Contents

The New Xpert System from STEP-FOUR

Amazing milling technology!

■ Now available: The new **Xpert** system from STEP-FOUR

Customer Information

In-House Trade Fair October 15, 2005

The **Xpert** *System represents a new generation of innovative CNC machines designed by STEP-FOUR. In combination with the* **Xpert** *Mill software the new* **Xpert** *CNC controller converts your Windows PC into an expert high-end CNC system.*

Top dynamics, absolute precision, 2, 2 ½ or 3D processing, 2, 3 or 4 axles: you name it, the STEP-FOUR **Xpert** enables you to create the optimum tool for your CNC system.

A great step forward has been achieved with the design of the intelligent step motor controller, the **Xpert** CNC, the true "heart" of the machine. Dynamic switching between the micro and the full step modes and advance movement analysis of all four axles to guarantee that the individual axles only brake as much as is really necessary ensure perfect path speed. State-of-the-art components which incur very little step loss control the motor output stages and time control sequences very precisely, leading to results that their servo counterparts just cannot match. The **Xpert** CNC

www.step-four.at

■ **Editorial**

STEP-FOUR* X** pert MILL *– a star is born

■ Ernst Ramberger

Here it is at last: the Windows version of the milling software has arrived. As this is a reason to celebrate, this newsletter is a special issue devoted to introducing the new software. The name of our software product is STEP-FOUR XpertMILL and it is expected to be a milestone in milling technology, both in terms of its range of functions and its user friendliness. We hope you enjoy reading about the amazing opportunities that the STEP-FOUR XpertMILL system will provide.

controller is equipped with standard connectors and all the required connecting cables. This means that the system can be up and running within a very short time. All existing STEP-FOUR milling units can be upgraded without any problems. Since the complete set of parameters, such as ramp levels, step motor resolution, spindle gradient or motor currents, can be adapted by way of software for each individual axle, external systems can also be upgraded with the new system.
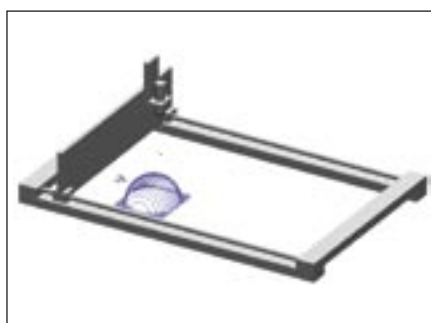
X pert MILL stands for the symbiosis of the latest software standards with existing know-how based on 10 years of experience with the classic DOS milling programs used worldwide.

In addition, numerous customer requests have been implemented in the form of extensions (customer service is what STEP-FOUR

■ **X** pert MILL is a multi-tasking program.

is famous for). STEP-FOUR **X** pert Mill is a real multi-tasking program. By transferring all the critical timing functions to the **X** pert CNC controller it is possible to continue executing other programs simultaneously during the milling procedure. Yet the user still has everything under control: milling pauses, controlled stops, alterations in advance feed or spindle speed, the visualisation of the complete milling mechanism including the router, viewing the machine from any angle, "following" the router, to name just a few of the many options available. You
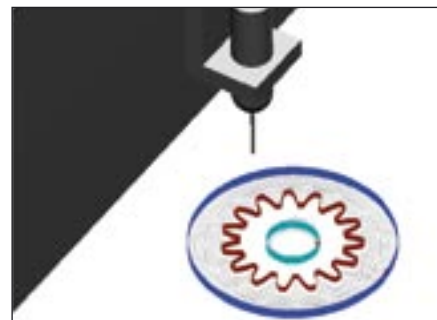

■ Visualisation of the mechanism and the router from every angle.

constantly remain in control of the process and know exactly what is going on.

Consequently, **X** pert MILL is expected to represent a technological milestone like its predecessor, the

STEP-FOUR professional milling software, ten years ago.

Installation and Operation

The Install-Shield Installation Assistant enables the software to be installed, removed and updated quite simply. In a database all the

■ Visualisierung der Tiefeneinstellung

machine parameters for the STEP-FOUR unit concerned are stored clearly and logically. There is no need to enter or adapt countless parameters. You simply select the appropriate machine driver. If required, the machine drivers can be edited comfortably in the software or new driver files can be created. This enables external milling machines to be used and adapted quite easily. **X** pert MILL also allows you to upgrade the firmware (i.e. the hardware) of the **X** pert CNC controller.
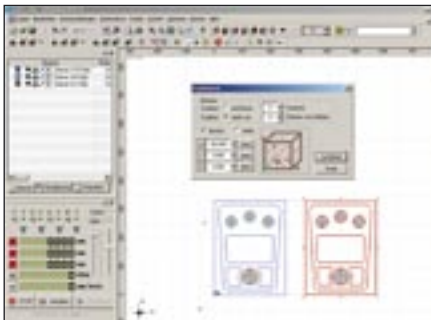
Transferring the Editing Geometric Data

In the 2 or 2 ½ D range DXF or HPGL geometric data can be transferred to virtually any drawing or construction program without any complications.

To make sure this is not a one-way affair, bidirectional data exchange enables existing milling geometric data to be sent back to the CAD system.

The **X** pert [3D] module allows path data to be transferred in the

DIN-ISO G code format, so that 3D milling files can be transferred from CAM systems for cartesian three-axle processing and/or rotation axle processing. In the case of special applications, such as three-axle contour milling or beveling, 3D DXF files (3D polylines) can also be imported.

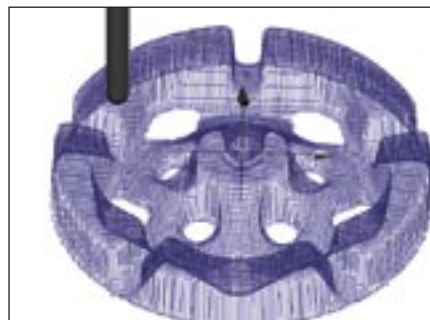■ Geometric data editing function

Milling Technology

In order to link the geometric data to milling-related parameters there are a whole series of powerful functions. Just press a button and advance feed values, milling depths, morticing and spindle speed settings for all objects are transferred from the material database provided. If necessary, however, the milling parameters can also be preset for certain layers or even individually for each object.

For the standard 2 ½ D range **Xpert**MILL offers a set of effective tools. The standard functions for the definition of inner and outer contours, starting points, the cutting direction and sequence already meet most requirements. The **Xpert**[CAM] extension module with its special functions for contour-parallel or direction-parallel reaming with automatic island recognition, extensive 3D running-in/out options (e,g, spiral-shaped, contour-parallel, tangential or arc-

■ Creating, editing and milling text

■ 3D milling

shaped objects) as well as special smoothing functions has turned the XpertMILL unit into a first-class 2 ½ D CAM system.

Handling Milling Objects

STEP-FOUR **Xpert**MILL commands powerful handling functions that adapt objects optimally to the technical procedure. With the aid of the rotation, mirror, scale, group and duplicate functions, objects and object groups can be aligned to each other and adapted individually so that they meet any requirements. As the milling-technical parameters of each object are always retained during such operations, even complex multiple procedures can be executed quickly and easily.

■ Menu window for manual operation

■ Speed configuration

CAD Functions

STEP-FOUR believes in letting each user work with the CAD system of his choice, but of course life would get rather complicated if you had to change to the CAD program for the slightest thing when manufacturing or improving simple milling parts. Bearing this in mind, our designer team has come up with the extension module **Xpert**[DRAW]. Irrespective of whether you intend to process or modify geometric data in a complex CAD file, or wish to construct simple milling parts directly with the milling software, this module offers you all the functions you need. You can either use the mouse or numerical data to generate points, lines, squares, rectangles, circles and ellipses, thus manufacturing simple parts quickly and accurately. Rounding or beveling corners, cutting, melting and reducing points with the smoothing function allow you to adapt objects to the geometric and milling-technical requirements of a part swiftly.

The point edit function enables single object points to be processed. Points can be linked or separated at any location, etc.
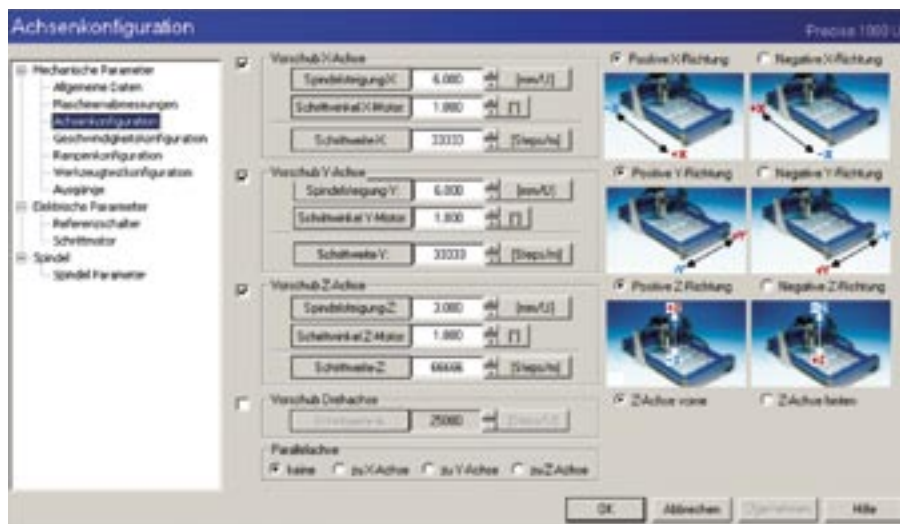
With this module texts containing any Windows fonts can be created
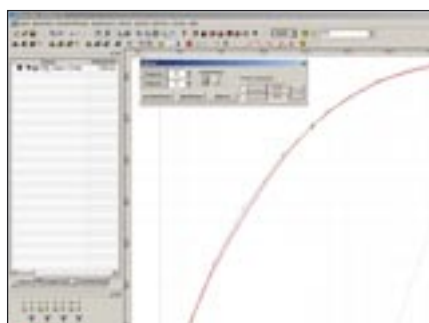
directly in the milling environment and milled.

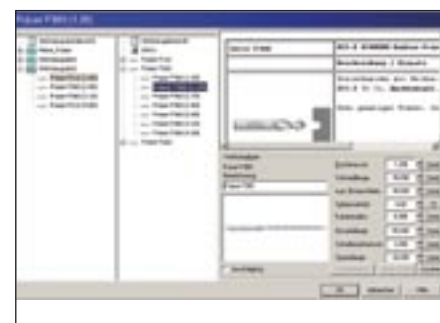### Material and Router Database

Milling parameters can be transferred from the integrated material and tool database software or current values can be entered in the material database. Thanks to the extensive range of settings in the database, you do not need to calculate the ideal milling parameters for each different material. The database is divided into material categories. Individual sets of materials can be created for the application at hand.
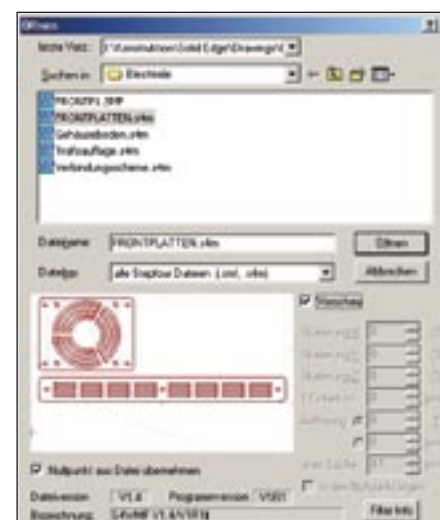
Screenshots

■ Mechanical parameters

■ Smoothing a contour
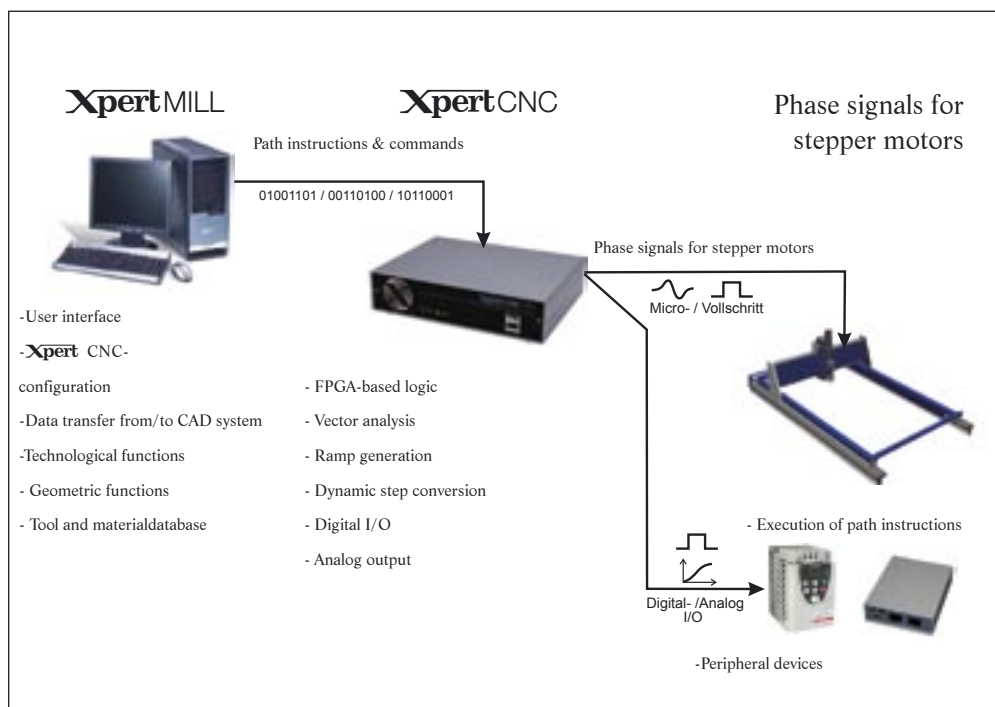

■ Tool database

■ 2 ½ D CAM functions

■ File preview

XpertCNC **Controller**

The highlights of the STEP-FOUR Xpert system:

• Complete 3D 4-axle control
• Real multitasking
• Dynamic conversion between micro step and full step operation
• Modular structure enables software to be customized
• Extensive tool and material databases
• System can be configurated for any type of milling mechanism

XpertMILL   **Xpert**CNC   Phase signals for stepper motors

Path instructions & commands

01001101 / 00110100 / 10110001

Phase signals for stepper motors

Micro- / Vollschritt

-User interface

-**Xpert** CNC-configuration

-Data transfer from/to CAD system

-Technological functions

- Geometric functions

- Tool and materialdatabase

- FPGA-based logic

- Vector analysis

- Ramp generation

- Dynamic step conversion

- Digital I/O

- Analog output

Digital- /Analog I/O

- Execution of path instructions

-Peripheral devices

In-House Trade Fair

TRAINING WORKSHOP
"Experts provide useful hints"
October 14, 2005

IN-HOUSE TRADE FAIR
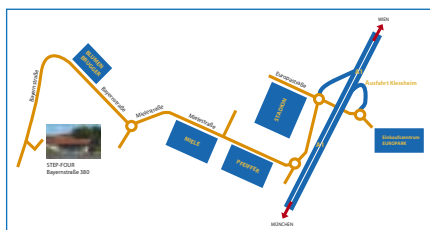October 15, 2005,
10 am to 5 pm

Come and see us on Saturday, October 15, 2005 and enjoy a few hours with your STEP-FOUR team. Snacks and drinks will be provided. Various interesting activities are planned.

One day earlier, on Friday October 14, we are offering a training workshop focusing on 3D processing with the aid of milling and cutting technology. For further information please call
+43 (0)662/459378-0.

How to get there
In Salzburg exit the motorway A1 at Klessheim. Drive past the football stadium, turn into the Mielestraße at the second roundabout and continue until Bayernstraße 380.

STEP-FOUR Trade Fair Dates

Sept. 29 – Oct. 1, 2005

VISCOM in Frankfurt
The largest advertising technology fair

November 18 – 20, 2005

MODELLBAU BODENSEE
In Friedrichshafen on Lake Constance, Germany
The model trade fair in Southern Germany

December 1 – 4, 2005

EUROMOLD in Frankfurt
This international fair focuses on molding and prototyping.

Leasing

Worthwhile conditions at reasonable cost. From € 3,000.- Call us and we will be hapy to make you an offer.

Questionnaire and Competition

Fill the form in and fax it to us!
Or send it to us by post.

Fax: +43/(0)662/45 93 78-20

STEP-FOUR GmbH
Bayernstraße 380
A 5071 Wals-Siezenheim

Please fill in:

....
Name

....
Company

....
Street

....
Phone

....
Fax

....
E-Mail

Dear prospective STEP-FOUR customer!

We would like to find out what we can do for you to satisfy your requirements. We hope you will become a STEP-FOUR user very soon.

Thank you very much in advance for taking the time to answer our questionnaire. You can also fill in the questionnaire directly on our homepage and send it to us by email.

We are raffling three product vouchers worth €750.-, €500.- and €250.- among all the completed questionnaires received before July 31, 2005.

Questions

You are interested in a computer-controlled

❑ STEP-FOUR contour milling system

❑ STEP-FOUR polystyrene cutter

How did you hear about STEP-FOUR?

❑ from a specialist magazine

❑ at a trade fair

❑ on the Internet

❑ from friends or acquantainces

Have you ever visited our website www. step-four.at?

❑ Yes   ❑ No

How would you use the STEP-FOUR machine?

❑ for work   ❑ at home

In which field do you work?

❑ modelbuilding   ❑ architecture

❑ advertising technology   ❑ electronics

❑ prototyping ❑ sample engineering

❑ training ❑ production

❑ other ....

What sort of demands/ideas do you have with respect to our machines?

....

....

....

What would you like to produce with a STEP-FOUR machine?

....

....

Would you like us to contact you on the phone or send you more information about our products?

❑ Yes ❑ No

What tasks would you like STEP-FOUR to find solutions for?

....

....

....

Would you be interested in visiting our company / attending a demonstration?

❑ Yes ❑ No

Which seminars/workshops would you be interested in?

❑ 2D – 2,5D milling

❑ 3D milling

❑ hot-wire cutting

❑ Wing-Designer

Which trade fairs do you visit in your field?

....

....

....

Which CAD program do you use?

....

....

Many thanks for giving us your opinion!

Take part and win!

STEP-FOUR GmbH
Bayernstraße 380,
A-5071 Wals-Siezenheim
www.step-four.at