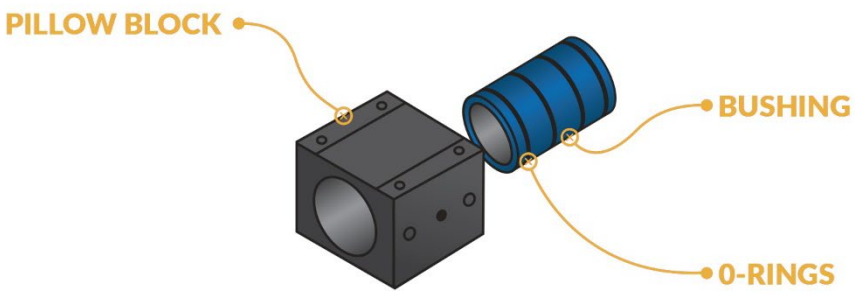
Air Bushings Installation Guide

Introduction

This installation guide shows the step-by-step process on how to hard mount an air bushing to one of the standard mounting blocks and preparing it for use with a precision shaft using bonded epoxy.

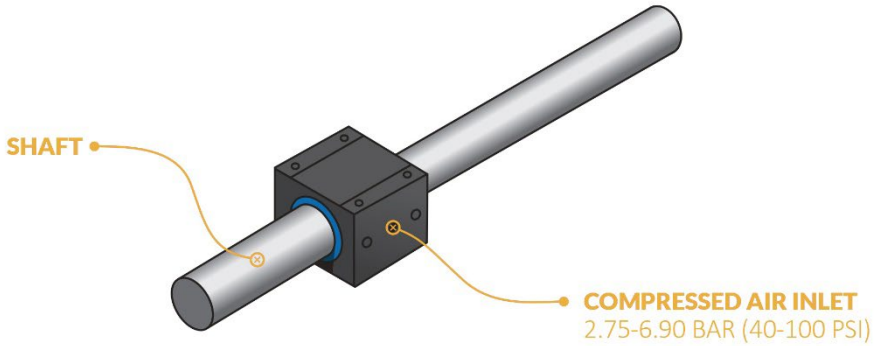
Step 1

Inspect the ID of the pillow block for any burrs or sharp edges. Be sure the 'O' rings are seated properly in their grooves on the air bushing housing. Wet the 'O' rings and the bore with Isopropyl Alcohol 90% or better just prior to inserting the bushing into the bore.



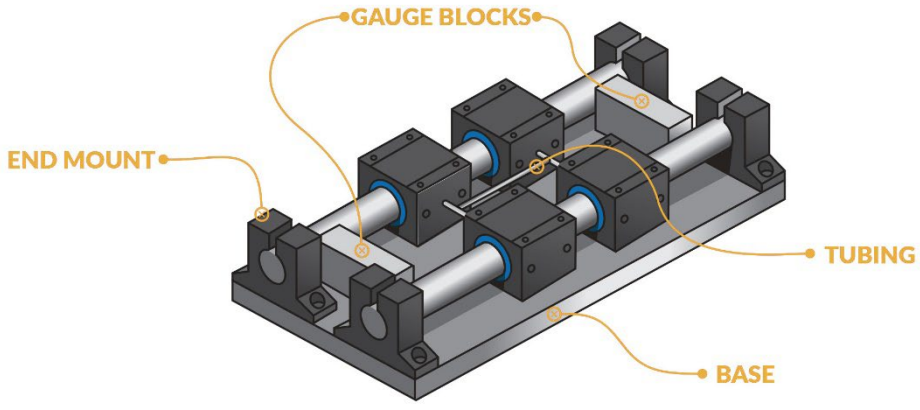
Step 2

Supply clean dry compressed air between 2.75 and 6.90 bar (40-100 PSI) into the pillow block. With a clean cloth or towel and alcohol wipe the shaft to be inserted into the bushing. Carefully insert the shaft into the bushing with the air pressure on.



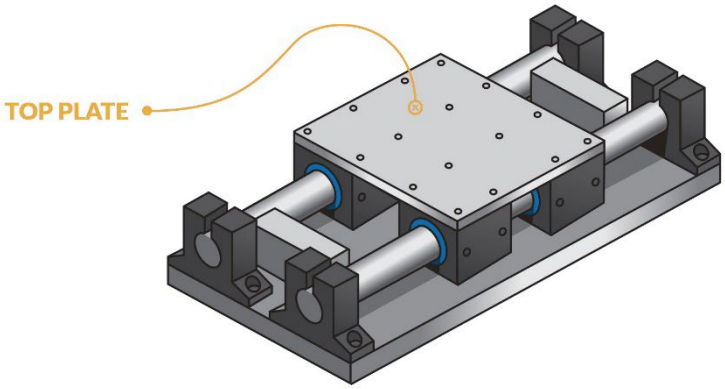
Step 3

Attach end mounts to the shafts while the bushings are on the shafts with light screw pressure. Using gauge blocks between the shafts tighten the end mounts to the base: this will establish parallelism of the shafts. Tighten the end mounts on the shafts and recheck parallelism of the shafts. It may be necessary to loosen and retighten the end mounts to the base.



Step 4

With air pressure applied align and bolt the top plate to the pillow blocks. Check to be sure that the stage floats freely over its entire travel. The 'O' rings should provide enough compliance to compensate for parallelism errors in the shafts or out of flatness of the top plate. Please note that this is only an example of an assembly procedure there are certainly other legitimate assembly sequences.



Step 5

It is possible to eliminate compliance of the 'O' rings by potting the bushings into the pillow block housings but not required. The pillow block housings have holes 180 degrees apart that align axially with the centres of the two 'O' ring sets. With the air pressure on, the epoxy is injected in one side until it comes out the opposite side. Tape is then used to seal the injection ports and vents and the epoxy is allowed to cure with air pressure on. This procedure is useful where high stiffness is required and the alignment of the rails can be done with high precision.