WILSON TOOL

Strength. Performance. Innovation.

Practical Forming Solutions with Wilson Wheel Technology

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Q&A at end of presentation

- Enter questions in Q&A panel
- “all panelists”

Wilson Tool Hosts

Elizabeth Graham

Vanessa Greer

Presenter

Glen Shuldes

WILSON TOOL

Strength. Performance. Innovation.

Practical Forming Solutions with Wilson Wheel Technology

by Glen Shuldes

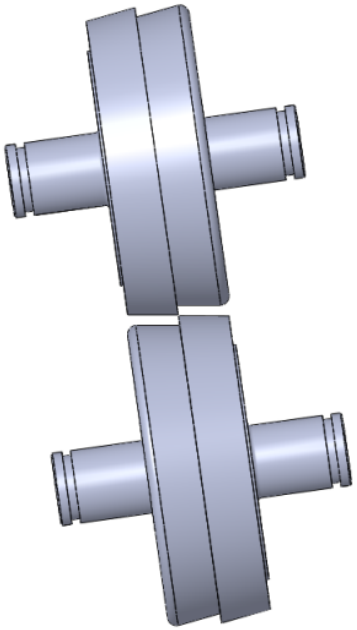
WILSON WHEEL TOOLING SYSTEMS

SEMINAR WILL COVER THE FOLLOWING:

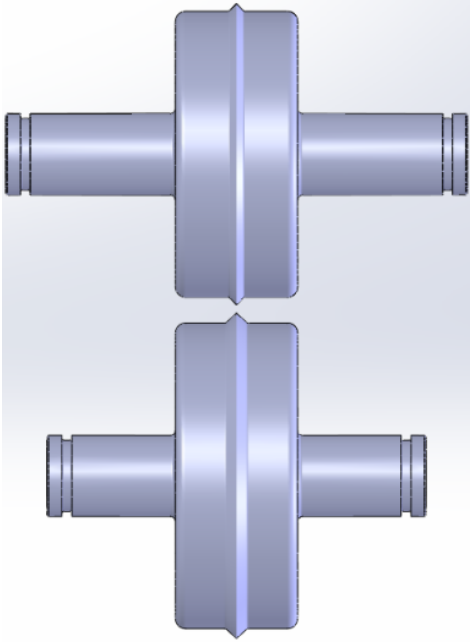
- Descriptions of available wheel tools
- Material specifications
- Good applications for wheel tools
- Difficult applications for wheel tools

Wheel Tool Summary

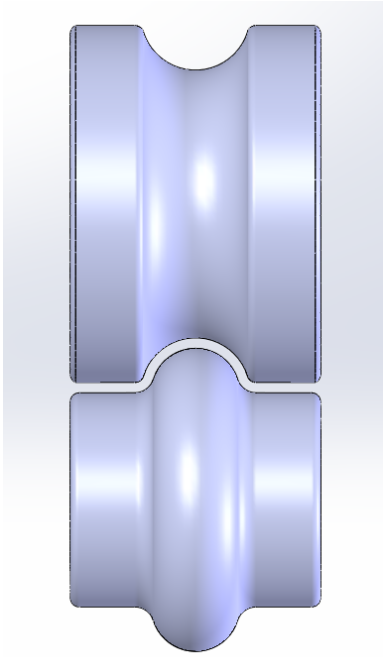
The basic types of wheel tools:



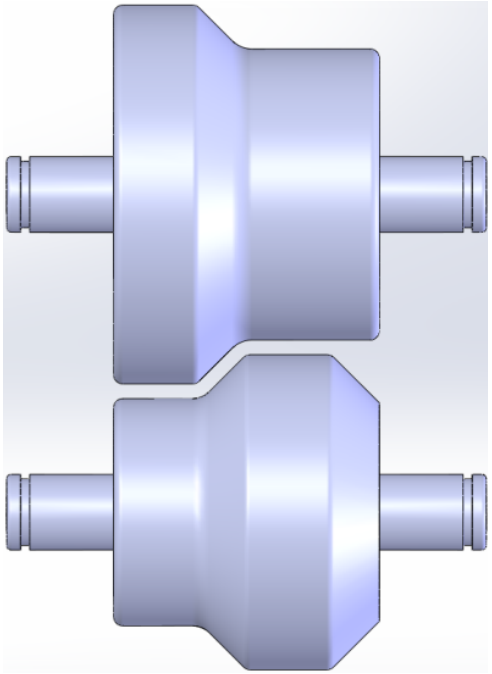
Rolling Shear



Rolling Pincher



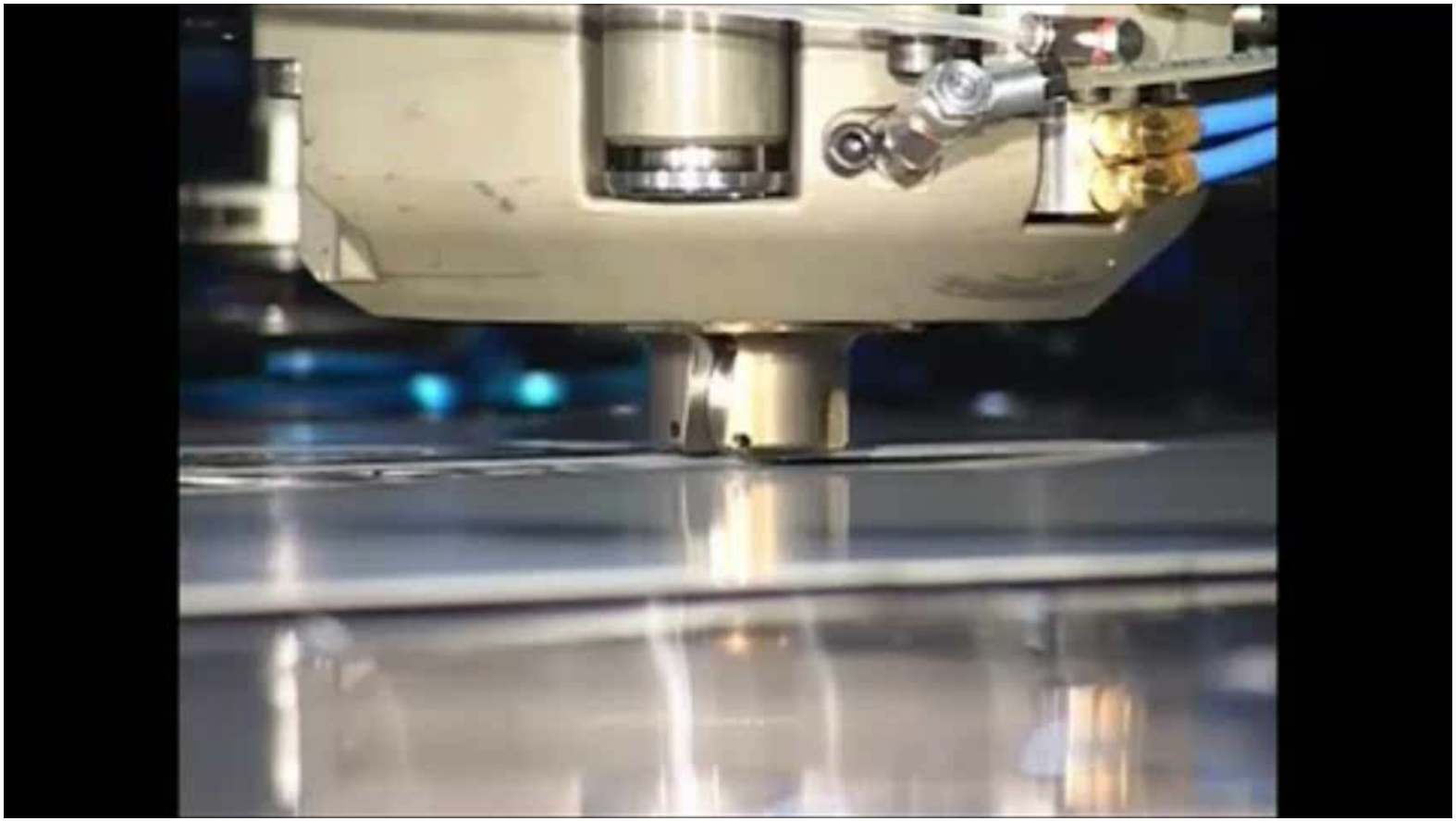
Rolling Rib

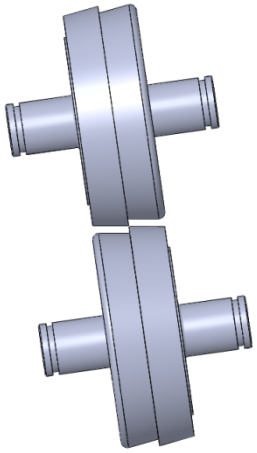


Rolling Offset

Poll

Rolling Shear

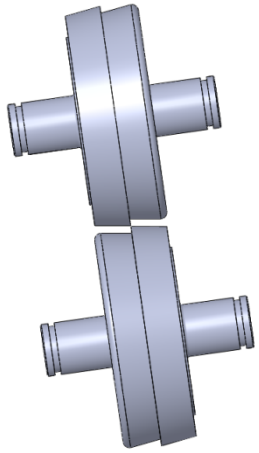




Rolling Shear

Rolling Shear

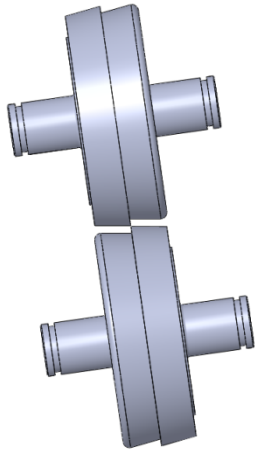
- Range of material:
  - Minimum thickness .030” (.75mm)
  - Maximum thickness
    - .098” (2.5mm) Aluminum
    - .074” (2.0mm) Mild Steel
    - .059” (1.5mm) SST
- Can run in contours with minimum radius of 1.75” (45mm)
    - Minimum radius is greater in thicker materials
- Available for:
  - Thick Turret (B station)
  - Thin Turret (adapted to D station)
  - Trumpf Style



Rolling Shear

Rolling Shear

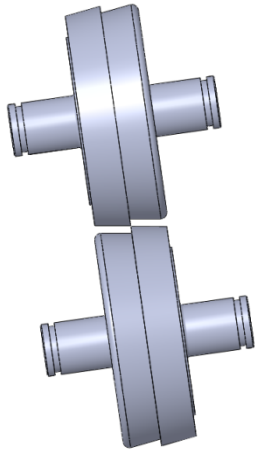
- Time savings compared to punching
- Common line cutting can maximize material utilization
- Reduce the need to nibble or buy special tools to produce arcs
- Improved edge quality



Rolling Shear

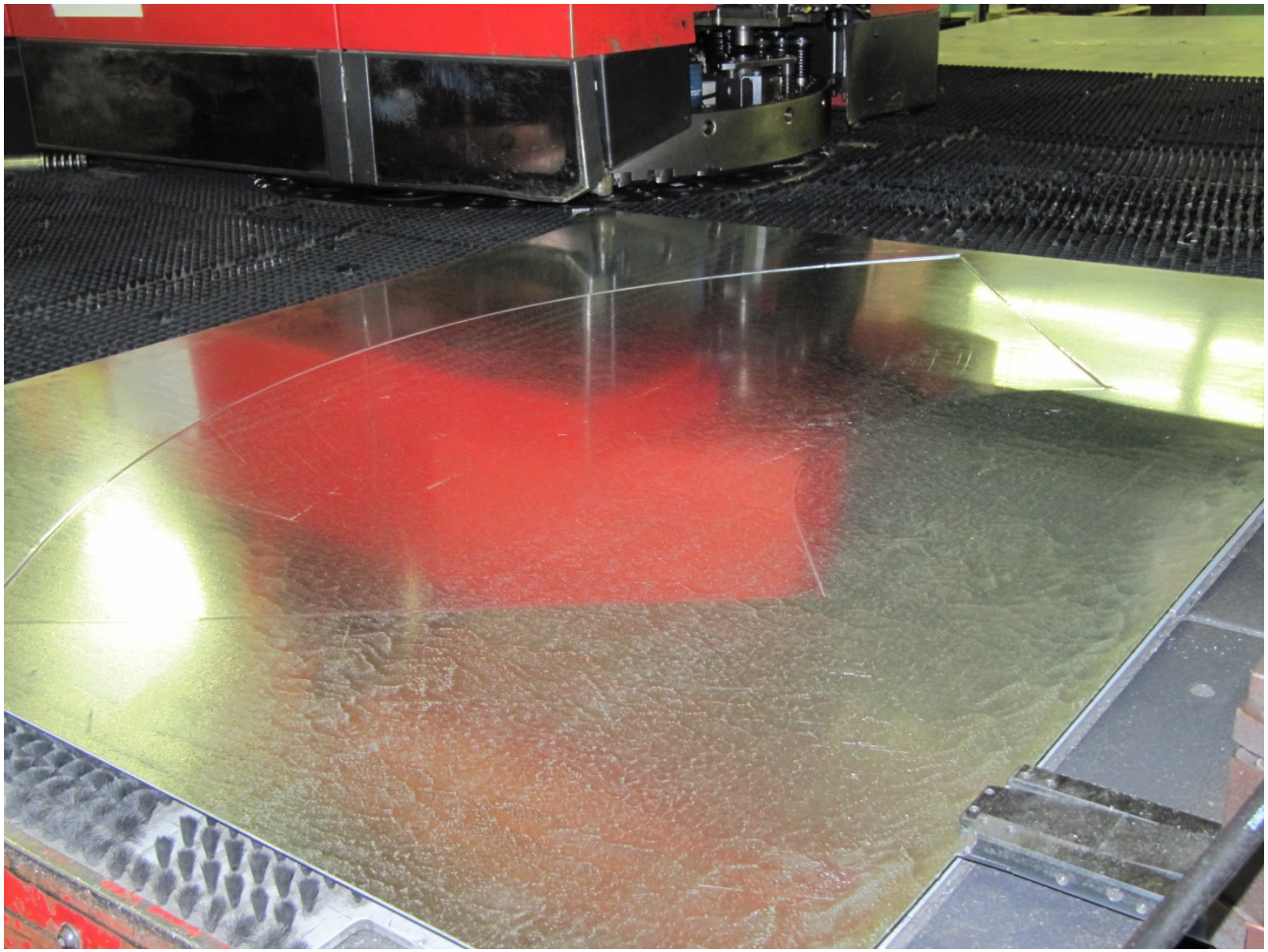
Rolling Shear

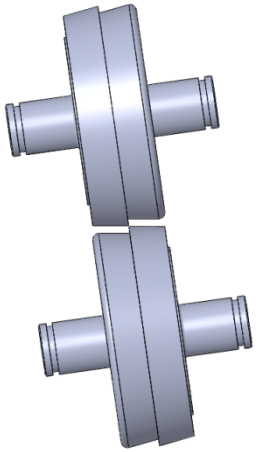
- Large arcs are an ideal fit for the wheel
- Relatively large parts present the most time savings compared to slitting tools
  - Cuts over 40” are ideal
  - Avoid cuts less than 8”
  - Avoid strips less than 3” wide



Rolling Shear

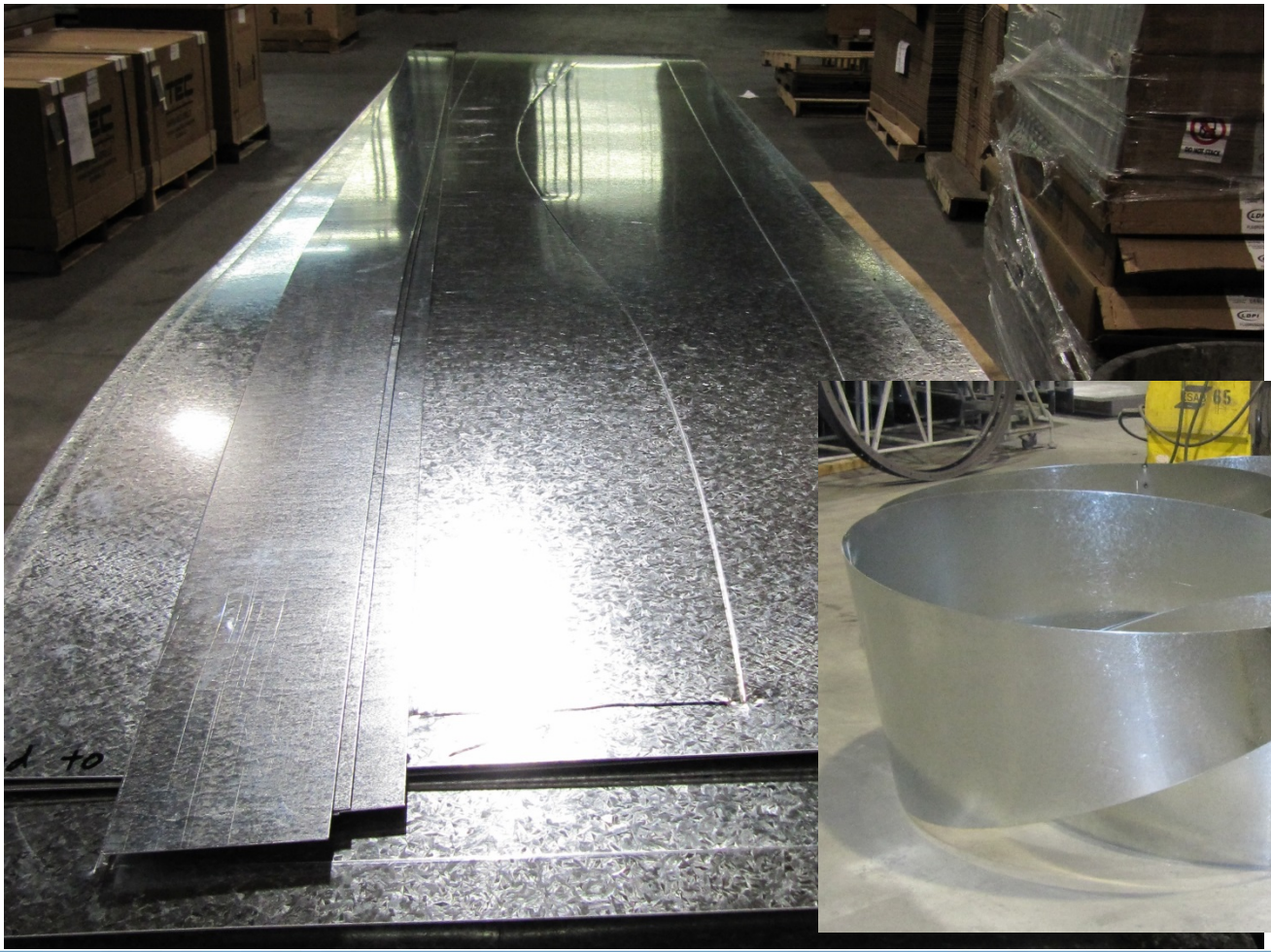
Rolling Shear

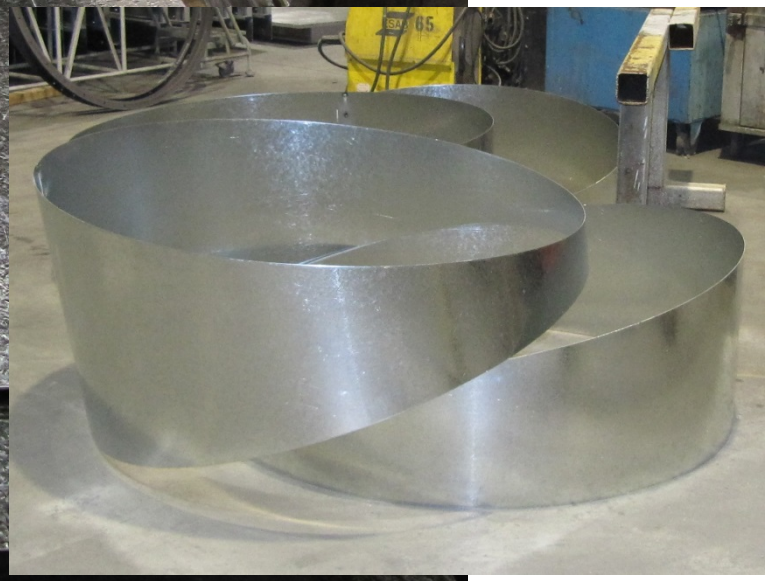


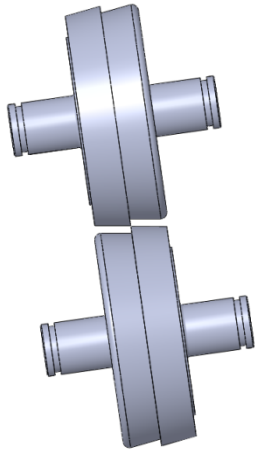


Rolling Shear

Rolling Shear

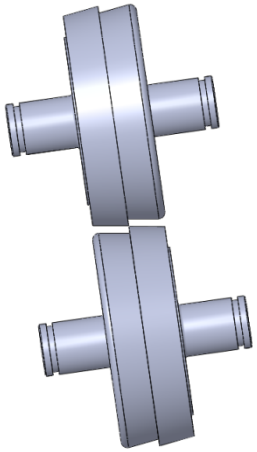






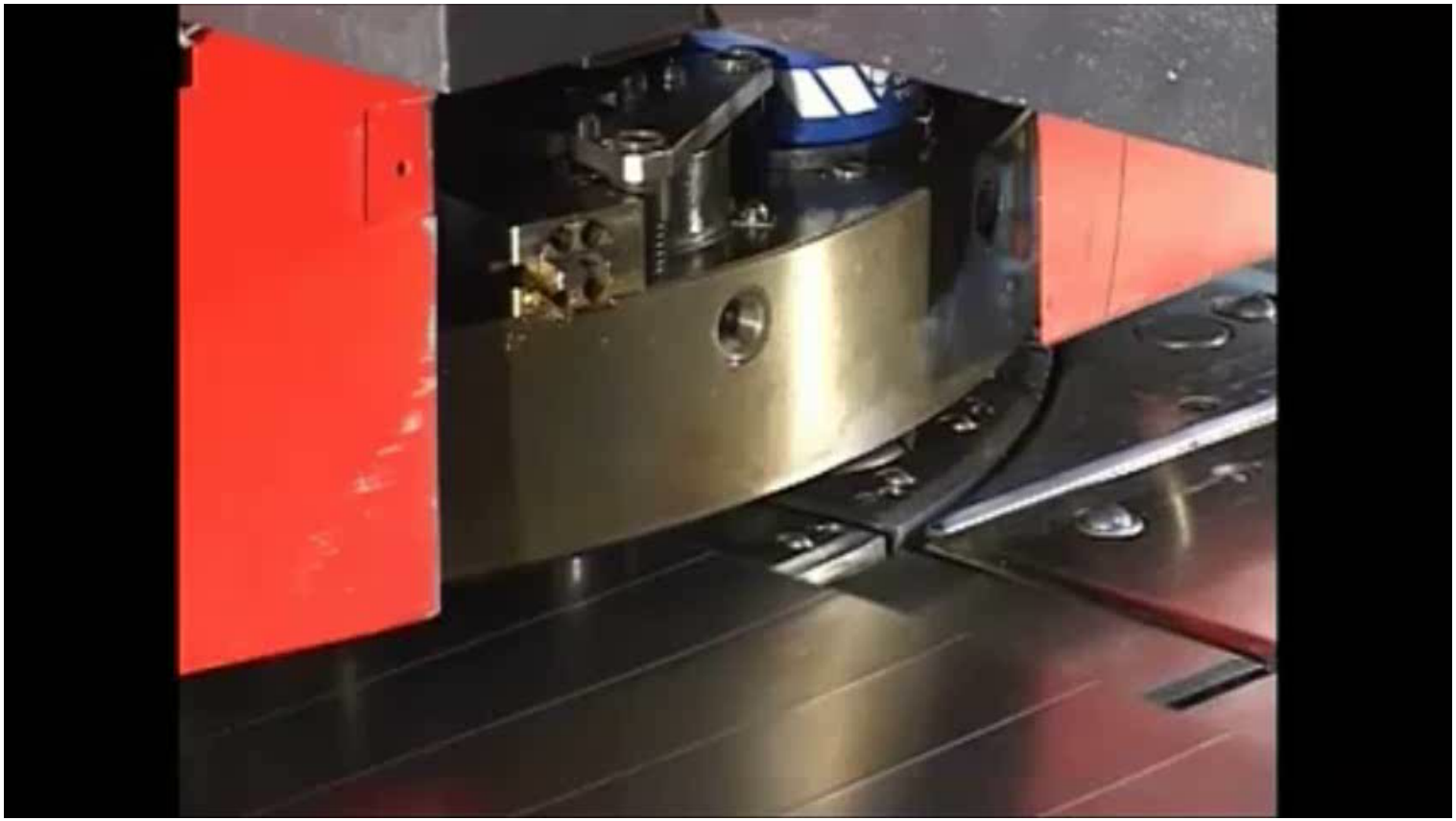
Rolling Shear

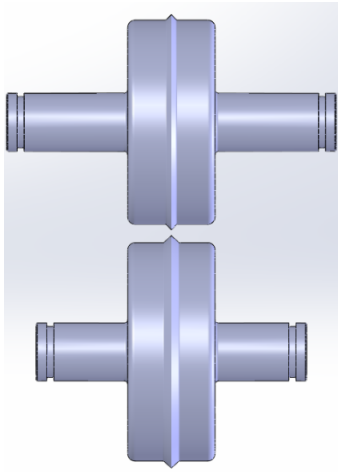
Rolling Shear



Rolling Shear

Rolling Pincher

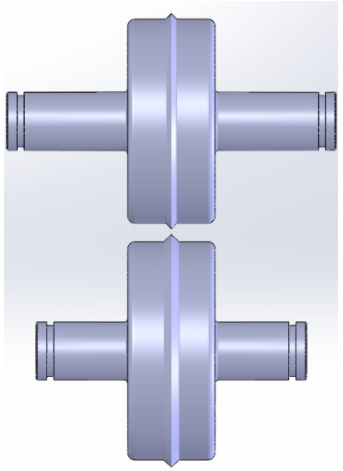




Rolling Pincher

Rolling Pincher

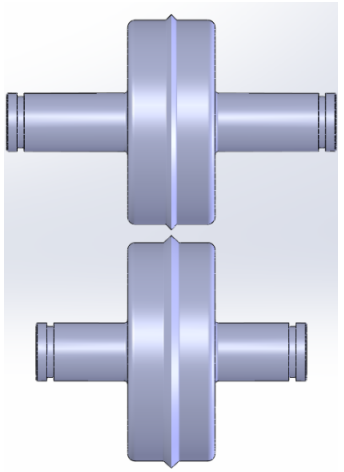
- Range of material:
  - Minimum thickness .030” (.75mm)
  - Maximum thickness
    - .098” (2.5mm) Aluminum
    - .074” (2.0mm) Mild Steel
    - .059” (1.5mm) SST
- Normally run in straight lines
  - Can run in contours with minimum radius of 20” (500mm)
- Available for:
  - Thick Turret (B station)
  - Thin Turret (adapted to D station)
  - Trumpf Style



Rolling Pincher

Rolling Pincher

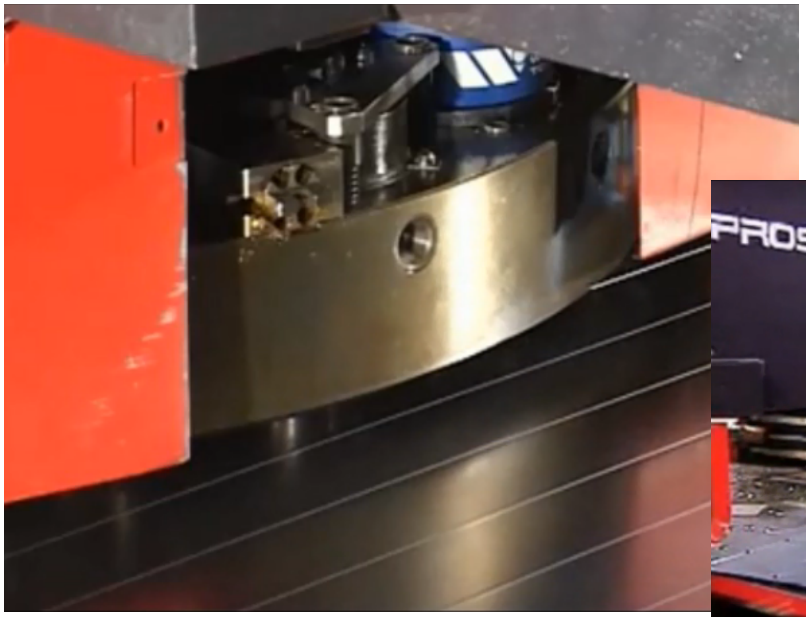
- Scores material from both top and bottom to leave a “snap apart” joint
- Common line cutting
- Minimal burr and no nibble marks

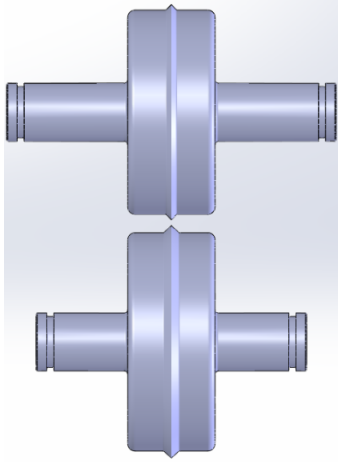


Rolling Pincher

Rolling Pincher

- Nesting of parts leaving a common cut edge that can be held firmly in place in the skeleton of the sheet

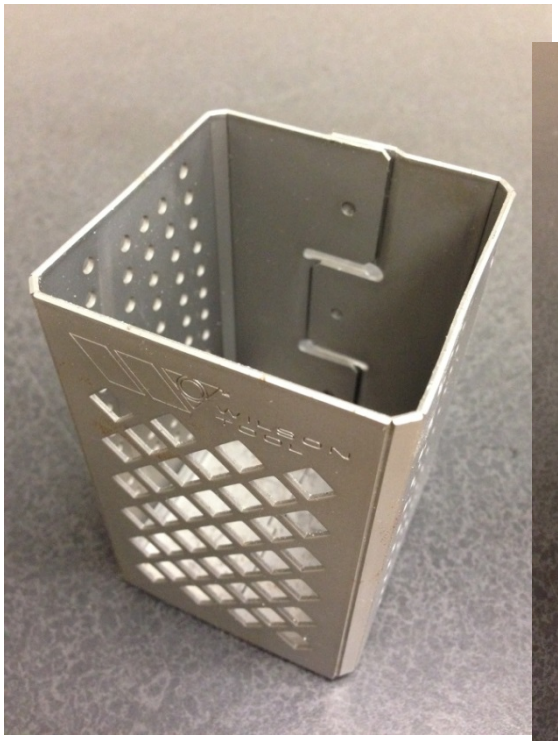


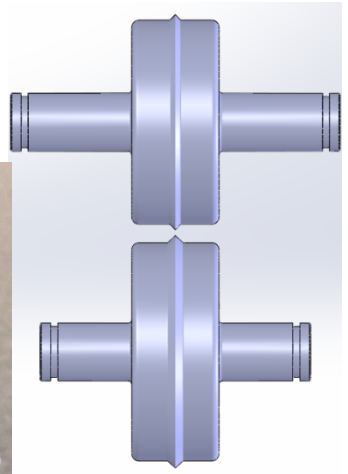


Rolling Pincher

Rolling Pincher

- Score the material for hand bending

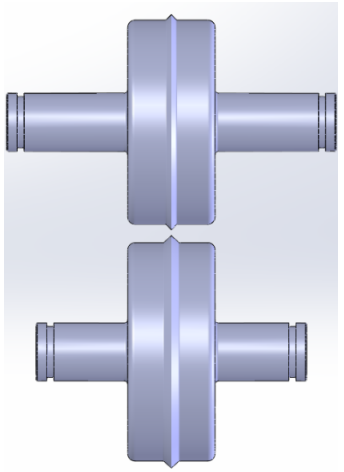


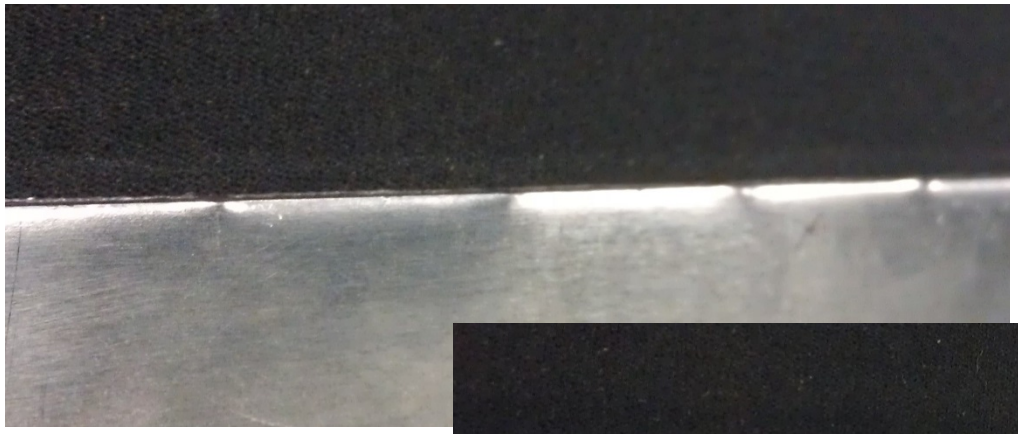


Rolling Pincher

Rolling Pincher

- Create a groove in the sheet to eliminate the overlap marks caused by punching





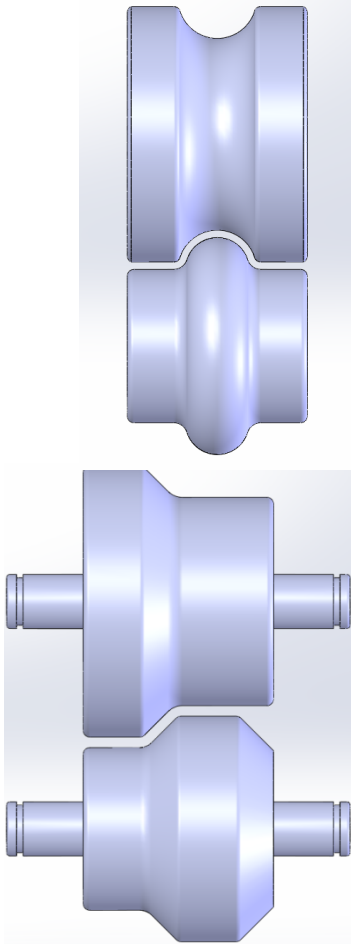
Rolling Pincher

Poll

Forming wheels

Rib, Offset

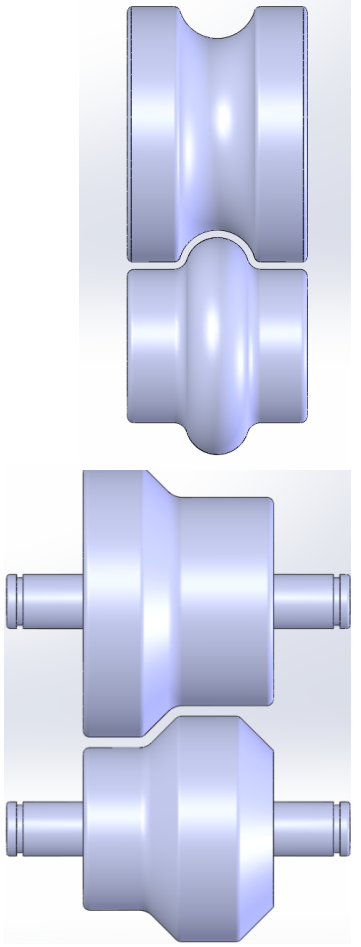
- Range of material from .030” to .125”
  - Up to .098” (2.5mm) in smaller versions
  - Up to .125” (3.0mm) in larger versions
- Max height is .187”
- Can run in contours with minimum radius of 1” (25mm)
- Available for:
  - Thick Turret (B station and C station)
  - Thin Turret (2 versions – small and large)
    - adapted to D station
  - Trumpf Style (2 versions – small and large)



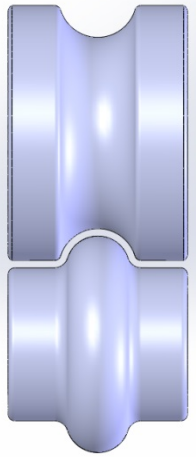
Forming wheels

Rib, Offset

- Increase rigidity of light gauge materials
- Create functional forms
- Create decorative detail



Rolling Rib



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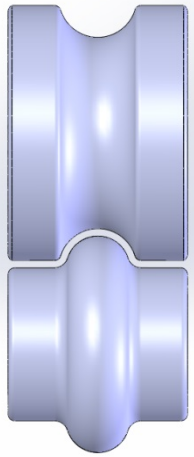

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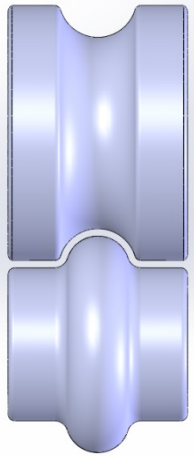

Rolling Rib

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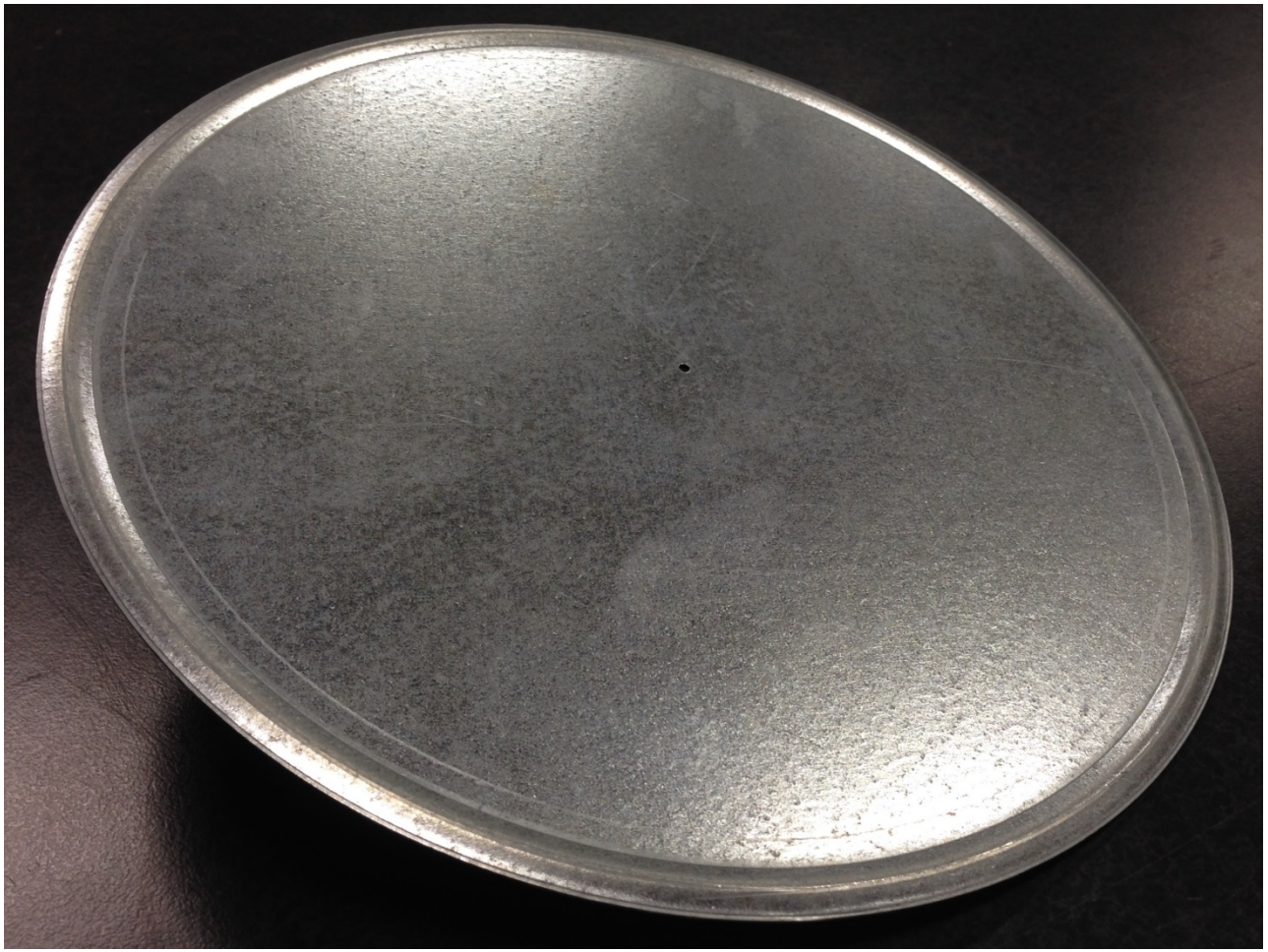

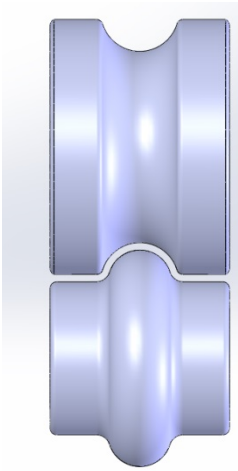

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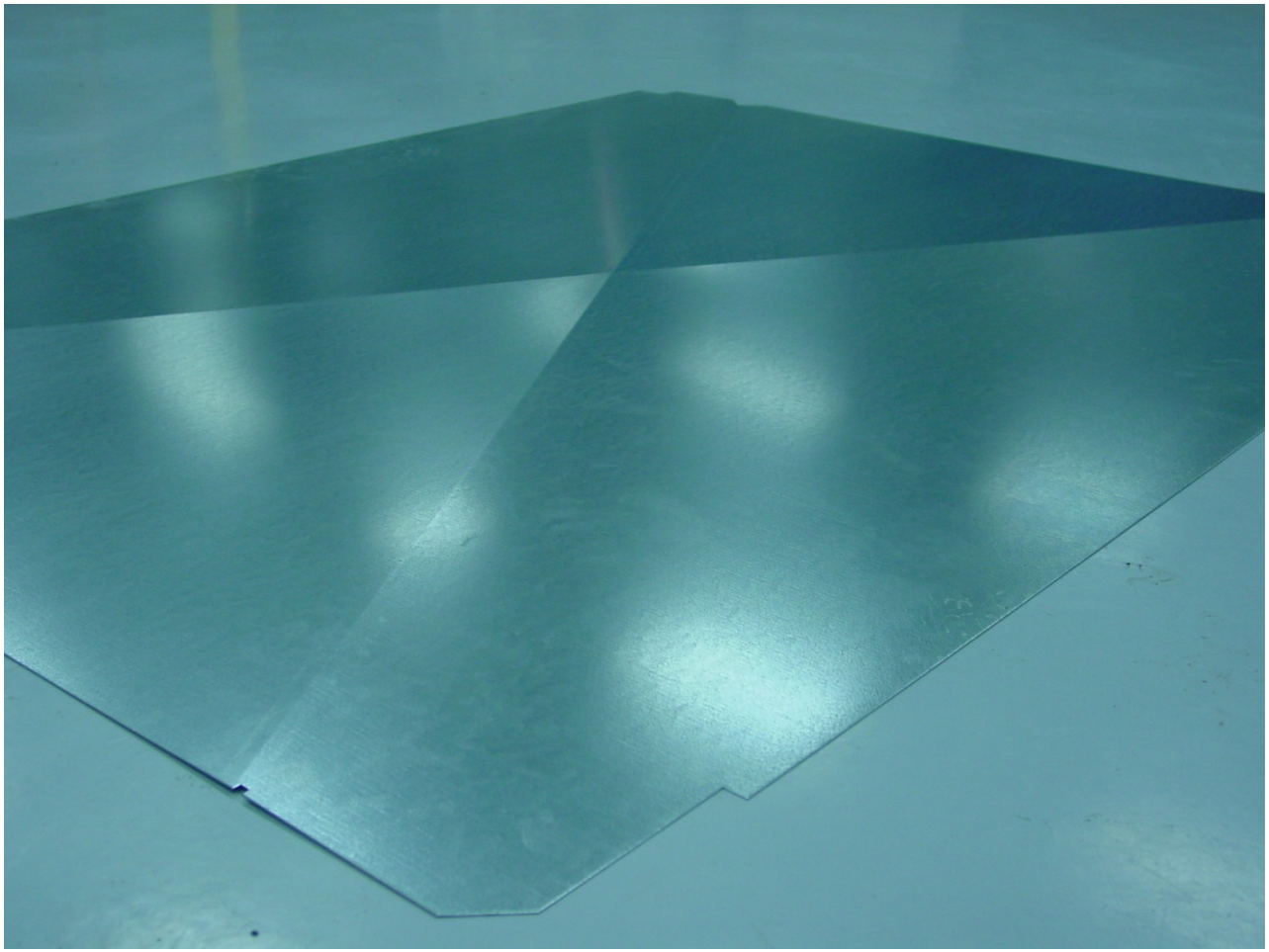
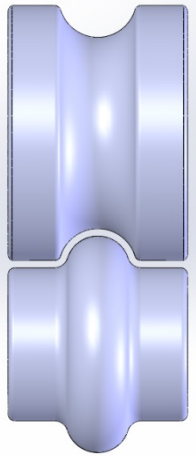
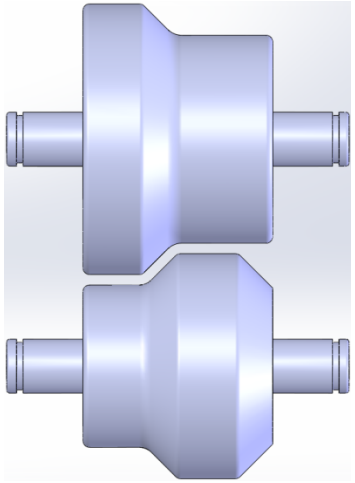




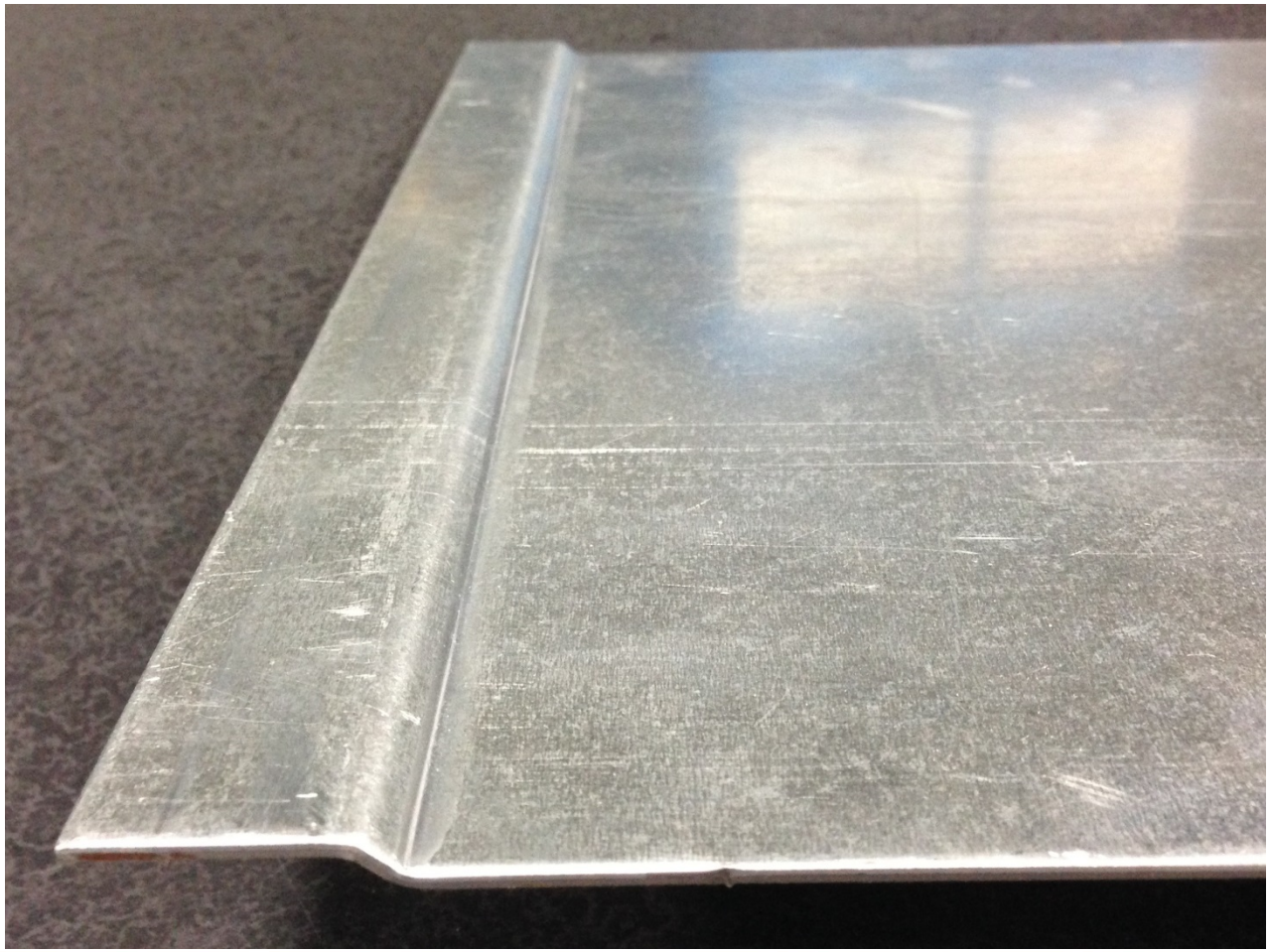
Rolling Rib

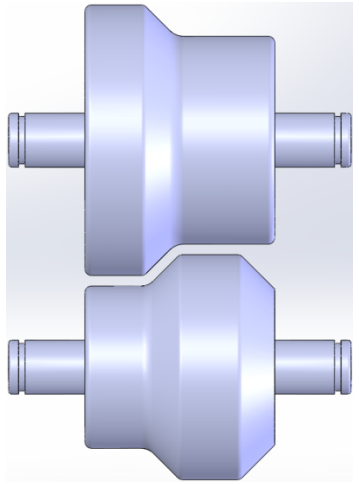
Rolling Offset



Rolling Offset

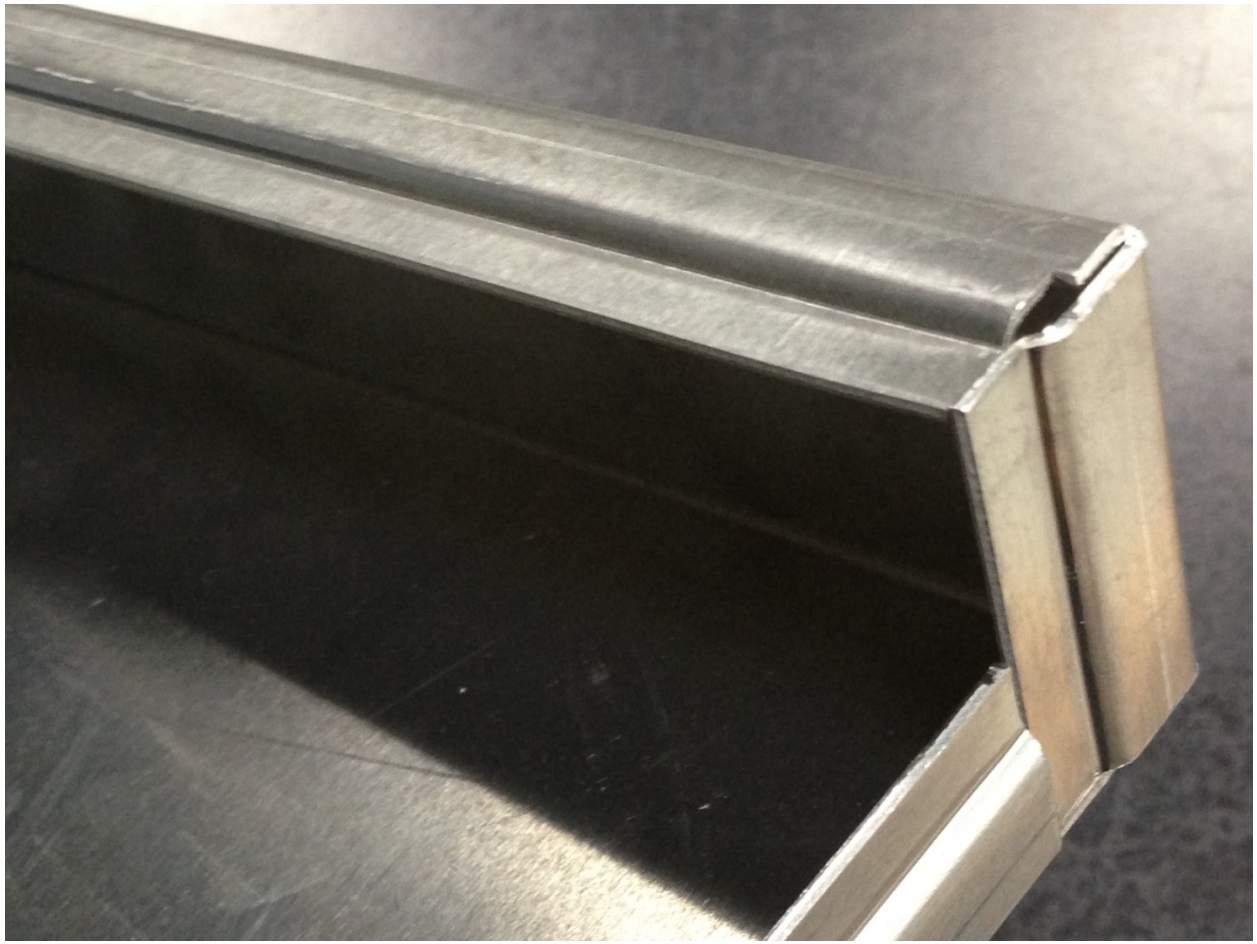
Rolling Offset

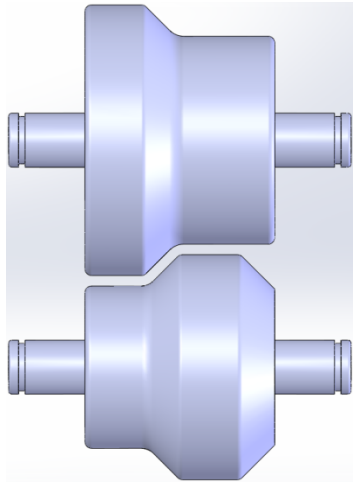




Rolling Offset

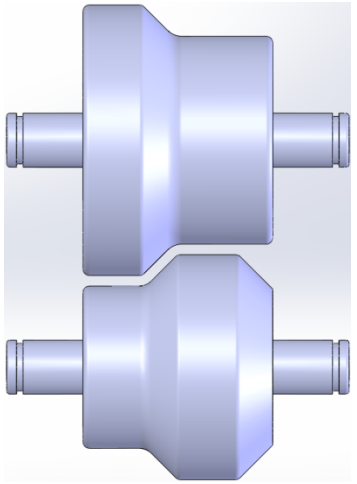
Rolling Offset





Rolling Offset

Rolling Offset



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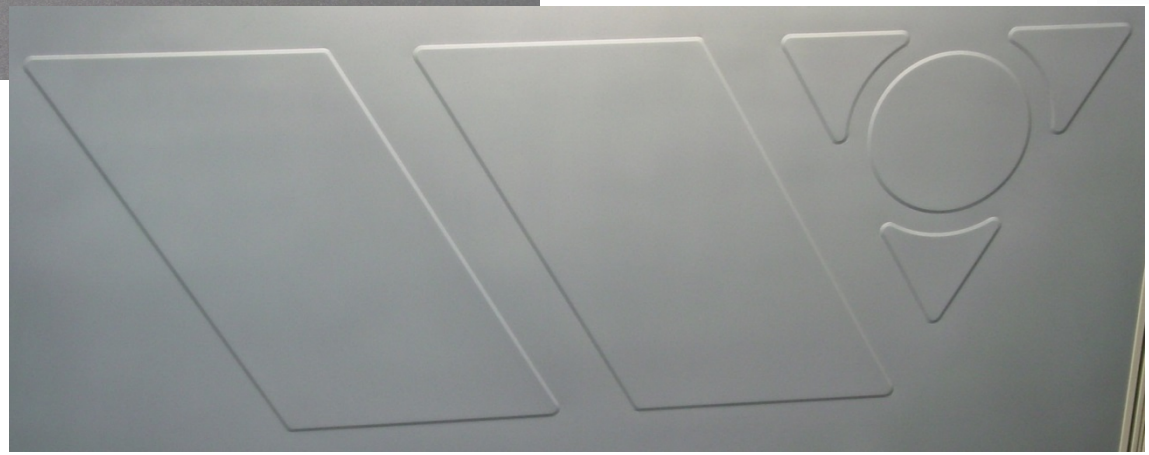

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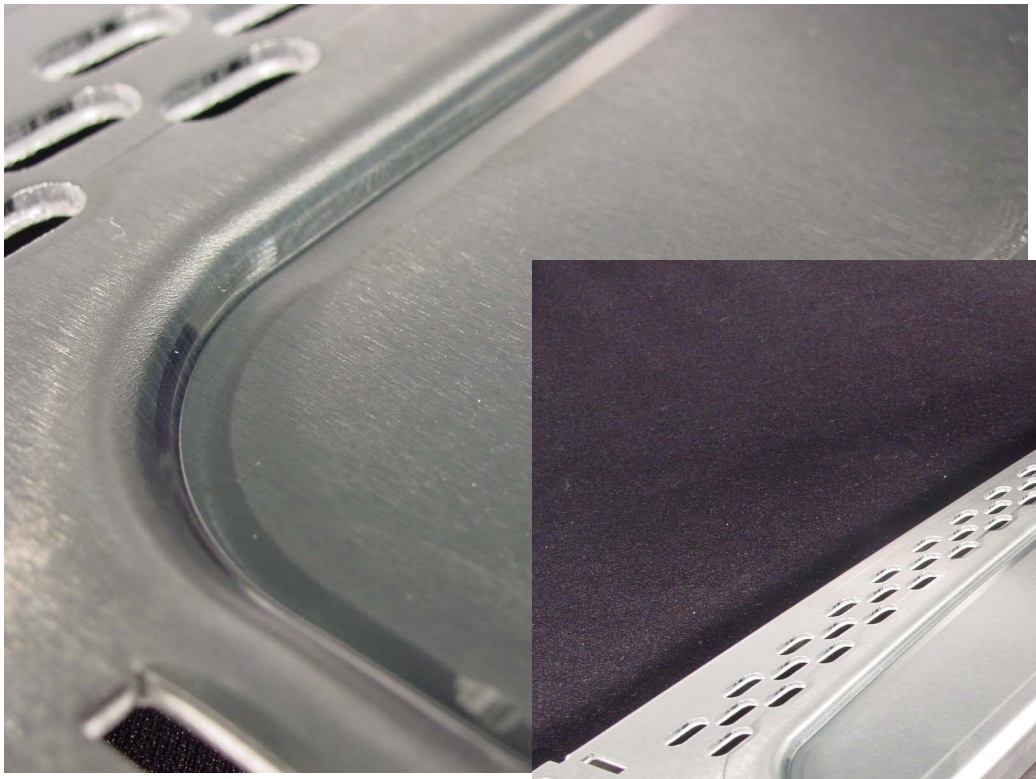
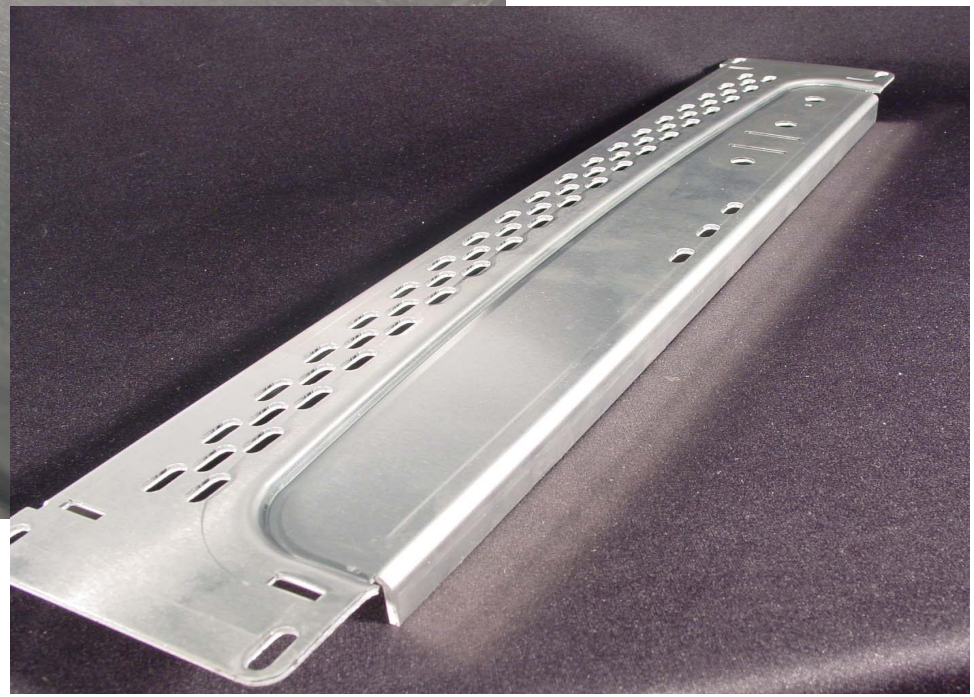
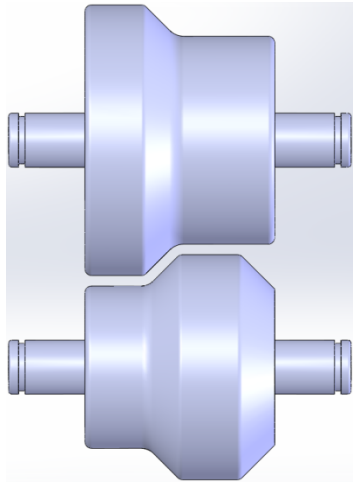




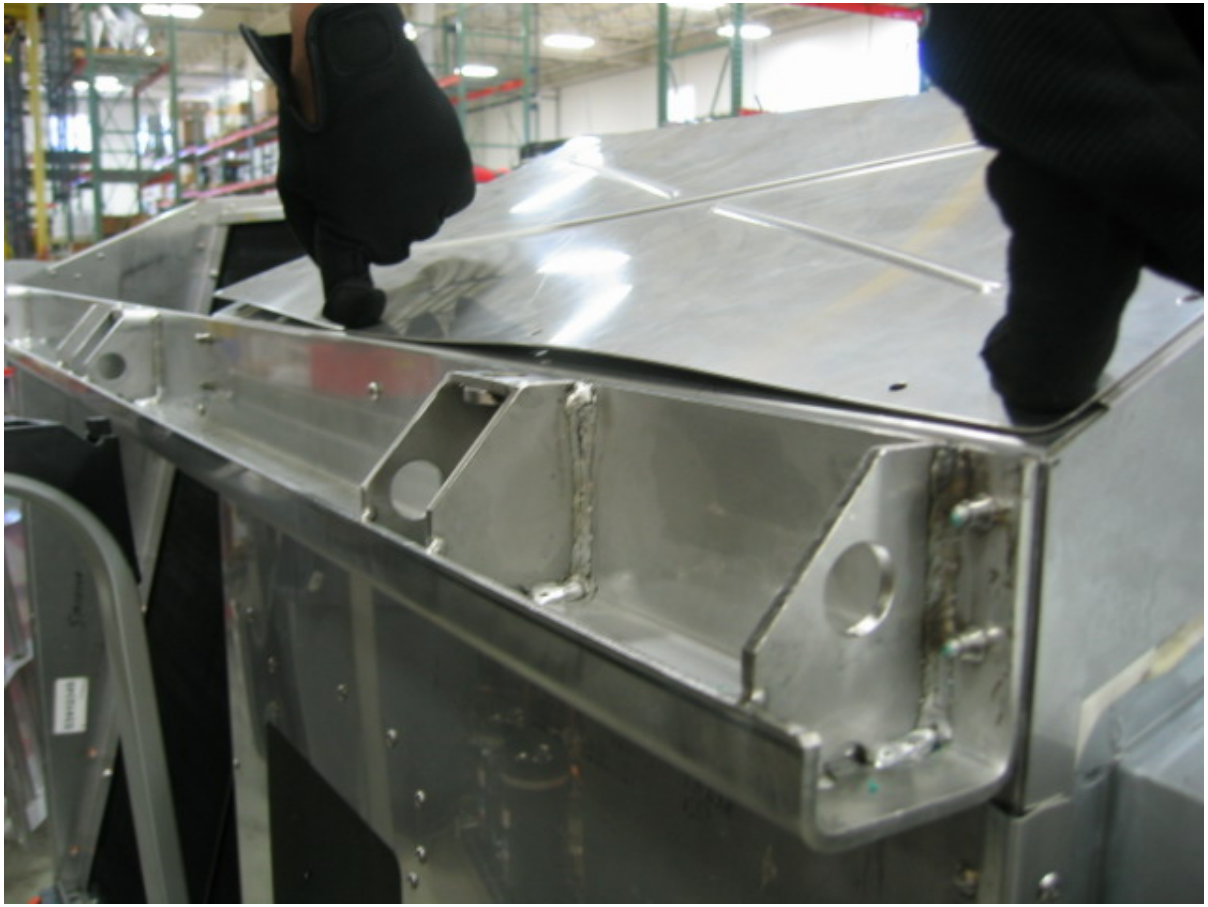


Rolling Offset

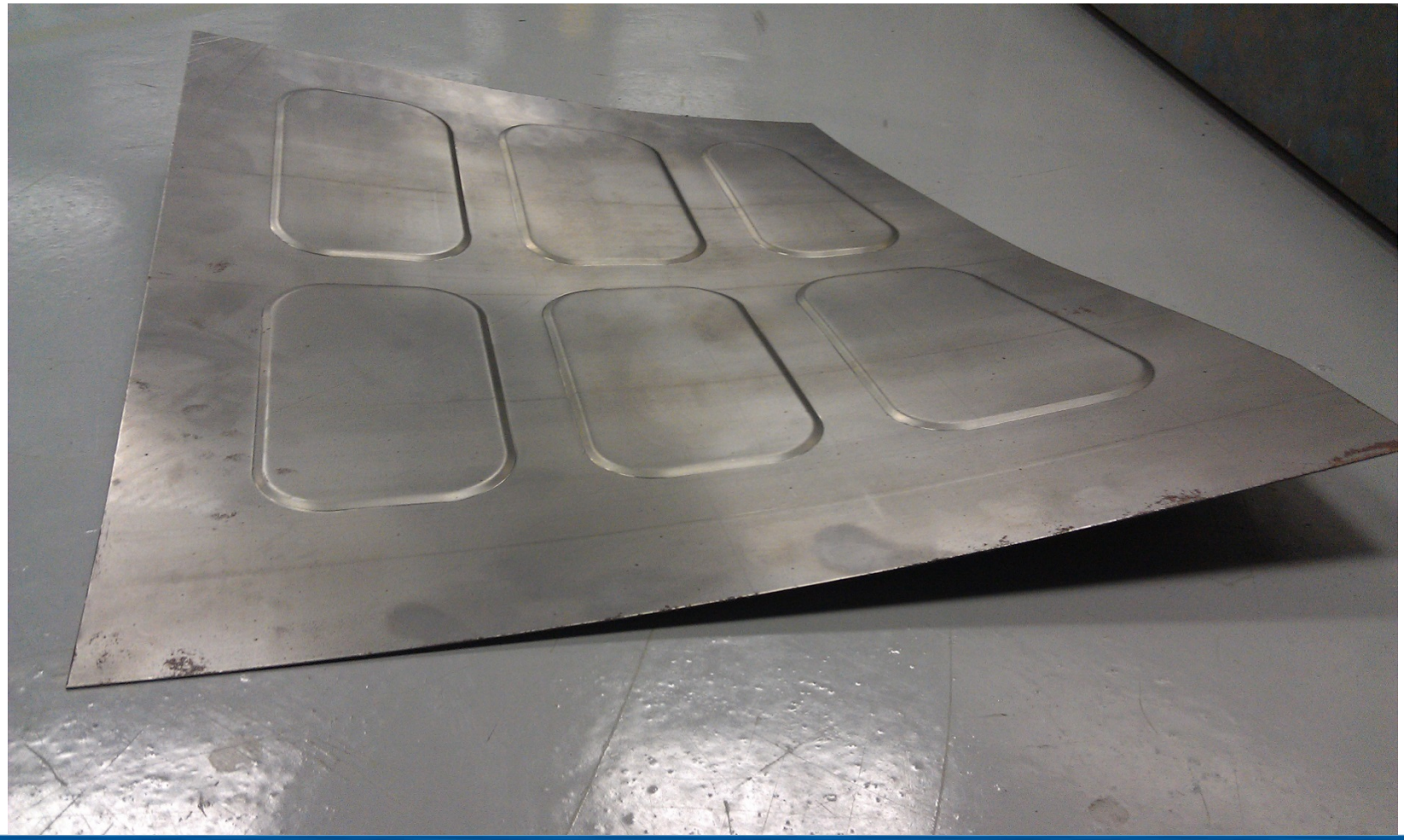
Distortion from creating forms with wheel tools

- Wheel tools generally do not stretch, or thin the material when creating forms
  - This means that as a form is created, material is pulled from the surrounding area and moved into the rib or offset that is being formed
  - This often creates sheet distortion
  - Sheet distortion is often what determines the “maximum” height that a wheel tool can create

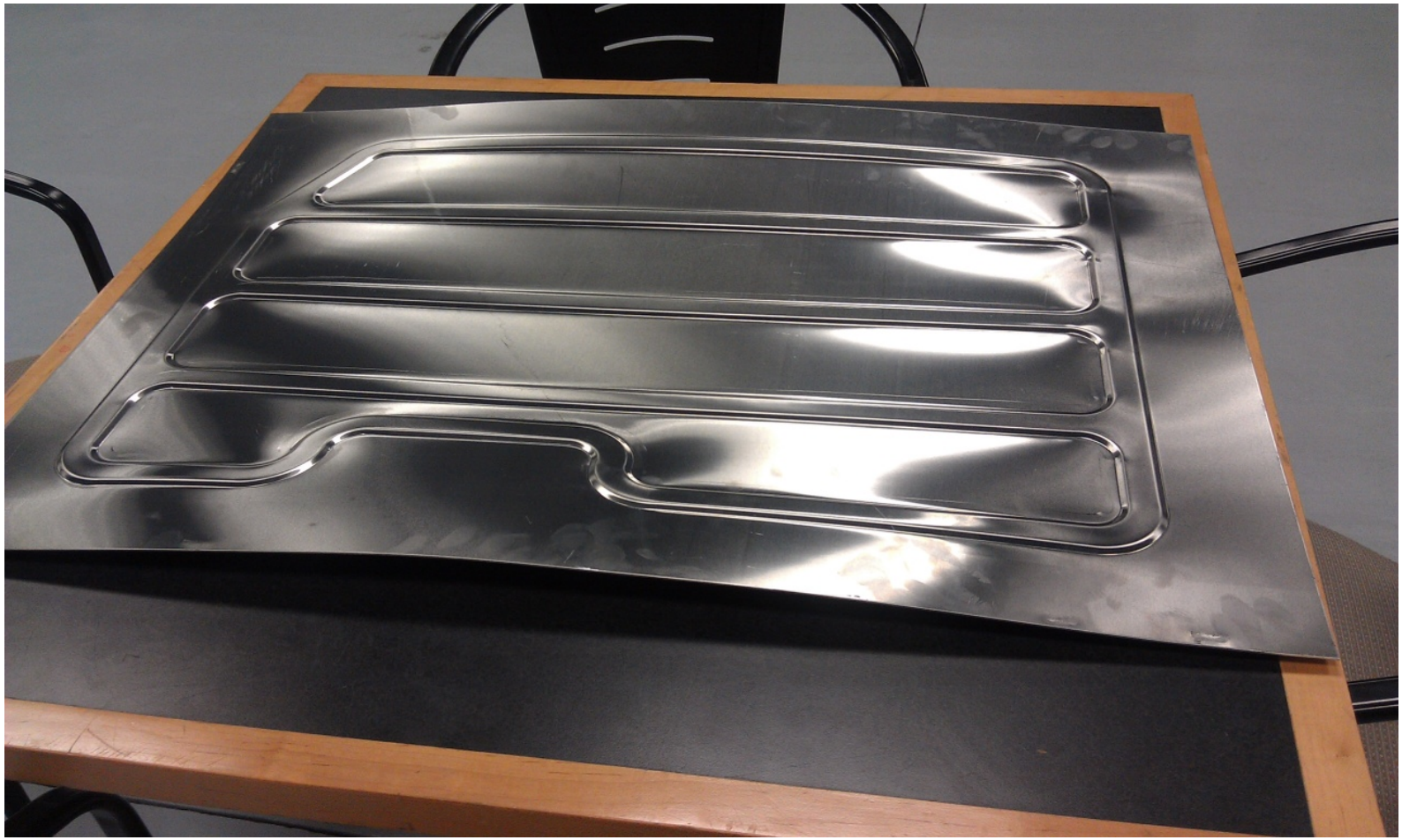
Distortion from creating forms with wheel tools



Distortion from creating forms with wheel tools



Distortion from creating forms with wheel tools



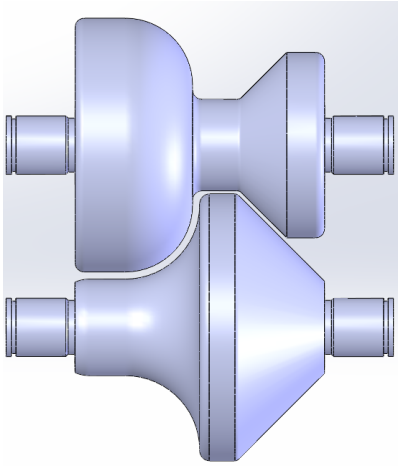
"CUSTOM" WHEEL TOOLING

- Many other wheel applications have been developed. Generally, these are variations of the four basic wheel types.

- These tools are engineered for specific applications, so they do not have pre-defined parameters (such as material thickness, minimum radius, maximum height, etc.).

"CUSTOM" WHEEL TOOLING

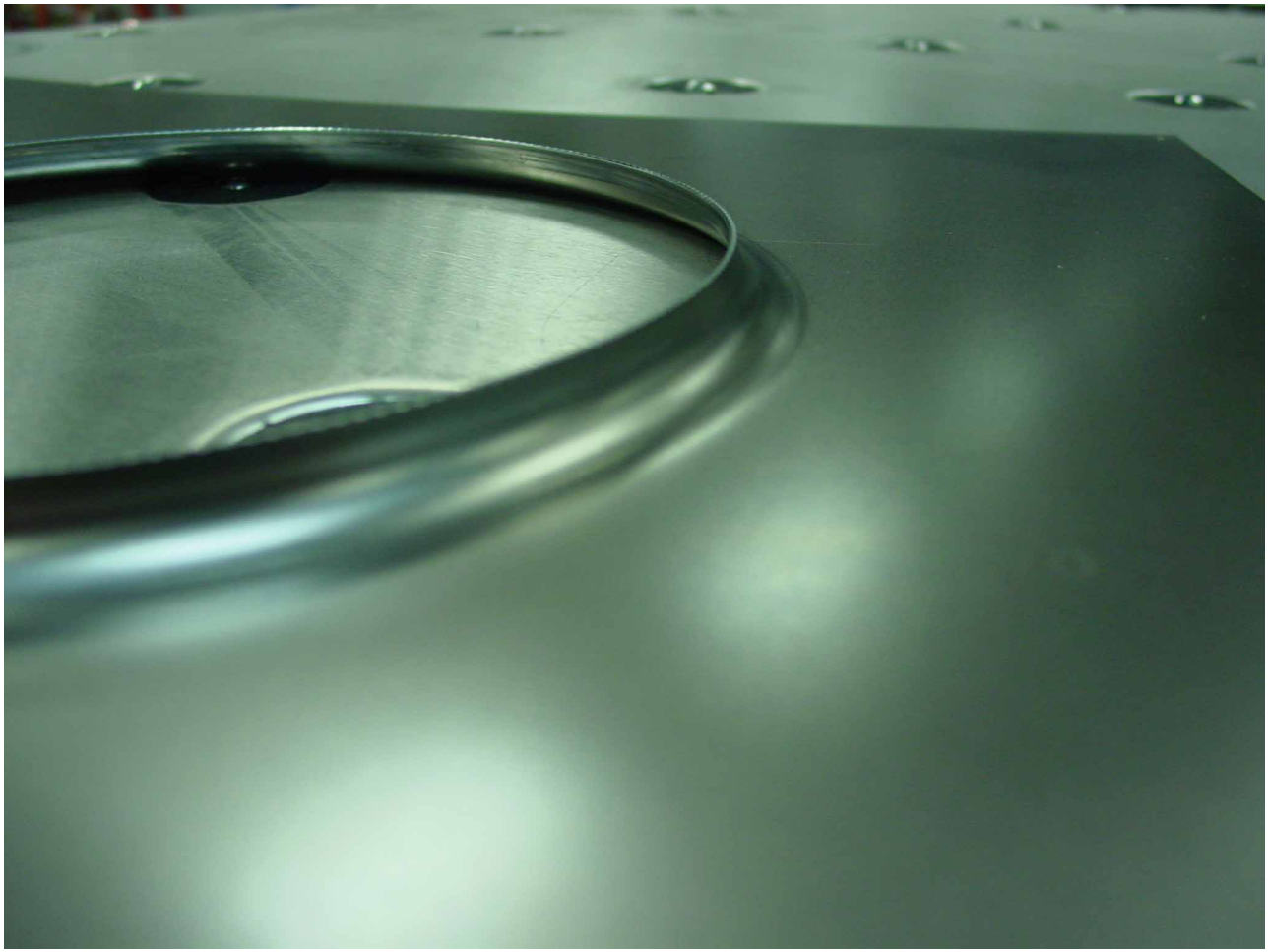
Rolling Flare

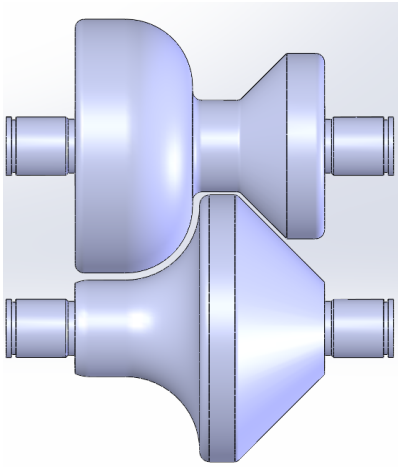


Rolling Flare

"CUSTOM" WHEEL TOOLING

Rolling Flare

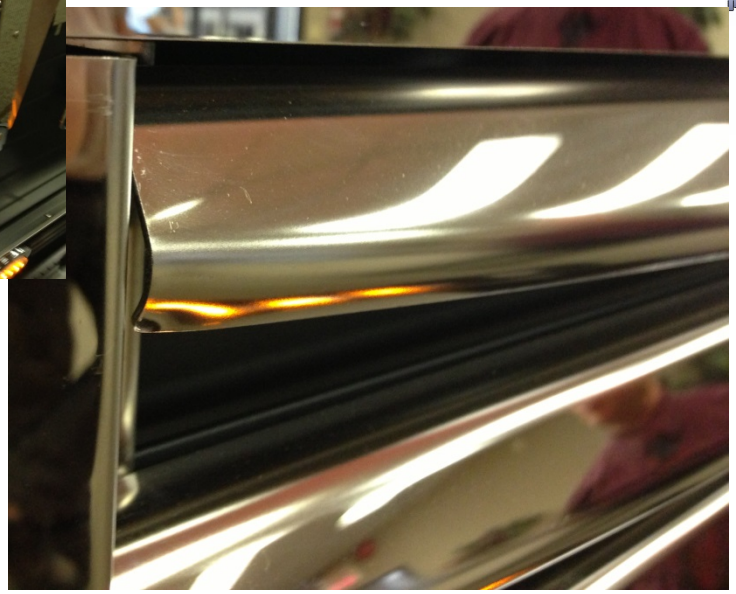


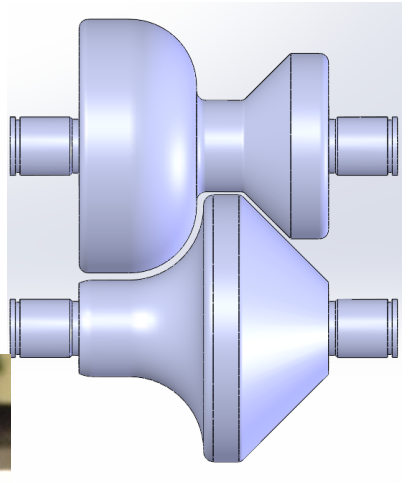


Rolling Flare

"CUSTOM" WHEEL TOOLING

Rolling Flare

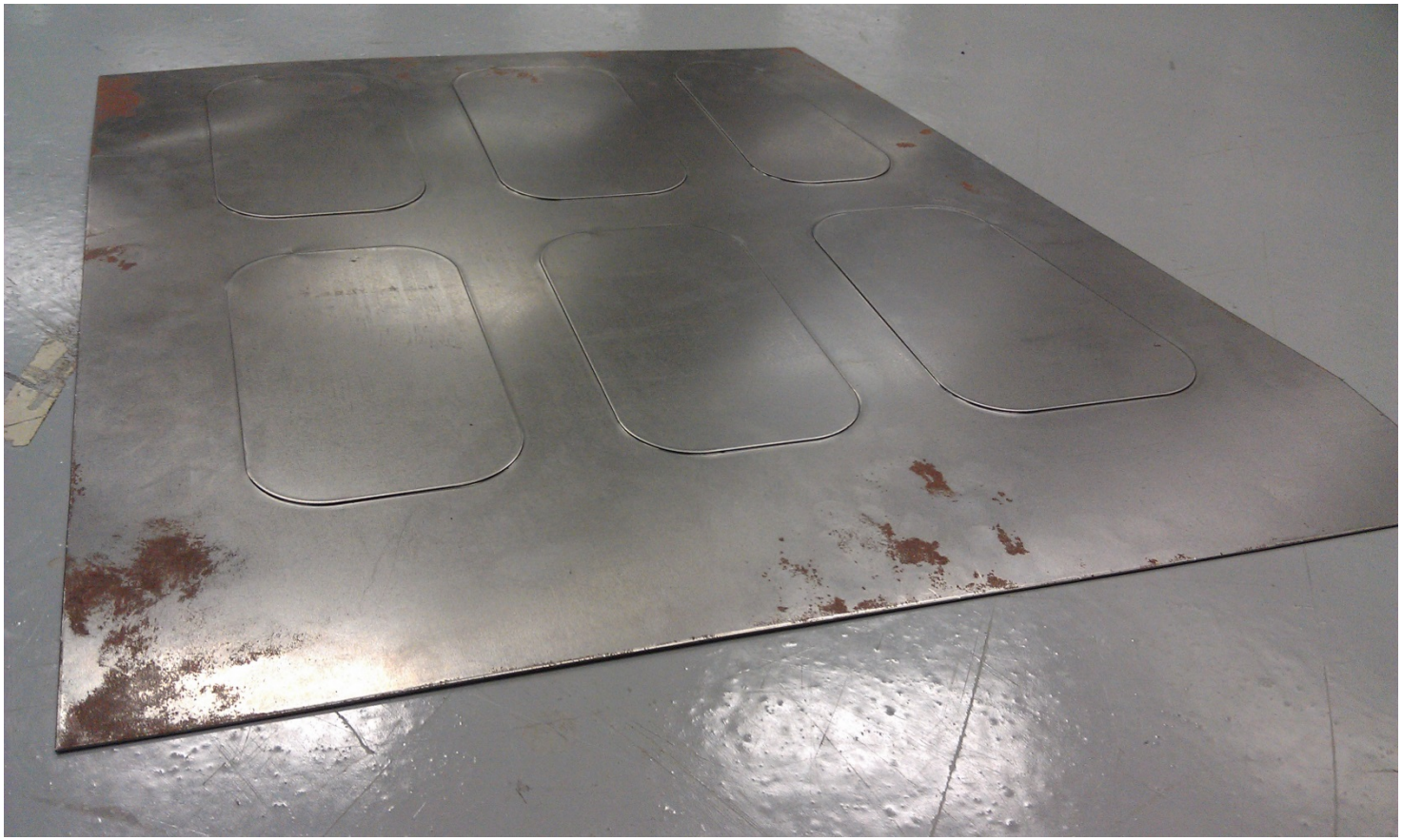


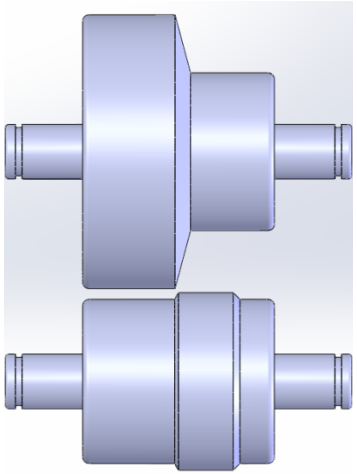


Rolling Flare

"CUSTOM" WHEEL TOOLING

Rolling Forge

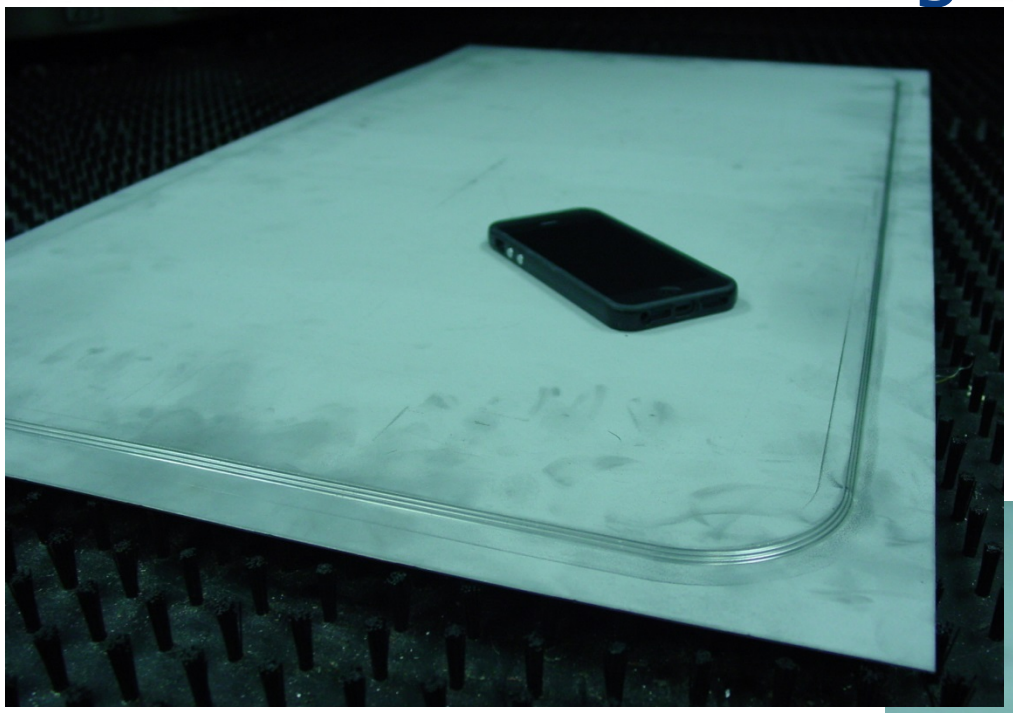


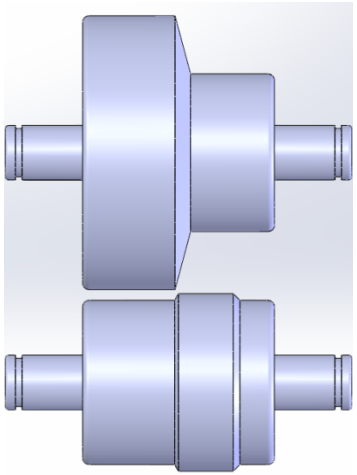


Rolling Forge

"CUSTOM" WHEEL TOOLING

Rolling Forge





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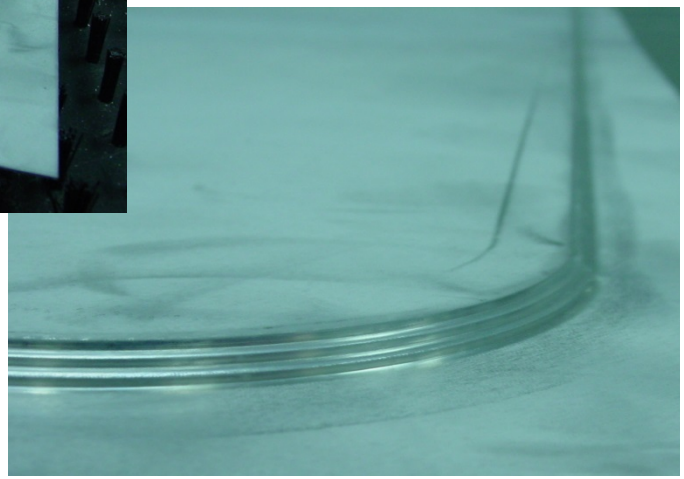
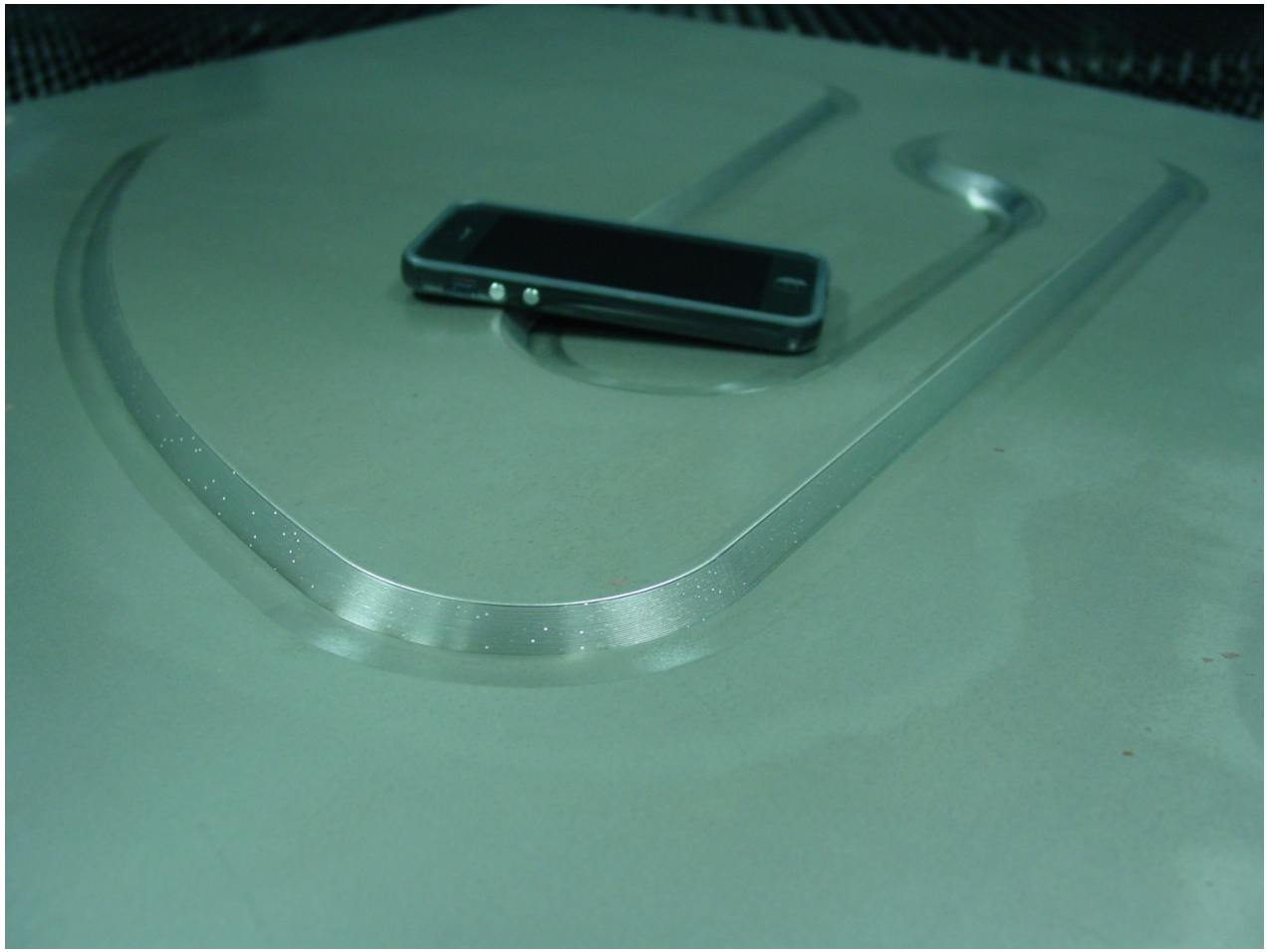
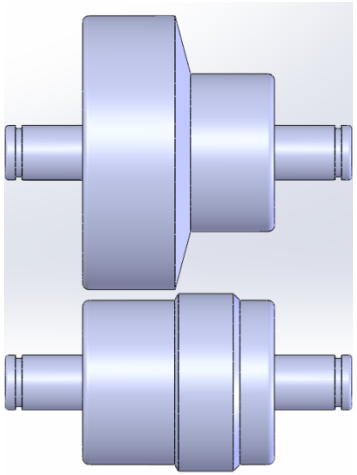


"CUSTOM" WHEEL TOOLING

Rolling Forge

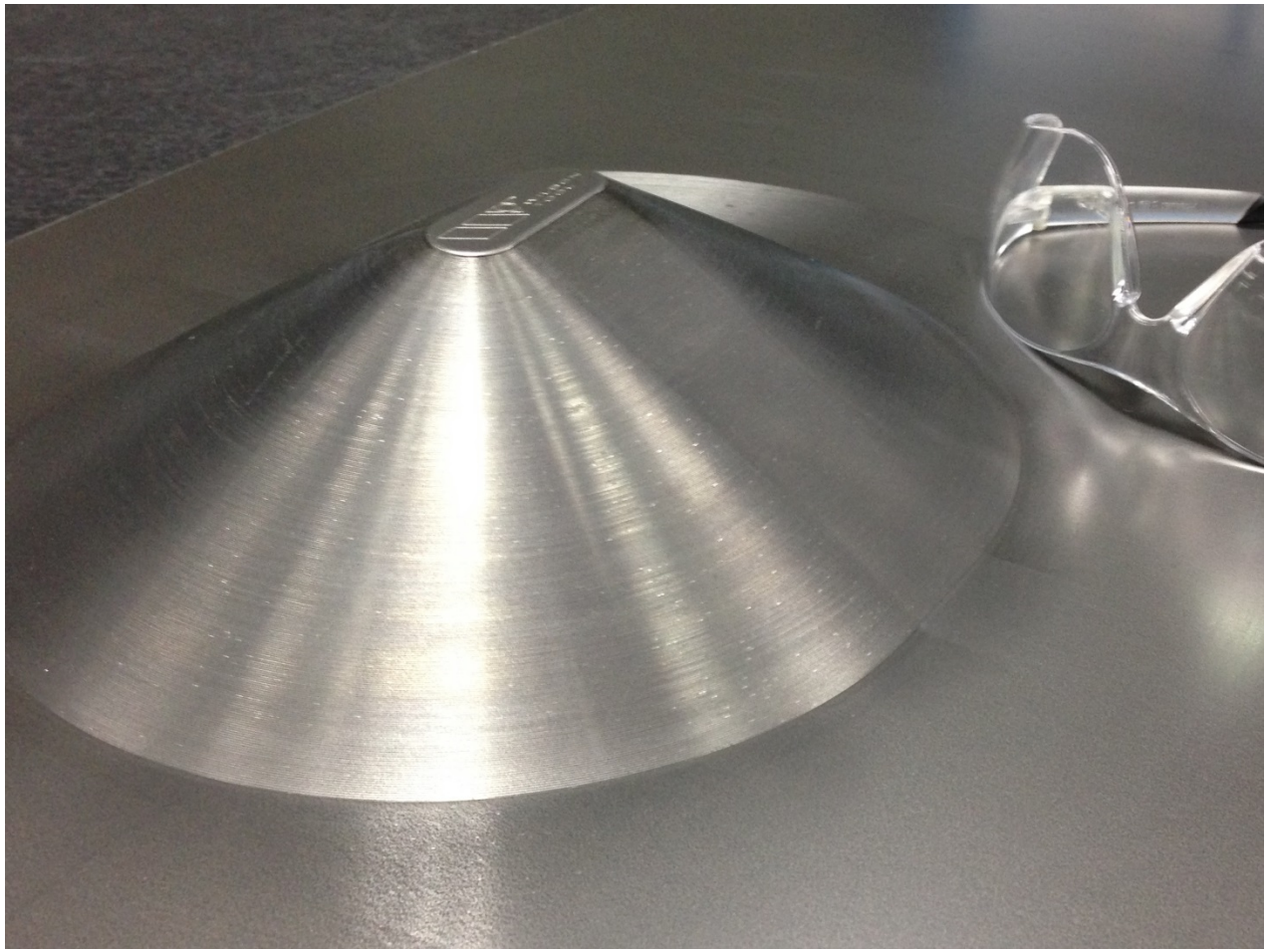


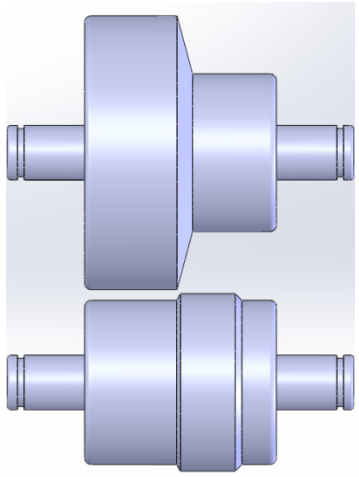


Rolling Forge

"CUSTOM" WHEEL TOOLING

Rolling Forge

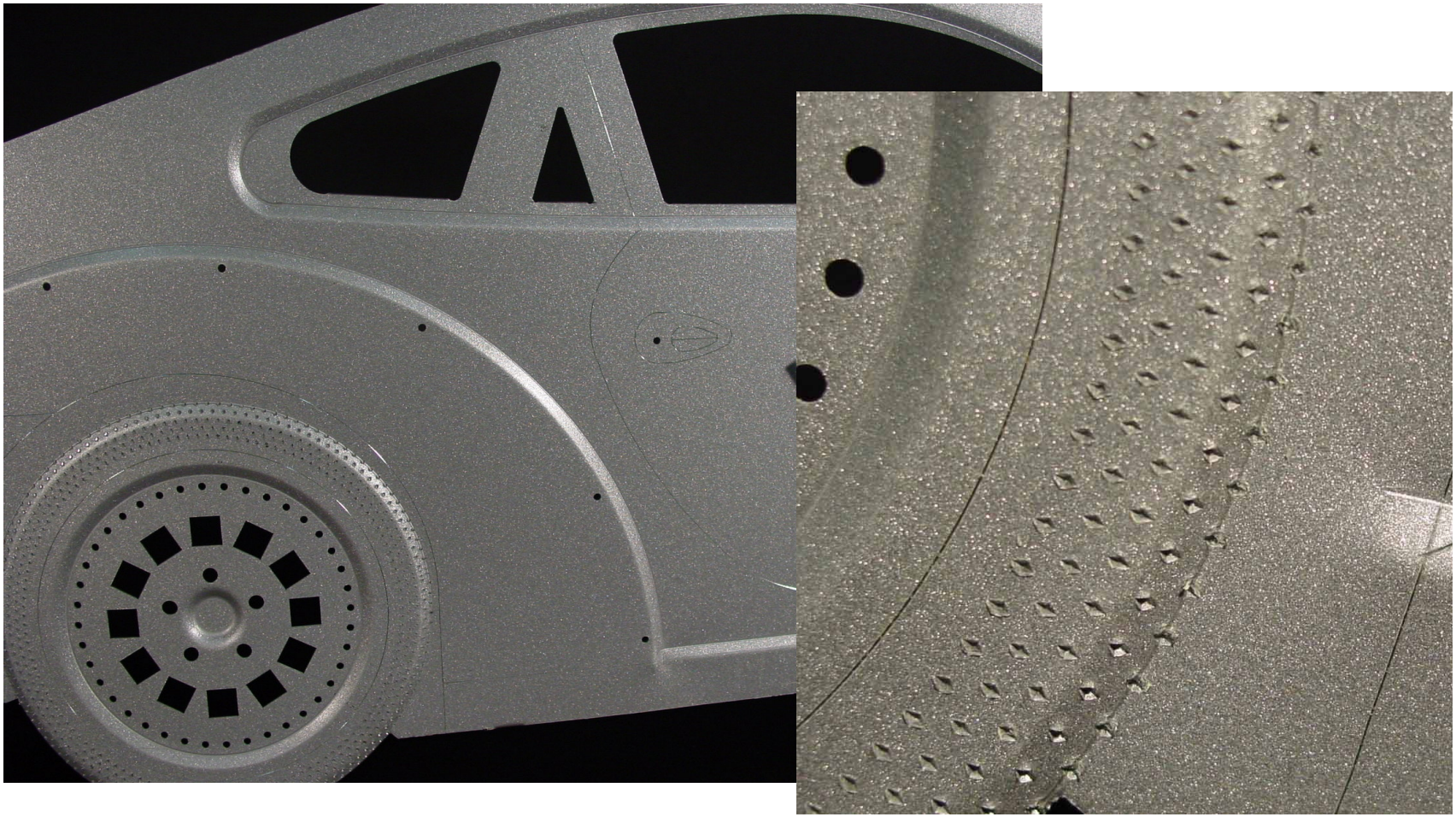




Rolling Forge

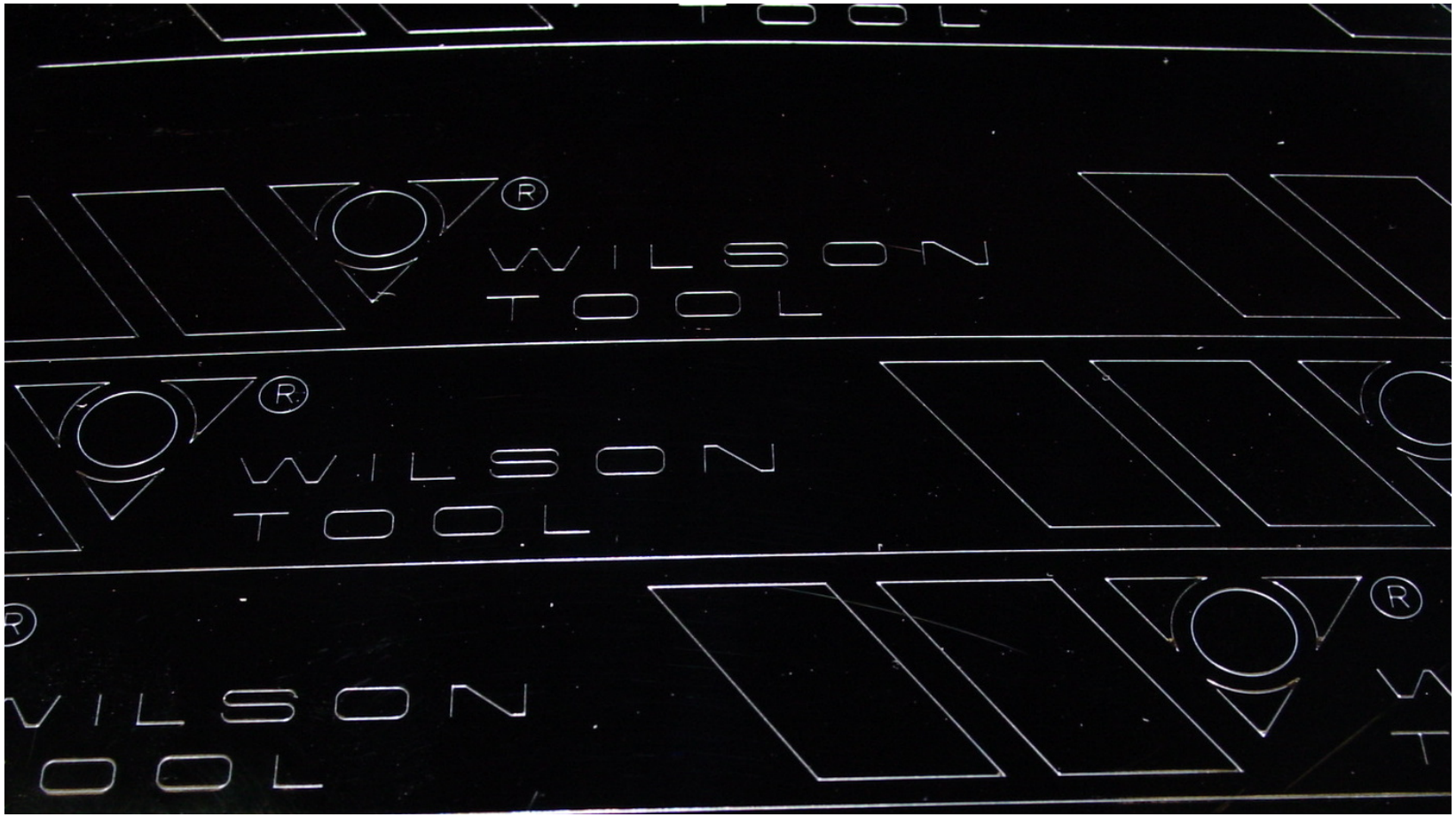
"CUSTOM" WHEEL TOOLING

Rolling Kurl



"CUSTOM" WHEEL TOOLING

Rolling Logo



Poll

General Wheel Tool comments

The ability to successfully utilize this technology depends on several factors:

- The machine tool being used must be able to run the tooling effectively

- The material being processed must be appropriate.
  - Minimum material thickness: .030” (.75 mm)
  - Maximum material thickness (Shear and Pincher): .098 (2.5 mm)
  - Maximum material thickness (all others): .125” (3 mm)
  - Ideal Thicknesses are:
    - .06” (1.5 mm) Aluminum
    - .048” (1.2 mm) Mild Steel
    - .036” (0.9 mm) Stainless

- The part geometry must be appropriate.
  - Relatively large parts work the best.
    - Long cuts (over 40” long) or large radius arcs
    - No short cuts (less than 8” long).
    - No narrow strips (less than 3” wide).

Q & A

Thank You!

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