

# CLOSED-DIE ALTERNATIVES

## CHALLENGE

A large OEM's supply chain was in jeopardy as the machine shop that supplied their finished parts was having trouble procuring what they needed from their historical closed-die forging supplier. The closed-die supplier could not procure the material needed to supply the forgings required to keep up with their demand for parts, and also faced labor shortages, which pushed lead times for the forgings out eight months to a year. Traditional lead time for these parts was around two months, and the ripple effect of the extended lead time meant the end-user, the OEM, would miss fulfilling their orders (and the associated revenue and profit from their orders) by 6-9 months further disrupting the agriculture, mining and transportation industries supported by the OEM. **Three different solutions were developed.**

## HIGHLIGHTS

### Industry

- Agriculture
- Defense
- Transmission
- Off-Highway
- Recycling
- Paving
- Locomotive

### Components

- Armored vehicles
- Transmission components
- Diesel engines
- Windrowers
- Gear trains
- Gears

### Result

- Supply chain reduction
- Improved lead time
- Inventory abatement
- End-use customer satisfaction

## SOLUTION 1

After consulting with Scot Forge specialists, a semi-closed die, near-net shaped forging was developed. The forging not only filled the supply chain gap, but it also kept the machine shop aligned with the needs of their customer. Additionally, the forging was easier to chuck in the machining process as the flashing was not on the head of the part where it could cause set-up and scrap issues.



## SOLUTION 2



Working with Scot Forge, the OEM was able to keep production moving with an open die forging solution. As the largest procurer of ingots in North America, Scot Forge had the material they needed on-hand, and working with a multistep process, was able to forge a bar, which could then be parted out to produce the forgings the OEM required.

## SOLUTION 3

Dual path. To meet the needs of the machine shop whose orders were becoming past due, Scot Forge provided material that was machined down to the final size for immediate use, and while this material was being utilized to keep the shop on track with the OEMs' needs, tooling was produced to forge a more near-net shape, saving material and expediting delivery.

## RESULT

Scot Forge was able not only to develop these solutions quickly but also created tooling at a fraction of the closed die tooling cost to turn around parts in four weeks. For many customers, however, the tooling they need is already available as we have more than 10,000 tools in our hammer shop.