



Accessories

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Motor/Gearhead Mounting Brackets

Eleven kinds of mounting brackets for motors and gearheads are available. These brackets come with tapped holes. To mount the motor and gearhead, simply fasten with the screws provided to the gearhead. To mount the motor alone, mounting screws must be provided separately. Please note that these mounting brackets cannot be used with the following products.

- Right-angle Gearheads
- 5GC□KA and 5GCH□KA
- Watertight Motors



■ For Motor Frame Size: □1.65 in. (□42 mm)

● Model: SOL0U04

Weight: 2.8 oz. (80 g) Material: Aluminum

DXF A320U

◆ Compatible Motor and Gearhead

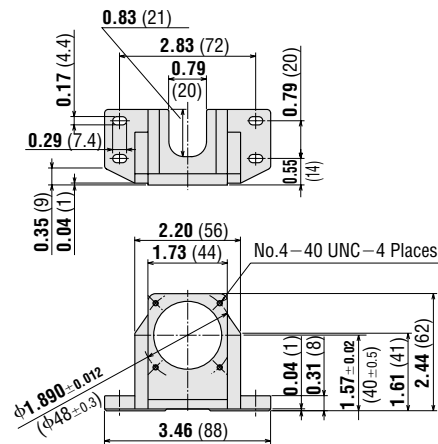
OGN□KA

Motor Frame Size □1.65 in. (□42 mm)

Round Shaft Type Motors

AXH Series Round Shaft Type

● Dimensions Scale 1/4, Unit = inch (mm)



● Model: SOLOB

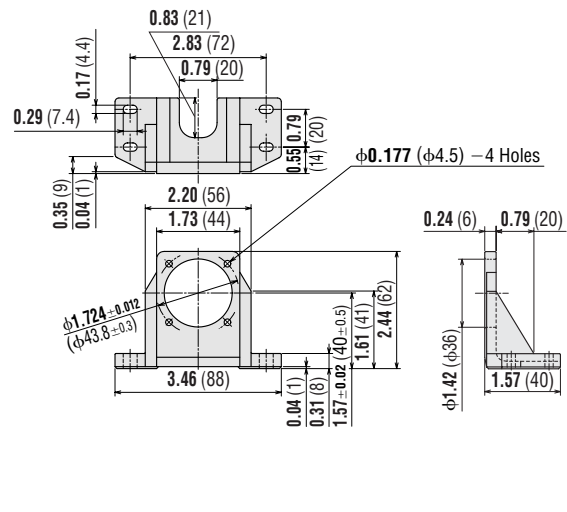
Weight: 3.0 oz. (85 g) Material: Aluminum

DXF B267

◆ Compatible Motor and Gearhead

AXH Series Geared Type

● Dimensions Scale 1/4, Unit = inch (mm)



■ For Motor Frame Size: □2.36 in. (□60 mm)

● Model: SOL2U08, SOL2M4

Weight: 4.2 oz. (120 g) Material: Aluminum

DXF A321U (SOL2U08)

DXF A321 (SOL2M4)

◆ Compatible Motor and Gearhead

● SOL2U08

2GN□KA

Motor Frame Size □2.36 in. (□60 mm)

Round Shaft Type Motors

● SOL2M4

V Series

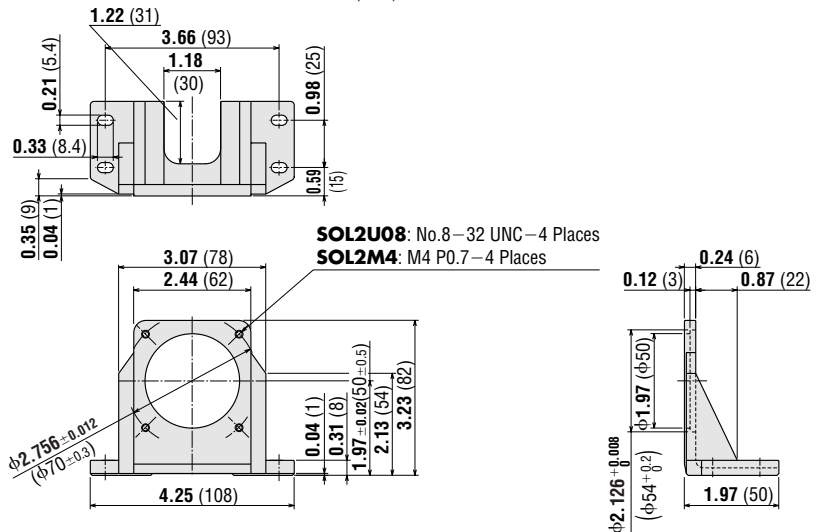
BX Series

FBLII Series

AXU Series Round Shaft Type

AXH Series

● Dimensions Scale 1/4, Unit = inch (mm)



■ For Motor Frame Size: □2.76 in. (□70 mm)

● Model: **SOL3U10, SOL3M6**

Weight: 5.6 oz. (160 g) Material: Aluminum

DXF A322U (**SOL3U10**)

DXF A323 (**SOL3M6**)

◆ Compatible Motor and Gearhead

● **SOL3U10**

3GN□KA

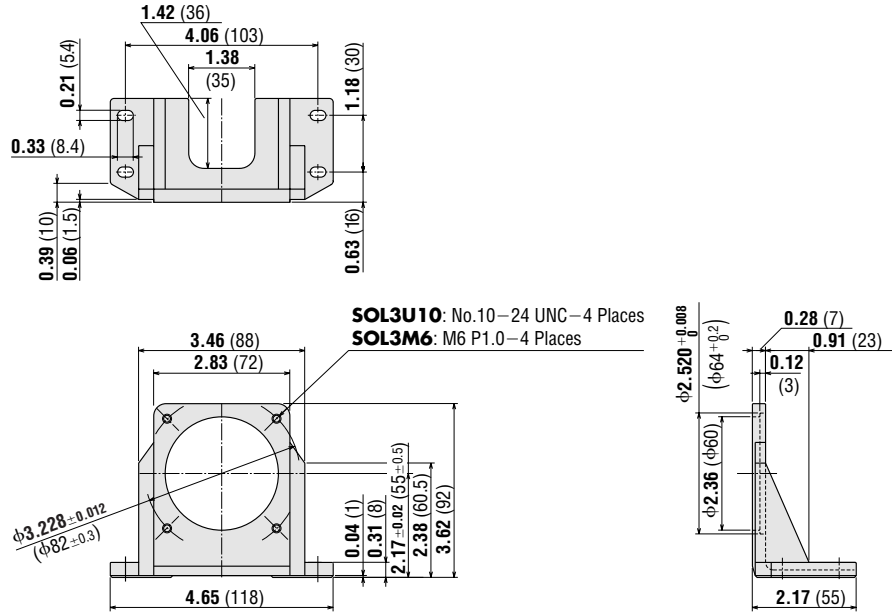
Motor Frame Size □2.76 in. (□70 mm)

Round Shaft Type Motors

● **SOL3M6**

V Series

● Dimensions Scale 1/4, Unit = inch (mm)



■ For Motor Frame Size: □3.15 in. (□80 mm)

● Model: **SOL4U10, SOL4M6**

Weight: 7.1 oz. (200 g) Material: Aluminum

DXF A236U (**SOL4U10**)

DXF A237 (**SOL4M6**)

◆ Compatible Motor and Gearhead

● **SOL4U10**

4GN□KA

Motor Frame Size □3.15 in. (□80 mm)

Round Shaft Type Motors

● **SOL4M6**

V Series

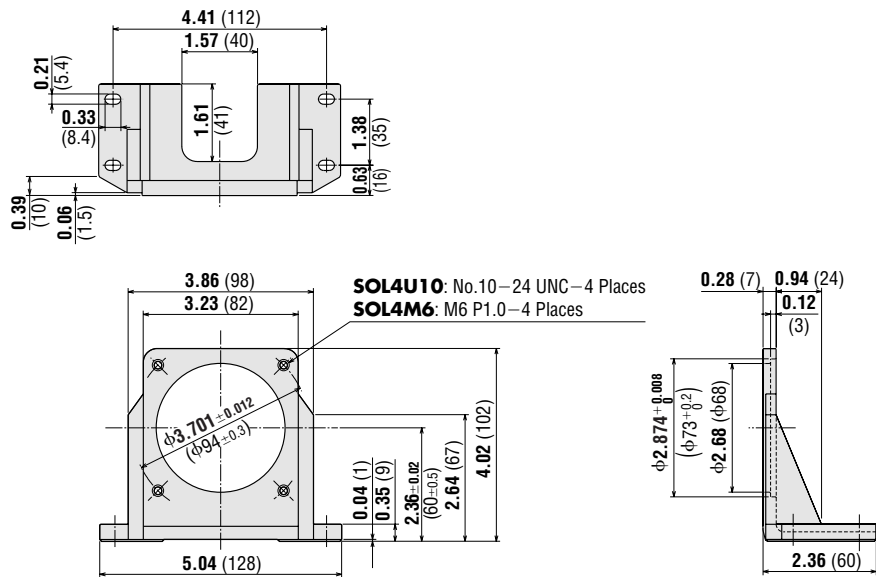
BX Series

FBLII Series

AXU Series Round Shaft Type

AXH Series

● Dimensions Scale 1/4, Unit = inch (mm)



For Motor Frame Size: 3.54 in. (90 mm)

Model: SOL5UA, SOL5M8

Weight: 9.5 oz. (270 g) Material: Aluminum

DXF A238U (SOL5UA)

DXF A239 (SOL5M8)

Dimensions Scale 1/4, Unit = inch (mm)

Compatible Motor and Gearhead

SOL5UA

5GN KA

5GU KA

Motor Frame Size 3.54 in. (90 mm)

Round Shaft Type Motors

SOL5M8

5GU KHA

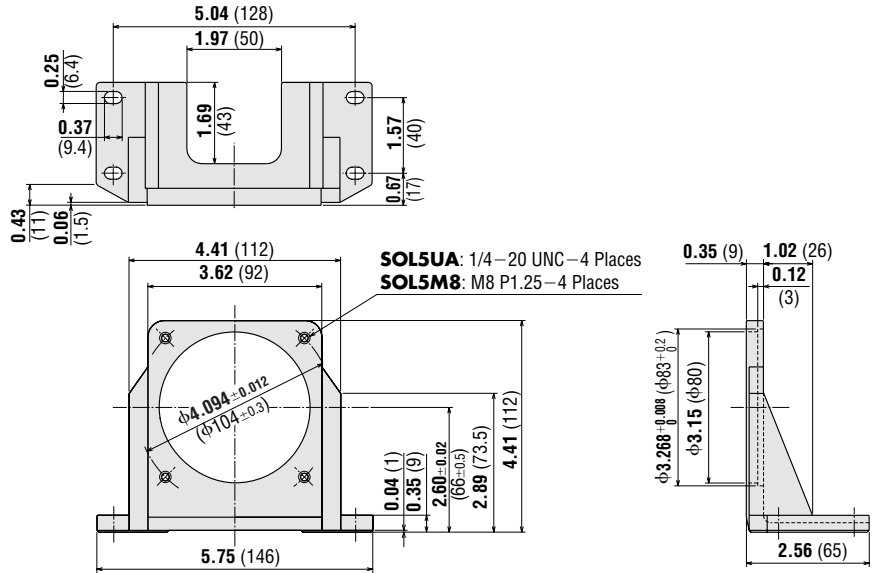
V Series

BX Series

FBLII Series

AXU Series Round Shaft Type

AXH Series



For Motor Frame Size: 4.09 in. (104 mm)

Model: SOL6M8

Weight: 13.4 oz. (380 g) Material: Aluminum

DXF A240

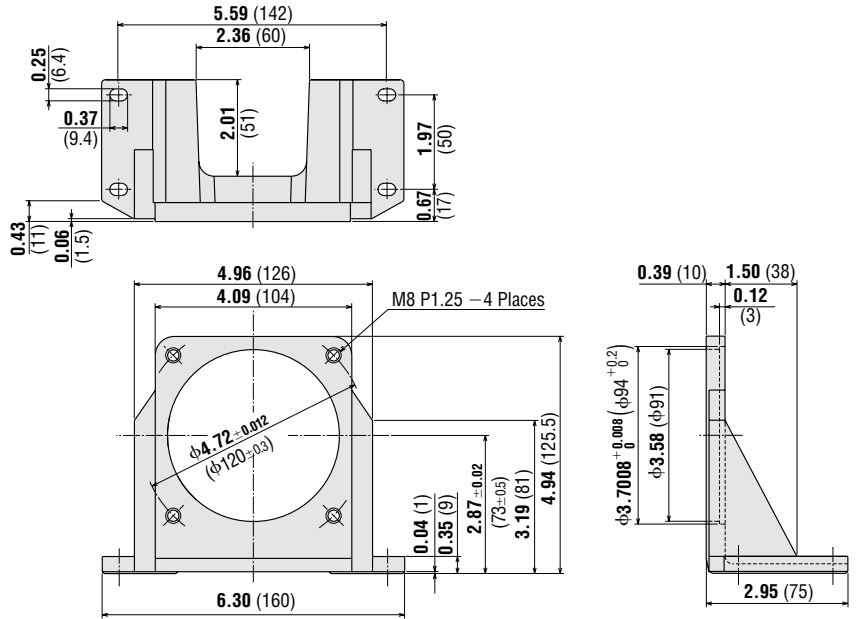
Dimensions Scale 1/4, Unit = inch (mm)

Compatible Motor and Gearhead

BH Series (Except for Right-Angle Shaft)

BHF Series (Except for Right-Angle Shaft)

BX Series



Torque Arm

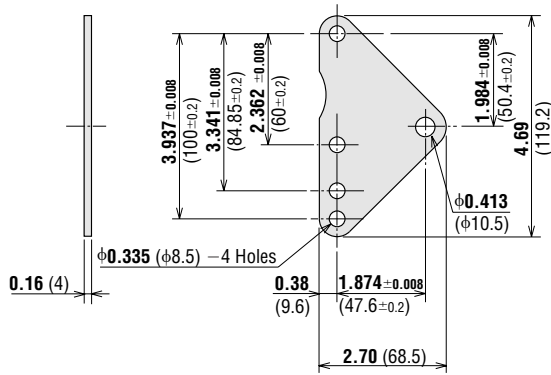
The torque arm serves as an anti-rotation guide for the gearhead when a right-angle hollow-shaft type gearhead is used in a shaft-mounted fashion (with the gearhead mounted on the shaft of a connected device). When using it as a shaft-mounted gearhead, be sure to use a torque arm and secure the gearhead to the device.



● **Model: SOT6**
 ◆ **Applicable Products**

- BH Series Right-Angle Gearhead/Hollow Shaft
- BHF Series Right-Angle Gearhead/Hollow Shaft
- 5GU□RH Gearhead

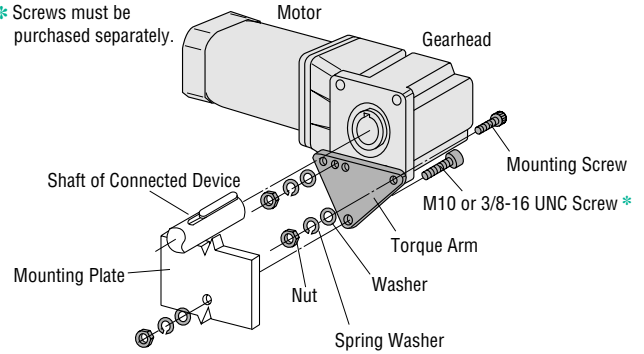
● **Dimensions** Scale 1/4, Unit = inch (mm)
 Weight: 5.1 oz. (145 g)



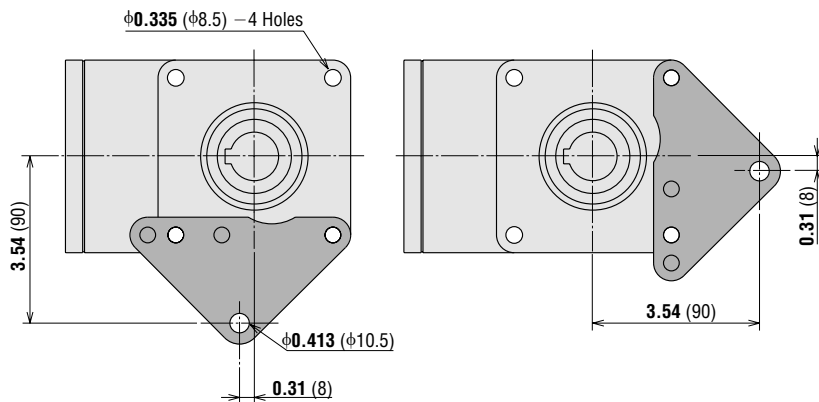
● **Mounting Method**

When mounting on a device, secure the torque arm firmly using an M10 or 3/8-16 UNC screw.

* Screws must be purchased separately.



● **Panel Cutout** Scale 1/4, Unit = inch (mm)
 For BH Series, BHF Series Right-Angle Gearhead/Hollow Shaft



Flexible Couplings

Features

- Couplings come with shaft holes and have standardized combinations for different diameter shaft holes.
- Characteristics are the same for clockwise and counterclockwise rotation.
- Oil-resistant and electrically insulated.
- Aluminum alloy construction.
- The shaft being driven is not damaged, since shafts are joined by clamping.
- Easy installation due to a separated hub and sleeve design.

Selecting a Flexible Coupling

Once you have decided on a motor and the shaft diameter of the equipment to be connected to it, select the proper flexible coupling to use. Oriental Motor's flexible couplings are available in external diameter sizes that provide the strength required for the motor torque.

Example **MCL 30 F06 F06**
 Inner Diameter d1 Inner Diameter d2

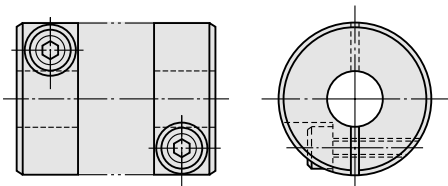
- For uniform load, when the motor is a **4GN□KA** (shaft outer diameter of 0.375 inch) and the shaft diameter of the equipment to be connected to the motor is 0.375 inch, use an **MCL30F06F06**.
- For shock-applied use, when the gearhead is a **4GN□KA** (shaft outer diameter: $\phi 0.375$ inch) and the shaft diameter of the equipment to be connected to the motor is $\phi 0.375$ inch, use an **MCL40F06F06**

Mounting on a shaft

The **MCL** Couplings are a clamp type for mounting the flexible coupling to the shaft.

Clamp Type

Clamp type couplings use the binding force of the screw to compress the axis hole diameter and thereby fasten the coupling to the shaft. This does not damage the shaft and is easy to mount and remove. The following table shows the screw tightening torque.



Type		MCL20	MCL30	MCL40	MCL55	MCL65
Tightening Torque	lb-in (N·m)	8.8 (1)	22 (2.5)	106 (12)	220 (25)	440 (50)
Tightening Torque of key press screw*	lb-in (N·m)	6.1 (0.7)	15 (1.7)	15 (1.7)	15 (1.7)	35 (4)

* The screws for holding shaft flat are used for non key groove type.
 Fasten the screws so that they make a right angle with the surface of shaft flat.



Product Number Code

MCL 40 F08 F10

Inner Diameter d2 (Large Inner Diameter)

06: $\phi 0.2362$ in. ($\phi 6$ mm)~**25:** $\phi 0.9843$ in. ($\phi 25$ mm)
F03: 3/16 in. (4.762 mm)~**F12:** 3/4 in. (19.05 mm)

Inner Diameter d1 (Small Inner Diameter)

06: $\phi 0.2362$ in. ($\phi 6$ mm)~**25:** $\phi 0.9843$ in. ($\phi 25$ mm)
F03: 3/16 in. (4.762 mm)~**F12:** 3/4 in. (19.05 mm)

Outer Diameter of Coupling

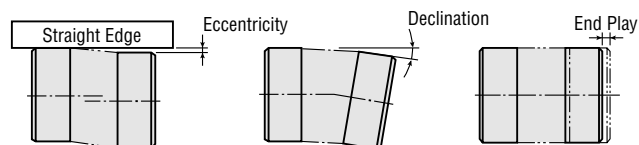
20: $\phi 0.79$ ($\phi 20$ mm)~**65:** $\phi 2.56$ ($\phi 65$ mm)

Flexible Coupling

- For Applicable Products →A-209

Alignment Adjustment

Flexible couplings tolerate misalignment of the axis center and transfer rotational angle and torque, but produce vibration when the permissible value for misalignment is exceeded. This can dramatically shorten the coupling's service life. Misalignment of the axis center includes eccentricity (parallel error of both centers), declination (angular error of both centers) and end play (shaft movement in the axial direction). To keep misalignment to within the permissible value, always check and adjust the alignment. To increase the service life of the coupling, we recommend keeping misalignment to below 1/3 of the permissible value.



Notes:

- Misalignment or excessive torque beyond the permissible values will deform the coupling and shorten its service life.
- If you hear a strange metallic noise from the coupling while it is running, stop the motor immediately and check for misalignment, shaft interference, loose screws, or the like.
- When load fluctuates substantially, paint adhesive over the screws or switch to a larger coupling diameter. This helps prevent coupling screws from coming loose.
- When using couplings that have no key grooves, as on the **MCL20**, **MCL30**, **MCL40** and **MCL55** fasten clamping screws before fastening set screws.
- Only use the screws specified by Oriental Motor. Other screws may damage the couplings.
- Do not bring fingers or hands into contact with an operating coupling as injury may result. Always use protective covers to prevent accidents. Also, install safety systems that stop motor rotation as soon as the protective cover is opened.
- Always be sure the power is off during installation. Should the drive unit accidentally start running, injury can occur by being drawn into the device. Always check that the device's main power supply is off before performing installation work.

■ Applicable Products

Couplings are also available for round shaft motors if a shaft diameter matches.

Coupling Type	Shaft Diameter		Gearhead Model		Connected Device Shaft Diameter									
	in.	mm	Regular Load	Shock Load	F03	F04	F05	F06	F08	F10	F12	20	22	25
					3/16 in.	1/4 in.	5/16 in.	3/8 in.	1/2 in.	5/8 in.	3/4 in.	0.7874 in.	0.8661 in.	0.9843 in.
					4.762 mm	6.350 mm	7.937 mm	9.525 mm	12.7 mm	15.875 mm	19.05 mm	20 mm	22 mm	25 mm
MCL20	F03	3/16	4.762	0GN□KA	0GN□KA	○	○	○						
	06	0.2362	6	AXH015K-□	AXH015K-□	○	○	○						
	F04	1/4	6.350			○	○	○						
	F05	5/16	7.937	2GN□KA		○	○	○						
	08	0.3150	8				○	○						
MCL30	F04	1/4	6.350					○						
	F05	5/16	7.937		2GN□KA			○	○	○				
	08	0.3150	8					○	○	○				
	F06	3/8	9.525	3GN□KA, 4GN□KA, 4GN□RAA, 5GN□RAA	3GN□KA			○	○	○				
	10	0.3937	10	VHI206□-□, VHR206□-□, VHR206□M-□, BX230□-□, BX230□M-□, AXH230KC-□	VHI206□-□, VHR206□-□, VHR206□M-□, BX230□-□, BX230□M-□, AXH230KC-□			○	○	○				
MCL40	12	0.4724	12	VHI315□-□, VHR315□-□, VHR315□M-□			○	○	○					
	F08	1/2	12.7	5GN□KA				○	○					
	F05	5/16	7.937					○	○					
	F06	3/8	9.525		4GN□KA, 4GN□RAA, 5GN□RAA			○	○	○				
	10	0.394	10					○	○	○				
MCL55	12	0.4724	12		VHI315□-□, VHR315□-□, VHR315□M-□				○	○	○			
	F08	1/2	12.7		5GN□KA, 5GC□KA				○	○	○			
	14	0.5512	14						○	○	○			
	15	0.5906	15	VHI425□-□, VHR425□-□, VHR425□M-□, BX460□-□, BX460□M-□, AXH450KC-□				○	○	○				
	F10	5/8	15.875	5GU□KA, 5GU□RAA					○	○				
MCL65	15	0.5906	15		VHI425□-□, VHR425□-□, VHR425□M-□, BX460□-□, BX460□M-□, AXH450KC-□					○	○	○		
	F10	5/8	15.875		5GU□KA, 5GU□RAA, 5GCH□KA					○	○			
	18	0.7087	18	BHI62□-□, BHI62□MT-□, VHI540□-□, VHR540□-□, VHR540□M-□, VHI560□-□, VHR560□-□, VHR560□M-□, VHI590□-□, VHR590□-□, VHR590□M-□, BX5120□-□, BX5120□M-□, FBL575□W-□, FBL5120□W-□, AXH5100KC-□, BHF62□T-□, BHF62□MT-□	VHI540□-□, VHR540□-□, VHR540□M-□, VHI560□-□, VHR560□-□, VHR560□M-□, VHI590□-□, VHR590□-□, VHR590□M-□, BX5120□-□, BX5120□M-□, FBL575□W-□, FBL5120□W-□, AXH5100KC-□					○	○			
F12	3/4	19.05	5GU□KHA	5GU□KHA						○				
MCL65	18	0.7087	18	BX6200□-□, BX6200□M-□, BX6400□-□, BX6400□M-□	BHI62□-□, BHI62□MT-□, BX6200□-□, BX6200□M-□, BX6400□-□, BX6400□M-□, BHF62□T-□, BHF62□MT-□						○	○		
	22	0.8661	22	BHI62□-□RA, BHI62□MT-□RA, BHF62□T-□RA, BHF62□MT-□RA	BHI62□-□RA, BHI62□MT-□RA, BHF62□T-□RA, BHF62□MT-□RA							○	○	○

- Enter **A**, **C** or **S** which indicates power supply voltage, in the box(□) within the model name.
- Enter **U** or **E** in the under bar (_) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- Types of the load in this table are of common use. Check the applicable values of each coupling for exact values.

Introduction

Induction Motors

Reversible Motors

Synchronous Motors

Torque Motors

Water-tight Motors

Magnetic Brake

Clutch & Brake

Brake Pack

Right-Angle Gearheads

Accessories

Before Using a Standard AC Motor

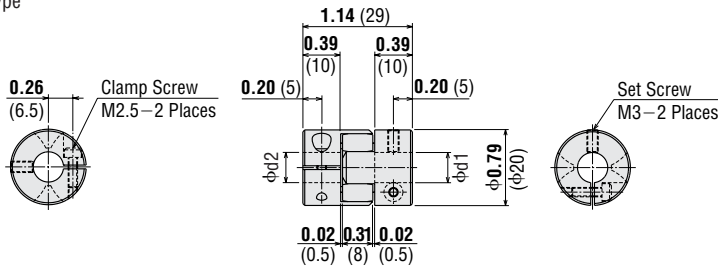
Specifications

Model	Dimensions				Nominal Torque lb-in (N·m)	Weight oz. (g)	Moment of Inertia: J oz-in ² ($\times 10^{-4}$ kg·m ²)	Permissible Eccentricity inch (mm)	Permissible Declination degrees	Permissible End Play inch (mm)	
	Outer Diameter inch (mm)	Length inch (mm)	Shaft Hole Diameter inch (mm)	Shaft Hole Diameter inch (mm)							
MCL20F03F03	φ0.79 (φ20)	1.14 (29)	0.1875 (4.762)	0.1875 (4.762)	44 (5)	0.67 (19)	0.055 (0.01)	5.9×10^{-3} (0.15)		+0.031 0 (+0.8 0)	
MCL20F03F04				0.2500 (6.35)							
MCL20F03F05				0.3125 (7.937)							
MCL2006F03			0.2362 (6)	0.1875 (4.762)							
MCL2006F04				0.2500 (6.35)							
MCL2006F05				0.3125 (7.937)							
MCL20F04F04			0.2500 (6.35)	0.2500 (6.35)							0.2500 (6.35)
MCL20F04F05											0.3125 (7.937)
MCL20F05F05											0.3125 (7.937)
MCL2008F04			0.3150 (8)	0.2500 (6.35)							0.2500 (6.35)
MCL2008F05	0.3125 (7.937)										
MCL30F04F05	0.2500 (6.35)	0.3125 (7.937)			110 (12.5)	2.3 (66)	0.45 (0.083)	7.9×10^{-3} (0.2)	1.0°	+0.039 0 (+1.0 0)	
MCL30F05F05	0.3125 (7.937)	0.3125 (7.937)									
MCL30F05F06	0.3750 (9.525)	0.3750 (9.525)									
MCL3008F04	0.3150 (8)	0.2500 (6.35)									
MCL3008F05		0.3125 (7.937)									
MCL3008F06	0.3150 (8)	0.3750 (9.525)									
MCL30F06F06	0.3750 (9.525)	0.3750 (9.525)									
MCL30F06F08		0.5000 (12.7)									
MCL3010F05	0.3937 (10)	0.3125 (7.937)									
MCL3010F06		0.3750 (9.525)									
MCL3010F08	0.5000 (12.7)	0.5000 (12.7)									
MCL3012F05	0.4724 (12)	0.3125 (7.937)									
MCL3012F06	0.4724 (12)	0.3750 (9.525)									
MCL3012F08		0.5000 (12.7)									
MCL30F08F08	0.5000 (12.7)	0.5000 (12.7)									
MCL40F05F06	φ1.57 (φ40)	2.52 (64)	0.3125 (7.937)	0.3750 (9.525)	220 (25.0)	5.3 (150)	1.97 (0.36)	7.9×10^{-3} (0.2)	1.0°	+0.047 0 (+1.2 0)	
MCL40F06F06				0.3750 (9.525)							
MCL40F06F08			0.5000 (12.7)								
MCL4010F05			0.3937 (10)	0.3125 (7.937)							
MCL4010F06				0.3750 (9.525)							
MCL4010F08			0.5000 (12.7)	0.5000 (12.7)							
MCL4012F06			0.4724 (12)	0.3750 (9.525)							
MCL4012F08				0.5000 (12.7)							
MCL4012F10				0.6250 (15.875)							
MCL40F08F08			0.5000 (12.7)	0.5000 (12.7)							
MCL40F08F10	0.6250 (15.875)										
MCL4014F06	0.5512 (14)	0.3750 (9.525)									
MCL4014F08		0.5000 (12.7)									
MCL4014F10		0.6250 (15.875)									
MCL4015F06	0.5906 (15)	0.3750 (9.525)									
MCL4015F08	0.5906 (15)	0.5000 (12.7)									
MCL4015F10		0.6250 (15.875)									
MCL40F10F10	0.6250 (15.875)	0.6250 (15.875)									
MCL5515F08	φ2.17 (φ55)	2.99 (76)	0.5906 (15)	0.5000 (12.7)	530 (60.0)	12.4 (350)	8.8 (1.6)		1.0°	+0.055 0 (+1.4 0)	
MCL5515F10				0.6250 (15.875)							
MCL5515F12			0.7500 (19.05)								
MCL55F10F10			0.6250 (15.875)								
MCL55F10F12			0.7500 (19.05)								
MCL5518F10			0.7087 (18)	0.6250 (15.875)							
MCL5518F12	0.7500 (19.05)										
MCL6518F10	φ2.56 (φ65)	3.44 (87.5)	0.7087 (18)	0.6250 (15.875)	1410 (160)	20 (570)	20 (3.7)		1.0°	+0.059 0 (+1.5 0)	
MCL6518F12				0.7500 (19.05)							
MCL652022			0.7874 (20)	0.8661 (22)							
MCL652222			0.8661 (22)	0.8661 (22)							
MCL652225			0.8661 (22)	0.9843 (25)							

● The specifications above are the values when combined with Oriental Motor's motor and gearhead.

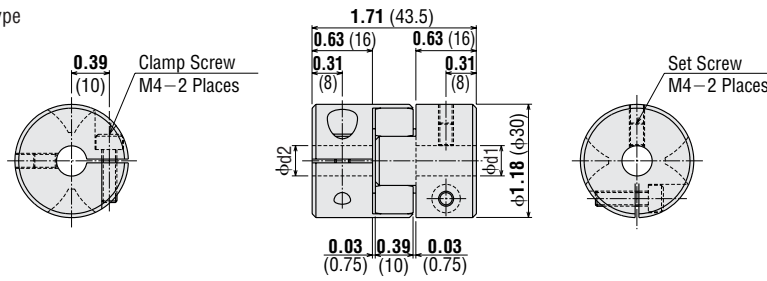
Dimensions Scale 1/4, Unit = inch (mm)

● **MCL20** Type



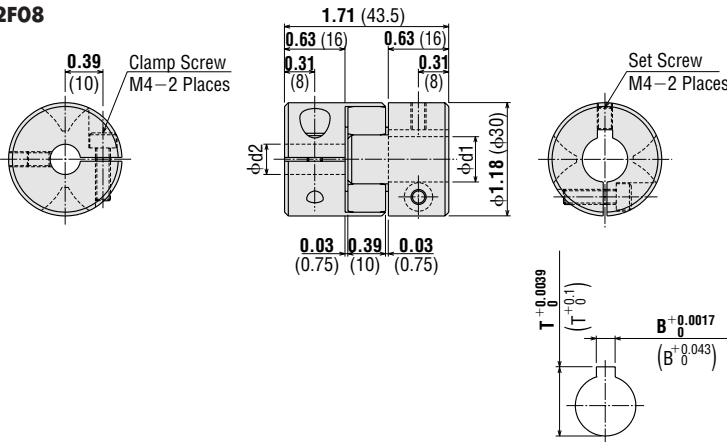
Shaft Hole Diameter ($\phi d1, \phi d2$)	Tolerance
FO3: $\phi 0.1875$ ($\phi 4.762$)	$+0.0007$ ($+0.018$)
O6: $\phi 0.2362$ ($\phi 6$)	0 (0)
FO4: $\phi 0.2500$ ($\phi 6.35$)	$+0.0009$ ($+0.022$)
FO5: $\phi 0.3125$ ($\phi 7.937$)	0 (0)
O8: $\phi 0.3150$ ($\phi 8$)	0 (0)

● **MCL30** Type



Shaft Hole Diameter ($\phi d1, \phi d2$)	Tolerance
FO4: $\phi 0.2500$ ($\phi 6.35$)	$+0.0009$ ($+0.022$)
FO5: $\phi 0.3125$ ($\phi 7.937$)	0 (0)
O8: $\phi 0.3150$ ($\phi 8$)	0 (0)
FO6: $\phi 0.3750$ ($\phi 9.525$)	$+0.0011$ ($+0.027$)
FO8: $\phi 0.5000$ ($\phi 12.7$)	0 (0)

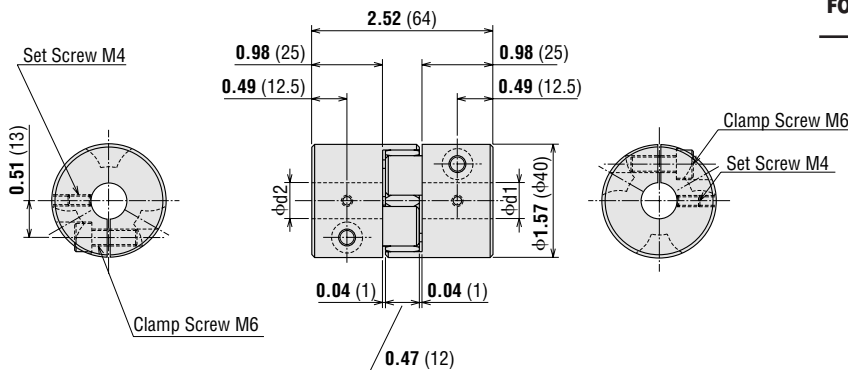
- **MCL3010F05**
- **MCL3010F06**
- **MCL3010F08**
- **MCL3012F05**
- **MCL3012F06**
- **MCL3012F08**



Shaft Hole Diameter ($\phi d1$)	Tolerance	Width:B	Length:T
10: $\phi 0.3937$ ($\phi 10$)	$+0.0009$ ($+0.022$)	0.1575 (11.8)	0.465 (11.8)
12: $\phi 0.4724$ ($\phi 12$)	$+0.0011$ ($+0.027$)	(4)	0.543 (13.8)

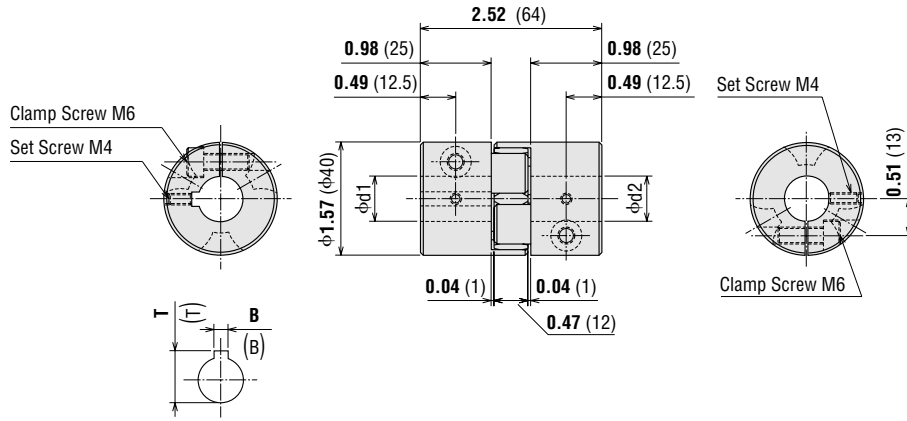
Shaft Hole Diameter ($\phi d2$)	Tolerance
FO5: $\phi 0.3125$ ($\phi 7.937$)	$+0.0009$ ($+0.022$)
FO6: $\phi 0.3750$ ($\phi 9.525$)	0 (0)
FO8: $\phi 0.5000$ ($\phi 12.7$)	$+0.0011$ ($+0.027$)

- **MCL40F05F06**
- **MCL40F06F06**
- **MCL40F06F08**
- **MCL40F08F08**



Shaft Hole Diameter ($\phi d1, \phi d2$)	Tolerance
FO5: $\phi 0.3125$ ($\phi 7.937$)	$+0.0009$ ($+0.022$)
FO6: $\phi 0.3750$ ($\phi 9.525$)	0 (0)
FO8: $\phi 0.5000$ ($\phi 12.7$)	$+0.0011$ ($+0.027$)

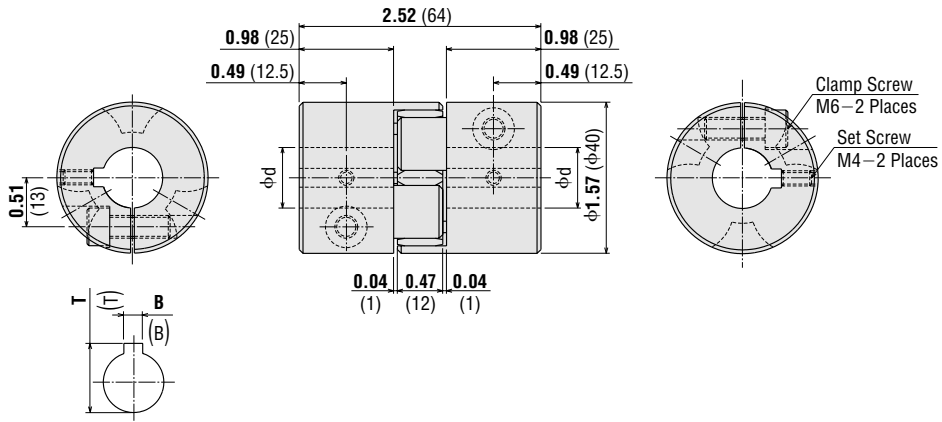
- MCL4010F05
- MCL4010F06
- MCL4010F08
- MCL4012F06
- MCL4012F08
- MCL40F08F10
- MCL4014F06
- MCL4014F08
- MCL4015F06
- MCL4015F08



Shaft Hole Diameter ($\phi d1$)	Tolerance	Width: B	Tolerance	Length: T	Tolerance
10: $\phi 0.3937$ ($\phi 10$)	$+0.0009$ 0 $\left(\begin{smallmatrix} +0.022 \\ 0 \end{smallmatrix} \right)$	0.1575 (4)	$+0.0017$ 0 $\left(\begin{smallmatrix} +0.043 \\ 0 \end{smallmatrix} \right)$	0.465 (11.8)	$+0.004$ 0 $\left(\begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix} \right)$
12: $\phi 0.4724$ ($\phi 12$)	$+0.0011$ 0 $\left(\begin{smallmatrix} +0.027 \\ 0 \end{smallmatrix} \right)$			0.543 (13.8)	
14: $\phi 0.5512$ ($\phi 14$)				0.642 (16.3)	
15: $\phi 0.5906$ ($\phi 15$)		0.1969 (5)		0.681 (17.3)	
F10: $\phi 0.6250$ ($\phi 15.875$)		0.1875 (4.763)	$+0.0020$ 0 $\left(\begin{smallmatrix} +0.051 \\ 0 \end{smallmatrix} \right)$	0.709 (18.009)	$+0.010$ 0 $\left(\begin{smallmatrix} +0.254 \\ 0 \end{smallmatrix} \right)$

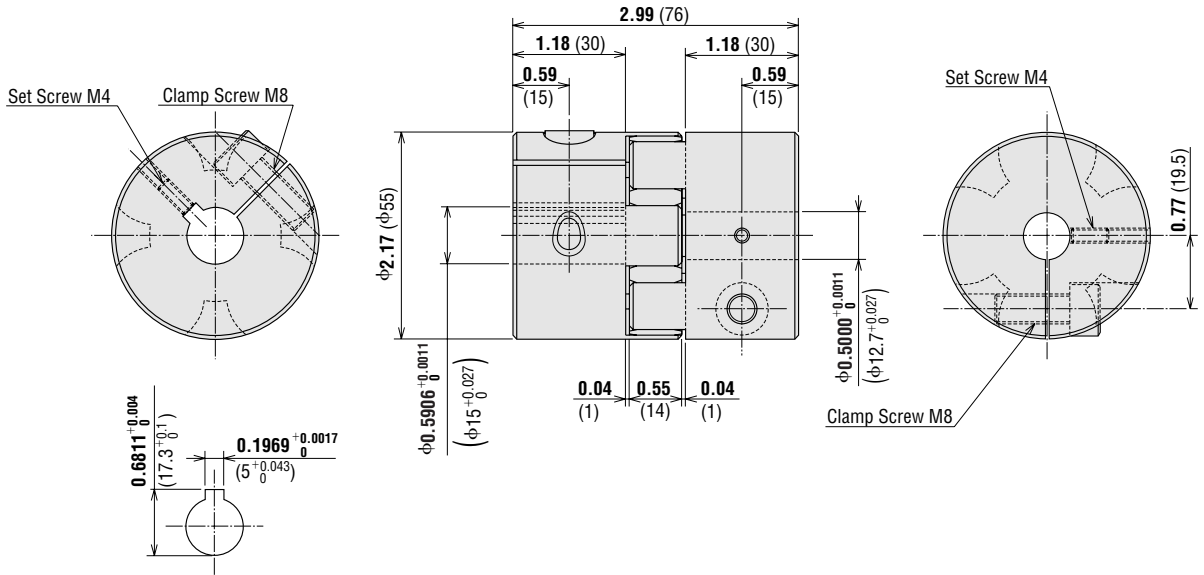
Shaft Hole Diameter ($\phi d2$)	Tolerance
F05: $\phi 0.3125$ ($\phi 7.937$)	$+0.0009$ $\left(\begin{smallmatrix} +0.022 \\ 0 \end{smallmatrix} \right)$
F06: $\phi 0.3750$ ($\phi 9.525$)	0 $\left(\begin{smallmatrix} 0 \\ 0 \end{smallmatrix} \right)$
F08: $\phi 0.5000$ ($\phi 12.7$)	$+0.0011$ $\left(\begin{smallmatrix} +0.027 \\ 0 \end{smallmatrix} \right)$

- MCL4012F10
- MCL4014F10
- MCL4015F10
- MCL40F10F10

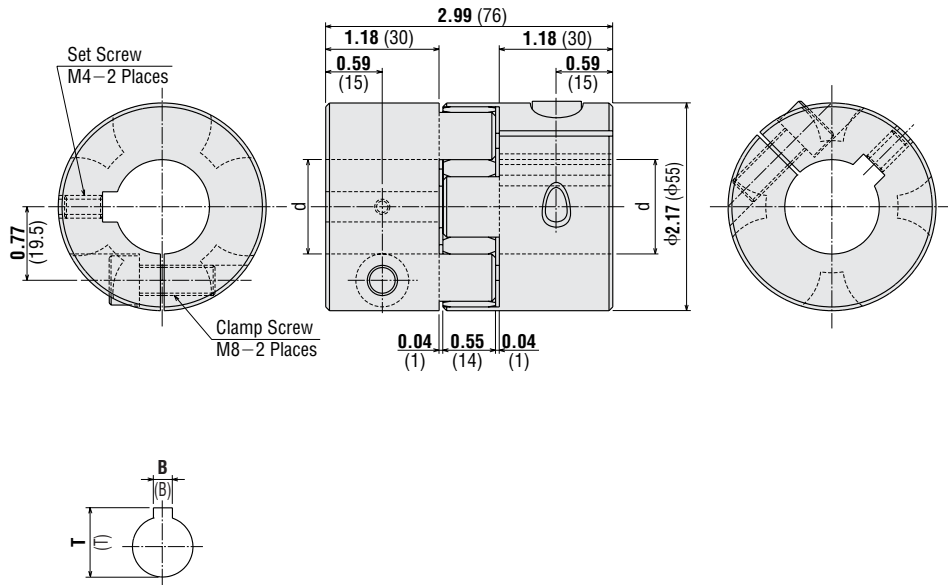


Shaft Hole Diameter (ϕd)	Tolerance	Width: B	Tolerance	Length: T	Tolerance
10: $\phi 0.3937$ ($\phi 10$)	$+0.0009$ 0 $\left(\begin{smallmatrix} +0.022 \\ 0 \end{smallmatrix} \right)$	0.1575 (4)	$+0.0017$ 0 $\left(\begin{smallmatrix} +0.043 \\ 0 \end{smallmatrix} \right)$	0.465 (11.8)	$+0.004$ 0 $\left(\begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix} \right)$
12: $\phi 0.4724$ ($\phi 12$)	$+0.0011$ 0 $\left(\begin{smallmatrix} +0.027 \\ 0 \end{smallmatrix} \right)$			0.543 (13.8)	
14: $\phi 0.5512$ ($\phi 14$)				0.642 (16.3)	
15: $\phi 0.5906$ ($\phi 15$)		0.1969 (5)		0.681 (17.3)	
F10: $\phi 0.6250$ ($\phi 15.875$)		0.1875 (4.763)	$+0.0020$ 0 $\left(\begin{smallmatrix} +0.051 \\ 0 \end{smallmatrix} \right)$	0.709 (18.009)	$+0.010$ 0 $\left(\begin{smallmatrix} +0.254 \\ 0 \end{smallmatrix} \right)$

● MCL5515F08

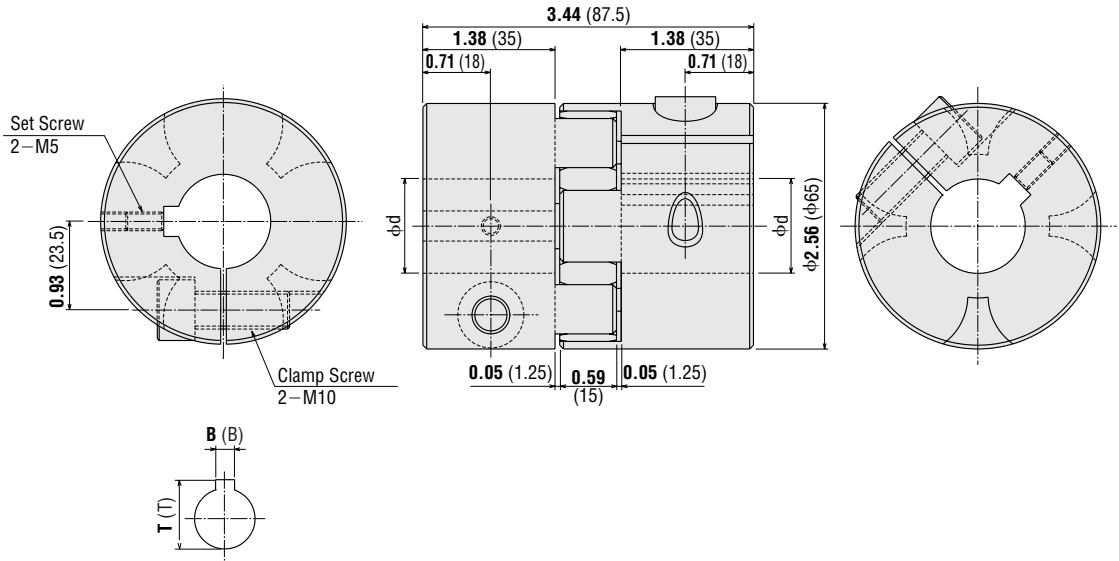


● MCL55 Type



Shaft Hole Diameter (d)	Tolerance	Width: B	Tolerance	Length: T	Tolerance
15: $\phi 0.5906$ ($\phi 15$)	$+0.0011$ ($+0.027$) 0	0.1969 (5)	$+0.0017$ ($+0.043$) 0	0.681 (17.3)	$+0.004$ ($+0.1$) 0
18: $\phi 0.7087$ ($\phi 18$)		0.2362 (6)	$+0.0020$ ($+0.052$) 0	0.819 (20.8)	$+0.004$ ($+0.1$) 0
F10: $\phi 0.6250$ ($\phi 15.875$)		0.1875 (4.763)	$+0.0020$ ($+0.051$) 0	0.709 (18.009)	$+0.010$ ($+0.254$) 0
F12: $\phi 0.7500$ ($\phi 19.050$)	$+0.0013$ ($+0.033$) 0	0.1875 (4.763)	$+0.0020$ ($+0.051$) 0	0.837 (21.260)	$+0.010$ ($+0.254$) 0

● **MCL65** Type



Shaft Hole Diameter (d)	Tolerance	Width: B	Tolerance	Length: T	Tolerance
18: φ0.7087 (φ18)	+0.0011 (+0.027) 0	0.2362 (6)	+0.0020 (+0.052) 0	0.819 (20.8)	+0.004 (+0.1) 0
F10: φ0.6250 (φ15.875)		0.1875 (4.763)		0.709 (18.009)	
F12: φ0.7500 (φ19.05)	+0.0013 (+0.033) 0	0.1875 (4.763)	+0.0020 (+0.051) 0	0.837 (21.260)	+0.010 (+0.254) 0
20: φ0.7874 (φ20)	+0.0013 (+0.033) 0	0.2362 (6)	+0.0020 (+0.052) 0	0.898 (22.8)	+0.004 (+0.1) 0
22: φ0.8661 (φ22)				0.976 (24.8)	
25: φ0.9843 (φ25)		0.3150 (8)	+0.0020 (+0.052) 0	1.114 (28.3)	+0.004 (+0.1) 0

Motor Speed Indicator

To display or check the speed at the output shaft of the motor or gearhead, connect the speed indicator.

■ Digital Display Type

● **Model: SDM496** (Single-Phase 100 V~240 V)



This product is a digital speed indicator that directly displays the speed at the output shaft of the motor or gearhead. **SDM496** is not approved by any safety standards.

◆ Applicable Products

FBL II Series, **AXU** Series
AXH Series, **US** Series, **ES01/ES02**
BHF Series

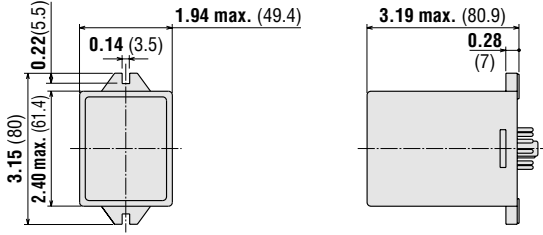
● **Included with SDM496**

To mount in a panel, a flush mounting adapter **EPUA-31** and round shape socket **EP11MS** are provided with the speed indicator.

● **Dimensions** Scale 1/4, Unit = inch (mm)

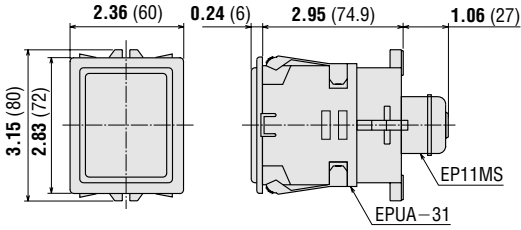
Weight: 7.1 oz. (200 g)

DXF A100



● **Dimensions with Adapter Attached**

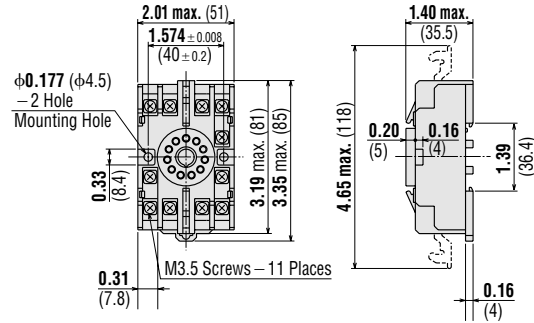
Scale 1/4, Unit = inch (mm)



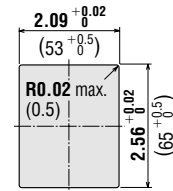
● **Flush Connecting Socket for Mounting DIN Rail**

(Model: **EP11PF**) (Sold separately)

Weight: 2.8 oz. (75 g)

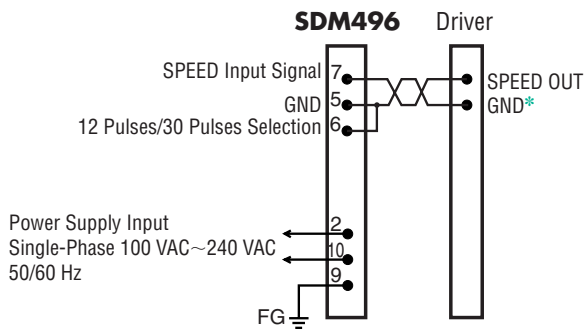


● **Panel Cut-Out**



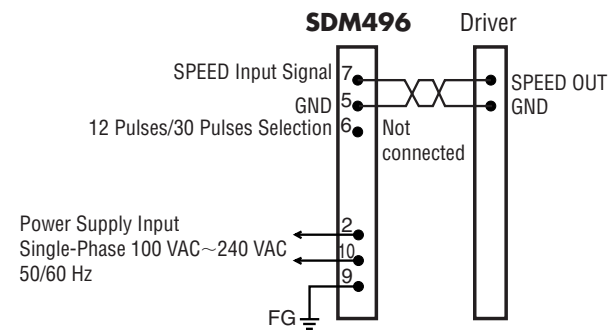
● **Example of Connection**

◆ **AXU Series, AXH Series (30 pulses/rotation)**

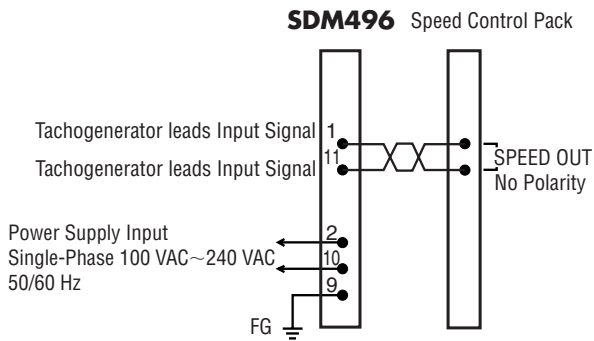


* For **AXU** Series, replace "GND" with "COM".

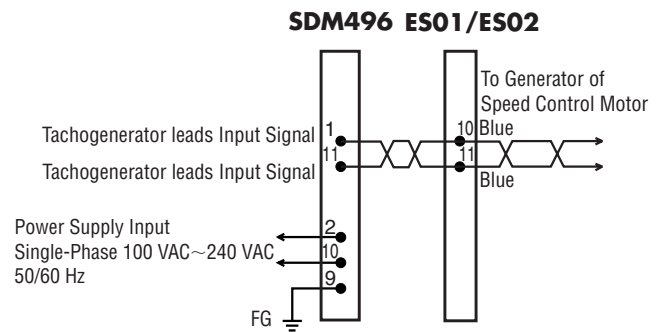
◆ **FBLII Series (12 pulses/rotation)**



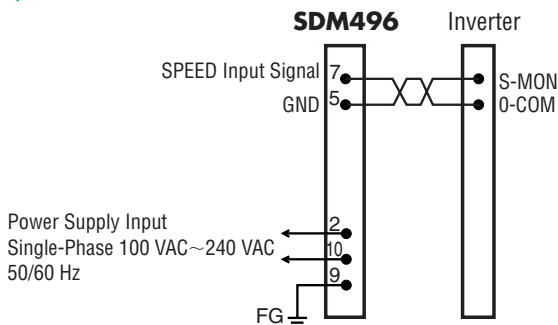
◆ **US Series**



◆ **ES01/ES02**



◆ **BHF Series**



- Introduction
- Induction Motors
- Reversible Motors
- Synchronous Motors
- Torque Motors
- Watertight Motors
- Magnetic Brake
- Clutch & Brake
- Brake Pack
- Right-Angle Gearheads
- Accessories
- Before Using a Standard AC Motor

External Speed Potentiometer

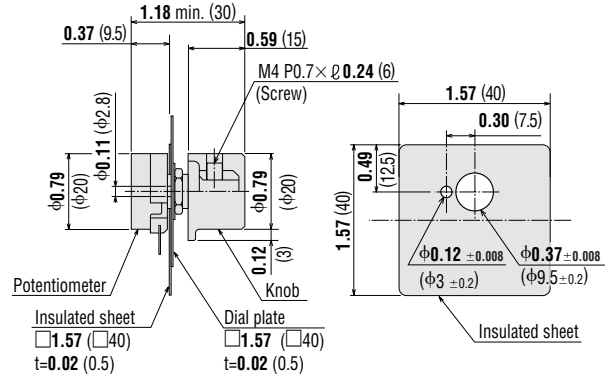
- **Model: PAVR-20KZ**
(20 kΩ, 1/4 W, with a linear resistance vs. angle curve)



◆ Applicable Products

- BX Series**
- FBLII Series**
- AXH Series**
- BHF Series**
- ES01/ES02**

- **Dimensions** Scale 1/2, Unit = inch (mm)
Weight: 0.71 oz. (20 g)



- * A dial plate provided with the speed potentiometer.
- * Recommended thickness of a mounting plate is a maximum 0.177 inch (4.5 mm).

Note:

- One set of this external speed potentiometer is provided with speed control packs and drivers shown for the applicable products on the left (Except for **AXH Series** and **BHF Series**).

Power Relay Box for Watertight Type

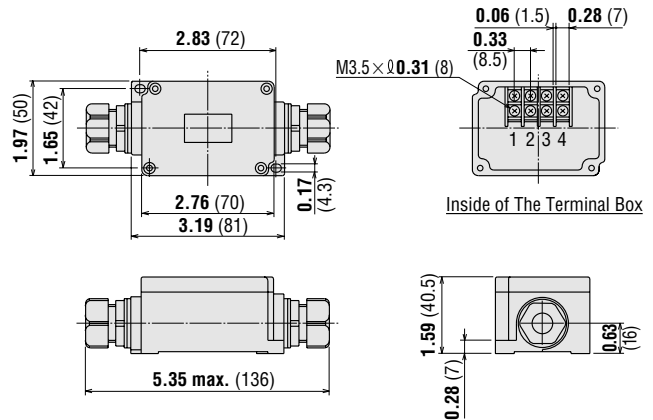
- **Model: TB4-0608 (4-Terminal Type)**



◆ Applicable Motors

- FPW Series**
 - BH Series**
- Applicable cable diameter:
φ0.26 in. (φ6.5 mm)~φ0.33 in. (φ8.5 mm)

- **Dimensions** Scale 1/4, Unit = inch (mm)
Weight: 5.3 oz. (150 g)



- The relay box conforms to the protection level IP65 only when used with a splash proof extension cable for an **FPW** series motor. (Does not conform to the protection level IP65 when used with a **BH Series** motor.)

The screws for the cover on the sealed connector and relay box should be adjusted to the torque shown below.

- Sealed connector 8.8~13.2 lb-in. (1.0~1.5 N·m)
- Cover of power relay box 4.7~5.8 lb-in. (0.54~0.66 N·m)

- * This product can be used with lead wire type motors. However, they are not waterproof. Also, note that lead wires cannot be fixed with the sealed connectors.

Extension Cables

Use with the power relay box for watertight. An extension of 16.4 ft. (5 m) and 32.8 ft. (10 m) is possible.

Conductors	Models	Applicable Product	Cable Length L ft. (m)
3 Conductors	CC05AC33P	BH Series	16.4 (5)
	CC10AC33P		32.8 (10)
4 Conductors	CC05AC43P	BH Series	16.4 (5)
	CC10AC43P	FPW Series	32.8 (10)

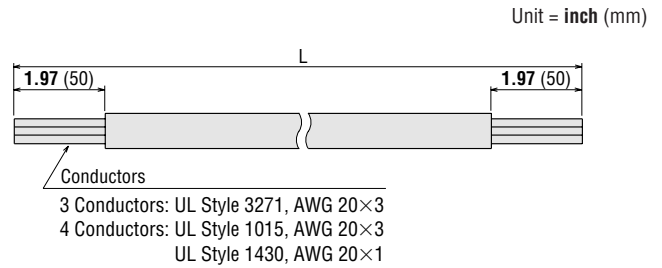
Specifications

Conductor construction: Refer to the dimension on the right

Finished outer diameter: 3 conductors, 4 conductors:

φ0.31 in. (φ7.8 mm)

Outer casing: Heat-resistant vinyl chloride



DIN Rail Mounting Plate

For Drivers and Speed Control Packs

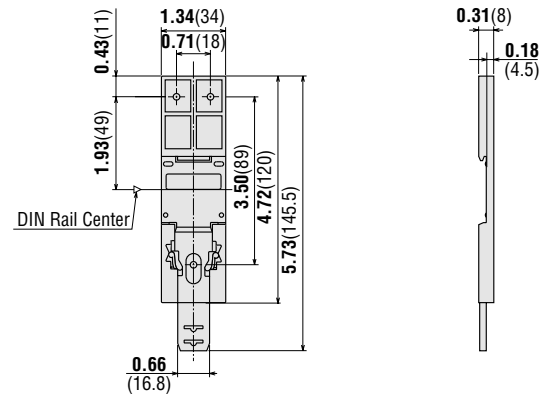
This mounting plate is convenient for installing the speed control packs and drivers on DIN rails with ease.

Model: PADP01



Dimensions Scale 1/4, Unit = inch (mm)

Weight: 0.71 oz. (20 g)



Applicable Motors

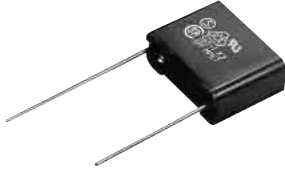
- BX Series**
- FBLII Series**
- BHF Series**

CR Circuit for Surge Suppression

This product is used to protect the contacts of the relay and/or switch used in the forward/reverse circuit section or the instantaneous stop circuit section of a motor.

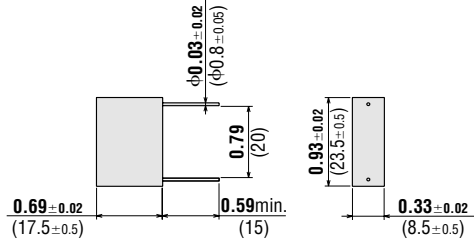
● **Model: EPCR1201-2**

250 VAC (120 Ω, 0.1 μF)



● **Dimensions** Scale 1/2, Unit = inch (mm)

Weight: 0.18 oz. (5 g)



Regeneration Unit

This absorbs energy that is regenerated during a vertical (gravitational) operation or an abrupt start/stop.

● **Model: EPRC-400P**



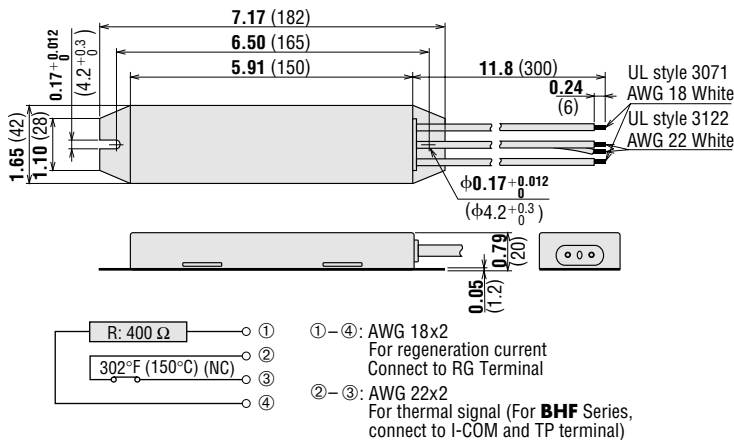
● **Specifications**

Item	Specifications
Rated Electric Power	100 W
Resistance	400 Ω
Insulation Resistance	100 MΩ or more when 500 VDC is applied
Dielectric Strength	Sufficient to withstand 1.5k VAC at 50 Hz applied
Thermal Signal	Operating Temperature
	Rated Load
Ambient Temperature	Open: 302±9°F (150±5°C), Close: 248±18°F (120±10°C)
Ambient Humidity	14 °F~122 °F (-10°C~+50°C) (nonfreezing)
	85% maximum (noncondensing)

● **Dimensions** Scale 1/4, Unit = inch (mm)

Weight: 8.8 oz. (250 g)

DXF C194



◆ **Applicable Motors**

BHF Series