HOW TO MEASURE AND FIT REPLACEMENT TRUNNION ROLLERS

When Customers order trunnion rollers for their Double Arm (DA) mixers they may not be aware that these rollers need to be custom fit to their mixer. The reason is because the columns on a mixer frame are not always square with the bowl, differences in bowl widths and the use of a common standard roller. If a customer orders replacement rollers they need to be prepared to machine (lathe) the width of each roller ordered.

Rollers serve two functions on a mixer – bowl support and maintaining bowl center position. Rollers support the bowl at the gear case housings. Gear case housings also have a machined step for the purpose of maintaining bowl center position. These steps limit side to side bowl movement using the back shoulder of the rollers.

Rollers need changed if they become flat spotted, worn in diameter or the brass inner bushing wears. In extreme cases of wear complete assemblies will need to be replaced. Rollers are wear items but you can expect years of trouble free use if you lubricate them weekly. Premature failures are mostly contributed to lack of lubrication.

A good inspection of rollers will include confirming gear case housings are centered in column/frame cut out. As your bowl settles downward the upper rollers will lose contact and stop rotating during bowl tilting. Bowls will always settle downward so expect the greatest wear at the bottom rollers. If rollers are extremely worn the gear case(s) will be contacting and riding against the column cut out.

In emergency situations a failed support roller can be exchanged with an upper (less worn) roller. Keep in mind the width will most likely be different so some machining may be required. Ideally rollers should be replaced as sets whenever possible.
STEPS TO REPLACE WORN TRUNNION ROLLERS

1. POSITION bowl to full up
2. LOCK OUT mixer power source(s)
3. LOOSEN drive belt or chain if replacing rollers on drive end
4. REMOVE top end plates and rollers from trunnion assembly
5. LIFT and CENTER gear case in inboard column cut out.
   a. SHIM bottom of gear case as needed to center in column cut out.
6. REMOVE bottom end plates and worn rollers
7. CLEANUP and INSPECT gear case area at roller surface contact and step for wear
8. CLEAN and INSPECT shaft assembly for wear
   a. REPLACE shaft assemblies if worn
9. CONFIRM grease ports are clear and by adding grease and using extra to pre-lubricate shaft.
10. PLACE new bottom rollers onto shaft assembly
    a. LIFT gear case as required
11. CHECK rollers to make sure rear shoulder is against step on gear case.
12. MARK each roller and mounting stud i.e. (A A, B B, C C)
13. Using a depth micrometer, MEASURE the distance from the edge of the roller assembly to the face of the mounting stud at each location.

Make sure rear of roller is against the step in the gear case before taking measurement.
14. ADD .010 inches to measurement and MACHINE THIS OFF steel portion of roller (back side) that contacts step on gear case housing.
   a. NOTE: DO NOT MACHINE on brass bushing!!

15. RE-INSTALL machined rollers to proper location.
16. INSTALL bronze end plate with correct hardware and remove shims from under gear cases.
17. REPEAT STEPS 7 – 9 for top rollers
18. PLACE new top rollers onto shaft assembly
19. REPEAT STEPS 11 – 15 for top rollers
20. INSTALL brass end plate with correct hardware
21. LUBRICATE all roller assemblies
22. TIGHTEN drive belt or chain to proper tension if loosened

CAUTION: MAKE SURE rollers have been greased before trying to roll bowl.

23. REMOVE LOCKOUTS and POWER UP mixer
24. ROLL BOWL back and forth 10 - 12 inches to make sure bowl rolls freely.
25. REMOVE brass end plate from any roller that DOES NOT ROLL FREELY
   a. Top rollers may not rotate if gear case contact is minimal
26. ROTATE and POSITION bowl in any area that rollers lock-up.
27. REPEAT measuring and machining as required to fit rollers
28. ROLL BOWL to full tilt position and full raise position making sure bowl and all rollers turn freely.
Dual support roller set in production process.

Rollers should support gear cases so they are centered in column cutout.

Replacement rollers all have same diameter and width.

Step machined on gear case is designed to limit side to side bowl movement using rear of rollers.
Bronze End Plate

Gear case with step

Column

Roller Assembly

All machining to roller width is done by removing steel only from rear shoulder!
Cutaway shows orientation of brass bushing and trunnion roller assembly