# Finding an Arbor's Optimum Position

**Applies to**

ThermoFlex Wide II sleeve capable device

**Background**

When a new arbor is installed on a sleeve capable device for the first time, the optimum mounting position must be located. This procedure describes the steps required to find the optimum position by measuring the arbor runout at each spindle numbered position. An index pin is then installed to set the optimum position.

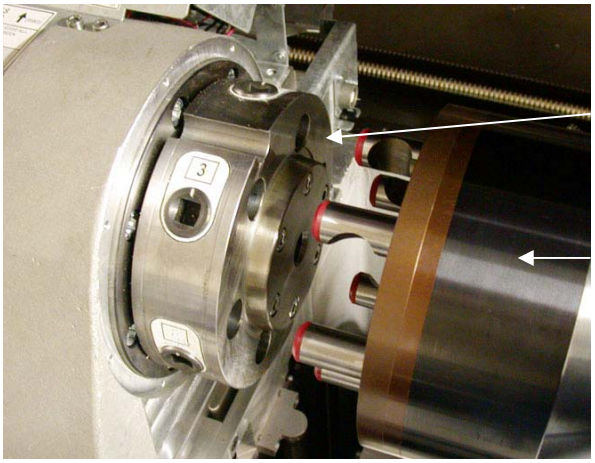
**Tools and parts**

- Dial indicator toolkit
  The dial must have a 2 µm resolution or better and have a magnetic stand.
- 3 mm hex key
- Arbor and Index pin (index pin must be removed from the arbor)

**Steps**

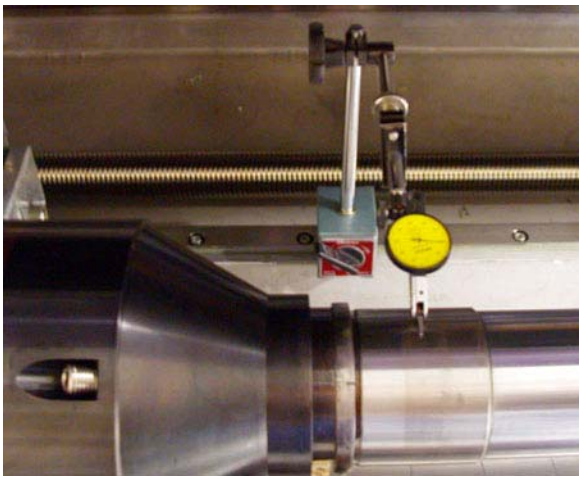
**To find the best index pin position:**

1. Assemble the dial indicator. See *Assembling the Dial Indicator* procedure on TechPlanet.
2. Lower the drum or remove any arbor installed in the ThermoFlex Wide II device. See the *Operator Guide* on TechPlanet.
3. Remove the index pin from the arbor and remove the tag from the index pin.
4. Using alcohol or acetone and a lint-free cloth, clean the headstock spindle face and the mating faces of the arbor to be installed.

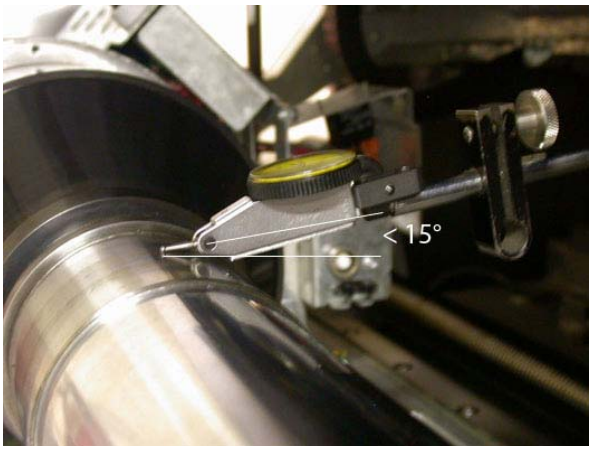



5. Install the arbor onto the device with the arbor plunger lined up with the No.1 on the spindle. Be sure to tighten the cam locks to the prescribed torque (80 ft.lbs) in the correct tightening sequence as labeled on the spindle.
6. Mount the dial indicator on the front-most carriage track directly behind the arbor’s headstock hydraulic sleeve. The needle should

not yet be in contact with the arbor. Turn the selector lever to **ON**. **Note:** The dial is very sensitive—take care not bump the dial or pickup needle when positioning the magnetic stand.



7. Loosen the stem locks and manipulate the stems to position the pickup needle just above the surface of the middle of the headstock hydraulic sleeve. Using the fine adjustment knob, lower the indicator until the needle touches the sleeve and the indicator moves about a quarter turn. It is important that the needle of the indicator is not inclined more than 15° from the tangent line of the surface being measured at the point of contact.




8. Set the drum brake switch to **Brake Override.** Using the large belt pulley, rotate the arbor by hand and stop at either the high or low indicator reading. Zero the indicator by turning the face until the zero is in line with the indicator dial.
9. Rotate the arbor slowly (approximately one revolution every four seconds) and note the range of movement of the dial (each division on the indicator is equal to 2 µm). Note this value in Table 1 opposite the no.1 headstock position.
10. Move the indicator and stand to the tailstock end of the arbor and

mount the dial indicator on the front most carriage track directly behind the arbor's tailstock hydraulic sleeve.



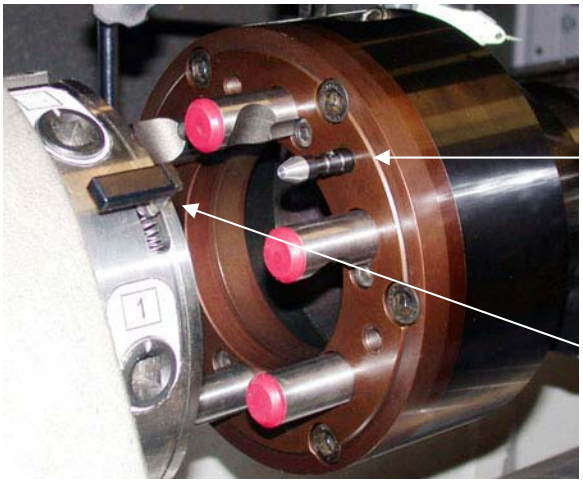
11. Use the same method to measure the runout of the hydraulic sleeve on the tailstock side. It may be easier to have a second person to read the values from the indicator while you turn the arbor. Note this value in Table 1 opposite the no.1 tailstock position.
12. Remove the indicator and stand.
13. Remove the arbor from the spindle and rotate the spindle by 1/6th of a turn so that the arbor plunger lines up with the next spindle number—#6.
14. Install the arbor and repeat the headstock and tailstock measurements as described in steps 5 to 10 above. Remember to note the measurements in Table 1.
15. Repeat this procedure for all remaining spindle positions as shown in Table 1.
16. Calculate the average runout reading for each spindle position and note them in the table.

Table 1: Runout Measurement

| Spindle/plunger position | Headstock | Tailstock | Calculated average |
|---|---|---|---|
| 1 | | | |
| 6 | | | |
| 4 | | | |
| 2 | | | |
| 5 | | | |
| 3 | | | |

**To install the index pin:**

1. Remove the arbor from the spindle.
2. Line up the arbor with the spindle in the orientation that resulted in the lowest average runout as recorded in Table 1.
3. Thread the index pin into the tapped hole in the arbor that is now in line with the index pin lever on the spindle. Use a 3 mm hex key to tighten the pin.




**See also**

- Assembling the Dial Indicator
- ThermoFlex Wide II Operator Guide

**Technical contact** John Funk

**Date submitted** 15 Sep 2004

**Date modified** 12 Oct 2004