

Cutting Edge Technology, Ingenuity and Customer Proximity



Above from left to right: Flavio Gugelmann, Director of Production Technology at Fraisa, Stefan Gutmann, Director of Production and member of the Executive Board at Fraisa, Adrian Hangartner, Director of Manufacturing and Learning Technology for Development at Fraisa and Jörg Federer, NUMROTO Application Director, NUM AG.

Below from left to right: Fraisa SA, in Bellach, Switzerland, is the headquarters for the company and houses production for its entire range of milling, drilling and threading tools. The company's divisions of administration, management, marketing, research and development, logistics and ToolSchool are also based in Bellach. Fraisa Hungária Kft in Sárospatak, Hungary is an ultra-modern 4,000 square meter plant which produces top-quality carbide tools for the Fraisa Group's circle of customers.

The title above cites the three factors which comprise the philosophy for success shared by Fraisa and NUM and have made the companies leaders in the global market for cutting tools. This philosophy, in combination with the companies' mutual experience and trust, has resulted in a solid partnership in the tool machining sector which has lasted for 25 years. Both companies maintain their own research and development departments which strive to always keep a step ahead of the market. Fraisa's leading position in the high-tech tool market – as well as its firm commitment to training and development – came to the attention of the Swiss Federal Council, and the President of the Swiss Confederation made an on-site visit to receive a detailed demonstration of modern tool production.

Cutting edge technology – Fraisa's high-performance tools and comprehensive range of services enable its customers to increase productivity and lower costs. Fraisa also provides these customer benefits through the use of NUMROTO, the comprehensive tool machining application developed by NUM. NUM is constantly working in close collaboration with Fraisa to bring new enhancements to the software so that it always meets current needs in production. One example of these enhancements is provided by the high-performance AX-RV





end mills mentioned in this article. These tools make use of 3D simulation to ensure they are already “electronically balanced” by the time they are programmed. This balancing is so precise that mechanical balancing can be done away with, thus saving setup costs and time.

Another highlight is that tool grinding machines can now be linked to SAP systems. This allows companies to monitor production centrally and create logs of production data at any time.

Ingenuity – creates stability, ensures transparency, saves time and reduces costs. This in turn guarantees higher productivity and greater efficiency. That’s why NUMROTO is also an open, user-friendly application which can be continuously adapted (i.e. programmed) to the current needs of the application.

Customer proximity – Fraisa maintains its own training center where customers work directly on machines to keep up to date with the latest state of machining technology. The same is true of NUM, which also makes customer visits and provides on-site instruction at customer production units, in addition to providing training sessions for NUMROTO.

As mentioned above, Fraisa produces cutting tools for metal working for the global market. Founded in 1934 by Johann Stüdeli,

Fraisa started out producing milling tools for the watch and clock making industry. This laid the foundation for the present Fraisa Group. Today, with 520 employees, Fraisa ranks among the leading manufacturers in the industry. Fraisa Holding AG is represented worldwide with 6 branches. Fraisa SA in Bellach, Switzerland has been the headquarters of the company since it was founded, and includes production and development of the company’s entire range of milling, drilling and threading tools. In addition to Switzerland, Fraisa also has branches in Germany, France, Italy, Hungary and the United States. Fraisa’s collaboration with NUMROTO began 25 years ago, at the time the first tool grinding machine was delivered to the Bellach plant. Since then, the company has significantly expanded its machine facilities, not just in Switzerland but also in its branches in other countries.

New AX-RV tools bring high performance to aluminum end mills

The technological innovations of AX-RV brings superior results, maximum productivity and minimal machining costs per tool. Less vibration and a smooth run ensure a higher degree of process stability. Minimal setup costs and times are achieved thanks to pre-balanced tools. Higher automation capacity is realized through reduced inspection intervals and longer tool lifetimes. Improved component quality is achieved thanks to process-stable runs and better transfers during downfeeds.



Right: The new high-performance AX-RV end mill is setting new standards in milling integrated aluminum components. The AX-RV was developed by Fraisa in close collaboration with industry partners.

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www.num.com
www.numroto.com



numroto® flash¹⁸



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20th - 25th April 2015,
Beijing, China



2nd - 5th June 2015,
Geneva, Switzerland



5th - 10th October 2015,
Milan, Italy

2015 trade shows with NUMROTO

NUM will be showcasing NUMROTO at various trade fairs around the world this year. We will be presenting the latest NUMROTO innovations and will be available for constructive discussions. Come and visit us at the trade fairs listed above. Our team is looking forward to meeting you. Our hall and stand numbers will be listed on our website (www.num.com) before the beginning of every trade fair.

There will, of course, also be a number of tool grinding machine manufacturers at the trade fairs whose products are equipped with NUM CNC systems and NUMROTO.

NUM Engineering helps customers gain a competitive advantage

Solid partnerships, inventiveness, and user friendliness allow us to push the benchmark for top technology in tool grinding higher, time and again. Owing to this fact, we offer our partners a competitive edge in the world of cutting tools.

NUM's strategy is to develop and manufacture the central CNC system components for machine automation in-house, since these components make a significant contribution to the machine's production quality. These components are the NC kernel, the drive amplifiers, and the motors. This way we are able to align the overall performance of the system to each customer's requirements, and to optimize the system performance continuously.

For enhanced competitiveness, processes must be automated as much as possible and existing data must be used. NUMROTO Draw was greatly expanded and the operation simplified to support the preparation of quotes and the documentation of tools even more optimally. As a consequence, time and costs required for these process steps were decreased. The time thus gained can be put to productive use.

In today's world the highest level of efficiency, product quality, and product reliability in combination with a competent and highly responsive customer service are of utmost importance to gain an advantage in this fiercely competitive market.

Peter von Rüti, CEO NUM Group



NUMROTO Draw – Intelligent Product Documentation Combined with Savings in Time

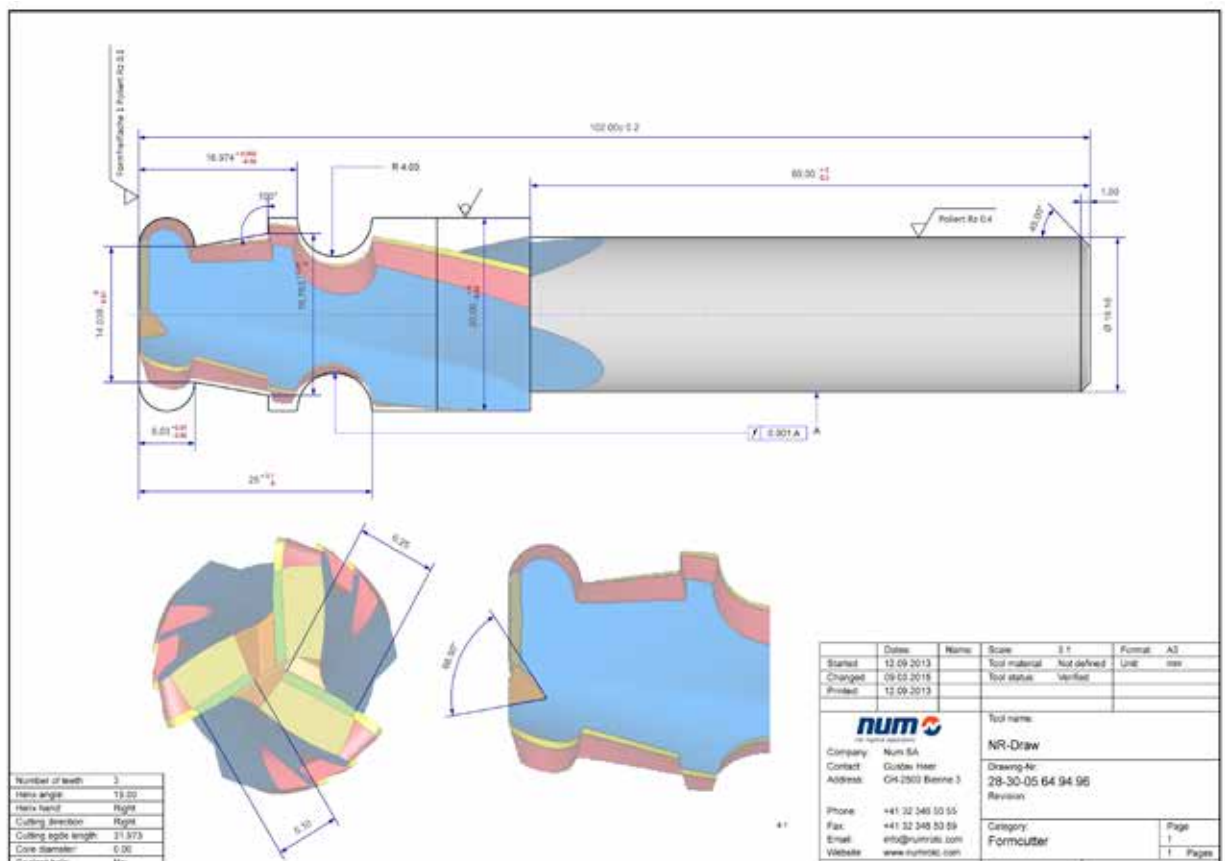
Up to now, approaches to tool documentation and proposal management have generally been based on the following workflow: as a tool is being programmed and ground on the grinding machine, an engineer manually creates the corresponding CAD drawing and any related data tables. The drawing creation stage has now been significantly shortened and simplified thanks to extensive enhancements to the NUMROTO Draw documentation application.

NUMROTO Draw extensively automates the drawing creation process so that even beginners, as well as customers who already maintain comprehensive NUMROTO tool databases, can easily generate elevation drawings on their own and modify and extend these in any way they please. In addition to programmed machining operations, the basic data for the drawing also includes the basic geometry of the

drill or (form) cutter. Specific dimensions, tolerances, comments, symbols and images can then be added to round off the drawing. DXF profiles and images can be exported from NUMROTO 3D simulations and added to perspective views and sections, using the selectable scale if necessary. These detail views can even be rotated and cut to size later, for example by means of rectangular or cir-

cular templates. The application also makes it easy to integrate graphics from outside sources.

A strict separation of roles allows even users without any tool grinding knowledge to create attractive, complex drawings from existing tool data sets. This allows you to easily divide up tasks between those which are engineering/programming relat-





The most important innovations between 3.8.0a and 3.8.1d

All relevant enhancements and improvements can be found at: www.numroto.com > Customer Area

General

New possibilities for the separate division

When using the separate division it is now possible to also program an irregular division, or to only select the teeth which should be ground.



Attachments

Files which can be attached to a tool can now have a size of up to 64MB (previously only 16MB).

Tool name

Several special characters can now be used in tool and wheel names.

64bit

When using a 64bit operating system NUMROTO can now benefit from up to 3.5 GB of RAM (computer memory).

2000 teeth

Up to 2000 teeth can now be programmed.

End mills

Radial relief with cup wheel

On end mills with a ball nose or corner radius tip, the relief on the cylindrical part can now also be ground with a cup wheel.

Rake angle probing

The rake angle can now be measured using the tool probe (a certain minimal flute depth is recommended). NUMROTO option measurement in process is needed.

Protect parameters

Some parameters within the end mill module can now be protected (locked). Such parameters can then no longer be changed. Only an administrator can remove this protection.

Drills

Reamers

Simplified programming for creating programs for reamers and step reamers.

DXF reliefs

DXF reliefs can now be linked with other DXF reliefs so that certain parameters only have to be defined once.

K land on point with cup wheel

The K land on a drill point can now also be ground using a cup wheel.

Burrs

Variable lead

It is now possible to program a variable lead on a burr (option special grinding function needed).

Probing

Run out error probing

The run out error on a blank can now be probed on points located at a programmable index angle (along the circumference of the blank).

Wheel dressing

Several sections

The dressing can now be split into several sections along the wheel profile.

Adjust rotation speed

The rotation speed of the dressing wheel can now be adjusted automatically if the diameter of the dressing roll is reduced.

NCI

In the NCI it is now possible to define additional spindle bars. Also a text com-

ment can be added to each spindle bar to indicate its role.

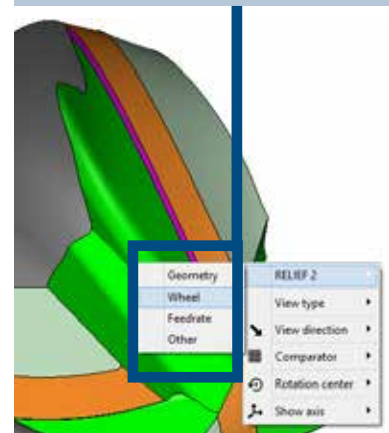
NUMROTO-3D

DXF graphics

NUMROTO-3D can now generate DXF 2D graphics which then can be used in NUMROTO-Draw.

Open more operation dialogues directly from NUMROTO-3D

It is now possible to open more operation dialogues (feed rate, others, wheel selection...) directly from NUMROTO-3D. Simply right-click on the desired operation in NUMROTO-3D.



NUMROTO-Draw

Dimension with free orientation

It is now possible to add a dimension which can have any orientation.

Cropping and rotation of objects

Drawing objects such as images and DXF objects can now be cropped and rotated.

Add custom elements

Simple graphical elements such as lines, circles and squares can now be added to a drawing.