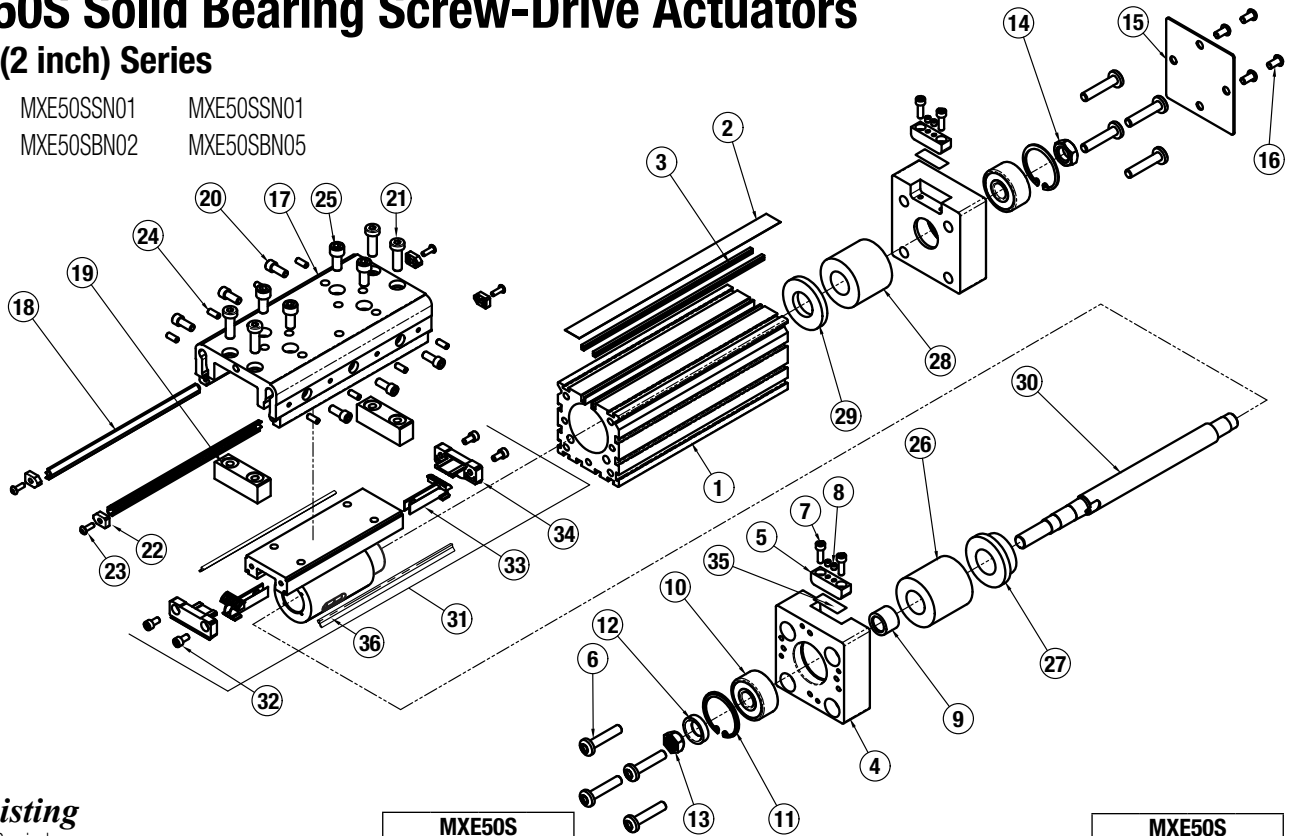


# MXE50S Solid Bearing Screw-Drive Actuators

## 50mm (2 inch) Series

Models: MXE50SSN01    MXE50SSN01  
 MXE50SBN02    MXE50SBN05



### Parts Listing

A/R= Length As Required

ITEM	PART NO. or CONFIG. CODE	DESCRIPTION	MXE50S			
			BN02	BN05	SN01	SN02
1	RTBMXE50	Replacement Tube (8350-1010)	After Config. Code add:			
2 <sup>1</sup>	NDBMXE50	New Dust Band (8350-1018)	SK (stroke length in inches)			
3	NMBMXE50	New Magnet Band Kit (8350-1019) (2 magnet strips included)	or SM (stroke length in mm)			
	8350-1011	Head	2	2	2	2
5	8350-1017	Band Clamp	2	2	2	2
6	8350-1023	Pan Head Screw	8	8	8	8
7	2212-1097	Socket Head Cap Screw	4	4	4	4
8	0601-1093	Set Screw	4	4	4	4
9	3420-2041	Tapered Leadscrew Sleeve	1	1	1	1
10	3420-1222	Bearing	2	2	2	2
11	2100-1010	Retaining Ring	2	2	2	2
12	1132-1014	Spherical Washer	1	1	1	1
13	0603-1658	Spirallock Spherical Nut	1	1	1	1
14	2410-1157	Hex Nut	1	1	1	1
15	8350-1022	Cover Plate	1	1	1	1
16	8340-1009	Button Head Cap Screw	4	4	4	4
17	8350-1513	Carrier (inch)	1	1	1	1
	8350-1013	Carrier (metric)	1	1	1	1
18 <sup>1</sup>	8150-1030	Solid Bearing	2	2	2	2
19	8150-1025	Carrier Spacer Block	2	2	2	2
20	1004-1064	Tension Screw (inch)	6	6	6	6
	8150-1072	Tension (metric)	6	6	6	6
21	8163-1071	Low Head Cap Screw	4	4	4	4
22 <sup>1</sup>	8150-1031	End Cap	4	4	4	4
23	8140-1075	Button Head Cap Screw	4	4	4	4
24	8150-1570	Lock Screw (inch)	8	8	8	8
	8150-1073	Lock Screw (metric)	8	8	8	8
25	2212-1104	Socket Head Cap Screw, SS	4	4	4	4
26	8350-1025	Nylon Spacer	1	1	1	1
27	8350-1024	Bumper	1	1	1	1
28	3420-1209	Nylon Spacer	1	1	1	1

ITEM	PART NO. or CONFIG. CODE	DESCRIPTION	MXE50S			
			BN02	BN05	SN01	SN02
29	2332-1006	Bumper	1	1	1	1
30	RLSAMXE50-BN02SK <sup>3</sup> LMI <sup>4</sup>	Leadscrew, .750, BN02, LMI (8350-1100)	A/R	-	-	-
	RLSAMXE50-BN02SK <sup>3</sup> RP <sup>4</sup>	Leadscrew, .750, BN02, RP (8350-1101)	A/R	-	-	-
	RLSAMXE50-BN05SK <sup>3</sup> LMI <sup>4</sup>	Leadscrew, .750, BN05, LMI (8350-1102)	-	A/R	-	-
	RLSAMXE50-BN05SK <sup>3</sup> RP <sup>4</sup>	Leadscrew, .750, BN05, RP (8350-1103)	-	A/R	-	-
	RLSAMXE50-SN02SK <sup>3</sup> LMI <sup>4</sup>	Leadscrew, .750, SN02, LMI (8350-1104)	-	-	-	A/R
	RLSAMXE50-SN02SK <sup>3</sup> RP <sup>4</sup>	Leadscrew, .750, SN02, RP (8350-1105)	-	-	-	A/R
	RLSAMXE50-SN01SK <sup>3</sup> LMI <sup>4</sup>	Leadscrew, .750, SN01, LMI (8350-1106)	-	-	A/R	-
	RLSAMXE50-SN01SK <sup>3</sup> RP <sup>4</sup>	Leadscrew, .750, SN01, RP (8350-1107)	-	-	A/R	-
31	8350-9006	Nut Bracket Assembly, BN02	1	-	-	-
	8350-9007	Nut Bracket Assembly, BN05	-	1	-	-
	8350-9008	Nut Bracket Assembly, SN02	-	-	-	1
	8350-9009	Nut Bracket Assembly, SN01	-	-	1	-
32 <sup>2</sup>	0603-1016	Socket Head Cap Screw, SS	4	4	4	4
33 <sup>1,2</sup>	8350-1007	Band Ramp	2	2	2	2
34 <sup>1,2</sup>	8150-1006	End Cap	2	2	2	2
35	8350-1026	Shim	2	2	2	2
	8350-1027	Shim	2	2	2	2
36 <sup>1</sup>	8150-1059	Wiper	2	2	2	2

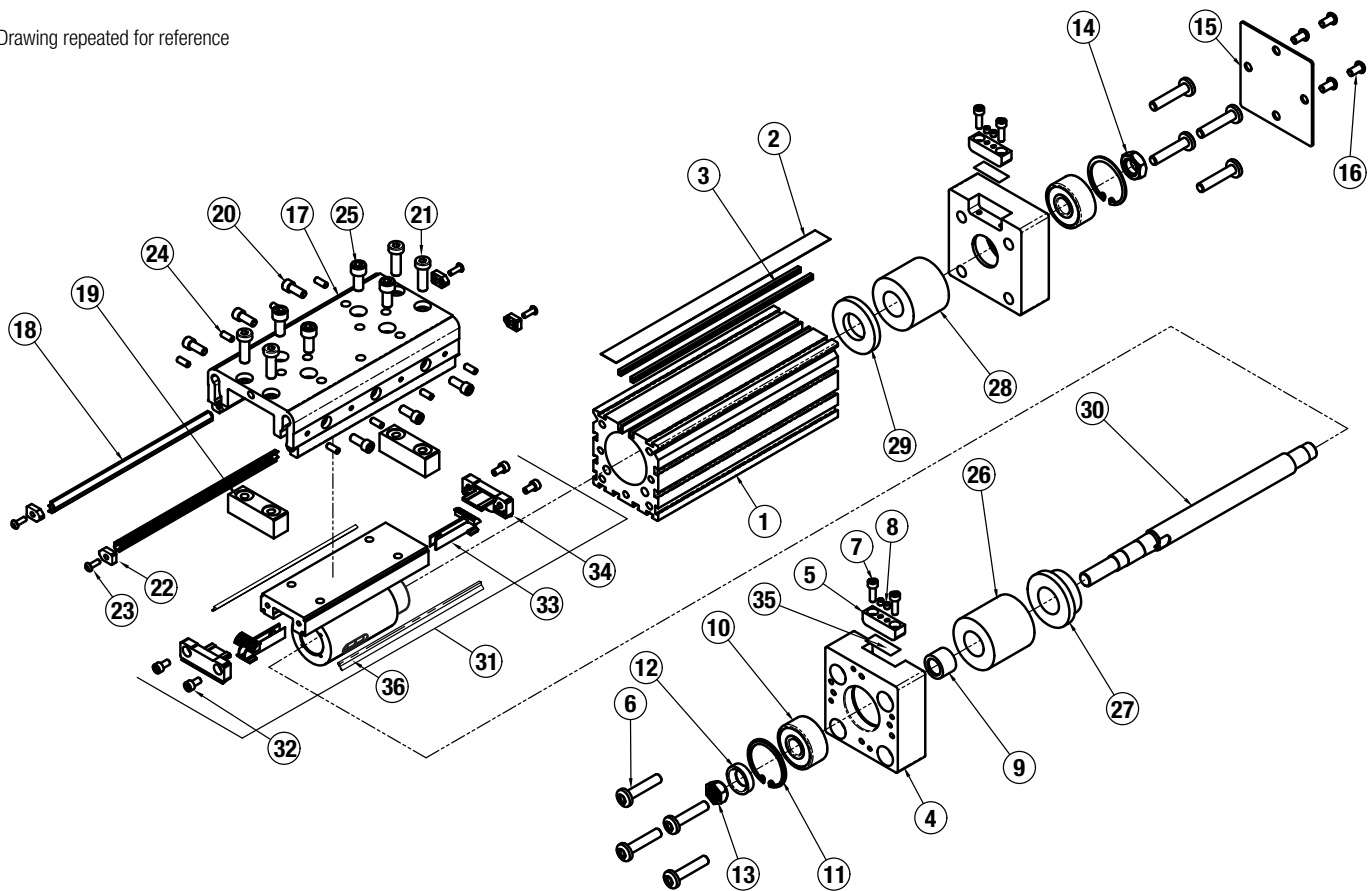
<sup>1</sup> Parts included in Repair Kits. (RKMXE50SSK or SM\_\_\_, indicate stroke length in inches or millimeters)

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

<sup>3</sup> SK or SM\_\_\_, indicate stroke length in inches or millimeters

<sup>4</sup> Length of connecting shaft varies by motor type and size, indicate motor code here

Drawing repeated for reference



## Assembly and Disassembly Instructions

### GENERAL ACTUATOR 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

For best actuator performance it is recommended that the following instructions be read and followed carefully.

#### 1. DUST BAND AND CARRIER REMOVAL

Remove the Band Clamps (5) from both Heads (4) of the actuator by removing Screws (7) and backing out the Center Set Screws (8) a couple turns. Carefully lift the Dust Band (2) from the slot in each Head (4) and remove any Shims (35) located under the Band (2) in the Head (4) slot. Retain the Shims (35) for reassembly. Remove the Carrier Spacer Blocks (19). Remove Screws (25) from the Carrier (17). Remove End Caps (34) from both ends of the Nut Bracket Assembly (31). The Dust Band (2) can now be removed from the actuator. Slightly loosen the Carrier Tension Screws (20) and Lock (Set) Screws (24). Remove

Bearing End Caps (22) from the Solid Bearings (18) and slide the Solid Bearings (18) out. The Carrier (17) can now be removed.

**NOTE:** If the stroke of the actuator is too short to allow removal of the Solid Bearings (18), it is necessary to remove the Non-Drive End Head (4) from the Tube (1).

#### 2. LEADSCREW SUB-ASSEMBLY 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 (30). Remove Screws (6) from both Heads (4). Remove the Non-Drive End Head (4) and the Drive Head/Leadscrew Assembly (30). The Nut Bracket Assembly (31) can now be removed from the Leadscrew (30) if necessary and the Band Ramps (33) may also be removed from the Nut Bracket Assembly (31) 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 (31) and cannot be removed. If Nuts are worn, a new Nut Bracket Assembly (31) must be ordered.

If the Drive End Head (4) and Bearing (10) must be removed from the Leadscrew (30), contact the factory prior to removal for specific instructions.

**GENERAL ACTUATOR ASSEMBLY INSTRUCTIONS****1. SUB-ASSEMBLY CARRIER**

Slide the Bearings (18) into the slots on the Carrier (17) and install Bearing End Caps (22) loosely onto the Bearing (18) ends with Screws (23). Keep the Tension Screws (20) and Lock (Set) Screws (24) loose. If removed, install the Band Ramps (33) to the Nut Bracket Assembly (31).

**2. INSTALL LEADSCREW ASSEMBLY**

Install the Drive Head/Leadscrew Assembly (30) 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 (30) and loosely install Screws (6) into the Head (4). Install the Drive End Screws (6) loosely into the Head (4).

**3. INSTALL DUST BAND**

Install the Dust Band (2) through the Nut Bracket Assembly (31) and install End Caps (34) onto the Nut Bracket Assembly (31). Position Carrier (17) sub-assembly onto the Tube (1).

**4. TENSION THE CARRIER**

The MX Solid Bearing Carrier (17) will provide best performance when properly adjusted. The carrier design contains both Tension (20) and Lock Screws (24). The Tension Screws (20) control the amount of pressure placed on the Solid Bearings (18). The Lock Screws (24) lock the Tension Screws (20) in place and provide fine adjustment of the Solid Bearings (18).

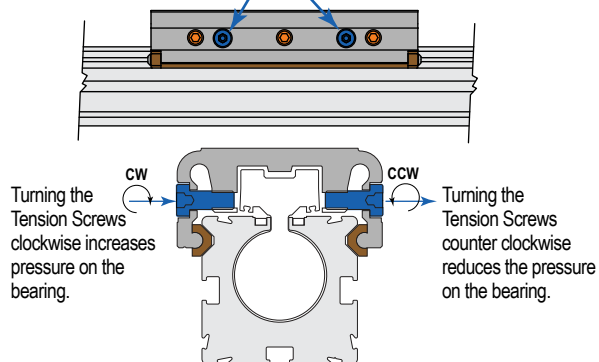
**TOOLS REQUIRED:****Inch Models:**

3/16 and 5/32 inch Hex Key

**Metric Models:**

4 and 2.5 mm Hex Key

- Fully loosen all Tension (20) and Lock Screws (24) about ½ of a turn so that they are not engaged with the Solid Bearing (18).
- Tighten Tension Screws (20) on both sides of the Carrier (17) roughly ⅛ to ¼ turn clockwise past where the Screw (20) starts to feel snug. The Carrier (17) should be very difficult or impossible to move by hand. If not, tighten another 1/8 turn until it is difficult to move.
- Next, adjust the Lock Screws (24) on both sides of the Carrier (17) roughly 1/8 to ¼ turn clockwise past where the Screw (24) starts to engage. The Carrier (17) will be loose but should not rock sideways. To correct this, loosen the Lock Screws (28) about 1/16 of a turn.

**TENSION SCREWS**

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

If the Carrier (17) becomes too snug, tighten the Lock Screws (24) another 1/8 of a turn.

- Ideal carrier tension is achieved when the Carrier (17) feels snug in relation to the Tube (1), yet can be moved by hand. No rocking motion should be present. The Carrier (17) should also be loose enough to be moved by hand over the entire length of the actuator. If after this process the Carrier (17) has become too loose, equally adjust all of the Lock Screws (24) with a slight 1/32 turn counter-clockwise.

**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.**

- When the proper carrier tension has been achieved, finish tightening the four Screws (23) to the Bearing End Caps (22).
- Position the Carrier (17) over the Nut Bracket Assembly (31) and install Screws (25). Install the Carrier Spacer Blocks (19) to the Carrier (17).

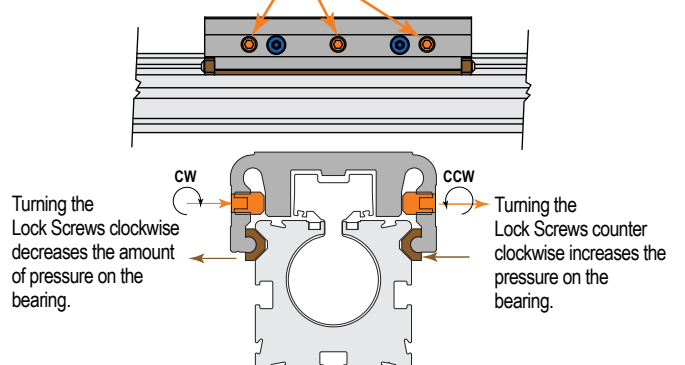
**5. PERFORM HEAD ALIGNMENT AND FINAL ASSEMBLY.**

**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 (4) and top of the Tube (1). In the following steps take care to visually align Head (4) to Tube (1).

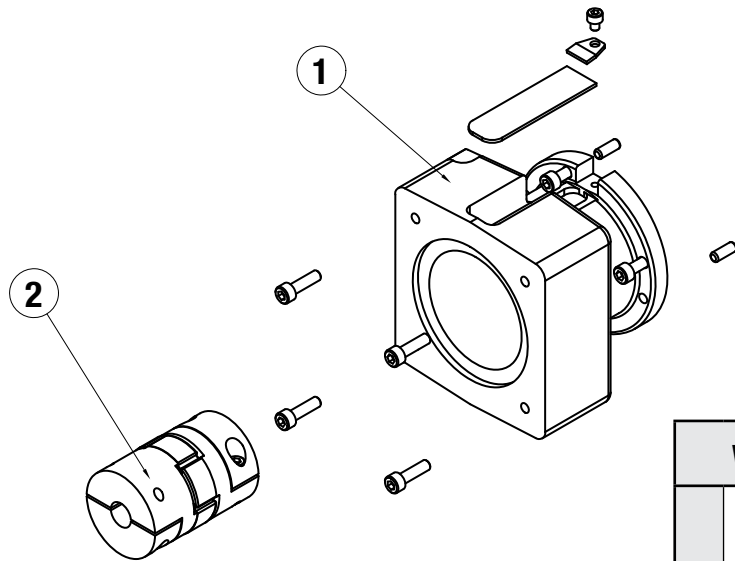
Move the assembled Carrier (17) to the Drive End of Tube (1) and tighten one of the Head Screws (6), supporting the actuator so the Head (4) is free to float while tightening the Screws (6). Move the Carrier (17) Assembly to Non-Drive End of Tube (1) and tighten the Head Screws (6). Move Carrier Assembly (17) back to the Drive End of Tube (1) and loosen the Screw (6) that was previously tightened and then tighten all Head Screws (6). Apply Loctite 242 to Hex Nut (14) and thread onto the Leadscrew (30) and torque to 18-20 in-lbs (2-2.25 N-m). 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 (35) that were present during disassembly into the clamp pocket on the Head (4). Position the Carrier (17) near the Drive End and position the Dust Band (2) in the Head (4) pocket over the installed Shims (35) and install the Band Clamp (5) with the two Screws (7). Tighten down the Center Set Screws (8). Position the carrier near the Non-Drive End and repeat the steps to install the other Band Clamp (5).

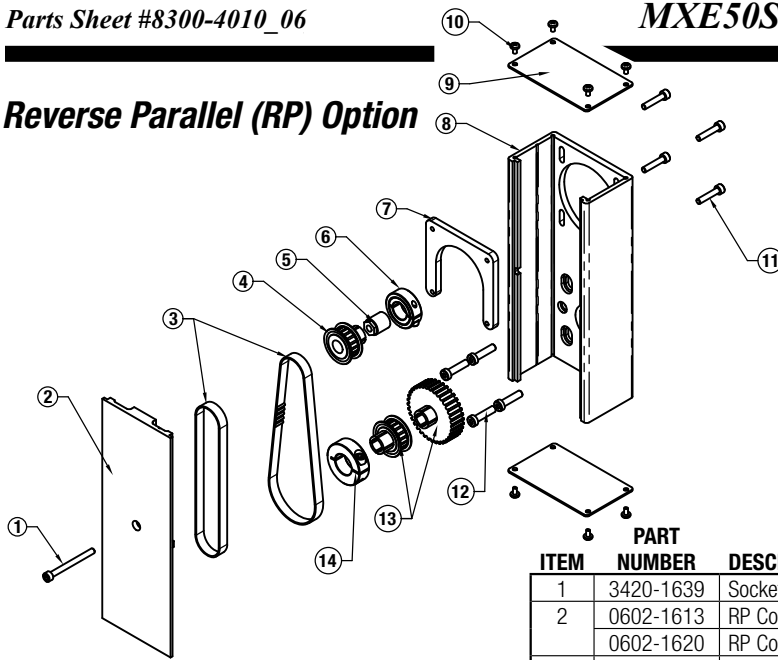
**LOCK SCREWS**

**Inline Motor Mount Option**



ITEM	PART NUMBER	DESCRIPTION	WITH GEARHEAD			WITHOUT GEARHEAD									
			MRS2XXX/GHS2XX	MRS3XXX/GHS3XX	MRS33XX/GHS3XX	MRV2XXX/GHV2XX	MRV24XX/GHV2XX	MRV3XXX/GHV3XX	MRS2XXX	MRS3XXX	MRS33XX	MRV2XXX	MRV24XX	MRV3XXX	
1	4420-9203	Motor Mounting Kit, JK 330,200 S	1			1	1								
	4420-9200	Motor Mounting Kit, MRS34X,MRV34		1	1			1							1
	4420-9201	Motor Mounting Kit, MRV23X,200										1	1		
	4520-9085	Motor Mounting Kit, MRS2,MCS20/M3S20							1						
	4520-9086	Motor Mounting Kit, MCS20/M3S20								1	1				
2	3600-6173	Coupler, SC035-C,.500/.500,AL				1						1			
	3600-6174	Coupler, SC040-C,.500/.500,AL		1			1	1					1	1	
	3600-9252	Coupler Kit, 14,.50/.50,AL,M4	1												
	3420-9041	Coupler Kit, 19,.50/.50,AL,M5			1										
	3410-9157	Coupler Kit, 19,.25/.50,AL,M5							1						
	3420-9041	Coupler Kit, 19,.50/.50,AL,M5								1					
	3600-9218	Coupler Kit, 19,.50/.63,AL,M5									1				

**Reverse Parallel (RP) Option**



ITEM	PART NUMBER	DESCRIPTION	1:1					2:1				
			MRV2XXX	MRS2XXX	MRV3XXX	MRS31XX, MRS32XX	MRS33XX	MRV2XXX	MRS2XXX	MRV31XX	MRS31XX, MRS32XX	MRS33XX
1	3420-1639	Socket Head Cap Screw	1	1	1	1	1	1	1	1	1	1
2	0602-1613	RP Cover, 23 Frame	1	1				1	1			
	0602-1620	RP Cover, 34 Frame			1	1	1			1	1	1
3	0515-1064	Timing Belt, 14.0L	1	1	1	1	1					
	0520-1070	Timing Belt, 16.0L						1	1	1	1	1
4	0515-1191	Pulley, 18 Teeth		1					1			
	0510-1398	Pulley, 18 Teeth					1					1
5	0510-1111	Trantorq		1					1			
6	0520-1067	Shaft Collar	2	1	2	2	1	2	1	2	2	1
7	0601-1053	U-Plate, 23 Frame	1	1				1	1			
	0602-1057	U-Plate, 34 Frame			1	1	1			1	1	1
8	0602-1603	RP Housing, 23 Frame	1	1				1	1			
	0602-1610	RP Housing, 34 Frame			1	1	1			1	1	1
9	0602-1602	End Cap, RP Housing	2	2	2	2	2	2	2	2	2	2
10	0602-1625	Screw	8	8	8	8	8	8	8	8	8	8
11	2212-1099	Socket Head Cap Screw	4	4	4	4	4	4	4	4	4	4
12	3420-1649	Low Head Cap Screw	4	4	4	4	4	4	4	4	4	4
	3420-1255	Pulley, 18 Teeth	2	1	2	2	1	1		1	1	
13	3420-1256	Pulley, 36 Teeth						1	1	1	1	1
	3420-1627	Shaft Collar					1					1

**REVERSE PARALLEL DISASSEMBLY INSTRUCTIONS**

- Remove Screws (10) to release Housing End Caps (9). Release the tension on Belt (3) by breaking loose the Motor Screws (11).
- Remove Screw (1) to remove Cover (2).
- The Belt (3) can now be removed along with the Motor.
- Remove both Pulleys (4) and (13) from their respective shafts.
- Remove the RP Housing (8) from the actuator by removing Screws (12).

- Install Pulleys (4) and (13) as needed. Tighten each Pulley (4, 13) to its shaft with either a Trantorque (5) or a Shaft Collar (6, 14).
- Locate the Belt (3) over the Pulleys (4) and (13).
- Verify that there is clearance between the inside of the RP Housing (8) and each Pulley (4, 13). Verify that the Pulleys (4, 13) are aligned with each other.
- Position the Cover (2) in the mating slot of the RP Housing (8) and install the Screw (1) to hold in place. Take care not to over tighten. If the Cover (2) is deflected it can interfere with the Leadscrew (30).
- Tension the Belt (3) 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 Screws (11) while the tensioning force is applied to the Motor.

**REVERSE PARALLEL ASSEMBLY INSTRUCTIONS**

NOTE: Apply Loctite #242 to all Screws upon installation

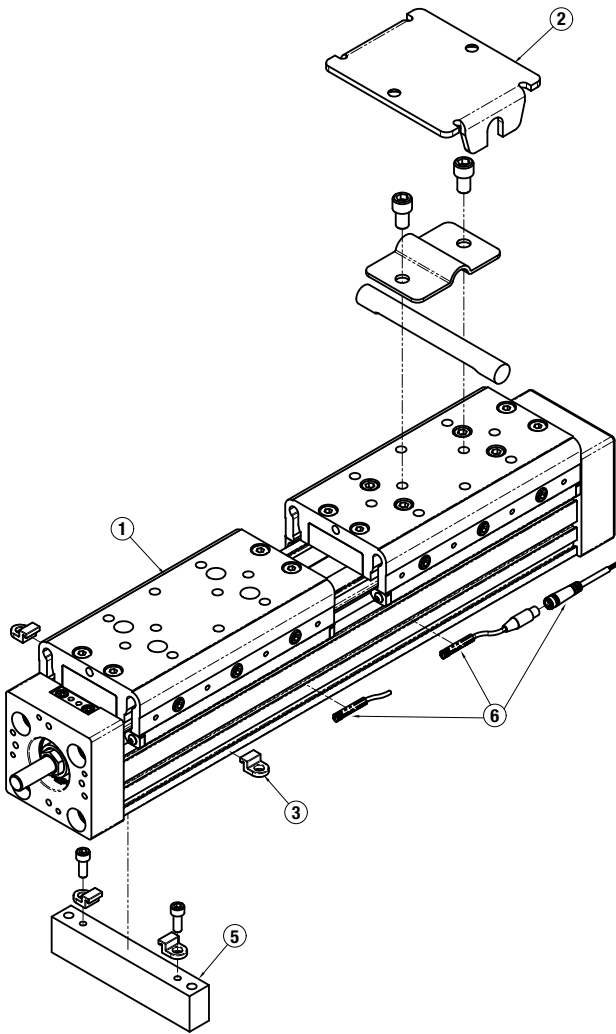
- Install RP Housing (8) to the actuator Head with Screws (12). Do not fully tighten the Fasteners (12) at this time and verify that the RP Housing (8) can move with respect to the Head.
- Temporarily install the Cover (2) onto the RP Housing (8). Hold the Cover (2) in place while tightening two of the Screws (12) that hold the RP Housing (8) to the actuator Head (page 1 #4).
- Remove the Cover (2) and finish tightening all Screws (12) attaching the RP Housing (8) to the actuator Head (page 1 #4).
- Install the Motor to the RP Housing (8) with Screws (11). Do not tighten the Screws (11) at this time.

Smallest Shaft Diameter*	Tension Force
.18" to .25"	10 lbs
> .25" to .50"	20 lbs
> .50"	30 lbs

\*The smaller of the actuator drive shaft or the motor shaft.

- Install both End Caps (9) with the Screws (10) to finalize assembly.

Actuator Options Parts



ITEM	PART NO.	DESCRIPTION	QTY in KIT
1	8350-9515	Auxiliary Carrier Assembly, (inch)	
	8350-9015	Auxiliary Carrier Assembly, (metric)	
2	<b>8150-9536</b>	<b>FLOATING MOUNT KIT (inch)</b>	
	<b>8150-9036</b>	<b>FLOATING MOUNT KIT (metric)</b>	
	0920-1036	Floating Mount Clamp	1
	8150-1068	Floating Mount Bracket	1
	8150-1069	Pin	1
	2324-1014	Socket Head Cap Screw (inch)	4
	8150-1074	Socket Head Cap Screw (metric)	4
3	<b>8140-9018</b>	<b>TUBE CLAMP MOUNT KIT</b>	
	8140-1050	Tube Clamp	2
5	<b>8350-9016</b>	<b>MOUNTING PLATE KIT</b>	
	8350-1030	Mounting Plate	1
	8140-1050	Tube Clamp	2
	0604-1057	Socket 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
6	SWMXE50S <b>R</b> <b>Y</b>	5m (197 in)	Open	Reed
	SWMXE50S <b>R</b> <b>K</b>	Quick-disconnect		
	SWMXE50S <b>N</b> <b>Y</b>	5m (197 in)	Closed	Reed
	SWMXE50S <b>N</b> <b>K</b>	Quick-disconnect		
	SWMXE50S <b>T</b> <b>Y</b>	5m (197 in)	Open	Solid State PNP
	SWMXE50S <b>T</b> <b>K</b>	Quick-disconnect		
	SWMXE50S <b>K</b> <b>Y</b>	5m (197 in)	Open	Solid State NPN
	SWMXE50S <b>K</b> <b>K</b>	Quick-disconnect		
	SWMXE50S <b>P</b> <b>Y</b>	5m (197 in)	Closed	Solid State PNP
	SWMXE50S <b>P</b> <b>K</b>	Quick-disconnect		
	SWMXE50S <b>H</b> <b>Y</b>	5m (197 in)	Closed	Solid State NPN
	SWMXE50S <b>H</b> <b>K</b>	Quick-disconnect		

Mating QD cable is included.

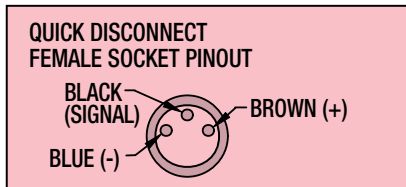
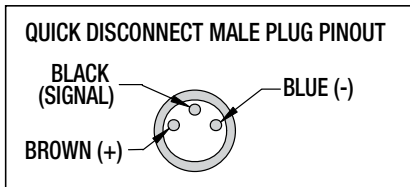
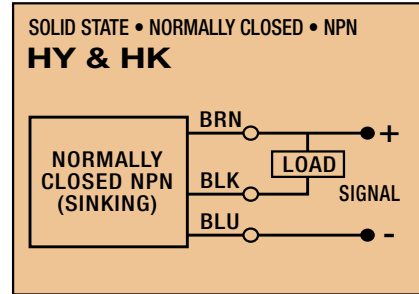
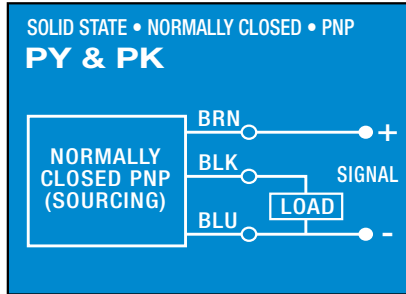
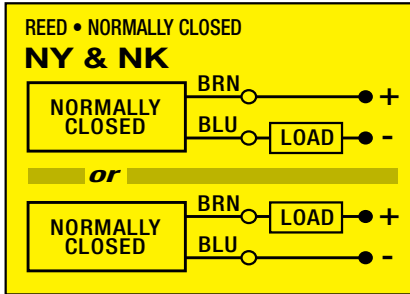
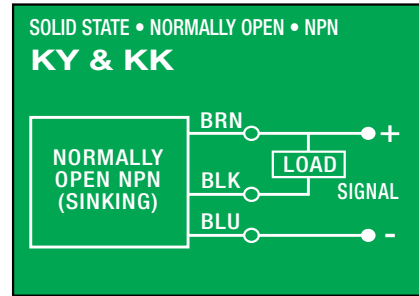
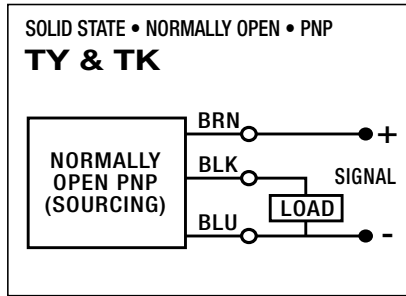
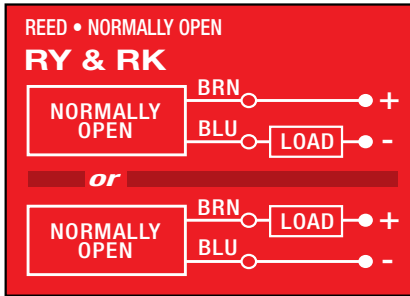
**ORDERING REPAIR KITS**

Repair kit includes: dust band, end caps, wipers, solid bearings, bearing end caps

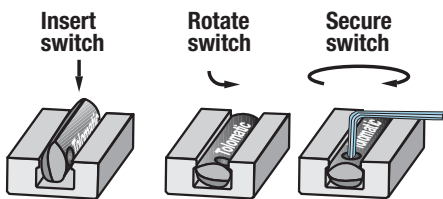
The part number for a repair kit begins with RK followed by model, actuator size, bearing type, and stroke length (**S****K** = inch/US Standard, **S****M** = metric) (NOTE: If unit has an auxiliary carrier also include DC and distance between carrier centers)

REPAIR KIT	MODEL	ACTUATOR SIZE	BEARING TYPE	STROKE METRIC	STROKE LENGTH	AUXILIARY CARRIER	DISTANCE BETWEEN CARRIERS
<b>RK</b>	<b>MXE</b>	<b>50</b>	<b>S</b>	<b>SM</b>	<b>2007</b>	<b>02</b>	<b>DC215.9</b>

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

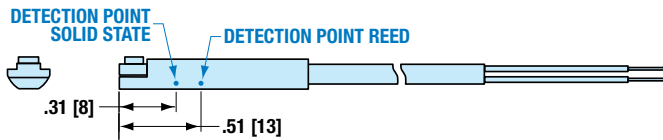


**SWITCH INSTALLATION AND REPLACEMENT**



Place switch in side groove on tube at desired location with "Tolomatic" facing outward. While applying light pressure to the switch, rotate the switch halfway into the groove. Maintaining light pressure, rotate the switch in the opposite direction until it 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]



3800 County Road 116, Hamel, MN 55340  
<http://www.Tolomatic.com> • Email: [Help@Tolomatic.com](mailto:Help@Tolomatic.com)  
 Phone: (763) 478-8000 • Fax: (763) 478-8080 • Toll Free: 1-800-328-2174



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