Glebar Company

Electrochemical Cutting and Grinding Provides Faster Cuts and Greater Accuracy Than Laser Cutting

incumbent process

- A high-powered laser beam cuts the tubing by melting it, leaving a rough edge and slag.
- Tubes and other parts are typically cut one at a time limiting production rates.

challenges

- Heat sensitive applications may limit the use of the laser for cutting.
- Laser cutting leaves recast and heat-affected zones, affecting the tube's quality and increasing scrap rates.
- Beam deflection when cutting through a tube can affect accuracy and cause damage.
- Laser cutting is not capable of creating clean and sharp cutting edges. Therefore, time-consuming secondary processes to deburr tubes and remove any debris are required.
- Delivering a process that cuts tubes to length, maintains a high level of quality and accuracy, leaves no recast or slag, and improves production times.

solution – Metal tubes are cut to length using the CS1-E Burr-Free Electrochemical Cutoff Machine (ECC) from Tridex Technology. For secondary operations such as notching, bevel grinding, and multi-facet pointing, the Electrochemical Surface Grinders (ECG) SG-1645 or SG-2060 from Tridex can be used.

- Electrochemical cutoff and grinding provide fast, accurate, and burr-free results with no heat-affected zones, no debris after rinsing, no metallurgical damage, and no distortion.
- The CS1-E features a highly precise feed system that can be accurately positioned to .00040" (.01mm).
- Tridex ECC machines have the ability to cut off and grind notches in the same operation.
- An optional pallet index table on the SG series machines allows high production grinding without stopping to load and unload parts.

benefits

- Electrochemical cutting and grinding are burr free, which eliminates the need for deburring or other corrective secondary operations, reduces scrap, and improves efficiency. The very low cutting forces make them ideal for tubing and heat-sensitive alloys.
- Multiple tubes can be cut together. In a typical example, using ECC 89 hypotubes, 25 G (.020" diameter) are cut per cycle. The cycle time is 20 seconds (0.23 seconds per piece). Laser cutting would be approximately 2 seconds per piece or 3 minutes for all 89 hypotubes.
- Electrochemical cutoff and grinding is a low-cost- high production operation with excellent wheel life, reducing the cost of consumables.
- The machines are simple to set up and operate, featuring intuitive software and controls. The software collects shop floor data for OEE and process monitoring.