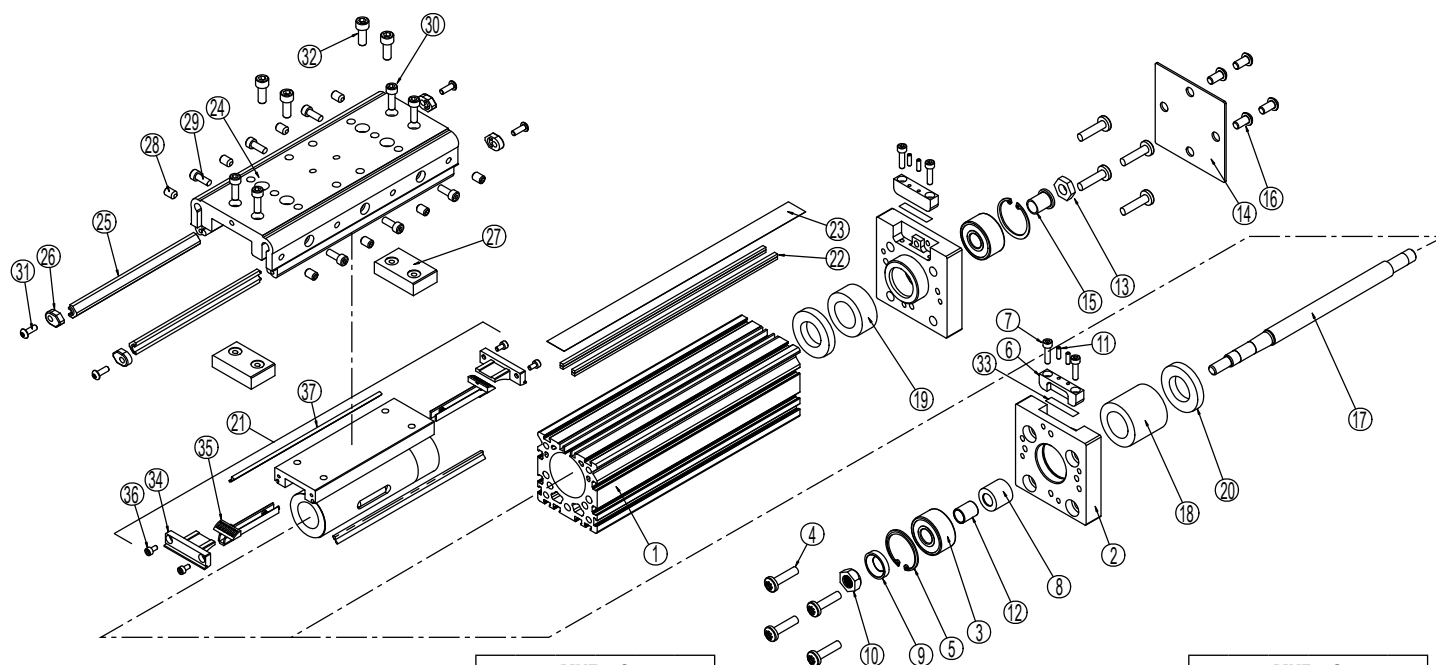


## MXE40S Solid Bearing Screw-Drive Actuators

### 38mm (1-1/2 inch) Series

**Models:** BN02      BNL02      BN05  
BNL05      SN01      SN02



ITEM	PART NO. OR CONFIG. CODE	DESCRIPTION	MXE40S					
			BN02	BNL02	BN05	BNL05	SN01	SN02
31.	RTBMXE40_SK_	TUBE (US CONV)	A/R	A/R	A/R	A/R	A/R	A/R
	RTBMXE40_SM_	TUBE (METRIC)	A/R	A/R	A/R	A/R	A/R	A/R
2.	8340-1011	HEAD	2	2	2	2	2	2
3.	3415-1322	BEARING	2	2	2	2	2	2
4.	0604-1025	SCREW	8	8	8	8	8	8
5.	3415-1307	RETAINING RING	2	2	2	2	2	2
6.	8340-1017	BAND CLAMP	2	2	2	2	2	2
7.	0602-1027	SCREW	4	4	4	4	4	4
8.	3415-2042	SLEEVE	1	1				
	3415-2041	SLEEVE			1	1	1	1
9.	1124-1092	WASHER	1	1				
	3415-2014	WASHER			1	1	1	1
10.	1124-1082	HEX NUT	1	1				
	1132-1013	HEX NUT			1	1	1	1
11.	8325-1058	SET SCREW	4	4	4	4	4	4
12.	3415-2043	SLEEVE	1	1				
13.	1076-1101	HEX NUT	1	1				
	1001-1322	HEX NUT			1	1	1	1

ITEM	PART NO. OR CONFIG. CODE	DESCRIPTION	MXE40S					
			BN02	BNL02	BN05	BNL05	SN01	SN02
14.	8340-1022	COVER PLATE	1	1	1	1	1	1
15.	3415-1320	SLEEVE	1	1				
16.	8340-1009	SCREW	4	4	4	4	4	4
4 17.	RLSMXE40_SK_	LEADSCREW (US CONV)	A/R	A/R	A/R	A/R	A/R	A/R
	RLSMXE40_SM_	LEADSCREW (METRIC)	A/R	A/R	A/R	A/R	A/R	A/R
18.	8340-1023	SPACER	1	1	1	1	1	1
19.	8340-1024	SOLID NUT SPACER					1	1
	8340-1025	BALL NUT SPACER			1	1		
20.	3415-1318	BUMPER	2	2	2	2	2	2
1,2 21.	8340-9009	NUT BRACKET ASSEMBLY, SN01					1	
	8340-9008	NUT BRACKET ASSEMBLY, SN02						1
	8340-9006	NUT BRACKET ASSEMBLY, BN02	1	1				
	8340-9007	NUT BRACKET ASSEMBLY, BN05			1	1		

<sup>1</sup> Replacement solid nut bracket assembly kit available. Contact [help@tolomatic.com](mailto:help@tolomatic.com).

<sup>2</sup> Parts included in Nut Bracket Assembly.

A/R= As Required

<sup>3</sup> Replacement Tube ordering method: RTB M X E 40 S [ ] [ ] [ ] SK or [ ] [ ] [ ] [ ] DC

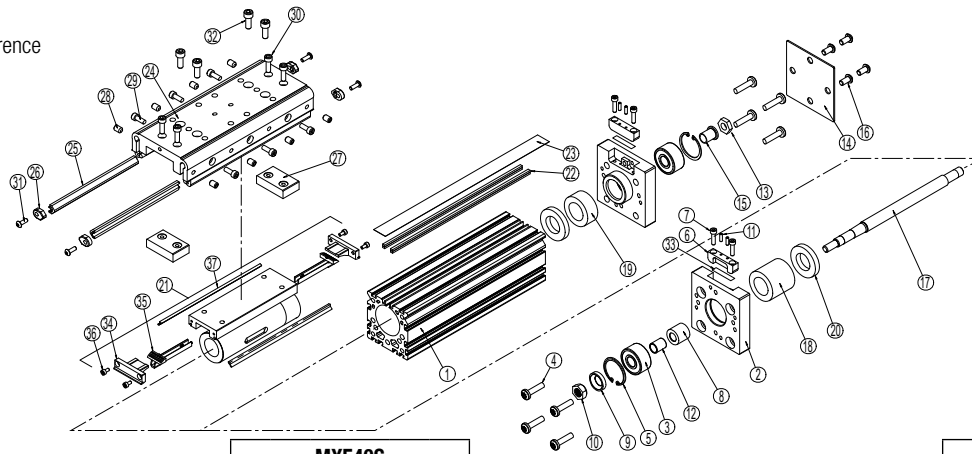
**EXAMPLE:** RTB M X E 4 0 S B N 0 2 S K 2 1 · 2 5 D C 7

<sup>4</sup> Replacement Lead Screw ordering method: R L S M X E 4 0 S    L M I Y M    D C

EXAMPLE: R L S M X E 4 0 S B N 0 2 S K 2 1 . 2 5 L M I Y M 0 T B D 0 D C 7

*Auxiliary Carrier Option Note: If replacing a Lead Screw (17.), Tube (1.) or Dust Band (23.) on an actuator that has an Auxiliary Carrier, be sure to add "DC \_\_\_" to the end of the configuration string when ordering. "DC" indicates the need for additional length and "\_\_\_" indicates the measurement of space between carriers (in inches [SK] or millimeters [SM] as indicated earlier in the configuration string).*

Drawing repeated for reference



ITEM	PART NO. OR CONFIG. CODE	DESCRIPTION	MXE40S					
			BN02	BNL02	BN05	BNL05	SN01	SN02
622.	NMBMXE40_SK_	MAGNET BAND KIT (US CONV)	4	4	4	4	4	4
	NMBMXE40_SM_	MAGNET BAND KIT (METRIC)	4	4	4	4	4	4
5,723.	NDBMXE40_SK_	DUST BAND (US CONV)	1	1	1	1	1	1
	NDBMXE40_SM_	DUST BAND (METRIC)	1	1	1	1	1	1
24.	8340-1013	CARRIER (METRIC)	1	1	1	1	1	1
	8340-1513	CARRIER (US CONV)	1	1	1	1	1	1
525.	8140-1030	PLAIN BEARING	2	2	2	2	2	2
526.	8140-1031	BEARING END CAP	4	4	4	4	4	4
27.	8140-1025	CARRIER SPACER BLOCK	2	2	2	2	2	2
28.	8140-1073	LOCK (SET) SCREW (METRIC)	8	8	8	8	8	8
	8140-1570	LOCK (SET) SCREW (US CONV)	8	8	8	8	8	8

ITEM	PART NO. OR CONFIG. CODE	DESCRIPTION	MXE40S					
			BN02	BNL02	BN05	BNL05	SN01	SN02
29.	8125-1071	TENSION SCREW (METRIC)	6	6	6	6	6	6
	0915-1016	TENSION SCREW (US CONV)	6	6	6	6	6	6
30.	2212-1097	SCREW	4	4	4	4	4	4
31.	8140-1075	SCREW	4	4	4	4	4	4
32.	0604-1057	SCREW	4	4	4	4	4	4
33.	8340-1026	SHIM	2	2	2	2	2	2
	8340-1027	SHIM	2	2	2	2	2	2
2,534.	8140-1006	END CAP	2	2	2	2	2	2
2,535.	8340-1007	BAND RAMP	2	2	2	2	2	2
136.	0601-1038	SCREW	4	4	4	4	4	4
537.	8140-1059	WIPER	2	2	2	2	2	2

<sup>1</sup> Replacement solid nut bracket assembly kit available. Contact [help@tolomatic.com](mailto:help@tolomatic.com).

<sup>2</sup> Parts included in Nut Bracket Assembly.

<sup>5</sup> Parts included in Repair Kits.  
(RKMXE40P\_SK\_ or RKMXE40P\_SM\_ , indicate stroke length in inches or millimeters)

A/R= As Required

Magnet Band ———  
<sup>6</sup> Replacement Magnet Band ordering method: **NMB MXE40S** **SK** or **SM** **DC** **7**  
For long stroke lengths the magnet band is shipped in multiple pieces  
**EXAMPLE: NMB MXE40S SK21.25 DC7**

<sup>7</sup> Replacement Dust Band ordering method: **NDB MXE40S** **SK** or **SM** **DC** **7**  
**EXAMPLE: NDB MXE40S SK21.25 DC7**  
Dust band ——— Model & Size Bearing Stroke Length Aux. Carrier

**Auxiliary Carrier Option Note:** If replacing a Lead Screw (17.), Tube (1.) or Dust Band (23.) on an actuator that has an Auxiliary Carrier, be sure to add "DC \_" to the end of the configuration string when ordering. "DC" indicates the need for additional length and "\_" indicates the measurement of space between carriers (in inches [SK] or millimeters [SM] as indicated earlier in the configuration string).

## Assembly and Disassembly Instructions

### GENERAL CYLINDER DISASSEMBLY INSTRUCTIONS

Begin with a clean work area. Be sure all replacement parts are present and have no visual damage or defects. The following tools are recommended for proper disassembly and assembly.

- SAE Hex Wrench Set
- Metric Hex Wrench Set
- Torx bit set
- Metric Socket Set
- SAE Socket Set

1. **DUST BAND AND CARRIER REMOVAL.** Remove the Band Clamps (6) from both Heads (2) of the actuator by removing Screws (7) and backing out the Center Set Screws (11) a couple turns. Carefully lift the Dust Band (23) from the slot in each Head (2) and remove any Shims (33) located under the Band (23) in the head slot. Retain the Shims (33) for reassembly. Remove the Carrier Spacer Blocks (27). Remove Screws (31) from the Carrier (24). Remove End Caps (34) from both ends of the Nut Bracket Assembly (21). The Dust Band (23) can now be removed from the actuator. Slightly loosen the Carrier Tension Screws (29) and Lock (Set) Screws (28). Remove Bearing End Caps (26) from the Bearings (25) and slide the

Bearings (25) out. The Carrier (24) can now be removed.

NOTE: If the stroke of the actuator is too short to allow removal of the Carrier Bearings (25), it is necessary to remove the Non-Drive End Head (2) from the Tube (1).

2. **LEADSCREW SUB-ASSY REMOVAL.** On the Non-Drive End of the actuator, remove Screws (16) to remove the Cover Plate (14), and Hex Nut (13) from the Leadscrew (17). Remove Screws (4) from both Heads (2). Remove the Non-Drive End Head and the Drive Head/Leadscrew Assembly (17). The Nut Bracket Assembly (21) can now be removed from the Leadscrew (17) if necessary and the Band Ramps (35) may also be removed from the Nut Bracket Assembly (21) if required.  
Ball Nut style: Caution is required if removal of the Nut is necessary. Contact the factory for available parts and procedures.  
Plastic Nut style: Plastic Nuts are factory pinned into the Nut Bracket (21) and cannot be removed. If Nuts are worn, a new Nut Bracket Assy (21) must be ordered.  
If the Drive End Head (2) and Bearing (3) must be removed from the Leadscrew (17), contact the factory prior to removal for specific instructions.

**GENERAL CYLINDER ASSEMBLY INSTRUCTIONS**

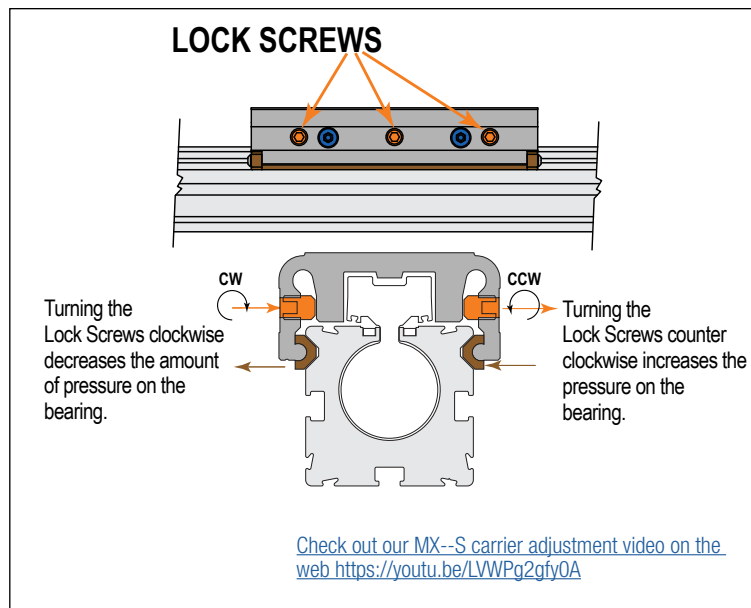
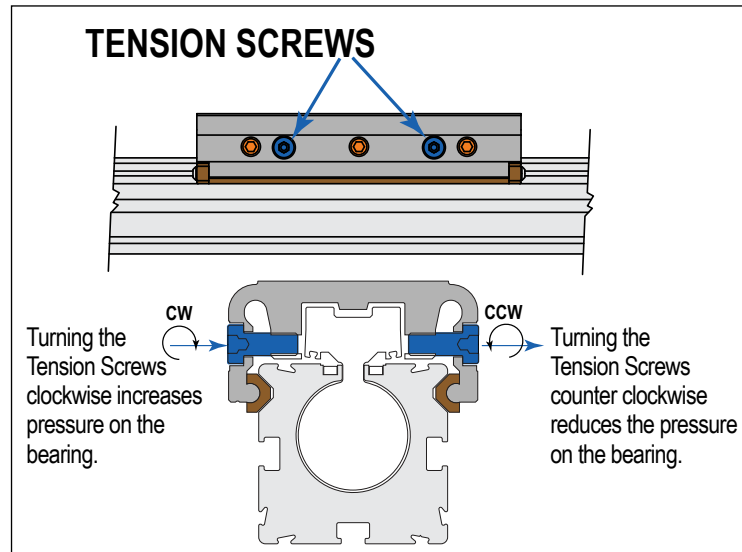
1. **SUB-ASSEMBLY CARRIER.** Slide the Bearings (25) into the slots on the Carrier (24) and install Bearing End Caps (26) loosely onto the Bearing (25) ends with Screws (31). Keep the Tension Screws (29) and Lock (Set) Screws (28) loose. If removed, install the Band Ramps (35) to the Nut Bracket Assembly (21).
2. **INSTALL LEADSCREW ASSEMBLY.** Install the Drive Head/Leadscrew (17) assembly into the Tube (1). Ensure that the Bumper (20) and Nut Spacer (19) are in place and position the Non-Drive End Head (2) over the Leadscrew Bearing (3) and loosely install Screws (4) into the Head (2). Install the Drive End Screws (4) loosely into the Head (2).
3. **INSTALL DUST BAND.** Install the Dust Band (23) through the Nut Bracket Assembly (21) and install End Caps (34) onto the Nut Bracket Assembly (21). Position Carrier (24) sub-assembly onto the Tube (1).
4. **Tension the Carrier.** The MX solid bearing Carrier (24) will provide best performance when properly adjusted. The carrier design contains both Tension (29) and Lock Screws (28). The Tension Screws (29) control the amount of pressure placed on the carrier Bearings (25). The Lock Screws (28) lock the Tension Screws (29) in place and provide fine adjustment of the carrier Bearings (25).
  - a. Fully loosen all Tension (29) and Lock Screws (28) about  $\frac{1}{2}$  of a turn so that they are not engaged with the Bearing (25).
  - b. Tighten Tension Screws (29) on both sides of the Carrier (24) roughly  $\frac{1}{8}$  to  $\frac{1}{4}$  turn clockwise past where the Screw (29) starts to feel snug. The Carrier (24) should be very difficult or impossible to move by hand. If not, turn another  $\frac{1}{8}$  turn until it is difficult to move.
  - c. Next, adjust the Lock Screws (28) on both sides of the Carrier (24) roughly  $\frac{1}{8}$  to  $\frac{1}{4}$  turn clockwise past where the Screw (28) starts to engage. The Carrier (24) will be loose but should not rock sideways. To correct this, loosen the Lock Screws (28) about  $\frac{1}{16}$  of a turn. If the Carrier (24) becomes too snug, adjust the Lock Screws (28) another  $\frac{1}{8}$  of a turn.
  - d. Ideal carrier tension is achieved when the Carrier (24) feels snug in relation to the Tube (1), yet can be moved by hand. No rocking motion should be present. The Carrier (24) should also be loose enough to be moved by hand over the entire length of the actuator. If after this process the Carrier (24) has become too loose, equally adjust all of the Lock Screws (28) with a slight  $\frac{1}{32}$  turn counter-clockwise. During the service life of the application this process may need to be repeated. Keeping the Carrier (24) in a properly adjusted tension will prolong the life of the MX bearing system and the actuator itself.

- e. When the proper carrier tension has been achieved, finish tightening the four Screws (31) to the Bearing End Caps (26).
- f. Position the Carrier (24) over the Nut Bracket Assembly (21) and install Screws (30). Install the Carrier Spacer Blocks (27) to the Carrier (24).

5. **PERFORM HEAD ALIGNMENT AND FINAL ASSEMBLY.**

NOTE: Custom tooling is used at the factory to align the Heads (2) to the Tube (1) to maintain parallelism between the top of the Head (2) and top of the Tube (1). In the following steps take care to visually align Head (2) to Tube (1).

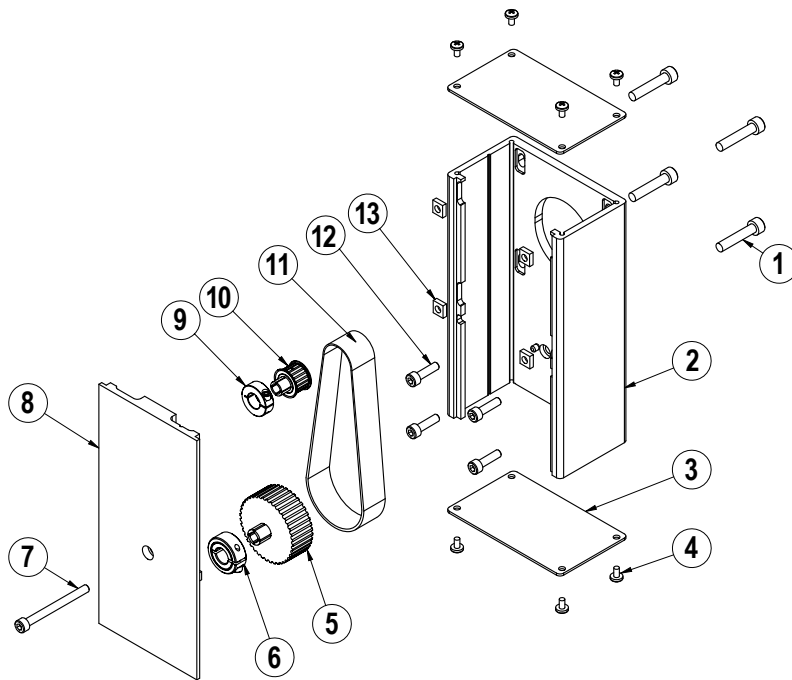
Move the assembled Carrier (24) to the Drive End of Tube (1) and tighten one of the Head Bolts (4). Support the actuator so the Head (2) is free to float while tightening the Screws (4). Move the Carrier Assembly (24) to Non-Drive End of Tube (1) and tighten the Head Bolts (4). Move Carrier Assembly (24) back to the Drive End of Tube (1) and loosen the Screw (4) that was previously tightened and then tighten all head Fasteners (4). Apply Loctite 242 to Hex Nut (13) and thread onto the Leadscrew (17) and torque to 6-8 in-lbs. Install Cover Plate (14) with Screws (16).



Check out our MX--S carrier adjustment video on the web <https://youtu.be/LVWPg2gfy0A>

6. **INSTALL BAND CLAMPS.** The Dust Band (23), Tube (1) and clamping surface of the Head (2) must be flush with each other. To accommodate this, it may be necessary to re-install any Shims (33) that were present during disassembly into the clamp pocket on the Head (2). Position the Carrier (24) near the Drive End and position the Band (23) in the pocket over the installed Shims (33) and install the Band Clamp (6) with the two Screws (7). Tighten down the Center Set Screws (11). Position the Carrier (24) near the Non-Drive End and repeat the steps to install the other Band Clamp (6).

## Reverse Parallel (RP) Mounting Option



ITEM	PART NO.	DESCRIPTION	QTY.
1.	CONFIGURED	MOTOR FASTENER	4
2.	CONFIGURED	RP HOUSING	1
3.	CONFIGURED	RP HOUSING END CAP	2
4.	CONFIGURED	END CAP SCREW	8
5.	CONFIGURED	DRIVE SHAFT PULLEY	1
6.	CONFIGURED	COLLAR CLAMP, DRIVE SHAFT	1
7.	CONFIGURED	RP COVER FASTENER	1
8.	CONFIGURED	RP COVER	1
9.	CONFIGURED	COLLAR CLAMP, MOTOR	1
10.	CONFIGURED	MOTOR PULLEY	1
11.	CONFIGURED	BELT	1
12.	CONFIGURED	RP PLATE FASTENER	4
13.	CONFIGURED	SQUARE NUT	4

♦ Part numbers varies depending on YMH (Your Motor Here).  
Contact [help@tolomatic.com](mailto:help@tolomatic.com) for replacement part numbers.

### Disassembly Instructions

1. Remove End Caps (3), and release the tension on the Belt (11) by breaking loose the motor fasteners (1).
2. Remove the RP Cover (8).
3. The Belt (11) can now be removed along with the Motor.
4. Remove both Pulleys (10) and (5) from their respective shafts.
5. Remove the RP Housing (2) from the actuator head by removing the Fasteners (12).

### Assembly Instructions

Note: Apply Loctite #242 to all fasteners upon installation

1. Install RP Housing (2) onto the actuator Head with Fasteners (12).
2. Install the Motor to the RP Housing with Fasteners (1) and Square Nuts (13). Do not tighten the fasteners at this time.
3. Locate the Belt (11) over the Pulleys (10) and (5) and slide both pulleys over their respective shafts. Tighten each pulley to its shaft with the Collar Clamps (9) and (6).
4. Position the Cover (8) in the mating slot of the RP case and install the Fasteners (7) to hold it in place. Take care not to overtighten. If the cover is deflected, it can interfere with the leadscrew.
5. Tension the Belt (11) by pulling the motor away from the drive shaft with the appropriate tension force shown in the chart below. While tensioning, the actuator should be positioned so the weight of the motor does not affect the belt tension. Tighten the Motor Fasteners (1) while the tensioning force is applied to the motor.
6. Verify that there is clearance between the inside of the RP case and each pulley. Verify the pulleys are aligned to each other.
7. Install both End Caps (3) with the Screws (4) to finalize the assembly.

SMALLEST SHAFT DIAMETER (Motor or Actuator)		TOTAL WEIGHT TO APPLY	
Inches	mm	lbs	kgs
0.18 to 0.259	4.572 to 6.579	13	5.902
0.260 to 0.499	6.604 to 12.675	22	9.988
0.500 to 0.625	12.7 to 15.875	31	14.074
0.625 and larger	15.875 and larger	40	18.160

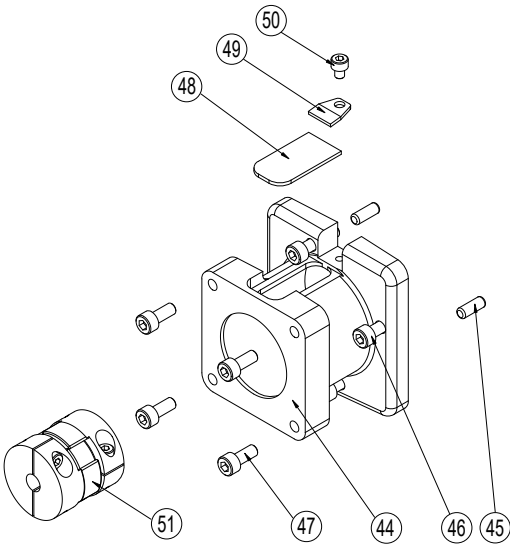
Additional tips are found in Tolomatic [Electric Actuator Motor Mounts Technical Note # 3600-4203](#).

In-Line (LMI) Mounting Options

ITEM	PART NO.	DESCRIPTION	QTY
♦44.	CONFIGURED	MOTOR SPACER	1
♦45.	CONFIGURED	DOWEL PIN	2
♦46.	CONFIGURED	SCREW	4
♦47.	CONFIGURED	SCREW	4
♦48.	CONFIGURED	COVER	1
♦49.	CONFIGURED	CLAMP	1
♦50.	CONFIGURED	SCREW	1
♦51.	CONFIGURED	COUPLER	1

♦ Part number varies depending on YMH (Your Motor Here).  
Contact [help@tolomatic.com](mailto:help@tolomatic.com) for replacement part number.

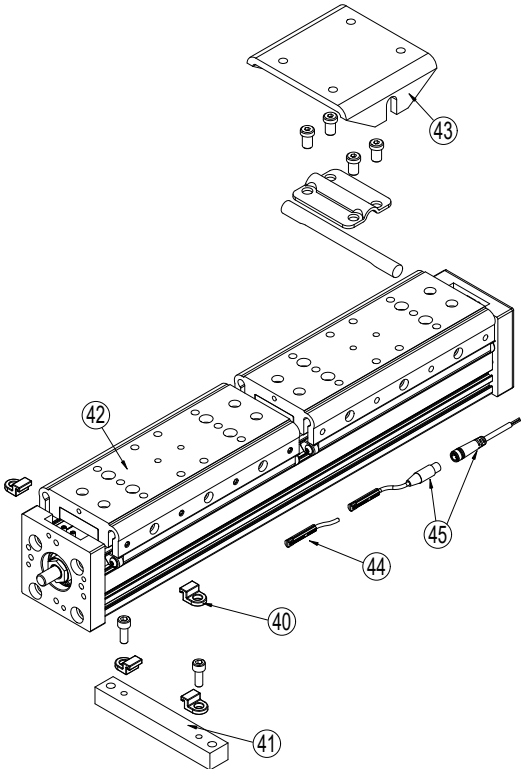
A replacement Motor Mount Kit contains all parts listed above.



Replacement Motor Mount Kits ordering method: **MMK MXE40S** **SN02** **LMIYM011001**

**EXAMPLE:** **MMK MXE40S** **SN02** **LMIYM011001**  
Motor Mount Kit      Model & Size      Bearing Style      Lead Screw      Motor Orientation      Motor Code

Actuator Options Parts



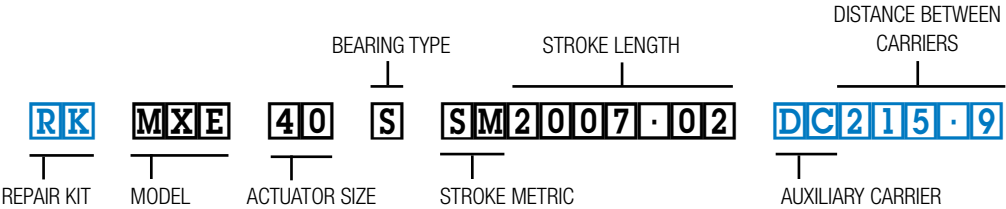
ITEM	PART NO.	DESCRIPTION
<sup>1</sup> 40.	8140-9018	TUBE CLAMP MOUNT KIT
	8140-1050	TUBE CLAMP
<sup>2</sup> 41.	8340-9016	MOUNTING PLATE KIT FOR 23-FRAME MOTOR
	8340-9017	MOUNTING PLATE KIT FOR 34-FRAME MOTOR
	8140-1050	TUBE CLAMP
	0604-1057	SCREW (METRIC)
	8340-1030	MOUNTING PLATE FOR 23-FRAME MOTOR
	8340-1031	MOUNTING PLATE FOR 34-FRAME MOTOR
42.	8340-9015	AUXILIARY CARRIER ASSY (METRIC)
	8340-9515	AUXILIARY CARRIER ASSY (INCH)
<sup>3</sup> 43.	8140-9036	FLOATING MOUNT KIT (METRIC)
	8140-9536	FLOATING MOUNT KIT (INCH)
	8140-1068	FLOATING MOUNT BRACKET
	8140-1063	FLOATING MOUNT CLAMP
	8140-1069	FLOATING MOUNT PIN
	8132-1074	SCREW (METRIC)
	0512-1094	SCREW (INCH)

- <sup>1</sup> Tube Clamp Mount Kit contains 2 tube clamps.  
<sup>2</sup> Mounting Plate Kit contains 2 tube clamps, 1 mounting plate and 2 fasteners.  
<sup>3</sup> Floating Mount Kit contains 1 pin, 1 bracket, 1 clamp, and 4 fasteners.

**To order service parts switches:**  
Switches for MXE include retained mounting hardware and are the same for all actuator sizes and bearing styles

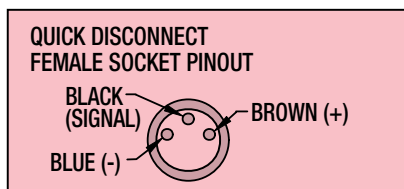
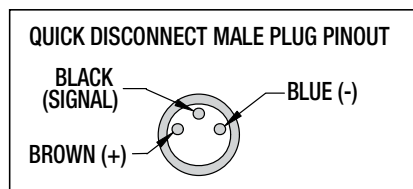
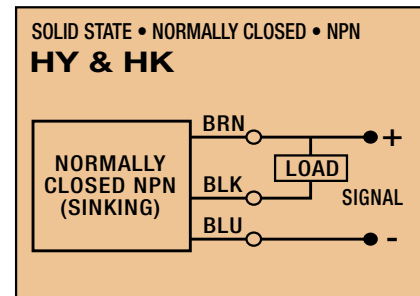
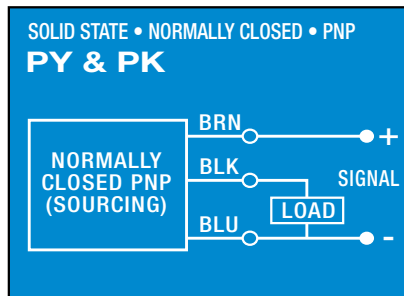
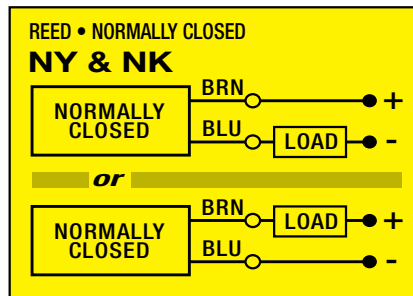
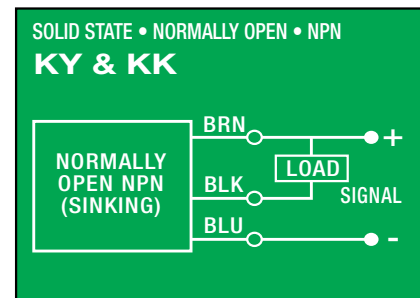
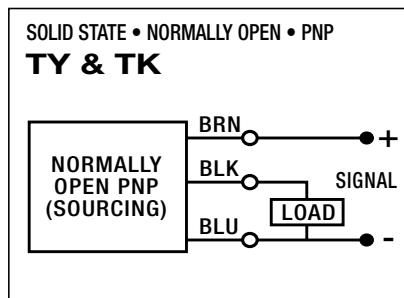
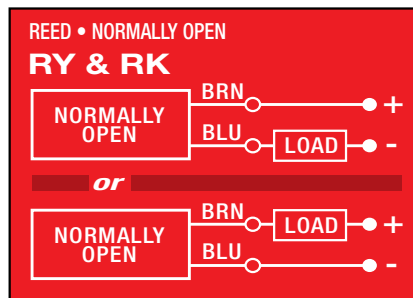
ITEM	CONFIG. CODE		LEAD	NOR- MALLY	SENSOR TYPE
44.	SWMXE40S <b>R</b> <b>Y</b>		5M (197 IN)	OPEN	REED
45.	SWMXE40S <b>R</b> <b>K</b>		QUICK-DISCONNECT		
44.	SWMXE40S <b>N</b> <b>Y</b>		5M (197 IN)	CLOSED	REED
45.	SWMXE40S <b>N</b> <b>K</b>		QUICK-DISCONNECT		
44.	SWMXE40S <b>T</b> <b>Y</b>		5M (197 IN)	OPEN	SOLID STATE PNP
45.	SWMXE40S <b>T</b> <b>K</b>		QUICK-DISCONNECT		
44.	SWMXE40S <b>K</b> <b>Y</b>		5M (197 IN)	OPEN	SOLID STATE NPN
45.	SWMXE40S <b>K</b> <b>K</b>		QUICK-DISCONNECT		
44.	SWMXE40S <b>P</b> <b>Y</b>		5M (197 IN)	CLOSED	SOLID STATE PNP
45.	SWMXE40S <b>P</b> <b>K</b>		QUICK-DISCONNECT		
44.	SWMXE40S <b>H</b> <b>Y</b>		5M (197 IN)	CLOSED	SOLID STATE NPN
45.	SWMXE40S <b>H</b> <b>K</b>		QUICK-DISCONNECT		
MATING QD CABLE IS INCLUDED.					

**Ordering Repair Kits**  
Repair kit includes: dust band, end caps, wipers, solid bearings, bearing end caps  
The part number for a repair kit begins with RK followed by model, actuator size, bearing type, and stroke length (**S****K** = inch/US Standard, **S****M**= metric)  
(NOTE: If unit has an auxiliary carrier also include DC and distance between carrier centers)





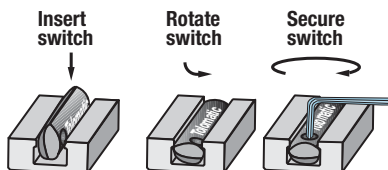
## SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING (CE and RoHS Compliant)



Switches for MX:

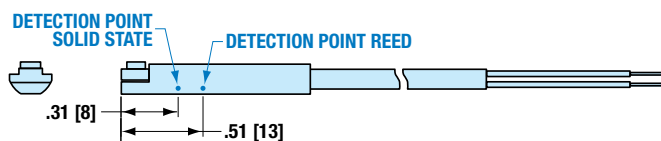
- Include retained mounting hardware
- In slot, sit below extrusion profile
- Same for all sizes and bearing styles

## Switch installation and replacement



Place switch in side groove on tube at desired location with "Tolomatic" facing outward. While applying light pressure to the switch, rotate it such that the switch is halfway in the groove. Maintaining light pressure, rotate the switch in the opposite direction until the switch is fully inside the groove with "Tolomatic" visible. Re-position the switch to the exact location and lock the switch securely into place by tightening the screw on the switch.

## Switch Detection point



Dimensions in inches [brackets indicate dimensions in millimeters]

**Tolomatic**  
EXCELLENCE IN MOTION

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COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED BY DNV  
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