



Leaders in Superabrasive Finishing Systems

ElectroMill™



Engis® Corporation is celebrating 75 years of producing high quality superabrasive products. With our diamond characterization and process development labs, we remain on the forefront in both the manufacture and application of diamond and CBN products. Since we are ISO 9001:2008 quality certified, you can be assured of consistent performance from every Engis product you purchase.

We can also offer technical assistance at your plant through our network of highly trained Regional Sales Managers. Most have more than thirty years' experience assisting customers with application challenges. This, combined with our technical support staff in Wheeling, IL, makes Engis committed to engineering the right ElectroMill™ product for your machining or milling application.

Another revolutionary concept from Engis is born!

The flat machining of bi-metal surfaces or milling applications involving an interrupted cut can present daunting challenges to PCD or carbide milling cutters. The inserts may chip during the milling process, resulting in high machining costs and elevated levels of sub-standard or rejected parts.

The Engis ElectroMill™ is designed to produce high quality, flat milled surfaces, even if an interrupted cut is present, or multiple materials need to be machined simultaneously.

Significant advances in part quality, as well as cost savings, have been realized with the use of the ElectroMill in the final machining of cast iron hydraulic valve bodies and aluminum engine blocks fitted with cast iron cylinder inserts.

The ElectroMill, combined with high pressure coolant, can machine these materials to an extremely accurate value of flatness with very low tooling costs. In some cases customers have been able to reduce scrap and reworks significantly; this contributes to increased productivity and an improved bottom line.

ElectroMill™

Features & Benefits

- High stock removal rates
- Stress free, cool cutting action
- Long, extended tool life vs. conventional milling cutters
- Industry standard adapter mountings
- Industry standard milling cutter dimensions
- Diamond / CBN crystals deliver longer tool life than conventional milling technology
- Each ElectroMill is balanced

Superabrasive Technology

- Diamond formulations are designed for hard or abrasive materials such as ferrites, tungsten carbide, ceramics and aluminum oxide carbon composites.
- CBN is excellent for finishing materials with high carbon or chrome content. Other materials such as HSS, die steels, alloys harder than 50Rc, nickel- & cobalt-based alloys, titanium and cast irons are also excellent candidates.

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GRINDING PRODUCTS



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ElectroMill™ Case Study

A major manufacturer of marine engines faced serious challenges when milling bi-metal engine blocks. They were unable to achieve the desired flatness, parallelism and finish requirements which resulted in an unacceptable level of rejected components and reworks.

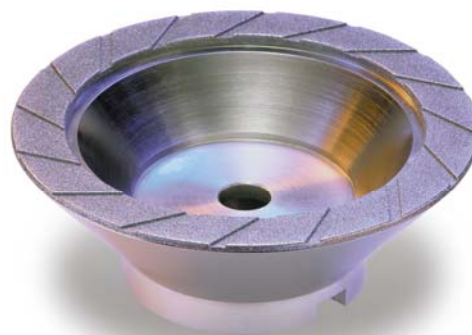
The Engis Electromill system improved the process considerably, achieving a finish of 40µ Ra and flatness of 60µ Ry. This resulted in better quality blocks with virtually no rejects or rework.

The savings to the customer was substantial!



- **Tool life of the ElectroMill has proven to be 50,000 pieces, consistently.**
- **The mills are then sent back to Engis for strip and replate.**
- **Tool quality, dimensional accuracy and life repeatability are the same as the original mill.**

Parameters	
Part:	Aluminum Block Cast Iron Liner
Application:	Top Deck
ElectroMill Diameter:	12 Inches
Superabrasive:	Synthetic Diamond
Grit Size:	80/100
Finish Achieved:	40 u" Ra
Flatness Achieved:	60 u" Ry
Machine:	5 Axis CNC
Horsepower:	30
RPM:	10,000
Feed Rate:	100 IPM
Coolant:	Water Soluble EP
Coolant Delivery:	High—thru spindle
Coolant Pressure:	800 Psi
Tool Life:	50,000 Pcs



Superabrasive & ElectroMill Qualities

- *Environmentally friendly*
- *Water soluble / Synthetic fluids can be used*
- *Diamond starts & stays sharp with constant, controlled micro fracturing*
- *No dressing cycles throughout the life cycle of the ElectroMill*

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