



# RUN FASTER



## CRYOGENIC MACHINING

### Run 2-5x faster on hard-to-machine materials

For titanium and other hard-to-machine alloys, our breakthrough Cryogenic Machining Technology enables your machines to run faster, greener and more cost-effectively than ever before.

Our patented technology uses liquid nitrogen to keep cutting temperatures significantly lower so you can increase tool life, reduce your environmental impact and realize a healthier profit.

Find out more at [5me.com/cryo](http://5me.com/cryo) or call (586) 473-5070 to set up your demo at our North American Tech Center.

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- Faster Processing Speeds
  - Increased Tool Life
  - Significantly Improved Surface Quality
  - Reduction of Secondary Operations
  - Uniquely Sustainable Green Manufacturing



# 5ME

# Make easier work of your hardest-to-machine materials



## Compacted Graphite Iron

**5x** increase in finishing cutting speed

**10x** increase in tool life

## Titanium

**2x** increase in semi-finish cutting speed

**3x** equivalent tool life\*

## Steel Alloys

**16x** increase in semi-finish cutting speed and equivalent tool life\*

## Composites *(Drilling & Trimming)*

**40%** increase in tool life

- Keeps resin below critical temp during machining
- Reduced fiber pullout
- Temporarily increases material strength for cleaner shear and exit quality
- Enables deep hole drilling in structural composites

This breakthrough technology was developed in partnership with the U.S. Navy, U.S. Air Force, Creare, NavAir and Lockheed Martin.

\* Compared with flood coolant

## Greener and Cleaner

Our cryogenic system utilizes liquid nitrogen as a coolant, which evaporates into a non-toxic, non-greenhouse gas during the machining process so there's:

- No need for mist collection, filtration or collection of waste coolant
- No energy costs associated with coolant fans, pumps and drives
- No contamination of equipment or workpieces, which eliminates the need for secondary processes
- No slippery work surfaces or toxic fumes so your workforce can breathe easy too

## An Easy Retrofit

Almost any machine can be retrofit to utilize our state-of-the-art cryogenic cooling technology.

## Key Applications

### Aerospace

Aero-structure, Aero-engine

### Auto/Truck

Cylinder Blocks, Cylinder Heads, Crankshafts, Rods, Turbo Components

### Medical Devices

Joint Replacement, Appliances, Surgical Instrumentation

### Energy

Fracking Pumps, Subsea, Turbines, Clad Hardware



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