

CASE STUDY: CRYOGENIC MACHINING OF COMPACTED GRAPHITE IRON (CGI)



Objective & Results

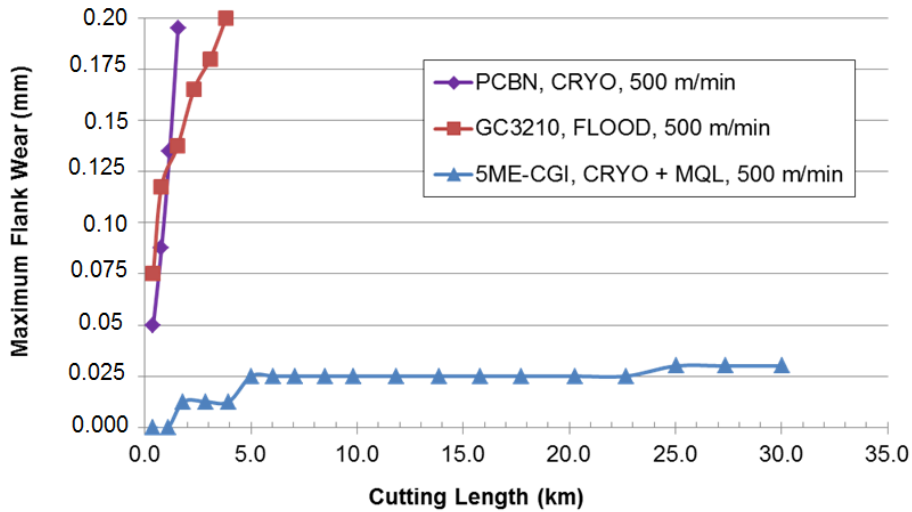
The increasing use of Compacted Graphite Iron (CGI) for state-of-the-art, high-powered engines has created challenges for cylinder block and cylinder head manufacturing. The high-strength CGI material wears out tools a minimum of 30% faster and has eliminated higher speed machining that was possible in Gray Iron. 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 and, for the first time, the ability to high-speed machine CGI while still improving tool life.

Cryogenic Advantages

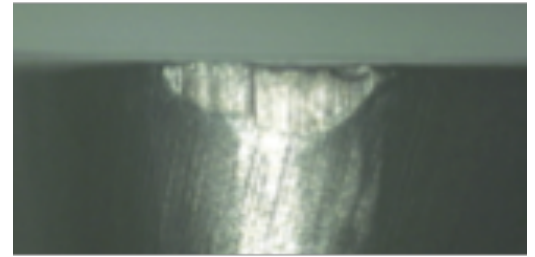
- > High-Speed Finish Machining Parameters of 500 m/min
- > Negligible Tool Wear After 60min at 500 m/min
- > Easy to Manage Dry Chips

Testing SOW

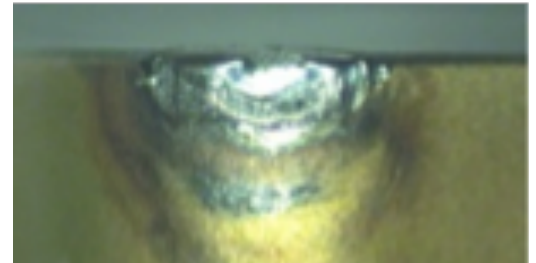
- > Material: Compacted Graphite Iron (CGI)
- > Test Part: Bar Stock
- > Tool: 5ME™ Cryogenic Single Point, Indexable Turning Tool
- > Parameters: 500M/min, 1649 SFM, 0.008" per Rev, 0.006" DOC
- > Machine: Hawk 150 HTC
- > Location: 5ME Technology Center



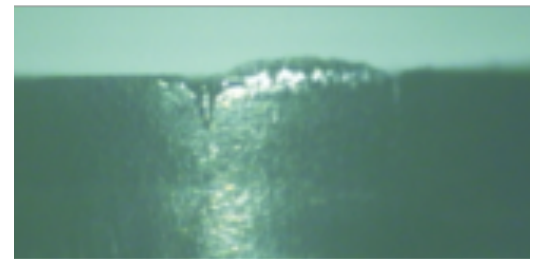
PCBN



Coated Carbide



5ME™ CGI



5ME, LLC

4270 Ivy Pointe Blvd.
Suite 100
Cincinnati, Ohio 45245
tel: +1 513 719 1600
fax: +1 513 752 1906

5ME, LLC

Tech Center
6990 Murthum
Warren, MI 48092
tel: +1 586 473 5070
fax: +1 586 983 2575

www.5ME.com

