

NUM

information

JOURNAL FOR CNC-TOTAL SOLUTIONS

No 49 - October 2009



- 02 Words from our CEO
- 03 Soutec: experience and courage with NUM
- 04 Witech's partnership with NUM is crucial
- 06 CNC kernel controls 16 axes including dual cutting heads
- 08 NUM at EMO - NUM at CIMT - NUM Event Calender
- 10 Miller: innovative new range of twist drills with CNC simulation
- 12 NUM Solution for migrating 3D movements
- 15 NUM: new Cooperation with HCTY - renewed Cooperation with IMA



Words from our CEO

Dear readers

"The only constant is change". Today this quote is ascribed to the Greek philosopher Heraclitus of Ephesus (c. 540 - 480 B.C.). He was convinced that everything is constantly in flux. The situation in which the overall market economy finds itself today gives a new emphasis to the validity of this conviction.

Within just a few months, the economic situation has dramatically worsened. If you believe the prognoses, then the economic outlook for 2010 appears similarly muted. At the moment, only a few really believe in a rapid economic recovery.

Both highs and lows are a part of our economic system. Companies are well advised to recognise the chances the crisis also offers. Such an abrupt change to the general economic situation can also provide thought-provoking impulses, which in economically better and calmer times would not have stood a chance. What can be done to overcome the crisis? First and

foremost, stay calm - difficult situations require strong nerves and well-considered and consistent actions.

Since the increasingly difficult times began, we have taken action and steadily and cautiously adapted to the situation (management of cash, stock, investment and human

resources, etc.). This allows the company's substance to be retained and it provides us with a basis for the further expansion of our activities. NUM offers its customers a comprehensive portfolio for the automation of machines. In order to do justice to our motto "NUM - CNC - solutions help machine manufacturers to competitive advantage", we deliver complete solutions for the automation of CNC-controlled machines, which demands wide ranging knowledge from us in a wide variety of disciplines. As the

employees at NUM are well aware, our partners' success is also our own success. In the last years, decisive market advantages could be gained for many machine users and manufacturers, which was often attributed to the

"The only constant is change"

Citation: Heraklit of Ephesus (approx. 540 - 480 B.C.)

close partnership between the machine manufacturers and ourselves, in combination with our knowledge-intensive CNC total solution strategy. We will continue to pursue this strategy in future, as well as intensifying it.

From my point of view, this economic crisis offers a number of opportunities to consolidate NUM as a supplier of CNC total solutions even further.

From the 5th - 10th October 2009 we will, in turn, be presenting a number of innovations at the EMO in Milan, at a stand with the exact same size as in 2007. You can find further details on pages 8/9 of this NUM information.

CNC-controlled machines are our greatest passion and because we think for the long term, both today and in the years to come we will remain an attractive and reliable partner for our current and our future customers.

Imprint

Publisher NUM AG
Battenhusstrasse 16
CH-9053 Teufen
Phone +41 71 335 04 11
Fax +41 71 333 35 87
sales.ch@num.com
www.num.com

Editor & Layout Marco Martinaglia

NUM information is published approximately twice a year in English, German, French, Italian and Chinese.

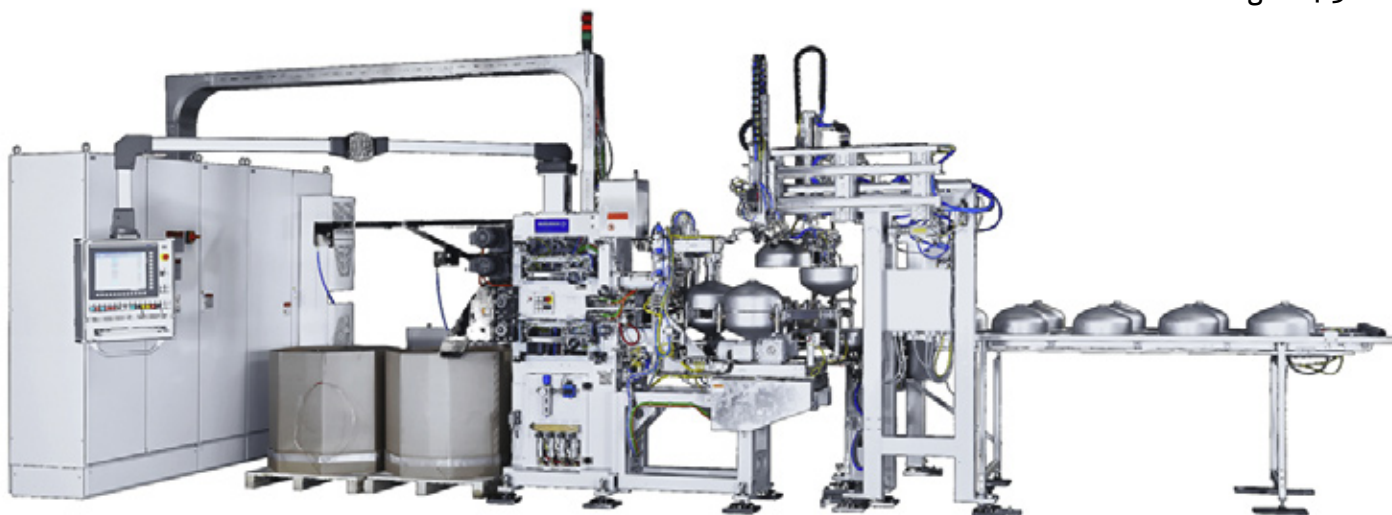
© Copyright by NUM AG

Reuse allowed with reference only, specimen copy welcome.

© Copyright Coverpicture: Dennis Savini

Peter von Rüti

President & CEO NUM Group



50 years of experience and the courage to further strengthen the company

Based on many years of experience in resistance welding, Soutec AG from Neftenbach near Winterthur is equipping the first fully automatic welding plant for disposable drinks containers with a NUM control system.

Following an order from a leading producer of kegs, Soutec is manufacturing the world's first fully automatic welding system for disposable containers, which will feature a NUM control system.

For the first time in the history of drinks packaging, it has been possible to make disposable packaging which is both ecologically and economically superior to conventional re-usable packaging. The costs for returning, cleaning, repairs and logistics incurred by the reusable kegs are significantly higher than those for the new disposable kegs, which can be recycled anywhere in the world.

To keep the containers as light as possible, the material is just 0.4 mm thick. This is sufficient to meet the safety standards related to bursting pressure. The form of the steel containers only becomes stable when the two halves are welded together, and the capacity of the kegs is 30 litres. One of the requirements for the production plant and therefore the NUM control system was that after the machine stops, in whichever position, they automatically resume operation without the intervention of the operating staff.

Two of the most important requirements for the production plant were overall manufacturing times, as well as safe handling of the upper and

lower halves of the container and reliable execution of the welding. Because of the thin walls and the resulting instability, this presented a great challenge for the plant and the NUM control system.

Soutec has been using NUM control and drive systems for many years in its machines and plants. The innovative company from Neftenbach has always broken new ground in the field of laser welding for complex components such as tailored blanks or pipes. Revolutionary concepts and ideas followed by professional implementation have ensured that the company is the world leader in some areas and thus guaranteed its future. It is an ideal partner for NUM.



Application



Witech's partnership with NUM is crucial in these fast-moving times

Witech has decided to pursue innovation in order to offer its premium customers ever more effective products.

The Swiss company Witech SA, founded in 1993 by Pierre Willemin, is responding to the growing demand for production machinery adapted to the special needs of its customers. Established in Bascourt in the heart of the Jura mountains, Witech SA has been making special precision machine tools for producing complex parts since 1994. Its production range includes machines for milling, turning and cutting, specially designed for specific requirements.

"There is no room for pessimism at Witech", says Mr. Lilian Meunier, the chief commercial officer. "We don't expect to be idle, but to expand our production in order to keep delays in delivery as short as possible. Our

new machines allow our customers the increased productivity that is required in this new international context. With this in mind and together with our partners, clients and suppliers, we have developed a new version of our 628 machining centre. As ever, the work done by the engineers at NUM matched the ambitions of the project. This version with a dual head and dual tool changer is an important advance in the precision engineering field. The multiple equipment and single locking mechanism open up new creative possibilities."

The technical performance and services of NUM are a bonus for the quality of machining, according to Mr. Meunier. "We want to stay among the

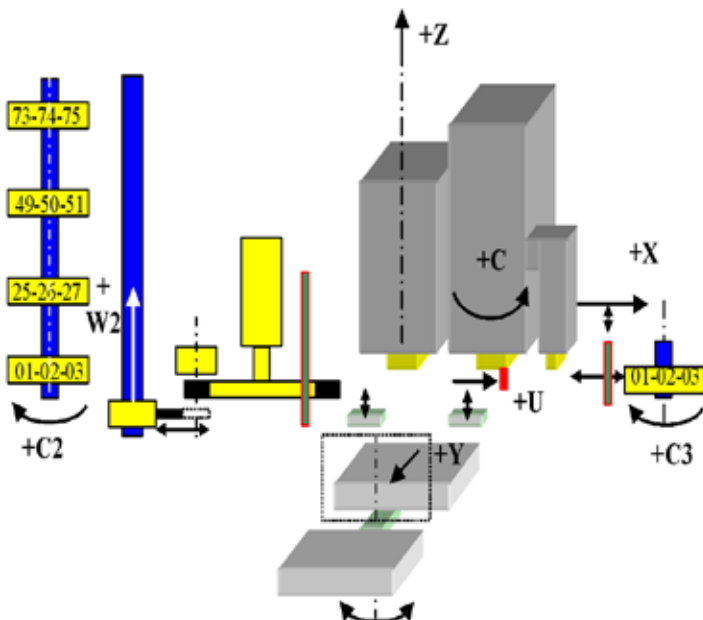


leaders, which is why we are working in a privileged partnership with NUM. This is one of the keys to our success."

Top: NUM Axiom Power CNC, NUM variators with STO safety system (Safe Torque Off)

Left: Synoptic diagramme of the machine

Right: Pierre Willemin presents his new 628 machining centre



NUMcoss – an additional component of NUM High Speed Cutting HSC functionality



NUMcoss is an additional component of High Speed Cutting (HSC) functionality in NUM CNCs (Flexium). It is integrated into Flexium HMI Panel software.

Introduction

NUM customers are familiar with helpful NCK-functionalities for HSC-application. Some of these excellent features are block lookahead, jerk limitation as well as axes specific parameter indication for speed, acceleration and jerk. This allows you to optimize the velocity profile of a given trajectory. Experiences in the mould and die market show us that a large part of CAM-systems create different qualities of part programs especially for 5 axis milling. Different axes participations, inconsistent distances of initial points and other geometric discontinuities create considerable problems for the NCK and ramp algorithm to obtain a fluent tool movement. To analyse and improve a given trajectory in a part program on HMI side before program execution, NUMcoss was developed for Flexium CNC system.

Technical background and targets

With NUMcoss, the customer will get an excellent tool to speed up program execution for milling applications. Prior to data transfer to NC-kernel, NUMcoss analyses, smoothes and converts path conditions in ISO-programs into polynomial data. Thus this conversion happens on Flexium HMI (PC-side) NC-kernel is not stressed and whole kernel performance is free for quick interpolation and the ramp algorithm. Main criteria in the geometric transformation of NUMcoss are modification tolerance and chord error for linear and rotary axes. That means in which dimension the given linear data (polygon path) can be modified during transition to polynomial data. Additional criteria are specific treatment of different segment lengths as well as correct filtering of spikes and geometric gaps. Targets are to compress part programs, to smooth geometry and to speedup program execution.

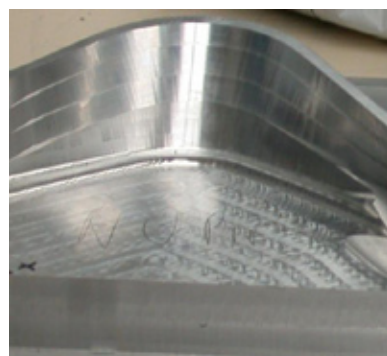
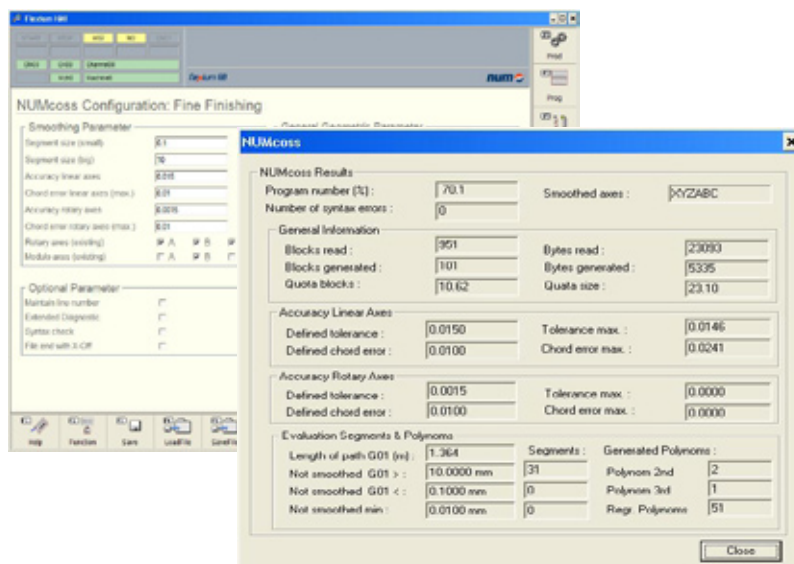
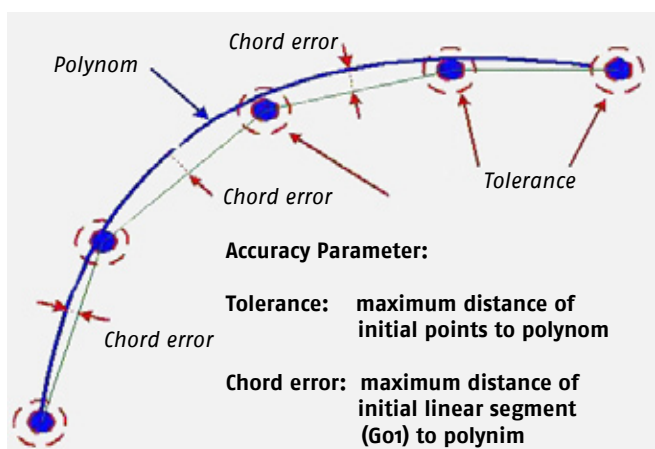
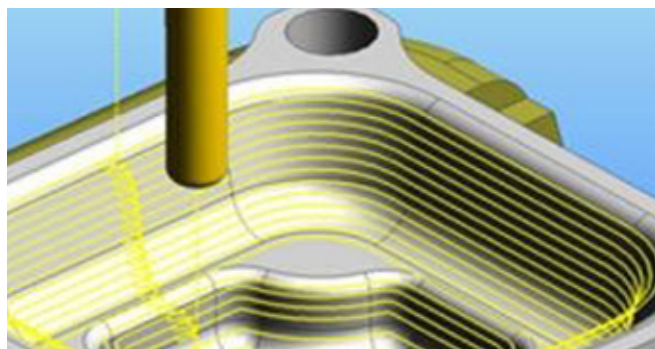
Smoothing configuration

NUMcoss provides a standard set of smoothing configuration parameters for the machine or application. These parameters can be changed in the ISO-program with specific commands. In addition to this, the user can define sets of smoothing parameters depending on the type of machining (roughing, finishing and fine finishing). NUMcoss is

an optional functionality for high speed application. It can be used for analysing and smoothing ISO-files either for standard ISO-File execution or drip feed mode (PPP-mode). In the second case, Flexium HMI provides an activation checkbox for NUMcoss, which creates an additional file attribute 'c' for compression.

User benefits

- With NUMcoss user benefits are:
- improved part quality (enhanced performance, less machine noise, reduced number of facets on work piece)
 - Higher execution velocity (less data transfer PC -> CNC, fast polynomial interpolation guaranteed smoother and faster axis movements)
 - Higher accuracy (predefined error given from CAM data generation) will be achieved
 - Better productivity (from 10 – 30 % less machining time)
 - Conversion result table



Progress



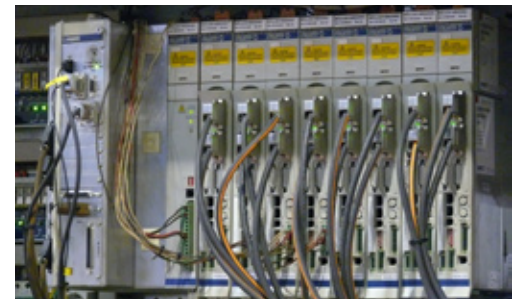
Powerful CNC platform provides economic solution for twin-head steel cutter

CNC kernel controls 16 axes including dual oxy-acetylene cutting heads - Oxyser has dramatically increased the throughput of its oxy-acetylene steel cutting machinery, and automated the process, by developing a new twin-head machine controlled by NUM's Axium CNC platform. In total, this powerful CNC kernel controls 16 motor axes to manage the motion of a gantry with two positioning heads - each fitted with mobile oxy-acetylene cutting torches.

The machine has just been commissioned at Grupo Ros Casares' plant in Aviles, Spain, where it is being used initially to produce steel plate sections required to construct wind turbine generator towers. The shaped plates are typically cut with bevelled edges so that they can be welded together easily on site

Believed to be the first of its kind, the machine introduces automatic programmed control of shape cutting in an application sector used to much simpler machines: traditionally, only three CNC-controlled axes are employed and the initial positioning of the oxy-acetylene tool for linear cuts is performed manually. The gantry

runs over very long worktables. This allows raw steel plate to be loaded on one side of the gantry while cutting operations are in progress on the other side. Combined with dual cutting heads - which may be used individually or simultaneously in a master-slave configuration - the new machine more than doubles throughput.



CNC kernel controls 16 axes including dual oxy-acetylene cutting heads



Oxyser developed the new-generation cutting machine to improve productivity for Grupo Ros Casares, a major supplier of structural steelwork in Spain and Europe who provide a broad range of steelwork processing services including complex shape cutting. Although the cutting capability of the machine's oxy-acetylene torch heads were conceived with the versatility needed to produce bevelled edges for the cladding of wind turbine structures, the machine will cut virtually any complex shape defined by a CAD program.

Oxyser specialise in producing plasma and oxy cutting machines, but up to now, they have typically produced smaller systems with up to five axes of control. This project marks the company's entry into the high-end cutting market. The key technical requirement to meet the demands of this application was a much more powerful CNC

16 Axes CNC

kernel. NUM provided a solution in the form of its Axium platform, which offered the computational power to control the 16 axes of motion required. NUM was also able to provide all of the ancillary automation components required for the application including drives, motors, I/O and HMI panel.

The machine is enormous. The parallel worktables – one for each tool head – are 26 metres long, and eight metres wide. The gantry supports two cutting tool heads, with one slave tool following the motion of the master tool. The 4.2 cm thick steel plates being cut for the current wind turbine application typically weigh around eight tonnes each, measure around 10 x 2 metres, and have bevelled edges. To meet the end user's production requirements, the machine currently operates for 16 hours a day. During this period it cuts up to 32 steel plates. The high degree of automation of the cutting process supported by Oxyser's machine means that just one operator is needed, both to run the machine and remove offcuts.

The 16 axes control the X-Y movement of the gantry, plus the vertical and rotational movement axes of the two cutting heads. Inside each cutting head, three acetylene torches are positioned in a line. The middle torch is fixed in position. The outer torches



Unai Gonzalez of Oxyser (left) and Juan-Luis Etxaniz of NUM

are provided with a further two axes of linear and rotational movement to provide the flexibility of positioning required for cutting complex shapes and bevel edges. The torches can be used singly or in combinations.

All of the axes are powered by servo motors designed by NUM exclusively for high performance CNC applications. NUM also helped Oxyser to develop a custom operator control panel for the machine, based on the company's standard NUMpass HMI. The program provides a simple means for the operator to enter the required cut

characteristics including speed, acceleration, angle of cut, and torch power. To help Oxyser develop the machine, NUM write a utility to provide the analog signals required to control the acetylene torches.

"NUM's controller proved a cost-effective platform for this project as all the axes can be managed from one CNC kernel, together with all of the I/O. The software environment simplified the CNC programming by making it easy to set up groups of axes to break down the complexity of this large machine," says Unai Gonzalez of Oxyser.





NUM at EMO 2009 – Hall 3, Stand-Nr. F05 CNC support that delivers competitive advantage

A large proportion of the machine tool industry is currently engaged in the creation of next-generation automation, and EMO 2009 is a key event for locating the right products, development tools and partners to support that effort. NUM's stand has been designed to highlight the unique CNC 'package' we offer to machinery OEMs:

- CNC kernels, drives, motors and HMIs
- high-level support for key machine tool market segments
- in depth engineering back-up

„20 minutes could change your business outlook“

With a track record of 45 years, NUM has built a unique position in the CNC business: hardware that is highly optimised for machine tool applications, powerful software tools and ready-to-use solutions, all backed by strong engineering support, and a partnership ethos where NUM works alongside the machine tool company and takes complete responsibility for the control system. "NUM's business is built on engineering flexibility: we help machinery clients to define

and build their control systems and create unique brand identities and differentiated products," says NUM's Jan Koch. "We almost invariably add value to a clients' machine building ideas – and we are asking EMO visitors to put that to the test: give us 20 minutes and we expect to give you control system ideas that could boost performance, differentiation in the market, and other attributes – even if that means that we have to adapt or customise our solutions."

This space is too small to mention everything on the stand but here are some highlights:

Innovative CNC platforms

NUM's latest Flexium CNC kernel offers remarkable control system scalability, plus an open user-programmable MMI. The modular platform has unprecedented scalability that can be applied economically on a machine with a few axes, or as many as 200+.

Turnkey hardware solutions

A complete range of system building blocks including an industrial PC front end with soft-PLC functionality, MMI panels, I/O modules, drives, and a broad choice of servo and spindle motors. Accuracy and fidelity of motion are central to the control loop, and are achieved by a number of unique measures.

High-level solutions

NUMROTO – the trendsetter in tool grinding

NUMtransfer – for in-line and rotary transfer and multi-spindle machines

NUMhsc –high speed and quality on 5-axis (or more) machines

NUMwood – powerful solutions for woodworking

NUMgear –for new or used gear manufacturing machines

NUMcut – tool head for sophisticated plasma, laser and waterjet cutting





CIMT 2009

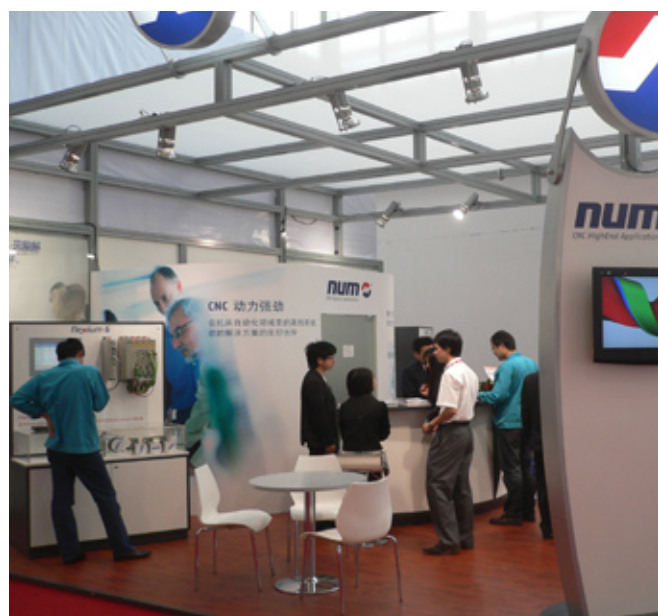
NUM group successful at CIMT 2009 in Beijing

The 11th China International Machine Tool Show took place in Beijing from 6th to 11th April 2009. The CIMT is the largest metalworking exhibition in China. NUM could be found in Hall W1, Stand E120, where it invited visitors with a bright and open stand, 52 m² large. NUM's innovative software for the tool-grinding industry, NUMROTO, was also present at the booth, alongside with the other established NUM systems.

Visitors were treated to a live demonstration, on two technical wall panels, of the two complete CNC systems, Flexium 6 and Flexium 68. The new axis motors from the BHX series round off the product range of NUM motors and are distinguished both by their

favourable price/performance ratio as well as their very compact dimensions. There were also some very interesting contacts and enquiries made regarding new products from the NUMROTO group. The large number of visitors and the great interest shown serve to underline that the Chinese market still offers numerous prospects for NUM. It gives the group new impetus to develop this market further.

The CIMT is one of the four most well-known machine tool exhibitions in the world. 1,100 exhibitors from more than 28 countries and regions of the world make it an important venue for presenting a company's latest achievements to the international public.



NUM Event Calendar



EMO

From 5th – 10th of October 2009 in Milano, Italy
Hall 3, Booth F05



EUROMOLD

From 2nd – 5th of December 2009 in Frankfurt am Main, Germany
Hall 8, Booth C38



GrindTEC

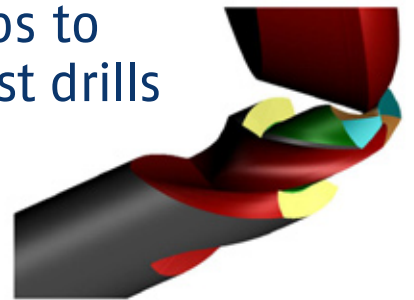
From 17th – 20th of March 2010 in Augsburg, Germany

Events



Advanced CNC simulation software helps to produce an innovative new range of twist drills

CNC multi-axis grinding machines using NUM's NUMROTOplus 3D simulation and control software are helping Miller Präzisionswerkzeuge GmbH to manufacture a new series of high-performance MAPAL-brand solid carbide twist drills. The new drill tools employ complex optimised profiles to accelerate cutting speeds.



The NUMROTOplus software allowed Miller Präzisionswerkzeuge to visualise and optimise the complex machining process required to produce the new drills in 3D, before putting the new drill range into volume production. "The NUMROTO features helped during the development of our latest MAPAL drill products, and we made extensive use of the advanced 3D

simulation capabilities of NUMROTOplus software, including its tool collision monitoring procedures, to optimise our manufacturing process," says Ulrich Krenzer, Technical Director of Miller Präzisionswerkzeuge. "We have used NUM's CNC software for a number of years, and are now in the processing of running it out across all our machines. By effectively stand-

ardising on this one package, with a consistent user interface, we will reduce our personnel training costs and help maximise productivity, while maintaining the product quality for which we are renowned."

To cope with demand, Miller Präzisionswerkzeuge recently doubled the size of its R&D and manufacturing operations at Altenstadt in Germany, culminating in the opening of a new 7000 m² production facility in November 2008. The facility contains more than 40 CNC grinding machines equipped with the NUMROTOplus software – which operate for three shifts per day, 365 days of the year – making it one of the most modern solid carbide tool and drill production plants in the world.

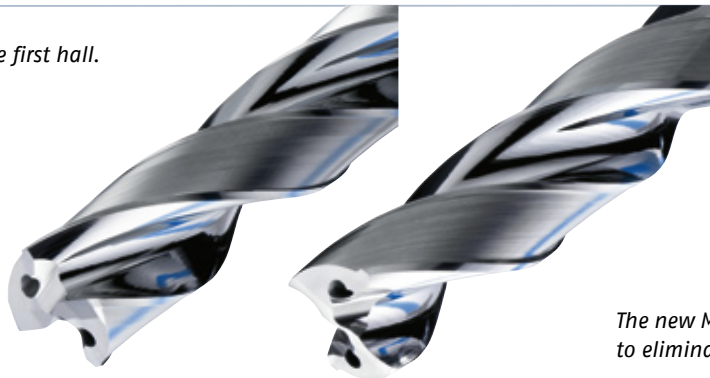
Ulrich Krenzer, Technical Director, Miller Präzisionswerkzeuge GmbH / MAPAL Group (left), and Walter Grob, head of sales NUMROTO, NUM AG Switzerland (right).



Precision

It is widely acknowledged that more than 30 percent of productive machine time is nowadays taken up by drilling operations. Typically, these include pilot drilling and pre-centring, drilling, reaming, counter-sinking, boring out, de-burring and thread cutting. By combining some of these operations in a single step, it is possible to decrease machining time significantly, but only if the drilling tools feature task-optimised profile geometries – factors such as chip removal, heat dissipation and tool stability are critical.

View into a part of the first hall.



numroto

The new MAPAL 'MEGA drill 180' uses a special tip profile to eliminate the need for counter-boring operations.

The new MAPAL 'Mega Speed Drill' is designed for high speed drilling of steel and iron. It features an asymmetric tip, with reinforced cutting edges.

The 3 margins are designed in such a way that the drill will slightly oversize the holes so the friction between the margin lands and the workpiece will be minimised. This geometry makes the drill relatively insensitive to high cutting edge temperatures and corner wear. The specific, polished flute geometry guarantees a free flow of chips.

The drill can be applied with a very high cutting speed of about 200 m/min when machining steel, enabling drilling times to be reduced by as much as 70 percent compared to conventional products. For example, when used to drill annealed 42CrMo4 under these high performance cut-

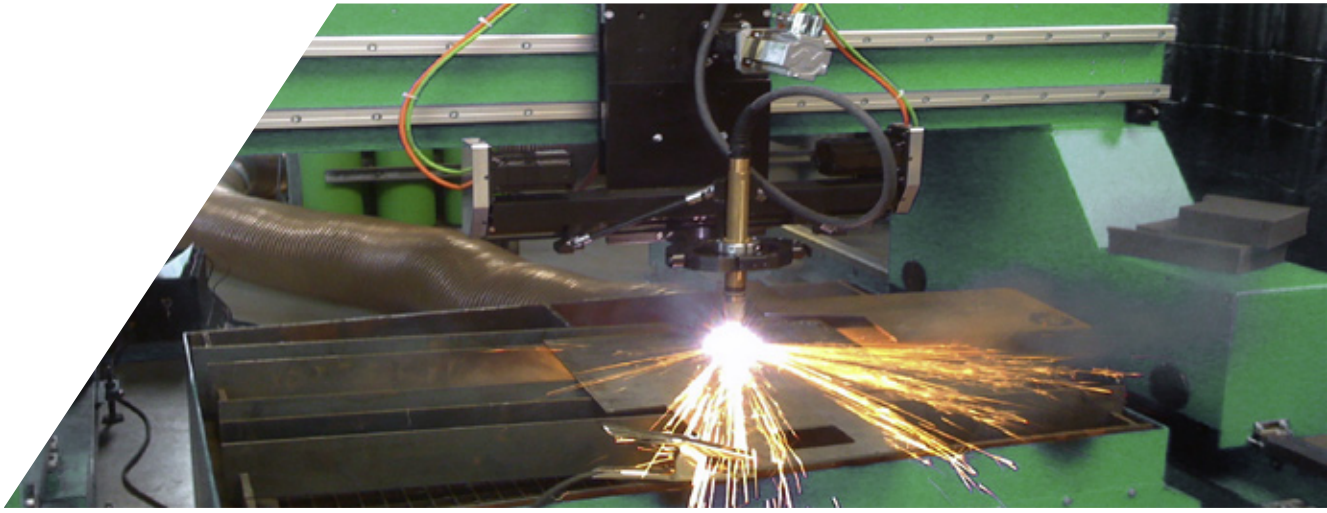
ting conditions, the tool has a typical lifetime of 60 to 70 m, reducing the production cost per bore by as much as 50 percent.

Miller Präzisionswerkzeuge has also just developed a twist drill which produces a bore with a flat 180 degree bottom. Normally, this would require two machining operations, one to drill the bore to the required depth and one to perform counter-boring. A special tip profile on the new 'Mega Drill 180' effectively combines the two operations in a single machine cycle. The drills are ground with an S-shaped point thinning, which delivers good chip control and a profiled concave flank to produce a flat bottom hole. The tool can also be applied for piloting at inclined surfaces. The flat point reduces here the radial forces compared to conventional drill points with a 140° point angle.



Machines in full production operation, being attended by just a few workers.





Novel new tool head design for cutting machinery slashes the cost of migrating to 3D movement

NUM is launching an innovative ready-integrated pan-and-tilt tool head solution for sophisticated plasma, laser and waterjet cutting machinery applications. Called NUMcut, it provides a very simple means of extending the capability of machinery from 2D to 3D applications, with precise multi-axis interpolation.

The package includes a new tool head design that brings many technical advantages to the cutting machinery sector. A novel mechanical design provides the versatility of movement and stiffness required to implement precision cutting motion, but with the unique advantages of very low mass, and the elimination of cabling runs that need to flex with the tool head movement. Due to its unusually low weight, the new head offers a very simple upgrade path for CNC machines in the cutting machinery market. The NUMcut tool head employs gim-bals and the Cardan universal joint to

convert the movement of two linear actuators into 360 degrees of panning motion plus control of tilt angle up to

version of the tool head offering control of tilt angle up to 8 degrees is also being made available, to allow ma-

eliminates weight, cost and system integration issues for plasma, waterjet & laser cutters

47 degrees. Combined with the conventional three-axis X-Y-Z movement of the underlying cutting machine, NUMcut offers machine builders a simple means of migrating machinery to sophisticated three-dimensional performance. A simpler and smaller

chine builders to compensate for the taper of plasma or waterjet beams. This variant is considerably smaller, allowing multiple tools to be mounted if required.

The Cardan-based mechanics give the toolhead a number of substantial technical advantages compared with current alternative motion control approaches – which include solutions such as motion control systems with motors and gears mounted on the moving head, or complex mechanical arrangements such as parallelogram frames.

In NUM's design arrangement, the tool holder sits inside dual gimbals, which are mounted on a fixed yoke frame. This means that the actuating elements – two rods with Cardan joints driven by linear actuators – are very small and light. As a result NUMcut weighs only 30 kg. This is as little as a third that of some 3D toolhead structures used on the machinery market today – saving a great deal in terms of motor and drive costs, physical size, and en-

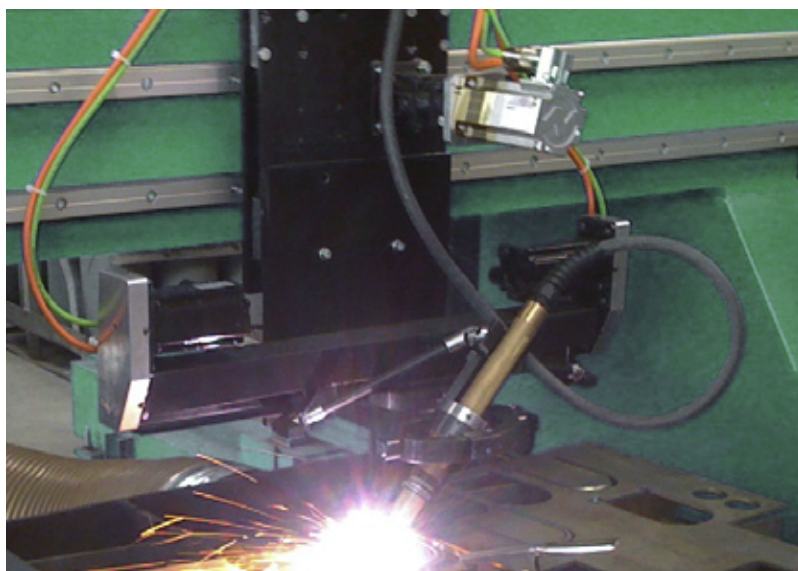
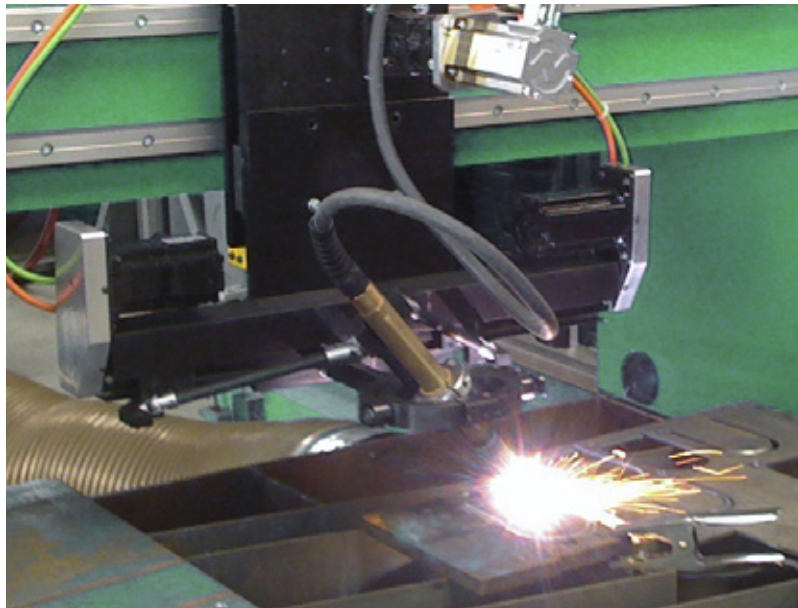





ergy consumption. The yoke element of the design means that stiffness is not compromised, virtually eliminating backlash. The movement characteristics of NUMcut also mean that only the cutting tool itself is subject to the panning and tilting movement, thereby avoiding any need for cable runs to motors, encoders, etc that are then forced to flex and twist with the tool head's motion – adversely impacting equipment reliability.

NUMcut is offered as a complete turn-key solution for machine builders, for either 2Dplus or 3D tool head control: each version of the tool head is supplied with all the supporting hardware and software required: servomotors and drives, and the Flexium CNC kernel including the drivers that transform 3D path tracing motion into interpolated motion control commands for the two linear axes. The package allows simple programming in the typical style of a five axis machine – with three linear and two rotational axes of movement. As the tilt angle is limited by mechanics to a maximum of 47 degrees in all directions, operator safety is assured and any need for additional protection measures are minimised.

The tool head's low weight and compact form factor makes it easy for a machine builder to convert an existing simple three-axis cutter into a five-axis machine. Alternatively, it becomes simple to design one new machine platform that can be assembled in three- or five-axis variants.



Evolution



From left to right: Mr. Koch, Executive Manager NUM GmbH and Head sales NUM Group, Mr. Böhnke, Authorised attorney and head materials management IMA, Mr. Dressler, Purchasing manager IMA, Mr. Helmes, NUM NTC Manager

IMA confirms NUM as the CNC solution partner for their High-End Machines

Reputed for their consistent innovations and forward-looking mechanical engineering, IMA Klessmann GmbH has been an important partner of the wood processing and manufacturing industry for over 50 years.

The company is based in Lübbecke and employs more than 700 employees worldwide. With a presence in over 60 countries, it is an international technology leader in the area of wood processing systems. The long-standing, successful cooperation between IMA and NUM, and the mutual trust between both companies was

confirmed decisively with the signing of a two-year cooperation contract in Lübbecke August 2009. "Based on many years of positive cooperation and continued development of the NUM products IMA has made the long term strategic decision to select NUM as the partner in the High-End range" states Mr. Jörg Böhnke COO of

IMA. "We are happy to have earned the trust of IMA which has and will remain a key customer for NUM and we look forward to the continued cooperation" states Jan Koch Managing Director of NUM GmbH and CSO of the NUM Group.

NUM in Taiwan An NTC manager's impressions and experiences

Six years ago, I was delighted to accept the task of going to Taiwan for a few months for the company NUM. In the meantime, a number of years have passed and in November 2008, NUM opened its own branch in Taiwan. I act as the branch manager, and this is a challenge which gives me great pleasure.

The NUM Group's "newest offspring" is located in Taichung. The opening

of the NUM Taiwan office is a part of the NUM group's continued expansion efforts, demonstrating both their commitment to the Taiwanese market and its significance for NUM. However, NUM Taiwan is not just a reliable partner for customers in Taiwan. All activities in Asia, with the exception of China, now fall within the area of responsibility of our newest branch. NUM Taiwan will undertake all tasks in the CNC area both in the market segment of CNC retrofitting, as well as in the high-end CNC OEM market. However, in this regard a steady focus will remain on NUM's successful market strategy: NUM is an international supplier of CNC total solutions for the automation of complex machines and/or machines with

special applications. Since its opening in 2008, NUM Taiwan has already proven itself to be a reliable and adept partner in the retrofitting sector, which meanwhile has become an important market segment for NUM Taiwan. Customers and colleagues ask me again and again what life in Taiwan is like. In this case, I always think of Yin and Yang. Yin and Yang are two expressions used in Chinese philosophy, which describe opposites in the broadest sense: chaotic and organised, hectic and calm, modern and outdated, etc. However, the transition from Yin to Yang is blurry, and Yin and Yang are therefore also complementary and take turns in a rhythmic interplay. One can't exist without the other.



HCTY and NUM Cooperation

HCTY and NUM have on the 4th of August 2009 signed a mutual exclusive agreement covering the North and North West Area of China. HCTY has for more than 10 years been working exclusively with NUM CNC systems in the middle- and high performance range and in close partnership the 2 companies have achieved a substantial position on the Chinese market.

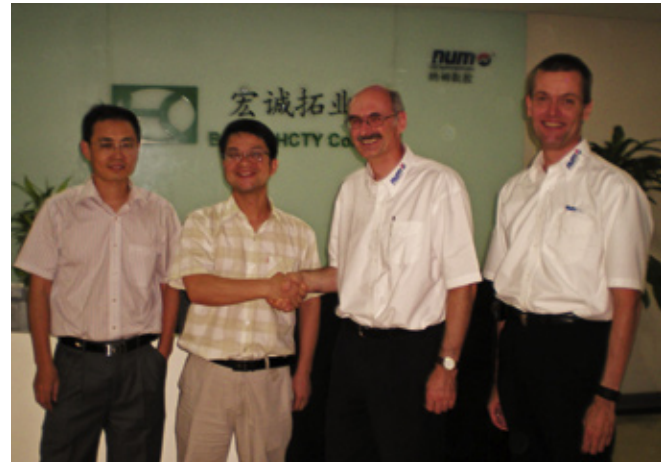
HCTY has over the last years reached a position as one of the top 3 companies in China within the CNC retrofit area as well as in the high-end CNC OEM market. The customers of HCTY and NUM in China cover some of the most innovative and successful CNC Machine manufactures, and this position has over the last years consequently been strengthened. HCTY, which is headquartered in Beijing, has more than 50 employees and have local sales and support offices in 4 locations in the North part of China.

"We are very happy to confirm our cooperation with NUM and we have great confidence in the market potential of the combination of HCTY local support and NUM CNC Engineer-

ing products and solutions and what we together can provide our current and future customer" states Mr. Zhou Managing Director of HCTY.

"We know exactly what we are winning in connection with the partnership with HCTY, as they have over more than the last 10 year constantly proven their value to NUM as a partner, and to their customers as a solution supplier" adds Mr. Peter von Rüti CEO of NUM Group.

As can be seen from our logo we perceive ourselves as a CNC High-End Application company and we are focusing on selected market niches, where we undeniably have something extra to offer, and we have a proven track record to back up this statement.



Headquartered in Switzerland NUM currently have more than 35 sales and service locations located around the world, 3 R&D Locations, as well as a modern manufacturing facility and logistics centre and is widely recognized in the market as a important developer, producer and marketer of complete solutions for CNC High-End Applications.

"NUM CNC solutions provide Machine Builders with a competitive advantage"

From left to right: Mr. Koch, Executive VP & CSO of the NUM Group, Mr. von Rüti, CEO of the NUM Group Mr. Zhou, CEO of HCTY and Mr. Lee, Technical Director HCTY



Cooperation

CNC Complete Solutions Worldwide



NUM systems and solutions are used worldwide. Our global network of sales and service locations guarantees professional service from the beginning of a project to its execution and for the complete life cycle of the machine.

**NUM has service centers around the world.
Visit our Website for the current list of locations.**

www.num.com

NUM  [®]
CNC HighEnd Applications