

SIMO® SERIES

Linear Motion Platform



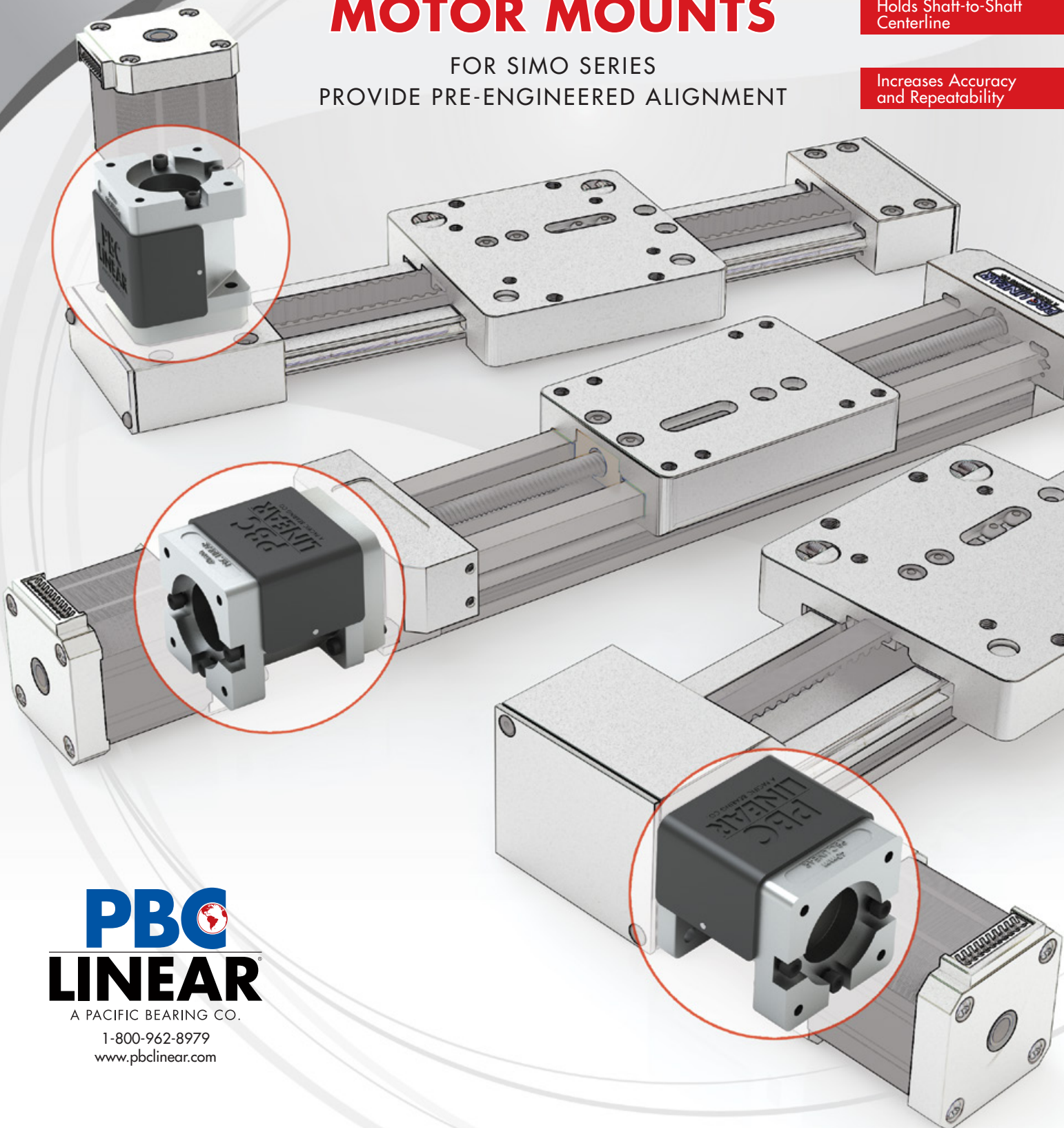
Extends Motor
and Coupler Life

Holds Shaft-to-Shaft
Centerline

Increases Accuracy
and Repeatability

MOTOR MOUNTS

FOR SIMO SERIES
PROVIDE PRE-ENGINEERED ALIGNMENT



PBC
LINEAR

A PACIFIC BEARING CO.

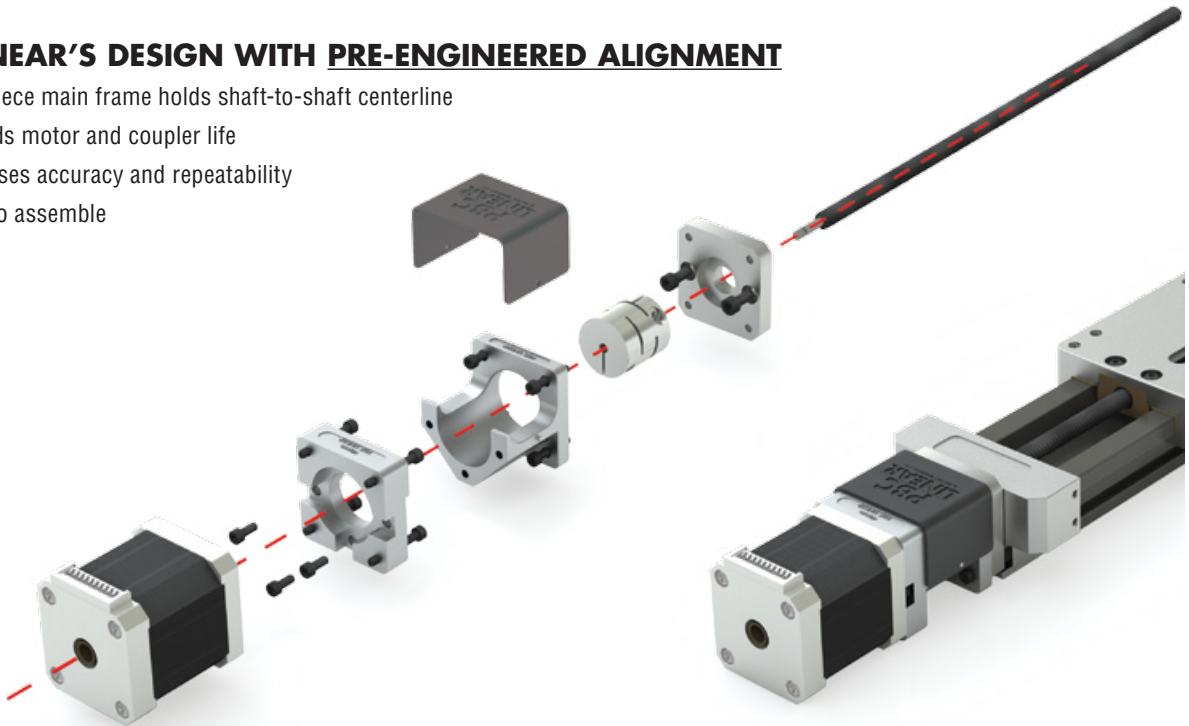
1-800-962-8979

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Product Comparison

PBC LINEAR'S DESIGN WITH PRE-ENGINEERED ALIGNMENT

- One-piece main frame holds shaft-to-shaft centerline
- Extends motor and coupler life
- Increases accuracy and repeatability
- Easy to assemble



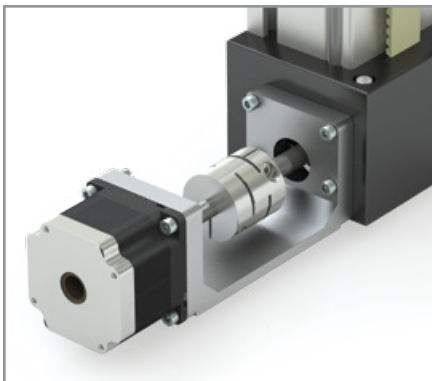
PBC LINEAR'S DESIGN VS. ALTERNATE DESIGNS

PROBLEMATIC DESIGNS CAUSE MIS-ALIGNMENT

- Mis-alignment between motor shaft, coupler, and screw shortens life and affects motion quality
- Mis-alignment results in camming or lobbing motion that translates to inconsistent linear movement
- Difficult to align and prone to deflection
- Over-torque of coupler causes accuracy loss



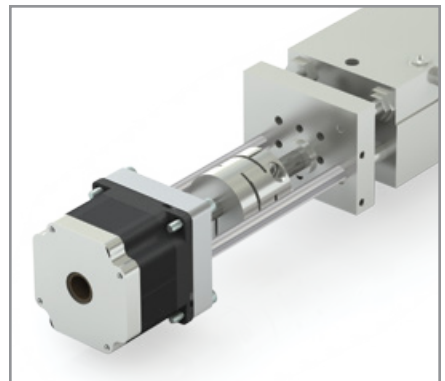
PROBLEM #1: DEFLECTION



PROBLEM #2: TWIST



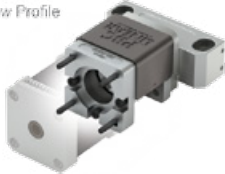
PROBLEM #3: OFF CENTERLINE



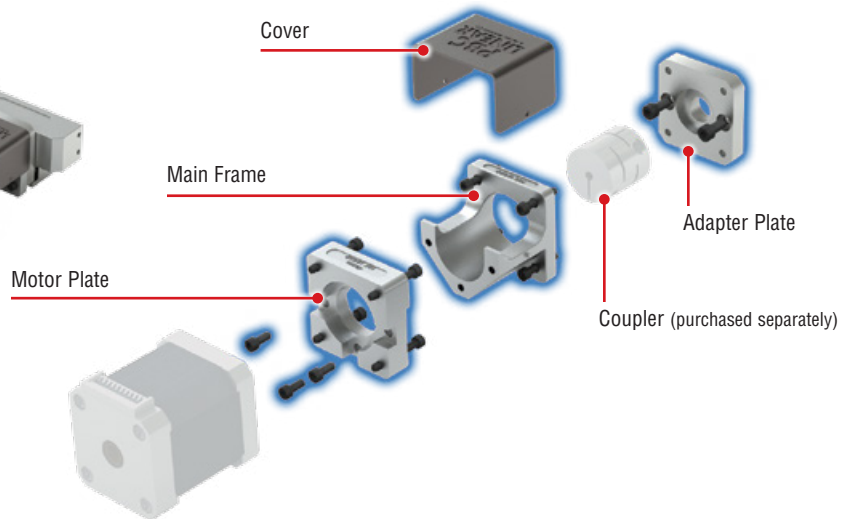
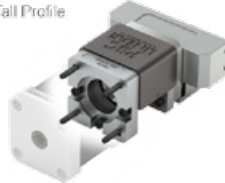
Lead Screw or Ball Screw Driven System

Screw Driven SIMO Series System Lead Screw or Ball Screw UGA (low profile) or UGT (tall profile)	Motor Size	Part Number	Recommended Coupler Ordered Separately or Customer Supplied	Included with Motor Mount Purchase
	40 mm	UGA040A-3PMM-SE	R + W EKL5 Maximum coupler dimensions: 25 mm O.D. x 26 mm length	(1) Adapter plate with 2 SBHCS (Socket Button Head Cap Screw) (1) Main frame with 4 SBHCS (1) Motor plate with 3 SBHCS for attaching to frame* (1) Cover (plastic) * Customer supplies motor screws
	42 mm NEMA 17	UGA040A-3PMM-SF		
	56 mm - 58 mm NEMA 23	UGA040A-3PMM-SG		
	60 mm	UGA040A-3PMM-SH		
	Blank Plate (customer machined)	UGA040A-3PMM-S0		

UGA
Low Profile



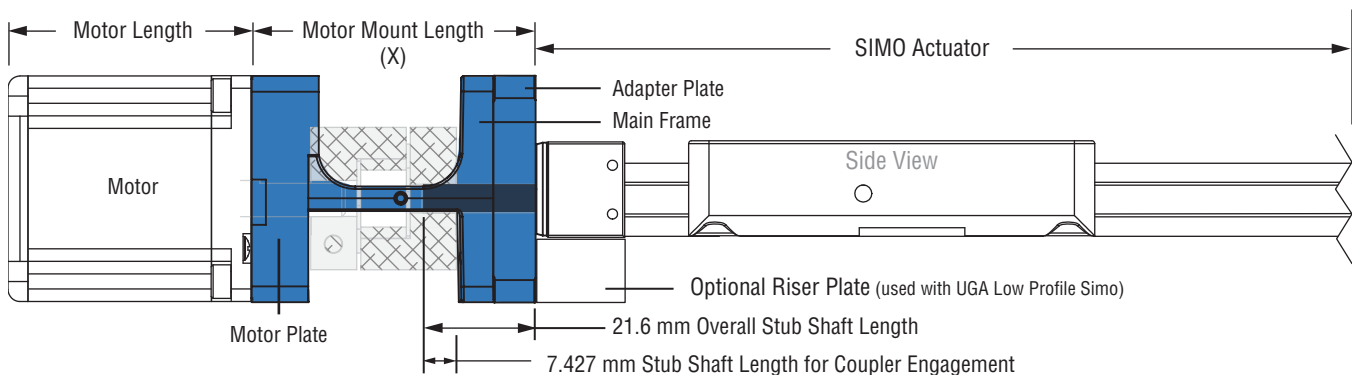
UGT
Tall Profile



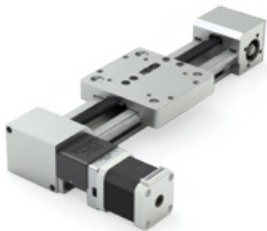
- Pre-engineered to hold centerlines
- 5 mm stub shaft diameter

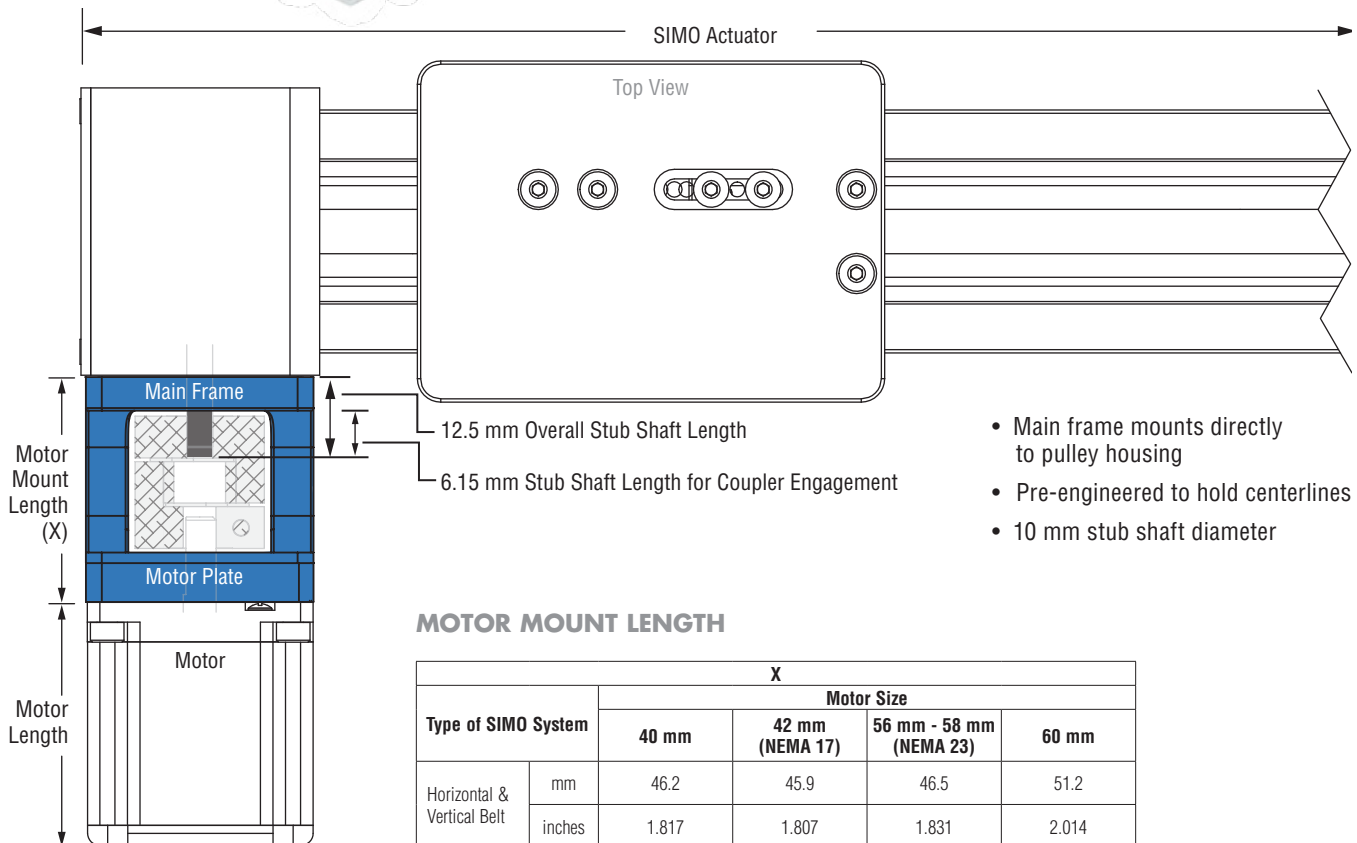
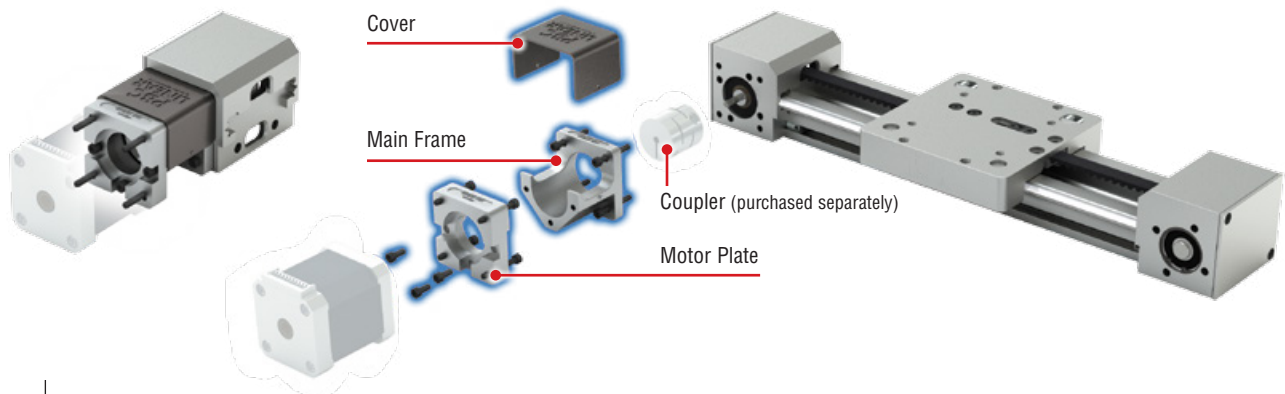
MOTOR MOUNT LENGTH

Type of SIMO System		X			
		Motor Size			
		40 mm	42 mm (NEMA 17)	56 mm - 58 mm (NEMA 23)	60 mm
Screw Driven	mm	54.0	53.7	54.3	59.0
	inches	2.125	2.115	2.139	2.322

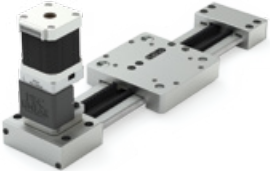


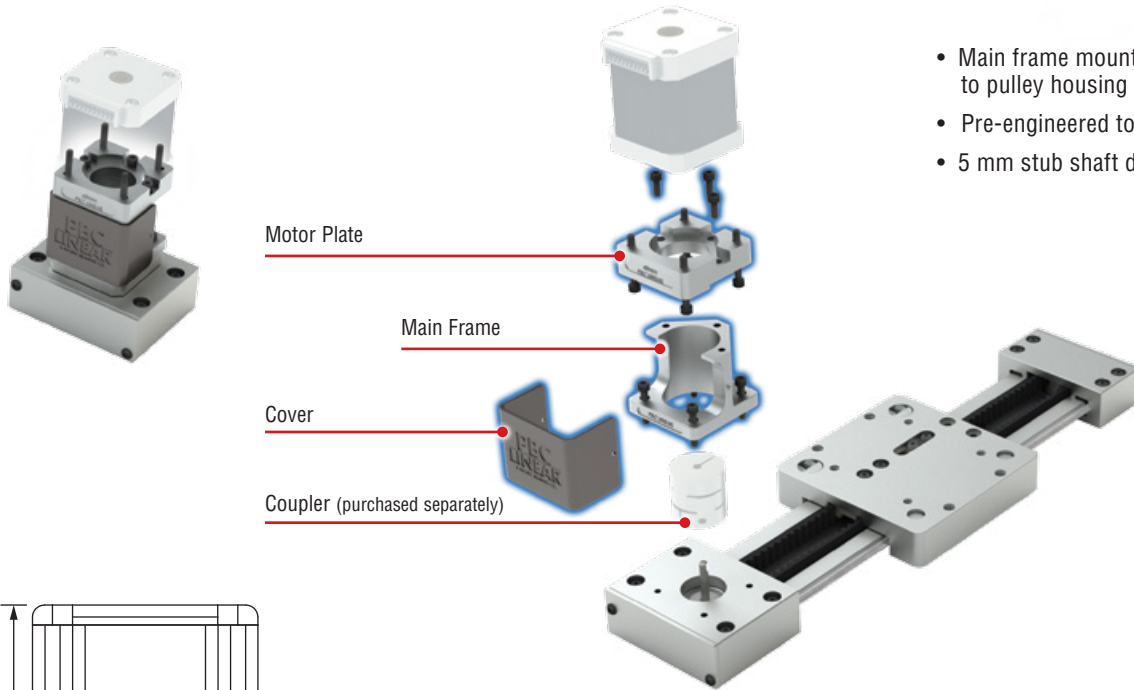
Horizontal Belt Driven System

Belt Driven SIMO Series System	Motor Size	Part Number	Recommended Coupler Ordered Separately or Customer Supplied	Included with Motor Mount Purchase
Horizontal Belt UGT Tall Profile 	40 mm	UGA040A-3PMM-HE	R + W EKL5 Maximum coupler dimensions: 25 mm O.D. x 26 mm length	(1) Main frame with 4 SBHCS (Socket Button Head Cap Screw) (1) Motor plate with 3 SBHCS for attaching to frame* (1) Cover (plastic) * Customer supplies motor screws
	42 mm NEMA 17	UGA040A-3PMM-HF		
	56 mm - 58 mm NEMA 23	UGA040A-3PMM-HG		
	60 mm	UGA040A-3PMM-HH		
	Blank Plate (customer machined)	UGA040A-3PMM-H0		

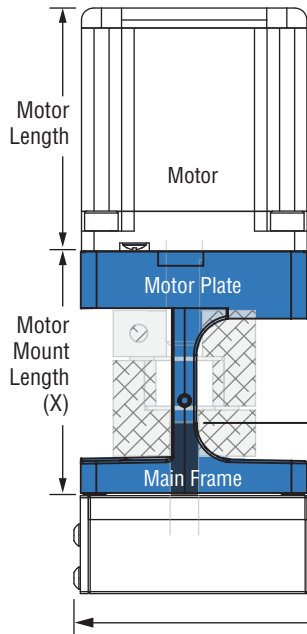


Vertical Belt Driven System

Belt Driven SIMO Series System	Motor Size	Part Number	Recommended Coupler Ordered Separately or Customer Supplied	Included with Motor Mount Purchase
Vertical Belt UGA Low Profile 	40 mm	UGA040A-3PMM-VE	R + W EKL5 Maximum coupler dimensions: 25 mm O.D. x 26 mm length	(1) Main frame with 4 SBHCS (Socket Button Head Cap Screw) (1) Motor plate with 3 SBHCS for attaching to frame* (1) Cover (plastic) * Customer supplies motor screws
	42 mm NEMA 17	UGA040A-3PMM-VF		
	56 mm - 58 mm NEMA 23	UGA040A-3PMM-VG		
	60 mm	UGA040A-3PMM-VH		
	Blank Plate (customer machined)	UGA040A-3PMM-VO		



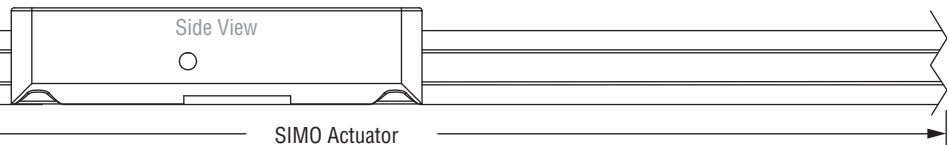
- Main frame mounts directly to pulley housing
- Pre-engineered to hold centerlines
- 5 mm stub shaft diameter



MOTOR MOUNT LENGTH

Type of SIMO System		X			
		Motor Size			
Horizontal & Vertical Belt	mm	40 mm	42 mm (NEMA 17)	56 mm - 58 mm (NEMA 23)	60 mm
	inches	1.817	1.807	1.831	2.014

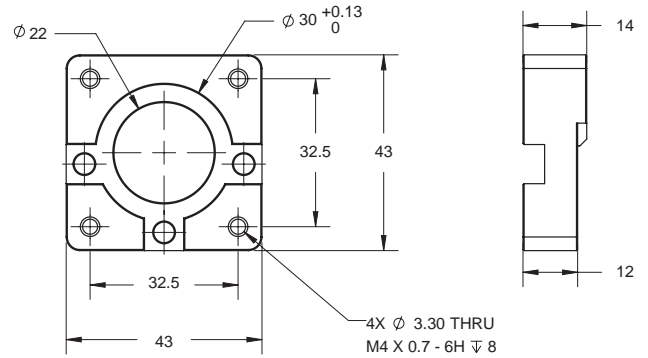
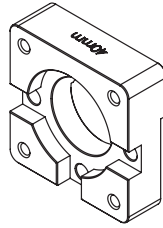
6.15 mm Stub Shaft Length for Coupler Engagement
 12.5 mm Overall Stub Shaft Length



Motor Plate Dimensions

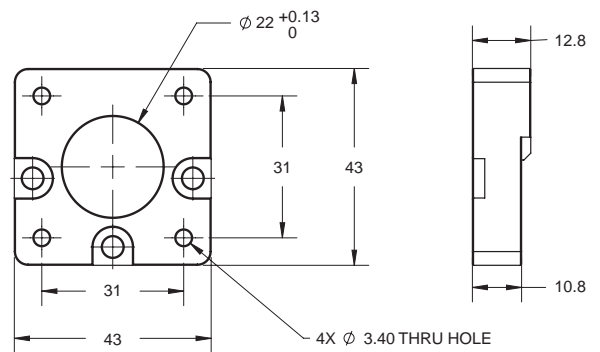
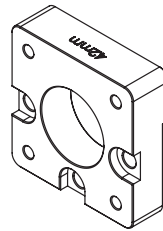
MOTOR SIZE: 40 MM

- Material: Anodized aluminum



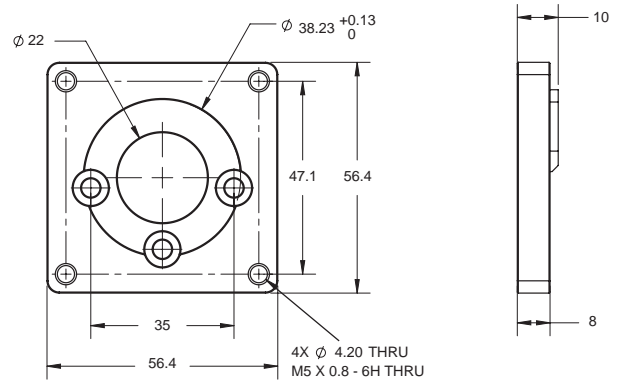
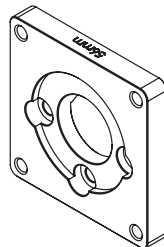
MOTOR SIZE: 42 MM (NEMA 17)

- Material: Anodized aluminum



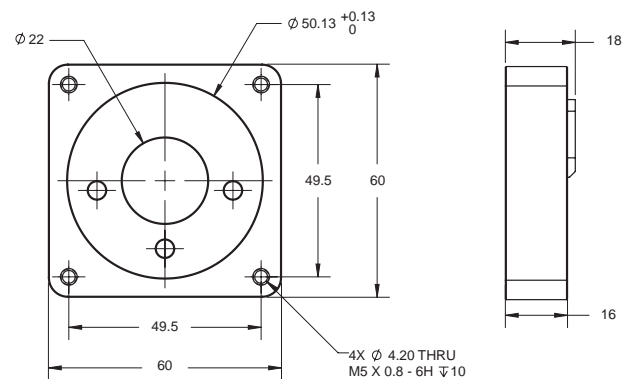
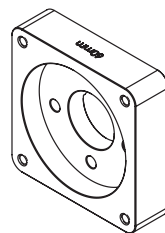
MOTOR SIZE: 56 MM – 58 MM (NEMA 23)

- Material: Anodized aluminum



MOTOR SIZE: 60 MM

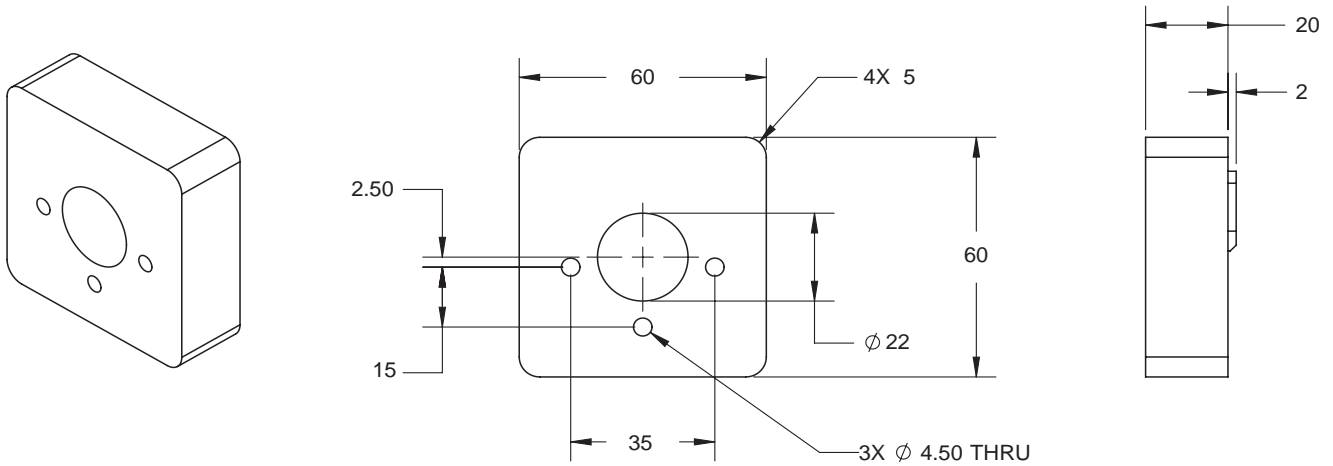
- Material: Anodized aluminum



Blank Plate & Main Frame Dimensions

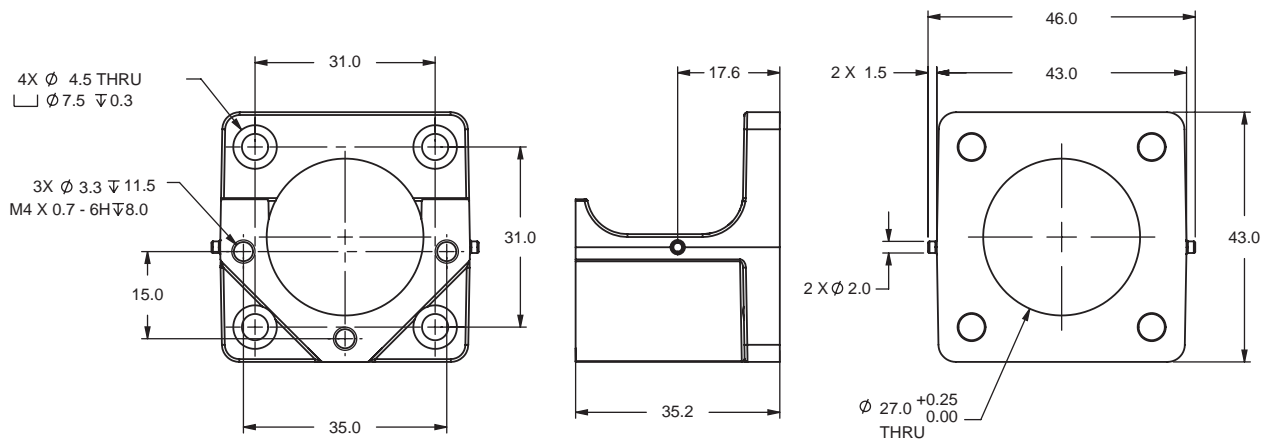
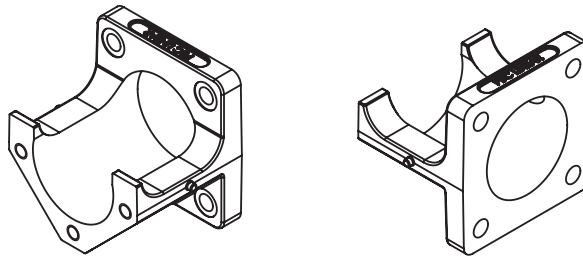
BLANK PLATE

- Intended use: To give customers the ability to machine the plate to match non-standard motor configurations
- Material: Anodized aluminum
- Tip: It is best to clamp on center hole when machining hole pattern for motor attachment.



MAIN FRAME

- Material: Die cast aluminum, clear chromate



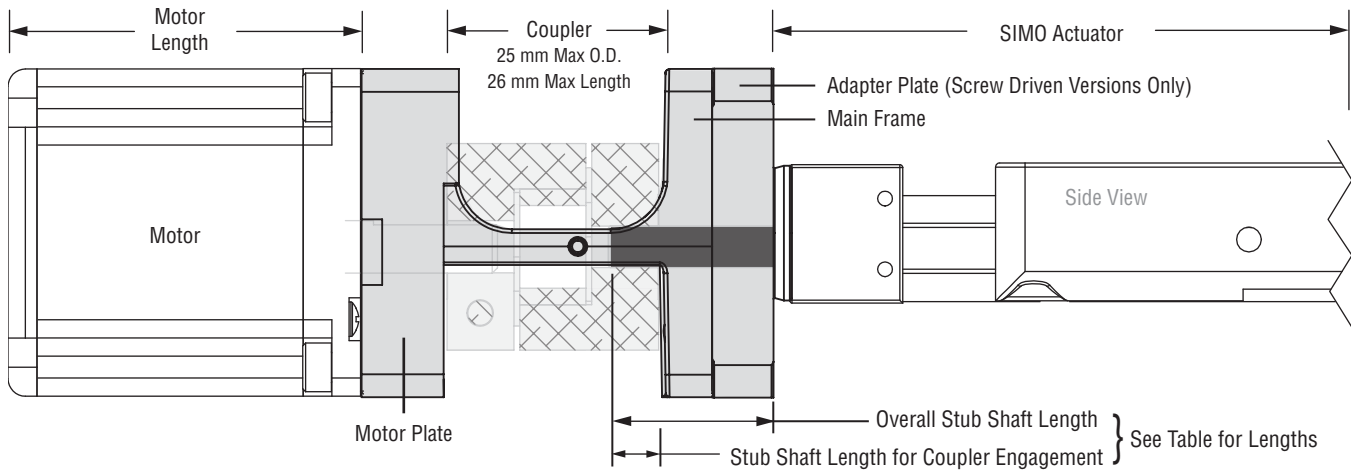
Design Considerations

COUPLER

- Simo Series motor mounts are designed to work optimally with the R+W EKL5 coupler
- Other couplers can be used under the following conditions:
 - Maximum O.D. = 25 mm
 - Maximum length = 26 mm
 - Coupler should be sized per the Simo Series actuator. See the Simo Series catalog for specifications or click [here](#) to view it online.

CAUTION

Verify coupler bore diameters and depths will accept both actuator stub shaft and motor shaft.



STUB SHAFT DIMENSIONS

Type of SIMO System	Screw Driven	Horizontal Belt	Vertical Belt
Stub Shaft Diameter	5 mm	10 mm	5 mm
Overall Stub Shaft Length	21.6 mm	12.5 mm	12.5 mm
Stub Shaft Length for Coupler Engagement	7.427 mm	6.15 mm	6.15 mm

Assembly Procedure – Screw Driven System

SIMO SERIES UGA/UGT WITH LEAD SCREW

Components:

- Base actuator unit
- Motor (customer supplied)
- Motor Mount Kit
 - Adapter Plate
 - Motor Plate
 - Main Frame
 - Cover
- Coupler (customer supplied)

Fasteners: (9) M4 x 12 mm SBHCS (supplied by PBC Linear),
 (4) Customer supplied motor fasteners (See Table 2)

Tools Required: Hex Key (See Table 1)

Suggested Thread Locker: Blue Loctite® 242 or equivalent

TABLE 1

Hex Key Size Needed:

- M3 SHCS = 2.5 mm Driver
- M4 SBHCS = 2.5 mm Driver
- M5 SHCS = 4 mm Driver

TABLE 2

Customer Supplied Fasteners:

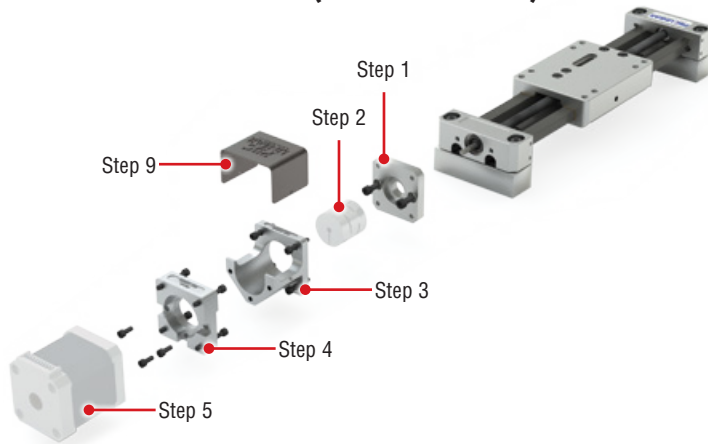
- NEMA 17 Motor = M3 x 0.5 SHCS
- NEMA 23 Motor = M5 x 0.8 SHCS
- 60 mm Servo Motor = M5 x 0.8 SHCS

TABLE 3

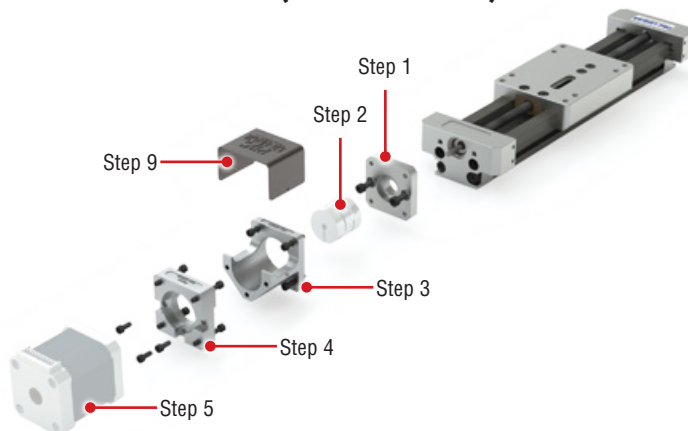
Fastener Torque Values:

- M3 SHCS = 8-10 in/lb [1.0-1.2 Nm]
- M4 SBHCS = 17-21 in/lb [2.0-2.4 Nm]
- M5 SHCS = 37-45 in/lb [4.2-5.1 Nm]

SIMO SERIES – UGA (LOW PROFILE)



SIMO SERIES – UGT (TALL PROFILE)



ASSEMBLY STEPS

1. Install lead screw adapter plate to actuator end cap using hex key and (2) M4 x 12 mm SBHCS. Apply blue Loctite® 242 or equivalent threadlocker and torque to 17-21 in/lb [2.0-2.4 Nm] (See Table 3).
2. Slide coupling onto shaft and leave loose.
3. Install main frame to lead screw adapter plate using (4) M4 x 12 mm SBHCS. Snug fasteners, but do not tighten.
4. Install motor plate to main frame using (3) M4 x 12 mm SBHCS. Apply blue Loctite® 242 or equivalent threadlocker and torque to 17-21 in/lb [2.0-2.4 Nm] (See Table 3).
5. Install motor to motor plate with customer supplied fasteners (See Table 2) and install shaft into coupling. Snug fasteners, but do not tighten.
6. Manually move carriage plate to align coupler and motor.
7. Check for proper shaft engagement on both sides (per coupler manufacturer specs).
8. Once system is aligned, final torque all fasteners appropriately (See Table 3).
9. Install cover on pins in casting (snaps in place).

Assembly Procedure – Horizontal Belt Driven System

SIMO SERIES UGT WITH HORIZONTAL BELT

Components:

- Base actuator unit
- Motor (customer supplied)
- Motor Mount Kit
 - Motor Plate
 - Main Frame
 - Cover
- Coupler (customer supplied)

Fasteners: (7) M4 x 12 mm SBHCS (supplied by PBC Linear), (4) Customer supplied motor fasteners (See Table 2)

Tools Required: Hex Key (See Table 1)

Suggested Thread Locker: Blue Loctite® 242 or equivalent

TABLE 1

Hex Key Size Needed:

- M3 SHCS = 2.5 mm Driver
- M4 SBHCS = 2.5 mm Driver
- M5 SHCS = 4 mm Driver

TABLE 2

Customer Supplied Fasteners:

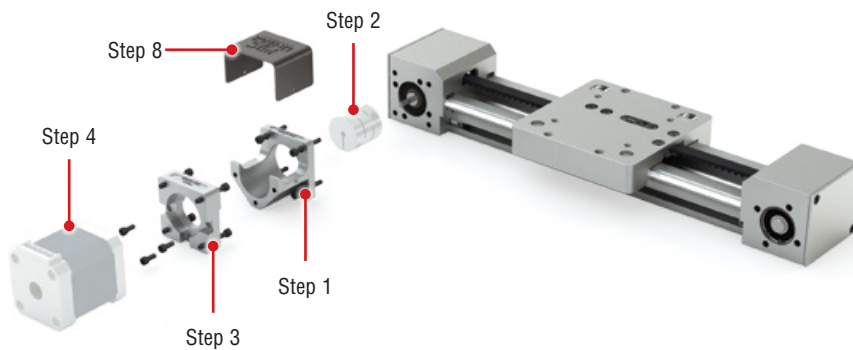
- NEMA 17 Motor = M3 x 0.5 SHCS
- NEMA 23 Motor = M5 x 0.8 SHCS
- 60 mm Servo Motor = M5 x 0.8 SHCS

TABLE 3

Fastener Torque Values:

- M3 SHCS = 8-10 in/lb [1.0-1.2 Nm]
- M4 SBHCS = 17-21 in/lb [2.0-2.4 Nm]
- M5 SHCS = 37-45 in/lb [4.2-5.1 Nm]

SIMO SERIES – UGT (TALL PROFILE)



ASSEMBLY STEPS

1. Install main frame to pulley housing using hex key and (4) M4 x 12 mm SBHCS. Snug fasteners, but do not tighten.
2. Slide coupling onto shaft and leave loose.
3. Install motor plate to main frame using (3) M4 x 12 mm SBHCS. Apply blue Loctite® 242 or equivalent threadlocker and torque to 17-21 in/lb [2.0-2.4 Nm] (See Table 3).
4. Install motor to motor plate with customer supplied fasteners (See Table 2) and install shaft into coupling. Snug fasteners, but do not tighten.
5. Manually move carriage plate to align coupler and motor.
6. Check for proper shaft engagement on both sides (per coupler manufacturer specs).
7. Once system is aligned, final torque all fasteners appropriately (See Table 3).
8. Install cover on pins in casting (snaps in place).

Assembly Procedure – Vertical Belt Driven System

SIMO SERIES UGA WITH VERTICAL BELT

Components:

- Base actuator unit
- Motor (customer supplied)
- Motor Mount Kit
 - Motor Plate
 - Main Frame
 - Cover
- Coupler (customer supplied)

Fasteners: (7) M4 x 12 mm SBHCS (supplied by PBC Linear), (4) Customer supplied motor fasteners (See Table 2)

Tools Required: Hex Key (See Table 1)

Suggested Thread Locker: Blue Loctite® 242 or equivalent

TABLE 1

Hex Key Size Needed:

- M3 SHCS = 2.5 mm Driver
- M4 SBHCS = 2.5 mm Driver
- M5 SHCS = 4 mm Driver

TABLE 2

Customer Supplied Fasteners:

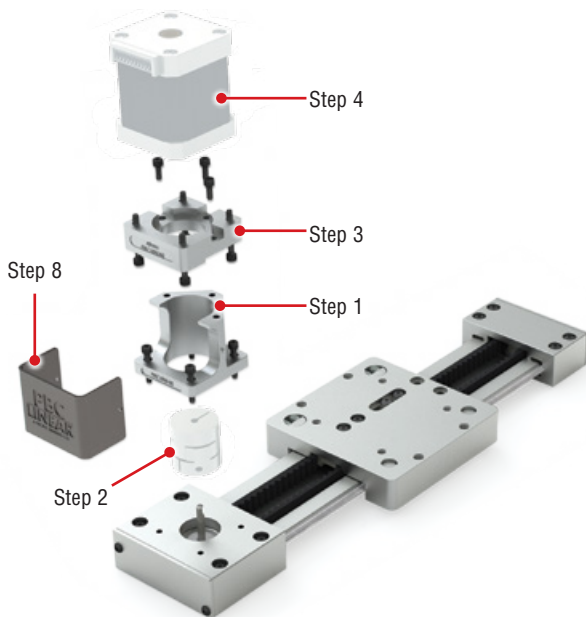
- NEMA 17 Motor = M3 x 0.5 SHCS
- NEMA 23 Motor = M5 x 0.8 SHCS
- 60 mm Servo Motor = M5 x 0.8 SHCS

TABLE 3

Fastener Torque Values:

- M3 SHCS = 8-10 in/lb [1.0-1.2 Nm]
- M4 SBHCS = 17-21 in/lb [2.0-2.4 Nm]
- M5 SHCS = 37-45 in/lb [4.2-5.1 Nm]

SIMO SERIES – UGA (LOW PROFILE)



ASSEMBLY STEPS

1. Install main frame to pulley housing using hex key and (4) M4 x 12 mm SBHCS. Snug fasteners, but do not tighten.
2. Slide coupling onto shaft and leave loose.
3. Install motor plate to main frame using (3) M4 x 12 mm SBHCS. Apply blue Loctite® 242 or equivalent threadlocker and torque to 17-21 in/lb [2.0-2.4 Nm] (See Table 3).
4. Install motor to motor plate with customer supplied fasteners (See Table 2) and install shaft into coupling. Snug fasteners, but do not tighten.
5. Manually move carriage plate to align coupler and motor.
6. Check for proper shaft engagement on both sides (per coupler manufacturer specs).
7. Once system is aligned, final torque all fasteners appropriately (See Table 3).
8. Install cover on pins in casting (snaps in place).

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