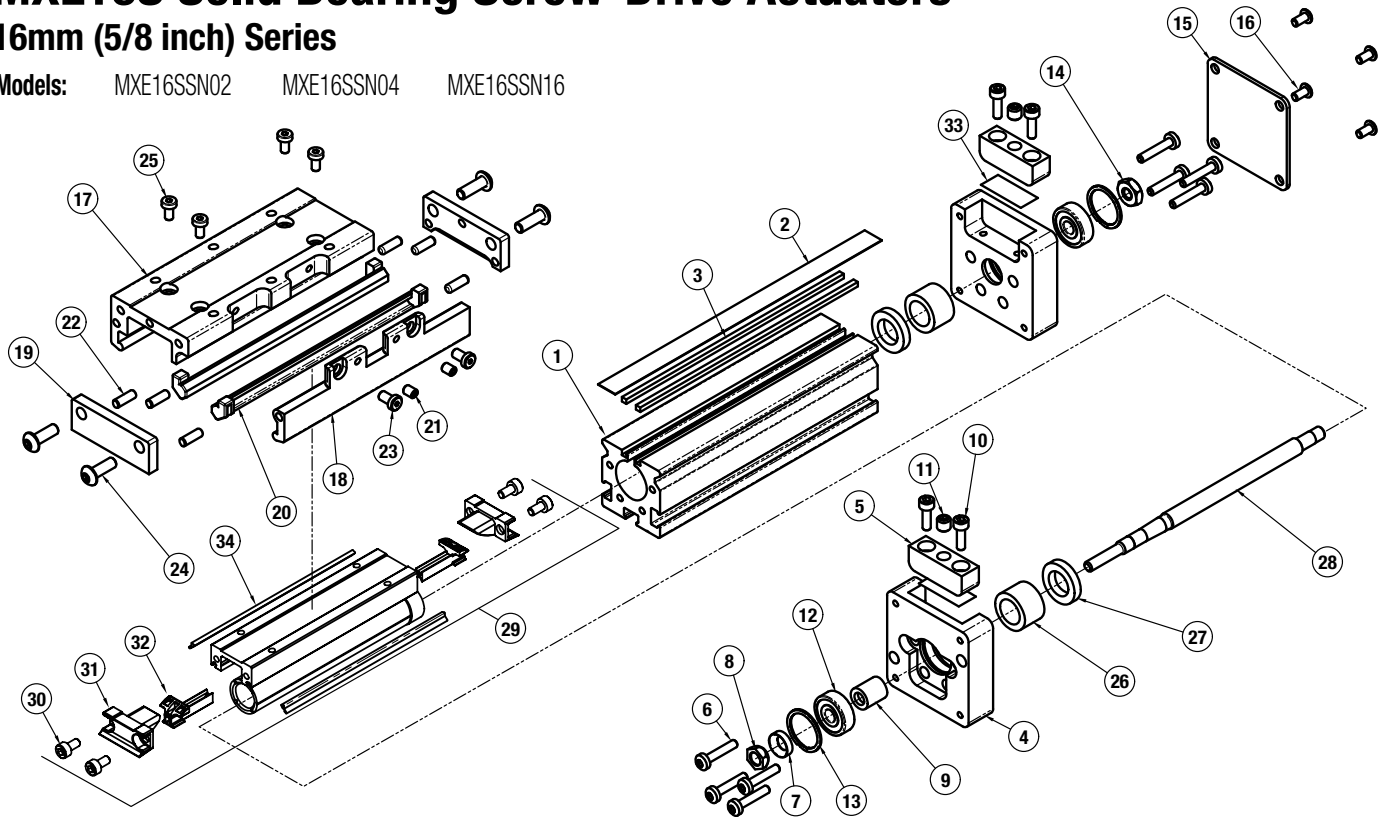


MXE16S Solid Bearing Screw-Drive Actuators

16mm (5/8 inch) Series

Models: MXE16SSN02 MXE16SSN04 MXE16SSN16



Parts Listing

A/R= As Required

ITEM	PART NO. or CONFIG. CODE	DESCRIPTION	MXE16S		
			SN02	SN04	SN16
1	RTBMXE16	Replacement Tube (8316-1016)	After Config. Code add:		
2 ¹	NDBMXE16	New Dust Band (8316-1018)	SK (stroke length in inches)		
3	NMBMXE16	New Magnet Band Kit (8316-1019) (2 magnet strips included)	or SM (stroke length in mm)		
4	8316-1011	HEAD	2	2	2
5	8316-1017	BAND CLAMP	2	2	2
6	8316-1022	PAN HEAD CAP SCREW	8	8	8
7	8316-1028	SPHERICAL WASHER	1	1	1
8	8316-1027	LOCK NUT	1	1	1
9	8316-1029	BUSHING	1	1	1
10	0602-3012	SOCKET HEAD CAP SCREW	4	4	4
11	0601-1093	SET SCREW	2	2	2
12	8316-1009	BEARING	2	2	2
13	8316-1005	RETAINING RING	2	2	2
14	2506-1007	HEX NUT	1	1	1
15	8316-1020	COVER PLATE, IDLE END	1	1	1
16	0602-1056	BUTTON HEAD CAP SCREW	4	4	4
17	8316-1513	CARRIER, UPPER (Inch)	1	1	1
	8316-1013	CARRIER, UPPER (metric)	1	1	1
18	8116-1514	CARRIER, LOWER (inch)	1	1	1
	8116-1014	CARRIER, LOWER (metric)	1	1	1
19	8116-1015	END CAP	2	2	2
20 ²	8116-1030	BEARING	2	2	2
21	8116-1575	TENSION (Set) SCREW (inch)	2	2	2
	8116-1075	TENSION (Set) SCREW (metric)	2	2	2
22	3417-1451	DOWEL PIN	6	6	6
23	8116-1515	LOCK SCREW (inch)	2	2	2
	8116-1076	LOCK SCREW (metric)	2	2	2
24	8140-1075	BUTTON HEAD CAP SCREW	4	4	4

ITEM	PART NO. or CONFIG. CODE	DESCRIPTION	MXE16S		
			SN02	SN04	SN16
25	8116-1076	LOW HEAD CAP SCREW	4	4	4
26	8316-1024	SPACER, NYLON	2	2	2
27	8316-1023	BUMPER	2	2	2
28	RLSAMXE16-SN02SK ⁴ LMI ⁵	Leadscrew, .250, SN02, LMI (8316-1100)	A/R	-	-
	RLSAMXE16-SN02SK ⁴ RP ⁵	Leadscrew, .250, SN02, RP (8316-1101)	A/R	-	-
	RLSAMXE16-SN04SK ⁴ LMI ⁵	Leadscrew, .250, SN04, LMI (8316-1102)	-	A/R	-
	RLSAMXE16-SN04SK ⁴ RP ⁵	Leadscrew, .250, SN04, RP (8316-1103)	-	A/R	-
	RLSAMXE16-SN16SK ⁴ LMI ⁵	Leadscrew, .250, SN16, LMI (8316-1104)	-	-	A/R
	RLSAMXE16-SN16SK ⁴ RP ⁵	Leadscrew, .250, SN16, RP (8316-1105)	-	-	A/R
29 ^{1,3}	8316-9006	NUT BRACKET ASSEMBLY, SN02	1	-	-
	8316-9007	NUT BRACKET ASSEMBLY, SN04	-	1	-
	8316-9008	NUT BRACKET ASSEMBLY, SN16	-	-	1
30 ³	0601-1038	SOCKET HEAD CAP SCREW	4	4	4
31 ^{2,3}	8116-1006	END CAP	2	2	2
32 ^{2,3}	8316-1007	BAND RAMP	2	2	2
33	8325-1055	SHIM	2	2	2
	8325-1056	SHIM	2	2	2
	8325-1057	SHIM	2	2	2
34 ²	8116-1059	WIPER	2	2	2

¹ Solid Nut Bracket Assembly available to order for replacement - Contact the Factory.

² Parts included in Repair Kits. (RKMXE16SSK or SM___, indicate stroke length in inches or millimeters)

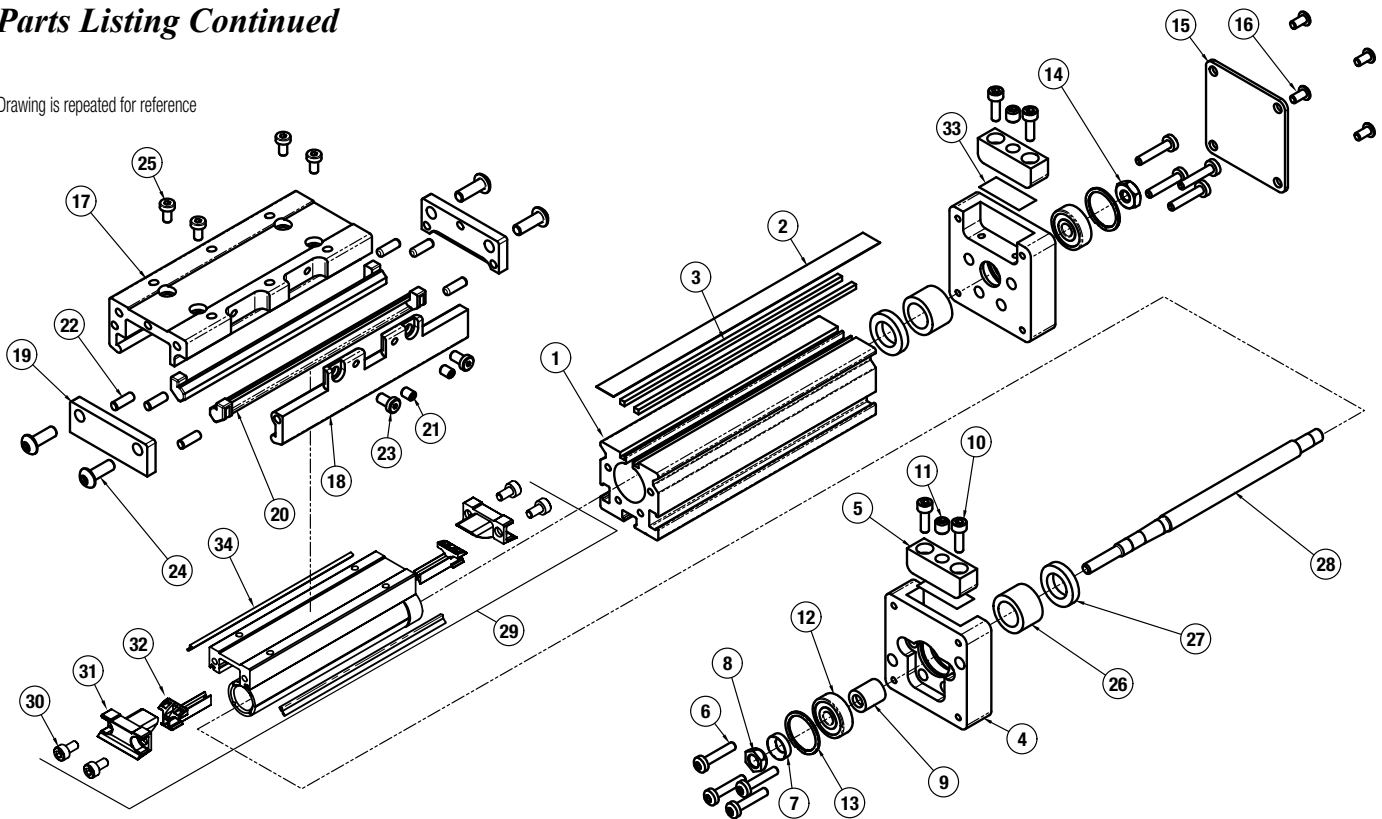
³ Parts included in Nut Bracket Assembly

⁴ SK or SM___, indicate stroke length in inches or millimeters

⁵ Length of connecting shaft varies by motor type and size, indicate motor code here

Parts Listing Continued

Drawing is repeated for reference



Assembly and Disassembly Instructions

GENERAL 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 (5) from both Heads (4) of the actuator by removing Screws (10) and backing out the Center Set Screw (11) a couple turns. Carefully lift the Dust Band (2) from the slot in each Head (4) and remove any Shims (33) located under the Band (2) in the Head (4) slot. Retain the Shims (33) for re-assembly. Slightly loosen the Carrier Tension Screws (21) and Lock Screws (23). Remove the Carrier End Caps (19). Remove Screws (25) from the Carrier (17). The Carrier (17) can now be removed. Remove End Caps (31) from both ends of the Nut Bracket (29). The Dust Band (2) can now be removed from the actuator.

2. LEAD SCREW SUB-ASSY REMOVAL. On the Non-Drive End of the actuator, remove Screws (16) to remove the Cover Plate (15), and Hex Nut (14) from the Leadscrew (28). Remove Screws (6) from both Heads (4). Remove the Non-Drive End Head (4) and the Drive Head/Leadscrew Assembly (28). The Nut Bracket Assembly (29) can now be removed from the Leadscrew (28) if necessary and the Band Ramps (32) may also be removed from the Nut Bracket Assembly (29) 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 (29) and cannot be removed. If Nuts are worn, a new Nut Bracket Assy (29) must be ordered.

If the Drive End Head (4) and Bearing (12) must be removed from the Leadscrew (28), contact the factory prior to removal for specific instructions.

GENERAL ASSEMBLY INSTRUCTIONS

1. INSTALL LEAD SCREW ASSEMBLY. Install the Drive Head/Leadscrew Assembly (28) into the Tube (1). Ensure that the Bumper (27) and Nut Spacer (26) are in place and position the Non-Drive End Head (4) over the Leadscrew Bearing (12) and

loosely install Screws (6) into the Head (4). Install the Drive End Screws (6) loosely into the Head (4).

2. **INSTALL DUST BAND.** Install the Dust Band (2) through the Nut Bracket Assy (29) and install End Caps (31) onto the Nut Bracket (29).

3. **SUB-ASSEMBLE CARRIER.**

Position the Bearings (20) into the slots on the Carrier (17) and with Pins (22) in place, pre-assemble the Lower Carrier Plate (18) to the Carrier with the Bearing (20) in place. Install the Carrier End Caps (19) with Screws (24). Keep the Tension Set Screws (21) and Lock Screws (23) loose.

4. **TENSION THE CARRIER.**

The MX solid bearing carrier will provide best performance when properly adjusted. The carrier design contains both Tension (21) and Lock Screws (23). The Tension Screws (21) control the amount of pressure placed on the Carrier Bearings (20). The Lock Screws (23) lock the Tension Screws (21) in place and provide fine adjustment of the Carrier Bearings (20).

Tools Required:

Inch Models: 1/16 inch and 2.5mm Hex Wrench (Key)

Metric Models: 2 and 2.5 mm Hex Wrench (Key)

- Loosen End Plate Screws (24) on both ends of the Carrier (17).
- Fully loosen all Tension (21) and Lock Screws (23). They do not need to be removed, just fully loosened.
- Tighten Tension Screws (21) by turning them clockwise until the Carrier (17) is just tight enough so that no side-to-side rocking motion is present and it can easily be moved by hand over the entire stroke length with no hesitation. Very little torque on the screws is required to obtain this condition.

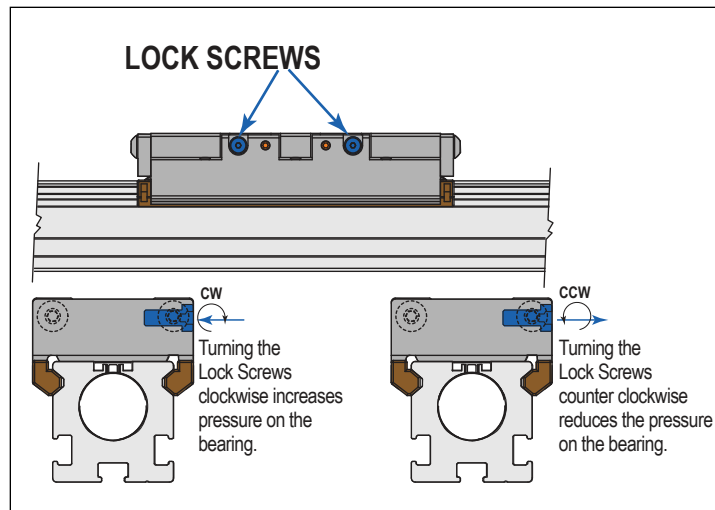
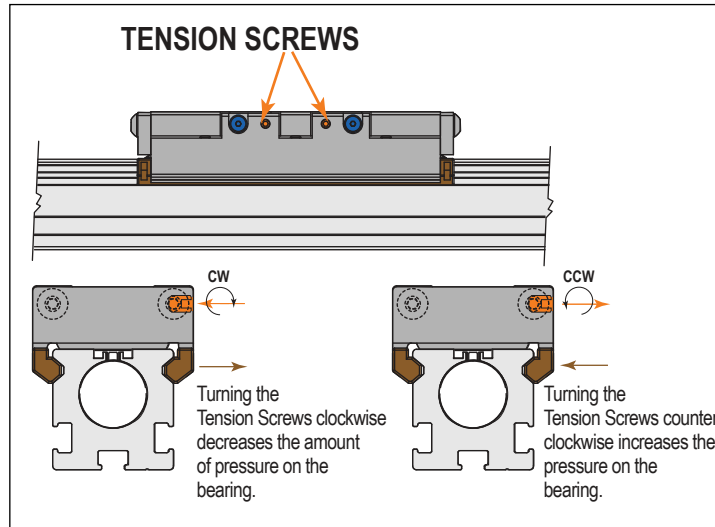
Note: The Tension Screws (21) are the small set screw style fastener. The Lock Screws (23) are the larger, low head, hex drive screws.

- Tighten Lock Screws (23) by turning them clockwise until tight. The Carrier (17) should feel snug in relation to the Tube (1), with no side-to-side rocking motion present. If the Carrier (17) becomes too loose, loosen the Lock Screws (23), tighten the Tension Screws (21) and then retighten the Lock Screws (23).

- Once ideal carrier tension is achieved, fully tighten End Plate Screws (24) on both ends of the Carrier (17).

During the service life of the application this process may need to be repeated. Keeping the Carrier (17) in a properly adjusted tension will prolong the life of the MX bearing system and the actuator itself.

- Position the Carrier (17) over the Nut Bracket (29) and install Screws (25).



Check out our MX--S carrier adjustment video on the web
<https://youtu.be/LVWPG2gfy0A>

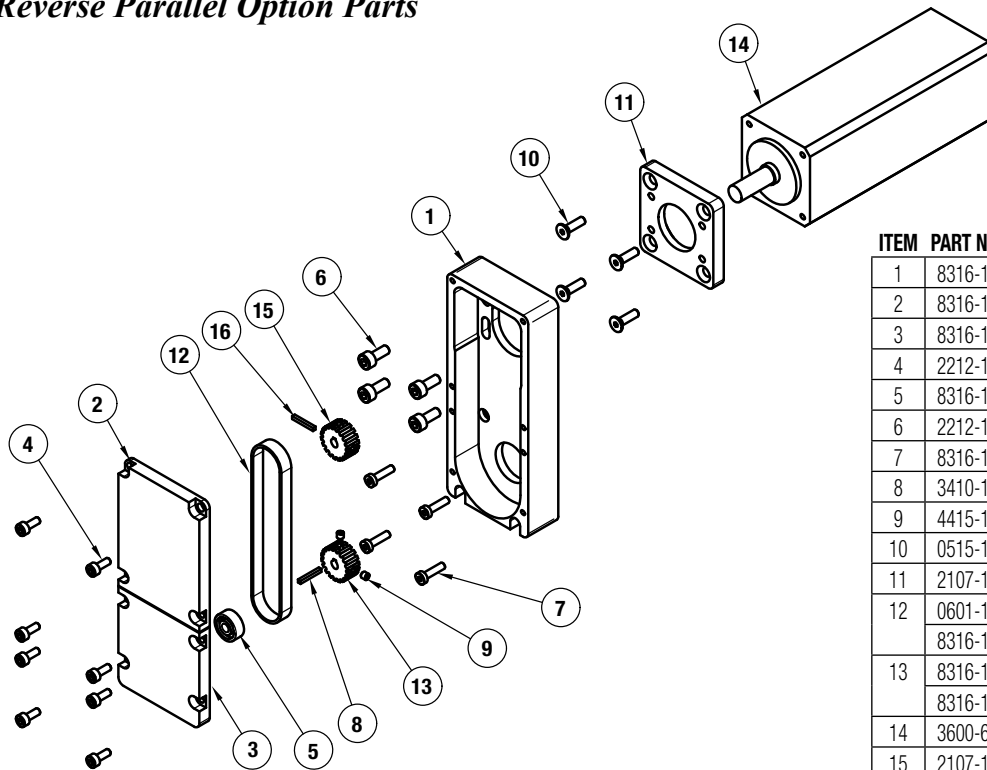
5. **PERFORM HEAD ALIGNMENT AND FINAL ASSEMBLY.** Note: Custom tooling is used at the factory to align the Heads (4) to the Tube (1) to maintain parallelism between the top of the Head (2) and top of the Tube (1). This is critical to performance and longevity of the Dust Band (2). In the following steps, take care to visually align the Head (4) to the Tube (1).

Move the assembled Carrier (17) to Drive End of Tube (1) and tighten one of the Head Bolts (6). Supporting the actuator so the Head (4) is free to float while tightening the Head Fastener Bolts (6). Move the Carrier Assy (17) to Non-drive End of Tube (1) and tighten the Head Fastener Bolts (6). Move Carrier Assy (17) back to the Drive End of Tube (1) and loosen the Screw (6) that was previously tightened and then tighten all Head Fasteners (6). Apply Loctite 242 to Hex Nut (14) and thread onto the Leadscrew (28) and torque to 16-20 oz-In. Install Cover Plate (15) with Screws (16).

6. **INSTALL BAND CLAMPS.**

The Dust Band (2), Tube (1) and clamping surface of the Head (4) 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 (4). Position the Carrier (17) near the Drive End. Position the Band (2) in the pocket over the installed Shims (33) and install the Band Clamp (5) with the two Screws (10). Tighten down the Center Set Screws (11). Position the Carrier (17) near the Non-Drive End and repeat the steps to install the other Band Clamp (5).

Reverse Parallel Option Parts

ITEM	PART NO.	DESCRIPTION	QTY
1	8316-1080	HOUSING	1
2	8316-1087	COVER PLATE, UPPER	1
3	8316-1086	COVER PLATE, LOWER	1
4	2212-1090	SOCKET HEAD CAP SCREW	8
5	8316-1008	BEARING	1
6	2212-1092	SOCKET HEAD CAP SCREW	4
7	8316-1085	LOW HEAD CAP SCREW	4
8	3410-1287	KEY	1
9	4415-1015	SET SCREW	2
10	0515-1232	FLAT HEAD CAP SCREW	4
11	2107-1103	MOTOR PLATE	1
12	0601-1069	BELT (1:1 RATIO)	1
	8316-1084	BELT (2:1 RATIO)	1
13	8316-1082	PULLEY (1:1 RATIO)	1
	8316-1083	PULLEY (2:1 RATIO)	1
14	3600-6239	MOTOR	1
15	2107-1055	PULLEY, MOTOR	1
16	1209-1017	SPRING PIN	1

REVERSE PARALLEL DISASSEMBLY INSTRUCTION

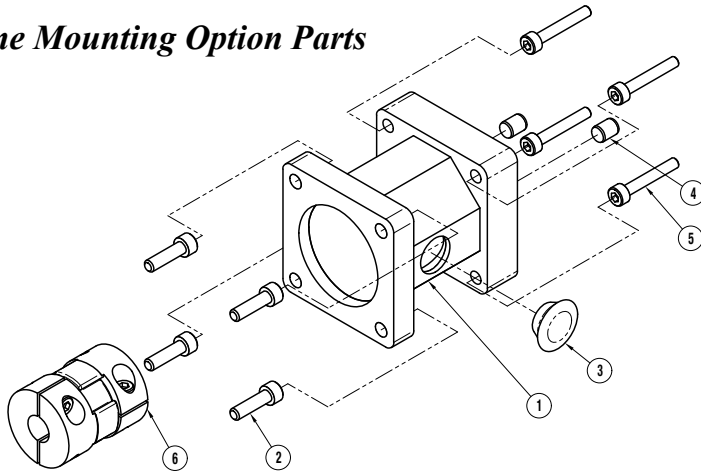
1. Remove the Upper Cover (2), and release the tension on Belt (12) by breaking loose the Motor Screws (6).
2. Remove the Lower Cover (3).
3. The Belt (12) can now be removed along with the Motor.
4. Remove both Pulleys (15) and (13) from their respective shafts.
5. Remove the RP Housing (1) from the actuator Head (page 1, #4) by removing the Screws (7).

REVERSE PARALLEL ASSEMBLY INSTRUCTIONS

Note: Apply Loctite #242 to all screws upon installation

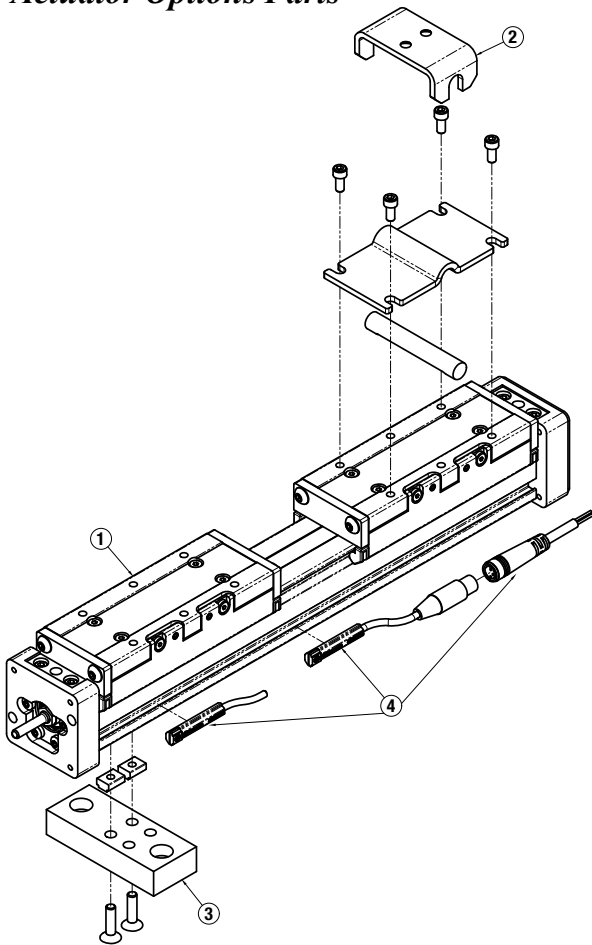
1. Install RP Housing (1) to the actuator Head (page 1, #4) with Screws (7).
2. Install Driven Pulley (13) to the Leadscrew (28) output shaft.
3. Install the Cover (3) with Bearing (5), onto the RP Housing (1) positioning the Bearing (5) over the Leadscrew (28) shaft.
4. Install the Motor to the RP Housing with Screws (6). Do not tighten the Screws at this time.
5. Install the Drive Pulley (15).
6. Locate the Belt (12) over the Pulleys (15) and (13).
7. Verify that there is clearance between the inside of the RP Housing (1) and each Pulley. Verify that the Pulleys (13 & 15) are aligned with each other.
8. Tension the Belt (12) by pulling the Motor away from the drive shaft with a force of 10 lbs. While tensioning, the actuator should be positioned so the weight of the Motor does not affect the belt tension. Tighten the Motor Screws (6) while the tensioning force is applied to the Motor.
9. Install Cover (2) with the Screws (4) to finalize assembly.

In-Line Mounting Option Parts



ITEM	PART NO.	DESCRIPTION	QTY
1	8316-1070	MOTOR SPACER	1
2	0910-1404	SOCKET HEAD CAP SCREW	4
3	2107-1039	PLUG	1
4	6000-1752	DOWEL PIN	2
5	2212-1111	SOCKET HEAD CAP SCREW	4
6	3600-9311	COUPLER	1

Actuator Options Parts



ITEM	PART NO.	DESCRIPTION	QTY in KIT
1	8316-9515	AUXILIARY CARRIER ASSEMBLY (inch)	
	8316-9015	AUXILIARY CARRIER ASSEMBLY (metric)	
2	8116-9536	FLOATING MOUNT, KIT (inch)	
	8116-9036	FLOATING MOUNT, KIT (metric)	
	8116-1067	FLOATING MOUNT CLAMP	1
	8116-1066	FLOATING MOUNT BRACKET	1
	8116-1065	FLOATING MOUNT PIN	1
	0905-1135	SOCKET HEAD CAP SCREW (inch)	4
	8325-1027	LOW HEAD CAP SCREW (metric)	4
3	8316-9016	MOUNTING PLATE KIT	
	8316-1030	MOUNTING PLATE, .50 THICK	1
	8316-1050	T-NUT	2
	4410-1018	FLAT HEAD CAP SCREW	2

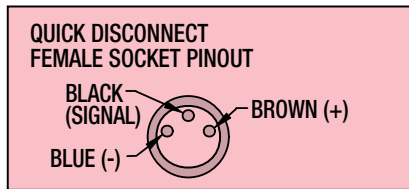
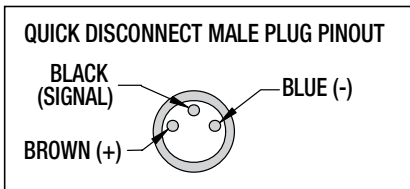
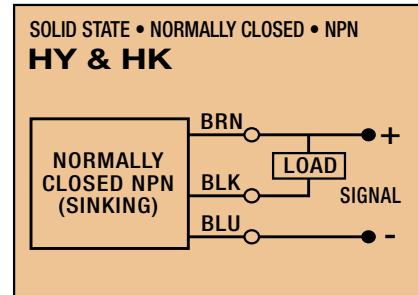
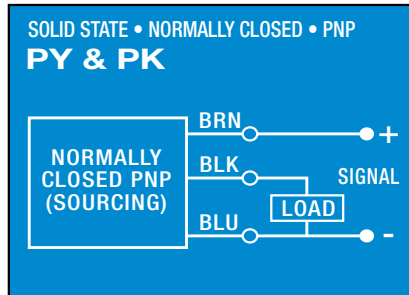
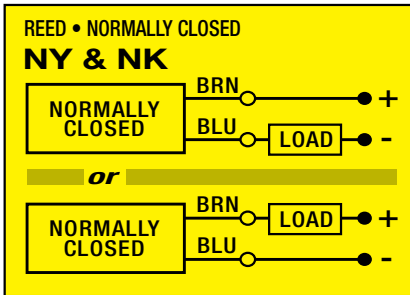
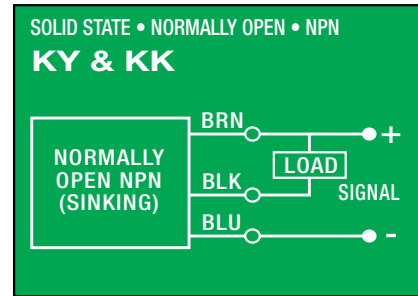
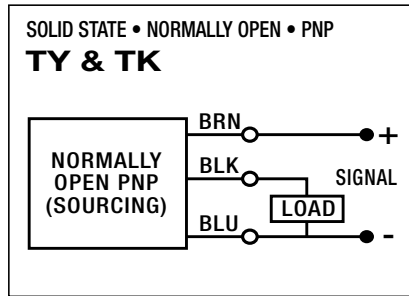
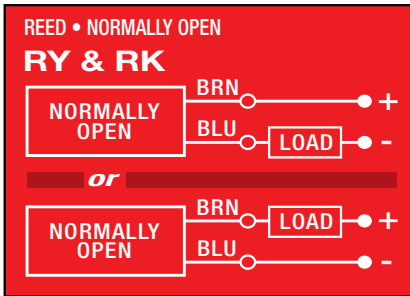
TO ORDER SERVICE PARTS SWITCHES:

Switches for MXE include retained mounting hardware and are the same for all actuator sizes and bearing styles

	Config. Code	Lead	Normally	Sensor Type
4	SWMXE16S R Y	5m (197 in)	Open	Reed
	SWMXE16S R K	Quick-disconnect		
	SWMXE16S N Y	5m (197 in)	Closed	Reed
	SWMXE16S N K	Quick-disconnect		
	SWMXE16S T Y	5m (197 in)	Open	Solid State PNP
	SWMXE16S T K	Quick-disconnect		
	SWMXE16S K Y	5m (197 in)	Open	Solid State NPN
	SWMXE16S K K	Quick-disconnect		
	SWMXE16S P Y	5m (197 in)	Closed	Solid State PNP
	SWMXE16S P K	Quick-disconnect		
	SWMXE16S H Y	5m (197 in)	Closed	Solid State NPN
	SWMXE16S H K	Quick-disconnect		

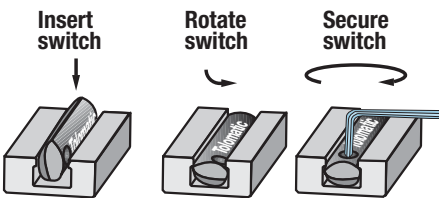
Mating QD cable is included.

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



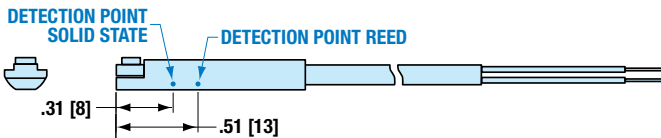
- Switches for MX:
- Include retained mounting hardware
 - In slot, sit below extrusion profile
 - Same for all sizes and bearing styles

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]

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 (SK = inch/US Standard, SM = metric) (NOTE: If unit has an auxiliary carrier also include DC and distance between carrier centers)



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