

A team of engineers and designers dedicated to taking air hammers to extreme temperatures

**Innovators:**

Jay Hewitt

Owner, Hewitt Energy Strategies

[jhewitt@hewittenergystrategies.com](mailto:jhewitt@hewittenergystrategies.com)

[linkedin.com/in/jay-hewitt-2b991167](https://www.linkedin.com/in/jay-hewitt-2b991167)

Trampas Efaw

VP Operations, Stryker Underbalanced Services

[tefaw@strykerubd.com](mailto:tefaw@strykerubd.com)

<https://www.linkedin.com/in/trampas-efaw-b03a1681/>

Dan Carder

Director, Center for Alternative Fuels, Engines and

Emissions Mechanical and Aerospace Engineering

West Virginia University

[dkcarder70@gmail.com](mailto:dkcarder70@gmail.com)

<https://www.linkedin.com/in/dan-carder-77b9a113/>

Clint Rogers

VP of Engineering, Stryker

Underbalanced Services

[crogers@strykerubd.com](mailto:crogers@strykerubd.com)

Isaac Haky

Drilling Advisor, Stryker

Underbalanced Services

[ihaky@strykerubd.com](mailto:ihaky@strykerubd.com)



Morgantown, West Virginia USA



**Keywords:** Air Drilling, Drilling, Geothermal, Supercritical, Extreme Temperatures, Hammer Bit, Additive Manufacturing

**Overview:** Utilizing additive manufacturing with a unique two-piece steel bit body, we have developed a revolutionary interface design between the hammer bit's steel bit body and the carbide cutting structure elements that eliminates retention issues in high temperature environments.

**Connector:** Sandia National Laboratories' HOT (High Operating Temperature) Lab will be used in the final phase of testing to take temperatures to 300°C.



TRUMPF offers two distinct technologies: Laser Metal Fusion (LMF) and Laser Metal Deposition (LMD). Both technologies are well-known to be the market leaders in terms of application and use in Aerospace applications. TRUMPF has close to 20 years of experience building and servicing Additive equipment.

