N/S Ferrule Tube Drawing Push Method

By James E. Dempsey

Both Payne and Leonard rod shops used the “push” method to draw NS tube for ferrule making. Drawing NS tubing using the “Push” method is really straightforward to do and requires a minimal amount of equipment. An arbor press does the pushing. This method uses shorter (2” - 4”) pieces of NS tubing because you push with a hardened mandrel. The process is easy for a rodmaker to accomplish and yields excellent results.

1) The first step is to spin one end of our tube partially closed like the nose of a round nosed hollow point bullet. This will keep the mandrel from pushing through and allow the mandrel to push the tube through the die. I use an old Lathe for this and a radiused tool bit turned sideways, An example is in photo 1.

![Photo 1.](image)

I have the tool bit below center and Lathe in reverse---easier to see the results take place. Try to leave enough opening for the step in the Mandrel to pass through---tip, I have a drill about .002 larger than Mandrel step, in the tailstock to open hole if too small.
2) Make sure the tube is clean and free of debris. Now I take the draw lube (Castrol Safety Draw 722X Cutting Lubricant – available from MSC) --see Photo 2.

and lightly coat the Mandrel slide it into the tube so the step comes out the opening. Lube the outside of tube lightly.

Photo 2.
3) Position Mandrel with tube in selected die that is positioned on the Arbor Press--see Photo 3.
Make sure you get it as straight as possible, now lightly press with handle and release, that should help tube center in die. Now bring handle down smoothly pushing Mandrel through die. Photo 4.
4) Now turn mandrel so back end will go through die. Select a die that is .002” larger than Mandrel, you will use this die to strip the tube off mandrel. You can also make a "stripper plate" for this. (Simply a plate with a series of, holes that are +.002” larger than your Mandrels) See photo 5.

One function of that step in the Mandrel is to act as an initial pusher to break the “lock” prior to the next step.
5) Now that the tight lock between Mandrel and tube ID has been broken use a small piece of drill rod to push Mandrel free of tube see photo 6

Photo 6.
Photo 7 shows a 16 female checked with a Tubing Micrometer. .0155”.

Photo 7.
Photo 8 shows a step-down Mandrel, the 16 female I drew, and a Halstead 16/64 ferrule George Halstead made sometime in 1947-48

Photo 8.
Photo 9 shows a Master Die Set that covers making ferrules from 8/64 to 21/64, the standard set covers ferrules 10/64 to 19/64.

Well I hope this shows you all just how simple drawing tube is. It was a lot harder to put in words than to draw some ferrules. I'm working on doing a DVD showing this and other steps you may need for making quality ferrules. Nothing like being self sufficient, especially in these expensive times.