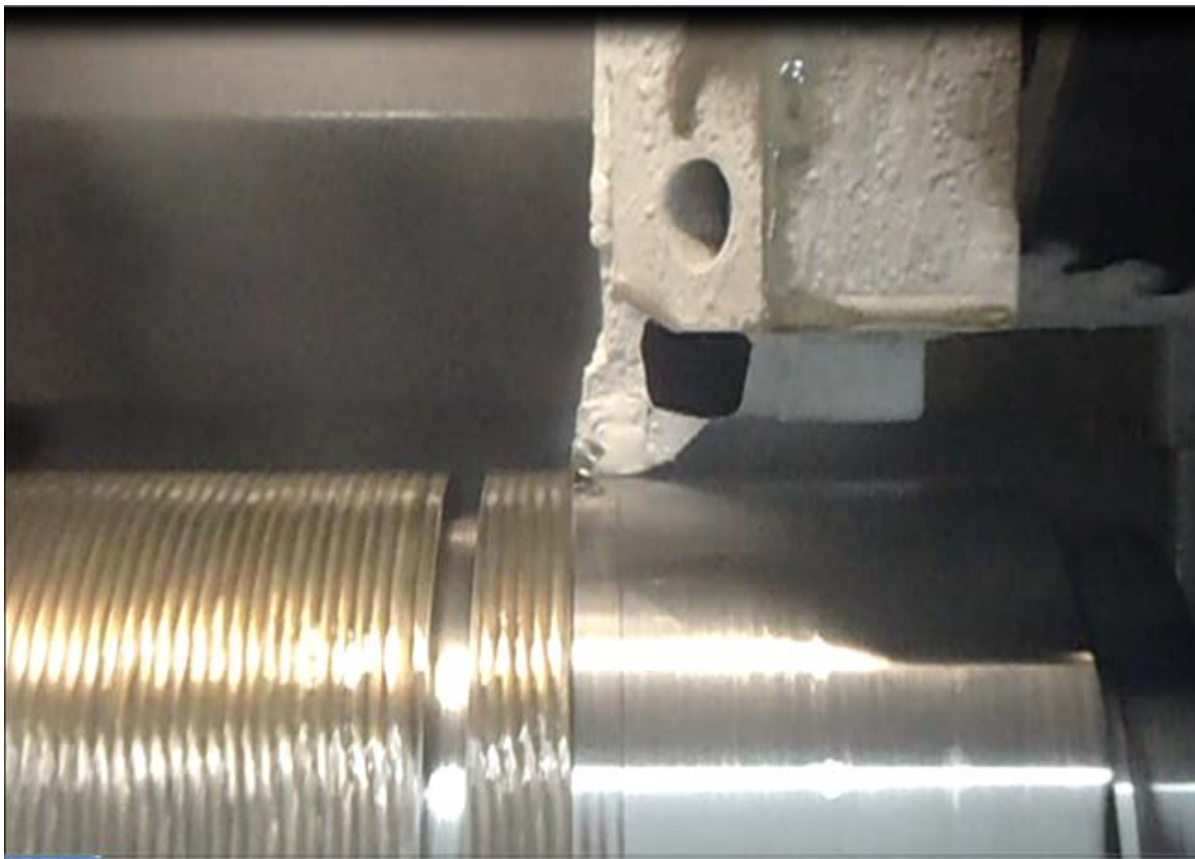


# CASE STUDY: CRYOGENIC MACHINING OF INCONEL 625



## Objective & Results

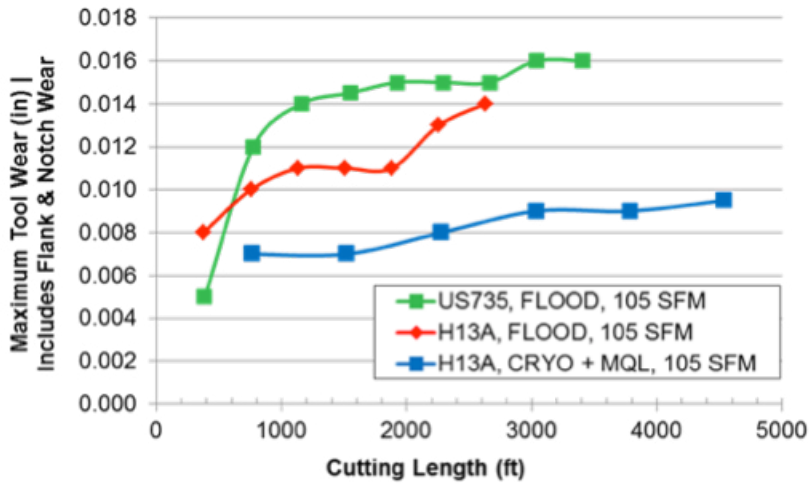
Inconel alloys are difficult and expensive to machine due to extreme heat generated at the cutting edge. The heat generated in the cut is necessary to machine the material; however, it accelerates tool wear. By applying through-the-spindle and through-the-tool Cryogenic Machining Technology, the cutting edge is cooled while maintaining normal cutting temperatures. The end result is a clean environment with improved tool life, increased cutting speeds, and improved surface finish.

## Cryogenic Advantages

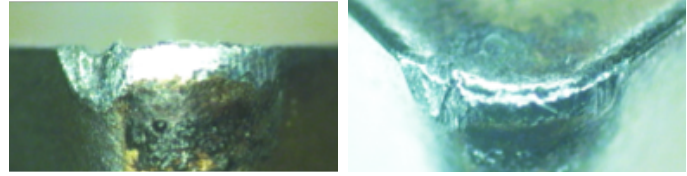
- > 25% Increase in Cutting Parameters with 2X Tool Life
- > 5X Improvement in Surface Finish
- > Easy to Manage Dry Chips

## Testing SOW

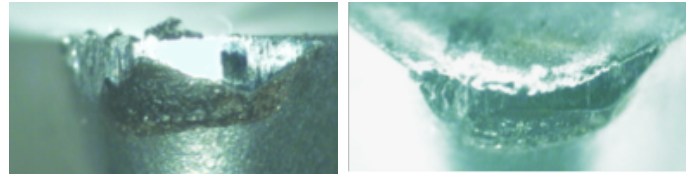
- > Material: Inconel 625 Alloy
- > Test Part: Bar Stock
- > Tool: 5ME™ Cryogenic Single Point, Indexable Turning Tool
- > Parameters: 0.004" per Rev, 0.02" DOC
- > Machine: Hawk 150 HTC
- > Location: 5ME Technology Center



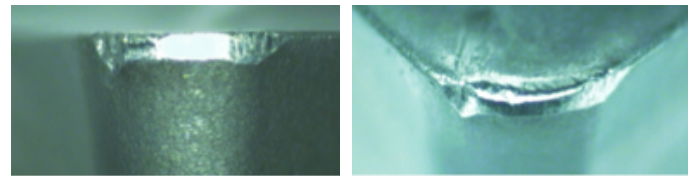
## Coated Carbide, WET



## Uncoated Carbide, WET



## Uncoated Carbide, CRYO



At a speed of 105 SFM, the 5ME Cryogenic Machining process delivered significant cutting stability and predictability at twice the tool life.

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