## **Rep 5 Linear Stage Assembly**

Main Body Fully Assembly





## Carriage Assembly:

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1. Place inner flange bearing and bottom flange bearing





2. Place lead screw nut in pocket and secure with M3 16mm + washer and M3 thin nut



3. Place linear slide m4 thin nuts into carriage body and Mount slides with low profile M4x8 loosely



4. Put track over, use it to align slides, Use track mounting holes to tighten slide M4x8



5. Place assembled carriage into body, mount loosely with low profile M4x8 and regular M4 Nut





## Prepare to insert leadscrew:

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1. Sleeve bearing on bottom of body, Sleeve bearing on top of body (will be between thrust bearings)



2. Mount the shaft collar and thrust bearing between the leadscrew <u>Shaft(don't Thrust</u> nut and the upper part of the body. These must be in the following <u>collar</u>tighten <u>bearing</u> order from nut to body wall: yet),



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3. Insert leadscrew into nut and thread until it is possible to slide the carriage and not have the leadscrew protrude into the coupling area near the motor mount (shaft collar is still loose)



 4. Sliding the leadscrew down insert in order from upper wall of body towards motor mount:
 <u>Thrust</u>
 <u>Coupler</u>

 bearing,
 <u>bearing</u>



- 5. Slide the leadscrew up into the coupler until it almost bottoms out on the larger bore pocket. Replace the stock bolts with McMaster M3x10. Tighten the clamp on the coupler. This will require more torque than you might expect (Up to 3.0 NM for M3 bolts)
- 6. Now the preload for the two thrust bearings must be set:
  - a. Tighten the shaft collar until it just slides and then slide it up to the thrust bearing so it's held against the upper wall of the body.
  - b. Thread the nut until the top of the M3 bolts come into contact with the shaft collar.
     This will compress the two thrust bearings on either side of the top wall of the body.
     Don't go too tight or you won't be able to drive the leadscrew back off of the M3 bolt heads

- 7. Now move the carriage using the leadscrew until you can see the top and bottom holes for mounting the track which were previously loosely tightened and fully tighten them using the pocket and the leadscrew for alignment
- 8. Mount motor and clamp with coupler. Torque if possible.



9. Insert captive M3 nuts for syringe holder



**Syringe Flexure Holder** 

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