- Cermet Inserts for Bearing Industries
- Cropping operation of coiled bar
- Slotting Operation Steering Systems
- Tangential Milling Cutter
- Serrated Inserts Boring Tools
- Serrated Inserts Dovetail / Turning Tools
- Thread Whirling
- Cutting Tool Refurbishment
- Relap / Regrind PCD, PCBN and Carbide Tooling
Cermet Inserts

- Cermet inserts have longer tool life and can run at higher cutting speeds than standard coated carbide inserts. Suitable cutting applications range from semi rough to finish turning, milling, grooving and threading. Considerable cost savings can be achieved when using this technology.

APPLICATIONS

Finishing of steels under 45 HRc
Finishing of cast & ductile iron
Machining of aluminum and other non-ferrous materials

Obtaining a superior surface finish
Running at higher speeds
  - Up to 300 m/min on iron
  - Up to 365 m/min on steels
  - Up to 600 m/min on non-ferrous materials
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ADVANTAGES

- Excellent resistance to cratering
- Excellent high temperature hardness – can be run at increased speeds
- High adhesion resistance
- Sharp cutting edge

DISADVANTAGES

- More brittle than carbide
- Cannot take heavy feed rates
- No interrupted cutting
- Abrasion resistance lower than carbide
- ISO standards only
Cropping operation using Carbide Inserts

- Application – Tappet Production
- Existing – solid block method.
- The proposed Eurogrind tooling will use a body with a ‘dovetail style’ carbide insert using an inverted pocket for secure insert location.
- The tool is operating in a harsh environment with a temperature on the bar of 1100°C.
• Existing method produces approximately 20k components before edge breakdown. Each stoppage for tool change take around 20 minutes down time = 3600 components.
• The proposed insert method will take around 3 minutes to index the insert and this will be done around every 120k components.
• This result in an extra 22k components per 1 change. The insert method result in less cost per component based on tool cost alone, without the extra components being produced.
• Coated inserts will also be tested using ‘Hardcut Coating’ as this has an operating temperature of up to 1200°C.
Slotting Operation Steering Systems

Pecking operation.
Stationary component, tool rotating.
Oscillates about a central axis - 1000 strokes p/min
In feed and down feed produces radial groove
Tool life 350 – 1500 parts per edge
Width tolerance up to +/-0.005mm
Tangential Milling Cutter
Competitor’s Tool

Uses –
Triangle insert
Insert seat, pin
Clamp, diff screw
Use's 18 inserts in total.
Only 4 inserts on largest diameter.
Tangential insert
Strong cutting edge.
Excellent pocket location for stability
Robust insert and coating
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Leading on from success of Fiat tool, the insert has been used on additional milling cutters with great results.
Serrated Inserts
Dovetail, Boring & Turning Tools
The introduction of serrated inserts has had a massive impact on turning operations.

Using a unique accurate location and indexing of insert, upon 1 pocket wall.

**Circular form tools** –
Set up time (on centre)
No taper adjustment
Machine downtime to change tool
Expensive

**Rectangular Insert** –
Complex locking method
Clamps and screws
Taper adjustment.
One cutting edge per insert
Two cutting edges per insert
Simple locking – insert screw
Taper adjustment via grub screw
Indexability
One pocket wall location
Optional clamp added for large inserts. +40mm width
Serrated turning tool used by Delphi, same component as pecking operation.
Spark Plug.

Full body form is on 1 insert, 1 hit tooling
Thread Whirling

- Bone Screws
- Six indexable, carbide-coated inserts, designed specifically for thread whirling, are arranged around the inner diameter of the cutting head, enabling tolerances of a few microns to be held and excellent surface finish to be achieved on the thread flanks.
- Thread whirling is one such technique that has become popular for efficiently cutting quality threads on bone screws. Common materials used are 316, 316L, 303 stainless and titanium—none of which is easy to cut because of the bone screws’ sharp angles, thread lengths and large differences between the root and head diameters.
- An external thread-whirling tool is basically a ring with inserts mounted on the ID. A machine-mounted attachment carries the tool and rotates it at a high speed relative to the slower rotating workpiece. The ring is positioned slightly off center from the part so that a single cutter engages the work per rotation. This creates a nibbling action that produces burr-free threads.
Cutting Tool Refurbishment

• All industry sectors
• A comprehensive refurbishment service is available to all our customers at our dedicated centre in the UK, with fast turnaround.

• Eurogrind provide a cutting tool repair service for the repair of damaged standard or special turning and milling tools. Repaired cutting tools are returned in a condition identical to a new product, providing direct cost savings when compared to the cost of buying a replacement tool.

• Repaired tools are machined using high levels of accuracy and quality control to ensure pocket precision and repeatability are maintained.

• Eurogrind's high success ratio of repairing damaged cutting tools has enabled its clients to progress projects more quickly, thus allowing them to expand in today’s climate.
Relap & Retip of PCD, PCBN and Carbide Tooling

- All industry sectors
- A regrind and relap service is provide to reconstitute effective cutting edges at an inexpensive cost compared to a new tool.
- CBN and PCD tooling is relapped to remove the wear therefore generating a new cutting edge.