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Application Considerations

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- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

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OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

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Product specifications and accessories may be changed at any time based on improvements and other reasons.

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DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

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Performance data given in this catalog 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 users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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2010.8

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