

NUM

information

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numtransfer®

- 03 NUM Deutschland continues to grow
- 04 NUMtransfer at GUK:
Precision, productivity and profit
- 06 Meccanica Ponte Chiese: Performance, flexibility
- 07 A unique measuring system in the aviation industry
- 08 Optica 2: Intuitive programming for lathes
- 09 Wirth et Gruffat: Rotary-transfer machines with NUM
- 11 Strength and intelligence: Sander transfer systems



Creative and intelligent: NUM complete solutions

Dear reader,

Good news is no news – a phrase often used by the news media. Quite the contrary to what we have to offer you. We are pleased to tell you all about our positive business developments, successful application solutions, unique automation ideas we have completed with our partners. And we also want you to know that you have a flexible, strong and reliable partner. The example of NUM GmbH (Germany) shows that we are on the right track. Compared to the same quarter of the very successful previous year, we have grown again in Germany by two percent. The entire NUM group had a good start this year, after a hugely successful 2006.

The central element in our marketing strategy has been the CNC complete solutions theme for selected application areas. We have given it a "face", so that we can present our complete solutions

more clearly to the market: Every complete solution now has its own name and an associated logo:

NUMROTO – the most successful trend-setter in tool grinding for years

numroto.

NUMtransfer – cost-effective and versatile for all batches, for in-line and rotary transfer and multi-spindle machines

numtransfer.

NUMhsc – excellent high speed and quality on 5 or more axes machines

numhsc.

NUMwood – long tradition with powerful complete solutions in woodworking

numwood.

NUMgear – intelligent complete solutions for new or used gear manufacturing machines

numgear.

NUMspecial – creative solutions for your specific requirements

numspecial.

All our solutions are based on our own CNC, servomotors and drives perfectly integrated products. Partnerships with our customers are maintained across the evaluation, development and installation phases of the projects and by means of training and support from our service centers. We make a point of providing advice to customers using the specific know-how of our experts.

We look forward to seeing you at one of the upcoming trade shows. A great opportunity to introduce you to our new products is coming up at the EMO Hannover in September.

Enjoy reading NUM Information.

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NUM Deutschland continues to grow

2006 was an extremely positive year for NUM GmbH. The company increased its revenue by more than 30% due to existing customers increased volume. They also had significantly more orders from new customers. These factors were crucial in contributing to the success of the company and were responsible for making the German subsidiary one of the fastest growing groups in the company.

Key factors to the success of the company

German manufacturers enjoyed a record year, with a 7% increase (source: VDMA) in production in 2006. NUM GmbH reaped the benefits of this economic boom: regular customers increasingly invested in NUM systems and placed their trust in the product quality and the company.

Measures to generate new customers paid off: not just quality but also the tried and tested NUM service convinced potential customers to purchase NUM systems. Another important factor was the service that was generated from the increase in sales. This proves that service is vital to the success of the company.

2007 – How is business developing?

NUM GmbH continues the positive trend and is taking advantage of the prolonged growth in manufacturing: January 2007 was an all-time record month in terms of revenue and sales.



"We can only keep growing if we have a stronger presence in the market and in the media" says Jan Koch, the managing director of NUM GmbH. "In 2007 we have three focal points: sales, service and marketing."

That also means participating in all the trade fairs to present the skills of the company to a wider audience. In 2007, the company will be exhibiting at Ligna, EM0, SPS and Euromold.

To continue growing, NUM GmbH needs to acquire more new customers while maintaining the existing customer's satisfaction. "We already recruited more staff in the application and marketing/sales sectors at the beginning of the year and more positions in the sales and service sector are being planned for the coming months," says Jan Koch. A new service center was opened on 1st January 2007 in Waidhaus, which enables the company to reach a wider customer base. The aim of the new center is to increase efforts to open up new markets in the Czech Republic and Poland.

"We have the best conditions to continue growing in 2007 as well," says Jan Koch.





Precision, productivity and profit: NUMtransfer at GUK

There are many factors, which combine to make working profitably in the tough business of the automobile industry possible. An up-to-date, reliable machine and operation that is specially designed for the application, such as NUMtransfer, is part of extremely important user and process knowledge.

Even a UFO landing could hardly be more dramatic: the rotary machine by Précitrame Machines SA is a futuristic sculpture in the production halls at Griesser & Kunzmann GmbH & Co.KG (GUK) in Wellendingen, near Rottweil. The company was founded in 1948 by Karl Griesser and Anton Kunz-

mann and today employs over 200 in the areas of folding machines and rotary technology. Today, Anton Kunzmann's successors run the business intent on sound, continuous and stable

growth. Every year the rotary parts section produces around 38 million work pieces and make up about one third of the overall company revenue. Investing in Précitrame rotary machines with NUMtransfer enables GUK to meet the requirements of the customers with high-quality products, very low fault rates, on time and with reasonable prices and still generate a realistic level of profit. Reaching this goal required the close cooperation of GUK with the expertise of Précitrame and NUM to combine all the skills in the application.



The work pieces may be small but they have a lot of requirements. Just getting the right tension for the spool carrier, manufactured for the automobile industry, presented a big challenge. The technology is very sophisticated for high-precision drilling, milling and alternate interior and exterior turning. A lot of time was invested in optimising the individual machining phases. Mr. Kurt Bettinger, section head at

GUK, explains: "We were able to gradually reduce the machining time at each work station by half. We only change the type of work piece every two or three months but thanks to the versatility of NUMtransfer we can now save a lot of time here as well."

Loading, turning and unloading the work pieces is carried out by robots controlled by a custom made system. The goal is zero defect tolerance and this is the reason why there is a spe-

cially designed robot at the side of each machine measuring every part and checking its precision.

In the automotive industry network, GUK has to depend on the high reliability of its machines. Vincenzo Bonavoglia, head of sales at Précitrame Machines AG, gives NUM top marks: "There is plenty of computing capacity to handle complex procedures efficiently. Of particular importance for GUK and for us, is the low operating

temperature and the high temperature stability of the CNC and drives, which must be extremely reliable."

NUM News

Guarantee provision for systems from 1st January 2007

The guarantee for new systems (NUM controls, drives and motors) is valid for 24 months for the end customer and up to 30 months for OEMs.

The guarantee period is broken down as follows:

We provide the OEM with up to 6 months to complete the system and to commission it at the customer. After starting up the system, the usual guarantee period of 12 months begins.

Once the guarantee card supplied (or from the NUM website) is sent back fully completed within 6 months of commissioning the system, the guarantee is extended by 12 months for the end customer to a total of 24 months. The new guarantee regulation is only valid for OEMs and does not apply to spare parts. All rights are reserved for the sales and delivery conditions enclosed.

This guarantee provision enables NUM to ensure more effectively that spare parts are stored close to the customer and downtime at the customer is reduced.

New licensing procedures for Tools

Licensing procedures for NUM tools SETTool and PLCTool have now been improved in favour of a clearer, simpler operation. In April 2007, the new CD-ROM NUM Tool Workshop Release Moo became available which no longer requires a licence. The license key is supplied with the CD-ROM and is directly on the CD case.

Another innovation is the new version of NUMPass HMI. This enables you to easily save data with the Backup Agent and the display of MDLU test points.



Meccanica Ponte Chiese: Top performance and flexibility

The highly flexible production infrastructure by Meccanica Ponte Chiese allows for fast response times to customer demands and profitable production of smaller batches.

It is almost eight o'clock in the evening, the table is reserved at Trattoria Al Frate in Brescia and a culinary, cultural evening is about to begin. But beforehand Mirko Ferraboli is in the production hall checking the new processing centre, making sure the automatic night-shift manufacturing can proceed without any hitches.

Giovanni Ferraboli, the founder of Meccanica Ponte Chiese, has run the family business since 1973, where his wife and his three children also work. Since then, the former mechanical workshop has developed into a company that machines medium and large work pieces made from cast iron, aluminium and steel. With 15 employees, the company is a manageable size and is able to respond to customer demands quickly and maintain profitability with smaller batch sizes due to the highly flexible production infrastructure.

The new machining centre, MCM Clock Tank, was installed in January 2006 and is up and running 24 hours a day. The second identical machine was started up in May 2007 and is also an independent machining centre. Both machines are controlled by Axium Power CNCs and the NUM HP Drive servodrives and NUM motors from the BPH series carry out the commands. In addition, both types are used outside the machining centre, such as for the tool magazine for up to 400 tools, which was extended to 800 tools using the second machine.

The three-storey automated pallet store, which is also extended for the second machine, supplies both machining centres with the required work pieces in accordance with the production plan. The system is controlled by Axium Power – just as Axium Power for the machining centre – which is part of the MCM production system. "The skill of the technical staff, the user-friendliness and the performance continues to impress us" says Giovanni Ferraboli. In 1988 the first machine was equipped with an NUM system and it still performs at a competitive rate even today. "NUM guarantees us a faster and more efficient customer service, which we heavily rely on as small and flexible company."

Meccanica Ponte Chiese supplies customers in the textile, earthmoving, nautics and pressure technology industries, with names such as Graziano and Iveco, which are known all over Europe. State of the art measuring and control systems guarantee the quality requirements. Short delivery times and low production costs are also part of the customer requirements. Thanks to the flexibility of Axium Power, they could increase productivity and guarantee efficiency despite the huge variety of work pieces in small batches. "Experience is the best way to stay competitive. That's why we chose NUM." summarises Gianluca Ferraboli.



A unique measuring system in the aviation industry

It all started in 1924 with wooden skis at a company called Fischer in Reid, Austria. Today the company is a supplier for the aviation industry and ensures that the high demands of their customers are met using a unique measuring system controlled by Axium Power.

The company designed this technological development strictly for the ski market but joined the exclusive club of supplying the aviation industry in 1981, due to its wide knowledge of machining glass-fibre fortified plastics. Today around 1200 staff work at the spin-off called FACC (Fischer Advanced Composite Components) established in 1989, producing interior fittings and structural parts for the aviation industry, including for Airbus A380.

Non-destructive work piece testing

The end product is impregnated with synthetic resin, reinforced with fabric layers approx. one tenth of a millimetre and then laid out in steel forms until the required product thickness is reached. The form is polymerised out in autoclaves under pressure in heat, which gives it its final strength. The final form is then reached once it is milled to trim off any excess.

The requirements are very demanding for these aviation products: each individual part must be inspected and logged. Non-destructive ultra-sound testing checks for any air bubbles or porous, areas which have formed, or to see if any foreign objects have become trapped during the laminating process. FACC uses a system created by the companies it works with: Leitner took care of the construction, Perndorfer Maschinenbau was responsible for the mechanics, Nutronics contributed the ultra-sound technology and NUM was in charge of coordinating and operating the 11 axes.

Tough requirements with 11 axes

The new testing system at FACC breaks new technical ground with its two robot towers instead of the usual portal solution. The water column on each robot arm conducts the ultra-sound and must simultaneously meet the same

point, at the same angle precisely, whilst also checking the whole surface of the work piece. The fast and precise coordination of the robot arms requires a full 11 axes interpolation (2 x five plus one) which is extremely difficult and challenging to achieve.

One special feature is the sychromesh gear in both the 3D heads, which drives both synchronized motors for rotating B and C. This is patented by Perndorfer. The axes are run by Axium Power CNC and NUM Drive servodrives at high-precision, even up to 90 m/min.

The engineer, Helmut Höller, Head of QA Inspection at FACC, summarises: "Although the decision to build this system involved a great risk for us, to my knowledge there is nothing comparable to it. The results speak for themselves and we are extremely satisfied."

Written by: Dieter Schaufler, MEGAtch trade magazine





Optica 2 and NUM: Intuitive programming for lathes

More than 450 Cazeneuve lathes equipped with the intuitive Optica system have already been sold. Due to the success of integrated concepts in the world of turning, NUM and Cazeneuve have continued their close cooperation to develop an even more comprehensive and user-friendly version.

New functions, higher productivity and improved safety.

Inspired by user experience, the new version Optica 2 was developed with NUMTool to use the chuck and the customer-specific adaptations to NUM systems in the best possible way.

We are planning to install Optica 2 in new machines. However, this version can also replace all the previous versions in existing machines.

As Optica 2 uses the NUM graphic display system, the user benefits from the following basic developments in the different operating contexts of the machine:

Complete simulation of the work piece to be machined can be carried out by checking the tool cycles prior to machining.

First the raw work piece is calculated and then is developed further in the machine environment. Tool procedures can be checked in the simulation mode as well as during machining.

It is possible to do pocket cutting for more complex work pieces.

The inspection is conducted sequentially before starting, taking the configuration of the machine into account

(operation mode according to the safety standards for machines without a safety housing).

Display of the chuck with automatic adjusting of diameter on the raw work piece.

The overlapping areas are displayed. The tool corrections are taken into account, the Z-axis can be interrupted if it exceeds the values in the procedure.

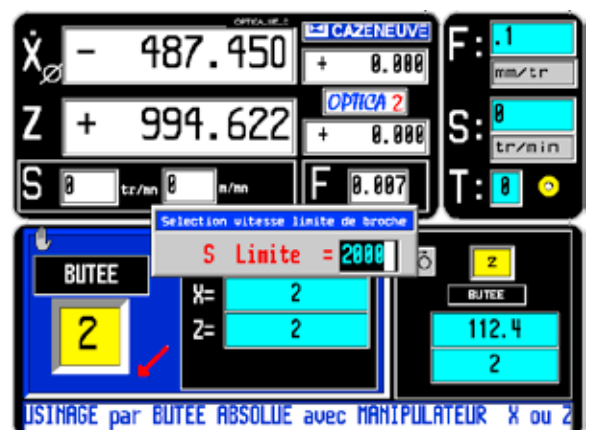
Higher productivity

Due to the graphic display of the operations taking place on the machine, the work piece can be quickly checked for shape and a real-time procedure on the work piece is possible. This ensures that parts can be quickly manufactured to the highest quality requirements.

Improved safety

Due to the development of safety software limits and intelligent collision control, a program can continue, without breaking the work piece.

This new Optica 2 triumph consolidates the mutual determination of NUM and Cazeneuve to provide turning specialists with a solution that meets their requirements to an even higher degree.



Wirth et Gruffat: Rotary-transfer machines with NUM

With more than 60 years of experience, Wirth et Gruffat is one of the most well-known important names in the development, design and production of flexible rotary-transfer machines. The concept: a machine, which can be adjusted to fit the requirements of production.

Thanks to the architecture and control technology of the NUM Axium Power range, the requirements of Wirth et Gruffat for simplicity, versatility, high performance and the ability to develop further were able to be achieved.

For the "Convertible" machine, up to twelve work stations can be controlled, equipped with 3 axes. The modular concept is exemplary and the Axium Power numerical control is ideally suited for these conditions thanks to its open and modular design.

The NUMDrive range, including the new NUMDrive C series with dual axes for connecting to BPH motors, equipped with new sensors, is part of strategy towards more generalised use of electrically controlled axes. Because of the economy achieved by integrating of these new dual-axis drives, a significant development to the machines has become possible: electrically controlled axes can now be used more generally in oil-pneumatic and hydraulic solutions.

The convertible Wirth et Gruffat machines can continue to be developed and meet new production requirements in the future. NUM is able to be versatile with the extended capabilities of its numerical control Axium Power.

The important benefits of the numerical control Axium Power for this application are:



Flexibility

Axium Power controls up to 32 axes, divided into 8 channels. The system is available in three versions: First, Advanced and Ultimate, the most powerful version. However, as it is always the same basic functions, it is sufficient to check over the controls once to get familiar with all the different applications for the required level of complexity.

Simplicity and performance

The following functions are available in the whole series; realignment of the axes, disabling the axes, dynamic operators in C.

Fast commissioning time

Installing and setting the numerical NUM controls can be done fast. NUM has worked for many years with manufacturers to provide solutions

that can reduce installation times. This is one of the strengths of the Axium Power range.

In the constant striving to meet production requirements and improve compatibility, NUM and Wirth et Gruffat are planning more development projects particularly regarding the new control panel with the industry PCs NUM FS151i/FS151i-KBD and the planned man-machine interface for transfer machines.



Strength and intelligence: Sander transfer systems

In the inhospitable environment of transfer presses, Sander transfer systems achieve excellent performance. The cooperation with NUM is flexible and goal-oriented and an important part of our success.

The floor is vibrating to a beat, the noise is terrifying and there is a smell of metal in the air. The stamp swoops down twice a second and gradually forms sheet metal into a shape. Housings and parts of every shape and for a variety of uses are formed step by step in the transfer presses.

For all the individual steps the work piece is moved from one tool to the next. High-precision machines and exactly timed procedures are the key to transferring the work pieces. The high speed of transporting the parts is also

important from an economical point of view.

In 1979, Sander Umformtechnik GmbH entered the market as a manufacturer for mechanical transfer systems for metal stamping. Employees working at Sander Automation have extensive know-how which is application-specific and proves essential in each project. In 1995, transfer systems were needed for mass forming with particularly high requirements: scale, aggressive lubricants, high temperatures combined with large masses and high

performance. Three years later, Sander introduced NC transfer systems with rocker technology onto the market and the sales figures rose to above-average. In 2003, Sander Automation GmbH was established as an independent company in the Sander Group and serves customers from all over Europe, in Korea, Japan, Russia and China with its staff of 27 people. Customers in the USA, Canada, Mexico and Brazil are serviced by TTS Automation, the Canadian subsidiary in the Sander Group.

The Sander transfer systems have a low space requirement due to the rocker technology. The tool-making room is not compromised and stays 100% available for mounting tools. The grabbing, lifting and advancing movements are carried out with a repeat precision of ± 0.1 mm even at the highest number of strokes (up to 300 per minute), which is demanding for the CNC and drives. Engineers from Sander and NUM worked very hard together to ensure an exactly timed procedure and the exact feedback information was attained. Mr. Stüwe, the technical head of the group described the work with NUM very clearly: "Our customers are our focus and it is our job to satisfy their demands. To do this we need versatile, skilled, goal-oriented cooperation partners with fast response times – exactly what NUM has to offer."

Fine-tuning and optimising the system requires a lot of work from both



sides. To customise everything exactly to all the conditions is no problem for NUMDrive C and the Axiom Power CNC as well as the motion rules for low tolerance drives (such as polynomial 5th grades). And also for the transfer machine control requirements. Although the NUMpass HMI user interface is extremely flexible and configurable, Matthias Anton, Head of Electrotechnology developed one especially for Sander's operation; "This partnership demonstrates that NUM has fully supported us in this area." The target is the customer requirement to have high-quality work pieces as fast as possible with low waste in order to survive in the fiercely competitive automobile industry – exactly what Sander and NUM provide.



Worldwide

Welcome to EMO 2007!

We would like to invite you to visit the EMO in Hanover from 17th – 22nd September 2007. The focus of our presentation is on our complete solutions and custom-made solutions. We will also be presenting our products such as CNC, drives and motors which we use as a basis for our solutions. Come and visit the innovations at our stand (025 B33) – you will be impressed.

China International Machine Tool 2007

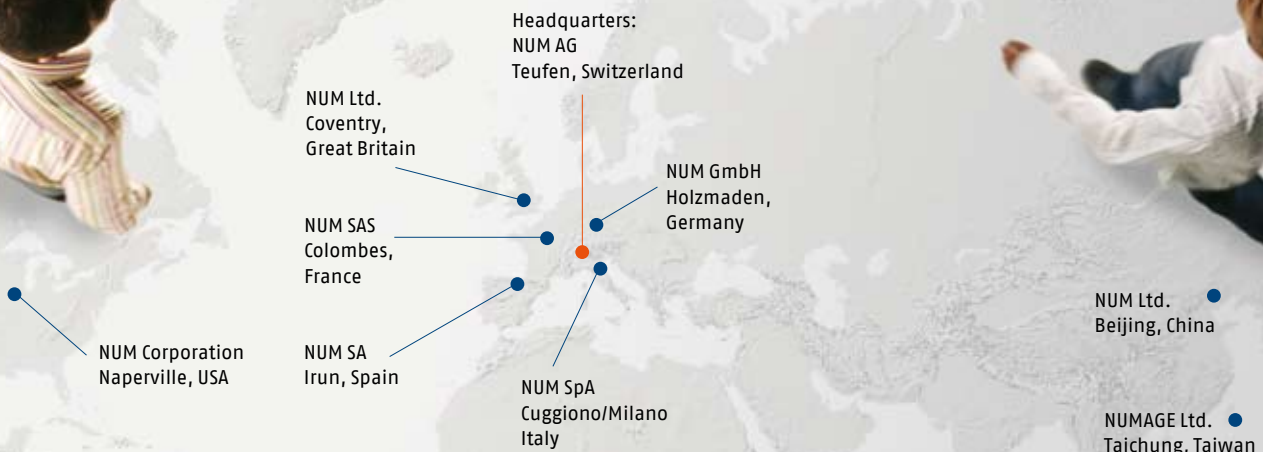
The CIMT 2007 was the largest trade fair to date for the machining industry in China. In April 2007, approximately 1,000 exhibitors presented their products and services from 25 countries in 70,000 m², within 10 halls. The focus of the exhibition clearly paves the way for high-quality and complex machinery for the Chinese market. NUM was impressive: the largest machine at the exhibition, the TH6916 from the Wuhan Heavy Duty MTW, was equipped with Axiom Power!

Powerful SPS/IPC/Drives 2006

The SPS/IPC/Drives from last November underlines that visitors and investors alike show a growing interest in specialised trade fairs. We have seen an increase of 5% compared to the previous year with 77,500 m² floor space and 1,160 exhibitors. There was also a lively flow of visitors (+20%) to the NUM stand – and overall we welcomed a lot of interested visitors and advised them on specific topics.

CNC Power Engineering Worldwide

NUM competence centres for CNC high-end applications:



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Visit our Website for the current list of locations.

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