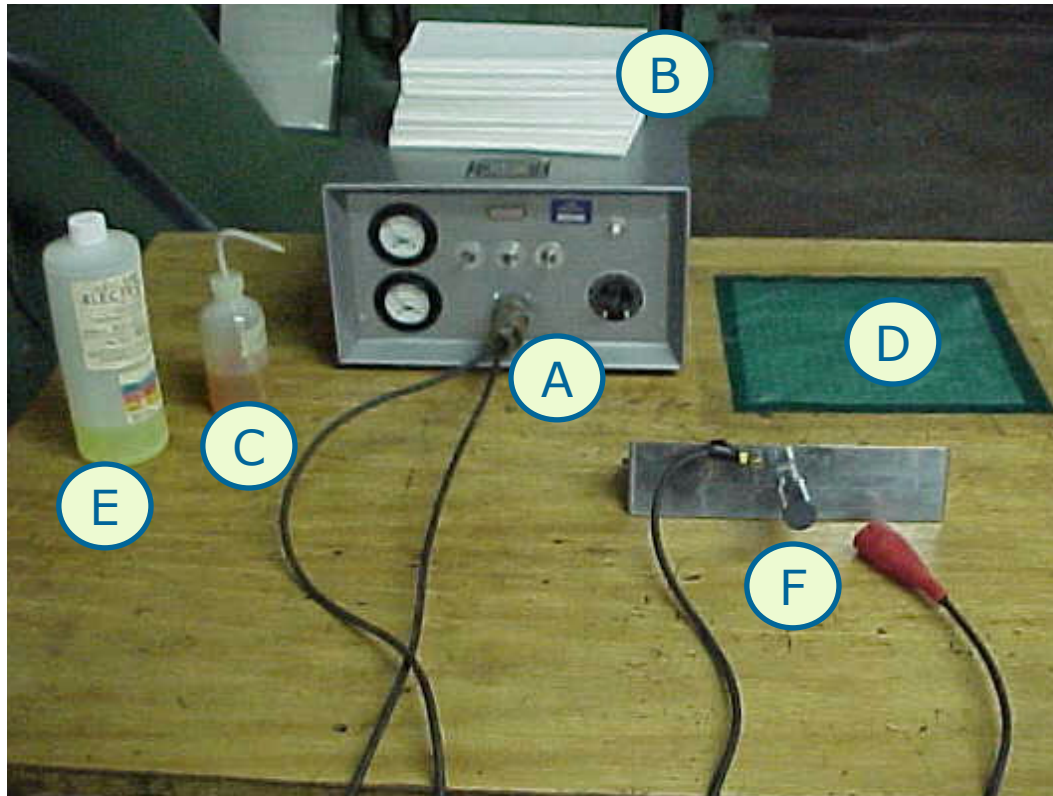


Circle Grid Tutorial

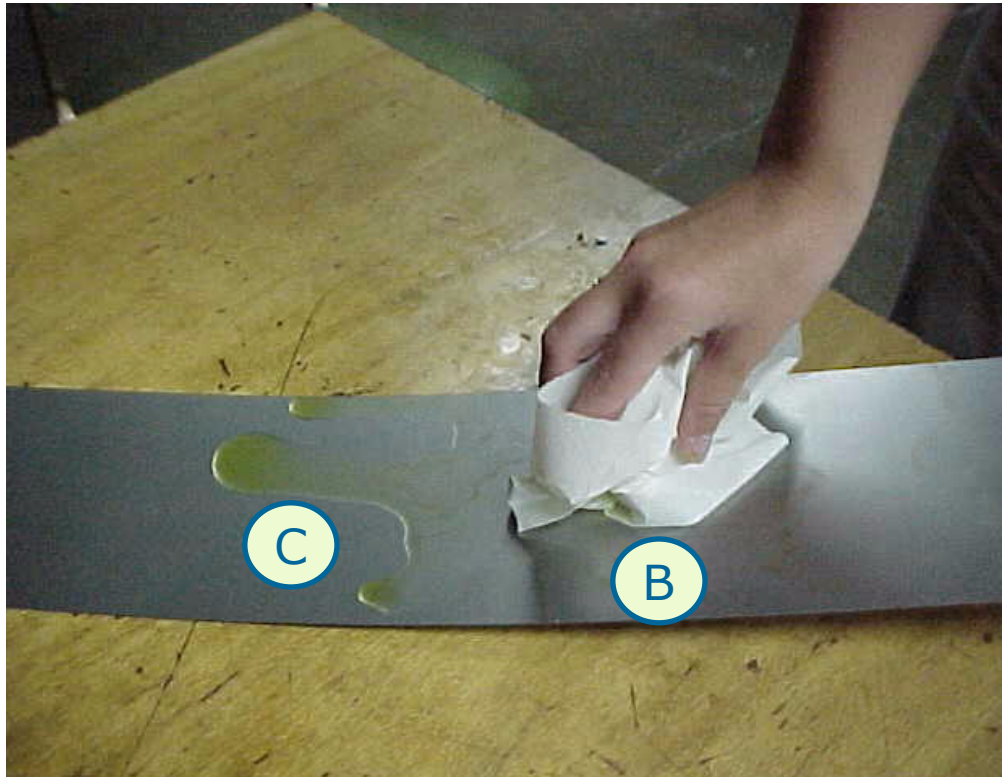
Courtesy of Professor William J. Riffe, Kettering University, Flint MI



EQUIPMENT

- Power Source
- Paper Towels
- Cleaning Fluid
- Grid Template
- Electrolyte
- Etching Roller

Circle Grid Tutorial

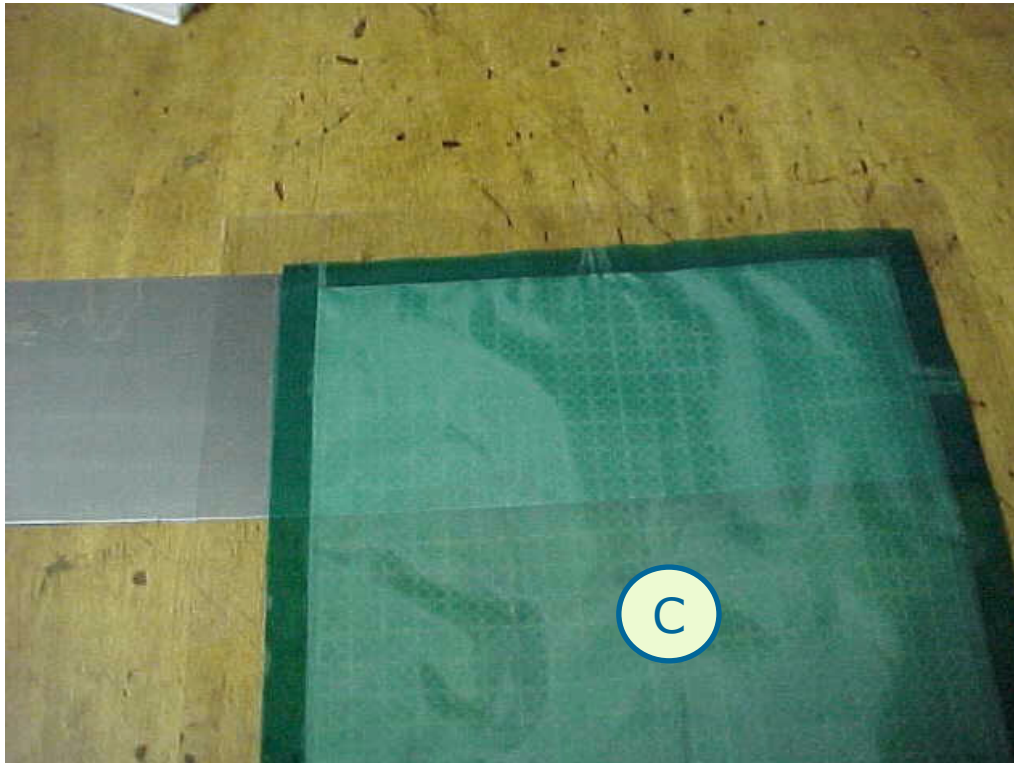


CLEANING

A cleaning solution [C] is applied to remove mill oil

Paper towels [B] are used to clean and then dry the material

Circle Grid Tutorial

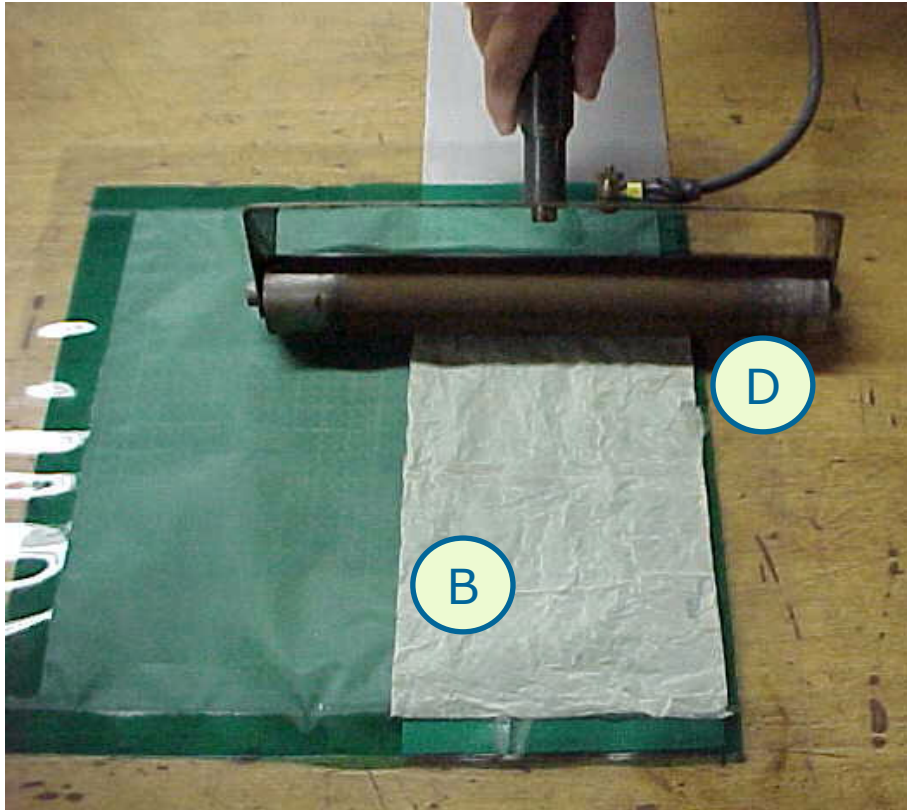


GRID TEMPLATE

The grid template [C] is laid over the area to be gridded

It is not necessary to grid the entire blank. Just the area being studied

Circle Grid Tutorial

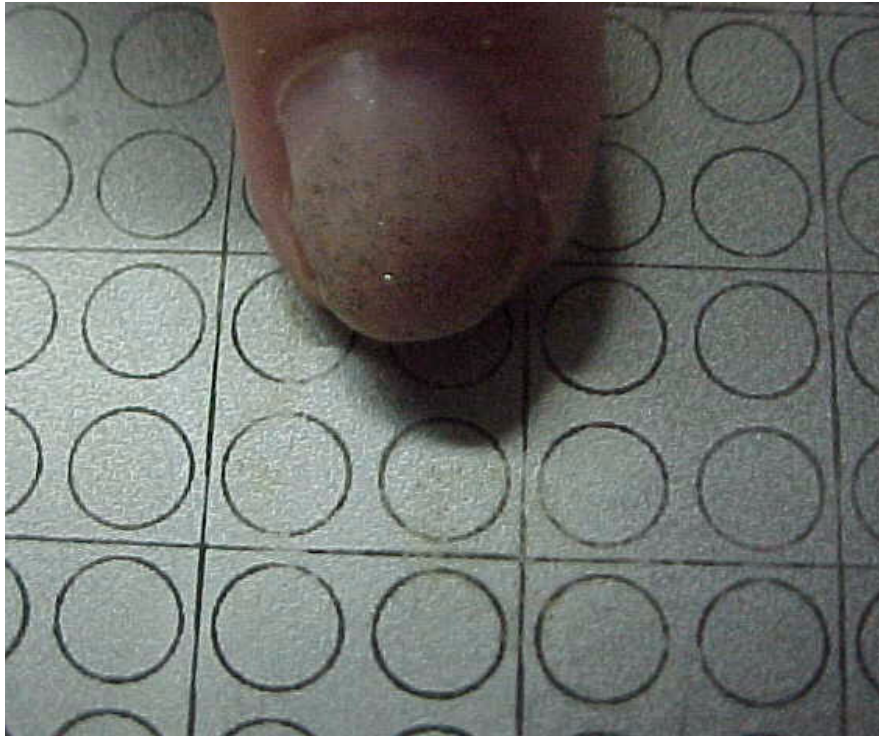


APPLYING GRIDS

Paper towels [B] soaked in electrolyte [E] are placed over the grid template.

The etching roller [D], connected to the power source [A], is rolled over the towels

Circle Grid Tutorial



RESULTING GRID

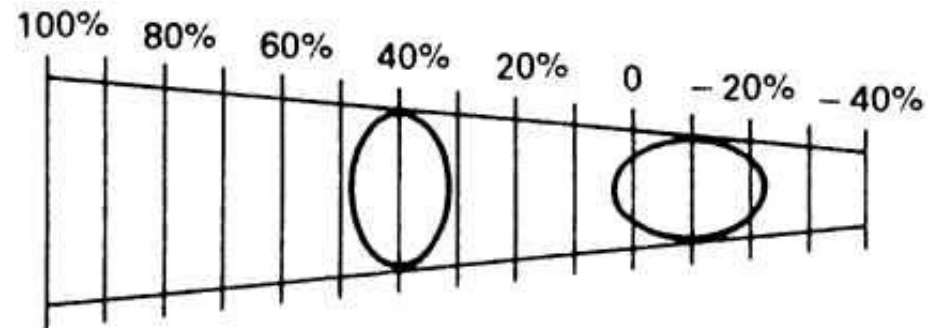
When applied correctly, the proper electrolyte and voltage will produce well defined circles etched into the surface of the material. The blank is now ready to be deformed.

Circle Grid Tutorial

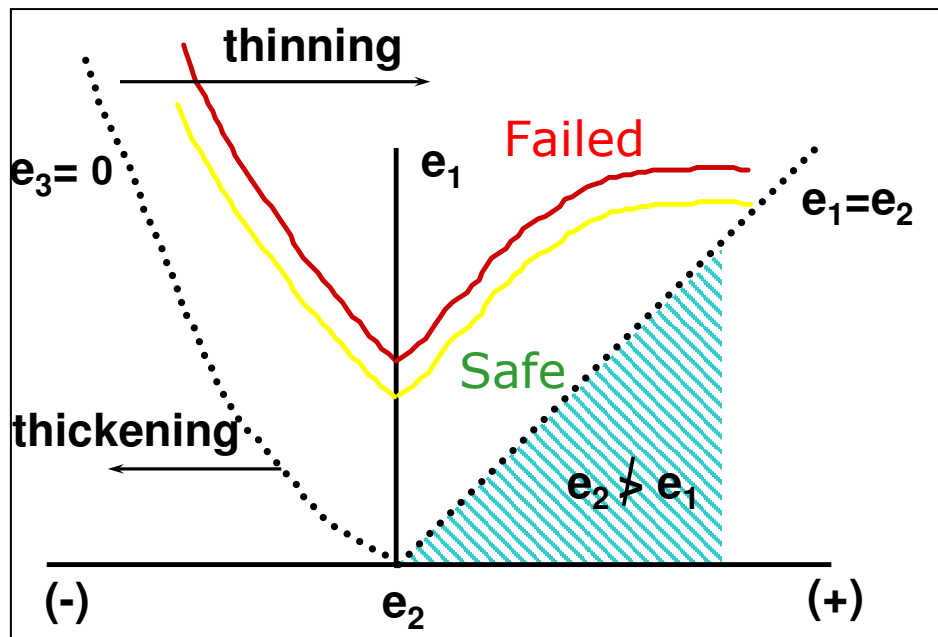


DEFORMED GRID

The deformed circles can now be measured.



Circle Grid Tutorial



When the strain results are plotted on a forming limit diagram (FLD), the forming severity can be assessed relative to its proximity to failure.