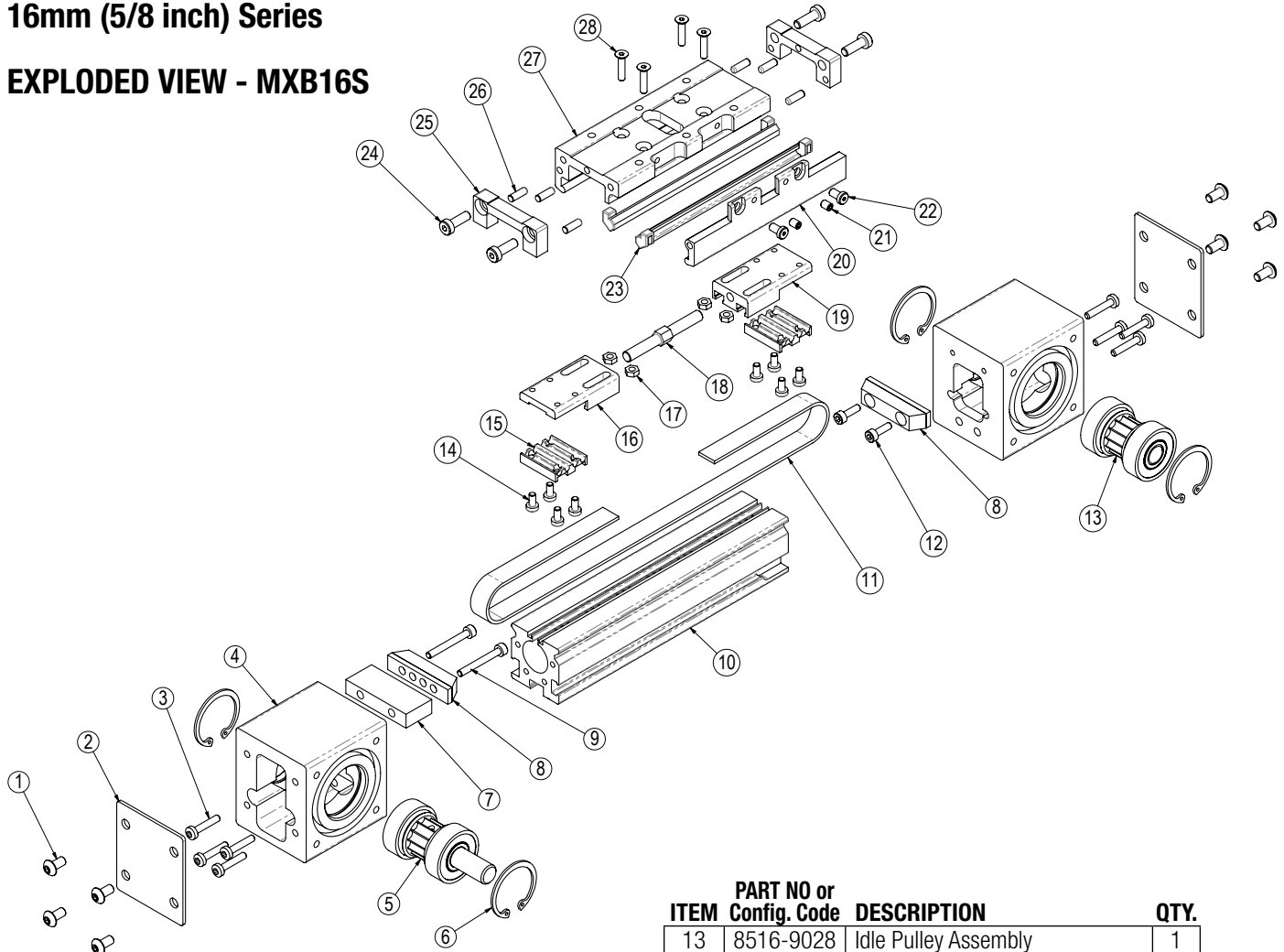


MXB16S Solid Bearing, Belt-Drive Actuators 16mm (5/8 inch) Series

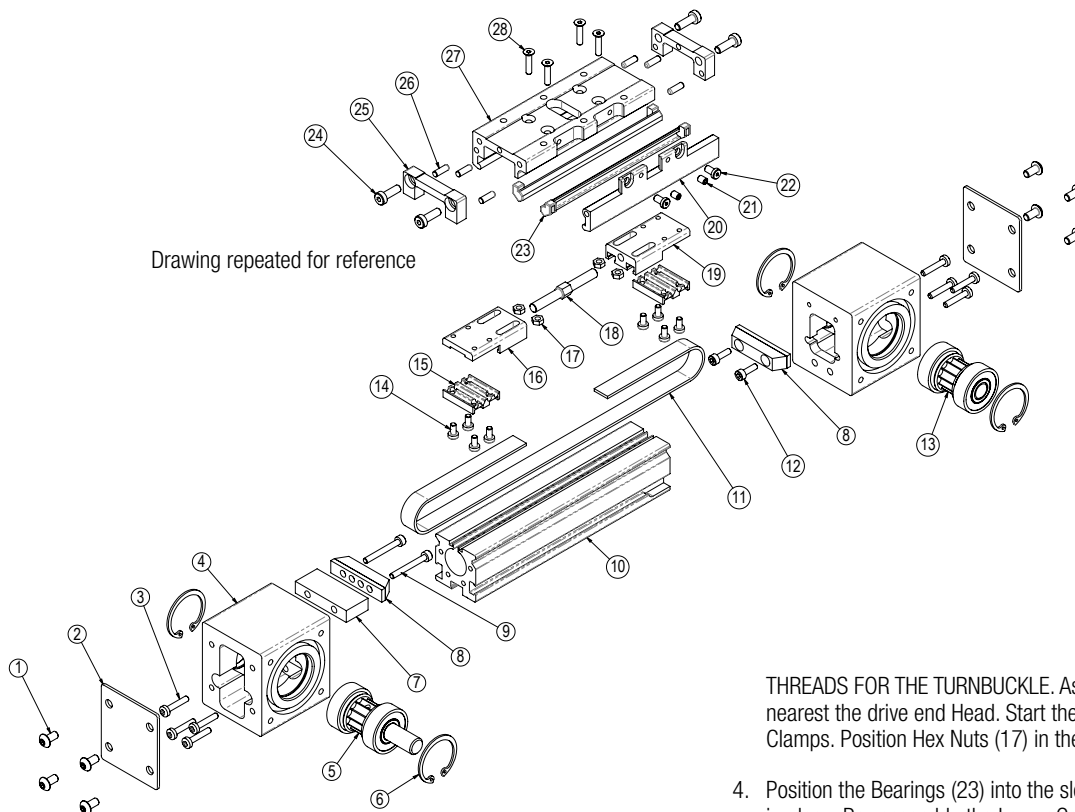
EXPLODED VIEW - MXB16S



ITEM	PART NO or Config. Code	DESCRIPTION	QTY.
1	0510-1370	Button Head Cap Screw	8
2	8516-1020	End Cover Plate	2
3	8316-1022	Head Screws	8
4	8516-1047	Head	2
5	8516-9025	Drive Pulley Assembly, LMI	1
	8516-9026	Drive Pulley Assembly, RP	1
	8516-9027	Drive Pulley Assembly, RP Dual	1
	8516-9029	Drive Pulley Assembly, LMI Dual	1
6	2145-1031	Retaining Ring	4
7	8516-1048	Spacer	1
8	8516-9018	Bumper	2
9	2212-1091	Socket Head Cap Screw	2
10*	RTBMXB16	Replacement Tube	1
11*	RBMXB16	Belt	1
12	0602-3012	Socket Head Cap Screw	2

ITEM	PART NO or Config. Code	DESCRIPTION	QTY.
13	8516-9028	Idle Pulley Assembly	1
14	8125-1022	Low Head Cap Screw	4
15	8516-1005	Belt Clamp, Bottom	2
16	8516-1004	Belt Clamp, LH	1
17	0601-2089	Hex Nut	4
18	8525-1006	Turnbuckle	1
19	8516-1003	Belt Clamp, RH	1
20	8116-1514	Carrier, Lower (inch)	1
	8116-1014	Carrier, Lower (metric)	1
21	8116-1575	Set Screw (inch)	2
	8116-1075	Set Screw (metric)	2
	8116-1515	Low Head Cap Screw (inch)	2
22	8116-1076	Low Head Cap Screw (metric)	2
	8116-1030	Carrier Bearing	2
23	8116-1030	Carrier Bearing	2
24	3410-3096	Low Head Cap Screw	4
25	8516-1084	Carrier End Cap	2
26	3417-1451	Dowel Pin	6
	8516-1513	Carrier, Upper (inch)	1
27	8516-1113	Carrier, Upper (metric)	1
	8516-1085	Flat Head Cap Screw	4

* Specify stroke length when ordering



THREADS FOR THE TURNBUCKLE. Assemble so that Belt Clamp LH (16) is nearest the drive end Head. Start the Turnbuckle (18) into each of the Belt Clamps. Position Hex Nuts (17) in their respective slots of the belt clamps.

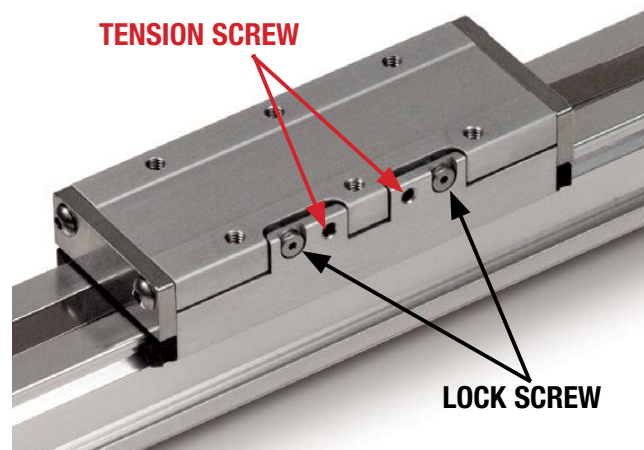
4. Position the Bearings (23) into the slots on the Carrier (27) with Pins (26) in place. Pre-assemble the Lower Carrier Plate (20) with the Bearing in place. Install the Carrier End Caps (25) with LHCS (24). Keep Tension Set Screws (21) and Lock Screws (22) loose.
5. **TENSION THE CARRIER.** The MX solid bearing carrier will provide best performance when properly adjusted. The carrier design contains both Tension and Lock Screws. The Tension Screws control the amount of pressure placed on the Carrier Bearings. The Lock Screws lock the Tension Screws in place and provide fine adjustment of the Carrier Bearings.
 - a. Fully loosen all Tension (21) and Lock Screws (22) about ½ of a turn so that they are not engaged with the Bearing (23).

GENERAL ACTUATOR DISASSEMBLY

1. Remove FHCS (28) from top of carrier to free it from the belt clamp assembly. Loosen the Turnbuckle (18) removing all belt tension. Slightly loosen the Carrier Tension Screws (22) and Set Screws (21). Remove LHCS (24) and the carrier end caps (25). The carrier (27) can now be removed.
2. Remove the Belt (11) from the Belt Clamps (16, 19) by removing Fasteners (14) and Belt Clamp Bottom (15). The Belt can now be removed from the actuator.
3. Remove the Retaining Rings (6) from each of the Heads (4). Note that the Bearing/Pulley Assemblies (5, 13) are slip fit into the Head, but are bonded in the bore w/ Loctite 641, so it may be necessary to press the Pulley Assemblies out of the Head.
4. Remove the Heads (4) from the Tube (10) by removing Fasteners (3).

GENERAL ACTUATOR ASSEMBLY

1. Install the Drive and Idle Heads (4) to the Tube (10). Note that the Bumper Spacer (7) and Bumper (8) install onto the Drive End Head.
2. Install one Retaining Ring (6) into each Head. Apply a light coating of Loctite 641 to the OD of the bearings of the Pulley Assemblies (5) and to the ID of the bearing bores of the Head. Install the Drive and Idle Pulley/Bearing Assemblies into the Heads.
 - a. NOTE THAT ORIENTATION OF THE DRIVE SHAFT IS DETERMINED BY THIS ASSEMBLY STEP. Install the remaining Retaining Rings (6) into each Head.
3. Feed the Belt (11) into the Tube from one end of the actuator. Install a Belt Clamp (16, 19) to each end of the Belt with Belt Clamp Bottoms (15) and Fasteners (14). NOTE THAT ONE BELT CLAMP WILL HAVE LEFT HAND



- b. Tighten Tension Screws (21) by turning them clockwise until the Carrier (27) 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.

- b.1. **NOTE:** The Tension Screws (21) are the small set screw style fastener. The Lock Screws (22) are the larger, low head, hex drive screws.
- c. Tighten Lock Screws (22) by turning them clockwise until tight. The Carrier (27) should feel snug in relation to the Tube (16), with no side-to-side rocking motion present. If the Carrier becomes too loose, loosen the Lock Screws, tighten the Tension Screws (21) and then re-tighten the Lock Screws.
- d. Ideal carrier tension is achieved when the Carrier feels snug in relation to the Tube (10), yet can be moved by hand. No rocking motion should be present. The Carrier should also be loose enough to be moved by hand over the entire length of the actuator. If after this process the Carrier has become too loose, equally adjust all of the Lock Screws (22) 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 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 (24) to the Bearing End Caps (25).

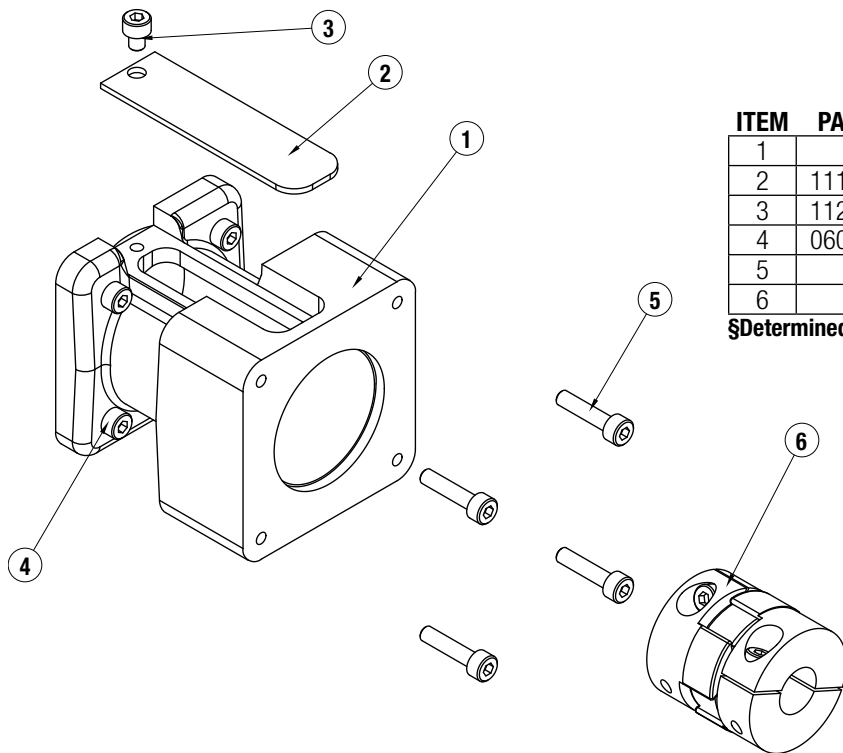
- f. Position the Carrier (27) over the Belt Clamps (16, 19) and install Fasteners (28), leaving looser at this time.

Allen wrench sizes for carrier adjustment, Solid bearing actuators

	Tension Screw		Lock Screw	
	mm	in	mm	in
16	2	1/16	2	1/16

- 6. **TENSION THE BELT:** To measure belt tension, position the edge of the Carrier (27) that is nearest the Head (4) 6" from the inside edge of the Head (4) (either end of the actuator). Locate a force gage on the Belt (11) 2" from the inside edge of the Head. Support the tube side of the Carrier so that it is rigid to the Tube (10). Deflect the Belt 1/4" [6 mm] in either direction. The force gage should read between 8 and 12 lbs. [35.6 - 53.4N]
- 7. Adjust the Turnbuckle (18) to achieve this tension, then tighten the Fasteners (28) to secure the Belt Clamps (16, 19) to the Carrier (27).

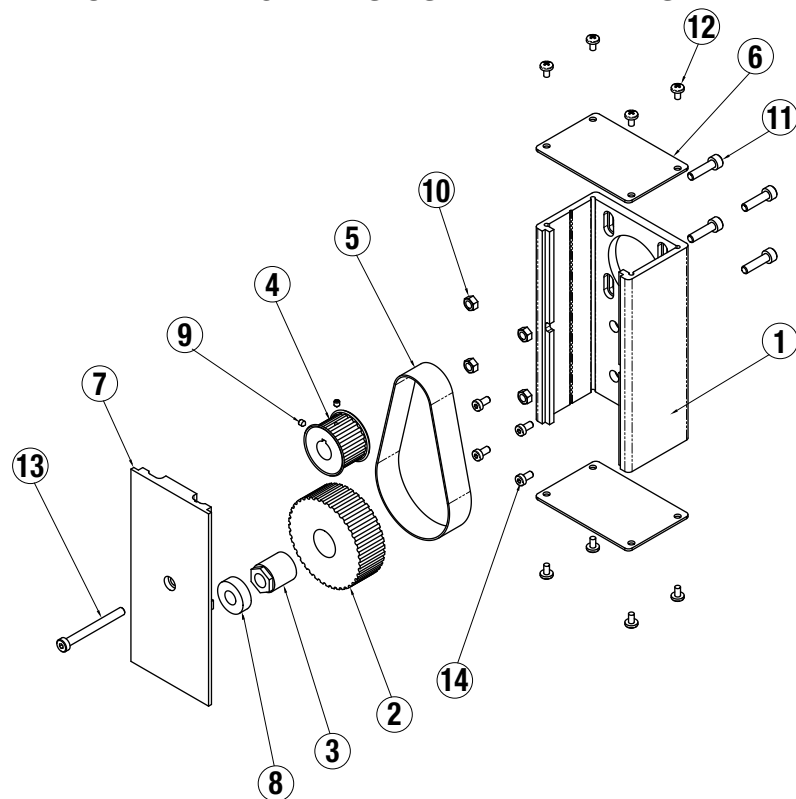
EXPLODED VIEW & PARTS LIST - LMI - INLINE MOTOR MOUNT



ITEM	PART NO.	DESCRIPTION	Qty.
1	§	Motor Spacer	1
2	1112-1032	Cover	1
3	1124-1159	Socket Head Cap Screw	1
4	0602-1027	Socket Head Cap Screw	4
5	§	Socket Head Cap Screw	4
6	§	Coupler	1

§Determined by motor/gearhead used, contact Tolomatic

EXPLODED VIEW & PARTS LIST - RP - REVERSE PARALLEL MOTOR MOUNT



ITEM	PART NO.	DESCRIPTION	Qty.
1	8516-1033	Housing	1
2	§	Pulley	1
3	§	Trantorque	1
4	§	Pulley	1
5	2120-1028	Belt	1
6	0601-1602	End Cap	2
7	8516-1031	Cover	1
8	0910-1386	Bearing	1
9	0610-1190	Set Screw	2
10	0603-2089	Nut	4
11	2212-1098	Socket Head Cap Screws	4
12	0601-1625	Screws	8
13	3420-1640	Socket Head Cap Screw	1
14	8325-1027	Low Head Cap Screws	4

§Determined by motor used, contact Tolomatic

PROCEDURE - MXB16S

REVERSE PARALLEL DISASSEMBLY INSTRUCTIONS:

1. Remove End Caps (6). Release tension on Belt (5) by breaking loose the Motor Fasteners (11).
2. Remove RP Cover (7).
3. Remove both Drive Pulley (4) and Driven Pulley (2) from their respective shafts. The Belt (5) will come off with the Pulleys.
4. Remove the Housing (1) from the Head (page 1, #4) by removing Fasteners (14).
5. Position the Cover (7) in mating slot of the Housing (1) and install the Fastener (13) to hold in place. Take care not to over-tighten. If the Cover is deflected it can interfere with the moving parts.
6. Tension the Belt (5) by pulling the motor away from the Drive Shaft Assembly (page 1 #5) with the appropriate force in the chart below. Tighten the Motor Fasteners (11) while this force is applied to the motor.

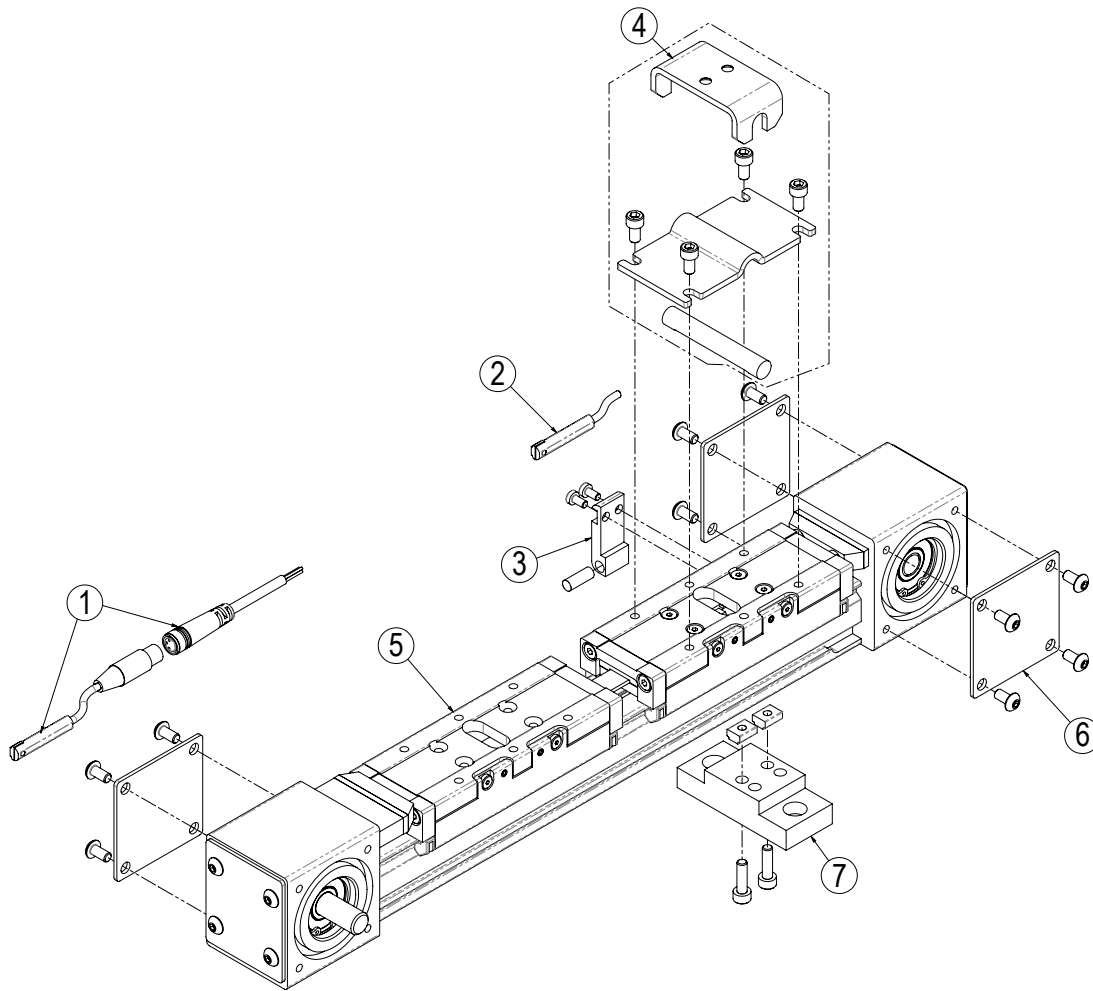
REVERSE PARALLEL ASSEMBLY INSTRUCTIONS:

*Apply Loctite #242 to all fasteners upon installation

1. Install Housing (1) to the Head (page 1, #4) with Low Head Cap Screws (14).
2. Install the Motor to the Housing (1) with Fasteners (11) and Nuts (10). Do not tighten the Fasteners at this time.
3. Locate the Belt (5) over the Pulleys (2, 4) and slide the Drive (4) and Driven (2) Pulleys over their respective shafts. Tighten each Pulley to its shaft with Trantorque (3). Use a torque wrench to apply appropriate torque. ½" hex on Trantorque (3) apply 75 in-lbs. (8.5 N-m).
4. Verify that there is clearance between the inside of the Housing (1) and each Pulley (2, 4). Verify that the Pulleys are aligned to each other.

Smallest Shaft Diameter (Motor or Actuator)	Total Weight to Apply
mm	kg
4.572 to 6.579	5.902
6.604 to 12.675	9.988
12.7 to 15.875	14.074
15.875 and larger	18.160
<i>in</i>	<i>lb</i>
0.18 to 0.259	13
0.260 to 0.499	22
0.500 to 0.625	31
0.625 and Larger	40

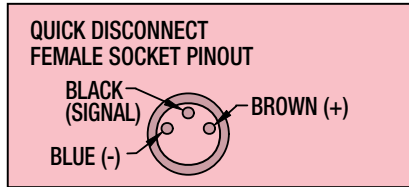
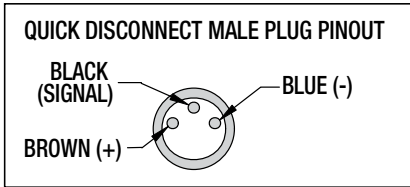
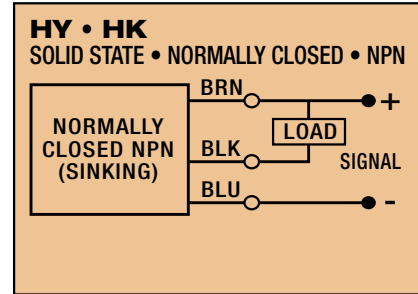
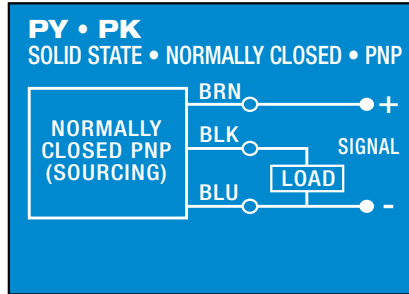
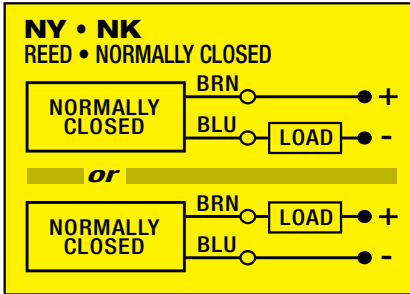
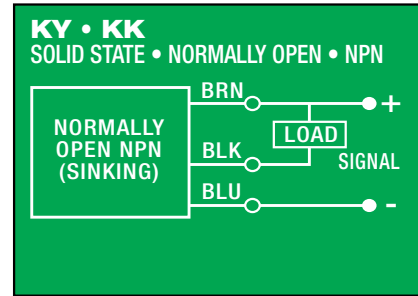
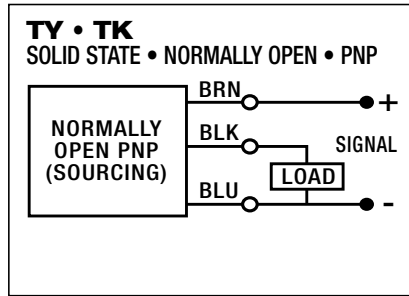
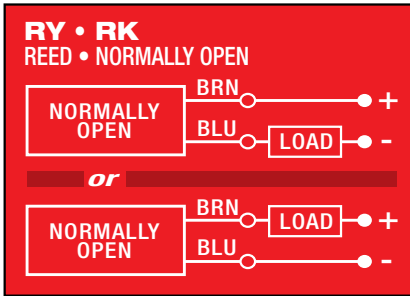
7. Install both End Caps (6) with the Screws (12) to finalize assembly.



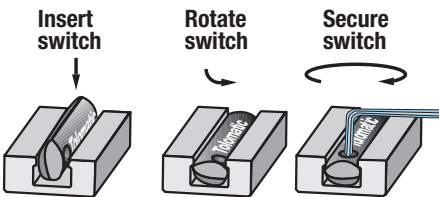
ITEM	Config. Code	DESCRIPTION
SWITCHES WITH QUICK-DISCONNECT COUPLERS		
1	SWMXB16SRK	Reed Switch, SPST Normally Open
	SWMXB16SNK	Reed Switch, SPST Normally Closed
	SWMXB16STK	Solid State Switch, PNP (Sourcing) Normally Open
	SWMXB16SKK	Solid State Switch, NPN (Sinking) Normally Open
	SWMXB16SPK	Solid State Switch, PNP (Sourcing) Normally Closed
	SWMXB16SHK	Solid State Switch, NPN (Sinking) Normally Closed
NOTE: Includes retained hardware & female connector for quick-disconnect		
SWITCHES WITHOUT QUICK-DISCONNECT COUPLERS		
2	SWMXB16SRY	Reed Switch, SPST Normally Open
	SWMXB16SNY	Reed Switch, SPST Normally Closed
	SWMXB16STY	Solid State Switch, PNP (Sourcing) Normally Open
	SWMXB16SKY	Solid State Switch, NPN (Sinking) Normally Open
	SWMXB16SPY	Solid State Switch, PNP (Sourcing) Normally Closed
	SWMXB16SHY	Solid State Switch, NPN (Sinking) Normally Closed

ITEM	PART NO	DESCRIPTION	
3	8516-9074	Magnet Kit	
		8516-1046	Magnet Block
		8116-1076	Low Head Cap Screw
		8116-1058	Magnet
4	8116-9536	Floating Mount Kit (inch)	
		8116-9036	Floating Mount Kit (metric)
	8116-1067	Floating Mount Clamp	
	8116-1066	Floating Mount Bracket	
	8116-1065	Pin	
	8125-1570	Socket Head Cap Screw (inch)	
5	8516-9515	Auxiliary Carrier Assembly (inch)	
		8516-9015	Auxiliary Carrier Assembly (metric)
6	8516-9008	Side Cover Assembly	
		8516-1029	Cover Plate
		0510-1370	Button Head Cap Screw
7	8516-9030	Mounting Plate Kit	
		8516-1070	Mounting Plate
		8316-1050	T-Nut
		0604-1028	Socket Head Cap Screw

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

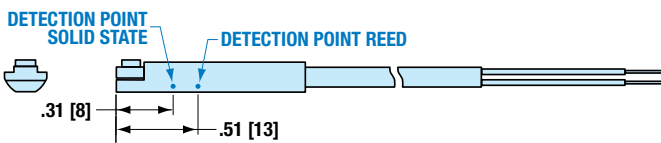


SWITCH INSTALLATION AND REPLACEMENT



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 the switch is fully inside the groove with "Tolomatic" visible. Re-position the switch to the exact location and lock it securely into place by tightening the screw on the switch.

SWITCH DETECTION POINT



Dimensions in inches [brackets indicate dimensions in millimeters]



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COMPANY WITH
 QUALITY SYSTEM
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 = ISO 9001 =

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