

BEAR METAL WORKS

Environmentally Friendly Lubrication Systems



BEAR Metal Works is a 10 year old steel fabrication job shop in upstate NY. While many Buffalo area industrial companies are reducing their labor force, losing money or closing their doors for good, Bear owner Barrett Price is slowly expanding a solid business by increasing his work force, adding machines, and marketing his new capabilities as they evolve. One of his recent additions is the Parma 1212; a 20 ton CNC turret punch press manufactured by Strippit LVD in Akron, NY. The press contains a UNIST Minimum Quantity Lubrication (MQL) system retrofit that gives him an edge.

Application: CNC Turret Punch

Material: 11 Gauge Stainless

Objective: Eliminate Manual Sheet Lubrication,
Control Tool Wear on large hole punch
operation

When required to punch a million holes for a single job, the UNIST system enabled Bear to maximize tool life, save time by eliminating manual lubrication and get rid of a cleanup procedure to the finished part. The operation uses a sheet of 11 gauge stainless steel. The customer needs 5000 holes per sheet- 3/16" diameter. One job consists of 200 sheets yielding one million total holes.

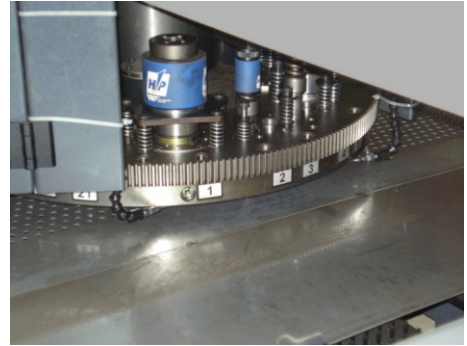
Because of the friction and heat due to the large number of holes, tool breakage was a concern. The small hole size requiring a small tool together with the hardness of the stainless added potential for tool damage. Possible problems Bear anticipated were the need for excessive tools, downtime for change and poor hole quality. Bear attempted hand-lubricating the sheet material prior to punching. The operator sprayed and wiped the lubricant around to cover all areas to be punched. Even with lubricant on the material, the tool heated up before an entire sheet could be completed.

Since Bear Metal Works already uses MQL in production sawing, the company called on UNIST to assist with lubrication for the punch operation. UNIST configured a Coolubricator with a dual coaxial nozzle to install on the turret punch. UNIST also recommended Coolube 2210 vegetable-based lubricant; the same lubricant Bear uses in for sawing.



UNIST solution at a glance

Instead of putting lubricant on the material by hand, the UNIST system applies lubricant to the tool in an extremely small amount every time the machine cycles. Since the turret punch machine has an automated tool changer, Bear installed 3 identical tools in the queue so the tool could be rotated every 750 holes, allowing it to cool and minimize wear. Now the operation can run continuously through the entire one million holes, without a tool change or need to apply lubricant to the material.



Keys to Success:

The key to success in this operation is the precise lubricant application to the tool. Previously when the lube was sprayed by hand on the stock, it was possible to miss some areas which needed lubricant, or to lubricate inconsistently. A dry punch could connect with dry material causing additional friction and producing heat and wear. By lubricating the tool every punch cycle, it's always protected with a coat of lubricant while penetrating the material.

Additional Benefits:

In addition to the reduced tool wear and increased production speeds the Coolube required no cleanup, and didn't contaminate the area like the previous spray lube. Also it is bio-degradable, safe for the environment and the employees in the facility.



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