

RAMSTAR

Aerospace

Automotive

Die-Mold



RAMSTAR

Aerospace Automotive Die-Mold



Leading provider of cutting tool solutions



Automotive, aerospace, and tool & mould industries



Specializes in precision grinding for PCD, CBN, Carbide, and Powder Metals plus specialty insert manufacturing



Family owned and operated since 1986. Made locally in North America



Represent more than 25 premier manufacturers with sales in 10 countries



We manufacture complex 3D structures

- Chipbreakers
- T-lands
- Profile geometry
- Cutting edges

**from
ultra-hard
materials**

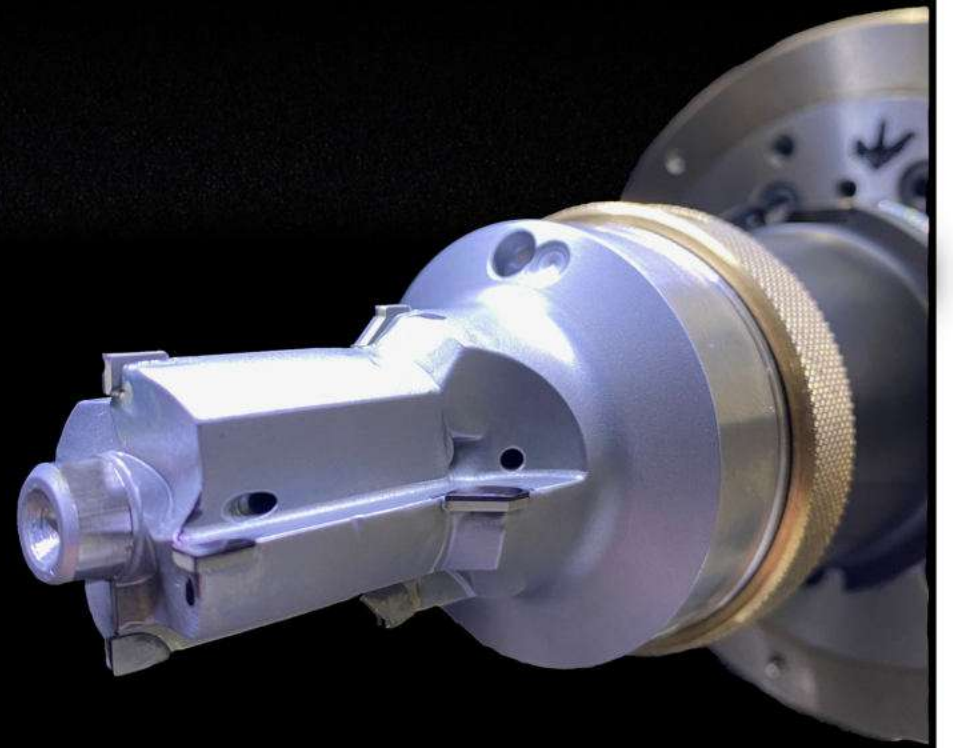
- ✓ Tungsten carbide
- ✓ Ceramic
- ✓ CBN
- ✓ PCD
- ✓ CVD
- ✓ MCD

And deliver affordable solutions like:

1 Custom-made products for OEMs

2 New and Re-new Programs for all types of inserts

3 Laser machine and grinding



And deliver affordable solutions like:

1 Custom-made products for OEMs



2 New and Re-new Programs for all types of inserts



 Carbide



 PCBN
(Polycrystalline Cubic Boron Nitride)



 PCD
(Polycrystalline Diamond)

And deliver affordable solutions like:

1 Custom-made products for OEMs

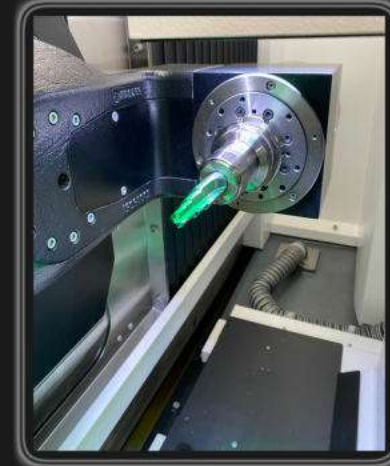
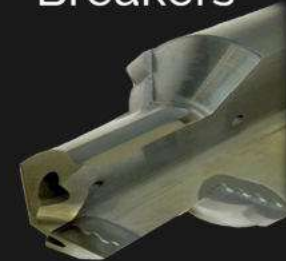
2 New and Re-new Programs for all types of inserts

3 Laser machine and grinding

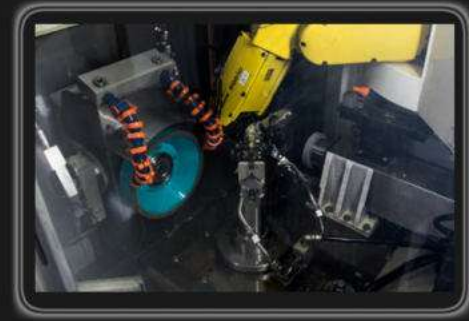
✓ Rotary tools



✓ 3D Chip Breakers



✓ Edge Prep



How we make it easy to do business with us



Standard Re-Tip
2-week turnaround
from time of order



Proven on-time
project delivery
record



Comprehensive
ongoing
support

Technical expertise



Experienced in-house engineering team skilled in solving difficult technical challenges and developing custom solutions



Extensive design-to-production project management and support to continuously deliver on quality goals



Innovative, cost-saving solutions driven by the manufacturing know-how of our designers





Some of the most advanced machining capabilities in North America



The only laser machine with both periphery and geometric capabilities



Capacity to engineer and manufacture cutting tools with PCD, PCBN, carbide, powdered metals & diamond all under one roof



Fabrication expertise

Capability Highlights:

EWAG Laser Line Ultra



Application

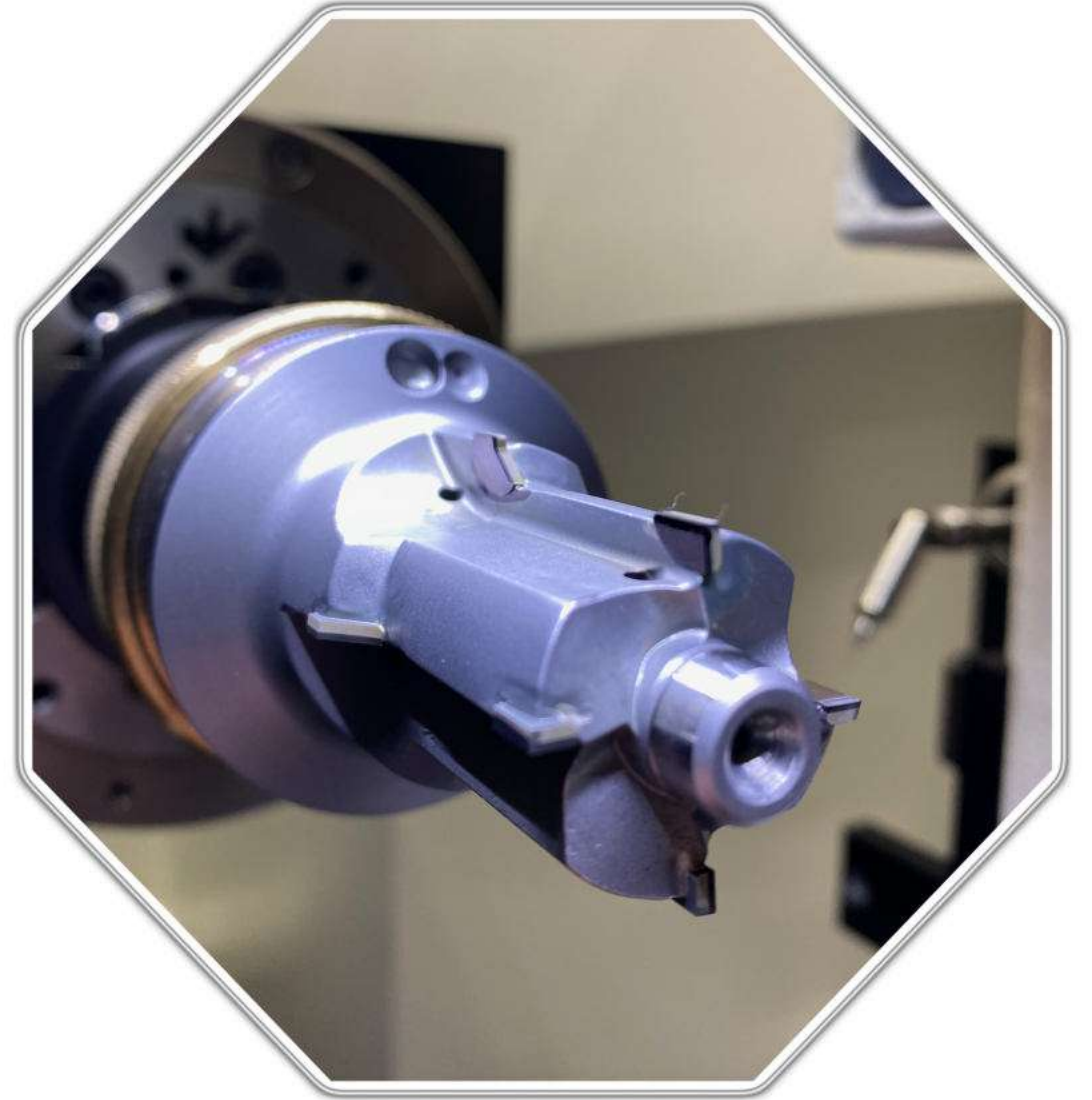
New and Re-new round tools

Advantages

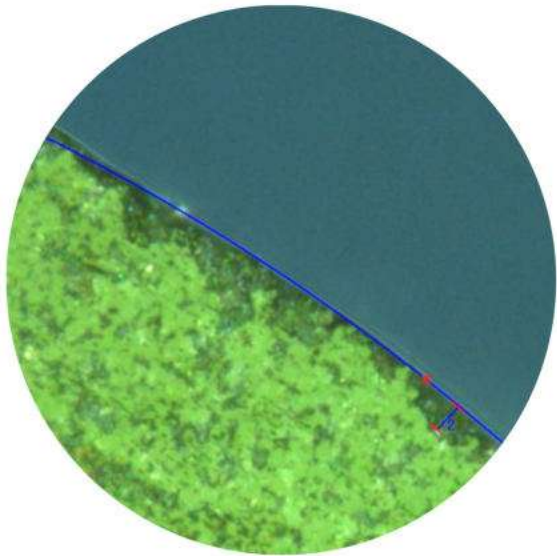
- Processing of all extreme hard materials
- Cutting edges and chip breaker
- Almost unlimited geometries
- Highest precision
- No damage to material
- Complete machining in one clamping

Advantages

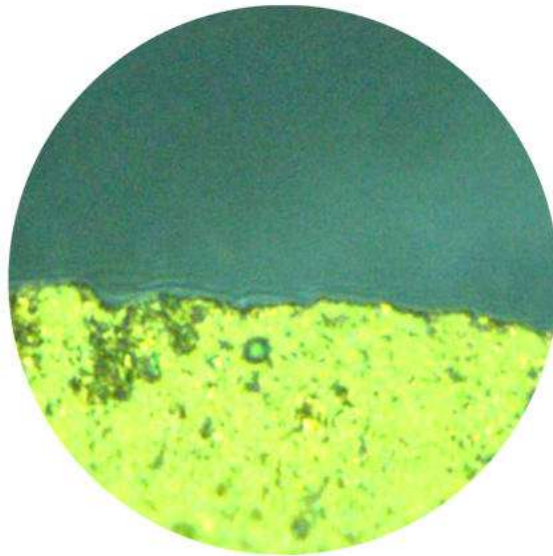
- Rotary axis (A) for rotary tools
- Focus point exactly in the center of rotation to avoid compensatory movements
- Integrated high-precision quick change system for pallets
- Clamping system for special tools
- Integrated suction



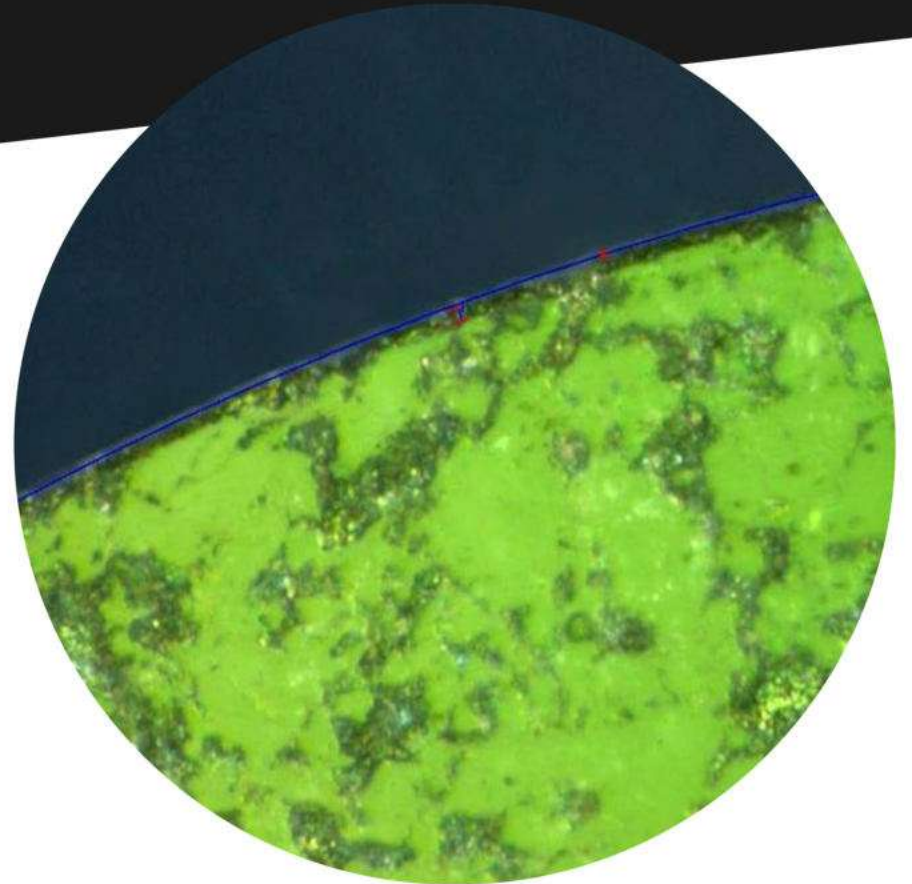
→ Laser cutting vastly improves the cut-edge quality compared to grinding



Ground cutting edge
1000x magnified



EDM machined cutting edge
1000x magnified



laser machined cutting edge
2000x magnified

Capability Highlights: Chipbreakers



Application

Cutting inserts

Advantages

- Improve machining efficiency
- Eliminate nesting
- Reduce jamming
- No more shutdowns
- Less chip conveyor maintenance
- Extend cutting insert life
- Improve surface finish

Capability Highlights: Chipbreakers



Comparison

- Aluminium machining with and without chip breaker (PCD)





Shaft with CBN Chipbreaker

Component

Work piece	Shaft
Material	Case Hardened Steel
Hardness	58 - 42 HRC
Surface	Pre-machined

Condition

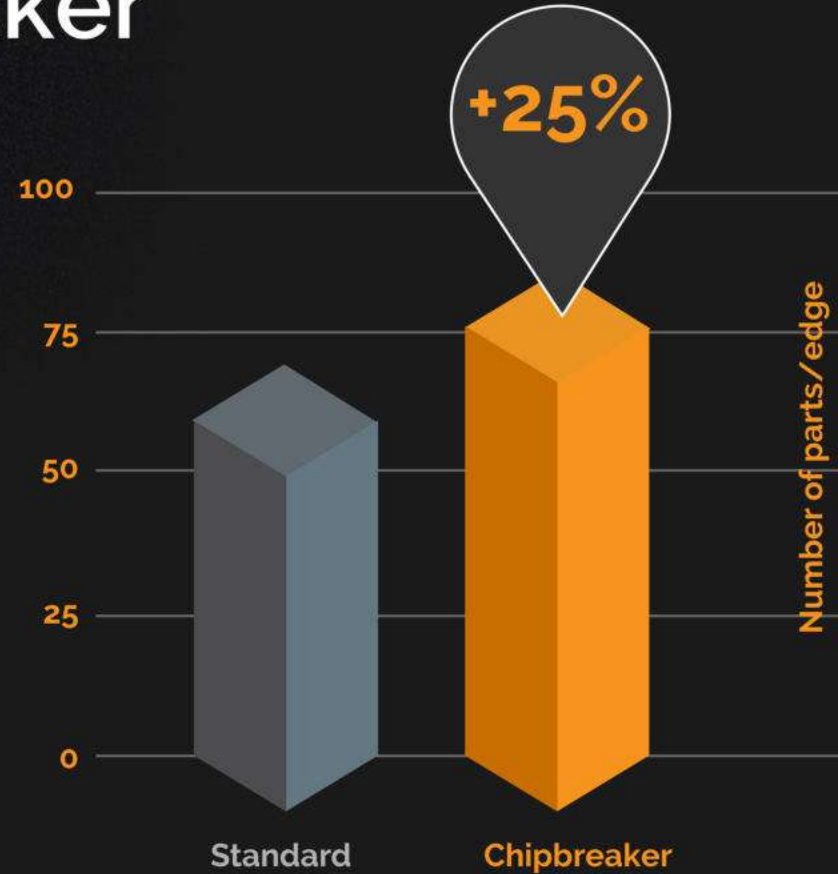
Operation	OD turning, Removing case hardened layer
Grade	CBNo60K
Cutting Speed	240 m/min
Feed rate	0,35 mm/rev
Depth of cut	0,5mm
Coolant	Yes

Result

CNGA120408,
75 parts/edge

Comment

→ Improved chip control and chip evacuation





Gear Wheel with PCBN Chipbreaker

RAMSTAR

Component

Work piece	Gear wheel
Material	Case Hardened Steel
Hardness	62 HRC
Surface	Pre-machined

Condition

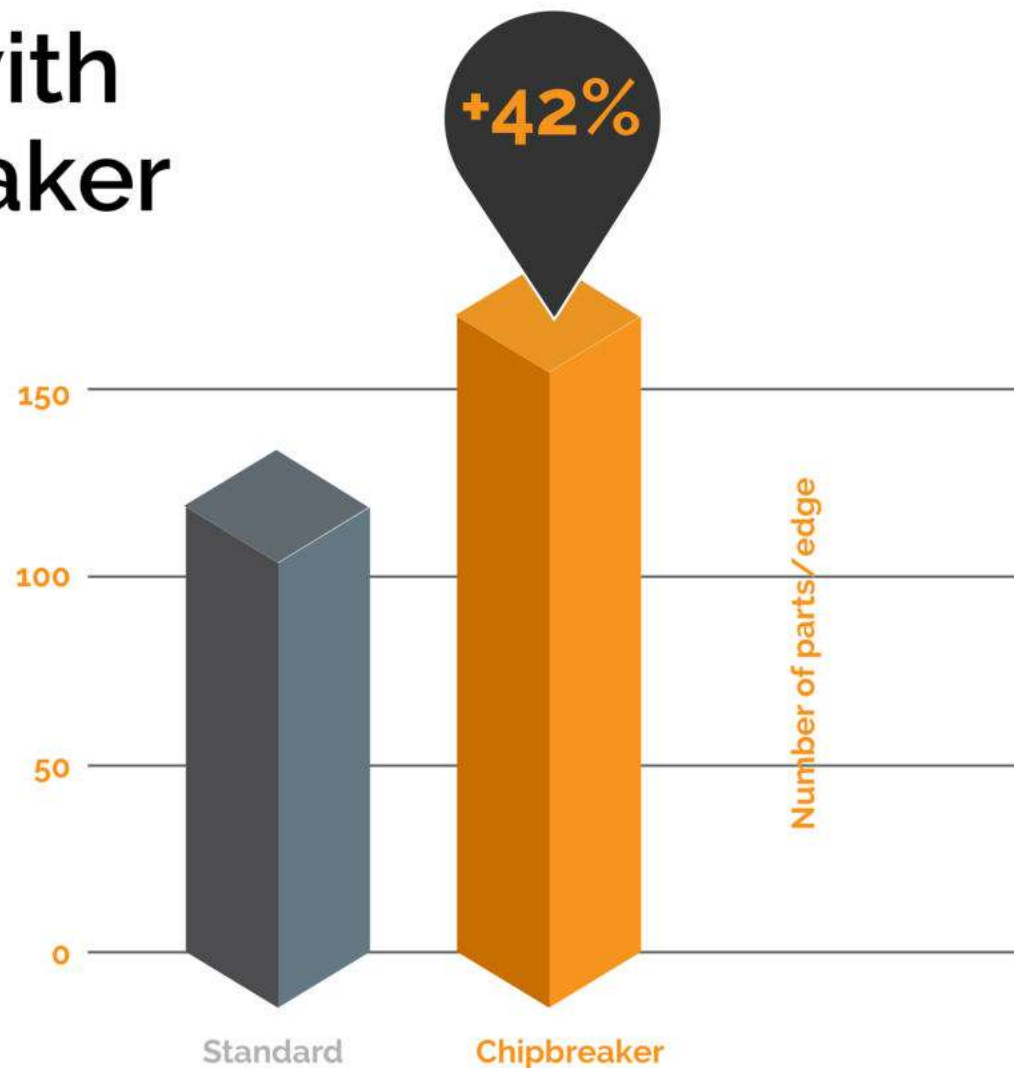
Operation	ID Turning Finishing
Grade	CBN
Cutting Speed	180 m/min
Feed rate	0,14 mm/rev
Depth of cut	0,2mm
Coolant	No

Result

CCGW 09T304,
170 parts/edge

Comment

- Improved chip control and chip evacuation
- Reduction of chip jamming



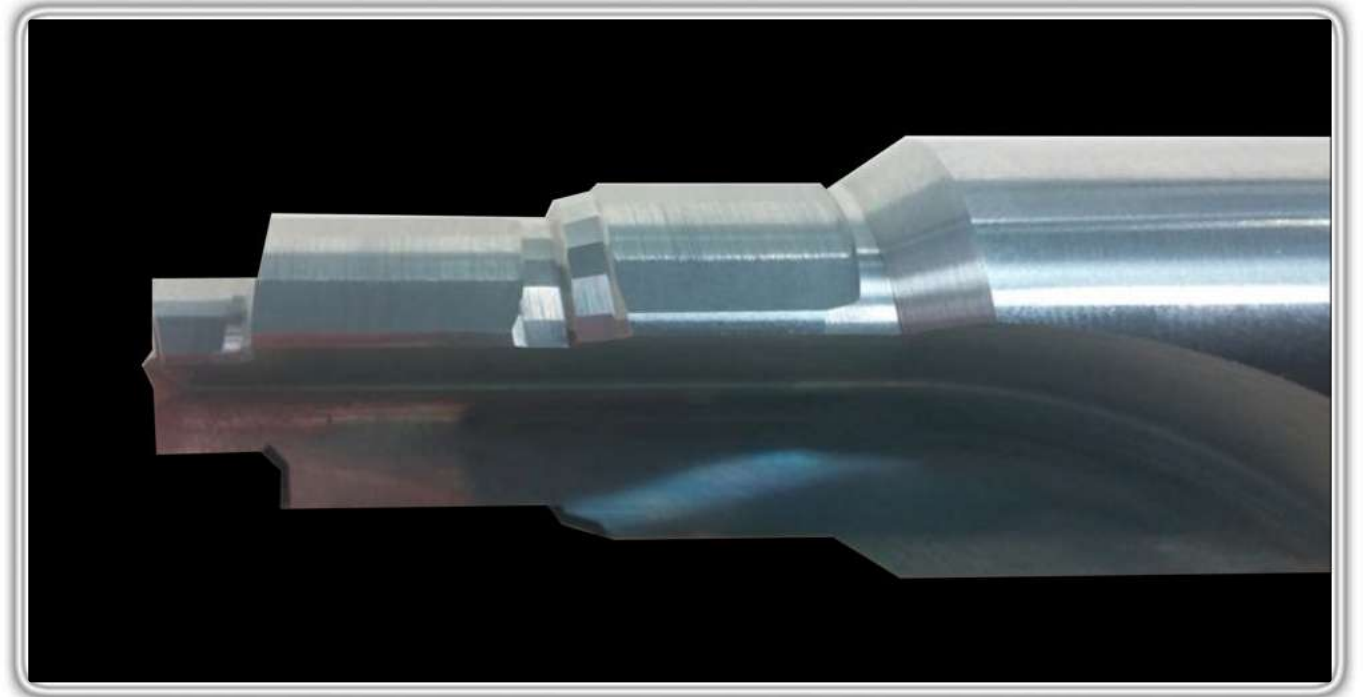
Endless possibilities for complex chip breakers

- Multiple fluted round tools (PCD)



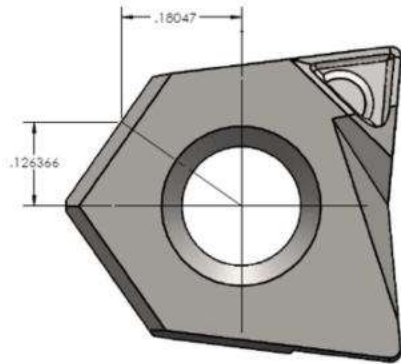
Endless possibilities for complex chip breakers

- Multiple fluted round tools (Carbide)



Endless possibilities for complex chip breakers

→ Milling inserts





Next step: Give us your toughest chip problem

1

We'll scope a solution, a timeline and the cost efficiencies

2

We'll Identify synergies that will improve your tooling performance

3

We'll calculate how working together can add VALUE for both organizations.



ramstar.net