

Index Bevel Gear Hobbing Package

PRODUCES GEARS WITH TOOTH HEIGHT IN A MODULE RANGE OF 0.6 TO 4 MM

Index recently developed a “bevel gear hobbing” package, which consists of a control cycle and four Index cutter heads with module-dependent inserts. Equipped with these features, the Index R200 and Index R300 turn-mill centers become gear cutting machines on which spiral bevel gears can be produced from bar stock, with front and rear end machining, complete in one setup or as a pure two-spindle gear cutting machine.

By hobbing using a continuous indexing method — which corresponds to the Klingelnberg Cyclo-Paloid method — spiral bevel gears can be produced with constant tooth height in a module range of 0.6 to 4 mm.

Compared to the conventional process chain with classic gear cutting machines, users can achieve shorter cycle times and better geometry and position tolerances. And it is designed to be more flexible.

“The starting point of the development by Index lies in its own manufacturing governed by the principle: quality-determining components are made in-house,” said Dr. Volker Sellmeier, Index-Werke’s head of technology development. “When the tool holder production was reorganized several years ago, the decision was made to produce the required bevel gears ourselves.”

Due to their static, dynamic and thermal properties, the turn-mill centers of the Index R-series are suited to gear-cutting, provided they are equipped with the “bevel gear hobbing” technology package. The R machines’ axis configuration with two milling spindles on Y-B-axes running in hydrostatic bearings makes it possible to machine on the main and counter spindle simultaneously in five axes.

The turn-mills’ ability to complete gear-part machining on the front and rear ends simultaneously is meant to shorten total cycle times and lower cost per piece.

“When we machine typical bevel gears with module 1.15 mm and approximately 25 teeth for our tool holders completely from bar stock, we achieve a cycle time of less than 3 minutes,” Sellmeier said. “The share of gear cutting amounts to about 30 seconds.”

In a classical gear process chain, the workpiece has to be set up on several individual machines for turning, drilling, and milling, gear cutting and deburring. Index’s approach is to run all operations on the turn-mill center. Bevel gears are turned, drilled, milled and finally cut on a single machine. Even brushes for deburring can be set up. The soft machining process is thus completely autonomous, according to Index with a process-reliable gear quality of IT5 (according to DIN 3965). This is then followed by hardening. A final finishing process is usually required only for the mounting distance and the polygonal shaft/hub connection.



In addition to bar stock machining, which is best primarily for small quantities, for series production the R machine can be used as a pure gear cutting machine, working on the main and counter spindles simultaneously.

“This requires the use of an automated workpiece-loading and unloading system that loads the blanks and removes the finished parts gently,” Sellmeier said. “We offer a quadruple gripper with two stations on the main and counter spindle that picks up the finished parts, rotates and then loads new blanks. This way we use the machine as a kind of double-spindle machine, cutting the time per piece in half.”

Two cutter heads are required per bevel gear. They differ slightly in their cutting circle radius in order to produce the longitudinal crowning. Index offers the cutter heads in four different sizes that can be fitted with up to six carbide inserts and feature internal cooling.

In contrast to the typical Cyclo-Paloid method with an interlocking cutter head, the Index method uses two separate cutter heads per bevel gear.

“The two cutter heads provide a larger number of cutting edges. This allows us to achieve a higher cutting performance,” Sellmeier said. “We also have more freedom for flank modifications and correction of the contact pattern.”

Index also offers a control cycle they have developed. The user enters the same parameters as on a conventional gear cutting machine. These include, for example, machine distance, eccentricity and auxiliary angle. The cycle translates these values into the movements of each axis so that at the end the same relative movements are effected as on a conventional gear cutting machine.

For more information:

Index Corporation
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www.indextraub.com

Bonfiglioli 300 Series Planetary Gearboxes

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Bonfiglioli's 300 Series is designed for harsh applications where shock loadings and impacts are common.

Bonfiglioli's ongoing mission to improve its planetary gearboxes for industrial applications has led to two new features that result in an easier and safer assembling/disassembling of the drive to/from the application. The new FDK and FZP versions feature an output hollow shaft that will make the series more effective and suitable for shaft mount assembly.

The hollow shaft solutions reduce the time and effort for the disassembling of the drive from the customer's machine shaft, due to the new solution with the axial locking ring. The new product solutions make mounting and commissioning easier and faster thanks to the smarter design and allow for easier and more accurate screw tightening.

The cutting-edge design of the shrink disk will improve and speed up setup and commissioning. The hollow shaft with the two keys at 120° will allow full-rated torque and max-torque transmissions. The axial locking ring with threaded holes completes the solution for an easier and more reliable shaft mounting. The keyed hollow shaft is available in smaller sizes, ranging from 300 to 310 and will be included in the designation of the series with the acronym FDK; when the FZP version is available it will come in larger sizes from 311 to 325.

Another design component of the new 300 series is the splined hollow shaft which meets the DIN 5480 standard and offers the same bearings available in the current FP version. It provides double centering for an aligned assembling of the solid shaft of the machine. Like the keyed hollow shaft, the splined hollow shaft also includes an axial locking key with threaded holes for easier mounting and grants full rated and max torque transmissions.

The new shrink disks prevent accidental mounting errors (even when dismounting and re-mounting the shrink disk) due to simpler design and visual-control of screw tightening torque. This design makes the 300 series now complete and effective for any shaft mounted requirements for all sizes and ratios. The series has a torque range of 1,000-1,287,000 Nm and gear ratios of 3.4-5,234.

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Schunk Tendo Platinum Toolholder

BALANCED TO G2.5 AT 25,000 RPM

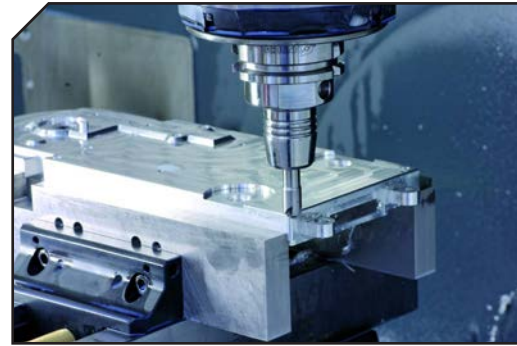
Schunk recently introduced the new Tendo Platinum toolholder. Tendo Platinum offers improved brazing technology by using a brazing and hardening process all in the same cycle.

The Tendo Platinum is balanced to G2.5 at 25,000 RPM. With improved vibration dampening and precise runout accuracy of less than 0.003 mm (0.0001")

at 2.5× clamping diameter, the Tendo Platinum works in configuration with the machine spindle and the cutting tool, to reduce wear and damage.

Schunk offers three lengths with two precision ground taper sized: CAT40—2.5", 4", 6" / CAT50—81 mm, 4", 6".

Schunk also offer direct clamping in



both metric and inch sizes to assure improved accuracy and vibration dampening.

For more information:

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www.schunk.com





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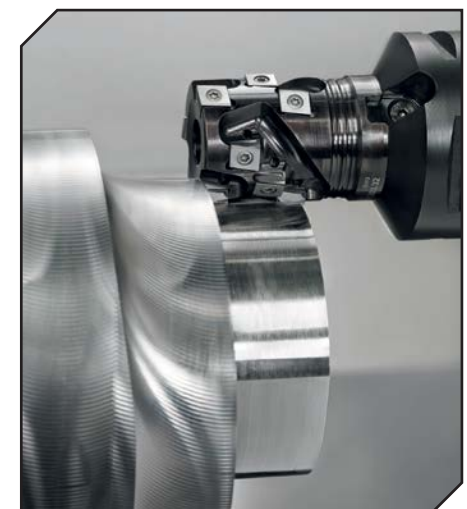



Hall 14 Booth #L36

Walter Blaxx F5038 Helical Mill

FEATURES TANGENTIAL, QUADRUPLE EDGE SYSTEM

The new Walter Blaxx F5038 helical milling cutter features the improved stability, including face and shoulder milling cutters. Stability is particularly important for helical cutters, and the Walter Blaxx F5038's provides a solid and stable body. In conjunction with the tangential, quadruple edge system of indexable inserts made of Tigertec





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Silver, users of the new Walter Blaxx F5038 helical milling tool achieve top values in process reliability and cost efficiency. In comparison to conventional tool solutions of this type, machining times have been reduced by up to 30%. The accurately arranged, precision indexable inserts produce step-free shoulders.

For more information:

Walter USA, LLC
 Phone: (800) 945-5554
www.walter-tools.com

Cimcool Cimperial 861 Metalworking Fluid

INCREASES TOOL LIFE AND PROVIDES SUPERIOR LUBRICITY

Cimcool recently announced the release of Cimperial 861 with InSol technology, a hybrid lubricity, semi-synthetic metalworking fluid, which recently received approval under Boeing BAC5008 RevU.

Cimperial 861 with InSol technology

is designed for heavy-duty machining of non-ferrous and ferrous metals including 6,000 and 7,000 series aluminum, stainless steels, titanium and other exotic alloys. It can also be used for grinding and is formulated to deliver extended sump life. The product is designed to increase tool life and provide superior lubricity while remaining low foaming for today's demanding high-pressure applications. In addition, Cimperial 861 with InSol technology has low chemical odor and is mild to the skin.



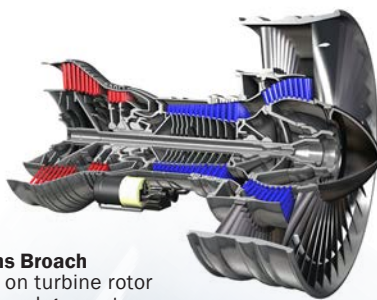
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“Cimcool Fluid Technology has developed a hybrid semi-synthetic to maximize tool life without the compromising part quality on aerospace alloys,” Aerospace Product Manager Kyle Walker said. “The benefit will be one fluid that handles machining needs by delivering superior cooling and lubricity directly to the point of cut. Cimperial 861 with InSol technology is a great example of how we support customers in the aerospace industry using technology approved by Boeing. The hybrid combination of InSol Technology in a semi-synthetic metalworking fluid delivers superior performance when compared to other semi-synthetic or micro-soluble technology.”

By design, Cimperial 861 with InSol technology is stain resistant when tested on 6,000 and 7,000 series aluminum, titanium and stainless steels alloys.

For more information:

Cimcool Fluid Technology
 Phone: (888) 246-2665
www.cimcool.com

Dayton DayLube Grease

DESIGNED TO MAINTAIN VISCOSITY AFTER 100,000 STROKES

Dayton Lamina recently introduced their DayLube high-performance nano-ceramic grease. The grease is designed to maintain its original viscosity and adhesion after 100,000 production strokes. Nano-ceramic particles act as sub-microscopic ball bearings to provide continuous lubrication to steel surfaces.

DayLube is designed to have a lower coefficient of friction at all temperatures than traditional PTFE greases and to be chemically inert. DayLube is meant for industrial applications such as the protection of bearings, bushings cables, cams, chains, conveyors, gears, lifters, machine parts, robotics, slides, wear plates and more.

DayLube operates in temperature ranges from -40°F to 800°F, and the nano-ceramic particles remain intact up to 2500°F. It survived the ASTM E 4-ball weld test with no weld and minimal damage to all ball bearings.

DayLube has high load-bearing properties, a low dielectric constant, does not contain metal or silicone and is resistant to steam, acids, and most chemical products.

“Customers using DayLube report significantly longer service life — up to 10-times longer — than traditional PTFE lubricants” said Dayton Progress Marketing Communications Manager Brian Marsh. “Even when compared to nanotechnology products, DayLube has a lower cost per ounce. When considering all factors there is not a better lubricating value than DayLube.”

DayLube is available in 16-ounce tubes and 16-ounce jars, as well as 1-gallon and 5-gallon pails. DayLube is marketed mainly towards the aerospace, agricultural, automotive, can makers, consumer goods, food and beverage processing, general manufacturing, marine, material handling, medical/scientific, military/national defense, pharmaceutical, stamping & fabricating, and truck and bus industries.

For more information:
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Mitutoyo Legex 4 CNC Machine

PROVIDES HIGH-ACCURACY MEASUREMENTS

Mitutoyo America Corporation recently released the latest Legex CNC coordinate measuring machine (CMM). The Legex 4 delivers accuracy in length measurement of $E0, MPE = (0.28 + L/1000) \mu\text{m}$.

With the advancement of scientific and industrial technologies and driving demand for improvements in high-accuracy manufacturing, Mitutoyo Legex produces applications such as ultra-precise molds, components and aspherical lenses in the automotive, aviation and medical instrument industries, and calibration of master gages for research institutes. To meet these needs, Mitutoyo started from the elemental technology level and worked upward, with the aim of eliminating all possible sources of measurement error.

Key features include: sources of static and dynamic error minimized to realize measurement accuracy of $0.28 \mu\text{m}$; fixed-bridge structure with moving table; base is made from spheroidal graphite (ductile) cast iron in a sealed-structure design to provide high rigidity

and



vibration-attenuating characteristics; high-rigidity structure and feed mechanisms increase accuracy and improve cycle times; thermally symmetric structure features full covers around the main body to reduce possible impact in ambient temperature changes; vibration-dampening unit is standard; an air server stabilizes the air temperature to $20^{\circ}\text{C} \pm 0.1^{\circ}\text{C}$.

For more information:
Mitutoyo America Corporation
Phone: (888) 6488-9696
www.mitutoyo.com

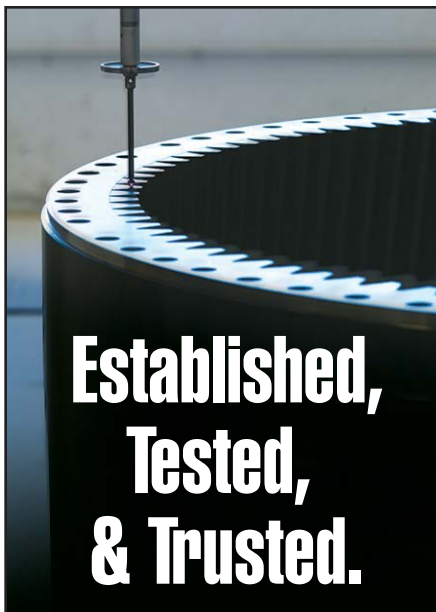
Mahr MarShaft Scope 250

MEASURES PARTS UPTO 250 MM IN LENGTH

Mahr Federal recently introduced a new addition to its growing family of optical shaft measurement systems. The MarShaft Scope 250 plus features an accurate matrix camera with four million pixels. The system measures parts up to 250 mm in length and 40 mm in diameter. It features an MPE (Maximum Permissible Error) of less than 1.5 microns + L/40 when measuring diameter and 3 microns + L/125 when measuring length.

"The MarShaft Scope 250 plus is a very compact, attractively designed system that provides out-of-the-box functionality," said Patrick N. Nugent, vice

president of metrology systems for Mahr Federal. "It is extremely easy to use, and very fast. In our lab here in Providence,



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we measured 28 features on a sample shaft in less than ten seconds, and a customer part with only seven required features in less than three seconds.”

One key to the system’s speed is the high-resolution CMOS matrix camera with a live image field of view of 40 x 24 mm, enabling it to capture an entire part diameter in a single view. With Z-axis positioning speeds of up to 200 mm/second and an image acquisition rate of over 120 images per second, measurements are performed faster than the blink of an eye. Zoom func-

tions allow measurement of the smallest details such as chamfers and radii, which can be difficult and in some cases even impossible to test, with conventional measuring methods.

MarShaft Scope 250 plus can be operated entirely on the integrated touch screen, or via a keyboard and mouse if desired. MarWin-based EasyShaft software enables the precision measurement of diameters, lengths, contour features, and form and position tolerances in accordance with standards, and offers many new evaluation and documen-

tation options. EasyShaft runs on the Windows operating system and is compatible with other Windows applications and printers.

For more information:

Mahr Federal, Inc.
Phone: (401) 784-3100
www.mahr.com

Dillon 1018 CR Steel Full Grip Jaws

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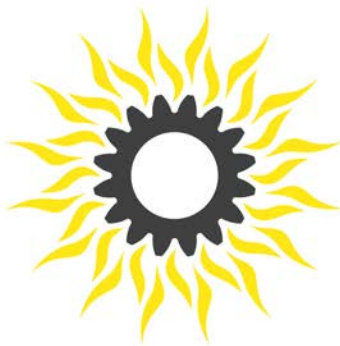
Dillon Manufacturing recently introduced full grip jaws made of 1018 CR steel from 6" to 15" in diameter, with heights of 2", 4" and 6". These heat treatable and weldable steel jaws allow for complete gripping of the work piece - to maintain repetitive accuracy. This type of jaw reduces distortion and provides more friction for drives during turning operations.



With close tolerances and concentricity maintained, they are meant for applications such as valves, cylinders, specialty wheels and gears, housings and enclosures, adaptors and connectors, aluminum and steel shells, flanges, retainer rings, and other thin-walled parts such as automotive smog control air pump rotors, gas turbine parts, thin-wall tubing and cylinder liners for diesel engines and more.

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The Sinumerik blackline panels OP 015 black and OP 019 black are a new generation of operator panels for the Sinumerik 840D sl CNC system and offer new options for machine operation. The inductive sensor technology enables rapid interaction with the user interface even when the operator is wearing gloves. Similarly, it prevents incorrect entries, for example caused by the heel of the operator's hand.

The 19-inch display of the OP 019 black can show all the entries made in widescreen format at a glance. The OP 015 black also features an alphanumeric keypad on the right that can be operated via touch control. This feature means that the 15-inch display is not restricted by the superimposed keypad during data entry, which ensures clear and efficient operation. Both blackline panels also have an integrated glass panel on the front side and are designed with IP65 (OP 019 black) and IP66 (OP 015 black) degrees of protection. They are resistant to liquids and dust and can be operated even under harsh industrial conditions. An integrated key lock helps safeguard against operating errors. The operator panel can provide a basic machine display, with three or four channels showing up to 13 axes.

The blackline panels also feature durable LED background lighting, providing 40 percent energy-savings compared to conventional neon lamps.

In combination with the Sinumerik 840D sl control, for use on high-end milling, turning, grinding and laser cutting machine tools, the blackline panels can be used as an operating and programming station for aerospace composite machining, power generation and medical part manufacturing, in addition to tool- and mold-making, rotary indexing machines and in shopfloor manufacturing.

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Birchwood Cold Presto Black Process

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Birchwood Technologies now offers three mini systems for use in small batch metal finishing at low temperatures. Mini systems are designed for manufacturers looking to add in house capabilities but do not have the necessary volume or space for a full sized process line. Birchwood Technologies offers these blackening solutions for the Presto Black and TruTemp processes for iron and steel parts, and the Lumiclad process for aluminum parts.

The cold Presto Black process forms a non-dimensional coating thickness of less than 0.5 micron thickness and is designed for components that require a black finish for visual appeal. Presto Black is a short fifteen-minute process that provides high corrosion resistance and is tested for up to 800 hours humidity exposure when sealed with appropriate rust preventive. The Presto Black process offers a friable crystal structure that serves as a sacrificial barrier on sliding surfaces to protect the underlying steel itself from galling and deformation.

The low temperature TruTemp process forms a durable satin black magnetite coating, 0.5 micron thick, with no effect on material hardness or tensile strength. The sealed finish withstands up to 100 hours of neutral salt spray or several hundred hours of humidity, and protects the metal surface during ship-

ment & storage as well as in service. TruTemp black oxide operates effectively with alkaline chemistry that does not embrittle metal or create unsightly salt bloom in and around recessed part areas.

The Lumiclad process forms a non-dimensional black oxide finish on all aluminum surfaces that is durable, clean and tightly adherent to the metal substrate. The Lumiclad process develops a uniform coating thickness of 1.5 microns that will not close down hole diameters or change critical part dimensions. The smooth black finish has a slightly porous crystal structure that absorbs an optional topcoat such as a dry-to-touch sealant, light oil, or clear polymer.

All three processes utilize a conventional seven-tank immersion process line, and operate at low or room temperature, making the processes easy and safe to operate in-house. Mini systems are designed for short run sporadic production because the lines can be sealed and stored, with the chemicals in the buckets, for six to twelve months.

For more information:

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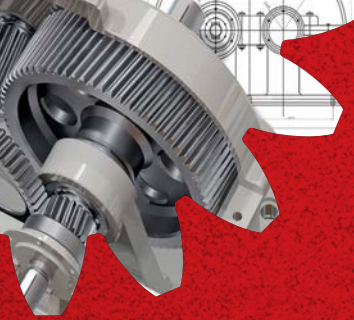
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TDM Global Line Software

TAILORED TO INTERNATIONAL MANUFACTURERS WITH GLOBAL PRODUCTION SITES



TDM Systems recently launched its new software module, TDM Global Line. TDM Global Line is tailored to international manufacturers with global production sites. With new software architecture and data compression, all of the centrally defined tool data and graphics are available at each production facility with the click of a mouse. Customers of TDM Systems can expand their central

quick results that can be listed by item, tool assembly and tool list. The customer can also individually configure their information view on the screen using widgets, depending on their own requirements. A completely new and modern software design has been developed for TDM Global Line.

With the new software module, customers can manage user rights and man-

application to other plants. TDM Global Line is compatible with the existing TDM database applications.

In addition to performance, TDM Systems placed an emphasis on user-friendly handling. For example, the Google-like tool search provides

dates in one central location. When entering data, concurrent data validation also recognizes incorrect entries and forgotten mandatory fields. TDM customers can also use the initial booking functions that are already included in the first module 1.0. This allows the tool usage to be recorded in the connected plants.

For more information:
Phone: (847) 605-1269
www.tdmisystems.com

Mitutoyo MeasurLink 8.0

RE-INTRODUCES THE GAGE MANAGEMENT MODULE

Mitutoyo America Corporation recently announced the latest version of *MeasurLink* software with a variety of functional improvements. *MeasurLink* 8.0 builds on the previous version, allowing an operator to collect data from most measuring instruments and analyze, monitor and manage the results in real-time.

The latest version of the data management software reintroduces the gage management module, along with support for managing multiple measurement specifications. The gage management module assists users in developing, maintaining, organizing and managing information about the gages, including service intervals, GR&R dates, recall dates and general gage event history.

MeasurLink is available with floating/concurrent license options for multi-seat packages. This is an option to include more users without purchasing additional seats. Upgrades can be integrated during installation or added to an existing installation.

For more information:
Mitutoyo America Corporation
Phone: (630) 820-9666
www.mitutoyo.com



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Our machines run through tests, are supplied with certificates and to be seen under power

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- **CNC SKODA**, 1990/2007, spindle 250 mm, X/Y/Z/W=7000/6100/2000/1600 mm, Z+W=3600 mm, latest CNC
- **CNC TITAN**, 1984/2010, spindle 200 mm, X/Y/Z/W=9000/4000/1200/800 mm, Z+W=2000 mm, latest CNC
- **UNION**, 1984/2011, spindle 110 mm, table type, table 1600 x 1400 mm, latest DRO



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And also gear hobbors, shapers + other machine tools

GEAR MACHINES

- **CNC REISHAUER RZ 400**, 2002, in state-of-the art, gear grinder gear-Ø/module 400/8 mm
- **CNC REISHAUER RZ 150**, 2004, in state-of-the-art, gear grinder gear-Ø/module 150/3 mm
- **CNC REISHAUER RZ 362**, 2000, tested + certified, gear grinder gear-Ø/module 360/7 mm
- **CNC SAMPUTENSILI S100**, 2004 gear-Ø 100mm, module 3, gear hobber



Picture out of catalogue

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