

**Component:** MSD Tube Winder  
**Title of Test:** Mandrel Runout test  
**Subsystem:** Drive  
**Administered by:** Andrew Derhammer  
**Test Date:** March 2017 (Tentative)  
**Location:** Machine Shop

### **Brief Summary of Test Performed and Purpose of Test**

The object of this test is to test the runout of the mandrel and drive system.

### **Required Equipment (includes sensors, custom mounting brackets, and electrical needs)**

1. Assembled tube winder
2. Mandrel
3. Dial Indicator

### **Procedure for test and data collection**

1. Ensure Machine is setup with mandrel per the user manual.
2. Disconnect drive belt per the user manual to allow spindle to freely rotate.
3. Set up the dial indicator with the magnetic base attached to the ways and the tip of the indicator on the OD of the mandrel at the headstock side of the mandrel.
4. Zero dial indicator
5. Rotate Mandrel 360 degrees and observe max runout on dial indicator. Ensure that dial indicator is not bumped or disturbed during this step and that it maintains contact during the full rotation. Record value in test plan fields
6. Repeat steps 3 thru 5 for the following locations: tailstock side of the mandrel, center of the mandrel.
7. Remove mandrel from machine completely.
8. Repeat steps 1 thru 7 four more times for a total of five data points at each location.

### **Summary of collected data (any pertinent upper-level type summary tables)**

Parameter	Recorded Value	Units
Headstock runout test #1		In
Tailstock runout test #1		In
Mandrel Center runout test #1		In
Headstock runout test #2		In
Tailstock runout test #2		In
Mandrel Center runout test #2		In
Headstock runout test #3		In

Tailstock runout test #3		In
Mandrel Center runout test #3		In
Headstock runout test #4		In
Tailstock runout test #4		In
Mandrel Center runout test #4		In
Headstock runout test #5		In
Tailstock runout test #5		In
Mandrel Center runout test #5		In

Conclusions (general conclusions from acquired data and how they change current and future design)

To be discovered.