

SUPER HOBS & BROACHES PVT. LTD.

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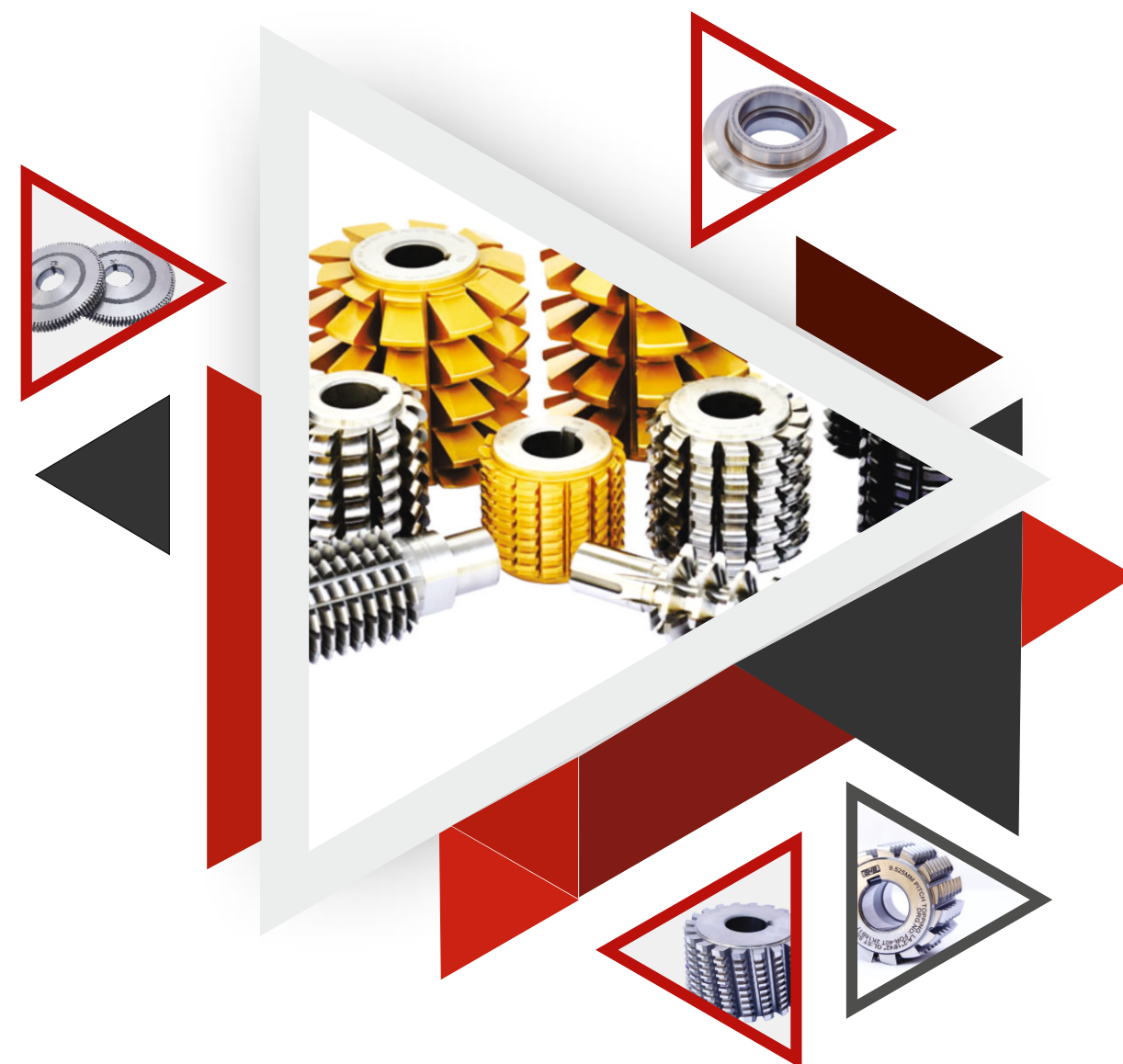
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www.supercuttingtools.com



*Comprehensive Range Of
Precision & Quality Cutting Tools*



**SUPER HOBS &
BROACHES PVT. LTD**

ISO 9001:2015
CERTIFIED COMPANY

COMPANY PROFILE

FORMATION

The company was formed on February 2, 1999 with necessary set up to manufacture High Speed Steel Gear Cutting Tools and Broaches.

MANAGEMENT

The Directors of the company have sufficient experience and technical trained personnel quite conversant with the products.

TEAM

A group of highly dedicated and experienced employees form a dynamic team to take up normal as well as challenging jobs in the manufacture of Gear Cutting Tools, Broaches and Allied Products.

PRODUCTS

Full range of products contains the following:

BROACHES
CLASS 'A', 'AA' & 'AAA' GEAR HOBS
GEAR SHAPER CUTTERS
GEAR SHAVING CUTTERS
SOLID CARBIDE HOBS
POWER SKIVING CUTTERS
MASTER GEARS
D. O. P. MASTERS
SPLINE ROLLERS
SPLINE PLUG & RING GAUGES
FORMING ROLLERS
GEAR DEBURRING & CHAMFERING CUTTERS
PROFILE RELIEVED MILLING CUTTERS
SIDE & FACE MILLING CUTTERS & METAL SLITTING SAWS
BORE & SHANK TYPE MILLING CUTTERS **to standard as well as to customer's Drawings and Specifications.**

PROCESS

Each Cutting Tool is accompanied by Process Data Sheet and each process is followed by stage inspection.

SPECIAL FEATURES

Each Cutting Tool thus manufactured is heat treated by SALT - BATH process which is one of the best methods. It ensures uniform and deep heating, better structure and better Tool life.

STANDARDS

The standards followed are BIS, BS, DIN, ASA, JIS and GOST etc. as per customer's choice and specifications.

CATALOGUE

Detailed catalogue of the standard products being manufactured by us can be downloaded from our **websites**

www.gearcuttingtool.com | www.supercuttingtools.com

QUALITY ASSURANCE SYSTEM

MATERIAL PROCUREMENT

The material is procured directly from world-renowned manufacturers like Bohler, Era Steel, Nachi etc.

MATERIAL IDENTIFICATION

The stored raw materials are identified by color code by applying colors on the face as well as the length of stored material. In addition to the color code, every raw material bar is given a unique identification number. The record of the identification number is maintained to facilitate identification of supplier as well as material. The unique identification number of the bar is kept intact until the whole length of the bar is consumed.

SHELF LIFE

The raw material is stored in iron racks. Since the inventory of the material is maximum three months there is no need for any measures for control of shelf life etc. Prior to finishing, tools are sand-blasted to remove any rusting agents. After grinding and finishing tools are applied rust preventives and are securely packed in polythene bags and cardboard boxes.

CALIBRATION

Periodic calibration of the measuring instruments and testing equipment is done as per BIS with the help of master gauges and meters or from some outside agencies.

PROCESS CONTROL (HEAT TREATMENT)

The temperature of the heat treatment furnace is being controlled with the help of Digital Temperature Indicators and Controllers, Infrared Radiation Pyrometers and Optical Pyrometers.

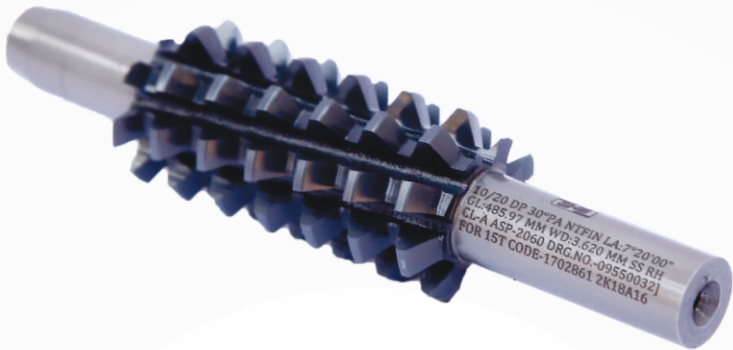
INTERNAL INSPECTION

The inspection of the tool to be produced is being done at every stage of machining by keeping necessary Finishing/ Grinding margins and expansion tolerances during heat treatment. After heat treatment, the tools are ground to close tolerances as per standard specifications or as per specific requirement of the customer as per drawings etc.

MAINTENANCE OF QUALITY RECORDS

The maintenance of quality records for special as well as standard tools manufactured as per customers drawings and specifications are being maintained by preparing drawings and by keeping a record of the same by giving specific job/ reference number to facilitate repeated orders.

WORM GEAR HOBS



Manufactured generally to Customers Drawings and Specifications in Topping and Non-Topping Forms Worm Gear / Shank Type Hobs can be supplied in Machine Relieved as well as in Ground Relieved Forms. These Hobs can be supplied in Single and Multi Start Threads as per requirements of the user. Maximum length of the Hobs (including shank) that can be manufactured is 450 mm.

GEAR SHAVING CUTTERS



- Manufacturing of Gear Shaving Cutters such as Conventional, Diagonal, Underpass and Plungecut is undertaken by SHB.
- Materials available for Gear Shaving Cutters include Conventional & Powder Metallurgy High Speed Steels.
- In addition Resharpening/Refurbishing of Gear Shaving Cutters is also being carried out.
- Inspection Reports are being provided with every individual cutter.

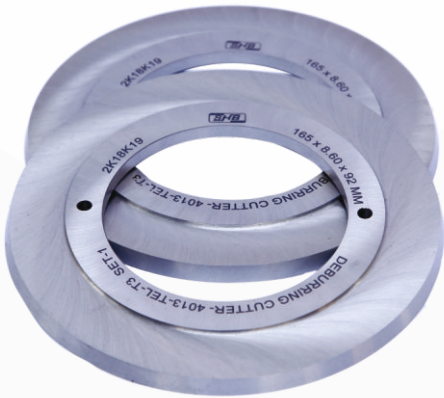
Range- 1 Module to 10 Module Width - 15mm to 65mm Diameter - 100mm to 300mm Helix Angle - 0° - 45°

GEAR SHAPING CUTTERS



SHB manufacture Gear Shaping Cutters in Module, DP and CP Series. Spur as well as Helical Gear Shaper Cutters can be supplied in Disc, Hub, Deep Counter Bore, Shank and Button Type Varieties. Material used is Conventional and Powder Metallurgy Grades of High Speed Steel. Accuracies are as per DIN-1829 Standard Class 'AA' and Class 'A'. Profile Modifications including Topping, Semi-Topping, Protuberance, Flat or Fillet Roots can be provided if necessary.

GEAR DEBURRING CUTTERS



These Cutters are used in conjunction with Gear Chamfering Cutters to remove the burrs formed during teeth cutting. Material used in the manufacturing is generally HSS M-2. These Deburring cutters for Samputensili Machines are available in both standard as well as customized forms.

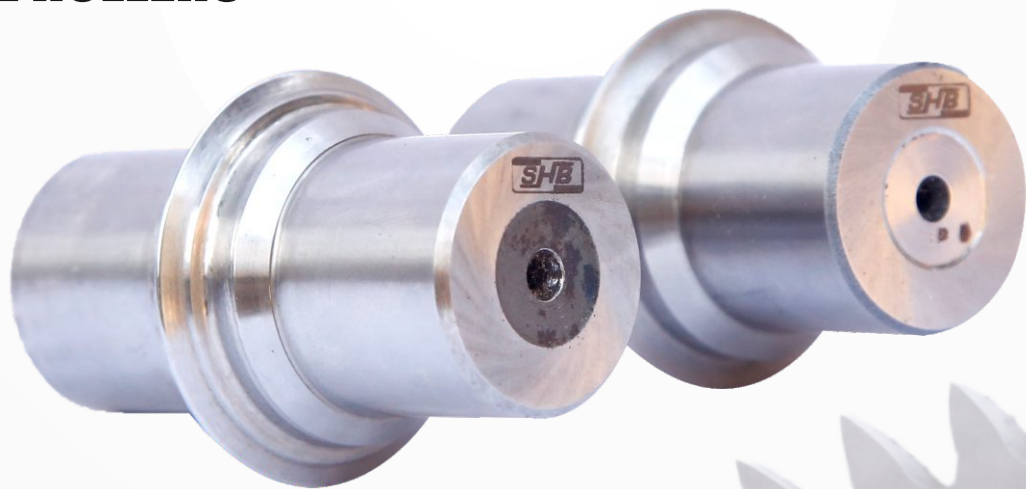
- Standard Tools for gears with parallel faces.
- Serrated Tools for gears with inclined faces

GEAR CHAMFERING CUTTERS



SHB manufacture Gear Chamfering Cutters to chamfer the flank edges of Spur and Helical Gears. The Chamfering Operation prevents edge distortion during Heat Treatment and protects the profile during handling. Chamfering Cutters are mainly used for Chamfering of Gears by Automobile Industry. These Cutters can chamfer both the flanks of a gear at a time. Same set of Chamfering Cutters can be used for similar gears having different face widths. The variation in the width of the gears is adjusted with the help of suitable spacers.

SPLINE ROLLERS



SHB manufacture Spline Rollers for use on GROB Spline Rolling Machines. The rollers are manufactured out of best quality HSS Material in Grades like M42, ASP2030, ASP2052 & ASP 2060. Spline Rollers are the best tools to manufacture Spline Shaft Components where Hobbing is not possible. Spline Rollers are the best tools for mass production of Splined Shaft Components. Two Rollers located at 180 degree of each other and rotating around individual Axis form the Splines.

FORMING ROLLERS



SHB manufacture Forming Rollers for Air-Conditioning Compressor Electromagnetic Clutch Pulleys in Single and Multi-Grooved Profiles as per requirements of the users. These Forming Rollers are used by Manufacturers of Automotive Air Conditioning Units for forming of Pulleys by Rolling Process. Raw Material used is SKD-11, YXR-3, YXR-33 or equivalent grades.

SWAGING CUTTERS



These tools are forming tools used to taper Clutch Teeth of Synchromesh Gear Boxes. **SHB** manufacture Swaging tools according to customers needs and requirement. Swaging Tools are manufactured and supplied in Integral as well as Split Type Designs.

POWER SKIVING CUTTERS



New technology can now allow high speed synchronous movement between the tool and the part which enables a part to be cut on the 'cross axis' by the tool. This type of tool can be used on dedicated Skiving Machines and Modern 5 axis Machining Centres. Tools can now be manufactured from more Hard-Wearing Materials such as Mc90 and Carbide. A full Re-grinding service is available for all Skiving Tools, including normal Helical Sharpening and lip and Chamfer Helical Sharpening. Also available is a precision edge preparation and full Re-coating services.

SOLID CARBIDE HOBS



In order to broaden the product range and satisfy the customer's needs, SHB has installed dedicated Machines for Solid Carbide Hobs up to Class "AAA" and can manufacture and supply the same ranging from 0.15 Module to 3 Module. For Hobs, three different solid carbide types are employed: grade "K" grade "P" and "G". Each grade is having different composition depending on its final use. In certain applications Solid Carbide Hobs are preferred to PM Steel Hobs where Feeds & Speeds required are on higher sides. Solid Carbide Milling Cutters can also be manufactured and supplied.

KLINGELNBERG HOB MEASUREMENT

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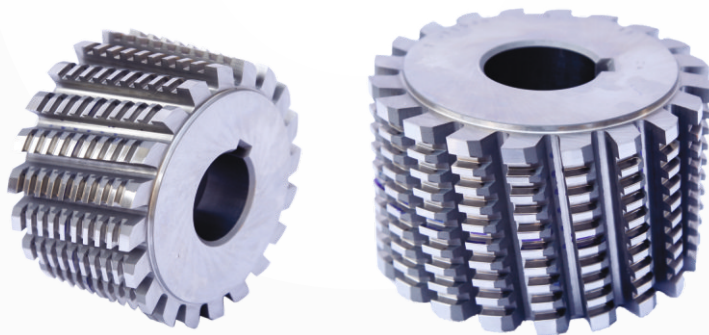
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FORM RELIEVED MILLING CUTTERS



- Cutters with Special Profiles made to specific requirements of the customer in Single, Multi and Interlocking Profiles can be manufactured & supplied.
- SHB manufacture Ground or Un-ground Form Relieved Milling Cutters from a variety of popular materials suited to Customers requirements.
- A large variety of coatings are available to enhance performance and durability of the tools.
- SHB offer extremely short lead times for manufacturing Form Relieved Milling Cutters.

RACK HOBS / MILLING CUTTERS

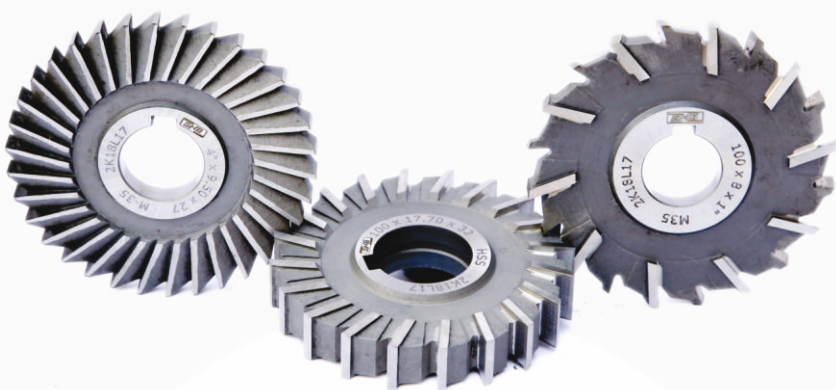


SHB provides unmatched quality for Multiple Pitched Form Relieved Milling Cutters ranging from Standard Rack Form to Asymmetrical Shapes. These cutters are produced in Single or Multiple Pitches with Straight or Helical Flutes in very closed tolerances.

SHB Rack Milling Cutters can be had in the following sizes-

Module	: 0.4 to 10
Diameter	: 32mm to 250mm
Length	: 5mm to 300mm
Bore	: 10mm to 80mm
Accuracy Class	: B to AAA
Material	: HSS M35, M42, ASP2030, ASP2052 & ASP 2060
PVD Coatings	: Tin, TiCN, TiAlN, AlCrN

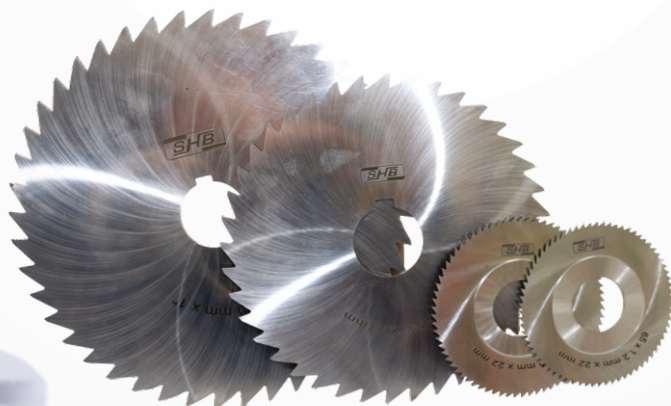
SIDE & FACE MILLING CUTTERS



SHB manufacture Straight Teeth and Staggered Teeth Side & Face Milling Cutters in Conventional and Powder Metallurgy Grades of High Speed Steels as per BS-122-1-1953 and IS: 6308-1982. Side & Face Cutters are available in the following sizes :

• STRAIGHT TEETH	Dimensions	Dia	Width	Bore
	Mm	50-200	3-32	16-40
	Inch	2-8	1/8 –1.1/4	3/4 –1. 1/2
• STAGGERED TEETH	Dimensions	Dia	Width	Bore
	Mm	50-200	5-32	16-40
	Inch	2-8	1/4-1.1/4	3/4 –1. 1/2

METAL SLITTING SAWS



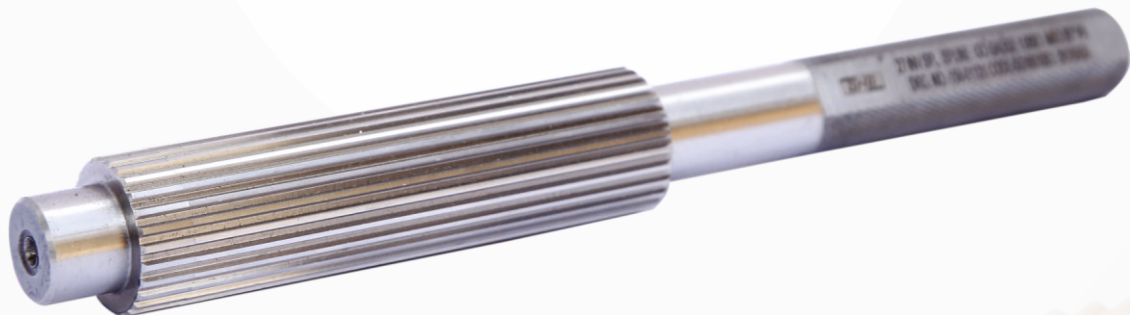
SHB manufacture Metal Slitting Saws in Coarse and Fine Teeth with or without keyways as per IS: 5031 and BS-122-Part-1-1953. The Metal Slitting Saws can be supplied in diameters 2”or 50mm to 12”or 300mm and Thickness 0.5 to 6mm or .020”- .250”. Raw Material used is HSS M-2 and M-35.

MASTER GEARS



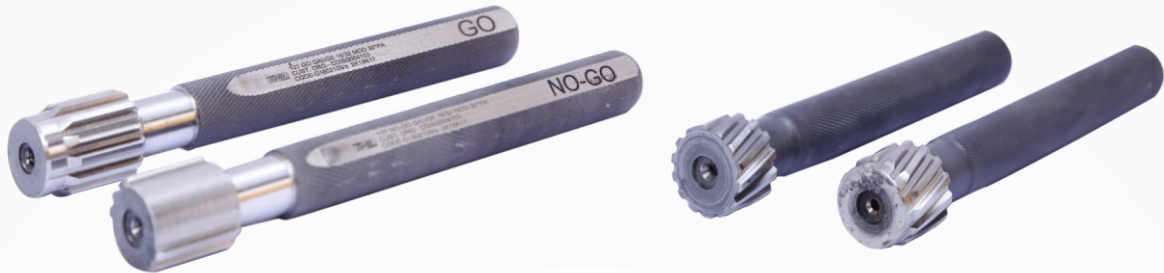
SHB manufacture Spur & Helical Master Gears as per customer's requirement for Composite Double or Single Flank Profile Checking. Master Gears are manufactured out of best quality material to ensure longest possible tool life. Master Gears are supplied generally in Class 3 or Class 4 accuracies of DIN 3962. D.O.P. Master Gears & Setting Master Gears can also be designed and manufactured as per requirement of the customers.

SPLINE MANDRELS (SPUR & HELICAL)



SHB manufacture Spline Mandrels which are used to locate the Splined Components on PCD of Splines or on the Major Diameter of Internal Straight Sided Splines or Involute Splines. The Component has to be located in this manner to check the component accuracies like Face Run Out, OD Run Out with respect to PCD / Major Dia. Spline Mandrels are also used to carry out finish machining operations with respect to PCD / Major Dia. Spline Taper Mandrels for Spur as well as Helical Splines can be manufactured and supplied in lengths upto 300mm in accuracies DIN-5 or DIN-6.

SPLINE PLUG GAUGES (SPUR & HELICAL)



Spline Plug Gauges are used for checking Internal Splines. Checking of individual parameters like Profile Accuracy, Indexing Accuracy and PCD Run Out of Splined Components on a production line is time consuming and not practical. So for checking the dimensions Go & No Go Gauges is simple and reliable. SHB offer Spline Plug Gauges for Internal Splines with Involute, Serration, Trapezoidal and Straight Sided Flanks at a very short notice designated according to the tolerance limits 'actual' and 'effective' accompanied by Test Certificates for inspection carried out on Klingelnberg P26 or P40 CNC Machines. In addition to Spur Gauges, Helical Gauges can also be manufactured & supplied.

SPLINE RING GAUGES



Spline Ring Gauges are used for checking External Splines for parameters like Profile Accuracy, Indexing Accuracy and PCD Run Out of components formed by Hobbing, Milling and Rolling. SHB also offer Spline Ring Gauges for External Splines with Involute, Serration, Trapezoidal and Straight Sided Flanks at a very short notice designated according to the tolerance limits 'actual' and 'effective' accompanied by Test Certificates for inspection carried out on Klingelnberg P26 or P40 CNC Machines.



Broaching means opening up. Broaching is a manufacturing process in which a Cutting Tool having multiple traverse edges is pushed or pulled through a hole or over a surface to remove metal by axial cutting. Each tooth removes a small fraction of work piece material. The work piece can be finished to size in a single or multiple passes of the broach through a hole/surface. The Tool has a major influence on the surface finish achieved. The design of the broaching tool depends upon the material, the shape and the quantities of the work piece that are to be broached. **SHB** manufacture Push & Pull Type Broaches in Conventional as well as Powder Metallurgy High Speed Steels in following Profiles:

SPLINES

- Straight Sided
- Involute
- Serrations
- Trapezoidal

INTERNAL HOLE

- Square
- Round
- Rectangular, Hexagonal
- Irregular Shapes etc.

KEYWAY

- With or Without Chamfer
- Convex / Concave
- Combined Round & Single Keyway etc.

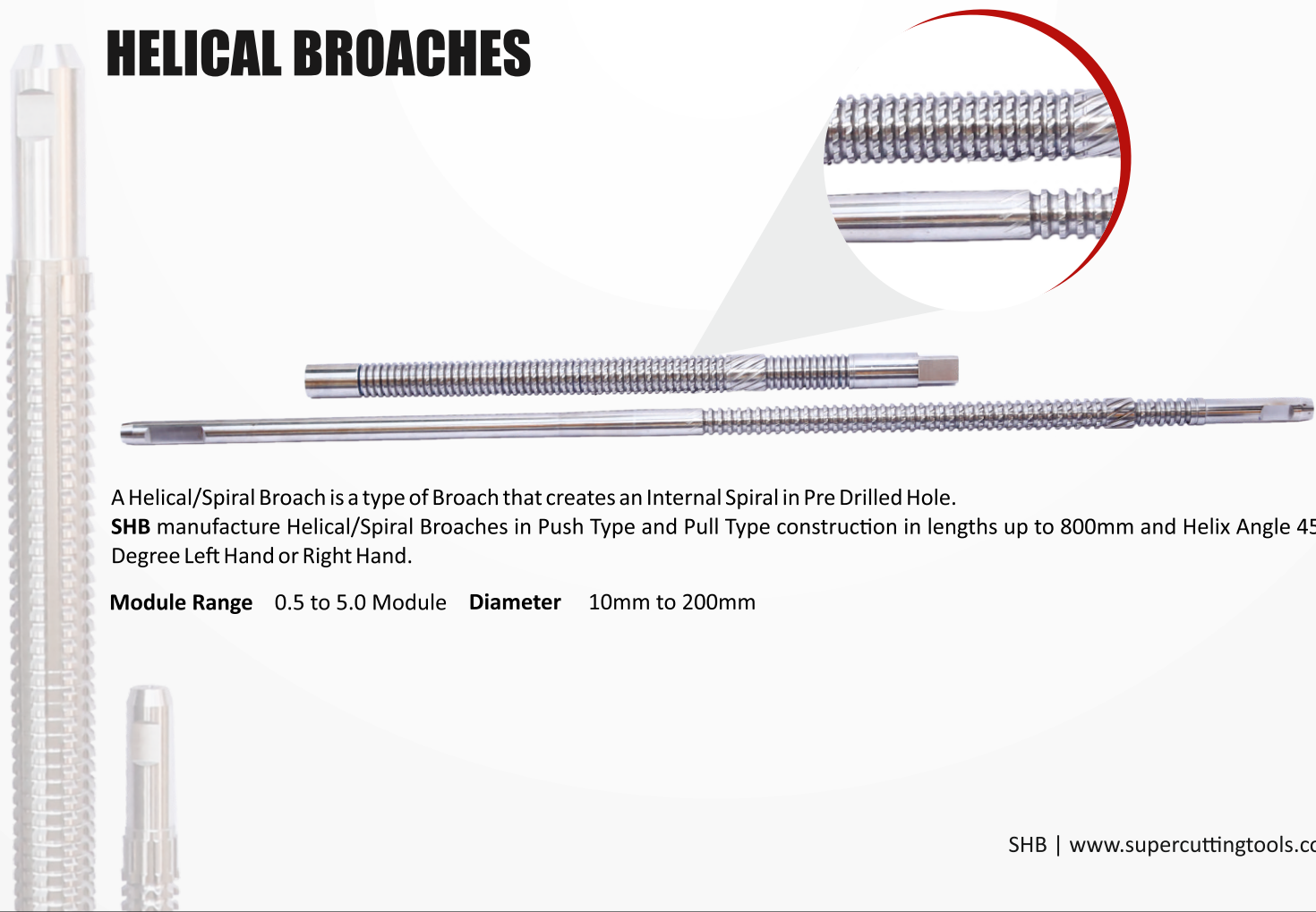


SURFACE BROACHES



Surface Broaching is a generic term used in the broaching industry to refer to broaching any external surface or surfaces of a piece part. Surface Broaching is fast and typically more efficient than Milling. Multiple dimensions can be cut simultaneously. Surface Broaching is most easily adopted to vertical or High Speed Broaching Machines. Surface Broaching is fast, cost effective and accurate. **SHB** manufacture best quality of Surface Broaches as per customer’s requirements and specifications.

HELICAL BROACHES



A Helical/Spiral Broach is a type of Broach that creates an Internal Spiral in Pre Drilled Hole. **SHB** manufacture Helical/Spiral Broaches in Push Type and Pull Type construction in lengths up to 800mm and Helix Angle 45 Degree Left Hand or Right Hand.

Module Range 0.5 to 5.0 Module **Diameter** 10mm to 200mm

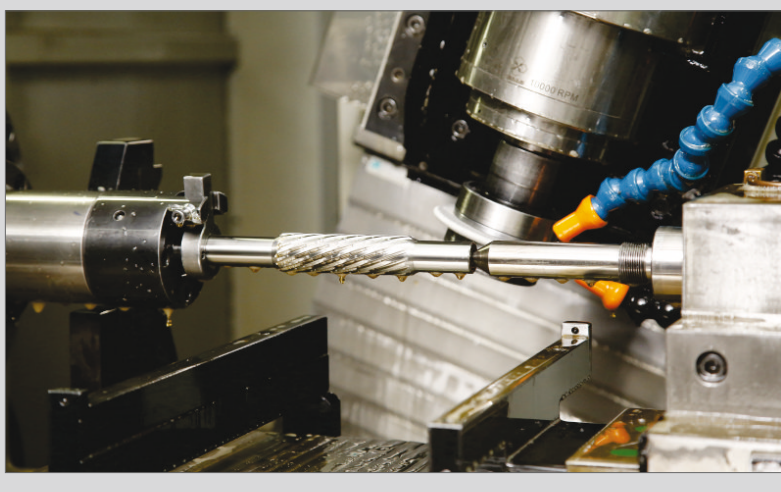
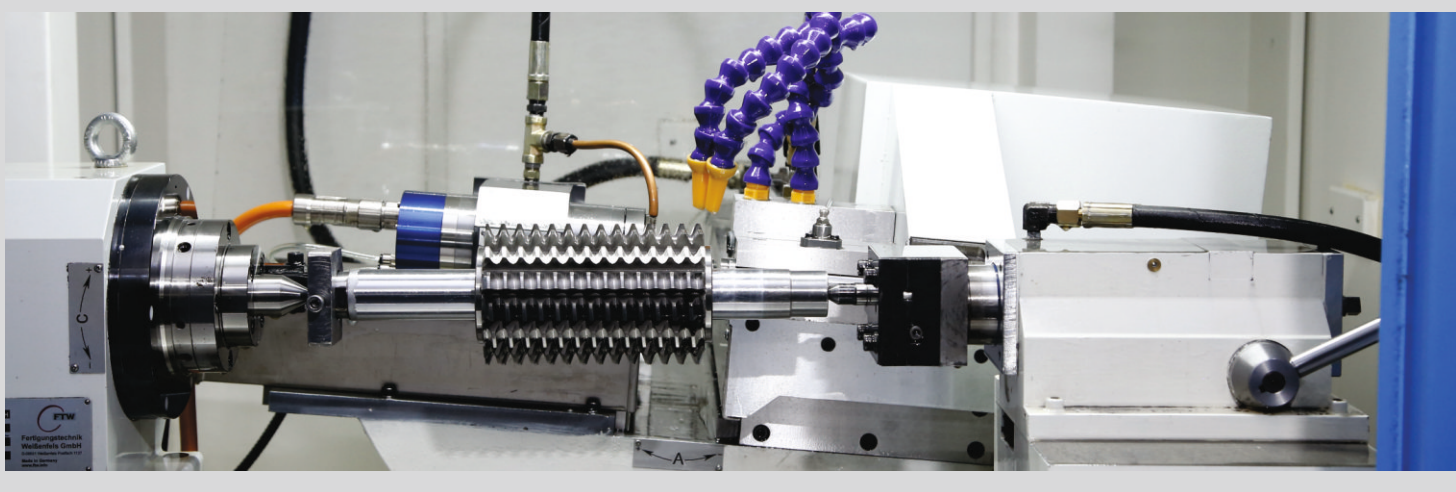
SPLINE PUNCHES



Blind Spline Tools are used in applications that do not allow Internal or External Broach to pass Through or Over a part. SHB manufacture Punches to produce Internal Splines for mass production by Cold Forging or Forming Process. The Punches can be manufactured and supplied to produce Spur as well as Helical Components. Size Range from 0.5 Module to 4 Module in Diameters 12mm to 200mm. The Punches are manufactured and supplied in Ground Form duly inspected on Klingelnberg P26 or P40 CNC Machines in different HSS Grade Materials of Customer's choice.

SOME OF OUR PRESTIGIOUS CLIENTS

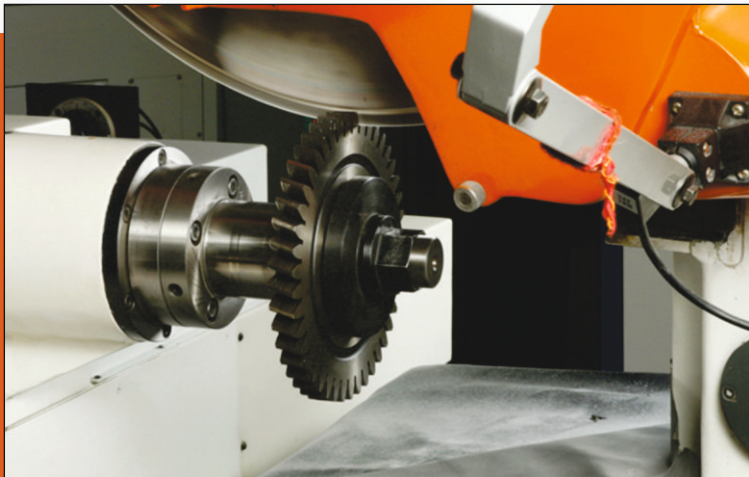
And Many more



SHB has installed Latest and State of the Art CNC Machines for Manufacturing as well as for Inspection.

With the installation of these CNC Machines SHB can offer its Customers the Tools to their exacting requirements comparable to the best.

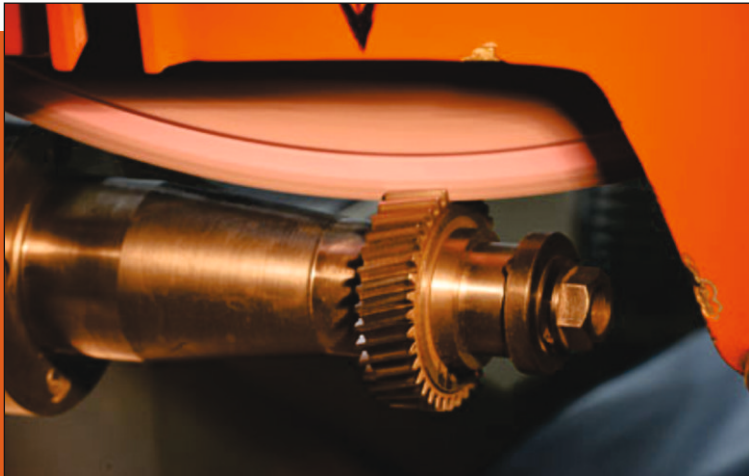
RESHARPENING OF GEAR SHAVING CUTTERS



SHB offers services for Re-sharpening of all types of Indigenous as well as Imported Gear Shaving Cutters on state of the art **CNC GEAR SHAVING CUTTER GRINDING MACHINE**.

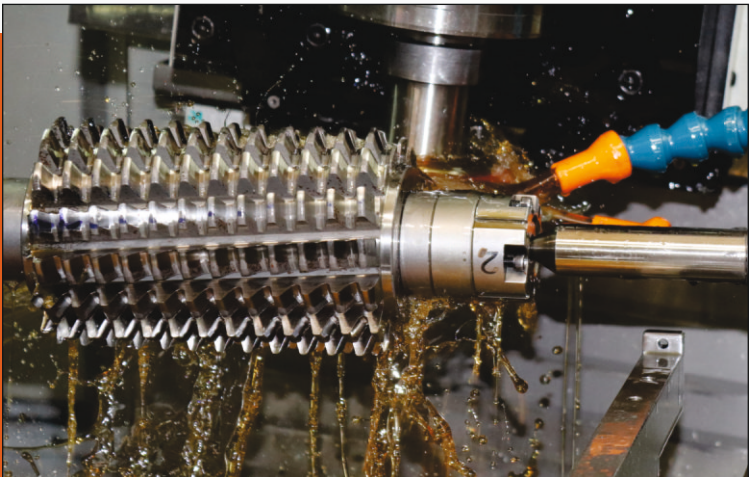
Standard Involute, Tip Relief, Profile & Lead Crowning, "K" Profile & Special Profiles as per requirements of the customer can be provided. Lead and Profile Graphs for inspection carried out on Klingelnberg P40 or P26 CNC Tester can be provided with every individual tool.

MASTER GEARS REPROFILING



Master Gears become unusable after continuous use. These tools can be re-used after correction of Profile and other parameters and become as good as new. **SHB** can Re-profile customer's Master Gears on State of the Art CNC Profile Grinding Machine in shortest possible time. Profile Correction can be done as per customer's requirements. Lead and Profile Graphs for inspection carried out on Klingelnberg P26 or P40 CNC Tester can be provided with every individual tool.

RESHARPENING & REPROFILING OF GEAR HOBS



The performance of Hob is very much affected by the type of Resharpener carried out. If a Hob is resharpened under incorrect working condition, it may at times result in tooth breakage. So for Hobs to perform better, **SHB** offer highly accurate and precise Re-sharpening of Hobs on State of the Art CNC Hob Sharpening Machine which can sharpen Hobs upto "AAA" class. The Re-profiling of Gear Hob is an important opportunity for the user in terms of cost. This process consists of removing totally wear on the tool flanks through adjustment of the profile in order to increase the useful length of its cutting edge. **SHB** offers its customers Re-sharpening and Re-Profiling of Hobs at a very Nominal Cost and Minimum Lead Time.

RECONDITIONING & RESHARPENING OF BROACHES



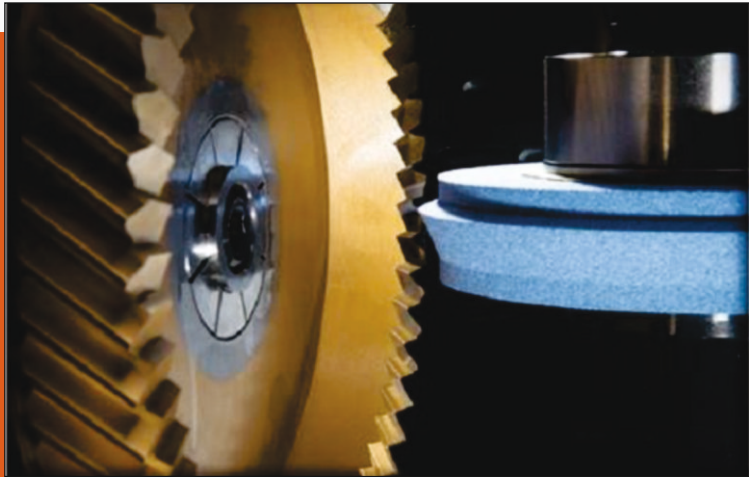
Broaches, regardless of type should never be used when dull. The use of Dull Broach may cause drifting, breakage and damage to the teeth. Correct and timely Re-Sharpener of the broach will increase broach life as well as quality of parts. The necessity to sharpen a Broach is dependent on various factors like Material, Tolerance and the finish required etc. **A number of conditions indicate the need for sharpening.**

1. Poor Finish, tears, galling etc. on the work piece.
2. Cutting edges showing signs of rollover and teeth dull to touch.
3. When using a hydraulic press, the pressure gauge showing an increase in pressure required to complete the cut.

4. Nicks, gauges etc. in the teeth from improper handling.
5. Broach sticking in the work piece, pick-ups on tops of teeth.
6. Holes gauging undersize.

SHB take care of all the above steps during Re-Sharpener. Broaches received are given a complete and thorough evaluation to determine the proper maintenance necessary to restore the correct geometry which will maximize your tool's life. **Tool proofing is available if Sample parts are provided.**

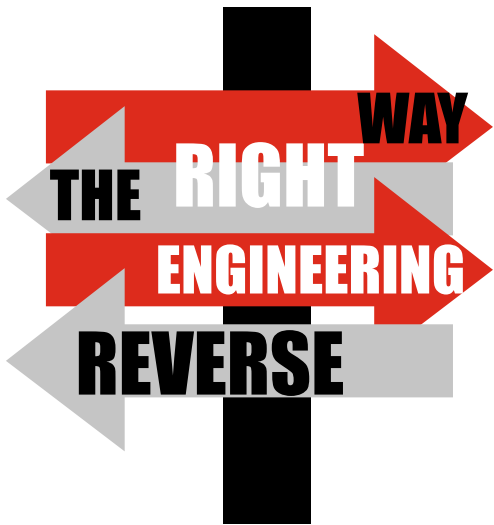
GEAR SHAPER CUTTERS/SKIVING CUTTERS
RE-SHARPENING



Cutter Sharpening is very important both during manufacturing and subsequently in Re-Sharpener after dulling. Not only does this process affect cutter “over cutting edge” quality and the quality of the part cut, but it can also affect the manner in which chip flow takes place on the cutter face if the surface finished is too rough or rippled.

SHB takes care of all the above steps during Re-Sharpener. Every individual Gear Shaper Cutter/Skiving Cutter received for Re-Sharpener is evaluated thoroughly and is sharpened carefully so as to maintain all the parameters of the tool.

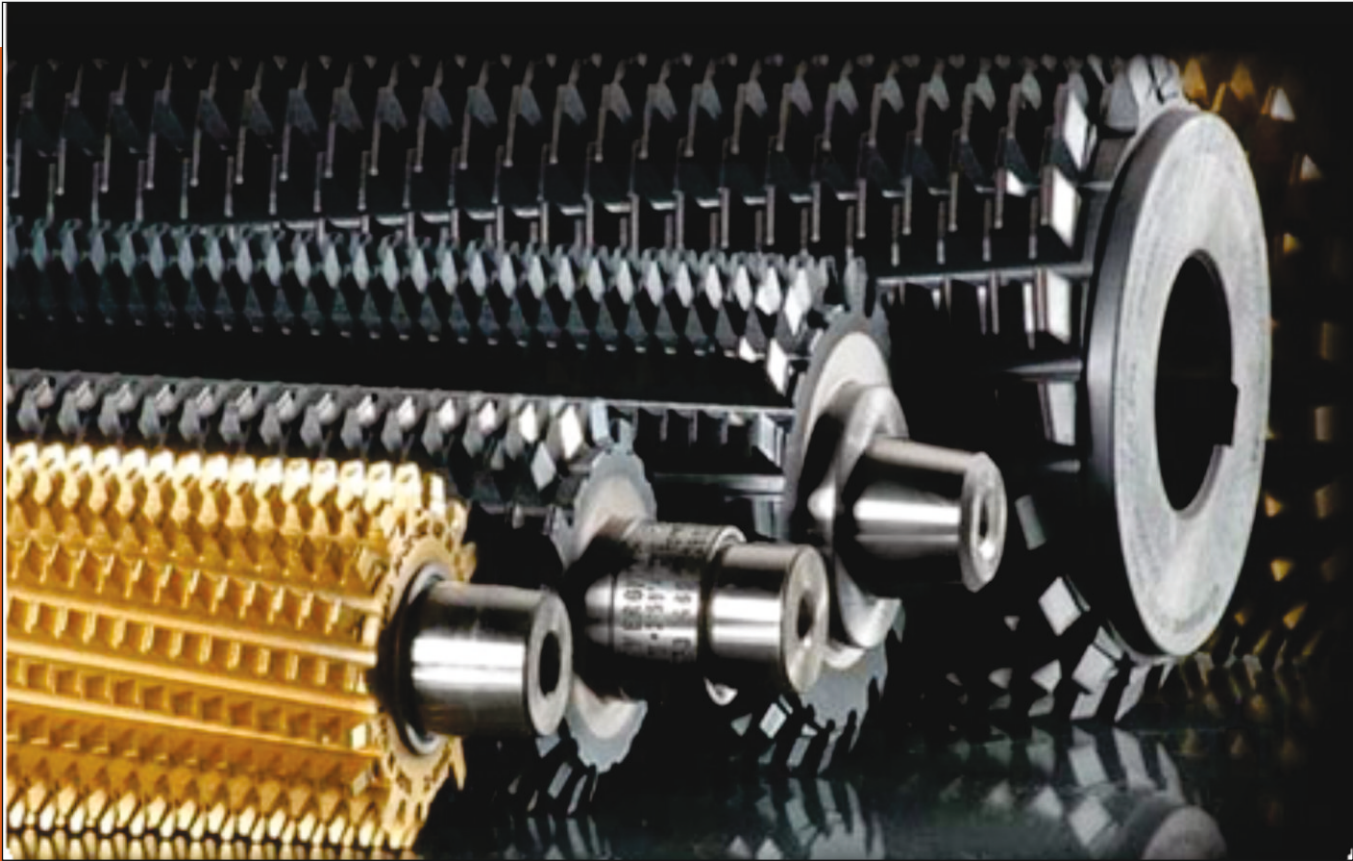
REVERSE ENGINEERING



Reverse Engineering- The deconstruction and analysis of an object for the purpose of constructing a copy or replacement of the original component when the original design or drawing is not available is especially helpful in making repairs or in improving old designs.

SHB provides its customers complete reverse engineering services for analysis of geared components for evaluation of Module, Pressure Angle, Helix angle and other related parameters to arrive at exact geometry of the component. Based on the above parameters suitable tool can be manufactured and supplied as per customers’ requirement.

PVD COATINGS



PVD coatings (Physical Vapour Deposition) are applied on Cutting Tools to extend the lifespan of the tools many times over. The choice of cutting tool coating is depends on the kind of cutting tool and its use. **SHB** offers following coating services:

- **TiN** • **TiCN** • **TiAlN (Futura)** • **AlCrN (Alcrona)**

BENEFITS OF SURFACE PVD COATINGS INCLUDE :

- Longer tool life - 300% to 1000% increases are typical compared to un-coated.
- Increased productivity - tools can be run at higher feeds and speeds.
- Uniform Thickness - will not alter critical dimensional tolerances of components or parts.
- Corrosion resistant - thermally and chemically stable.
- Smoother work piece surfaces - one half the co-efficient of friction of un-coated surfaces results in better surface finish in machining.
- Lower maintenance costs - the significant increase in tool life means fewer tool changes and less down time.
- More Re-grindings possible due to the wear land being significantly reduced on coated tools.