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Squeezing

out a

better stamping

Pressworking technique produces **smooth, straight-edged**, tight-toleranced **stampings**.

BY CHARLES BATES • SENIOR EDITOR



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tamping by squeezing. That's the idea behind a new pressworking technique that reportedly eliminates many secondary machining operations. While a conventional stamping typically has one-third shear and two-thirds die break, this new technique produces smooth (no tear), vertical, accurate sides throughout the entire part thickness.

Called Gripflow, the process uses a conventional single-action, high-speed hydraulic press with PC controls to squeeze parts from parent material at a rate of 10 to 60 per minute. Key to Gripflow's success is an almost zero clearance between the punch and die, the control of the variable ram velocity and

Gripflow stampings eliminate the need for costly secondary machining operations such as milling, grinding, drilling, reaming, countersinking, and counterboring.

press tonnage as material is cut, and the retention of the stamping throughout the cutting cycle. The results are a stamping that meets tight tolerances and the option of producing more than one part per press stroke by increasing the die cavities.

Gripflow, developed by EBway Corp. of Ft. Lauderdale, Fla., works against a material's yield point, while conventional blanking dies work against tensile strength. And since the yield point is lower than the tensile strength, the

technique requires less tonnage than conventional stamping. Results will vary between different materials, but the better the cold-working properties of the material, the more conducive and productive it is with Gripflow.

Initially, most people think Gripflow is fineblanking. The quality is equivalent, but the processes are different. One noticeable difference is the required tonnage. Fineblanking needs more because it requires an impingement ring — a V-shaped ring that sinks into the scrap skeleton around the contour of a part. According to Terry Walker of EBway, this ring may steal away as much as 40% of the blanking tonnage. Because a Gripflow tool does not have an impingement ring, it involves less tonnage, which lowers the cost of the required stamping press. A Gripflow press can also accommodate conventional tooling, while fineblanking presses do only fineblanking.

In most cases, Gripflow stampings fulfill the need for parts that require tight tolerances (minimum of 80% shear) in holes and/or critical profile areas. The press-working technique can

also put these smooth straight edges only where the customer requires them, further reducing part cost. Fineblanking, on the other hand, has difficulty providing only select part areas with full shear zones.

Fineblanking and Gripflow are similar in that they both eliminate costly secondary operations such as shaving, broaching, milling, grinding, drilling, reaming, counter-sinking, and counterboring. Both techniques routinely hold accuracies of 0.001 in. on part thicknesses under 0.090 in.; 0.002 in. on parts under 0.225 in.; and 0.003 in. on parts under 0.300 in. And, the typical surface finish on the part edge is 16 to 32 rms.

Part flatness for both techniques can be as much as one-fifth better than that of a conventional stamping — 0.001 to 0.0015/linear in. for parts up to 5-in. long, says Walker. Parts are flatter because they are always clamped within the die during the blanking process.

When it comes to the treatment of slugs, a Gripflow die passes them through the way conventional tooling does. This is because the Gripflow press has a traditional design. Its ram is on the top of the die, unlike fineblanking, which typically has the ram on the bottom underneath the tool, so its slugs have to be blown out of the tool with the part.

Press operation

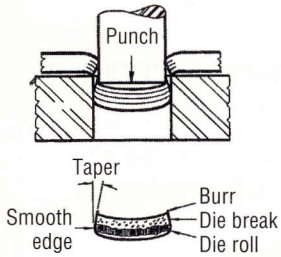
PC controls simplify a Gripflow press's operation. Shops can regulate the ram force at all points in the press cycle (tonnage); adjust the ram speed during cutting and non-cutting; control the amount and duration of hold-down pressure to ensure material set-time when coining is controllable; and operate all external press equipment from one control panel. Basically, press operators can tune the press to suit the die.

Gripflow presses mount on standard 6-in.-thick flat concrete floors — no pits are required. Press operation is normally quiet, less than 85 dB, and shock-free with little or no vibration. **AM**

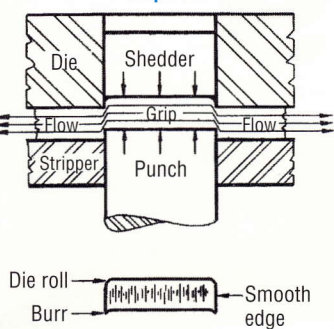


For parts such as this automotive seat-adjuster mechanism, Gripflow stampings provide tight tolerances in holes and critical profile areas.

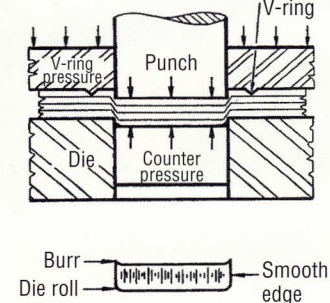
Conventional



Gripflow



Fineblanked



Unlike conventional stamping, Gripflow works against a material's yield point, and it does not require an impingement ring as in fineblanking.

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