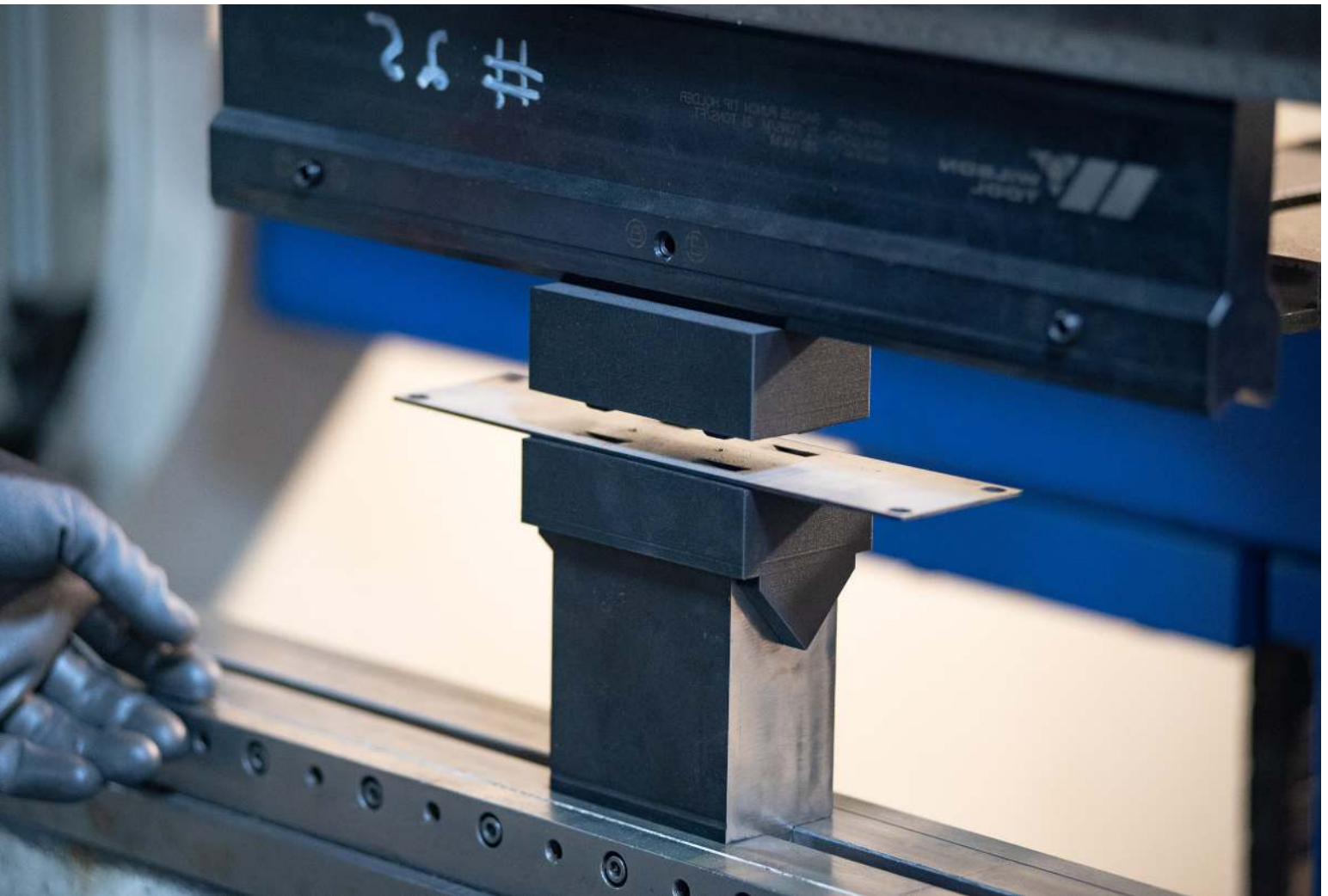


## Tooling and Fixtures



**COMPANY**  
Centerline

**INDUSTRY**  
Manufacturing

**PRINTER**  
Mark Two

**MATERIAL**  
Onyx

**86%**  
CHEAPER

**88%**  
FASTER

## Press Brake Punch

Centerline Engineered Solutions (CES) is a contract engineering and fabrication business in Greenwood, South Carolina. The company had to turn down potential jobs because the customer's budget could not cover the tooling and fixturing costs required to make the parts, and struggled to find tooling solutions for low-volume parts.

A customer approached CES and requested a lanced and formed 14-gauge stainless steel piece. A laser cutter creates four formable regions, and then a press brake with a custom punch and die lances the regions outward. Phil Vickery, CEO and Founder of CES, 3D printed the press brake punch, pausing it midway to insert 14-gauge steel inserts into the printed part. This resulted in a reinforced 3D printed part that was capable of forming features of the die.