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TOOLS TECHLOGS SYSTEM

ADD- PLOT NO- 55,SECTOR-9, PHASE –III , IMT BAWAL ,REWARI, HR.(123501)

Solid Carbide Cutting Tools Manufacturing

Specialist in. -

Manufacturing & Resharpening And Recoating Of All Types Of Solid Carbide Cutting Tools. Like – Drill Endmill, Hole mill, Reamer, Ball nose, Any Customized, Profile Tools Also Can Manufactured .

Solid Carbide Cutting Tools–

Delivering superior efficiency, durability, and precision in modern manufacturing.

AGENDA-

- Introduction to High-Performance Cutting Tools
- Key Design and Material Innovations
- Advanced Coating Technologies
- Optimized Geometrical Configurations
- Precision Manufacturing and Quality Assurance
- Versatility Across Industrial Applications
- Customization for Specialized Machining

Introduction to High-Performance Cutting Tools.

Key Design and Material Innovations-

Advanced Material Composition

Utilizing ultra-fine grain carbide rods for enhanced hardness and toughness, reducing wear and improving edge retention.

Enhanced Microstructure

Controlling grain growth during sintering to create a more homogeneous and robust tool substrate, preventing premature tool failure.

Fatigue Resistance

Designing tools with superior fatigue resistance to withstand high cyclic loads encountered during continuous machining operations, extending tool life.

Advanced Coating Technologies-

- Physical Vapor Deposition (PVD)

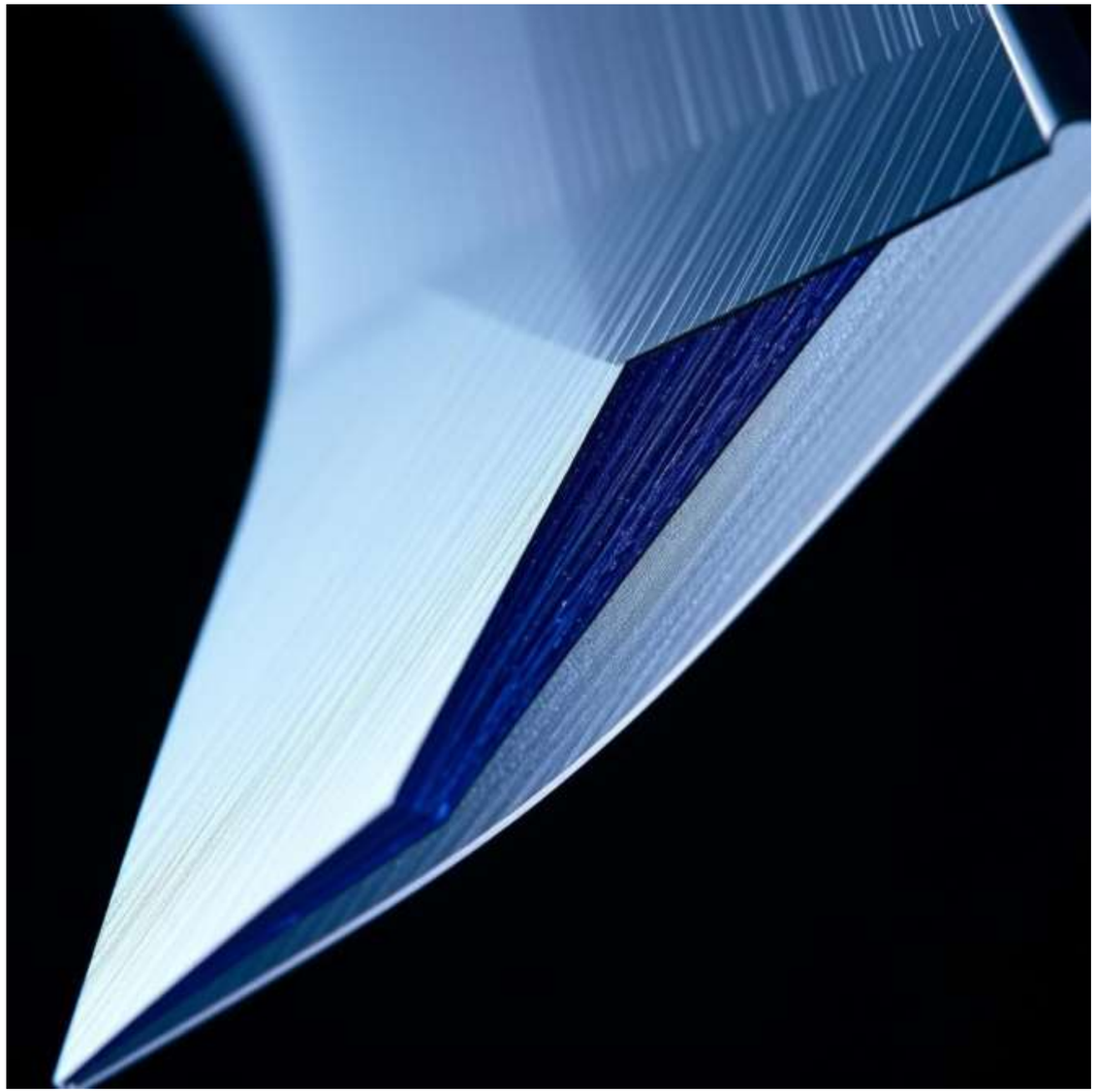
  Applying thin, hard coatings like TiAlN and AlCrN for excellent wear resistance and thermal stability, crucial for high-speed machining of hardened steels.

- Chemical Vapor Deposition (CVD)

  Depositing thicker, multi-layered coatings such as TiCN and Al2O3, ideal for high-feed applications and abrasive materials, providing superior adhesion.

- Diamond-Like Carbon (DLC)

  Implementing DLC coatings for non-ferrous materials like aluminum and composites, preventing material adhesion and improving surface finish.



Optimized Geometrical Configurations -

Drills

Advanced flute designs for efficient chip evacuation, precise point geometries for accurate hole positioning, and specialized helix angles for various material types.

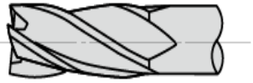
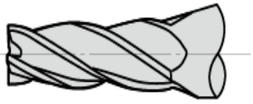
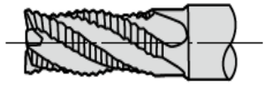
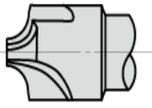
End Mills

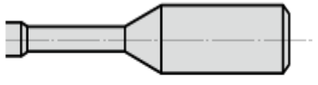
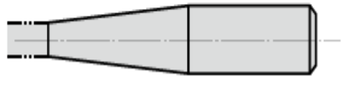
Variable helix and pitch designs to minimize chatter, unequal spacing for vibration dampening, and advanced core taper for increased rigidity during heavy cuts.

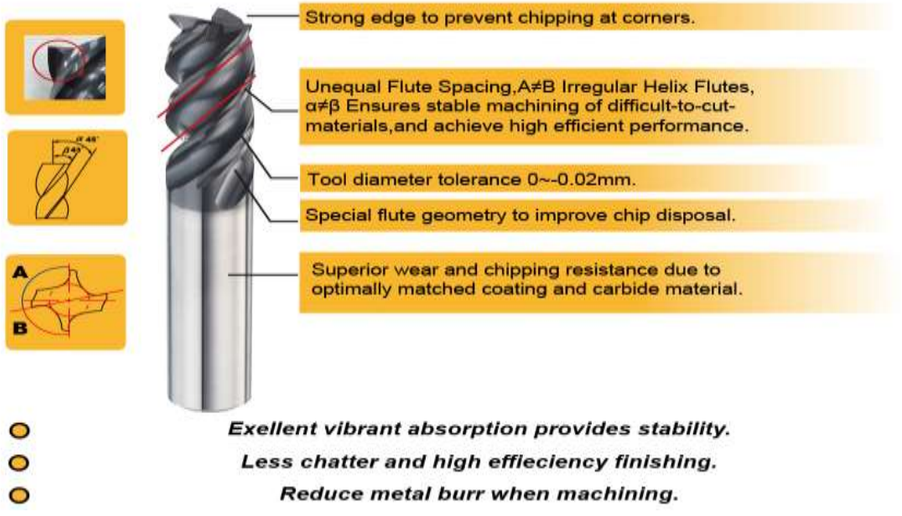
Profile Tools

Custom profiles for intricate contours, sharp edge preparation for superior surface finish, and optimized rake angles to reduce cutting forces.

Type	Shape	Feature
Square End (With Center Hole)		Generally used for side milling, slotting and shoulder milling. Plunge cutting is not possible due to the center hole that is used to ensure accurate grinding and regrinding of the tool.
Square End (Center Cut)		Generally used for side milling, slotting and shoulder milling. Plunge cutting is possible and greater plunge cutting efficiency is obtained when using fewer flutes. Regrinding on the flank face can be done.
Ball End		Geometry completely suited for curved surface milling. At the extreme end point the chip pocket is very small leading to inefficient chip evacuation.
Corner Radius End		Used for radius profiling and corner radius milling. When pick feed milling an end mill with a large diameter and small corner radius can be efficiently used.

Type	Shape	Feature
Ordinary Flute		Regular flute geometry as shown is most commonly used for roughing and finishing of side milling, slotting and shoulder milling.
Tapered Flute		A tapered flute geometry is used for special applications such as mould drafts and for applying taper angles after conventional straight edged milling.
Roughing Flute		Roughing type geometry has a wave like edge form and breaks the material into small chips. Additionally the cutting resistance is low enabling high feed rates when roughing. The inside face of the flute is suitable for regrinding.
Formed Flute		Special form geometry as shown is used for producing corner radii on components. There are an infinite number of different geometry's that can be manufactured using such style of cutters.

Type	Shape	Feature
Standard (Straight Shank)		Most widely used type.
Long Shank		Long shank type for deep pocket and shoulder applications.
Long Neck		Long neck geometry can be used for deep slotting and is also suitable for boring.
Taper Neck		Long taper neck features are best utilized on deep slotting and mold draft applications.



Precision Manufacturing & Quality Assurance

Our commitment to quality ensures every tool meets the highest industry standards:

- **Automated Grinding:** Utilizing 5-axis CNC grinding machines for sub-micron precision and repeatability.
- **Laser Measurement:** Implementing in-process laser measurement systems for real-time dimensional control in Zoller .
- **Surface Inspection:** Employing advanced optical and SEM analysis for flawless surface finishes and edge integrity.
- **Performance Testing:** Rigorous in-house machining tests to validate tool life, chip formation, and part accuracy under various conditions.

Versatility Across Industrial Applications

Steel Machining

Designed for high-speed and high-feed machining of various steel grades, including stainless and tool steels, ensuring long tool life and excellent surface finish.

Aluminum & Alloys

Optimized geometries and polished flutes for efficient chip evacuation and reduced built-up edge, crucial for aerospace and automotive components.

Composites & Plastics

Specialized edge preparations and coatings to minimize delamination and fraying, essential for demanding composite applications in aerospace and medical industries.

Hard Materials

Robust designs and advanced coatings for machining hard and abrasive materials like titanium and nickel-based superalloys, extending tool durability in challenging environments.

Major Customer -

- RESONAC MATERIALS (INDIA) PVT LTD
- E&H PRECISION INDIA PVT. LTD
- KOIDE INDIA PRIVATE LTD.
- T.P.R AUTO PARTS MFG. INDIA LTD.
- NIPPON STEEL &SUMIKIN PIPE INDIA PVT LTD
- MINDA GROUP
- HERO GROUP
- TAKAHATA PRECISION INDIA PVT.LTD
- TOYODA GOSEI INDIA PVT. LTD.
- HAVELLS INDIA LTD
- MIKUNI INDIA PRIVATE LTD.
- NIDEC INDIA PRIVATE LIMITED
- NISSIN BRAKE INDIA PVT. LTD.
- AAKRITI MANUFACTURING PVT. LTD.
- **ASHIKA COMMERCIAL PVT. LTD.**
- **WIPRO HYDRAULICS PVT. LTD.**
- **HNV CASTINGS PRIVATE LIMITED**
- **USHA PRECISION PVT. LTD.**
- **SHRI BHAGWATI MACHINES TOOLS**