

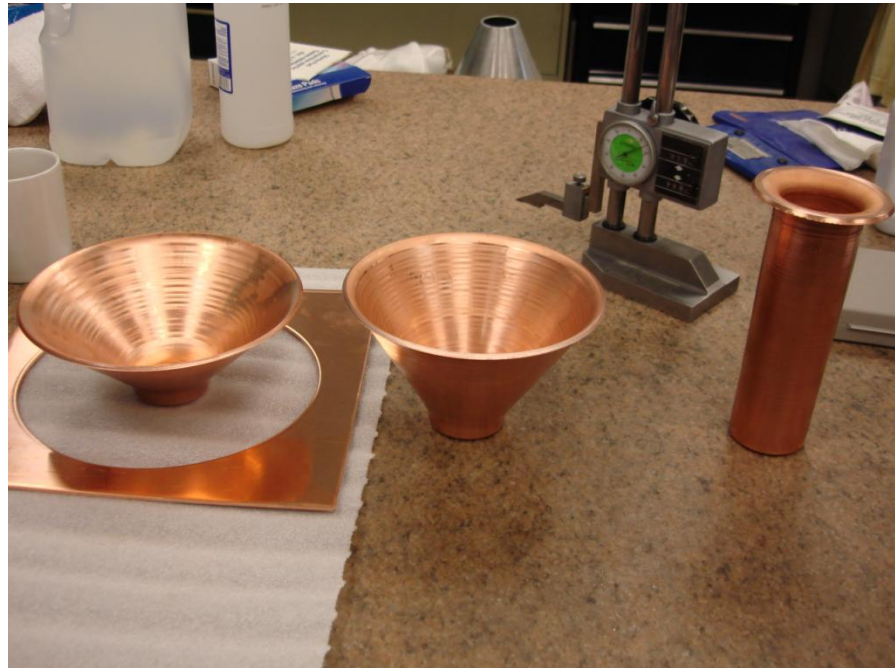
# FNAL Visit to Century Metal Spinning



Current P.O. for:

- 2 - Titanium Helium Vessel Tubes (20" I.D. x 3/16" Wall x 14.5" Long)
- 2 - 650MHz  $\beta=0.9$  Nb Beam Tubes (100mm I.D. x .125" Wall x 7.5" Long )
- 3 - Small Nb Beam Tubes (50mm I.D. x .125" Wall x 6.5" Long)

# FNAL Visit to Century Metal Spinning



## 3- Stage Operation

- 45°, 60°, and 90° Die Set (Tool Steel)
- Proof Sets Made From .125" Thick Copper

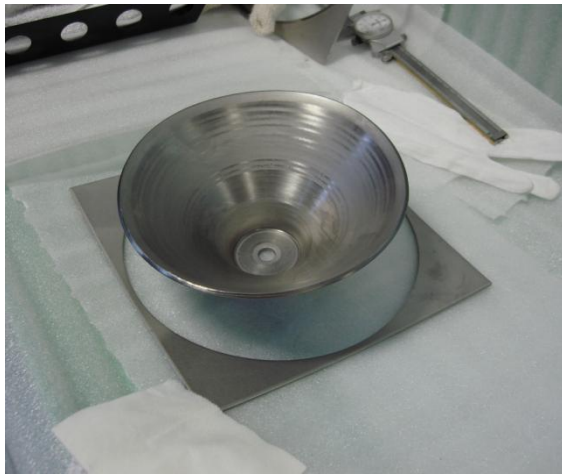
# FNAL Visit to Century Metal Spinning



## 1<sup>st</sup> Stage

- 45° Die used
- Niobium Cut to 8" Diameter, .125" Starting Stock
- Baby Oil Used as Lubricant

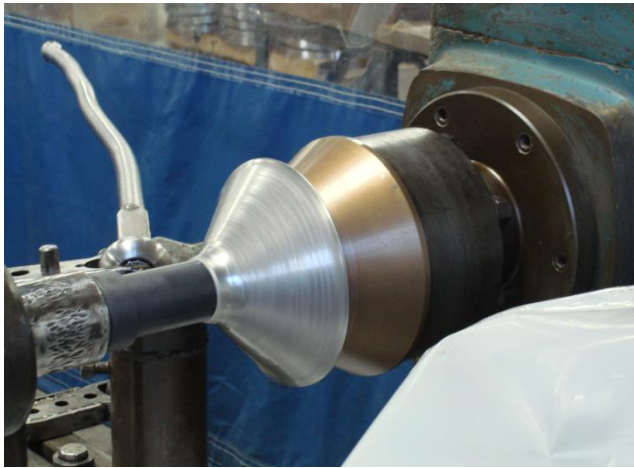
# FNAL Visit to Century Metal Spinning



## Thickness Measurements

- Taken Between Each Stage
- Immediate Feedback to Operator
- Adjustments Made to Part

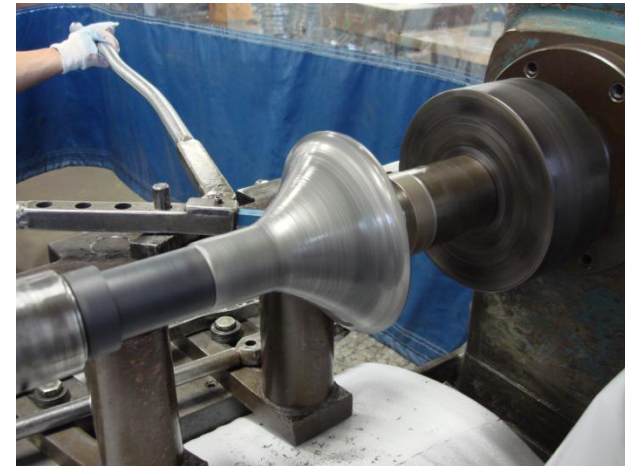
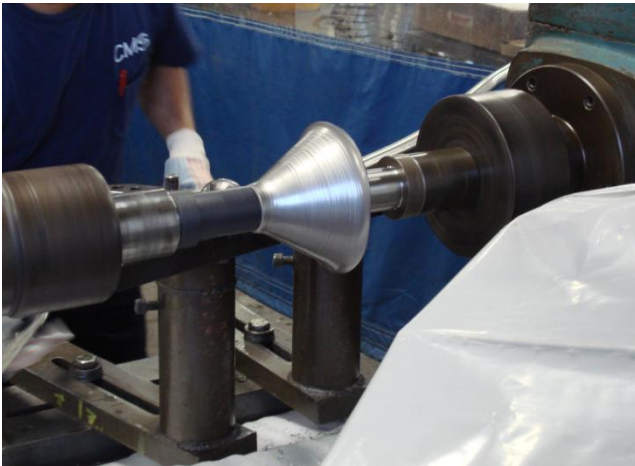
# FNAL Visit to Century Metal Spinning



## 2<sup>nd</sup> Stage

- 60° Die used
- Spinning Speed ~250-300 rpm Throughout Process
- Baby Oil Used as Lubricant

# FNAL Visit to Century Metal Spinning



3<sup>rd</sup> and Final Stage

- 90° Die used
- Longest Duration of the Process

# FNAL Visit to Century Metal Spinning

