Tolomatic™
EXCELLENCE IN MOTION

# Parts Sheet

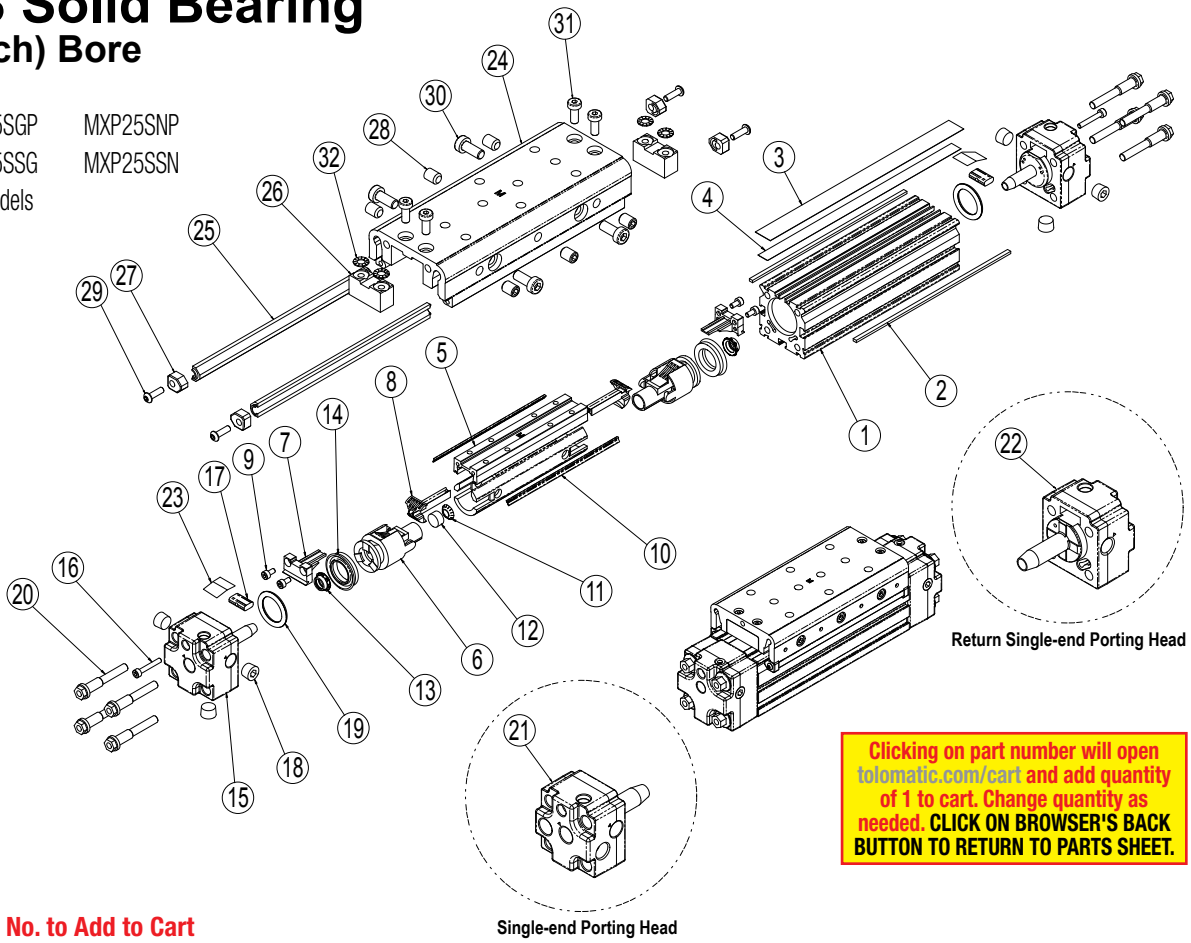
8100-4103_07

# MXP25S Solid Bearing

## 25mm (1 inch) Bore

**Models:**

MXP25STP MXP25SGP MXP25SNP
MXP25SST MXP25SSG MXP25SSN
Both Metric and Inch models




Return Single-end Porting Head

Single-end Porting Head

**Clicking on part number will open tolomatic.com/cart and add quantity of 1 to cart. Change quantity as needed. CLICK ON BROWSER'S BACK BUTTON TO RETURN TO PARTS SHEET.**

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or *CONFIG. CODE* | DESCRIPTION | QTY. |
|---|---|---|---|
| 1[1] | RTBMXP25S | Replacement Tube (8125–1010) Specify Stroke | A/R |
| 2[2] | NMBMXP25S | Replacement Magnet Band (8125–1019) Specify Stroke | 2 A/R |
| 3[3,5] | NDBMXP25S | Replacement Dust Band (8125–1018) Specify Stroke | A/R |
| 4[4,5] | NSBMXP25S | Replacement Seal Band (8125–1017) Specify Stroke | A/R |
| 5 | 8125-1012 | Piston Bracket (metric) | 1 |
| | 8125-1512 | Piston Bracket (inch) | |
| 6 | 8125-1005 | Piston | 2 |
| 7[5] | 8125-1006 | End Cap | 2 |

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or *CONFIG. CODE* | DESCRIPTION | QTY. |
|---|---|---|---|
| 8[5] | 8125-1007 | Band Ramp | 2 |
| 9 | 0601-1038 | Socket Head Cap Screw | 4 |
| 10[5] | 8125-1059 | Wiper | 2 |
| 11 | 8125-1072 | Lock Washer | 1 |
| 12 | 2100-1050 | Magnet | 1 |
| 13[5] | 0910-1184 | Cushion Seal | 2 |
| 14[5] | 0910-1206 | U-Cup | 2 |
| 15 | 8125-9001 | Head Assy, NPT | 2 |
| | 8125-9006 | Head Assy, BSPT Metric Taper | |
| | 8125-9007 | Head Assy, ISO Metric Parallel | |

***Ordering method:***

[1] Replacement Tube — Tube
R T B M X P 2 5 S [SK/SM] or _ _ _ _ _ D W _
EXAMPLE: R T B M X P 2 5 S S K 2 1 · 2 5 D W 7

[2] Replacement Magnet Band
For long stroke lengths the magnet band is shipped in multiple pieces
N M B M X P 2 5 S [SK/SM] or _ _ _ _ _ D W _
EXAMPLE: N M B M X P 2 5 S S K 2 1 · 2 5 D W 7

Magnet Band — Model & Size — Bearing — Stroke Length — Aux. Carrier

***Ordering method:***

[3] Replacement Dust Band — Dust Band
N D B M X P 2 5 S [SK/SM] or _ _ _ _ _ D W _
EXAMPLE: N D B M X P 2 5 S S K 2 1 · 2 5 D W 7

[4] Replacement Seal Band
N S B M X P 2 5 S [SK/SM] or _ _ _ _ _ D W _
EXAMPLE: N S B M X P 2 5 S S K 2 1 · 2 5 D W 7

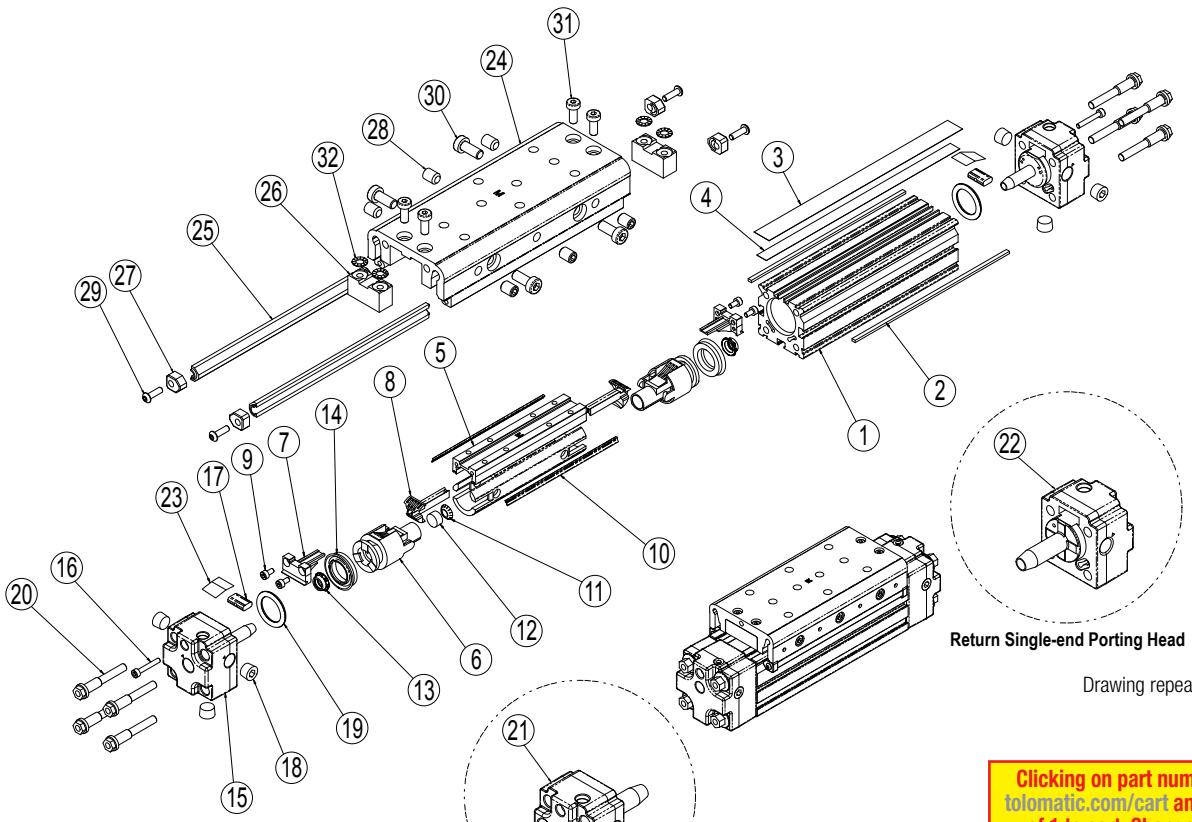
Seal band — Model & Size — Bearing — Stroke Length — Aux. Carrier

***Auxiliary Carrier Option Note:*** *If replacing a Tube (1.), Magnet Band (2.), Dust Band (3.), or Seal Band (4.) on an actuator that has an Auxiliary Carrier, be sure to add "DW _ _ _" to the end of the configuration string when ordering. "DW" 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).*

[5] Parts included in Repair Kits RKMXP25SSK (inch) & RKMXP25SSM (metric).

[6] Parts included in Head Assemblies (15).

[7] Part exclusive to single-end porting option.




**Clicking on part number will open tolomatic.com/cart and add quantity of 1 to cart. Change quantity as needed. CLICK ON BROWSER'S BACK BUTTON TO RETURN TO PARTS SHEET.**

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or CONFIG. CODE | DESCRIPTION | QTY. |
|---|---|---|---|
| 16[6] | 2212-1111 | Socket Head Cap Screw | 2 |
| 17[6] | 8125-1039 | Band Clamp | 2 |
| 18[6] | 1014-1065 | Pipe Fitting Plug, 1/8-27 NPT | 6 |
| | 4910-1002 | Pipe Fitting Plug, 1/8-28 | |
| | 5910-1006 | Pipe Fitting Plug, G 1/8 | |
| 19[5,6] | 0910-1160 | O-Ring | 2 |
| 20 | 4910-1344 | Head Screw (metric) | 8 |
| | 0910-1344 | Head Screw (inch) | |
| 21[7] | 8125-9002 | Head Assy, NPT, Single-end Porting | 1 |
| | 8125-9008 | Head Assy, BSPT Metric Taper, Single-end Porting | |
| | 8125-9009 | Head Assy, ISO Metric Parallel, Single-end Porting | |
| 22[7] | 8125-9003 | Return Head Assy, Single-end Porting | 1 |

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or CONFIG. CODE | DESCRIPTION | QTY. |
|---|---|---|---|
| 23 | 8125-1038 | Band Tab | 2 |
| 24 | 8125-1013 | Carrier (metric) | 1 |
| | 8125-1513 | Carrier (inch) | |
| 25[5] | 8125-1030 | Solid Bearing | 2 |
| 26 | 8125-1025 | Carrier Retaining Block | 2 |
| 27[5] | 8125-1031 | Solid Bearing End Cap | 4 |
| 28 | 8125-1079 | Lock Screw (metric) | 6 |
| | 8125-1579 | Lock Screw (inch) | |
| 29 | 0603-1036 | Button Head Cap Screw | 4 |
| 30 | 8125-1071 | Tension Screw (metric) | 4 |
| | 6000-1463 | Tension Screw (inch) | |
| 31 | 8125-1070 | Low Head Cap Screw | 4 |
| 32 | 8125-1026 | Lock Washer | 4 |

***Auxiliary Carrier Option Note:*** *If replacing a Tube (1.), Magnet Band (2.), Dust Band (3.), or Seal Band (4.) on an actuator that has an Auxiliary Carrier, be sure to add "DW _ _ _" to the end of the configuration string when ordering. "DW" 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).*

[5] Parts included in Repair Kits RKMXP25SSK (inch) & RKMXP25SSM (metric).

[6] Parts included in Head Assemblies (15).

[7] Part exclusive to single-end porting option.

## CYLINDER DISASSEMBLY INSTRUCTIONS

Begin with a clean work area. Make sure all replacement parts are available and have no visual damage or defects. The following tools and materials are recommended for proper disassembly and assembly. (Exact wrench sizes will vary depending on cylinder size.)

- Allen wrench set (std. and metric)
- Small Straight edge screwdriver
- Socket wrench & socket set
- Needle nose pliers
- Digital or dial caliper
- RheoGel TEK664 grease
- Tin snips

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

**1. REMOVE BAND CYLINDER FROM MACHINERY**

Remove all mounting hardware and air connections, if present, from the Cylinder Heads (15) and/or Carrier (24).

**2. REMOVE CARRIER FROM CYLINDER**

Remove Low Head Cap Screws (31), Carrier Retaining Blocks (26), and Lock Washers (32). Remove Tension Screws (30) from the side of the Carrier (24). Turn Lock Screws (28) clockwise a couple of turns on both sides to release pressure on the bearings and slide Carrier away from Piston Bracket. Remove Button Head Cap Screws (29), End Caps (27), and Solid Bearings (25). Pull the Carrier off the cylinder.

**3. LOOSEN BANDS**

Loosen Screw (16) from Cylinder Head (15) approx. 4 to 5 turns, but do not remove the screw. Tap the Screw into the Head to disengage the Band Clamp (17). Repeat the process for the other Head.

**4. REMOVE HEADS**

Remove the four Head Screws (20) to free each Cylinder Head (15). Remove each Head by rocking it up and down until the Head is free from the Cylinder Tube. **DO NOT TWIST!** Remove the small Band Tab (23) mounted over the top of the Dust Band (3). Remove the O-Ring (19) from both Heads with a small screwdriver.

**5. REMOVE DUST BAND**

Remove End Caps (7) from both ends of the Piston Bracket (5) by removing Screws (9). To remove the Dust Band (3), lift one end and pull the Band through the Piston Bracket. The Band is magnetically retained so some resistance will be present when removing.

**6. REMOVE SEAL BAND**

***CAUTION:*** *Sealing Band edges are sharp. Grasp the top and bottom of the Band when removing, not the edges.*

Slide Piston Bracket (5) out of the Tube, then remove the Sealing Band (4). Keep the Sealing Band available to assist in the reassembly of the new Sealing Band. A 6-inch piece of Band is also included in the repair kit for use during reassembly.

**7. DISASSEMBLE PISTON BRACKET**

Remove Wipers (10) from the Piston Bracket (5). With a small straight edge screwdriver, remove the U-Cups (14) from both Pistons (6). Remove the Cushion Seals (13) from the Piston. Remove the Pistons (6) by inserting the screwdriver under the Piston side tabs until the side retaining tabs are disengaged from the Piston Bracket (5). With a small screwdriver, remove the Band Ramps (8) by disengaging the side retaining tabs from the Piston Bracket. Keep the Piston Bracket and Pistons separated for reassembly.

## CYLINDER ASSEMBLY INSTRUCTIONS

**1. CLEAN AND LUBRICATE**

Thoroughly clean all components, particularly the Tube Bore, Tube Slot and Bands. Thoroughly lubricate the Bore of the Tube with a thin, uniform layer of RheoGel TEK664 grease.

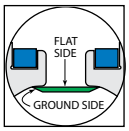
**2. ASSEMBLY OF PISTON BRACKET**

With the Piston Bracket (5) in hand, install the Band Ramps (8) so the smaller ends are on the bottom. Install the Pistons (6) with the ramp facing up. Slide the Piston onto the Piston Bracket. It should snap easily into place. Install new lubricated U-Cups (14) (seal lips facing out), and Cushion Seals (13) (small end facing out). Slide new Wipers (10) into the groove on the Piston Bracket (5), flat side of Wiper faces out, Wiper groove on inside (see illustration). Trim to edge of Piston Bracket (5) and flare Wiper (10) edges outward.




**3. INSTALL INNER SEALING BAND**

***CAUTION:*** *Metal edges of Sealing Band are sharp. Exercise caution to avoid injury to yourself while installing. Handle Sealing Band with care. Do not damage edges while handling.*




Insert Sealing Band (4) into Cylinder Tube (1) by laying the Band out along the length of the actuator and passing it sideways through slot in Tube. With flat side facing up (ground side facing down), position the Band so a Piston Bracket's length of Band extends from the Tube at one end.

**4. INSTALL PISTON ASSEMBLY**

Place generous amounts of grease around bore of Tube (1) on both ends and fill indentations on both sides of Piston Bracket (5) with grease. Using 6-inch length of Seal Band included with repair kit, or a short length of the old Seal Band, slightly kink the Band upwards, one inch (25mm) from the end. Insert into slot between the Band Ramp (8) and Piston (6) on the Piston Bracket, and stop against opposite side of the Piston. Feed the extended Sealing Band through the opposite end of the Piston Bracket (5) and up the short length of inserted Band. Once the Sealing Band is through the Piston Bracket, remove the short length of Band material and discard.

Grasp the Piston Bracket while holding the Wipers in place with your fingers. Flare the Wiper edges out while inserting the Piston Bracket partway into the Tube. Do not force the Piston Bracket. Place a finger over the opposite end of the Piston Bracket to keep the Wipers in place, while pushing the remainder of Piston Bracket into the Tube. If the Piston Assembly experiences resistance, use a small screwdriver to press in on the ends of the Band Ramps where it contacts the Tube (1). With the Piston Bracket in place, slide the length of the greased Tube until the end of the Piston just extends out the Tube. Wipe off the excess grease from the Piston end.

NOTE: If Tube and Piston Assembly were greased properly, excess grease should be present as the Piston exits end of Tube. If this is not the case, more grease will need to be added.

**5. INSTALL ONE HEAD**

***CAUTION:*** *Twisting the Head during installation may cut the O-Rings resulting in excessive leakage during operation.*

Install new lubricated O-Rings (19) onto each Head (15). Position the Seal Band (4) leaving .490" (12.4 mm) of Band protruding from the end of the Tube. Install Head into Tube holding Screw (16) in place. Position the Seal Band on the bottom side of the Band Clamp (17). Use a slight up and down rocking motion (not side-to-side or twisting) to insert the first Head into Tube. The Head should be flush with the end of the Tube after installation.

Apply RheoGel TEK664 to threads of Head Screw (20) and install into Head. Torque Screws to 70 – 80 in-lbs (8 – 9 N-m).

**6. INSTALL DUST BAND**

Hold Screw (16) in while inserting the Dust Band into the first Head (15). Position the Dust Band on top of the Band Clamp (17). Insert the Band Tab (23) on top of the Dust Band. Tighten Screw (16). When completed pull the other end of the Dust Band to make sure it is secured. Repeat the process if necessary. Place Dust Band (3) through the upper slot of Piston Bracket (5). Install End Caps (7) with Screws (9).

**7. INSTALL OTHER HEAD**

Position the Dust Band (3) so the end of the Sealing Band (4) is visible. With a tin snips, trim the Sealing Band (4) leaving .490" (12.4 mm) of band protruding from the end of the Tube. Reposition the Dust Band and trim to the same length. Repeat step 5 to install the other Head (15). Position the Dust Band on top of the Band Clamp (17). Insert the Band Tab (23) on top of the Dust Band. Tighten Screw (16).

**8. CHECK ASSEMBLY**

Manually push the Piston Bracket (5) back and forth along the full stroke to make certain that the cylinder is properly assembled before reconnecting to the pneumatic supply. The Piston Bracket should move consistently with minimal friction along the stroke.

**9. INSTALL THE CARRIER**

Place Carrier (24) over the top of the reassembled cylinder. Insert the Bearings (25) making sure they are centered on the Carrier. Install the End Caps (27) and Screws (29) leaving a 1/8 -inch gap between the Screw and the End Cap. Back off on the Lock Screw (28) until there are only 2-3 threads left holding it on.

**10. 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 Screws (30) and Lock Screws (28) about ½ of a turn so that they are not engaged with the Bearing.

b. Tighten Tension Screws (30) on both sides of the Carrier roughly 1/8 to ¼ turn clockwise past where the Screw starts to feel snug. The Carrier should be very difficult or impossible to move by hand. If not, turn another 1/8 turn until it is difficult to move.

c. Next, adjust the Lock Screws (28) on both sides of the Carrier roughly 1/8 to ¼ turn clockwise past where the Screw starts to engage. The Carrier will be loose but should not rock sideways. To correct this, loosen the Lock Screws (28) about 1/16 of a turn. If the Carrier becomes too snug, adjust the Lock Screws (28) another 1/8 of a turn.

d. Ideal Carrier tension is achieved when the Carrier feels snug in relation to the Tube, 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 with a slight 1/32 turn counterclockwise. A Carrier that is adjusted too tight will increase the breakaway pressure required for motion and in extreme cases no motion will occur when air is applied.

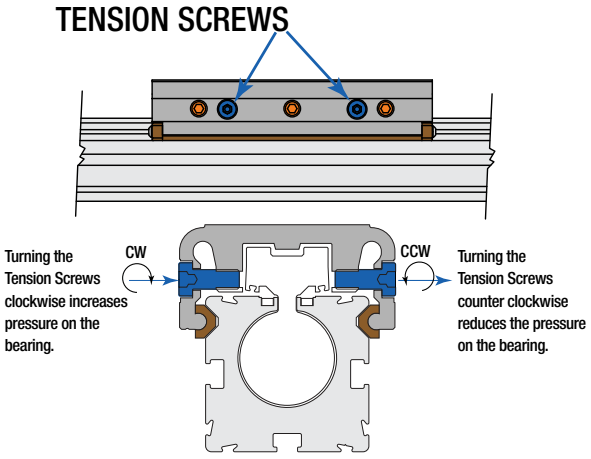
**Depending on the duty cycle of the application, over time, this process may need to be repeated. Keeping the Carrier in a properly adjusted tension will prolong the life of the MX Bearing System and the actuator itself.**

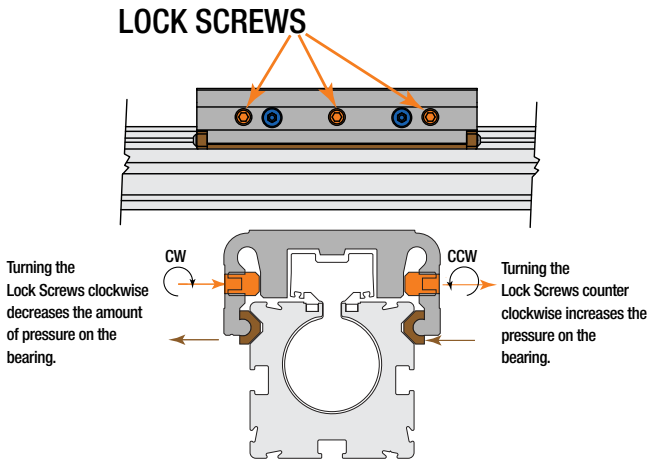
e. Once the proper Carrier tension is achieved, finish tightening the Screws (29) to the Bearing End Caps.

f. Center the Carrier (24) over the Piston Bracket (5), and insert the Carrier Retaining Blocks (26) and Lock Washers (32) on both sides of the Carrier. While tightening the Low Head Cap Screws (31), push the Retaining Blocks (26) inward creating pressure against the Piston Bracket. This should eliminate any backlash between the Carrier and the Piston Bracket.

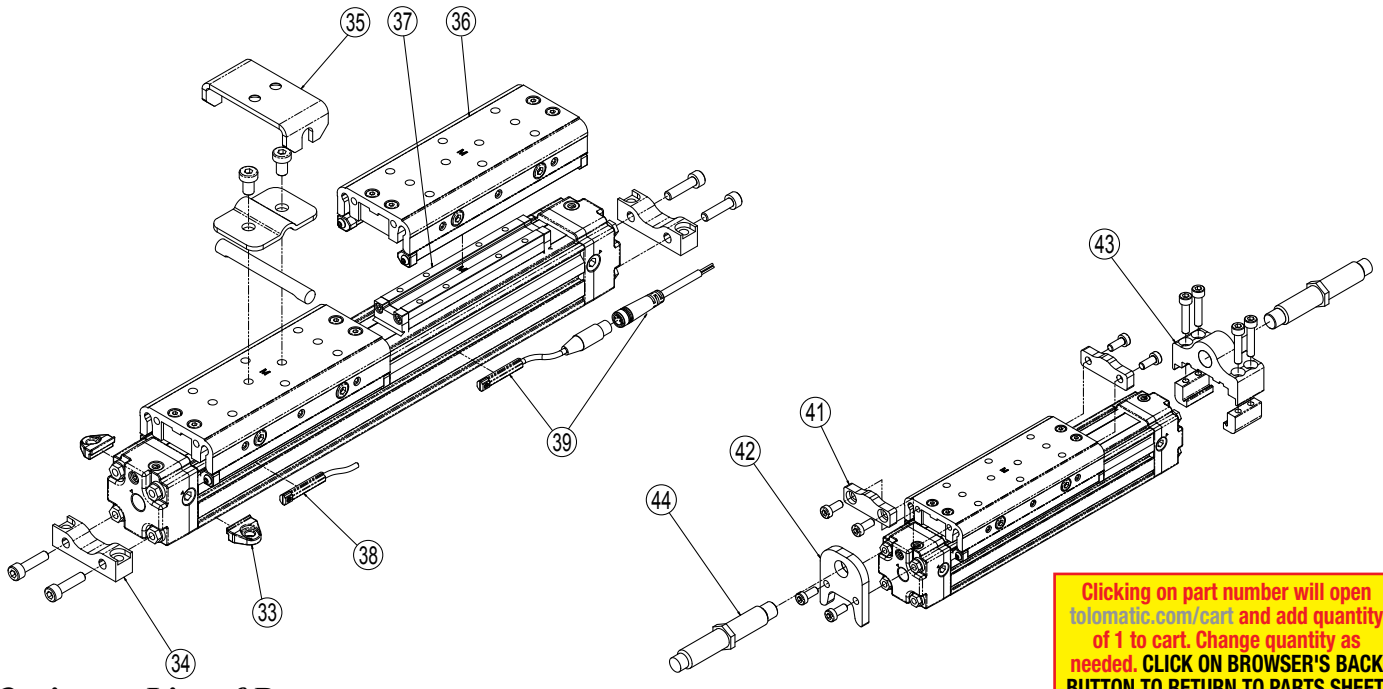
**11. REMOUNT THE CYLINDER ONTO THE MACHINE**

⚠ Be certain any flow controls are in place and adjusted prior to applying compressed air to the cylinder.




[Check out our MX--S carrier adjustment video on the web https://youtu.be/LVWPg2gfy0A](https://youtu.be/LVWPg2gfy0A)




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## *Options - List of Parts*

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or CONFIG. CODE | DESCRIPTION |
|---|---|---|
| **MOUNTING KITS** | | |
| 33[1] | 8125-9018 | Tube Clamp Mounting Kit |
| | 8125-1050 | Tube Clamp |
| 34[2] | 8125-9019 | Foot Mount Kit (metric) |
| | 8125-9519 | Foot Mount Kit (inch) |
| | 8125-1055 | Foot Mount |
| | 2212-1098 | Screw (metric) |
| | 0910-1314 | Screw (inch) |
| 35[3] | 8125-9036 | Floating Mount Kit (metric) |
| | 8125-9536 | Floating Mount Kit (inch) |
| | 8125-1069 | Floating Mount Pin |
| | 8125-1061 | Floating Mount Lower Bracket Strap (metric) |
| | 8125-1561 | Floating Mount Lower Bracket Strap (inch) |
| | 8125-1068 | Floating Mount Bracket |
| | 8132-1071 | Screw (metric) |
| | 8125-1571 | Screw (inch) |
| **DUAL CARRIER** | | |
| 36 | 8125-9005 | Dual Carrier Assy (metric) |
| | 8125-9505 | Dual Carrier Assy (inch) |
| 37 | 8125-9028 | Dual Carrier Piston Bracket Assy (metric) |
| | 8125-9528 | Dual Carrier Piston Bracket Assy (inch) |
| **SWITCHES** | | |
| 38 | Switches with 5-Meter Leads | |
| | SWMXP25SRY | Reed Switch, SPST Normally Open |
| | SWMXP25SNY | Reed Switch, SPST Normally Closed |
| | SWMXP25STY | Solid State Switch, PNP (sourcing) Normally Open |
| | SWMXP25SKY | Solid State Switch, NPN (sinking) Normally Open |
| | SWMXP25SPY | Solid State Switch, PNP (sourcing) Normally Closed |
| | SWMXP25SHY | Solid State Switch, NPN (sinking) Normally Closed |

**Click on Part No. to Add to Cart**

| ITEM | PART NO. or CONFIG. CODE | DESCRIPTION |
|---|---|---|
| **SWITCHES (cont.)** | | |
| 39 | Switches with Quick-Disconnect Couplers | |
| | SWMXP25SRK | Reed Switch, SPST Normally Open |
| | SWMXP25SNK | Reed Switch, SPST Normally Closed |
| | SWMXP25STK | Solid State Switch, PNP (sourcing) Normally Open |
| | SWMXP25SKK | Solid State Switch, NPN (sinking) Normally Open |
| | SWMXP25SPK | Solid State Switch, PNP (sourcing) Normally Closed |
| | SWMXP25SHK | Solid State Switch, NPN (sinking) Normally Closed |
| **SHOCK ABSORBERS** | | |
| 41[4] | 8125-9013 | Shock Strike Kit |
| | 8125-1063 | Shock Stop Plate |
| | 8125-1071 | Screw |
| 42[5] | 8125-9020 | Fixed Shock Mounting Kit (metric) |
| | 8125-9520 | Fixed Shock Mounting Kit (inch) |
| | 8125-1060 | Fixed Shock Bracket |
| | 8125-1071 | Screw (metric) |
| | 0915-1016 | Screw (inch) |
| 43[6] | 8125-9023 | Adjustable Shock Mounting Kit |
| | 8125-1080 | Upper Shock Bracket |
| | 8125-1082 | Lower Shock Bracket Clamp |
| | 2212-1099 | Screw |
| 44 | 4910-1337 | Lite Duty Shock Absorber |
| | 4910-1338 | Heavy Duty Shock Absorber |

[1] Tube Clamp Kit contains 2 tube clamps.
[2] Foot Mount Kit contains 1 foot mount and 2 fasteners.
[3] Floating Mount Kit contains 1 floating mount, 1 lower strap, 1 pin and 4 fasteners.
[4] Shock Strike Kit contains 2 stop plates and 4 fasteners.
[5] Fixed Shock Mounting Kit contains 1 shock bracket and 2 fasteners
[6] Adjustable Shock Mounting Kit contains 1 upper bracket, 2 lower bracket clamps and 4 fasteners.

## LUBRICATION AND MAINTENANCE

All Tolomatic MX Band Cylinders are prelubricated at the factory. To ensure maximum cylinder life, the following guidelines should be followed.

**1. Filtration**

We recommend the use of dry, filtered air in our products. "Filtered air" means a level of 10 Micron or less. "Dry" means air should be free of appreciable amounts of moisture. Regular maintenance of installed filters will generally keep excess moisture in check.

**2 External Lubricators (optional)**

The factory prelubrication of Tolomatic Band Cylinders will provide optimal performance without the use of external lubrication. However, external lubricators can further extend service life of pneumatic actuators if the supply is kept constant.

Oil lubricators, (mist or drop) should supply a minimum of 1 drop per 20 standard cubic feet per minute to the cylinder. As a rule of thumb, double that rate if water in the system is suspected. Demanding conditions may require more lubricant.

If lubricators are used, we recommend a non-detergent, 20cP @ 140˚F 10-weight lubricant. Optimum conditions for standard cylinder operation is +32˚ to +150˚F (+0˚ to 65.5˚C).

**NOTE:** Use of external lubricators may wash away the factory installed lubrication. External lubricants must be maintained in a constant supply or the results will be a dry actuator prone to premature wear.

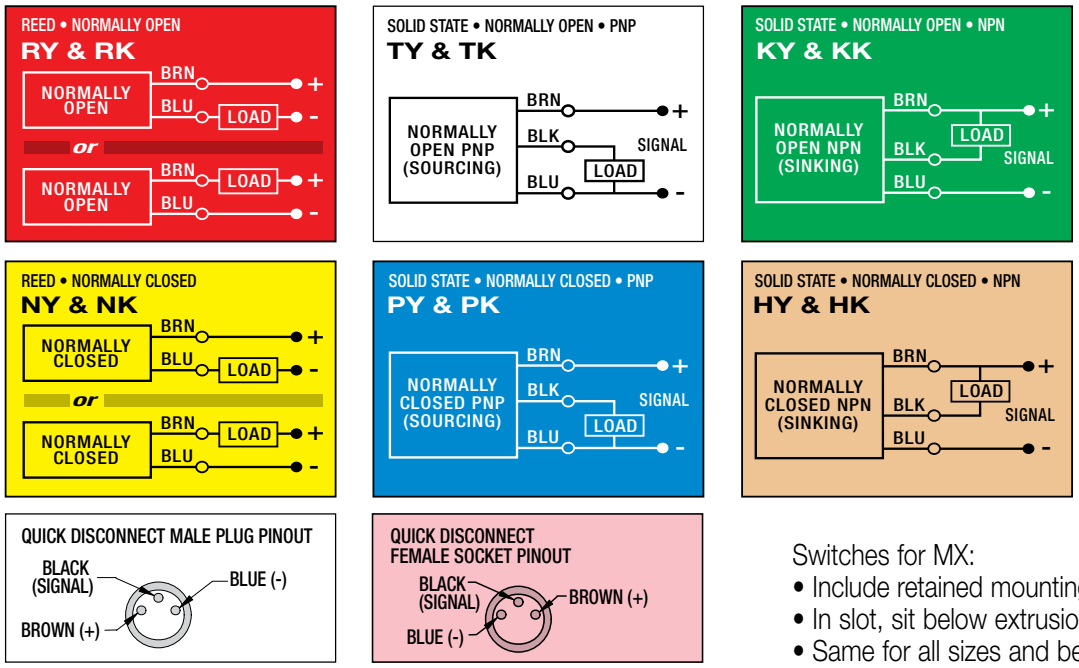
**3. Sanitary Environments**

Oil mist lubricators must dispense "Food Grade" lubricants to the air supply. Use fluids with ORAL LD50 toxicity ratings of 35 or higher such as Multitherm® PG-1 or equivalent. Demanding conditions can require a review of the application.

**4. Cushion Adjustment**

Adjust the Cushion Needles in the Cylinder Heads carefully to obtain optimum deceleration for your particular application. If there are questions on proper adjustment, please consult Tolomatic.

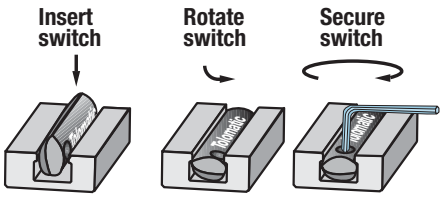
## SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING (CE and RoHS Compliant)




Switches for MX:

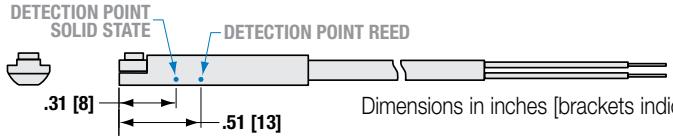
- Include retained mounting hardware
- In slot, sit below extrusion profile
- Same for all sizes and bearing styles

## 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
COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =
3800 County Road 116, Hamel, MN 55340 USA
https://www.Tolomatic.com • Email: Help@Tolomatic.com
Phone: (763) 478-8000 • Toll Free: 1-800-328-2174

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