

HYBRID THREADFORM FORMING TOOL

THE PROBLEM:

In many industries, there's a need to join two pieces of material using a threaded machine screw. If the thread pitch is greater than the material thickness, then a conventional threadform tool is a great solution. But what if the screw thread to join the two pieces requires a material thickness greater than the pitch of the screw?

Other fastening methods, such as installing a self clinching fastener, using a tapping extrusion or self tapping screw, add expensive secondary operations or special hardware. Is there a cost-effective way to address the issue, especially in a highly competitive industry?

THE MATE SOLUTION:

Mate can solve this problem with the Hybrid Threadform forming tool. Unlike a conventional threadform tool, the hybrid threadform tool is designed to thin the material in the center of the form, and create the threadform helix in just one operation.

At the heart of the tool is an upper and lower insert that is machined with a profile that precisely matches the thread helix of the screw thread. The geometry of this part is modeled electronically by a Mate Applications Specialist using our advanced CAD software, creating a three-dimensional solid model for your specific requirements. The Hybrid Threadform forming tool provides the following benefits:

- Eliminates secondary operations
- Eliminates tapping operations
- Reduces debris in the machine caused by tapping
- Reduces component cost by eliminating any special fasteners

Combine the Hybrid Threadform forming tool with other Mate applications such as EasyBend™ for forming corners, EasySnap™ to break apart pieces from the sheet, or an emboss tool to make it flush with the sheet metal.

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Figure 1: Cross sectional view of the sheet metal, produced using the hybrid threadform tool. It shows the material has been thinned as the threadform helix is created so the material fits between the pitch of the screw thread.



Photo 2: Shows the completed form, with a 10-24 machine screw.

SOLUTION BULLETIN

POTENTIAL INDUSTRIES THAT COULD USE THIS APPLICATION:

- Appliances
- Automotive
- Computer
- Electronic Enclosures

AVAILABLE TOOLING STYLES:

- Thick Turret
- Thin Turret
- Trumpf Style
- Murata Wiedemann

STATION SIZES:

- Thick Turret B-Station and up
- Trumpf Style, Size 2 and up
- Murata Wiedemann, D-Station and up
- Salvagnini, C-Station and up
- Thin Turret, B-Station and up
- Note: Smaller sizes may be possible. Contact your Mate Applications Specialist to determine viability.

MATERIAL RESTRICTIONS:

- Pre-plated mild steel
- Aluminum
- Galvanized sheet metal

MATERIAL THICKNESS LIMITATIONS:

- Relative to the screw pitch
- If your application doesn't fall within these guidelines, contact a Mate Application Specialist to determine viability.

SCREW PITCH LIMITATIONS:

- Note: Others may be possible. Contact your Mate Applications Specialist to determine viability.

TONNAGE RESTRICTIONS:

- None known

SIMILAR MATE SOLUTIONS TO CONSIDER:

- Standard threadform
- Tapping
- Extrude and tap