

HB Series EDM Case Study

Inconel Aerospace Demo Part

"The Impossible Cut Off"

Application: Inconel demo part from Velo3D and Protolabs. This was a demo part showing the machines capabilities however was thought to be nearly impossible to remove from the plate.

The challenges this part faced where tapered lead in at the base, very thick solid Inconel cross section and the entire middle filled with trapped powder. Build plate was 16" diameter. Bandsaw was not going to be capable of this size and material combo, in addition the raw trapped powder going airborne was a health hazard.

Brass EDM would be extremely slow and costly at this interrupted tall cutting height. Even with that issue aside, the large amount of trapped powder in the middle creates a non-conductive layer a brass EDM will not cut through.

We attempted this part on the HB Moly Cut EDM with great success. The tall cut height and material were no issue for the machine to handle. Once the trapped powder was encountered we made a speed change to allow the fast wire speed to actively "pump" the powder from the cut path. The process still took time but was cost effective and successful.

Machine: HB600

Cut Time: 11 Hours 45 minutes

Cut Cost: \$22-26 estimated

Wire: .007" Molybdenum

Fixturing/Set-up Time: Under 10 minutes.

