

num

No 42 - April 2005

information

Hall 19
Stand B09

2-6 May 2005

LIGNA+
HANNOVER · GERMANY
World Fair for the Forestry and Wood Industries

MTC: proximity and internationalization

SOLUTIONS

Num renovates a PSA Peugeot Citroën Line

PRODUCTS

Drives: More powerful, more flexible, safer...

Machine Technical Centers: proximity and internationalization

MTCs or Machine Technical Centers were set up in the second half of 2003. After a little more than a year and half of existence, it's time to take stock.

Roberto Brignolo, MTC Italy: "In Italy, operating flexibility associated with the universal architecture of our platforms is absolutely indispensable because we have to satisfy OEMs who have based a large part of their competitiveness on flexibility."

In the era of information technology and new technologies, distances are shortened to the point that information is available nearly instantaneously around the globe. It might seem logical that this pooling of knowledge would lead to the homogenization of know-how and skills, but this is far from being the case. As innovations are a guarantee of success, technology transfers are accelerating. Associated with the conquest of foreign markets, this search for innovation yields increasingly specific and customized needs. There are also the grouping of businesses leading to the formation of skills centers where cultural characteristics can lead to competitive advantages. It is in response to this phenomenon that Num has set up its MTCs (Machine Technical Centers).

Specifically Meeting the Needs of Each Country

The automation of production, even by focusing only on the CNC-based applications, occurs in sectors as different as the manufacture of submarine propellers and parts for watches or connectors, with materials as diverse as alloys, wood, stone, composites. Furthermore, it implements techniques as varied as the classic

removal of chips, HP water jet cutting, laser welding etc. While it is true Num's core trade is path control, with time and experience, its range of skills has expanded.

"Today even more than yesterday, our products must possess the capacity to personalize and extended configuration flexibility", explains Roberto Brignolo, Director of MTC Italy, "because our objective is to propose a solution optimized for technical imperatives and economic requirements that differ according to the customer's business area. This alignment between solution and client application is much more pertinent when it is done locally because geographic proximity allows us to share the same language and culture, and even more, it enables us to set up strong synergies with our manufacturing partners." "At the same time," adds Michael Biedermann, Sales Manager for MTC Germany, "synergies with the other companies of the Schneider Electric Motion Department, like Berger Lahr, are essential. They provide us with a much more extensive offer, thus enabling us to build solutions that precisely meet specific requirements". "In Italy," continues Roberto Brignolo, "operating flexibility associated with the universal architecture of

our platforms is absolutely indispensable because we have to satisfy OEMs who have based a large part of their competitiveness on flexibility. Moreover, it's a market that contains nearly all application sectors. We have to be particularly responsive and that's why we recently set up a skills center that provides our clientele with effective support in developing solutions, notably high tech solutions."

In Switzerland, this desire to supply a complete solution is not new. It even led to software dedicated to tool grinding that is now internationally known.

From CNC to software and including engineering

"With more than twelve OEMs using NUMROTO, on over more than twenty five types of machines, located in over thirty five countries, we are without contest the world leader in tool grinding," comments Peter von Ruti, Director of MTC Switzerland.

"But we are working in many other domains for which we are capable of performing a true analysis of the machine to offer the supply of equipment, of course, but also: programming CNC functions, programmable controllers or PC panels, calculating and configuring drives, cabling the switching



Michael Biedermann – MTC Germany: "Synergies with the other companies of the Schneider Electric Motion & Drives Department, like Berger Lahr, are essential. They provide us with a much more extensive offer, thus enabling us to build solutions that precisely meet specific requirements".



Francis Larue - MTC France: "France is a mature market composed, among others, of major users where our installed base is enormous and where certain operators have several generations of NUM CNC. Having a service offering dedicated to end-users was essential."

cabinet, even cabling the machine! In other words, when we say complete solutions, they are really complete."

And Michael Biedermann added: "The experience we have gained with our application now makes it possible to optimize the solutions developed by the OEMs. We offer these manufacturers our extensive know-how in the sphere of CNC / PLCs and drive mechanisms, to allow them to rapidly and efficiently turn their ideas into marketable products and solutions."

This approach, that consists in expanding the scope of service provided, is being generalized in all MTCs. But the interest of this organization is to allow each MTC to monitor the needs particular to its territory as clo-

sely as possible. "France is a mature market composed, among others, of major users where our installed base is enormous" declares Francis Larue, Sales Director of MTC France. "So it was absolutely necessary to have an offer adapted to these end-users, like for instance the complete diagnostic of an existing installation. This can then lead to specific adaptations yielding significant improvements in productivity".

The supply of equipment is only one component of a much more global offer where consulting and expertise make a difference. But the wealth of this organization in MTCs consists in combining proximity and internationalization.

Complementarity between MTCs: A Reassuring Factor

Proximity is certainly a customer requirement but today it is not enough. "While Swiss OEMs have been exporting for a long time," confirms Peter von Ruti, "today the machines are going further and further, to China for example. Announcing to our customers that their machine can be serviced even though it is very far from our borders is a reassuring factor. For the end-customer, it is even a determining factor. The association of servicing and capacity to provide a truly global solution constitutes a real asset for our partner-OEMs; for the users, this often leads to competitive superiority."



Peter von Ruti - MTC Switzerland: "Being able to service a machine, whatever the country of its use, associated with our capacity to provide a truly global solution constitutes a real asset for our partner-OEMs; for the users, this often leads to competitive superiority."

HIGHLIGHT

New Addresses

The UK and China MTCs have changed address. Num Beijing has moved into more spacious premises and Num UK is closer to London.

Rav Lawana has also joined the UK MTC team as MTC head. He was previously the sales manager of Berger Lahr UK.

Num Beijing

Schneider Building, Chateau Regency,
No. 2 Jiangtai Rd, Chaoyang District
Beijing 100016 - Republic of China
Tel : +86 10 8434 6699 / Fax +86 10 8450 1079
bnum@cn.schneider-electric.com

Num UK

Blackhill Drive
Wolverton Mill South
GB -Milton Keynes MK12 5BP
Tel : 0871 750 4020 / Fax 0871 750 4021
Tel international : +44 1908 628 027 / Fax +44 1908 628 028
solutions@schneider-num.co.uk



Rav Lawana, new head of MTC UK

Num at Ligna

next May 2 - 6

2-6 May 2005

LIGNA+

HANNOVER • GERMANY
World Fair for the Forestry and Wood Industries

Num is the precursor of the CNC systems used to automate machines in the woodworking industry. By developing applications in this sector at the end of the eighties, Num began capitalizing on experience that is now incomparable. This experience has gar-

nered it a 25% share of the European new machine market and created a large installed base worldwide. Its OEM references and the diversity of its applications all bear witness to its expertise. Plus Num justifies the confidence of its many customers by continuing to develop complete solutions that keep pace with the developments and better meet the requirements of this sector. But its assets go well beyond its own skills as Num is a wholly-owned subsidiary of Schneider Electric, the world leader in Power & Control. The

Group has always shown its determination to meet every need for machines, in particular machines for the woodworking industry. This desire has led to the creation of an applications center dedicated to wood (Schneider Wood Community), where Schneider experts, in collaboration with Num and Berger Lahr (German company specializing in position control) provide their clientele with their know-how. Due to its position on the wood market, Num plays a particularly active role in the center, especially since in this business

sector, Num also markets Berger Lahr products along with its own CNC offering.

This approach is tantamount to placing the woodworking industry at the center of a complete offering that goes from General Motion to CNC systems in order to provide it with tailored solutions both in terms of cost and performance.

Hall 19
Stand B09

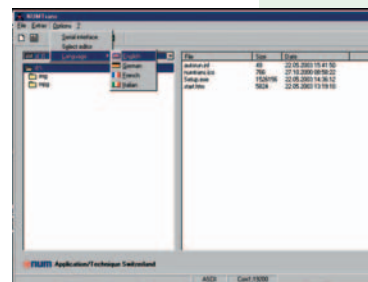
New Functionalities for Deltamab

The Deltamab turning center now features a counter-spindle enabling it to perform turning operations on all sides of the part.

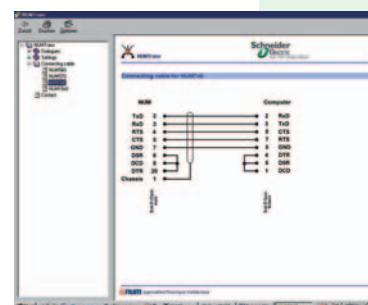
On June 23 and 24, 2005, at its Moulins site, Somab is organizing two technical days for its twentieth anniversary. During the event, which also basically corresponds to the anniversary of its partnership with Num, the French manufacturer will announce several innovations in its Deltamab lathes.

Remember that the 2 to 8-axis turning center features, among others, a structure with 4 independent slides that provide it with two undeniable assets: a layout that allows the machining of large size parts and a modular design that facilitates the alignment of the machine to the customer's particular needs.

Driven by an Axiom Power system, it features remarkable machining qualities supported by the contributions of the Num HP Drive digital drives. With the 2005 versions, users will henceforth benefit from the rear spindle or counter-spindle. This new possibility allows turning operations to be performed on every side of the part. With this feature, Somab intends to once again show its desire to offer a flexible, complete turning center. This approach, that consists in entirely machining a part in only one work-holding operation, had already motivated Somab to plan on the design of the machine with a Y-axis option enabling the Deltamab to perform varied milling operations.



NUMTrans software is multi-language: English, French, German and Italian.





Drives

More powerful,
more flexible, safer...

In servosystems, the CNC calculates, the drive executes. However, situated as close as possible to the motors, drives increasingly incorporate intelligent functions that play an essential role in the quality of motor control. Rainer Graf, Drive Product Manager, takes stock of the latest improvements made to the MDLU 3 axis drives.



Rainer Graf
Num Drive Product
Manager

The MDLU 3 can be equipped with the SAM safety module that allows this drive to comply with the requirements of standard EN954-1 - Cat. 3.

Part of the Num HP (High Performance) Drive family, the MDLUs are the top of the line of the Axiom Power offer. Connected to the CNC by a high speed digital bus, they already included many advanced functions (ARS - Advanced Resonance Suppression, tandem functions etc.) that in 2003 gave rise to version 2.

More power and flexibility

“Contrary to version 2 where only the electronics had been modified”, explains Rainer Graf, Drive Product Manager at Num, “version 3 offers improvements both in the electronics and in terms of power. By increasing the drive output level, we were able to significantly

optimize the control of our axis motors.” On some of them, this resulted in a 25% speed improvement, with no particular adaptation of the motor. Another consequence is that it is possible to reach identical performances with a smaller drive. In some cases, gains in compactness reached 30%! At a time when screens are the only machine components whose dimensions increase, this optimized size is essential. Moreover, also used to control the spindles, the MDLU3 features much more significant acceleration possibilities than the preceding version.

“Finally,” adds Rainer Graf, “by allowing multiple sensor combinations between the motor encoder inputs and the second measurement input, the MDLU3 confirms Num’s desire to offer more openness and flexibility”.

More safety

The most significant development provided by the MDLU3, however, is without contest the SAM (Safety Monitor Module). Available on an optional basis, this module allows the integration in the drive of all the functions necessary to comply with the requirements of standard EN 954-1 Cat. 3. “In other words,” adds Rainer Graf, “this avoids the need for power circuit breakers designed for emergency stops. It is the SAM that will manage the deceleration and power cutoff. In addition to the “reliable stop” operating mode, the SAM also features the “reduced speed” mode. These two modes allow working in a risk zone without having to cut off the power supply. This offers an appreciable gain in time as production will be able to start up as soon as the protection devices close. No long re-start procedure is necessary!”

Software

Data Transfer for
Num CNC

NUMTrans is a software program used to load, unload and edit the data of the Num 560/570, Num 720/750/760 and Num 1020/1040/1050/1060 numerical controls. Compatible with the Windows 98/NT/ME/2000

and XP operating systems, NUMTrans advantageously replaces the programs present until now that ran under DOS: APA10, PCPROG, PCE-DIT, Numcom, Minicom and NumEdit. To do so, the data saved in binary or object format are converted into text files

that can then be edited or reloaded in the numerical control through the RS 232 link.

A help file includes all the information necessary to its use, in particular the arrangement of the connectors of the various connection cables with the CNC.

Woodworking

SCM and Num: from Custom to Mass Production

One of the leading manufacturers of kitchen and furniture doors in the United Kingdom, Browns 2000, recently ordered fifteen Ergon milling centers from SCM. Among the arguments that weighed in the balance in choosing the SCM solution, we can cite the flexibility of the multi-head, fixed gantry milling centers driven by Num Power 1000 numerical controls.

Established in Europe, the USA and Southeast Asia, with its machines SCM covers a wide range of applications in woodworking. This Italian company specializes, among others things, in processing opening parts for small, medium or large size companies. This is one of the reasons that led Browns 2000 to choose this Italian leader, who, with a single range of machines could meet all its objectives. In light of the multiplicity of equipment available the Ergon milling centers are capable of custom manufacturing in short implementation times, while guaranteeing productivity and excellent quality. Twelve of the fifteen milling centers ordered now run at Newcastle (UK), one is being assembled and the last two should follow shortly. Two different versions were defined: the first is production-oriented while the second was designed to offer a maximum amount of flexibility.

Varied Equipment for Perfect Adaptation

The Ergon centers have a fixed gantry, mobile woodworking tables and can hold up to 12 fixed or variable center-axis parallel toolheads. With the standard version, it is possible to simultaneously produce two identical doors, or on the contrary, manufacture two different doors, in alternation. But Browns 2000 also acquired two Ergon X-Twins machines. This new version is equipped with two toolheads but their X-axis is independent. The center can thus machine two different doors simultaneously, or begin a new door, even if the one on the other table isn't



On certain Ergon centers, the milling units are equipped with a five-axis "Prisma" toolhead that is entirely controlled by the Num Power CNC using the RTCP (Rotating around Tool Center Point) function.

finished. Such a process yields gains in productivity of 40%.

All the Ergon woodworking cells are equipped with an automatically adjusting table called "Autoset" that can reconfigure all the bars, suction cups and/or clamps in only 4 seconds when the dimensions or shapes of the doors are changed. The Autoset table uses IclA motors, Num-Schneider Motion integrated electronic motors, driven by Can Open buses and Num Power 1000 CNCs.

A CNC That Meets Objectives

On certain centers, the milling units are equipped with a "Prisma" five-axis toolhead. It is entirely managed by the Num Power CNC using the RTCP (Rotating around Tool Center Point) function. This function is really an indispensable tool when it is necessary to maintain an accurate and constant angle between the tool axis and the surface to be machined. It's simply a matter of programming the path of the tool tip on the part to be machined, the movements of the axes are calculated by the CNC optimally since it takes into account the specific assembly of the mechanical servosystem of the toolheads. Furthermore, the quality of surface condition is controlled much better, since the programmed speed is applied to the contact point, not to the rotary toolhead, which preserves optimal surface conditions.

In the Ergon center, the RTCP function is associated with the "inclined plane" function. This allows complex woodworking cycles to be programmed for producing irregular surfaces based on a concise syntax.

It is certain that the availability in the CNC of these advanced functions, but of many others as well, such as dynamic operators, play a capital role in the overall performances of the machine.

That is why SCM chose Num as its technological partner for its Ergon milling centers.



The Ergon centers can be supplemented with loading robots.



The 300 stamping line includes five presses, one 475 ton press and four 400 ton presses, a blank destacker and four inter-press islands, the whole comprising 28 axes and nearly 1800 inputs/outputs.

Automobile - Stamping

The Num Engineering Team renovates a PSA Peugeot Citroën line

The use of CNC systems is not simply limited to path control. For certain automation applications, numerical controls have the advantage of being a global solution, particularly as regards programming, capable of managing and synchronizing complex movements while guaranteeing perfect positioning. At the PSA Peugeot Citroën plant of Poissy, near Paris, it is these reasons that weighed in the balance for the automation of the 300 stamping line.

Set up at the end of the 80s, this line is heavily used: it supplies parts not only for the vehicles assembled on-site but also for many other models of the PSA Peugeot Citroën group. In these conditions, the lifetime of such a line is of strategic importance. The decision to retrofit it was made in 2004, and in light of the relationship the automotive manufacturer has had with Num for many years, it was natural that the two should work together again.

Flexibility and Ease of Use

The 300 line is composed of a blank destacker, five presses (one 475 ton press and four 400 ton presses) and four inter-press islands, the whole counting 28 axes and nearly 1800 inputs/outputs. The destacker, located at the head of the line, positions the blank on the die of the first press. This step starts the production cycle. With this initial positioning, a blank holder clamps the blank in place so that the positioning allows an optimum deformation of the material. The first island is equipped with a turner that flips over the part using suction cups. Then an inter-press automatic control transfers the blank to the next press and so on.

This line can produce a large number of different parts. As a result, the number of stamping operations can vary from one type of part to another. This production change, called the "train change" by the operators, results in modifying the organization of the inter-presses. From the creation of the line, the use of CNCs has provided a real plus, but this phenomenon has grown since the retrofit. "Today the operator has a global vision of the entire line" says Jacky

The assurance of extended life and more modern and efficient ergonomics benefiting from new, safer and faster technologies, these are all reasons for retrofitting critical production lines. This is the decision made by PSA Peugeot Citroën with the Num Power 1760.



Acard, Automation Design Technician; "with a simple page change, he can display the states of the different safeties or locate machine faults, on each of the control panels".

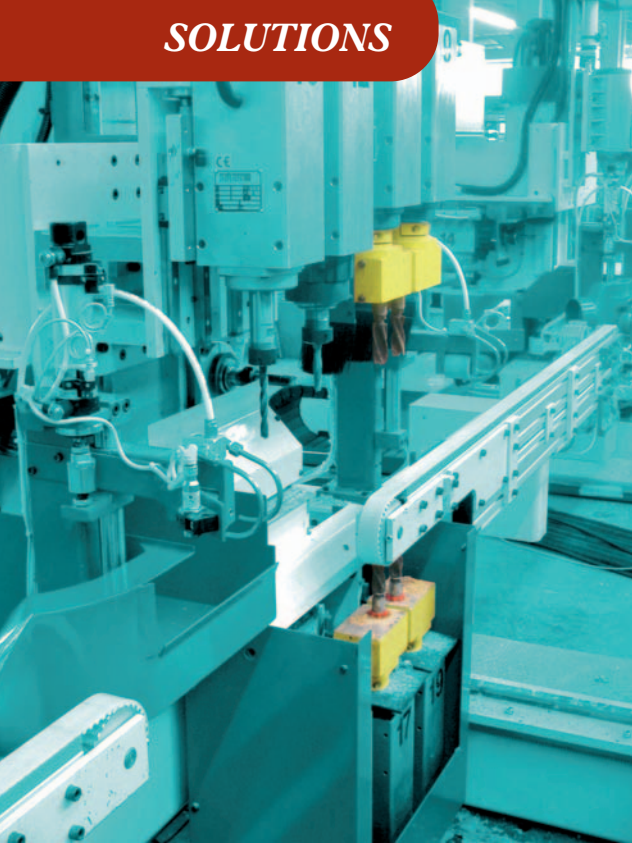
Knowing that the 300 line can output 750 parts per hour, with 12.5 strokes per minute, it is easy to understand that two blanks can be found on the same station, or conversely that no part is on the table. Such states immediately block the line but it is crucial to quickly identify the location of the error so that the machine can be restarted as quickly as possible. "Once again," completes Jacky Acard, "retrofitting was beneficial because now it is possible to automatically restart with the line in-process". "The development of a "job-specific" MMI also significantly contributed to improving how this line works" adds Jacky Acard, "the cycles are represented using clear and explicit symbolism".

Jacky Acard, Automation Design Technician, Philippe Debout, 300 line operator and Luc-Olivier Duchêne of Num

(Continuation page 8)



Today, the operator has an overall vision of the entire line: with a simple page change, he can display the states of the different safeties or locate machine faults, on each of the control panels.



Woodworking

*By connecting its machine to an ERP, Dubus conciliates **flexibility** and **productivity***

Interpretation of management system data, adaptation to the types of panels loaded, optimized sequencing of machining and mounting operations, all automatically! This is how Dubus designed its latest machine driven by two CNC Num Power controls.

For clean drilling, Dubus has opted for over/under machining.

Under competitive pressure, users are increasingly demanding of their equipment: they want equipment capable of withstanding faster and faster throughputs, with higher and higher output quality and production with more and more variants. The French manufacturer, Dubus, was able to respond to each of these imperatives without making any compromises!

A Door every 14 seconds!

“Our client wanted a machine that would machine doors and partially install the hardware* dedicated to production” explains Benoît Jeanneau, Job Manager at Dubus. To achieve high throughput, we played on the simultaneity of woodworking operations and their sequencing”.

**installation of the various metal parts allowing the door to move - hinge plate, hinge -and be immobilized - lock, handle etc.*

Automobile (continuation)

While different scenarios corresponding to the different types of parts are already planned, it is possible to change certain parameters right on the machine.

An Ultra-tight Schedule

One of the critical points of these retrofits concerned the possible retrofitting periods, since, as often for this type of application, nothing is supposed to disrupt a heavy production schedule. So the design of the Num Power 1760 CNC, with its interface cards that maintain all the I/O connections, was an essential asset: all the operations were performed progressively during vacation periods.

Today, all the stations are equipped with Num Power 1760 with, in addition, a larger color LCD screen, improved optimization yielding more fluid operation, lighter stress on mechanics and naturally a guaranteed lifetime for many years still!



750 stamped blanks are loaded and unloaded per hour.





Easy to access, the hinge magazine allows quick and easy loading.

Based on two Flexdoor machining centers, this machine performs different woodworking and hardware mounting operations. The load is distributed between woodworking and mounting so that it is possible to launch two doors at the same time: one is machined while the hardware systems are secured on the other. Moreover, the edges hinge-side and lock-side are machined at the same time. This kinematics that consists in performing many operations in parallel allows production throughputs of one door every 14 seconds to be achieved for some models!

“The 28 axes are driven by two Num Power CNCs but just one MMI (multiCNC configuration)” continues Benoît Jeanneau. “In light of our machine’s design, it was imperative to have a control system capable of ensuring perfect synchronization between several groups of axes as each operation was optimized so that there would be no loss of time”. The spindles are synchronized with the movement of the slides and the programs of each group of axes are sent alternately: while one program is being executed, the next one is already being loaded.

Automatic batch recognition

The originality of this new machine concerns its flexibility and its capacity to automatically modify its settings to conform to production changes. “The PC panel” says Benoît Jeanneau, “manages all the exchanges with our user’s ERP. To do so, it prepares all the production data based on the bar code reference read at line inlet: number and nature of operations to perform, corresponding program numbers etc. “.

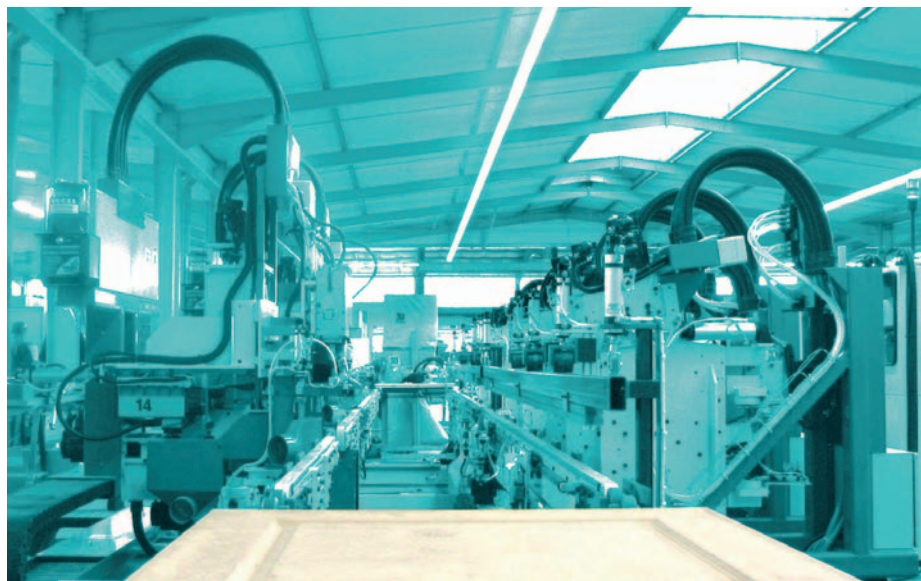
The door models are thus pre-programmed but several dimensions can be modified on the machine, thus allowing many variants to be created. A specific and particularly explicit MMI was developed for this purpose.

In addition to exchanges with the ERP and MMI, the PC also allows the memorization of all the modifications made compared to the initial dimensions and programs. Perfect traceability is thus assured.

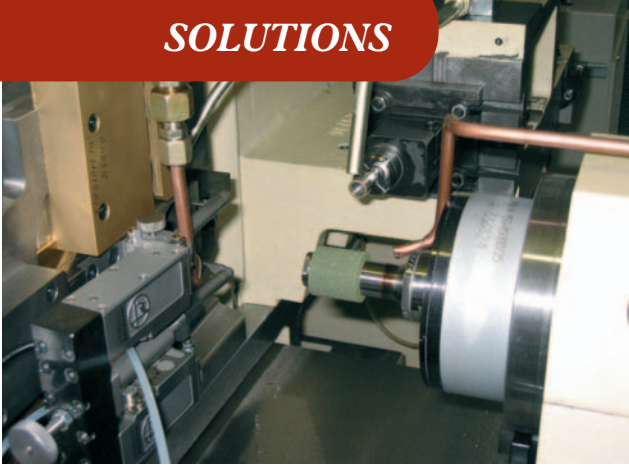
All the production data is forwarded in real time to the ERP (finished or rejected parts, machine defects, etc.); the system thus has all the information necessary to calculate the overall yield rates, failures etc.

In parallel to this ERP link, several sensors located at line inlet measure the dimensions of the plate, which by extrapolation, allows calculating all the dimensions for the positioning of the hinges, hinge plates etc. All the settings are thus automatic, including for the pneumatic sequencing.

“We really wanted to conciliate flexibility and productivity down to the last detail” concludes Benoît Jeanneau. The hinging nose, for example, accepts seven types of hinges and the dimensions of the doors can vary in significant proportions. In addition, the combination of the woodworking and mounting operations allows an incredible number of types of doors to be made at real production throughputs”.



The Dubus machines entirely groove out the locks (grooves, barrel holes, upper and lower bolts...) at the same time as the machining of the hinge plates and hinges (pre-drilling, degreasing...) then it mounts and secures the different hardware parts.



The new vertical machining center, that combines milling/turning, directly in the solid metal, and grinding exterior and interior diameters, is called Futura.

With more than forty years experience in the design and manufacture of grinders, Meccanodora has the know-how that enables it to meet the requirements of its European, American, and Asian clientele by offering the most appropriate solutions. Based in the region of Bosonero, near Turin, Meccanodora has been equipping all its machines with CNCs.

Classed by type (external, internal or special grinding), these machines are used in sectors as varied as bearings, constant-velocity joints and tripods or even automotive components and compressors for refrigerators.

An Extensive Offering

“What characterizes Meccanodora, explains Guido Furxhi, plant Technical Director, “is the scalable concept of its products. It’s not by chance that its new vertical machining center, that combines milling/turning directly in the solid metal and grinding exterior and interior diameters is called Futura.”

“The aim with this machine”, he continues, “is to perform the machining in a single run; this guarantees improved precision and shorter cycle times, and avoids axial and perpendicular positioning errors”.

When grinding, high speed work requires, more than elsewhere, significant rigor. One needs a machine with a rigid mechanical structure, high technology tools, dedicated cooling techniques, high performance servo-systems anda CNC system with dedicated algorithms!

The Partnership Concept

“We have recently been working with the French Group Nadella” specifies Guido Furxhi. “The particularly advanced requirements of this manufacturer of roller bearings designed in particular for the automotive industry, has led us to exchange our know-how. This was a determining factor for the development of a system that currently positions us in the lead in this application domain.”

“To achieve this,” adds Giorgio Marcarino, Electronic project manager, “the installation was equipped with an adaptive control that automatically yields better

Grinding

Meccanodora/Num : for unique path finesse

Meccanodora, a company specializing in the production of grinders, opted for the Num Power 1060 CNC and Num Drive drives to meet the requirements of a famous French manufacturer of bearings and small automotive components.

quality machined parts. The operating principle consists in modifying the feed rate on the machining axis according to the load produced by the grinding wheel on the part. This load, that depends on different factors such as the quality of the abrasive, feed rate, the surface finish of the part, etc. is measured by a device composed of a transducer and an ECU that communicates directly with the Num processor board. Depending on the result, the feed rate is then adapted to optimize the tool’s material removal capability. Moreover, the machine has measuring instruments to correct the geometric errors of the part and to check the size of the machined element.”.

A “job”-oriented human-machine interface

“Thanks to the openness and flexibility of the Num Power 1060 CNC system”, declares Giorgio Marcarino, “it was possible to develop optimized software for each application. Our customer thus has a man/machine interface dedicated to his “job” where the operator can directly configure the geometric data of his grinding wheel and of his part, machining parameters etc. He is guided in the tuning and simulation operations and has an advanced diagnostic system.

The ultra-rapid sampling and use of Num Drive modular drives increases the path following accuracy, producing profiles with very high precision and yielding a very low roughness index”.

“Thanks to the openness and flexibility of the Num Power 1060 CNC system” states Giorgio Marcarino, Electronic Project manager, “our customer has a dedicated man/machine interface where the operator can configure the geometric data of his grinding wheel and his part, machining parameters, etc. and is guided in tuning and simulation operations, with an advanced diagnostic system”.



Special Machines

Num et Perndorfer, a **skills**-based Partnership

Perndorfer, builder of special machines, has chosen Num because it knows that in addition to its high end controls and drive systems, Num offers first rate assistance covering the entire range of services: from mathematics to commissioning assistance and including the servo technique.

Perndorfer Maschinenbau, located in Neumarkt, Austria, is one of the leading suppliers of special machines, whether this concerns machines for cutting cigarette paper or cutting and welding Schwarzmüller semi-trailer frame components.

The company has another specialty, water jet cutting machines and installations that represent nearly half its sales. It is this sector that gave rise to the most recent development, a three-dimensional water jet cutting station developed for Metzeler, a well known German automobile equipment supplier. Four of these machines are currently in service for cutting door seals.

Franz Perndorfer, founder and head of the company, says he is proud of this development. "This is our first 3D machine and we achieved an exceptional result that few of our competitors can offer. Our 3D cutting head can move at will in a circle and is thus not limited to 360° movements." This 5-axis head with unlimited rotation capabilities features an ingenious but simple device: "The motors of the C and B axes," explains Franz Perndorfer, "are mounted like a synchronized gear, but I won't unveil any more details". The subtlety of this device resides precisely in these details as it requires, among others, perfect harmony between the mechanics, servo-systems and the CNC.

All the Difference is in the "brainware"

"It is because Num does more than just supply the software and hardware that we chose it" emphasizes Franz Perndorfer. "Num provides us with its expertise, in particular as regards drives; what you call the "brainware"!"

For difficult projects, Perndorfer also works in collaboration with the Leitner Engineering design agency, that can offer tailored, professional solutions in the area of automation. Nine highly qualified specialists work essentially with 3D CAD tools to give shape to the solutions developed. Using the finite element method, the components are designed according to their specific purpose. Leitner Engineering's services also include the drafting of CE-compliant

documentation, in particular including risk analyses.

Among its recent successes, Perndorfer clinched an order in the aerospace industry: FACC recently awarded it the construction of an ultrasound inspection machine designed to inspect FTF A380 (Flap Track Fairings Airbus A380). This project imperatively requires the intervention of the Perndorfer, Leitner Engineering, Nutronik (for the ultrasonic part) and Num foursome. An example of the many complex tasks this foursome will have to tackle is the development of 11-axis interpolation.

For this new project, Franz Perndorfer knows exactly what to expect. From the early nineties, Perndorfer machines have been equipped with Num controls, to the great satisfaction of the company: "The collaboration with Num experts works really well" confirms Josef Pramerdorfer, responsible for the control technique. "They know their job and know how to be available. All the customers to whom we have delivered machines equipped with Num controls are satisfied. We've never had the least problem".

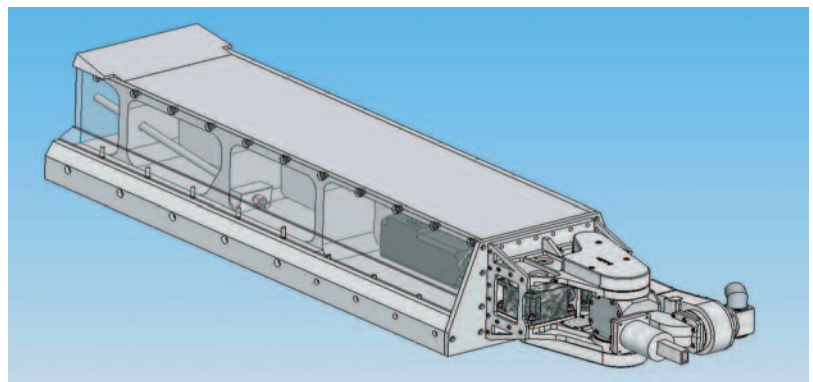
In these conditions, the future looks bright.



3D water jet cutting station, developed for Metzeler, a German automobile equipment supplier

num information

Published by Num SA
Immeuble "Les Courlis"
46 avenue Kléber
92700 Colombes
Tel.: +33 (0)1 34 23 66 66
Fax: +33 (0)1 34 23 65 49
www.schneider-num.com
United States
Num Corporation (USA)
603 East Diehl Road,
Suite 115,
Naperville, IL 60563
Tel.: +1 630/505-7722
Fax: +1 630/505-7754
sales@num-usa.com
www.num-usa.com
United Kingdom
Num (UK) Ltd
Blackhill Drive
Wolverton Mill South
Milton Keynes MK 12 5BP
Tel.: 0871 750 4020
Tel.: 0871 750 4021
sales@schneider-num.co.uk
www.schneider-num.co.uk
Editor: Laurence Petitguyot
Realized by: AVANA
Orléans (France)
33 2 38 77 88 88
ISSN 0248-7306
1st quarter 2005



Ultrasound inspection machine for inspecting the FTF A380

num

in the World

Austria
Hafenstrasse 47-51
A-4020 Linz
Tel. : +43 (0)7033 6381
sales@schneider-num.ch

NEW

China
Schneider Building
Château Regency,
n°2 Jiangtai Rd
Chaoyang District
Beijing 100016
Tel. : +86 10 8434 6699
bnum@cn.schneider-electric.com

Germany
Gottlieb-Stoll-Strasse 1
D-73271 Holzmaden
Tel. : +49 (0) 7023 7440-0
sales@schneider-num.de

Spain (Telenum)
Calle Gabiria n°2
E-20305 Irún
Tel. : +34 943 62 35 55
telenum@infonegocio.com

France
Immeuble les Courlis
46 avenue Kléber
F-92706 Colombes Cedex
Tel. : +33 (0)1 56 47 58 00
sales.france@num.fr

Italy
Via Gallarate 184
I-20151 Milano
Tel. : +39 02 300 914 11
italy_sales@num.it

Switzerland
Battenhusstrasse 16
CH-9053 Teufen
Tel. : +41 (0)71 335 04 11
sales@schneider-num.ch

NEW

United Kingdom
Blackhill Drive
Wolverton Mill South
GB-Milton Keynes MK12 5BP
Tel. : 0871 750 4020
+44 1908 628 027
solutions@schneider-num.co.uk

United States
603 East Diehl road – Suite 115
US-Naperville – IL 60563
Tel. : +1 630 505 772
sales@num-usa.com

Num Worldwide
Algeria, Belgium, Brazil,
Czech Republic, Finland,
India, Norway, Poland,
Sweden, Taiwan, Turkey
sales.export@num.fr

Num

Schneider
 **Electric**

Num : CNC Complete Solutions