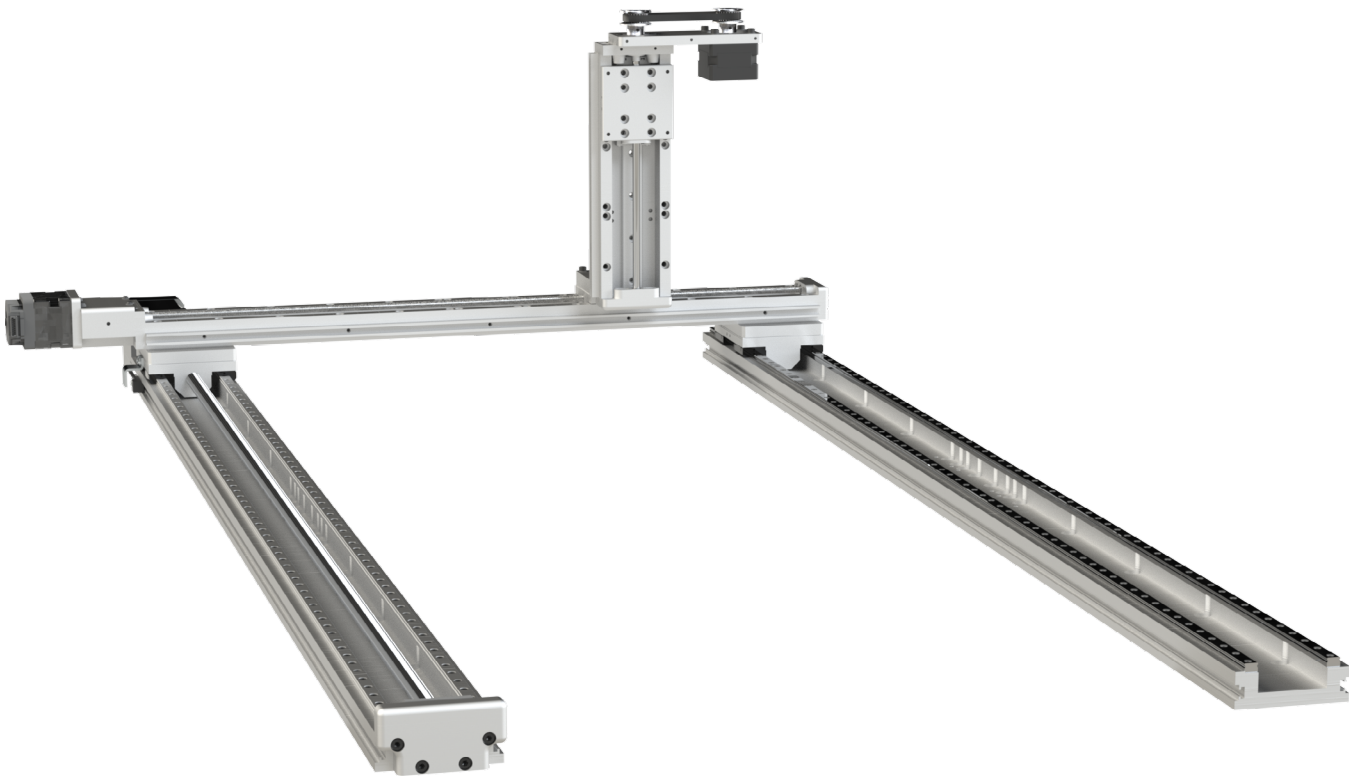


# ***SUREMOTION GANTRY USER MANUAL***

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***SureMotion UM  
First Edition, Revision A***





# SUREMOTION® XYZ GANTRY

## ASSEMBLY

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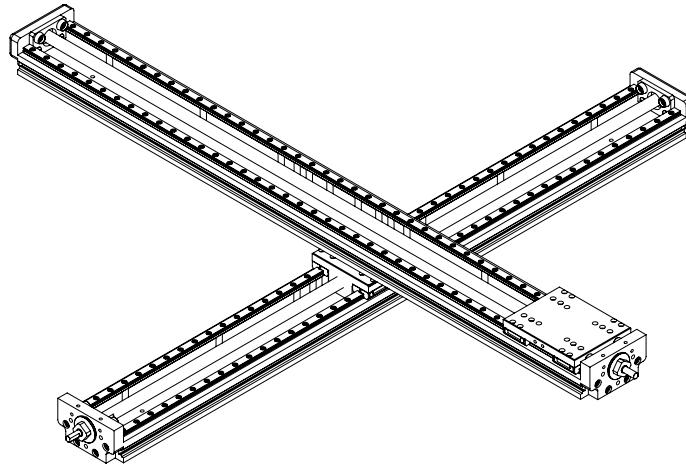
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## OVERVIEW

SureMotion® LAHP series Linear Actuators can be assembled together to create controlled motion in more than 1 axis of movement. By attaching a second linear actuator to the carriage of the first linear actuator, a two degree of freedom (XY) robot is formed. Then, by attaching a 3rd linear actuator to the carriage of the above combination, a three degree of freedom (XYZ) robot is formed. ADC offers a few brackets to assemble the linear actuators into 2 and 3 degree of freedom robots. While our brackets are limited in selection, you can design your own brackets to achieve a system that best fits your needs.

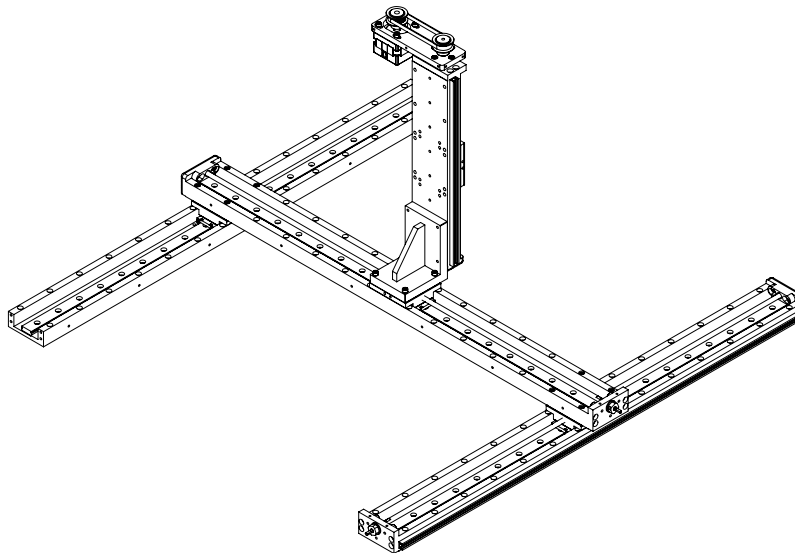
### ***TWO DEGREE OF FREEDOM (XY) EXAMPLE***

The example below is made using two (2) LAHP-33 series actuators. In this XY configuration, no bracket is needed because the LAHP-33 series can be mounted directly to the carriage of another LAHP-33 series actuator.



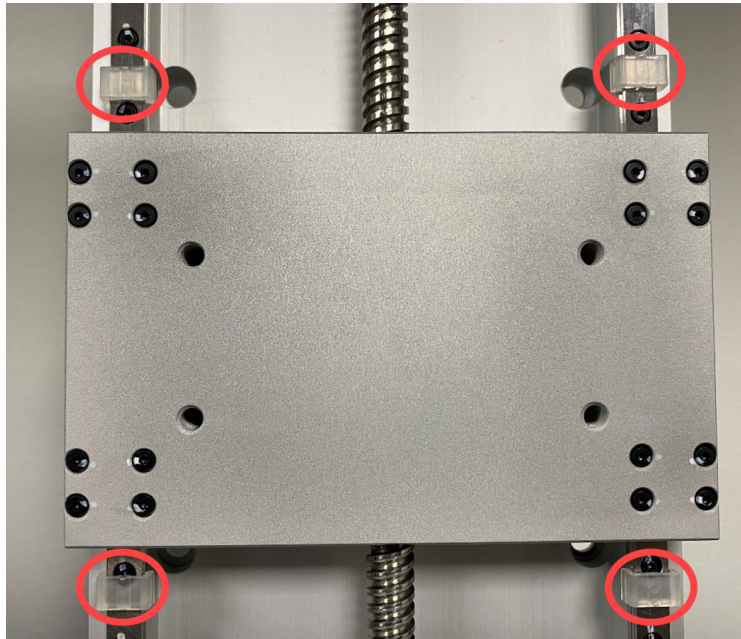
### ***THREE DEGREE OF FREEDOM (XYZ) EXAMPLE***

The example below is made using three (3) LAHP-25 series actuators, an LAHP-25 series linear slide, and a Z bracket. In this XYZ configuration, no bracket is needed for the XY portion of the gantry because the LAHP-25 series can be mounted directly to the carriage of another LAHP-25 series actuator. However, the Z configuration requires the Z bracket to add the third degree of freedom.



**BEFORE YOU BEGIN**

Each Linear Actuator and Linear Slide is shipped with four (4) small retainers to prevent the carriage from moving during transportation. These retainers should be removed after final installation and before operation.



**CAUTION:** CARRIAGE SHOULD NOT BE REMOVED FROM THE RAILS! DOING SO WILL RESULT IN TINY BALL BEARINGS DROPPING OUT OF THE CARRIAGE AND/OR BECOMING VERY DIFFICULT TO SLIDE THE CARRIAGE BACK ONTO THE RAILS.



**NOTE:** It is possible to slide the carriage off the ends of the slide rails. An additional shipping retainer is included to prevent this occurrence and these retainers should be removed after final installation and prior to operation.

**LUBRICATION AND MAINTENANCE**

The rails and drive screw should have a lubrication film at all times for best performance and extended life. Every 6-18 months, depending on the application environment, the old lubricant should be cleaned off and fresh lubricant applied.

Use a Multitemp PS2 grease. Wipe off and clean the rails and drive screw surfaces with alcohol and lint free cloth. Apply a fresh film of lubricant to these surfaces. Stroke the carriage the full length to work the lubricant inside drive screw nut and well as spread it along the rails. Wipe away any large lubricant buildups

**BRACKET COMBINATIONS**

Below is a list of the various bracket sizes for the SureMotion® XYZ gantry system listing which brackets are used to combine each actuator series.

Bracket Part Number	Type of Bracket	Mounts to Carriage of	Linear Actuator Mounts to Bracket	References
<b><u>LAHP-XYB-25-33</u></b>	XY (plate)	LAHP-33 series	LAHP-25 series	page 37
<b><u>LAHP-XYB-25-33W</u></b>	XY (plate)	LAHP-33W series	LAHP-25 series	page 39
<b><u>LAHP-XYB-33-33W</u></b>	XY (plate)	LAHP-33W series	LAHP-33 series	page 41
<b><u>LAHP-ZB-25-25</u></b>	Z (angle)	LAHP-25 series	LAHP-25 series	page 43
<b><u>LAHP-ZB-25-33</u></b>	Z (angle)	LAHP-33 series	LAHP-25 series	page 45
<b><u>LAHP-ZB-25-33W</u></b>	Z (angle)	LAHP-33W series	LAHP-25 series	page 47
<b><u>LAHP-ZB-33-33</u></b>	Z (angle)	LAHP-33 series	LAHP-33 series	page 49
<b><u>LAHP-ZB-33-33W</u></b>	Z (angle)	LAHP-33W series	LAHP-33 series	page 51



**NOTE:** The LAHP-25 series is direct mount, no XY Bracket required. It does require a Z Bracket (LAHP-ZB-25-25) for a three axis arrangement.

## AXIAL MOTOR MOUNT ASSEMBLY

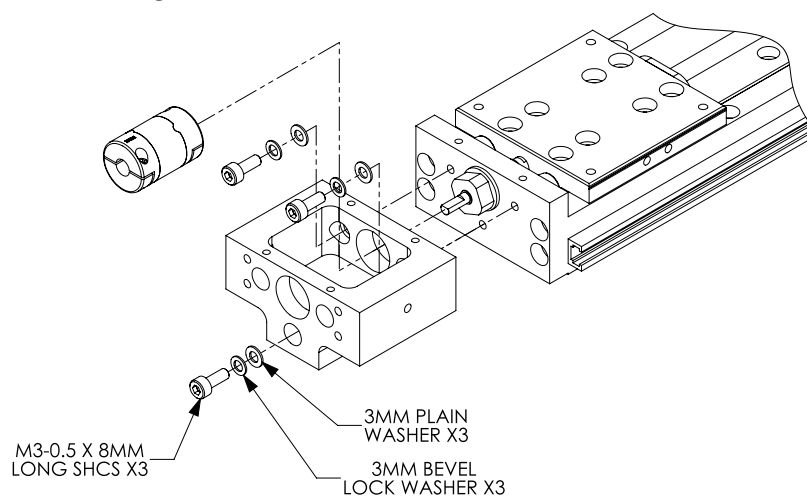
### MOUNT COMPATIBILITY

Mount and Coupling Compatibility					
Motor Frame Size	Motor Type	LAHP-25 Series Actuators		LAHP-33/33W Series Actuators	
		Motor Bracket PN	Coupling PN	Motor Bracket PN	Coupling PN
<b>NEMA 14</b>	Stepper	<a href="#">LAHP-N14-25MTRBKT</a>	<a href="#">LAHP-25-CPL-N1417</a>	-	
<b>NEMA 17</b>	Stepper	<a href="#">LAHP-N17-25MTRBKT</a>	<a href="#">LAHP-25-CPL-N1417</a>	<a href="#">LAHP-N17-33MTRBKT</a>	<a href="#">LAHP-33-CPL-N17</a>
<b>NEMA 23</b>	Stepper	-		<a href="#">LAHP-N23-33MTRBKT</a>	<a href="#">LAHP-33CPL-N23</a>
<b><a href="#">SV2L-201B / SV2L-201N</a> (40mm frame)</b>	Servo	<a href="#">LAHP-201-25MTRBKT</a>	<a href="#">LAHP-25-CPL-201</a>	<a href="#">LAHP-201-33MTRBKT</a>	<a href="#">LAHP-33-CPL-201</a>
<b><a href="#">SV2L-202B / SV2L-202N / SV2L-204B / SV2L-204N</a> (60mm frame)</b>	Servo	-		<a href="#">LAHP-202-33MTRBKT</a>	<a href="#">LAHP-33-CPL-202</a>

### **LAHP-N14-25MTRBKT ASSEMBLY**

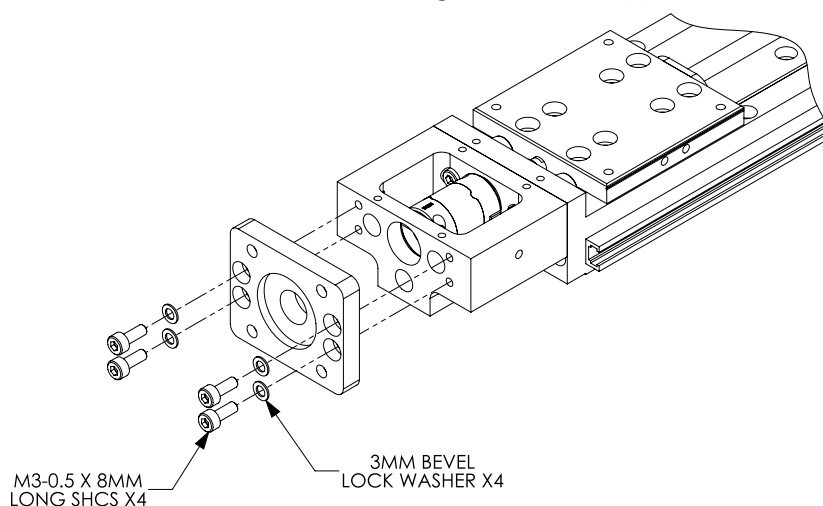
The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-25 series actuators.

- 1) Place the coupling (sold separately, see table on page 7) into the motor mount frame and slide onto the shaft on the end of the actuator.
- 2) Secure the mount using the three (3) supplied socket head cap screws (SHCS) and (6) washers.

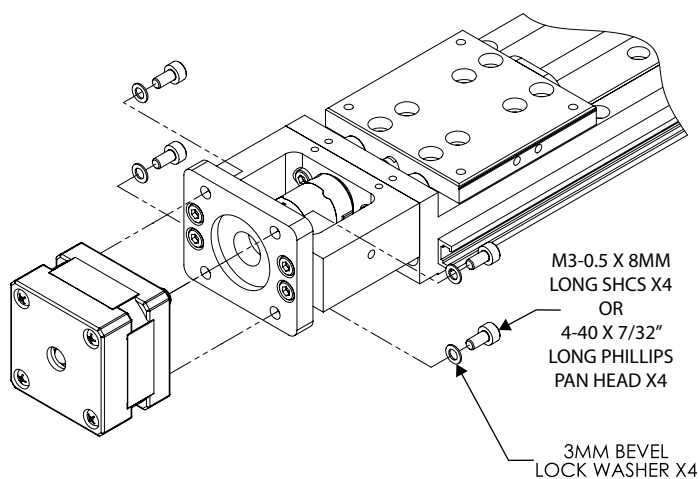


**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

- 3) Secure the plate to the end of the mount using the four (4) supplied SHCS and washers.



- 4) Slide the motor shaft through the plate and into the coupling and secure to the plate using the four (4) supplied SHCS and four (4) washers. Tighten the 2 screws on the coupling to a torque of 0.25 Nm (2.2 in-lbs) to secure to the actuator and motor shafts.

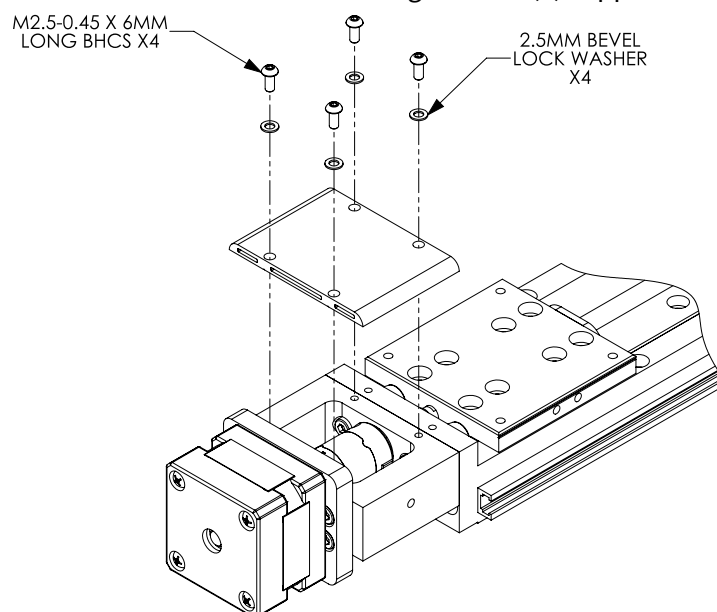


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform this step with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

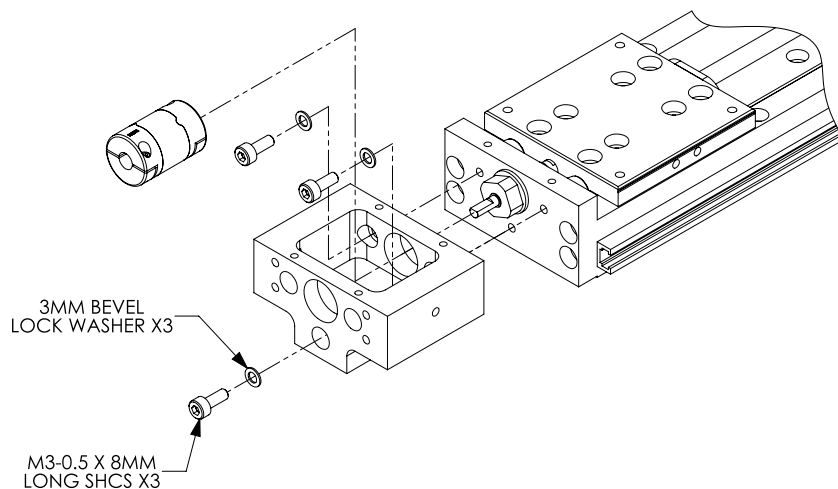
- 5) Place the cover over the mount and secure using the four (4) supplied SHCS and washers.



**LAHP-N17-25MTRBKT ASSEMBLY**

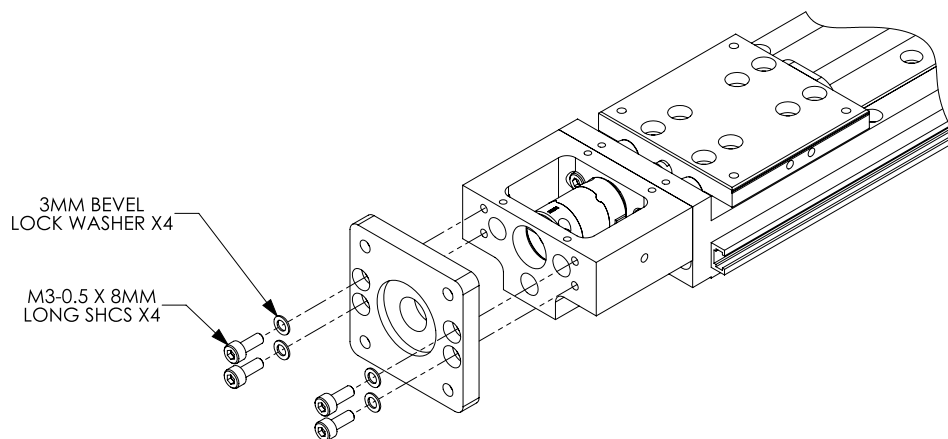
The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-25 series actuators.

- 1) Place the coupling (sold separately, see table on page 7) into the motor mount frame and slide onto the shaft on the end of the actuator.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.

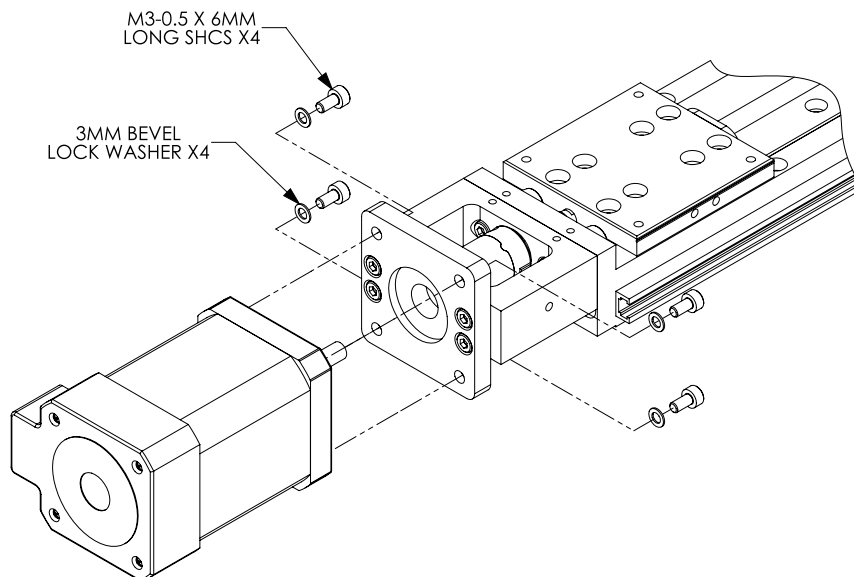


**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

- 3) Secure the plate to the end of the mount using the four (4) supplied SHCS and four (4) washers.



- 4) Slide the motor shaft through the plate and into the coupling and secure to the plate using the four (4) supplied SHCS and four (4) washers. Tighten the 2 screws on the coupling to a torque of 0.25 Nm (2.2 in-lbs) to secure to the actuator and motor shafts.

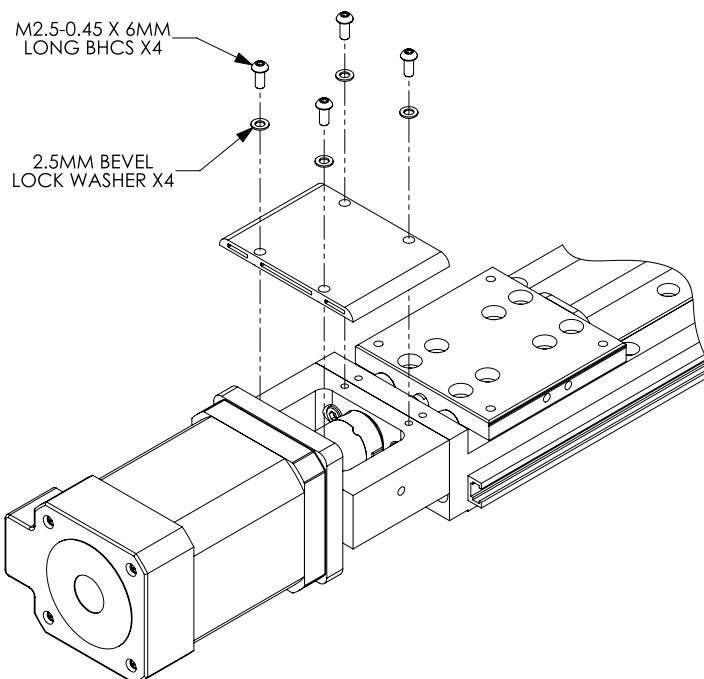


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform this step with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

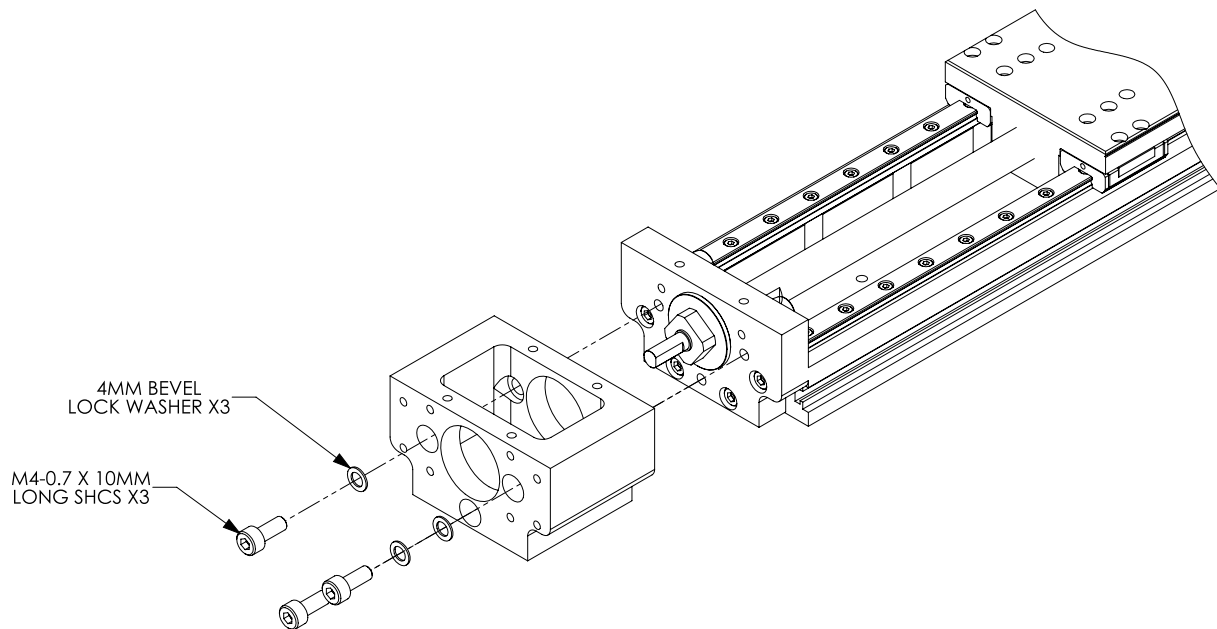
- 5) Place the cover over the mount and secure using the four (4) supplied SHCS and four (4) washers.



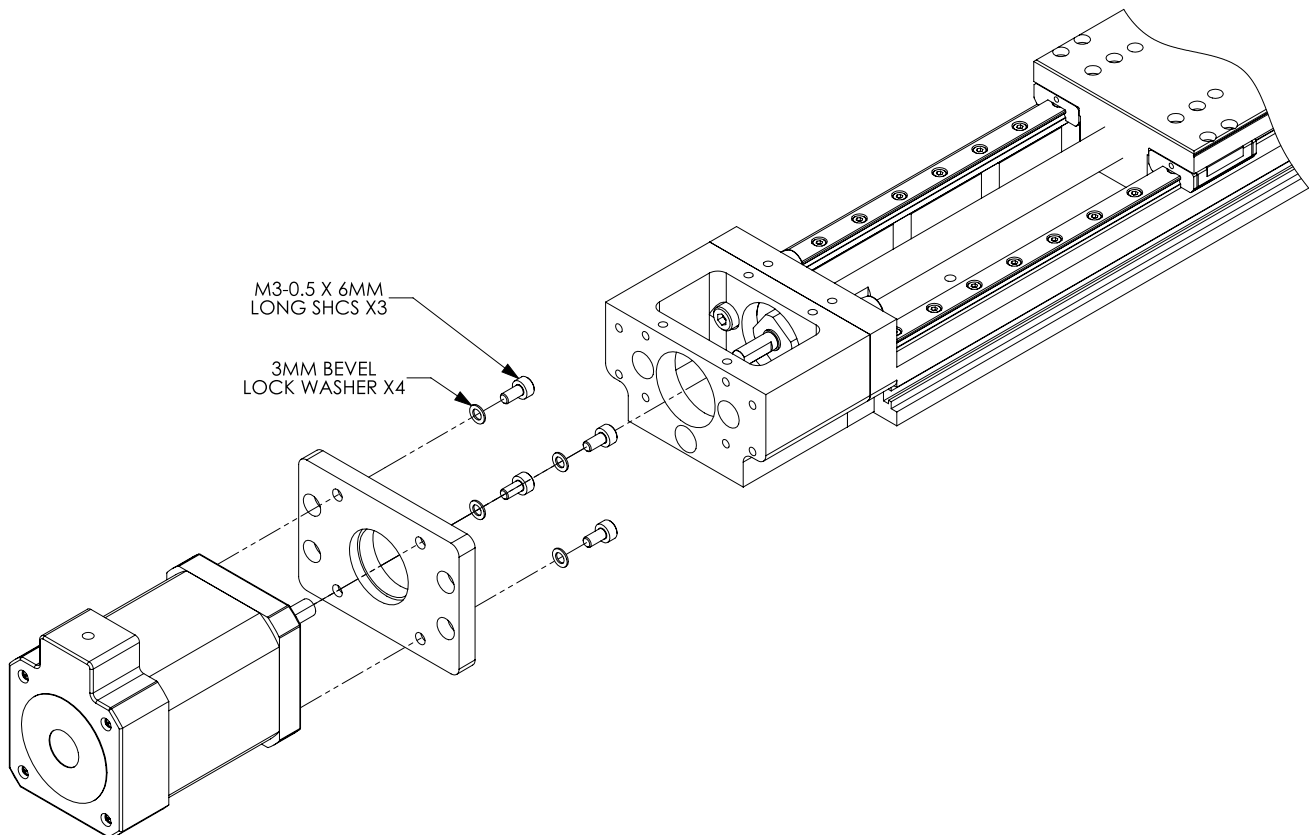
**LAHP-N17-33MTRBKT ASSEMBLY**

The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-33 series actuators.

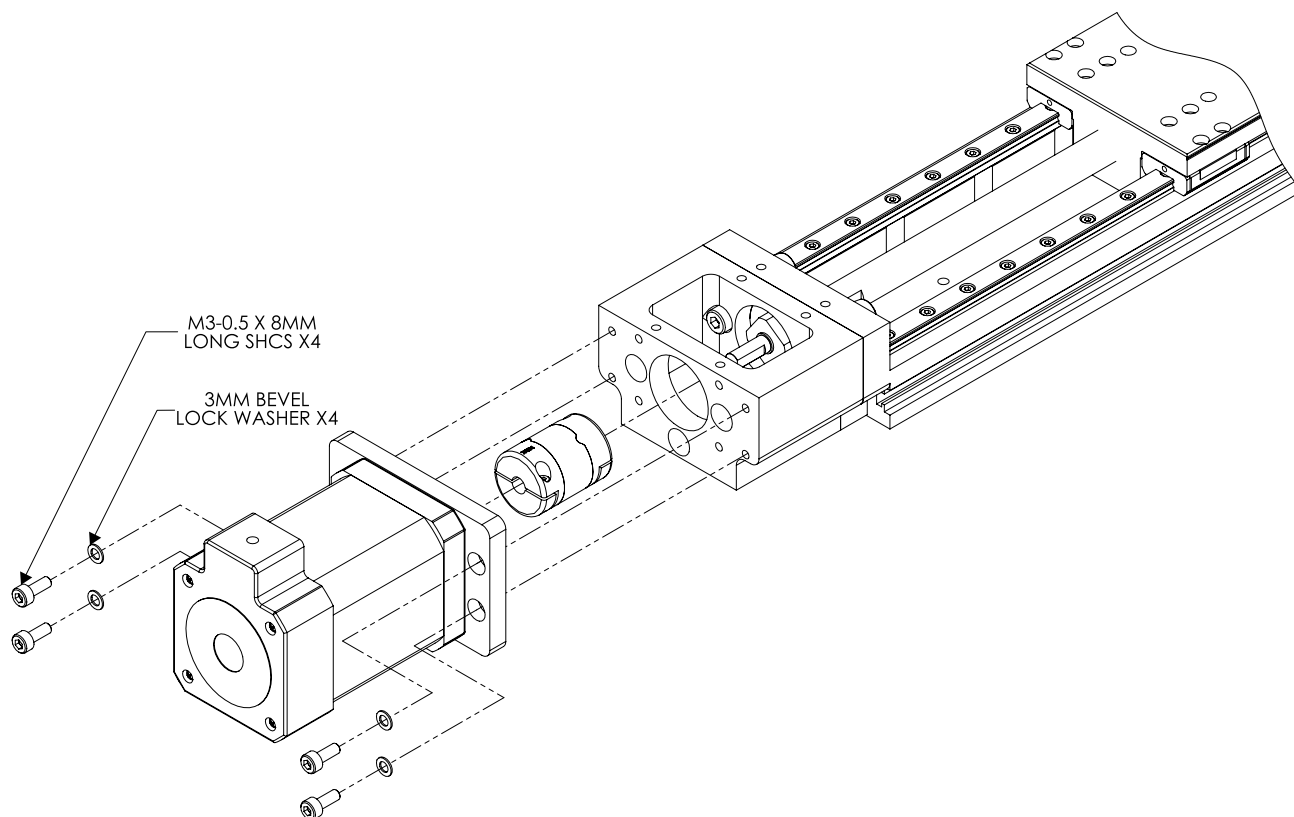
- 1) Slide the motor mount frame onto the shaft on the end of the actuator.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.



- 3) Secure the plate to the end of the motor using the four (4) supplied SHCS and four (4) washers.



- 4) Slide the coupling (sold separately, see table on page 7) into the mount frame and onto the shaft of the actuator.
- 5) Slide the motor shaft into the coupling and secure the plate to the mount frame using the four (4) supplied SHCS and four (4) washers. Tighten the 2 screws on the coupling to a torque of 0.5 Nm (4.4 in-lbs) to secure to the actuator and motor shafts.



**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

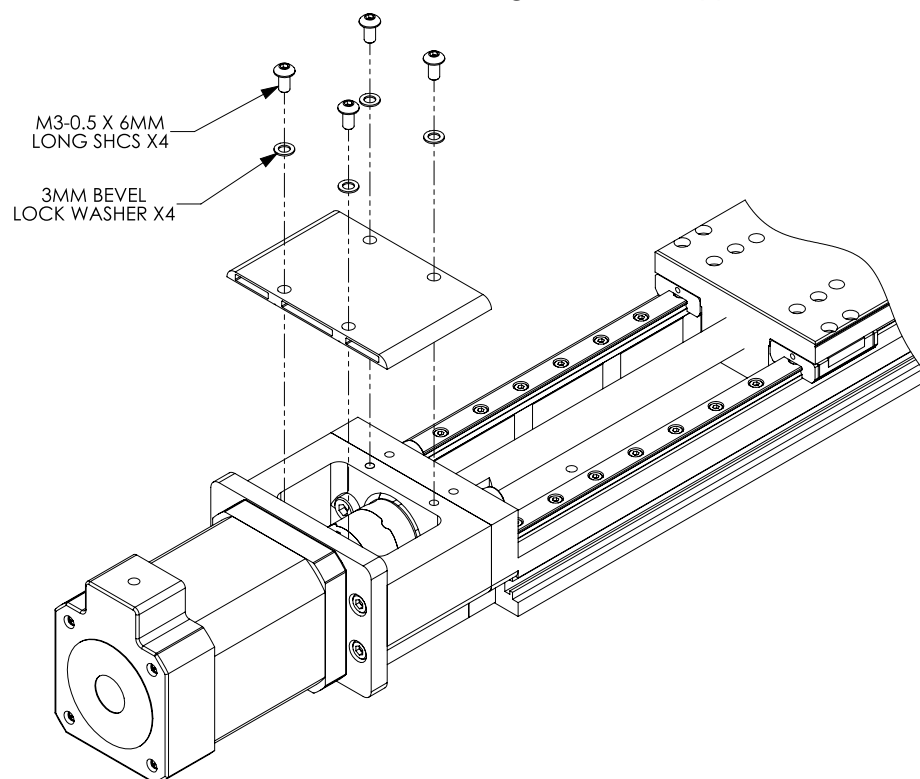


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform these steps with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

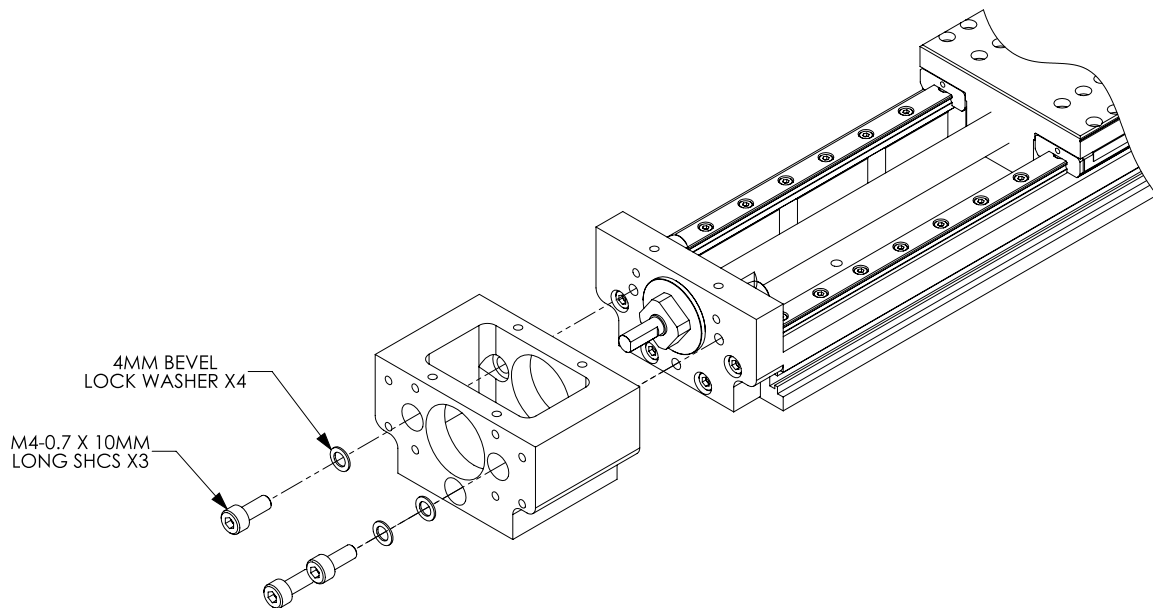
- 6) Place the cover over the mount and secure using the four (4) supplied SHCS and four (4) washers.



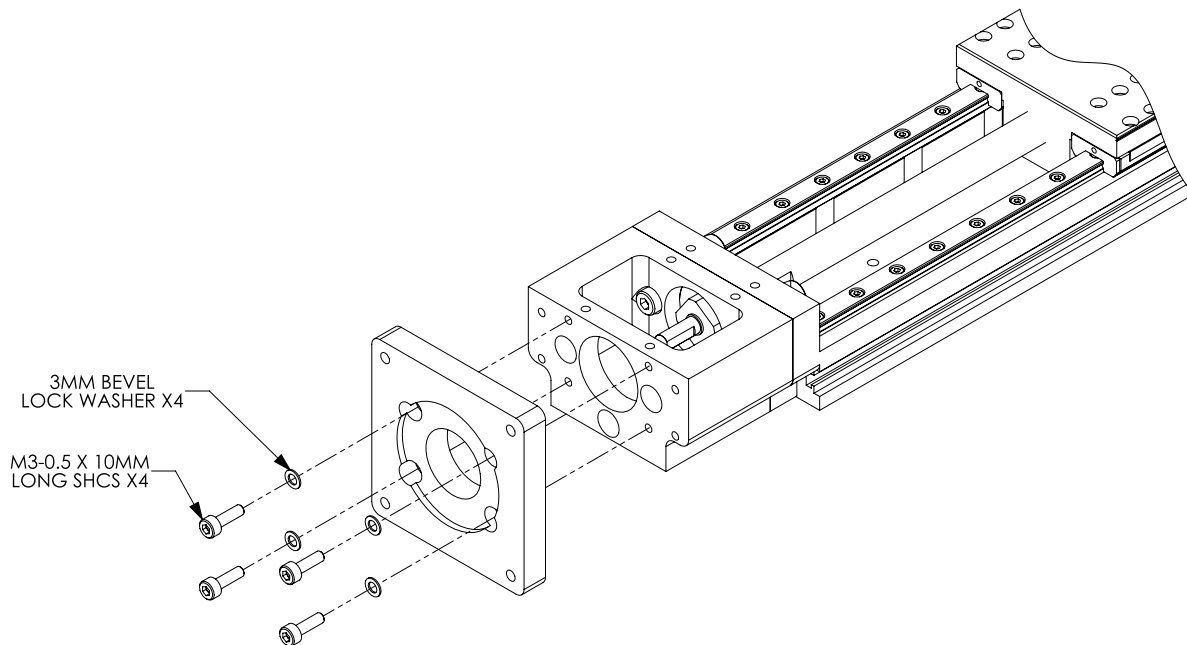
**LAHP-N23-33MTRBKT ASSEMBLY**

The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-33 series actuators.

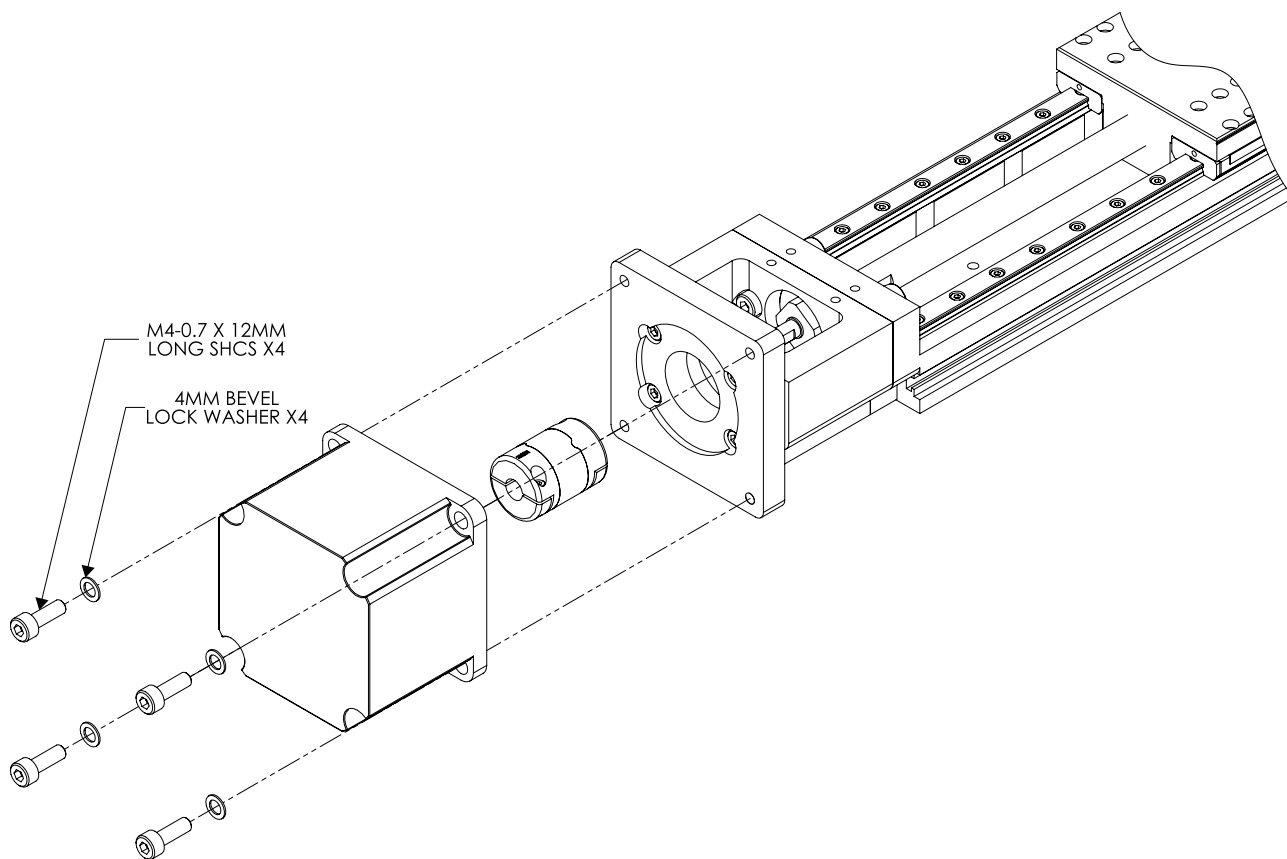
- 1) Slide the motor mount frame onto the shaft on the end of the actuator.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.



- 3) Secure the plate to the end of the mount using the four (4) supplied SHCS and four (4) washers.



- 4) Slide the coupling (sold separately, see table on page 7) through the plate, into the mount frame and onto the shaft of the actuator.
- 5) Slide the motor shaft through the plate and into the coupling and secure to the plate using the four (4) supplied SHCS and four (4) washers. Tighten the 2 screws on the coupling to a torque of 0.5 Nm (4.4 in-lbs) to secure to the actuator and motor shafts.



**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

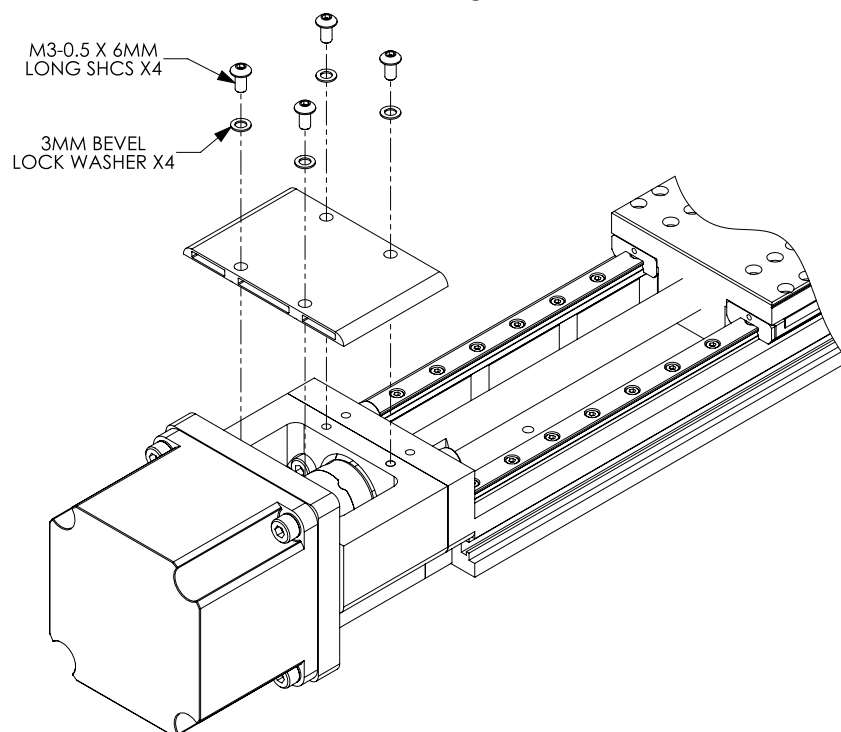


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform these steps with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

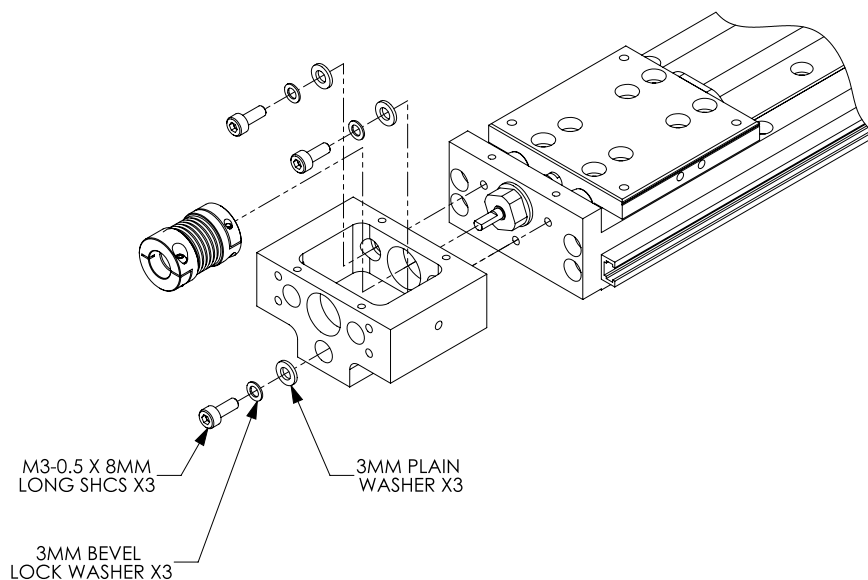
- 6) Place the cover over the mount and secure using the four (4) supplied SHCS and four (4) washers.



**LAHP-201-25MTRBKT ASSEMBLY**

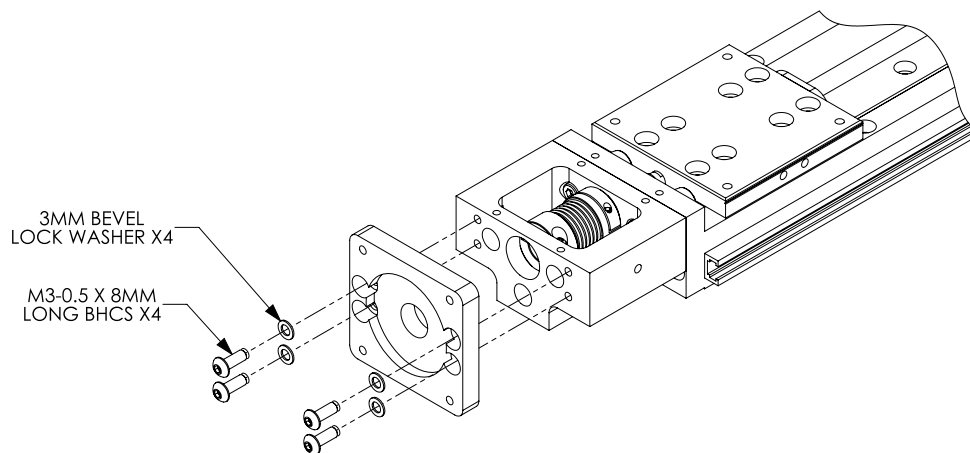
The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-25 series actuators.

- 1) Place the coupling (sold separately, see table on page 7) into the motor mount frame and slide onto the shaft on the end of the actuator input shaft, then align set screw with flat on input shaft and tighten.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.

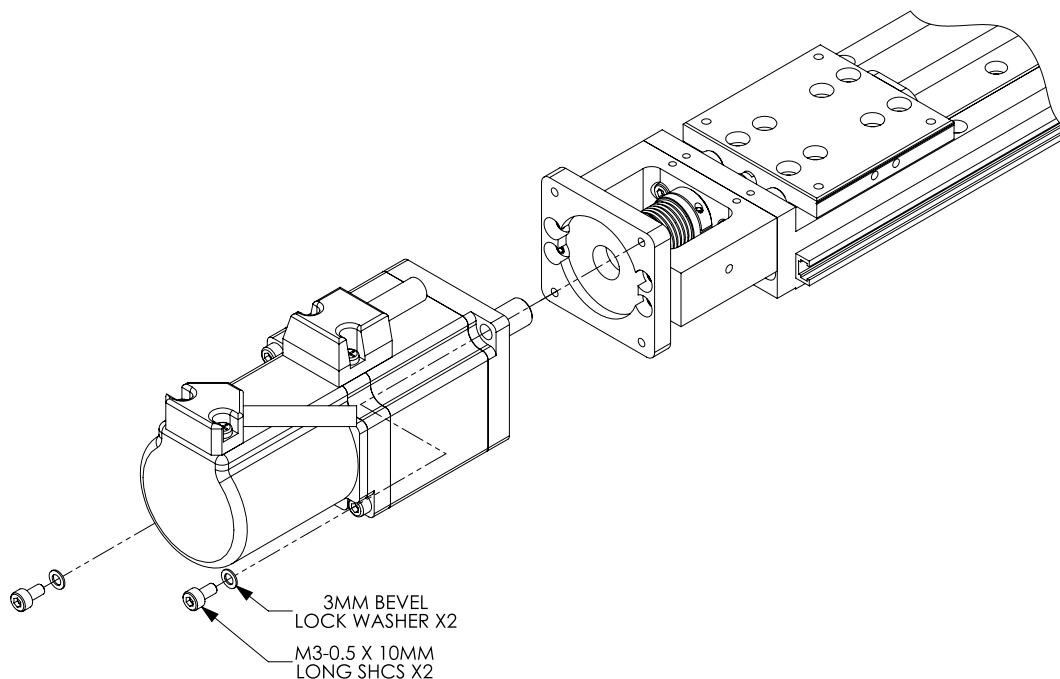


**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

- 3) Secure the plate to the end of the mount using the four (4) supplied Button Head Cap Screws (BHCS) and four (4) washers.



- 4) Slide the [SV2L-201B](#) or [SV2L-201N](#) servo motor shaft through the plate and into the coupling and secure to the plate using the two (2) supplied SHCS and two (2) washers. Tighten the 2 screws on the coupling to a torque of 0.43 Nm (3.8 in-lbs) to secure to the actuator and motor shafts.

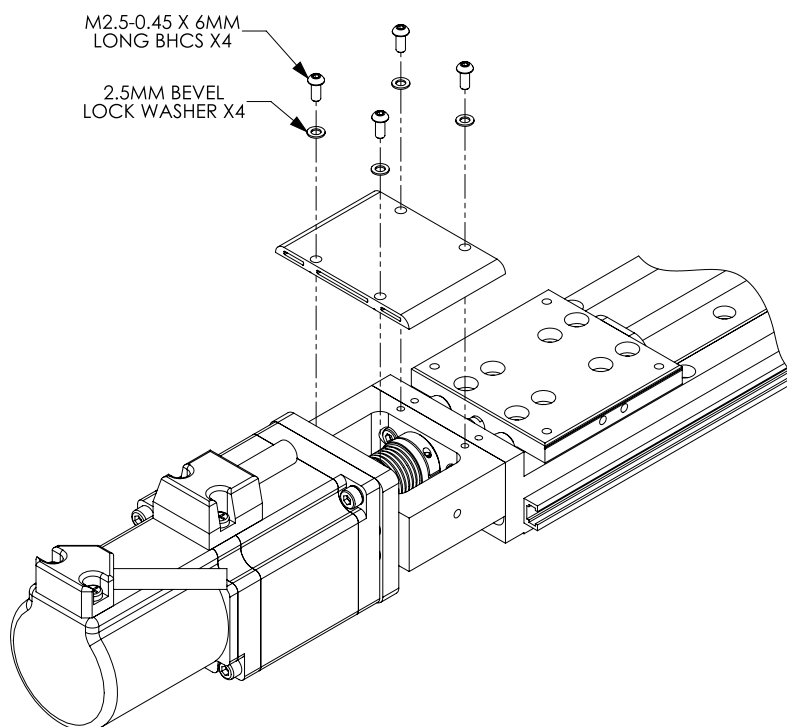


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform this step with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

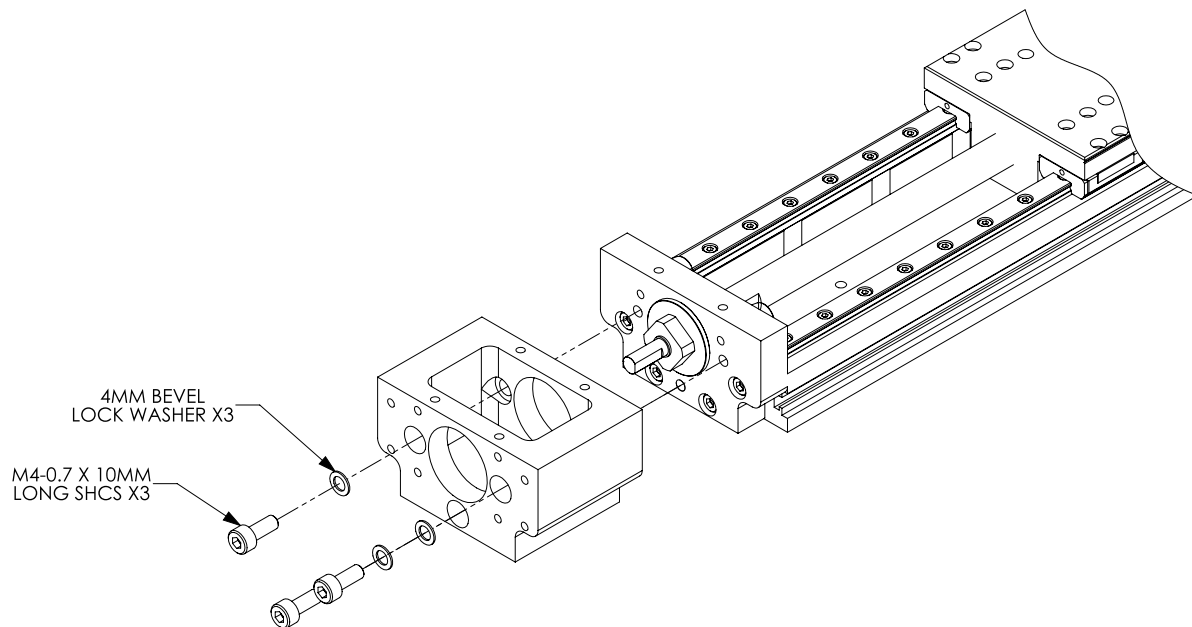
- 5) Place the cover over the mount and secure using the supplied M2.5-0.45 x 6mm SHCS and 2.5 mm washers



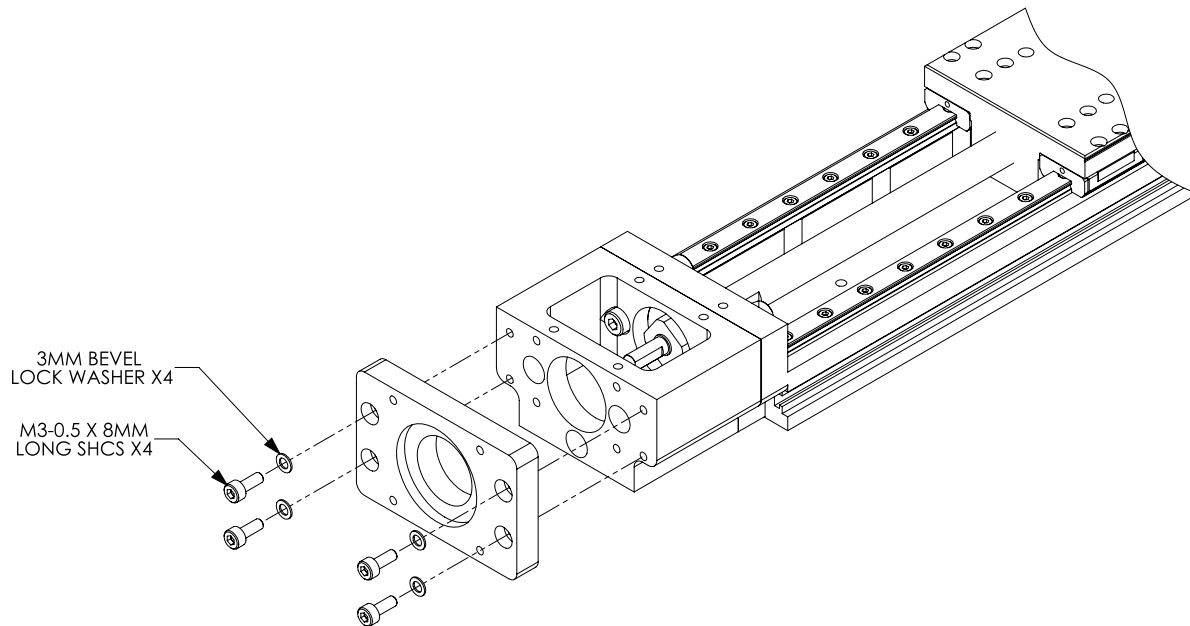
**LAHP-201-33MTRBKT ASSEMBLY**

The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-33 series actuators.

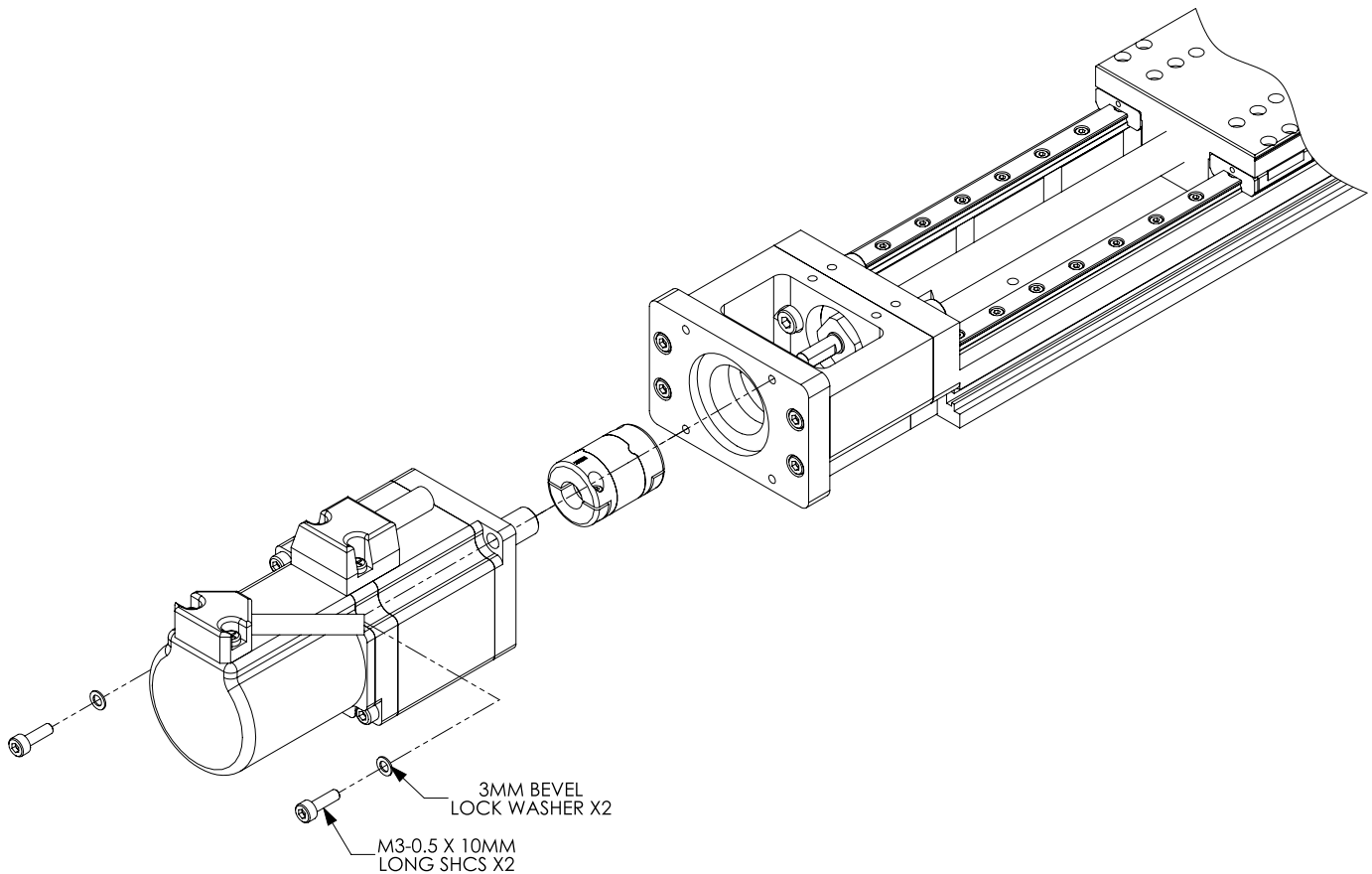
- 1) Slide the motor mount frame onto the shaft on the end of the actuator.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.



- 3) Secure the plate to the end of the mount using the four (4) supplied SHCS and four (4) washers.



- 4) Slide the coupling (sold separately, see table on page 7) through the plate, into the mount frame and onto the shaft of the actuator.
- 5) Slide the [SV2L-201B](#) or [SV2L-201N](#) servo motor shaft through the plate and into the coupling and secure to the plate using the two (2) supplied SHCS and two (2) washers. Tighten the 2 screws on the coupling to a torque of 0.5 Nm (4.4 in·lbs) to secure to the actuator and motor shafts.



**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

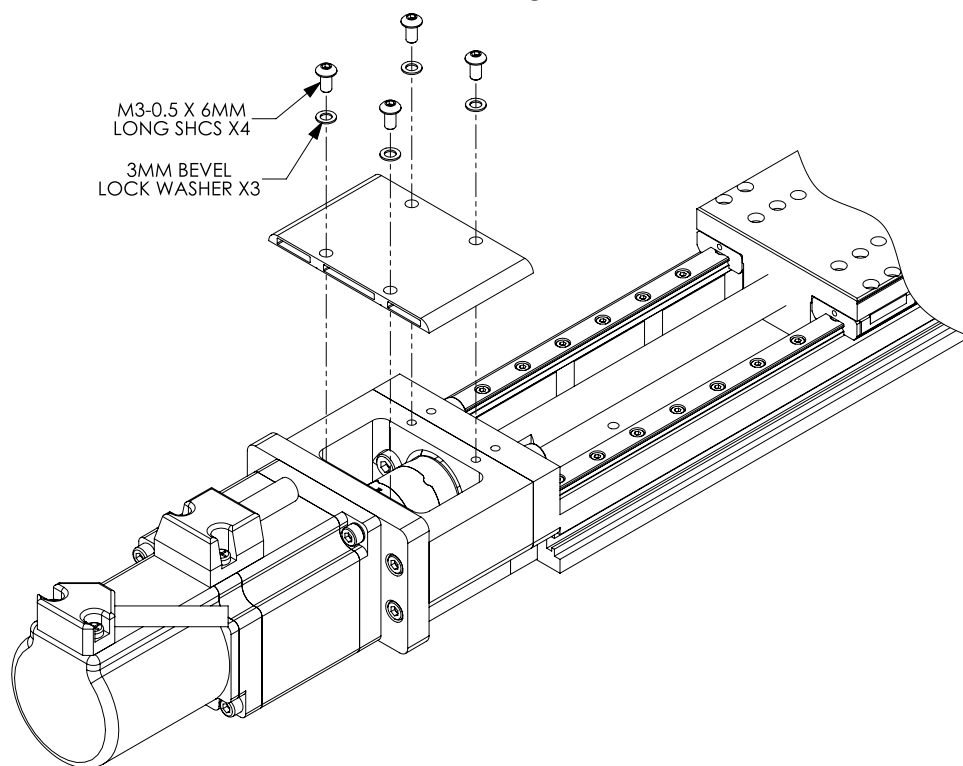


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform these steps with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

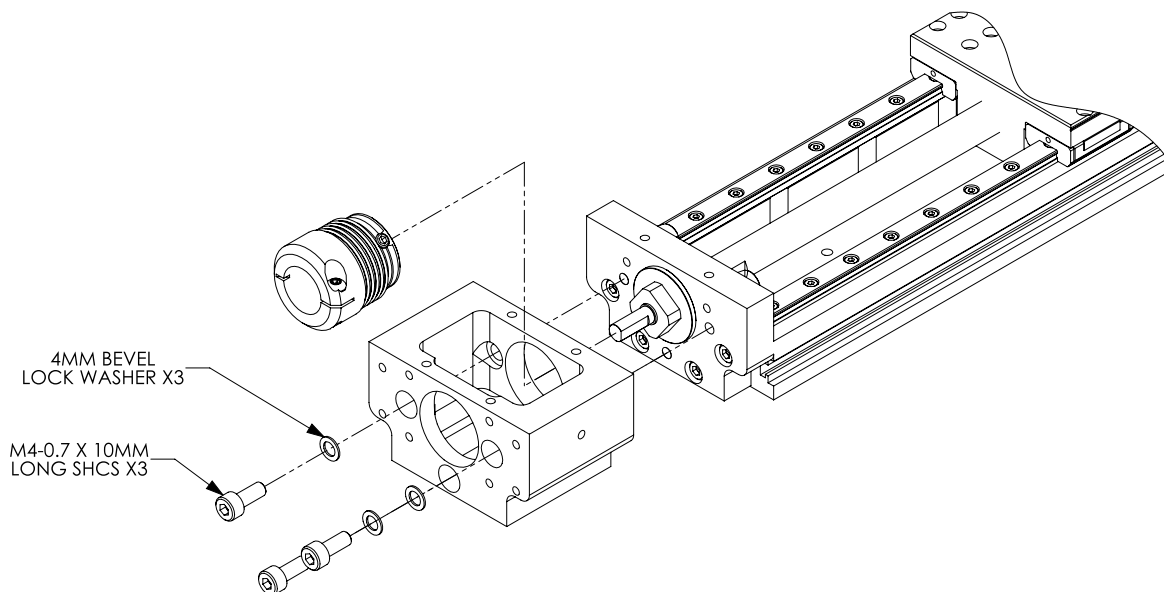
- 6) Place the cover over the mount and secure using the four (4) supplied SHCS and four (4) washers.



**LAHP-202-33MTRBKT ASSEMBLY**

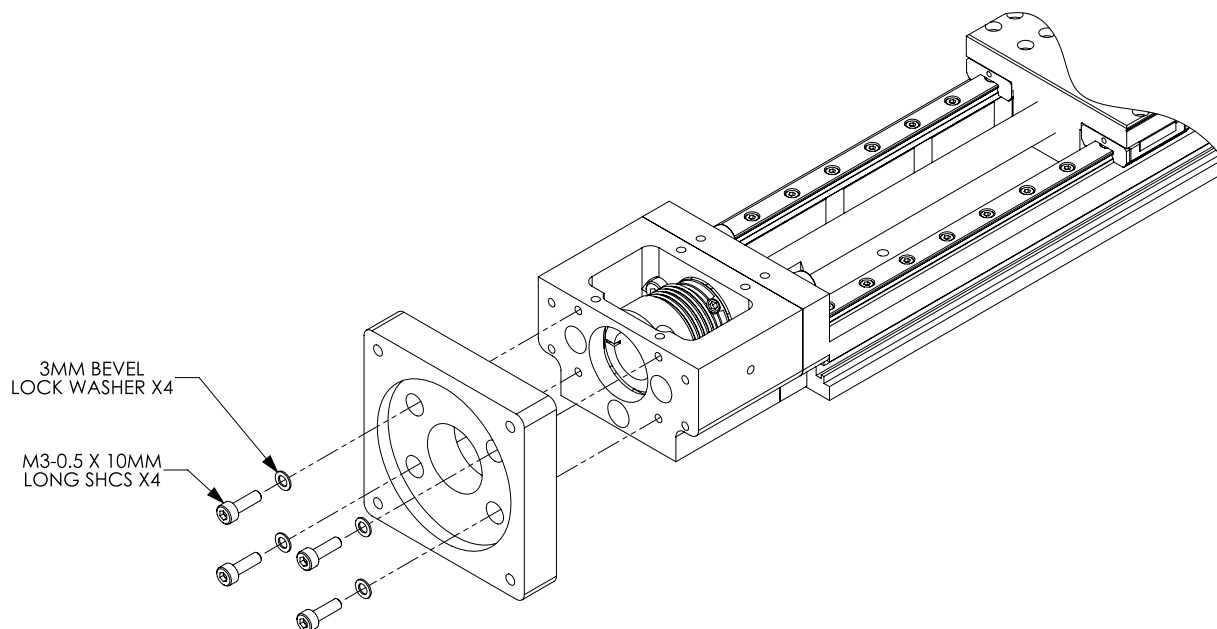
The following illustrations show how to install the motor mount to the actuator. These steps only apply to LAHP-33 series actuators.

- 1) Place the coupling (sold separately, see table on page 7) into the motor mount frame and slide onto the shaft on the end of the actuator. Tighten the screw on the coupling to a torque of 1.5 Nm (13.3 in-lbs) to secure to the actuator.
- 2) Secure the mount using the three (3) supplied SHCS and three (3) washers.

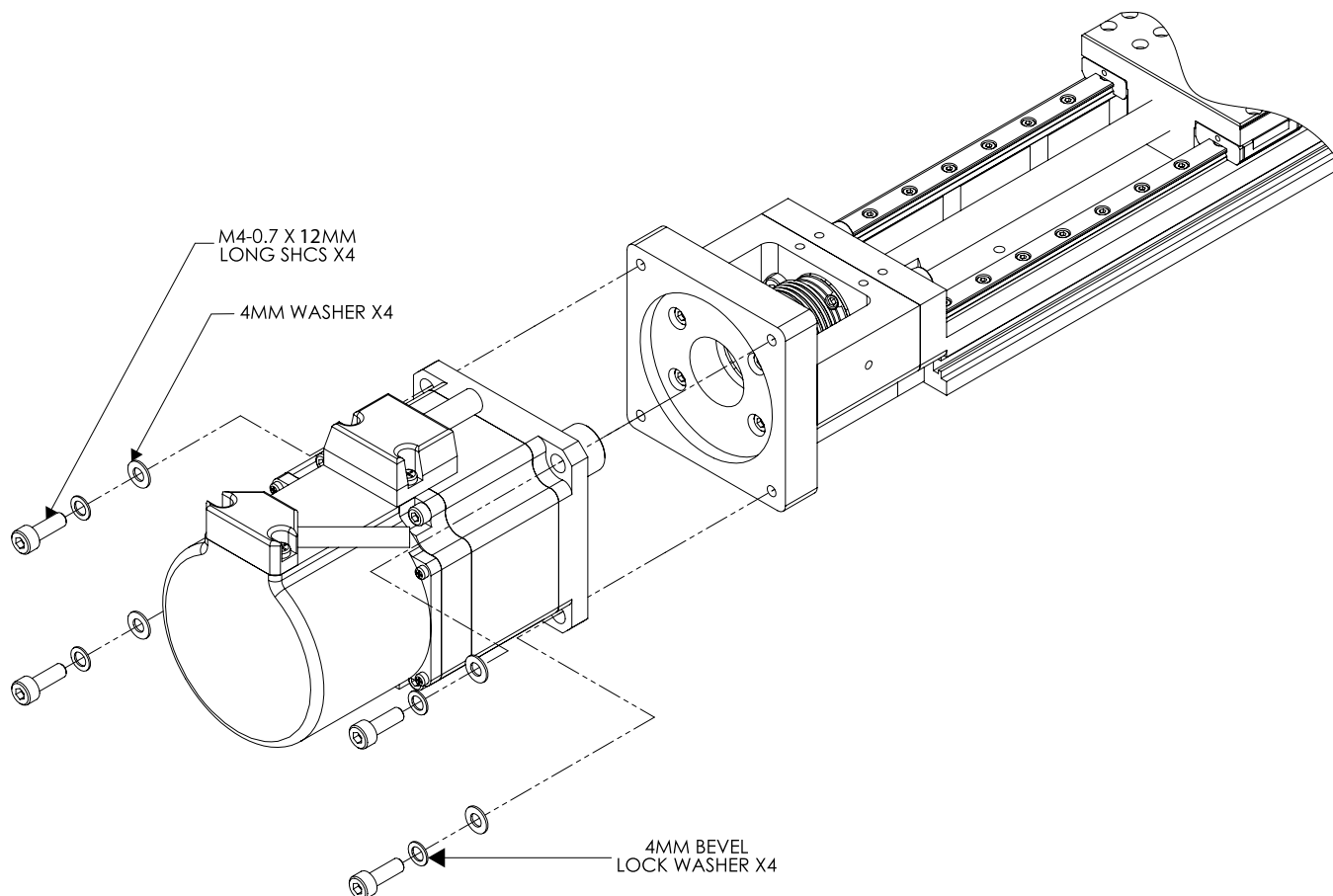


**NOTE:** Ensure Actuator Shaft and Motor Shaft are clean of grease and debris prior to installing coupling.

- 3) Secure the plate to the end of the mount using the four (4) supplied SHCS and four (4) washers.



- 4) Slide the coupling (sold separately, see table on page 7) through the plate, into the mount frame and onto the shaft of the actuator.
- 5) Slide the [SV2L-202B](#), [SV2L-202N](#), [SV2L-204B](#), or [SV2L-204N](#) servo motor shaft through the plate and into the coupling and secure to the plate using the four (4) supplied SHCS and eight (8) washers. Tighten the Torx screw, in the coupling, to a torque of 2 Nm (17.7 in·lbs) to secure to the motor shaft.

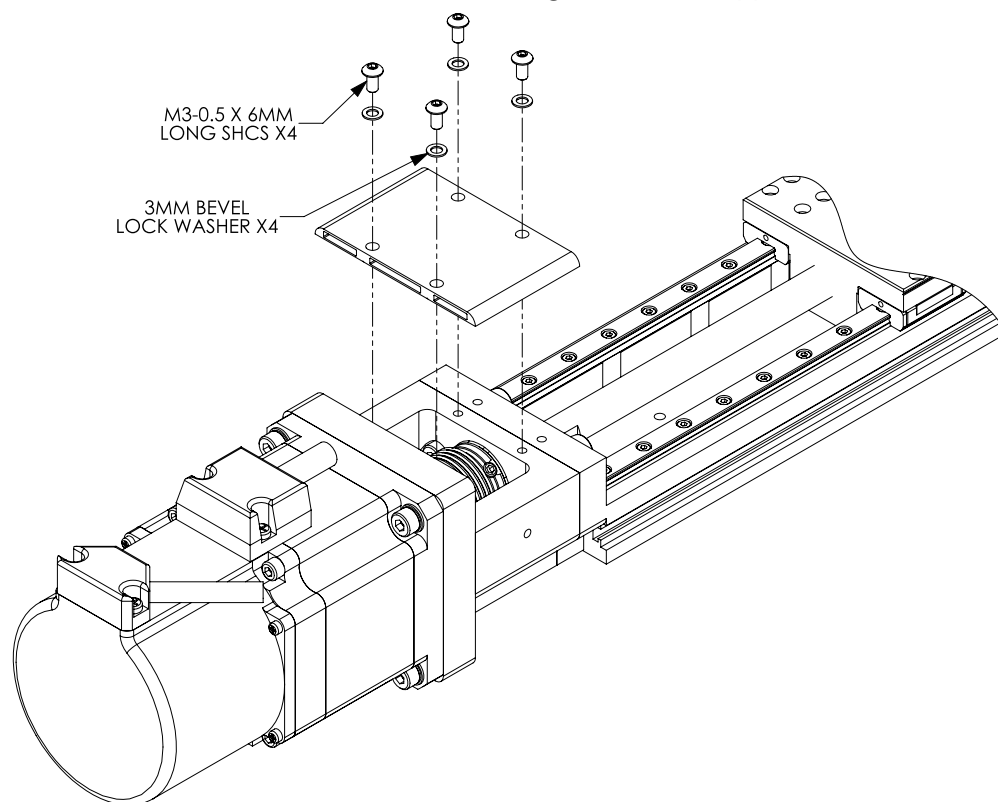


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.



**NOTE:** Perform these steps with the actuator shaft in the vertical position to minimize axial misalignment of the motor.

- 6) Place the cover over the mount and secure using the four (4) supplied SHCS and four (4) washers.

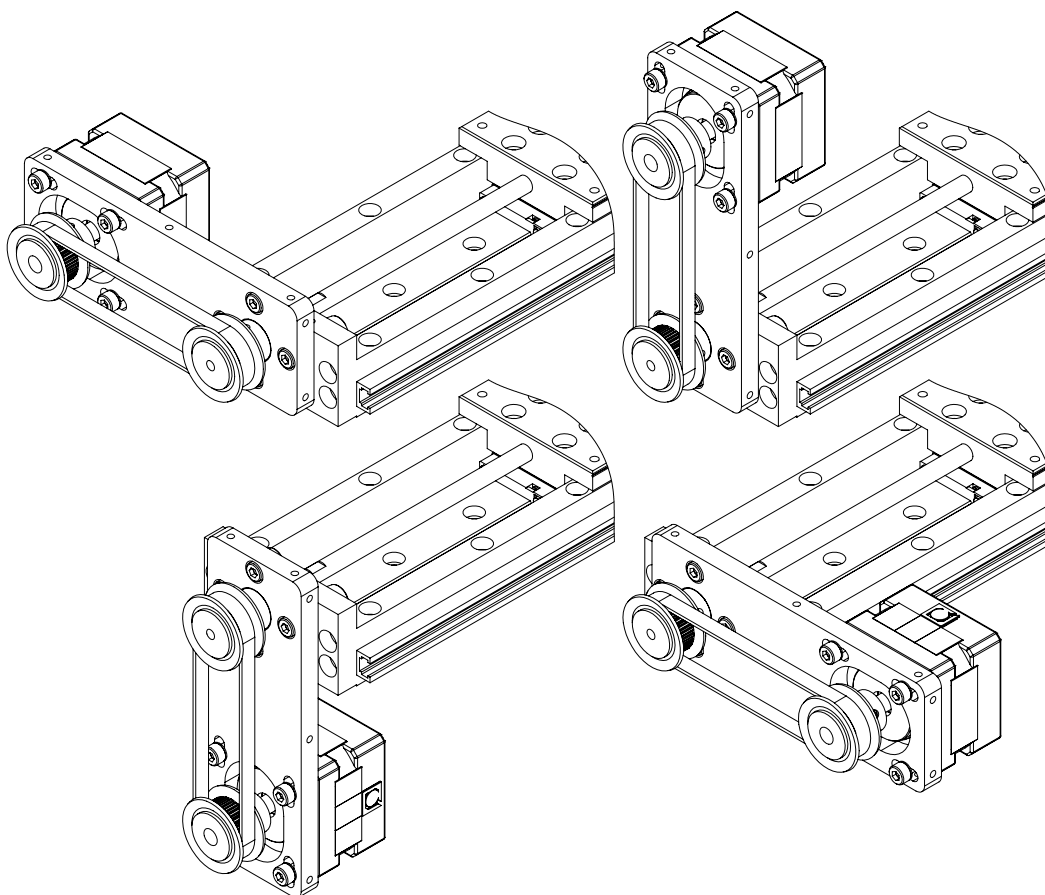


## PARALLEL MOTOR MOUNT ASSEMBLY

### MOUNT COMPATIBILITY

Mount Compatibility			
Motor Frame Size	Motor Type	LAHP-25 Series	LAHP-33(W) Series
<b>N14</b>	Stepper	<a href="#">LAHP-N14-25WRPBKT</a>	-
<b>N17</b>	Stepper	<a href="#">LAHP-N17-25WRPBKT</a>	<a href="#">LAHP-N17-33WRPBKT</a>
<b>N23</b>	Stepper	-	<a href="#">LAHP-N23-33WRPBKT</a>

The parallel mount can be attached vertically or horizontally as shown below\*. These steps apply to all LAHP series actuators. Your exact model may not be shown.



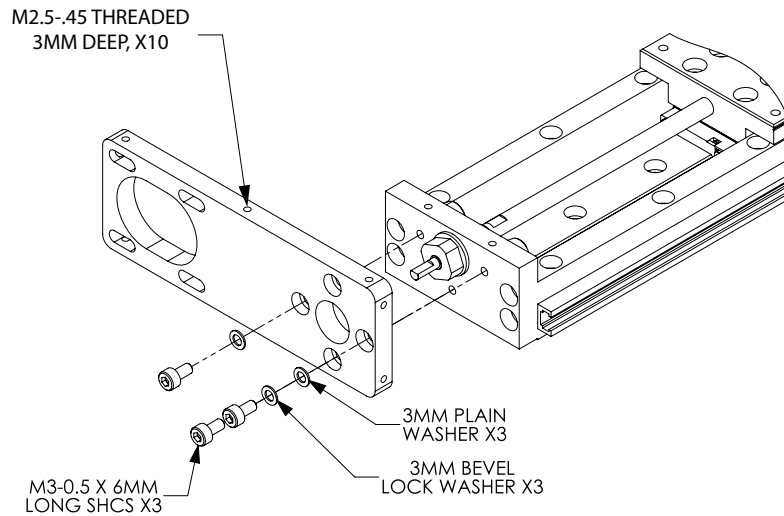
**\*NOTE:** The parallel motor mount can only be configured in the two vertical positions on the LAHP-33W series actuators



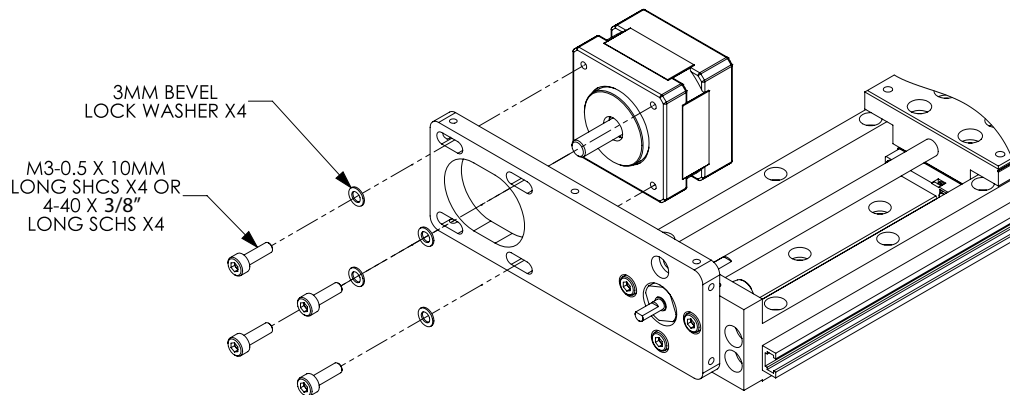
**NOTE:** Belt guards. not available from ADC. Mounting holes are available for user designed belt guards.

**LAHP-N14-25WRPBKT ASSEMBLY**

- 1) Secure the mount to the actuator using the three (3) supplied bolts and washers.

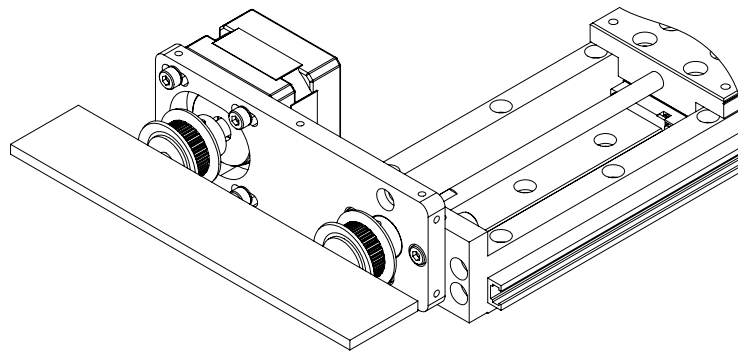
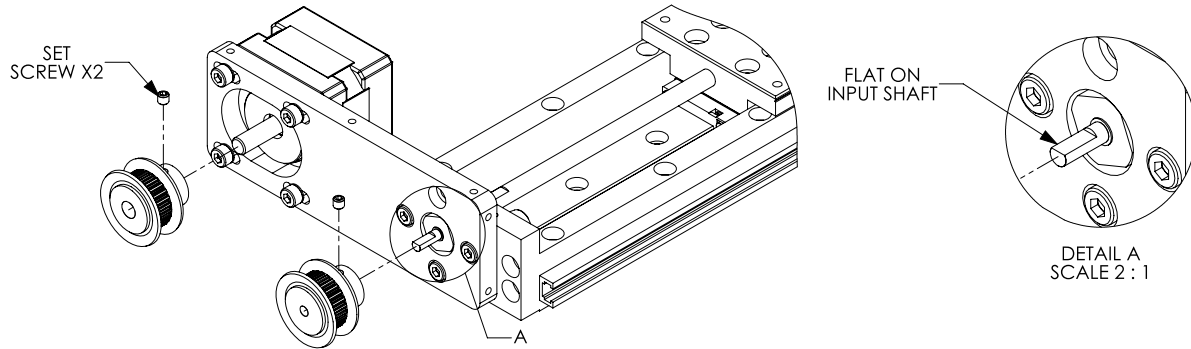


- 2) Secure the NEMA 14 stepper motor to the mount using the four (4) supplied bolts and washers.

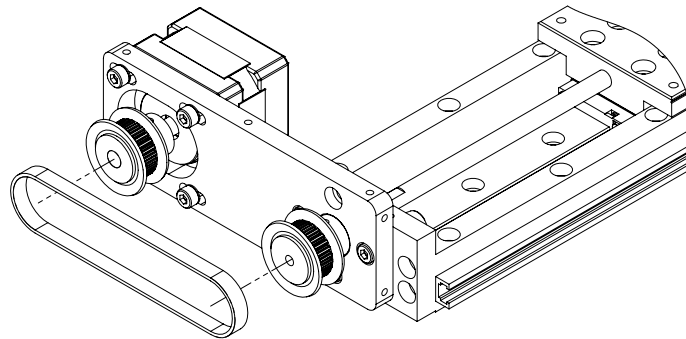


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.

- 3) Slide the two (2) pulleys on the motor and actuator shafts.
- 4) Using a straight edge, ensure that the pulleys are flush. For each pulley, align 1 set screw with flat on input shaft and tighten. Then, tighten 2nd set screw.

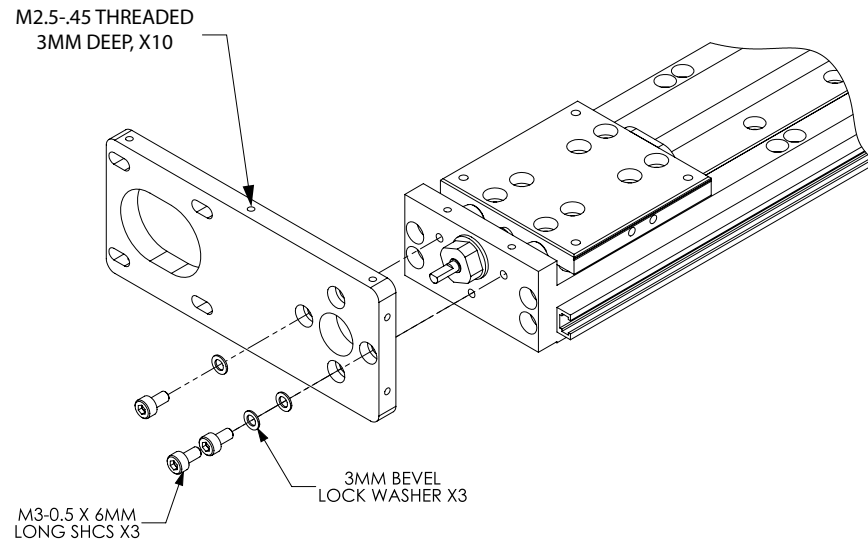


- 5) Attach the belt to the pulleys. If needed, loosen the bolts on the motor, adjust the motor position to change the tension on the belt, and re-tighten the bolts.

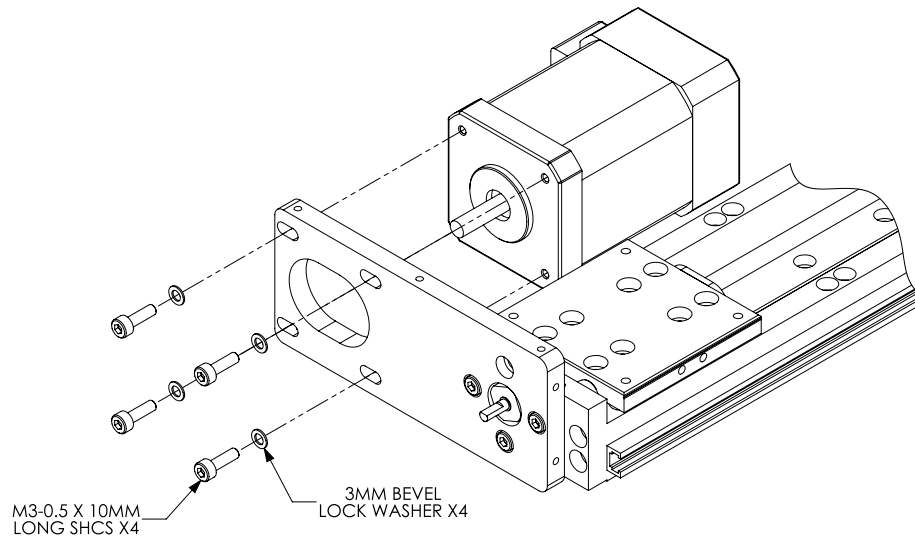


**LAHP-N17-25WRPBKT ASSEMBLY**

- 1) Secure the mount to the actuator using the three (3) supplied bolts and washers.

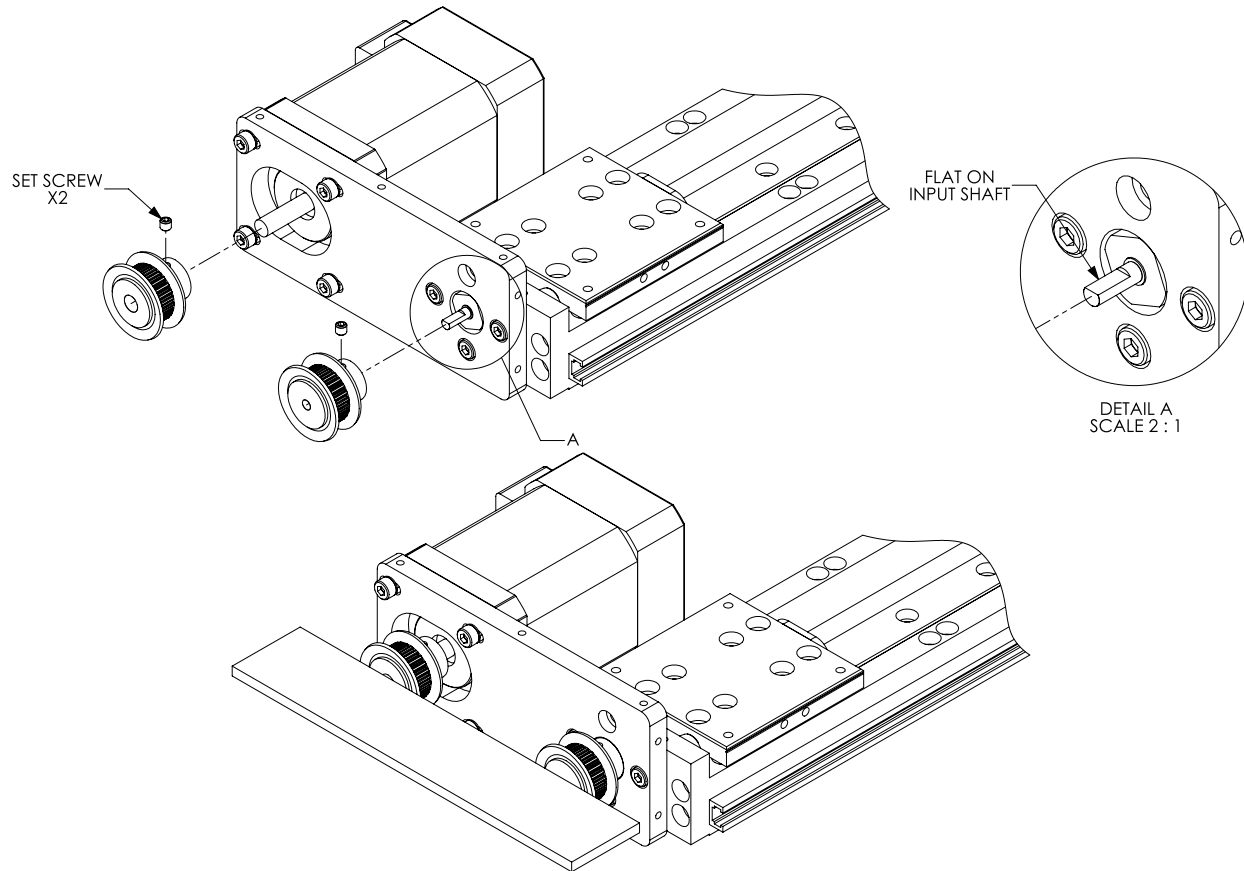


- 2) Secure the NEMA 17 stepper motor to the mount using the four (4) supplied bolts and washers.

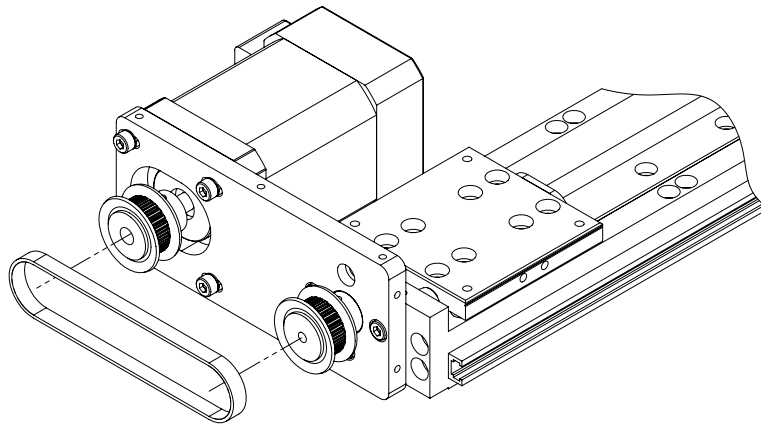


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.

- 3) Slide the two (2) pulleys on the motor and actuator shafts.
- 4) Using a straight edge, ensure that the pulleys are flush. For each pulley, align 1 set screw with flat on input shaft and tighten. Then, tighten 2nd set screw.

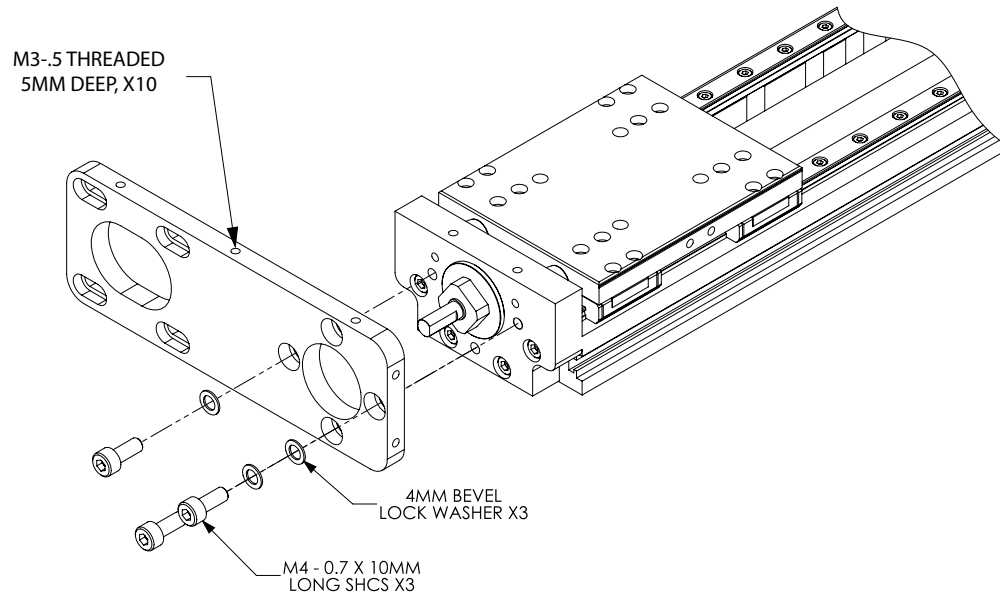


- 5) Attach the belt to the pulleys. If needed, loosen the bolts on the motor, adjust the motor position to change the tension on the belt, and re-tighten the bolts.

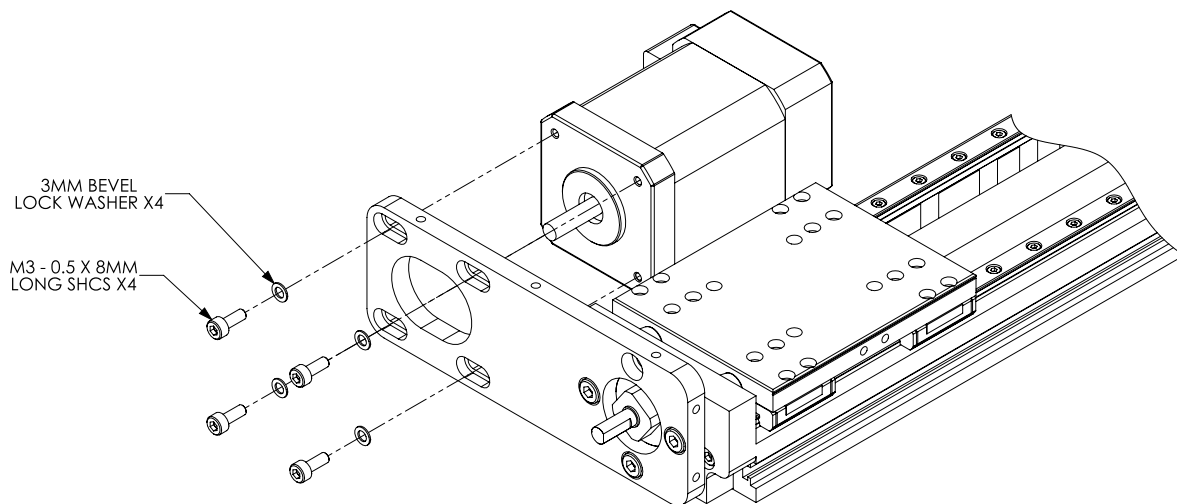


**LAHP-N17-33WRPBKT ASSEMBLY**

- 1) Secure the mount to the actuator using the three (3) supplied bolts and washers.

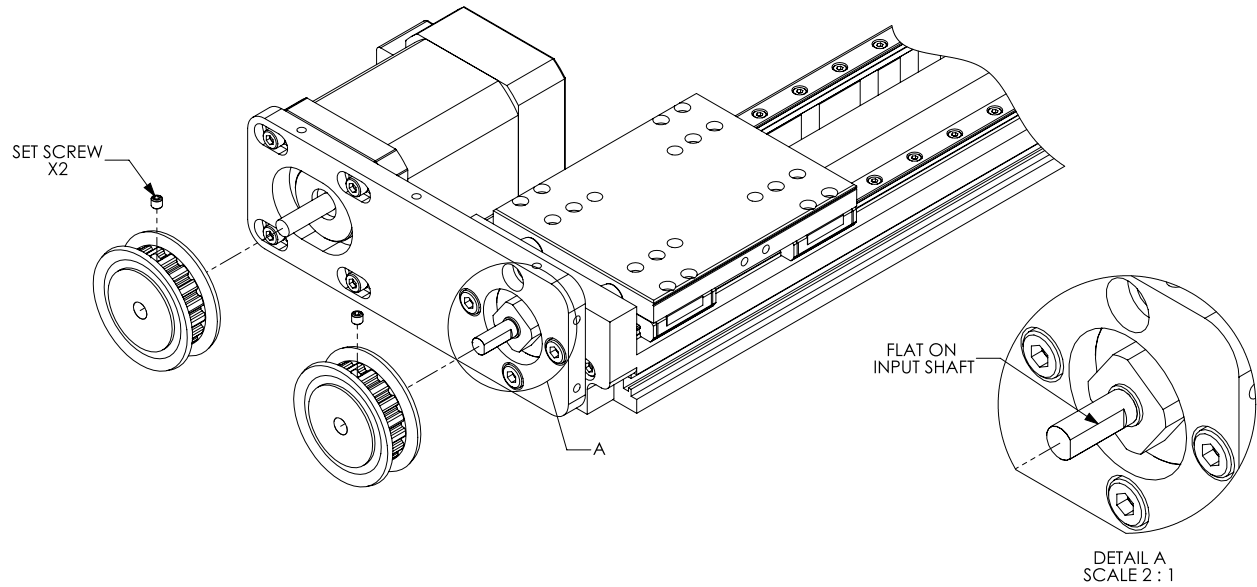


- 2) Secure the NEMA 17 stepper motor to the mount using the four (4) supplied bolts and washers.

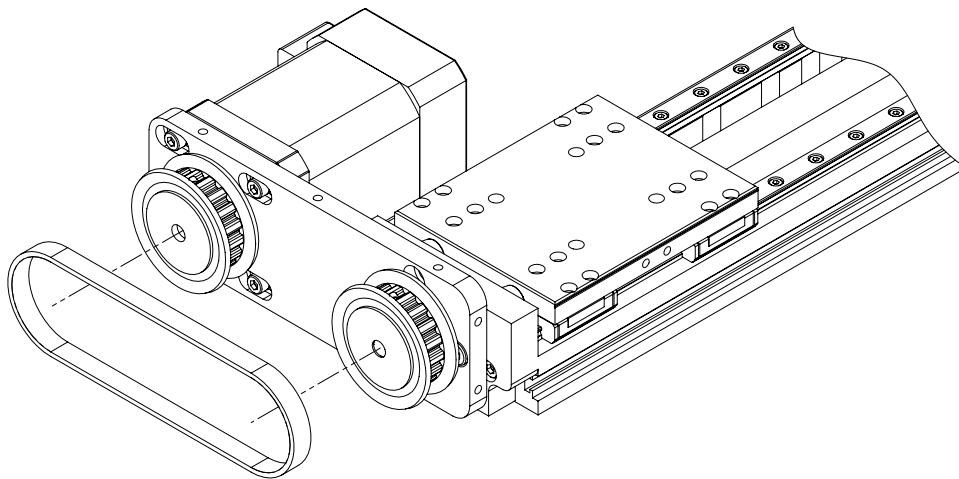


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.

- 3) Slide the two (2) pulleys on the motor and actuator shafts.
- 4) Using a straight edge, ensure that the pulleys are flush. For each pulley, align 1 set screw with flat on input shaft and tighten. Then, tighten 2nd set screw.

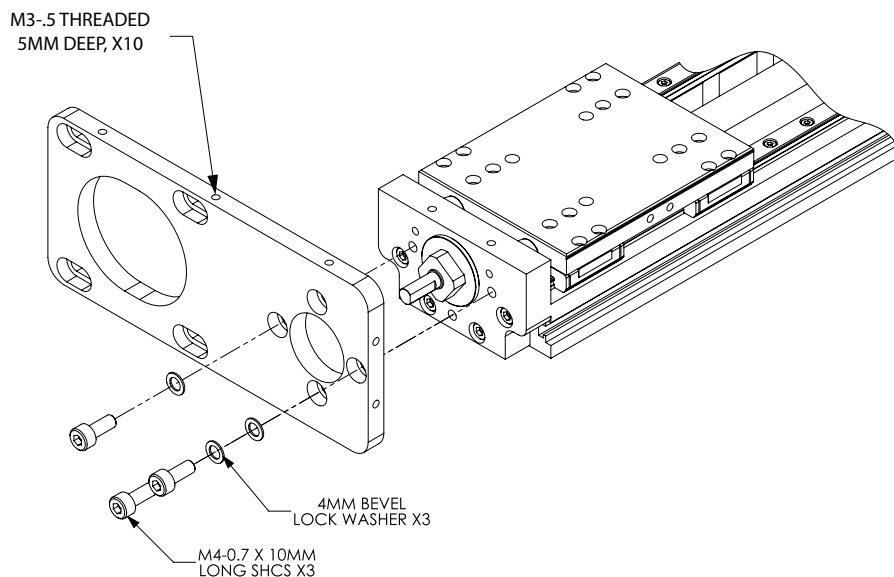


- 5) Attach the belt to the pulleys. If needed, loosen the bolts on the motor, adjust the motor position to change the tension on the belt, and re-tighten the bolts.

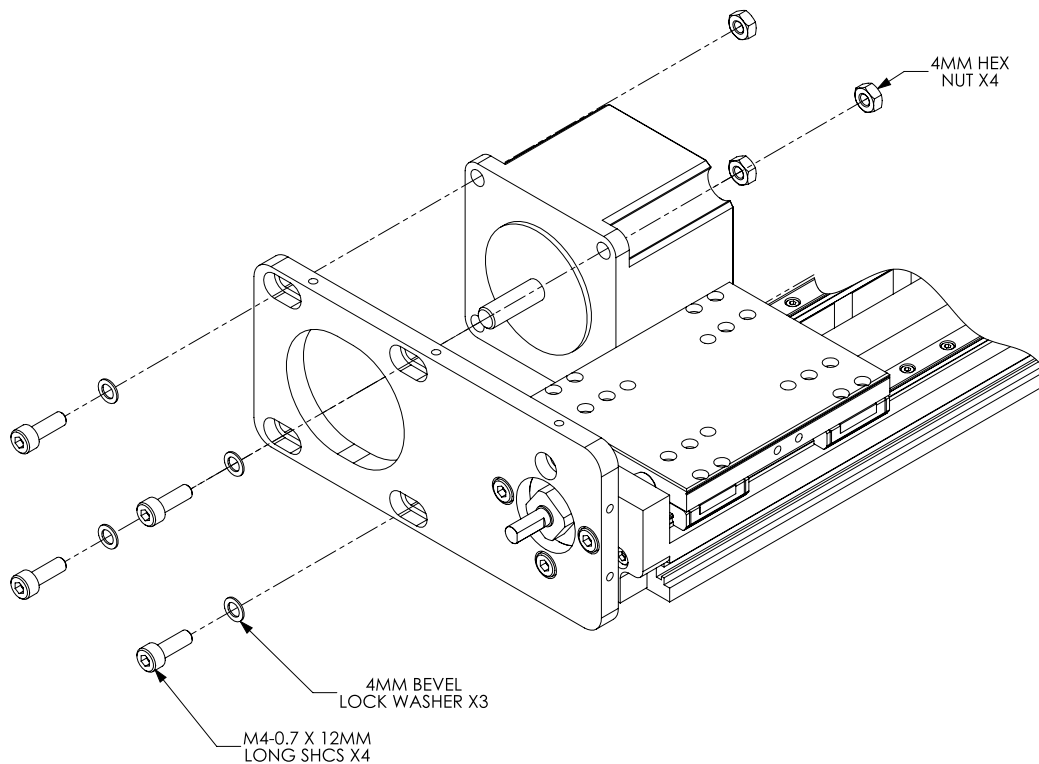


**LAHP-N23-33WRPBKT ASSEMBLY**

- 1) Secure the mount to the actuator using the three (3) supplied bolts and washers.

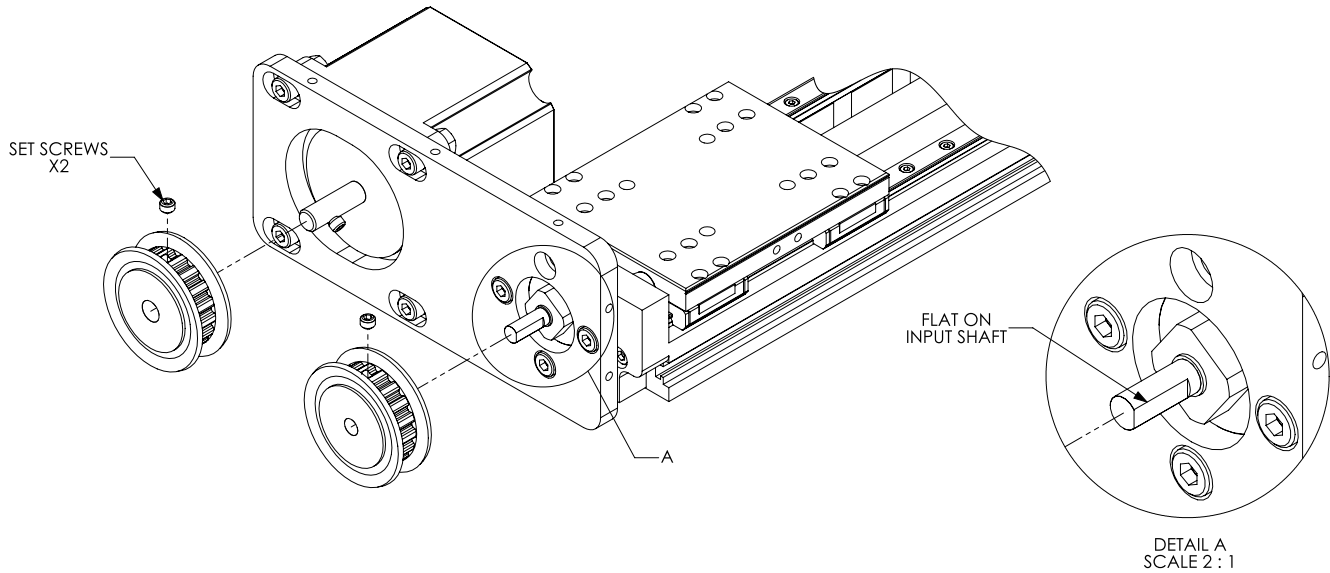


- 2) Secure the NEMA 23 stepper motor to the mount using the four (4) supplied bolts and washers.

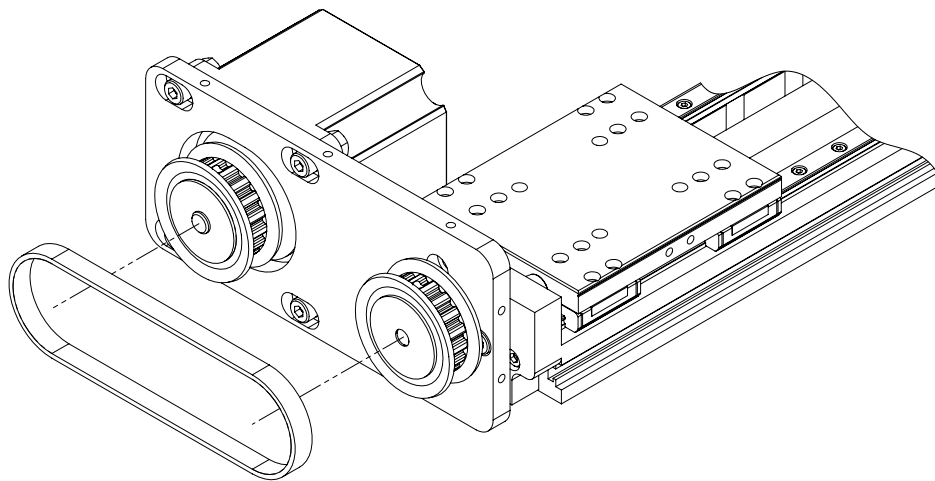


**NOTE:** When mounting motor, orient so that motor cables are directed for best cable management in final overall installation.

- 3) Slide the two (2) pulleys on the motor and actuator shafts.
- 4) Using a straight edge, ensure that the pulleys are flush. For each pulley, align 1 set screw with flat on input shaft and tighten. Then, tighten 2nd set screw.



- 5) Attach the belt to the pulleys. If needed, loosen the bolts on the motor, adjust the motor position to change the tension on the belt, and re-tighten the bolts.



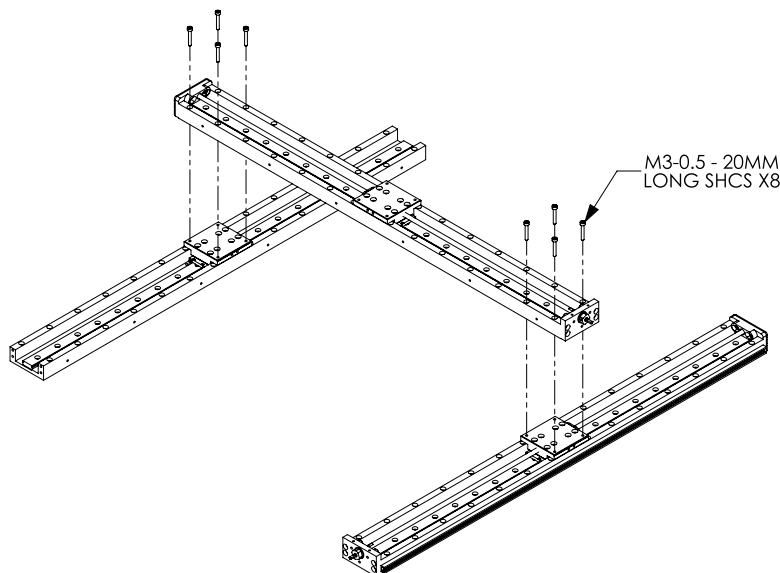
## XYZ GANTRY ASSEMBLY

Actuators can be assembled to create many variations of gantries in a variety of sizes. Below are instructions for combining individual actuators.

### XY WITHOUT BRACKETS

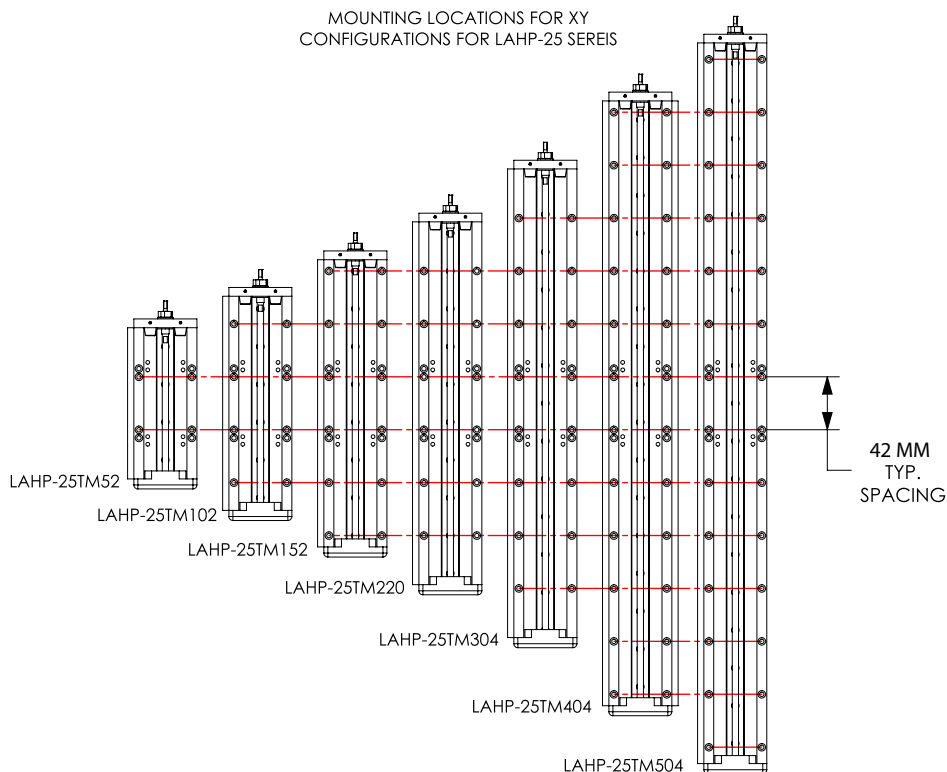
#### LAHP-25 SERIES ASSEMBLY

Secure the LAHP-25 series actuator directly to the carriage of the second LAHP-25 series actuator using SHCS (not included).



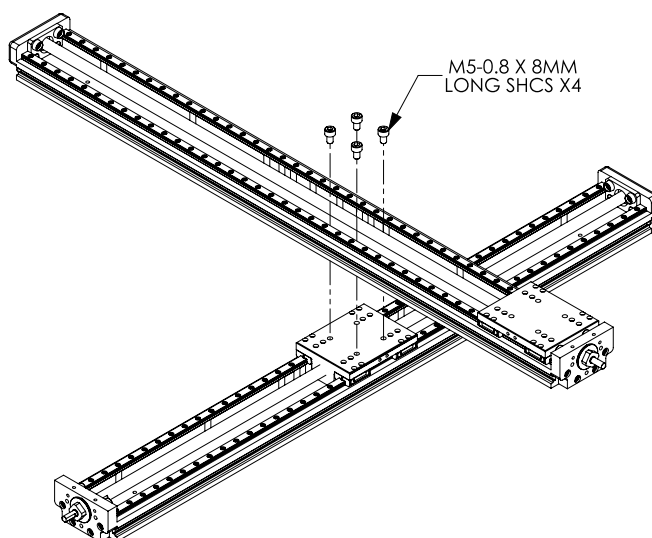
#### Possible Mounting Locations

The LAHP-25 series actuator can be combined with another LAHP-25 series actuator without the use of an XY bracket. The following illustration shows LAHP-25 series bolt holes that match up to the LAHP-25 Carriage threaded hole pattern.

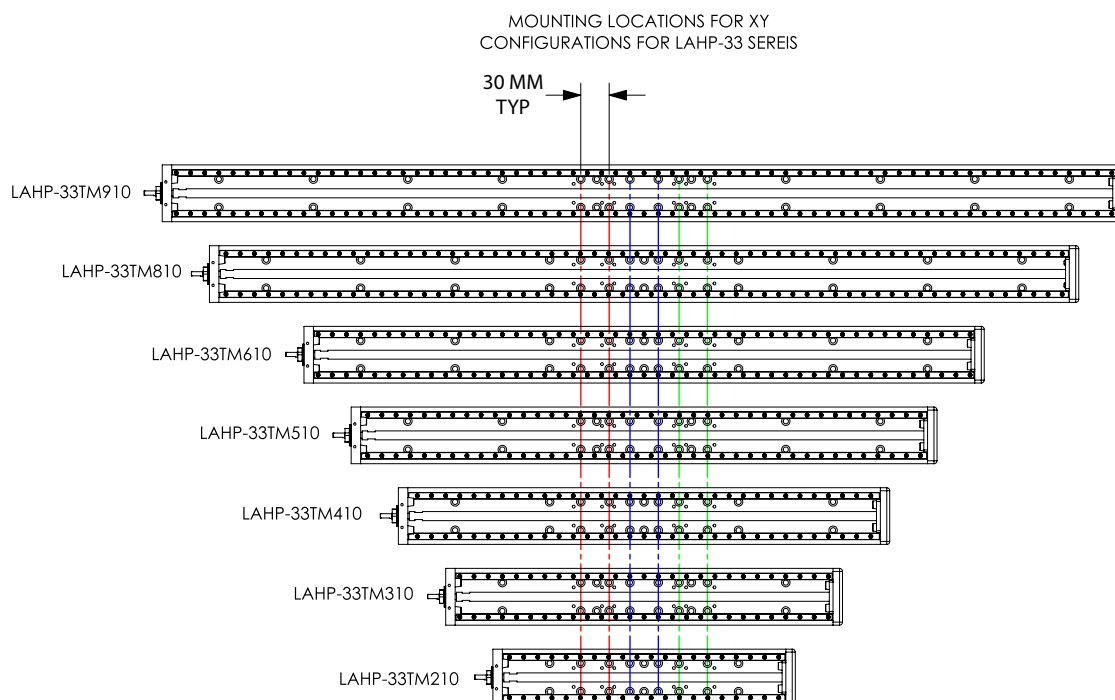


**LAHP-33 SERIES ASSEMBLY**

Secure the LAHP-33 series actuator directly to the carriage of the second LAHP-33 series actuator using SHCS (not included).

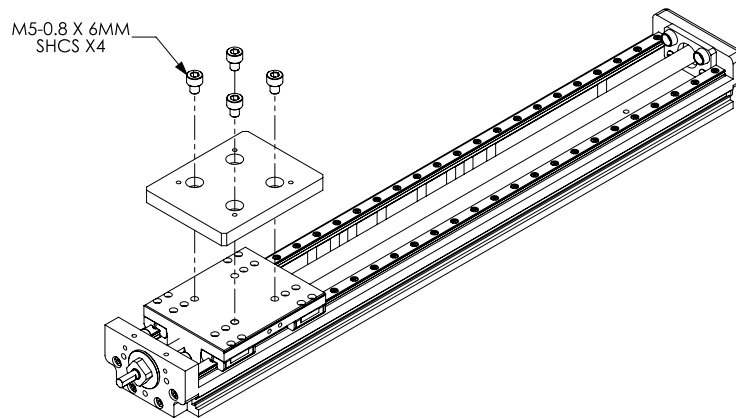
**Possible Mounting Locations**

The LAHP-33 series actuator can be combined with another LAHP-33 series actuator in three (3) locations without the use of an XY bracket. The following illustration shows LAHP-33 series bolt holes that match up to the LAHP-33 Carriage threaded hole pattern. 3 mounting locations are possible.

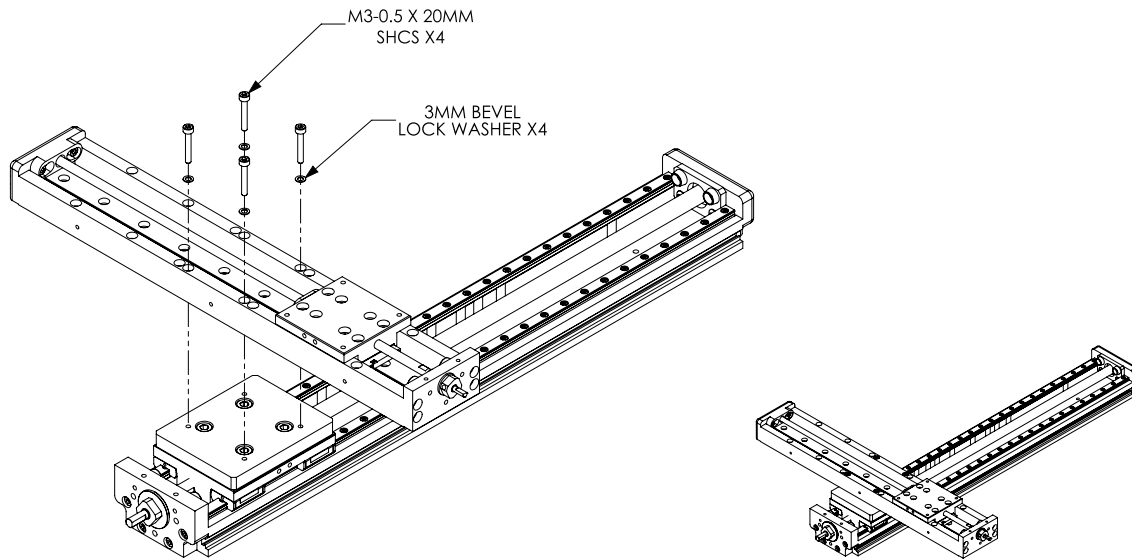


**XY WITH BRACKETS****LAHP-XYB-25-33 ASSEMBLY**

- 1) Secure the XY bracket to the carriage of the LAHP-33 series actuator using the supplied bolts.

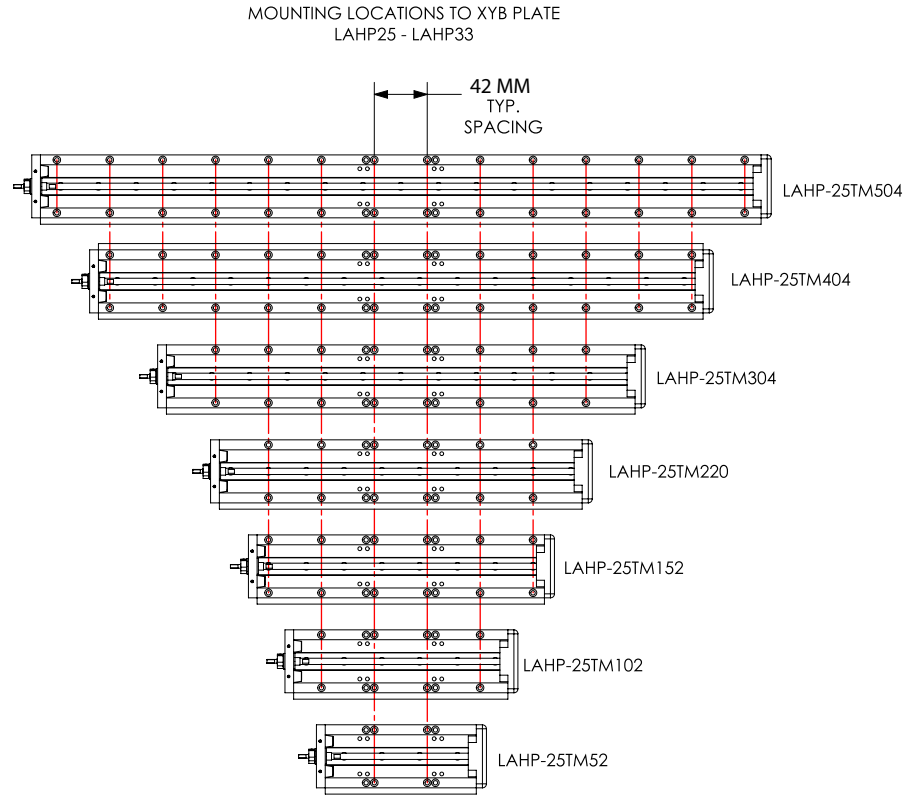


- 2) Secure the LAHP-25 series actuator to the bracket using the supplied bolts and washers.



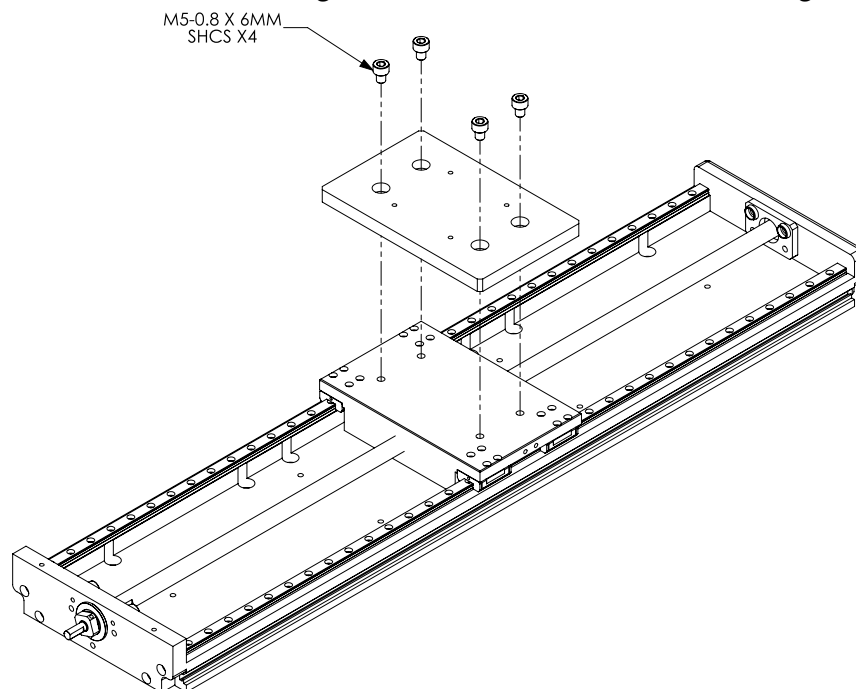
### Possible Mounting Locations

The [LAHP-XYB-25-33](#) bracket can be used to combine all sizes of LAHP-25 series actuators to all sizes of LAHP-33 series actuators. The following illustration shows LAHP-25 series bolt holes that match up to the LAHP-XYB-25-33 threaded hole pattern.

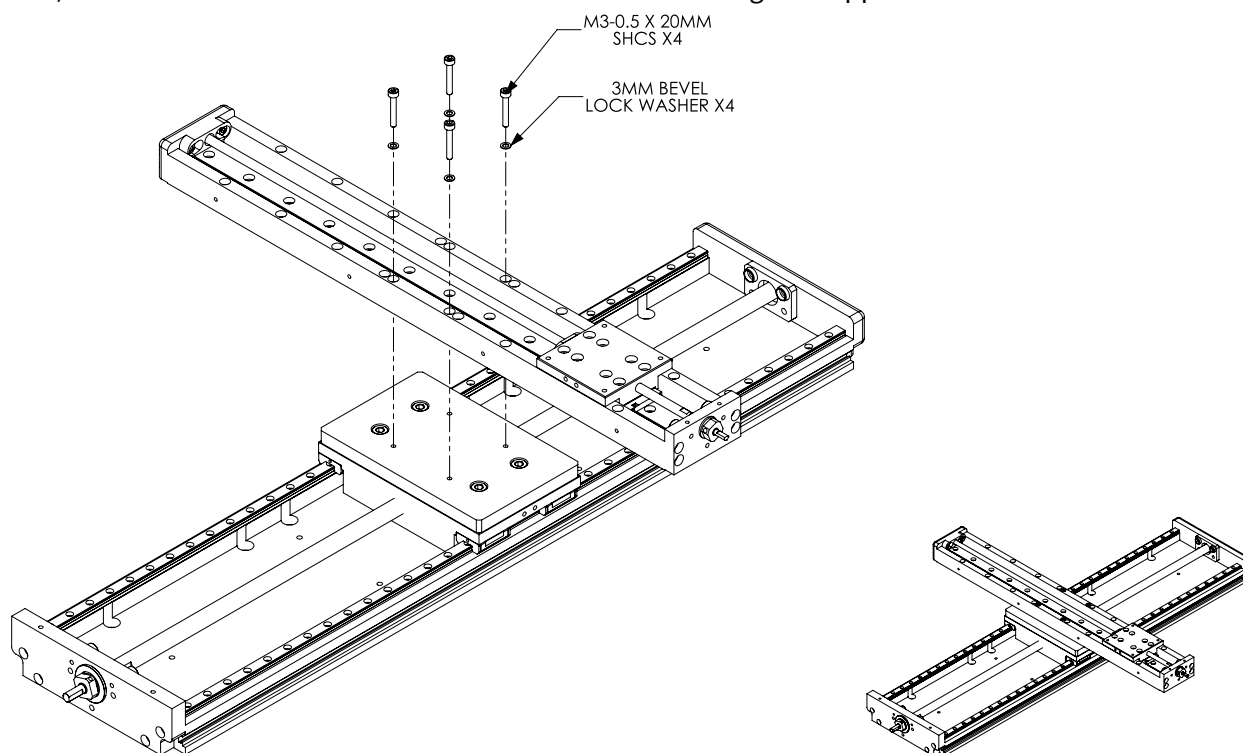


**LAHP-XYB-25-33W ASSEMBLY**

- 1) Secure the XY bracket to the carriage of the LAHP-33W series actuator using the supplied bolts.

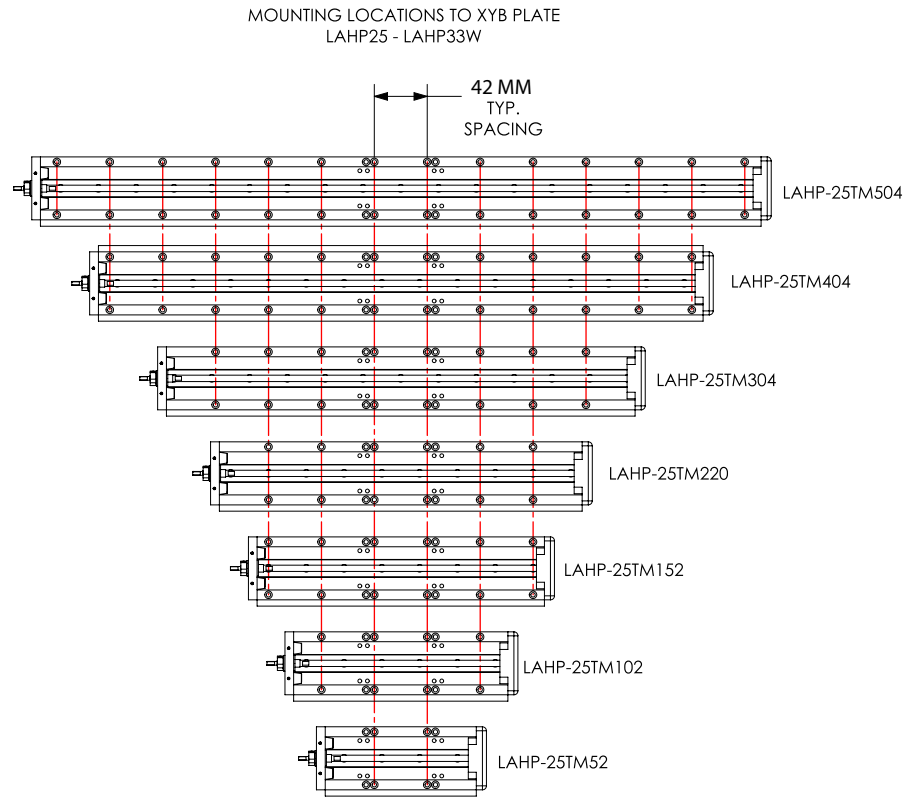


- 2) Secure the LAHP-25 series actuator to the bracket using the supplied bolts and washers.



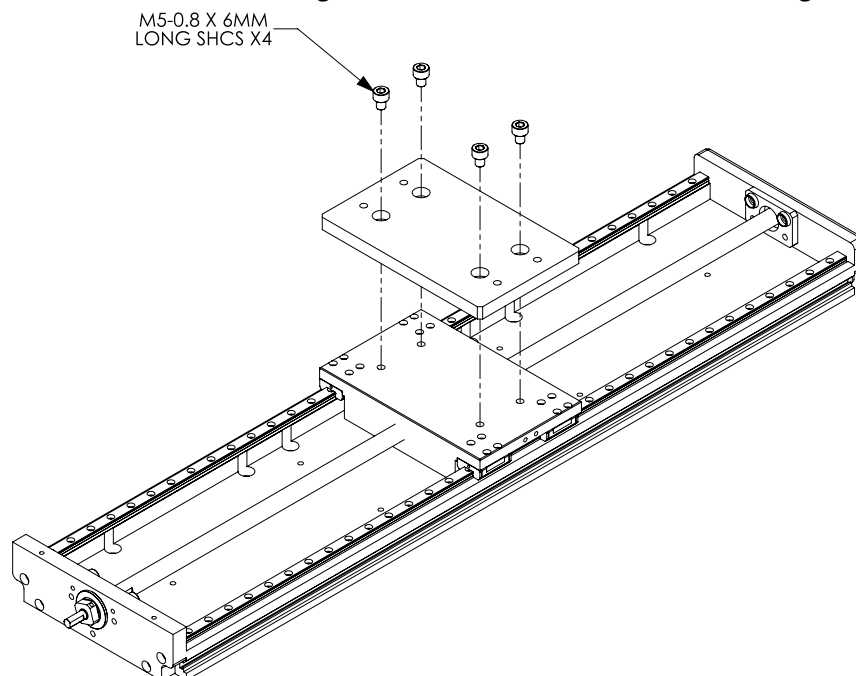
### Possible Mounting Locations

The [LAHP-XYB-25-33W](#) bracket can be used to combine all sizes of LAHP-25 series actuators to all sizes of LAHP-33W series actuators. The following illustration shows LAHP-25 series bolt holes that match up to the [LAHP-XYB-25-33W](#) threaded hole pattern.

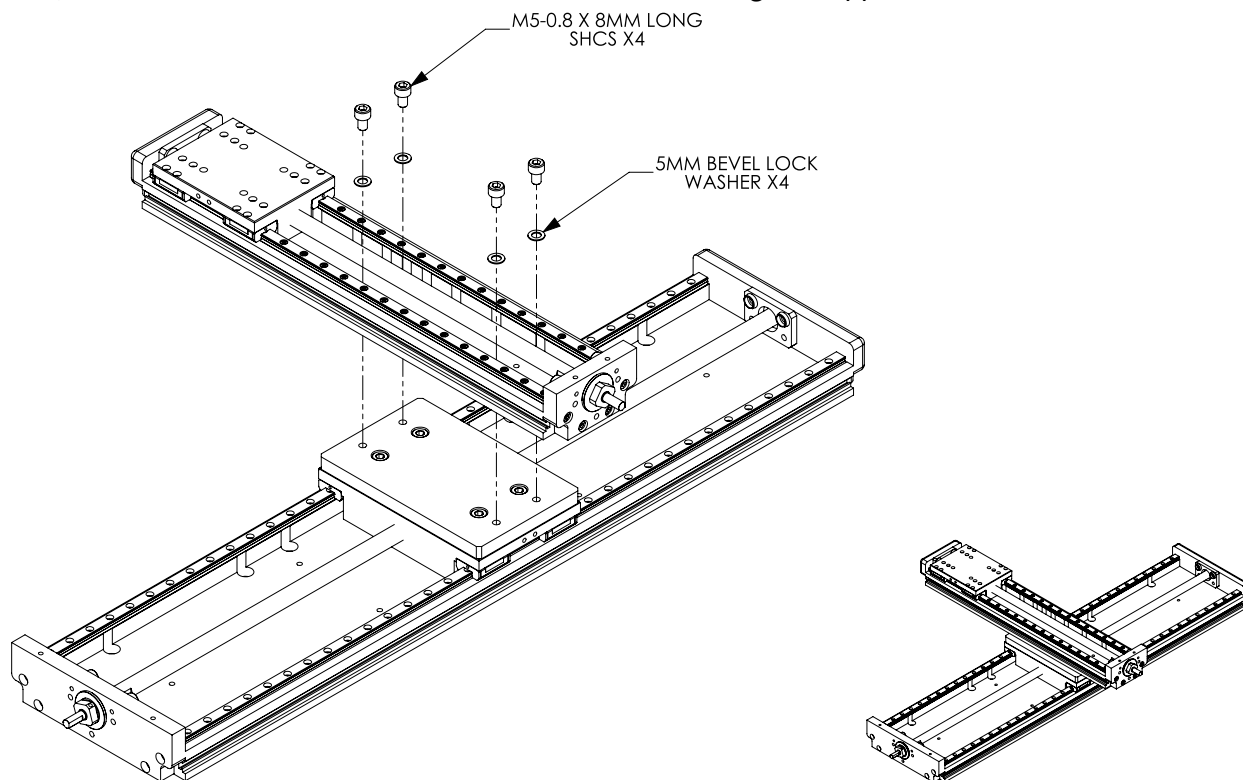


**LAHP-XYB-33-33W ASSEMBLY**

- 1) Secure the XY bracket to the carriage of the LAHP-33W series actuator using the supplied bolts.

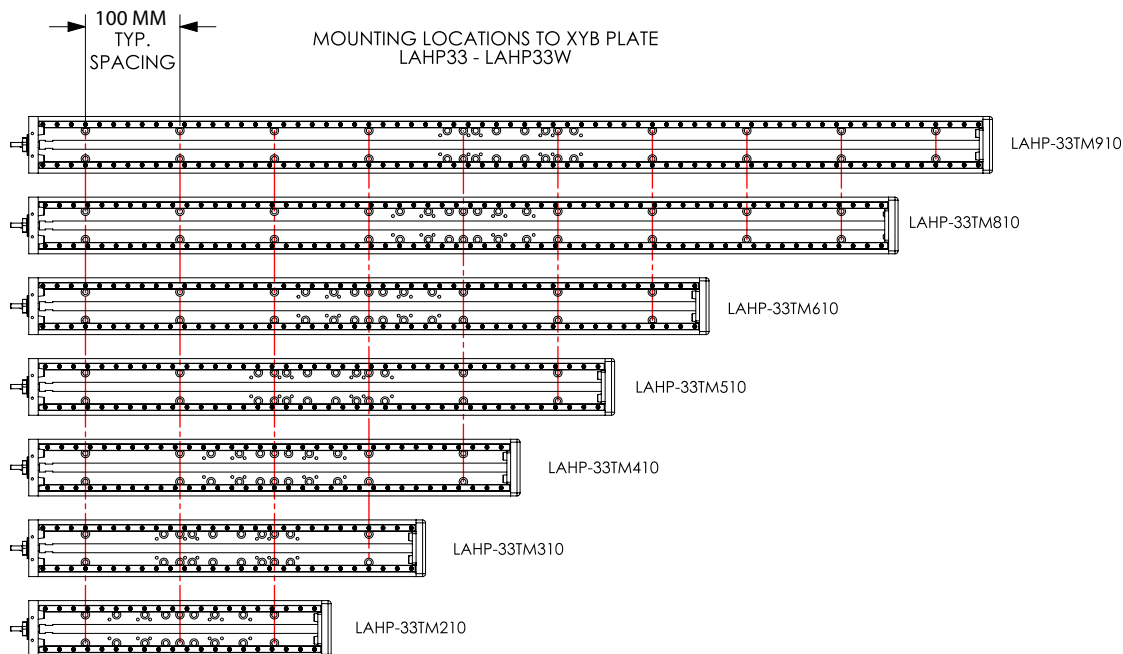


- 2) Secure the LAHP-33 series actuator to the bracket using the supplied bolts and washers.



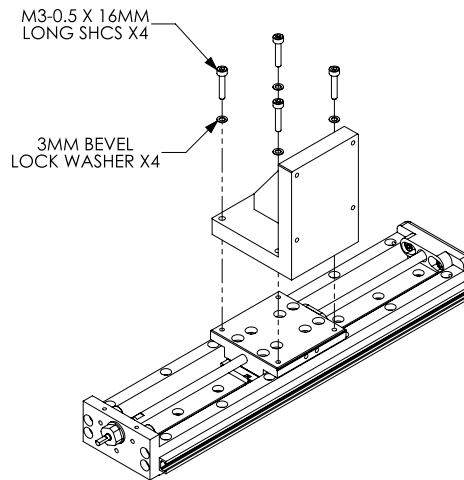
**Possible Mounting Locations**

The [LAHP-XYB-33-33W](#) bracket can be used to combine all sizes of LAHP-33 series actuators to all sizes of LAHP-33W series actuators. The following illustration shows LAHP-33 series bolt holes that match up to the [LAHP-XYB-33-33W](#) threaded hole pattern.

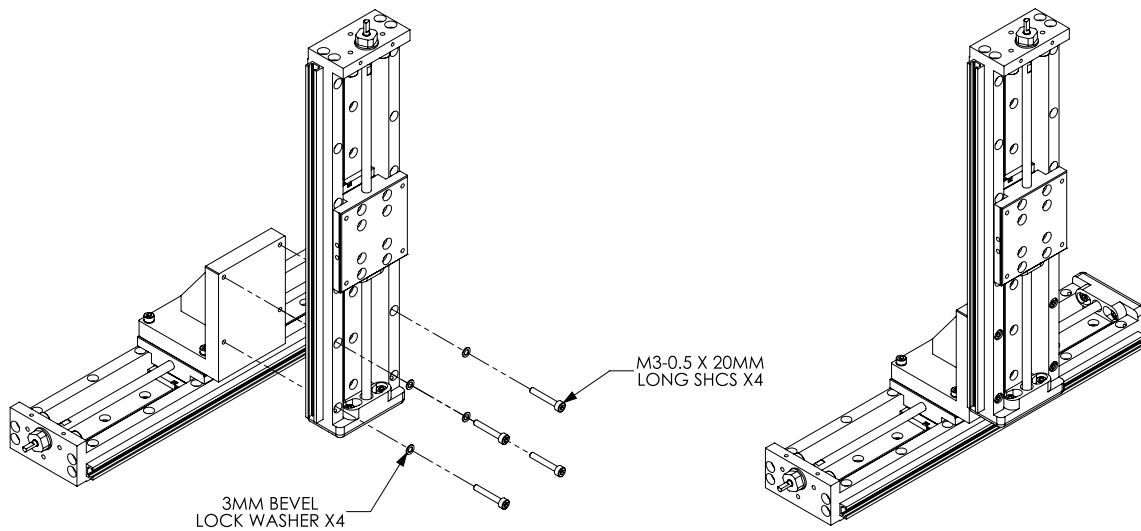


**Z BRACKETS****LAHP-ZB-25-25 ASSEMBLY**

- 1) Secure a Z bracket to the carriage of the LAHP-25 series actuator using the supplied bolts and washers.

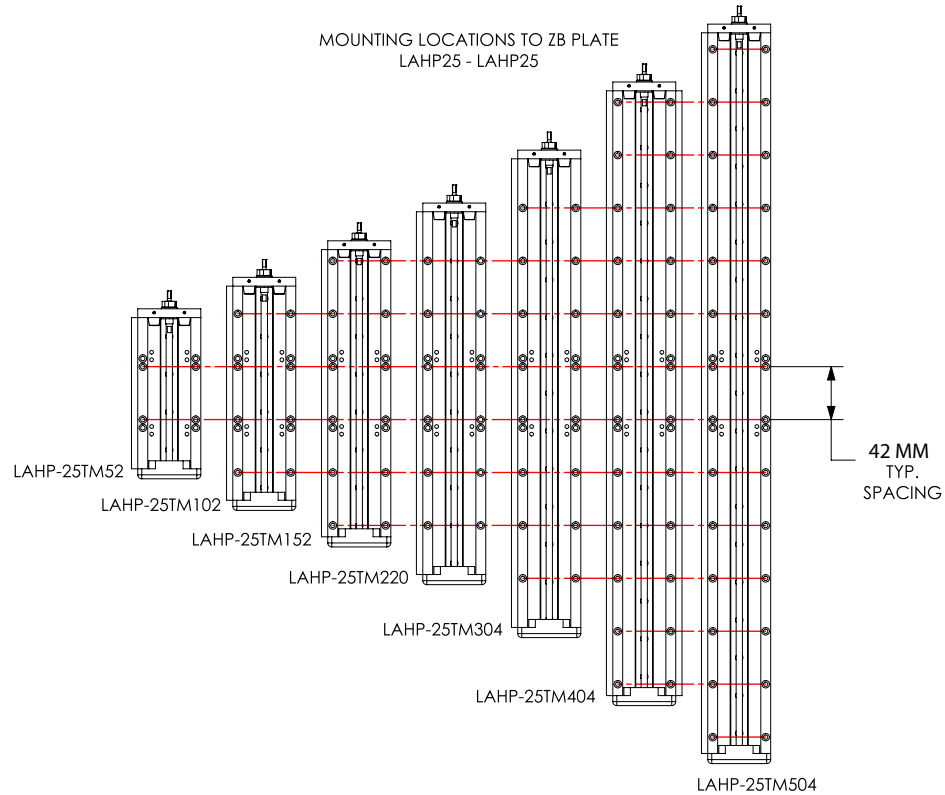


- 2) Secure the second LAHP-25 series actuator to the bracket using the supplied bolts and washers.



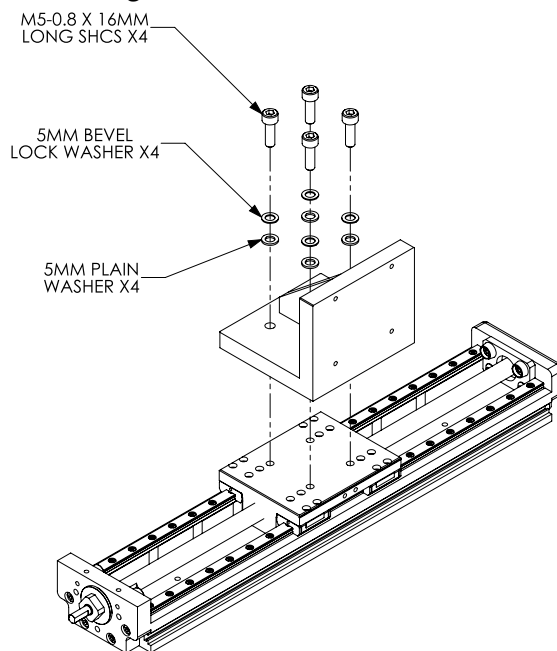
### Possible Mounting Locations

The [LAHP-ZB-25-25](#) bracket can be used to combine all sizes of LAHP-25 series actuators together. The following illustration shows LAHP-25 series bolt holes that match up to the [LAHP-ZB-25-25](#) threaded hole pattern.

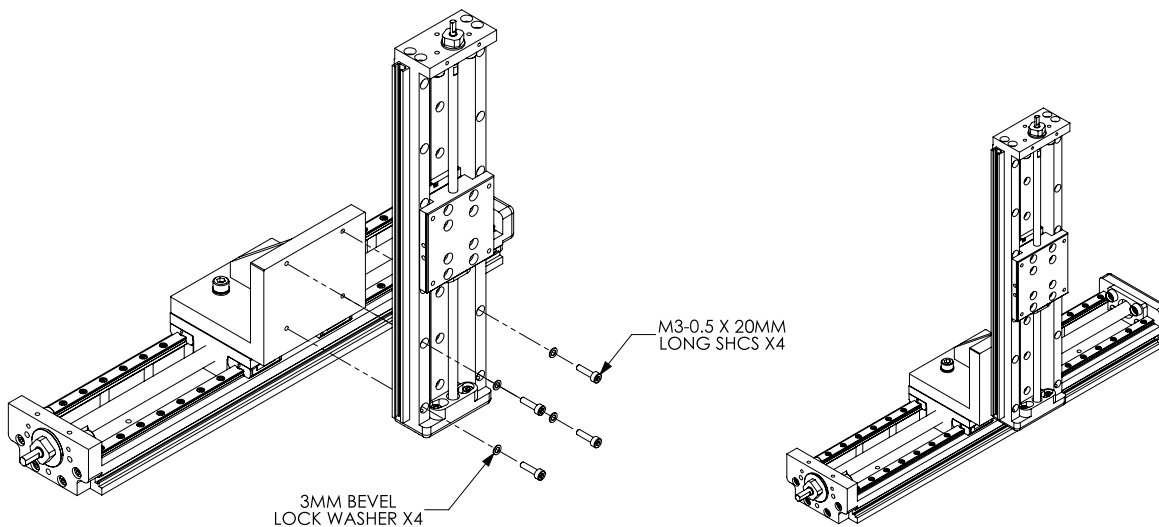


**LAHP-ZB-25-33 ASSEMBLY**

- 1) Secure a Z bracket to the carriage of the LAHP-33 series actuator using the supplied bolts and washers.

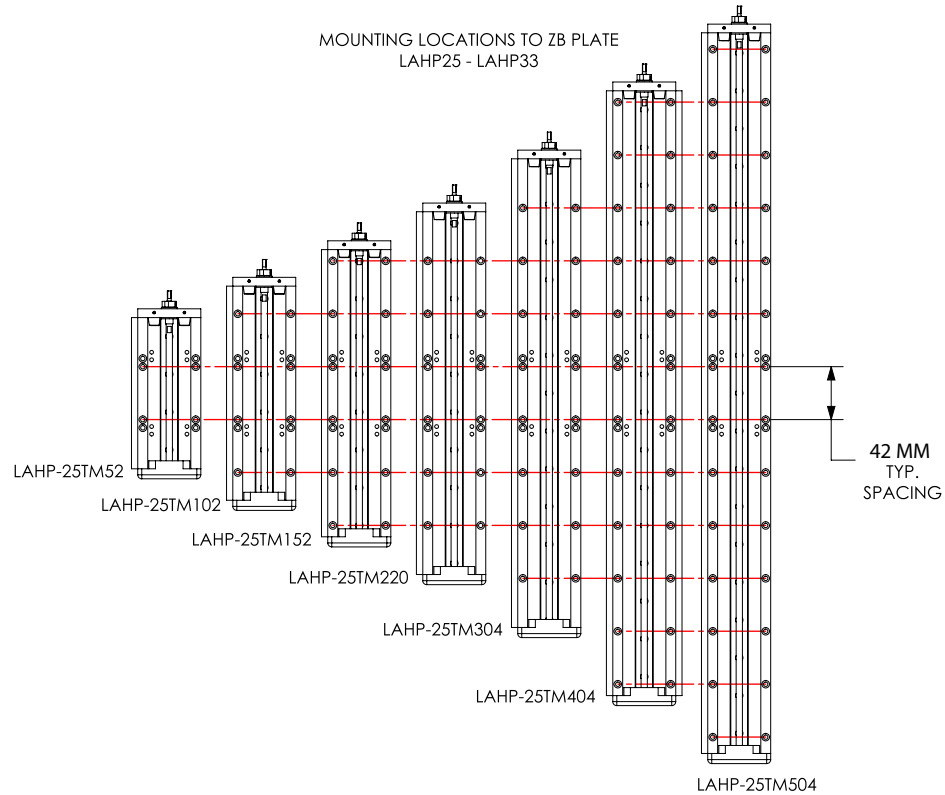


- 2) Secure the LAHP-24 series actuator to the bracket using the supplied bolts and washers.



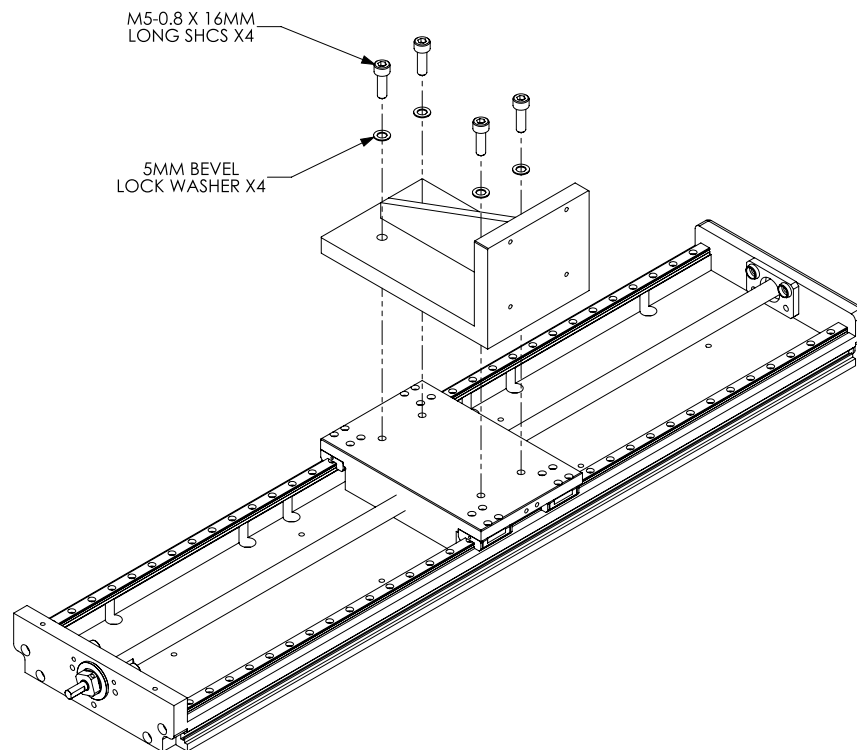
**Possible Mounting Locations**

The [LAHP-ZB-25-33](#) bracket can be used to combine all sizes of LAHP-25 series actuators to all sizes of LAHP-33 series actuators. The following illustrations shows LAHP-25 series bolt holes that match up to the [LAHP-ZB-25-33](#) threaded hole pattern.

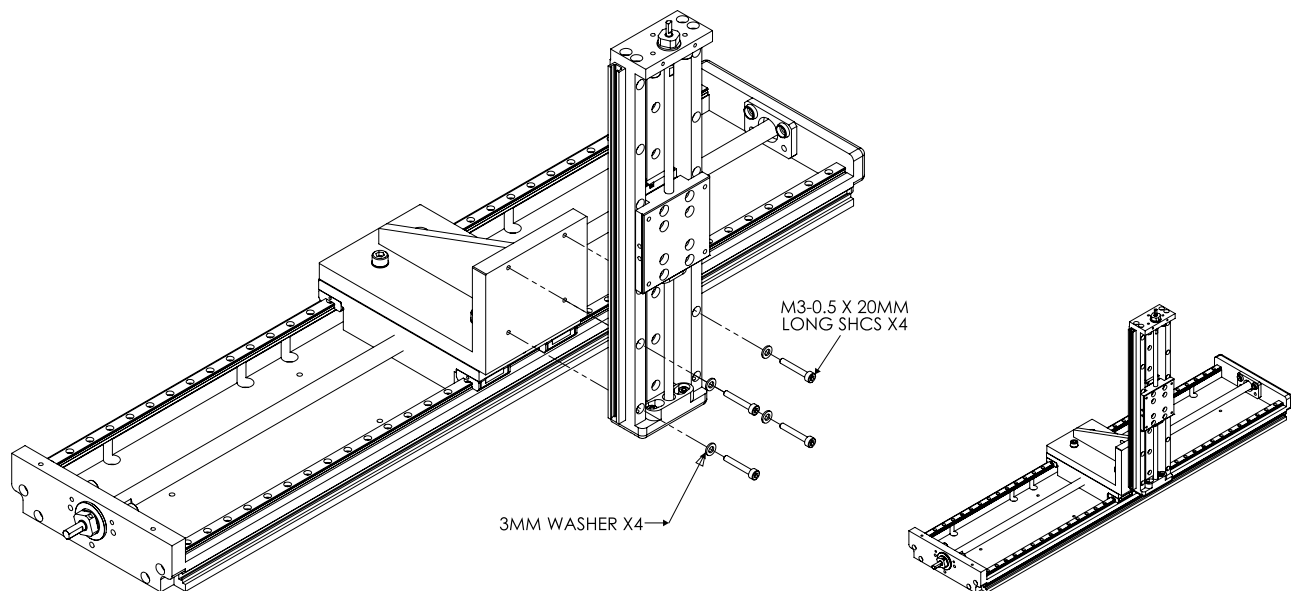


**LAHP-ZB-25-33W ASSEMBLY**

- 1) Secure a Z bracket to the carriage of the LAHP-33W series actuator using the supplied bolts and washers.

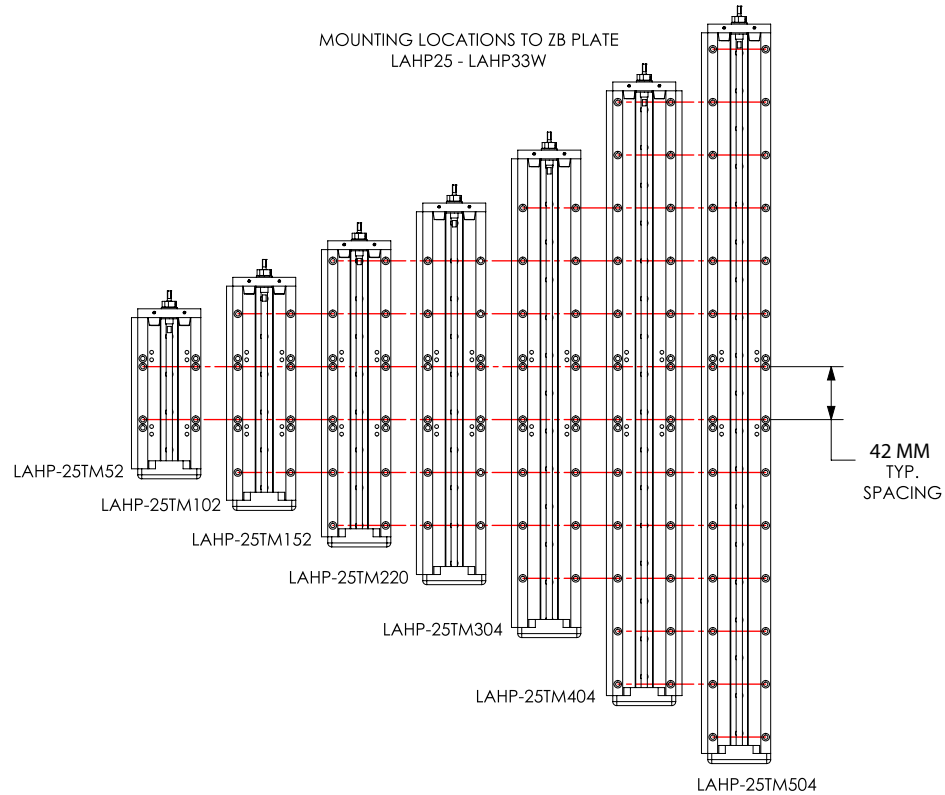


- 2) Secure the LAHP-25 series actuator to the bracket using the supplied bolts and washers.



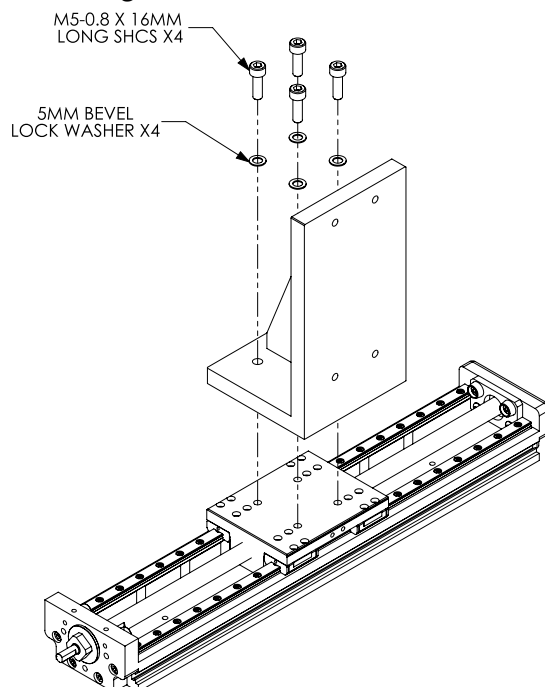
### Possible Mounting Locations

The [LAHP-ZB-25-33W](#) bracket can be used to combine all sizes of LAHP-25 series actuators to all sizes of LAHP-33W series actuators. The following illustration shows LAHP-25 series bolt holes that match up to the [LAHP-ZB-25-33W](#) threaded hole pattern.

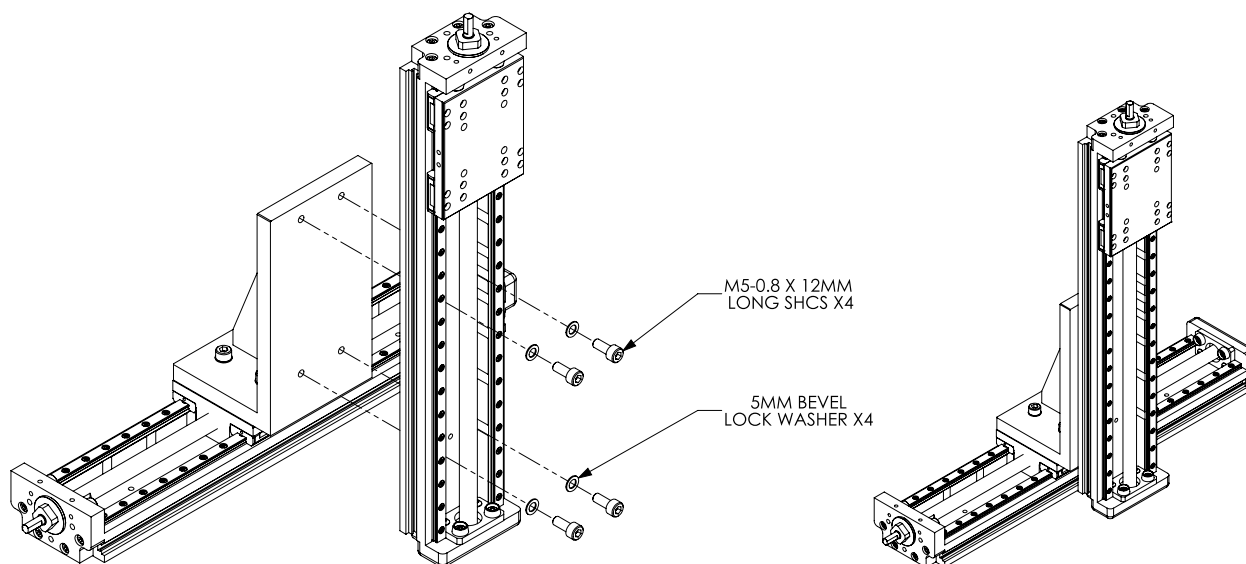


**LAHP-ZB-33-33 ASSEMBLY**

- 1) Secure a Z bracket to the carriage of the LAHP-33 series actuator using the supplied bolts and washers.

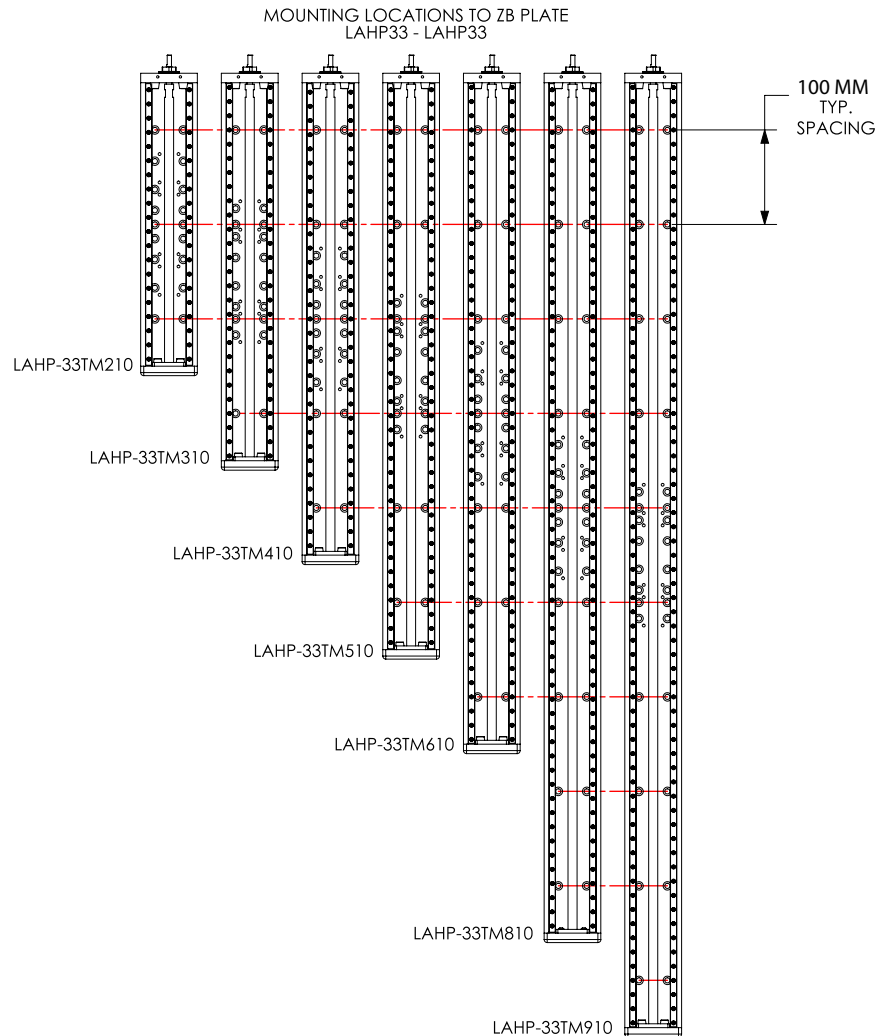


- 2) Secure the second LAHP-33 series actuator to the bracket using the supplied bolts and washers.



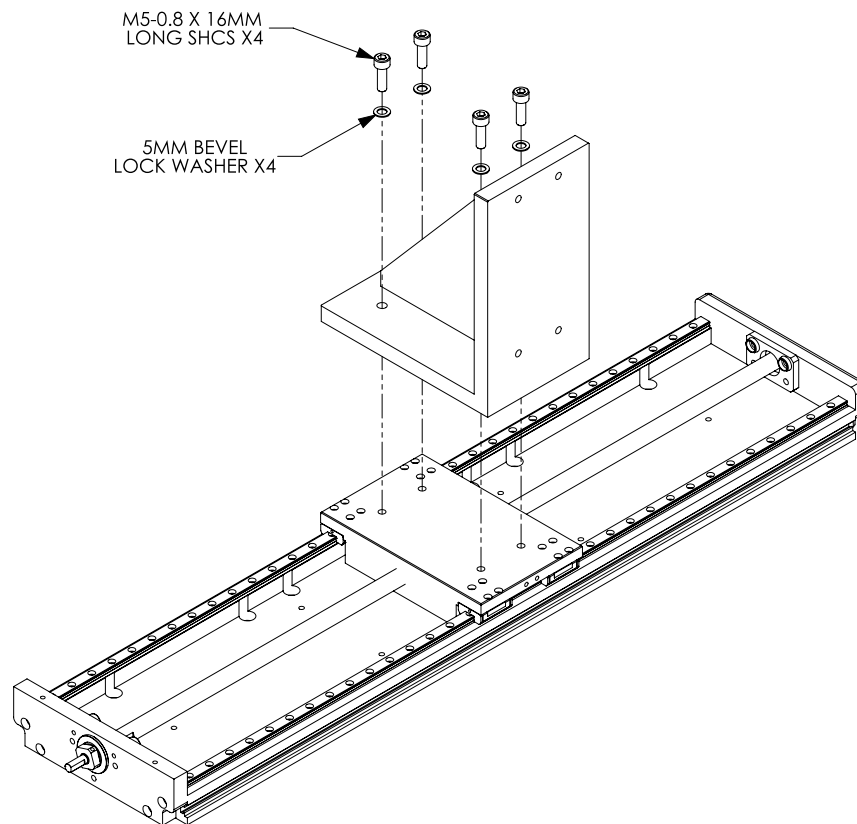
### Possible Mounting Locations

The [LAHP-ZB-33-33](#) bracket can be used to combine all sizes of LAHP-33 series actuators together. The following illustration shows LAHP-33 series bolt holes that match up to the [LAHP-ZB-33-33](#) threaded hole pattern.

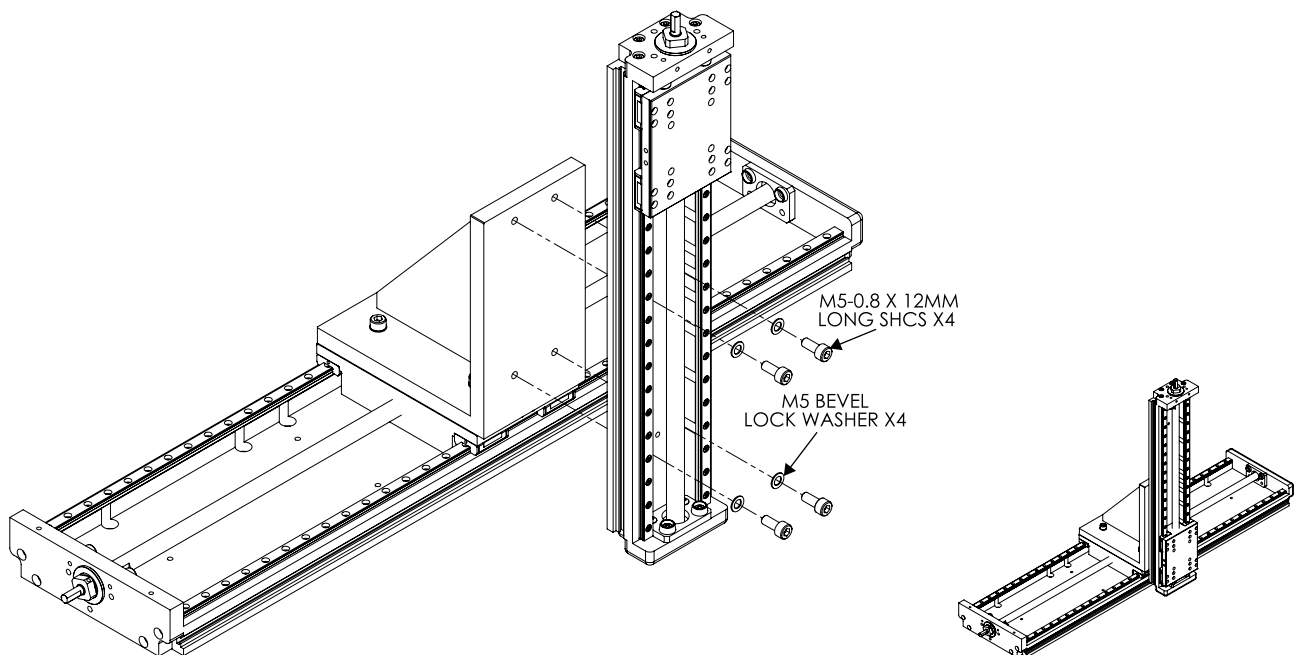


**LAHP-ZB-33-33W ASSEMBLY**

- 1) Secure a Z bracket to the carriage of the LAHP-33W series actuator using the supplied bolts and washers.

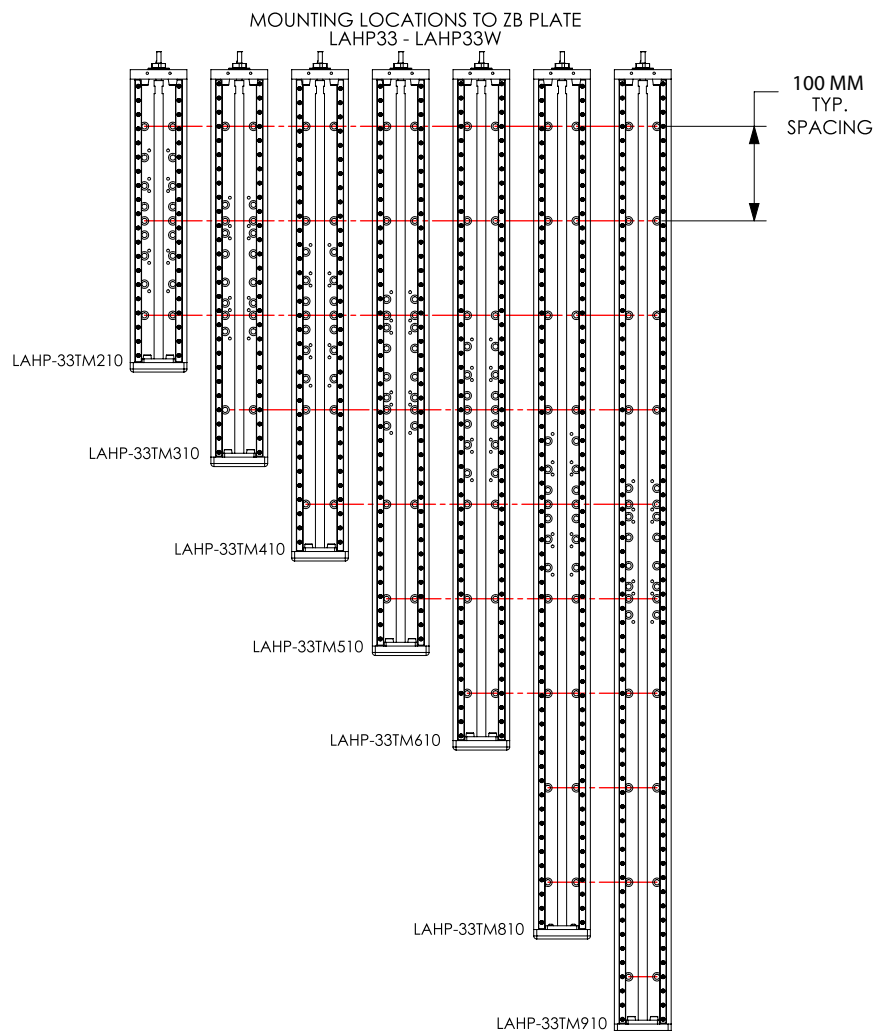


- 2) Secure the LAHP-33 series actuator to the bracket using the supplied bolts and washers.



**Possible Mounting Locations**

The [LAHP-ZB-33-33W](#) bracket can be used to combine all sizes of LAHP-33 series actuators to all sizes of LAHP-33W series actuators. The following illustration shows LAHP-33 series bolt holes that match up to the [LAHP-ZB-33-33W](#) threaded hole pattern.



## SENSOR INSTALLATION

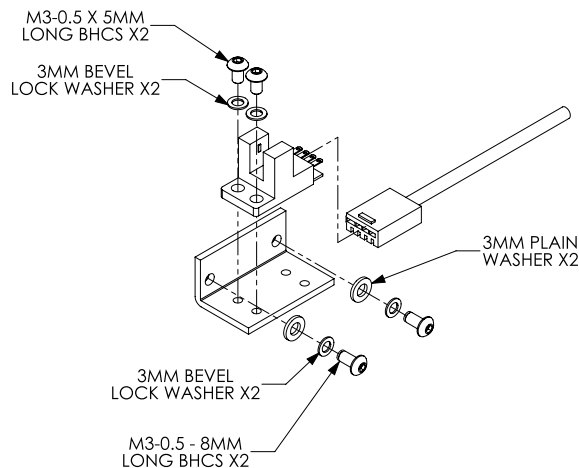
Sensors can be attached to the actuators using the rail on the side of the actuator. The following pages illustrate how to attach each sensor to an actuator.



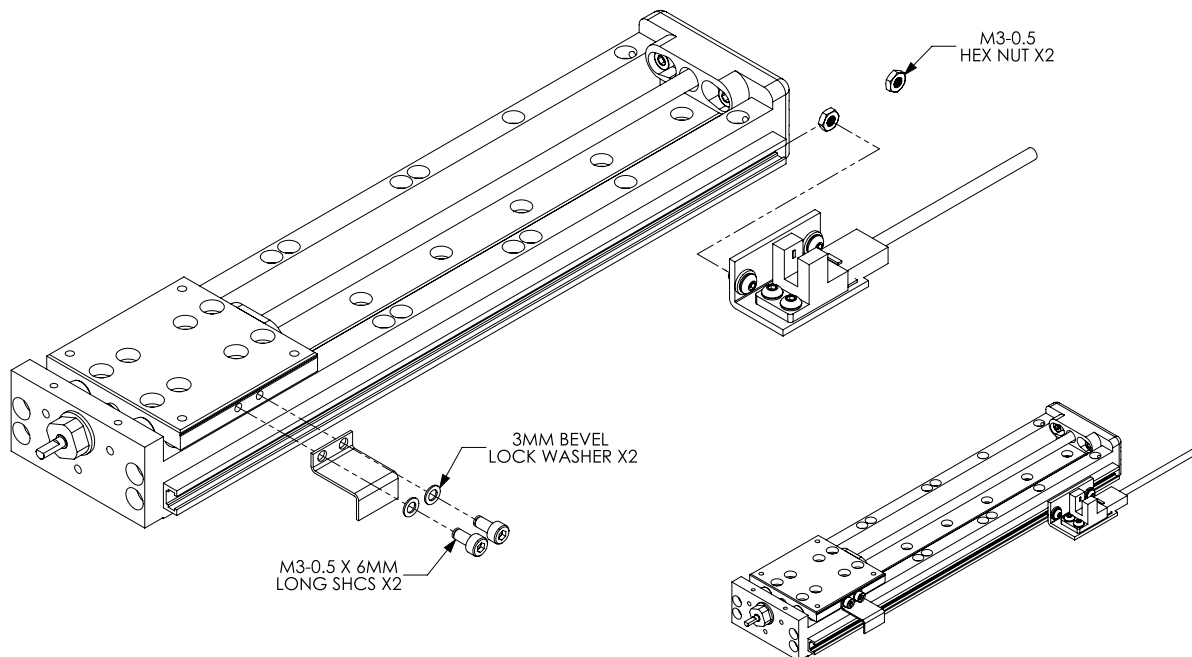
**NOTE:** The sensor kits each come with three sensors and hardware to attach to each actuator series.

### LAHP-SNS-PH PHOTOELECTRIC SENSOR INSTALLATION ON LAHP-25 SERIES

- 1) Attach the cable to the photo sensor. Secure the photo sensor to the bracket using the two (2) supplied BHCS and two (2) washers.

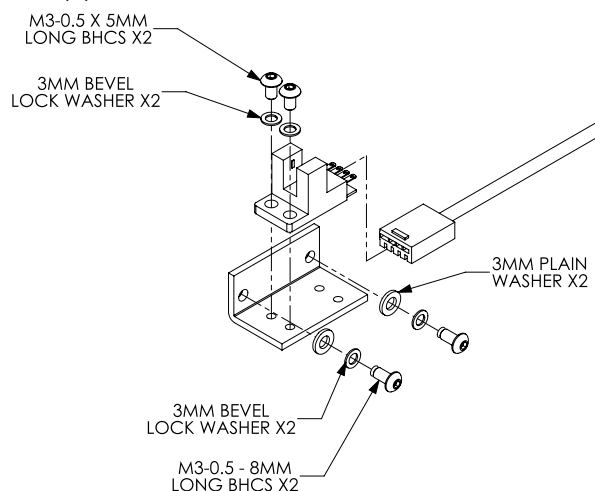


- 2) Slide the supplied hex nuts into the channel on the side of the actuator. Secure the bracket to the nuts using the two (2) supplied BHCS and two (2) washers.
- 3) Secure the **shorter** flag to the carriage using the two (2) supplied SHCS and two (2) washers.

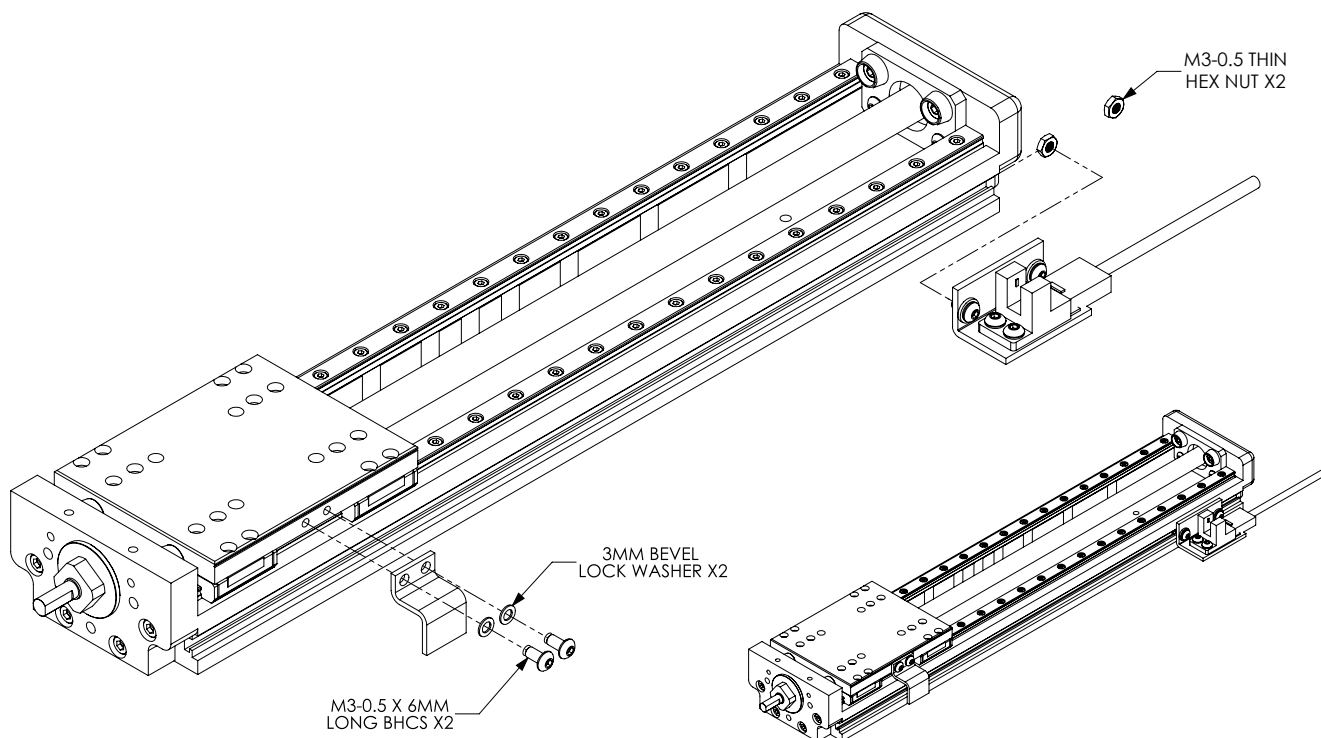


**LAHP-SNS-PH PHOTOELECTRIC SENSOR INSTALLATION ON LAHP-33/33W SERIES**

- 1) Attach the cable to the photo sensor. Secure the photo sensor to the bracket using the two (2) supplied BHCS and two (2) washers.



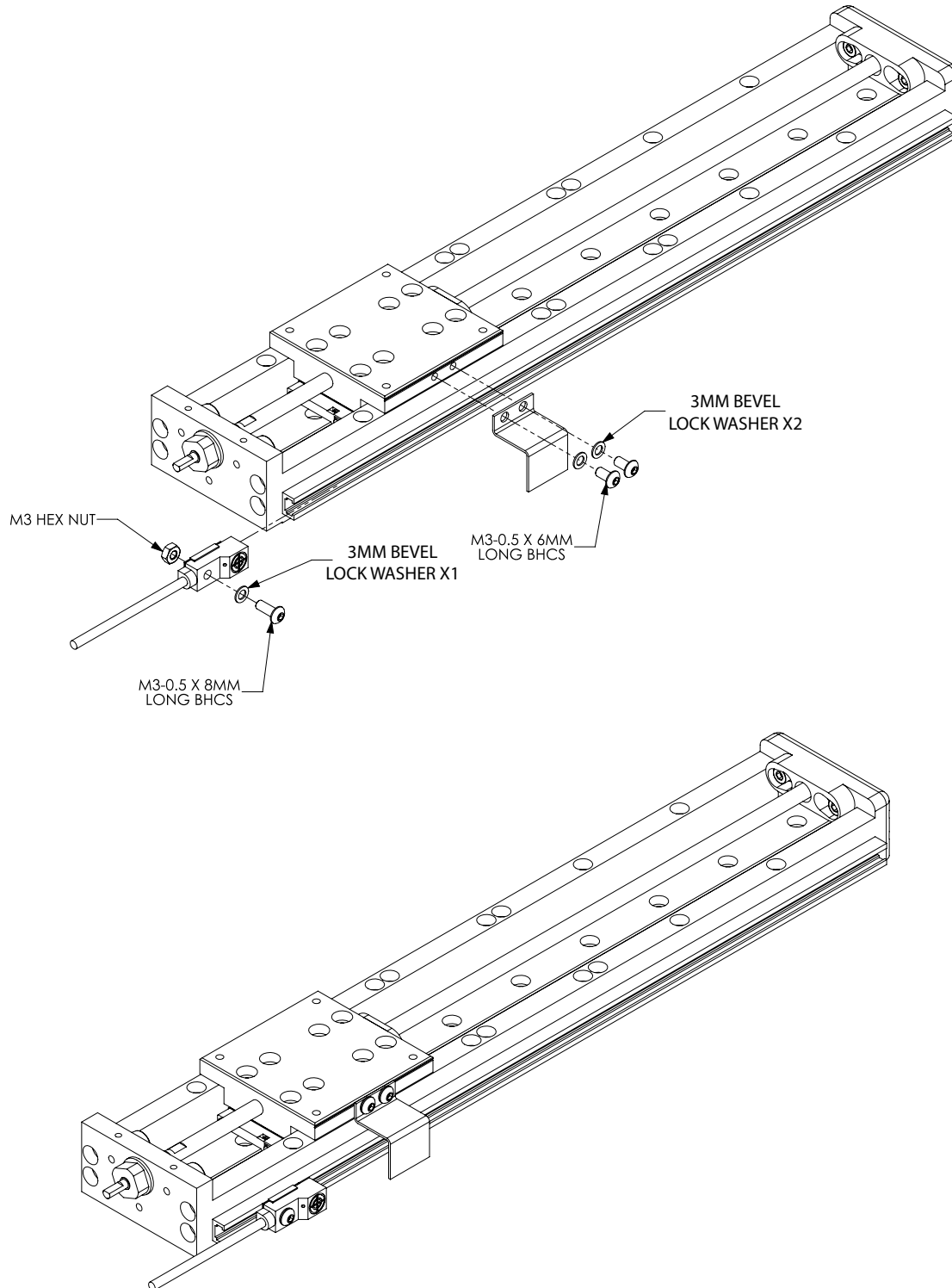
- 2) Slide the supplied hex nuts into the channel on the side of the actuator. Secure the bracket to the nuts using the two (2) supplied BHCS and two (2) washers.
- 3) Secure the **longer** flag to the carriage using the two (2) supplied BHCS and two (2) washers.

**PHOTOELECTRIC SENSOR WIRING**

<b>Operating voltage range</b>	5–24 VDC
<b>Black wire</b>	Output Signal
<b>Blue wire</b>	0 V
<b>Brown wire</b>	+ V
<b>Pink wire</b>	L
For complete sensor specifications please refer to Omron's EE-SX674/P series documentation.	

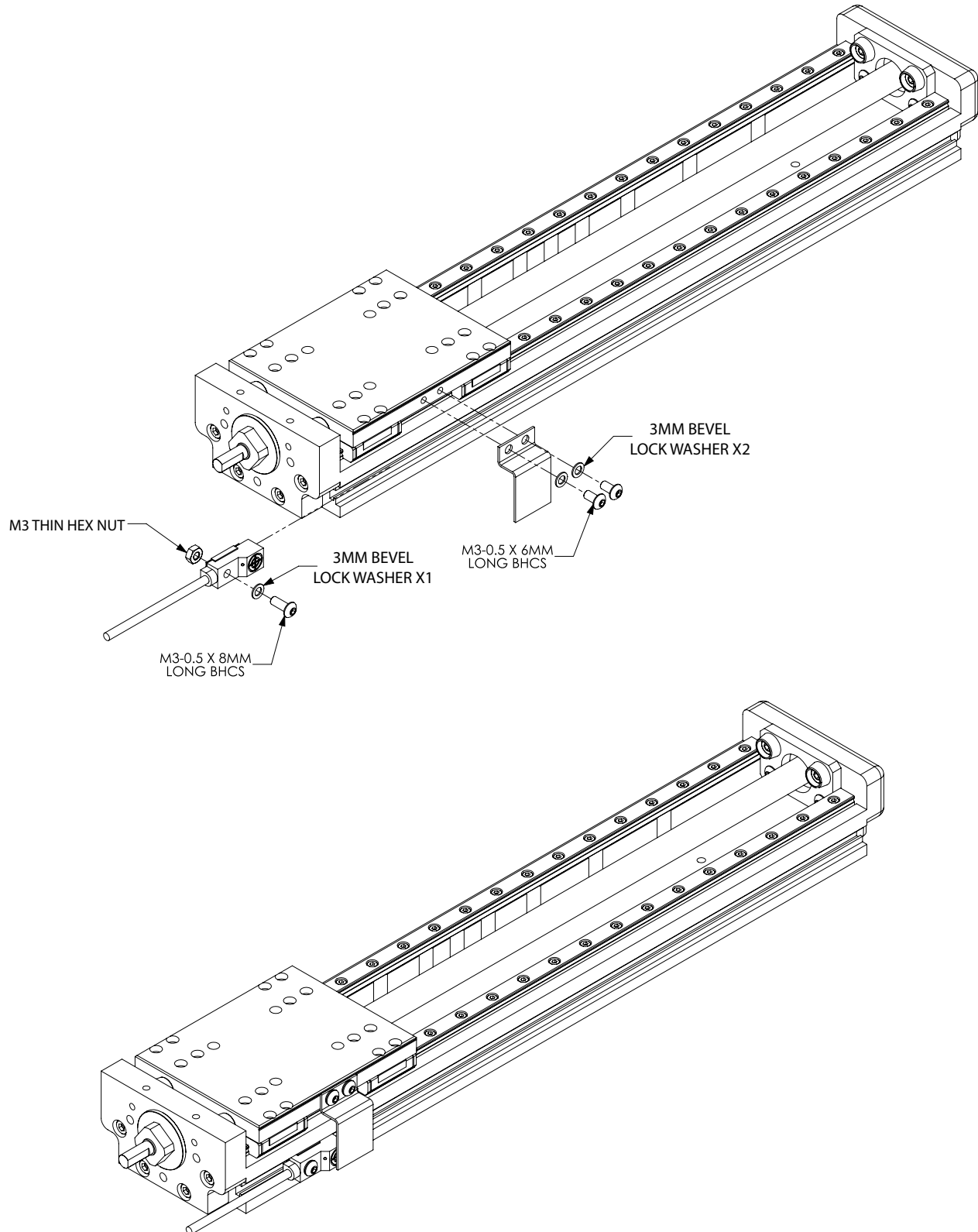
**LAHP-SNS-PX PROXIMITY SENSOR INSTALLATION ON LAHP-25 SERIES**

- 1) Slide the supplied hex nut into the channel on the side of the actuator. Secure the sensor to the nut using the supplied BHCS and washer.
- 2) Secure the **shorter** flag to the carriage using the two (2) supplied BHCS and two (2) washers.



**LAHP-SNS-PX PROXIMITY SENSOR INSTALLATION ON LAHP-33/33W SERIES**

- 1) Slide the supplied hex nut into the channel on the side of the actuator. Secure the sensor to the nut using the supplied BHCS and washer.
- 2) Secure the **longer** flag to the carriage using the two (2) supplied BHCS and two (2) washers.



**PROXIMITY SENSOR CONFIGURATION**

Three PNP or NPN proximity sensors are included in the kit with the following controls intention:

- Use 2 Normally Closed (NC) sensors to detect 'End of Stroke'
- Use 1 Normally Open (NO) sensor to detect 'Home Position'.

**PROXIMITY SENSOR WIRING**

<b>Operating voltage range</b>	12–24 VDC
<b>Black wire</b>	Output Signal
<b>Blue wire</b>	0 V
<b>Brown wire</b>	+ V
<i>For complete sensor specifications please refer to Omron's E2S series documentation.</i>	
<ul style="list-style-type: none"><li>• <a href="#">LAHP-SNS-PX-N</a>: Omron ES2W241M (NC) and ES2W23B1M (NO)</li><li>• <a href="#">LAHP-SNS-PX-P</a>: Omron ES2W261M (NC) and ES2W25B1M (NO)</li></ul>	