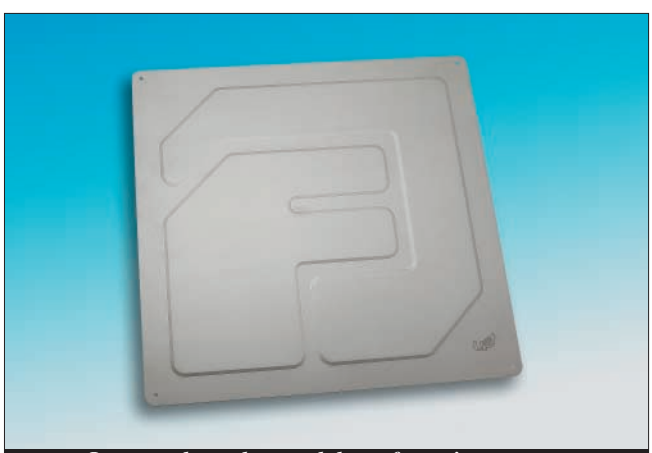
PRESSING ISSUES IN EMBOSS PRODUCTION

by Andrew McCarlie
Applications Engineer, Finn-Power International, Inc.

In many metal fabricating operations, the traditional machine of choice to produce a large emboss has been the stamping press due to the size of the die required and the tonnage needed. Often, this emboss or form is a secondary operation on a part that may already be punched. The cost of the die work, the time taken to produce it, and stamping operations can often translate into additional production costs and a large minimum product quantity required to recoup tooling costs.

An innovative alternative to stamping – depending on the type and size of form – is the use of an offset roller ball or wheel technology tool in the Auto-Index station of a digitally (servo) controlled, adjustable ram hydraulic or servo-electric turret press. Since a Finn-Power turret punch press can have up to 10 or 15 (Shear Brilliance/Laser Brilliance) Auto-Index stations, multiple wheels can be used in one tool setup.

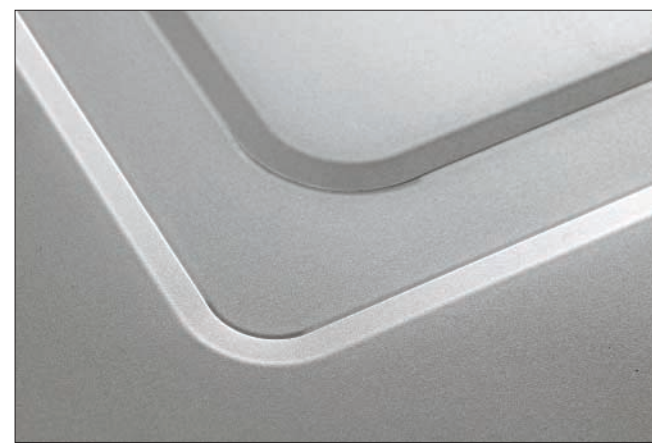
Material from 26 gauge to 14 gauge CRS (0.078"/2 mm) can be processed using the offset roller ball/wheel tool. The tool can produce an embossed form (up or down) of any size on a sheet. Typical wheel/roller tool speeds can be up to 1000 ipm



Large embossed up and down forms in one part.

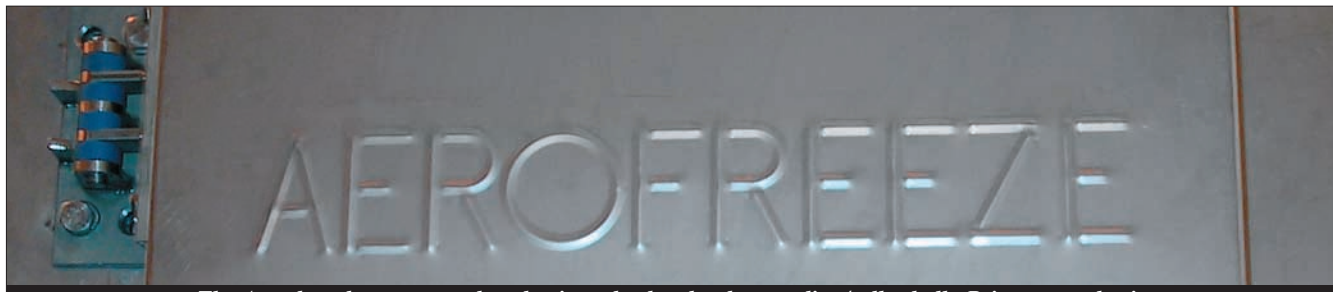
or higher depending upon material type, thickness, and depth of emboss. The maximum depth of the offset depends on the tool design. For 0.060 CRS, it is approximately 0.144"/3.7 mm including the material thickness.

The Finn-Power NC Express software is used to seamlessly program this type of tool in an easy to use graphical environment. The offset shape or rib can be programmed using teach cycle software so that any parts that have the same offset feature can be auto-tooled rather than having to repeat the programming. NC Express also enables the programmer to specify the electronically controlled tool height (S value) by die clearance for each material thickness. The rolling speed of the tool can be set permanently for the specific material type and thickness using the die clearance as well. This makes the programming of parts using this tool very quick and user friendly.



"What is a secondary operation of custom part marking for logos, features, or numbering can be done in the same work center as the punching, forming, shearing, or laser cutting."

Another forming operation that adds extra value to a part when fabricated as part of the punching cycle in the turret



The Aero-heat logo was produced using wheel technology tooling/roller ball. Prior to purchasing the Shear Genius, this part was manufactured as a secondary operation with a separate name plate.

punch press is the stiffening rib. These are normally produced on a punched part as a secondary operation in a press brake. This additional handling and braking operation can add significant cost to a part, particularly if it is very large and heavy, requiring more than one person in the press brake operation. The turret punch press using the roller ball/wheel ribbing tool can produce radial as well as stiffening ribs in up to 12 gauge (0.105"/2.7 mm) CRS. The maximum height in 0.060" (1.5 mm) material is up to 0.144"/3.7 mm depending on the tool design.

Another use for a roller/wheel tool is to again combine what is very often a secondary operation of press braking offset flanges or joggle bends on punched parts. Once again, this can often be a time consuming secondary operation that requires the setup of a second machine, the creation of work in progress (WIP), as well as extra handling and storage with its associated costs.

Another useful tool, which does not require the use of an Auto-Index station but works in a similar fashion to the roller ball/wheel tools, is the diamond point etching tool. Again, what is a secondary operation of custom part marking for logos, features, or numbering can be done in the same work center as the punching, forming, shearing, or laser cutting. This tool can create any number or intricate shapes in any size on your part. The diamond point tool is spring loaded and comes with two diamond point tip sizes for fine or coarse line etching.

For more information on these forming tool technologies, contact sales@finnpower.com■

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