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September 2004  
Issue No. 12

# Our New Home



■ The new STEP-FOUR building at 380 Bayernstraße.

***The big day has arrived. We're moving! On 1 October we're opening our new office at 380 Bayernstraße in Wals-Siezenheim near Salzburg. After only three months of reconversion work we can present our spacious, modern premises.***

At our disposal we have a first-class, excellently equipped office building with nearly 1400 m<sup>2</sup> that will soon let us forget the tight squeeze we had in our last building. Even if the company continues to grow at its present rapid pace, there is enough land available for an extension. Each department, such as software and hardware development, incoming goods, quality assurance, customer support and service, the warehouse, dispatch, the office,

sales and management, will have plenty of space thereby guaranteeing optimized work processes. The whole team is really looking forward to the new lounge and seating areas, and the opportunity to spend breaks outside on sunny days in a small garden (also ideal for company festivities).

If you would like to meet us in person, please come and visit us. We are much better equipped to offering you help and advice on your projects in our new home.

**Open Day  
2 October 2004**

Customer  
Information



[www.step-four.at](http://www.step-four.at)

# STEP FOUR

## Introduction



■ Dr. Benita Ferrero-Waldner, Austrian Minister for Foreign Affairs

As Minister for Foreign Affairs and European Commissioner I see how business and the economic situations are linked from an international perspective. This perspective is particularly pleasing in the case of STEP-FOUR, which not only has a long list of references and customers, but which is known for its versatility, in that the company works with various business sectors all over the world. This provides an impressive panorama that ranges from the supply of machinery and the manufacture of windpower rotor blades for India to the development of cutting units for Airbus Germany or BMW, from cooperation with the University of Arts in Linz to working with the "Laboratory for Electronics" in Moscow.

Ten years on, STEP-FOUR can certainly be regarded as a good example of Austrian entrepreneurship in the new millennium. Ten years on, STEP-FOUR has achieved goals that many of us dream about: they have broken down frontiers and brought different nationalities together.

I am delighted to wish the company founder and managing director, Ernst Ramsberger, and his team at STEP-FOUR the very best for the coming decades.

# The J3 Piper is ready

In its preliminary stages just a few weeks ago, the J3 Piper is now ready for take-off. Designed by Mr. Eberhartinger from Salzburg and introduced in the last issue of this newsletter, the finished model is true to life down to the last detail and will cause quite a stir wherever its proud owner flies it.



■ The ready model



■ The J Piper landing.



■ The cockpit

## Top Machinery for Large-Scale Modelbuilders

In July this year we equipped the company TB - Großflugmodell- und Tragflächenbau in Hausach, Germany with two of our top-of-the-range machines. From now on this expert in large-scale model and wing construction will be able to meet its customer requirements with the utmost precision using the Precise 1000 U milling machines and the professional cutting unit from STEP-FOUR.

This means the company can manufacture individual components,

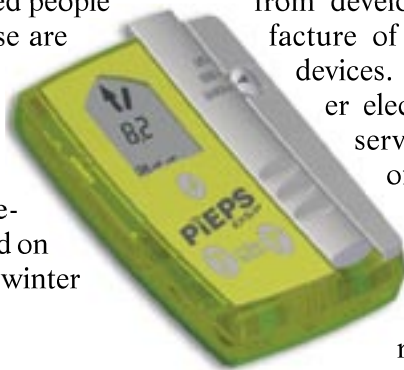
such as fuselages, wings, elevators, Fema undercarriages as well as produce complete aircraft.

We are delighted to enable this great model construction company, with customers in the UK, the US, Brazil and Japan, to implement the latest technology, so that it can remain one step ahead of the competition now and in the future.

Contact: Mr Budzus, Tel.: +49 (0) 7831/968968, Email: Budzus@web.de

# SEIDEL Elektronik Uses STEP-FOUR Technology

A large range high-speed tracking system, with multiple-search options for victims buried under avalanches and easy operation enabling even inexperienced people to gain time: these are the main features of Pieps DSP, the digital High-Tech Avalanche Victim Search Device, which arrived on the market in the winter of 2003/2004.



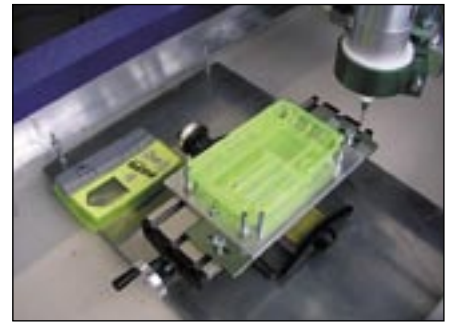
This is where the positioning feature of the STEP-FOUR Basic 540 milling device comes into its own. The construction was achieved using adapted dispenser components designed by Vieweg ([www.dosieren.de](http://www.dosieren.de)). Silicon cartridges made by Wacker-Chemie are processed to provide the material used. The applied adhesive has a diameter of approx. 0.8 mm. After this the cabinet is closed and thus glued tightly.

From August next year around 10,000 pieces will be produced, a great achievement considering the company only started producing last winter. A leading company on the technical market, SEIDEL Elektronik thinks production is likely to increase even further in the coming years. The Avalanche Victim Search Device is sold by Stubai Bergsport and is available in specialized shops (price around € 350). For further information please go to [www.pieps.at](http://www.pieps.at).

Seidel Elektronik mainly operates as a contract manufacturer in equipping printed circuit boards, offering the full range of services from development to the manufacture of complete mechanical devices. It specializes in power electronics (for instance, servo regulators for one of the main European companies), automobile measurement and medical technology. Its own product range includes the avalanche alarm system described above and a power platform as a basic unit for motor control systems. Take a look at [www.seidel.at](http://www.seidel.at) for further details.



■ SEIDEL Elektronik uses a Basic 540 as a positioning and travelling unit.



■ The cabinet of the Pieps DSP.

## Software Update

Since the end of July the updated S4PRO Version 4 Revision 6 can be downloaded free of charge from the Internet at [www.step-four.at](http://www.step-four.at). Please feel free to make use of this service and get hold of the latest V4 software.

The following error has been eliminated:

When defining the zero point on the lower side of the material, the Z axle was first positioned at the zero point and then raised, before the milling procedure could be started.

## Advertisements

Advertise free of charge in the STEP-FOUR newsletter. Send us your ad by email as a text file (not more than 1 column, 4 lines). We reserve the right to publish and edit your ad.

Please do not hesitate to send us your questions, requests, hints or complaints. Send us photos of workpieces produced with STEP-FOUR machinery. Tell us about your milling and cutting projects. We will be happy to print your contribution and look forward to hearing from you.



# Contour Milling Machine Using Servo Motors



■ Servo drive ensures high milling speeds.

Three-dimensional milling is becoming more and more popular nowadays. In order to produce a 3D workpiece on a CNC milling machine, the first thing you need is a corresponding 3D CAD system to construct a virtual model of the part required. A 3D object calls for a flexible machine design. STEP-FOUR provides innovative solutions for all these requirements.

## Larger Working Range

With their shaft supports and stable aluminium profiles, the high-end Precise 1200S/1600S milling systems guarantee constant precision throughout the entire work range. User friendliness and minimum maintenance needs make sure that the machines can be operated continuously and economically.

In addition to large workpieces, the extensive working range offers advantages when producing batches of small-sized pieces, as, for instance, several devices are permanently available throughout the entire working range. Since the STEP-FOUR milling software is so flexible to handle, this means that products can be changed extremely quickly without spending ages re-fitting the machine.

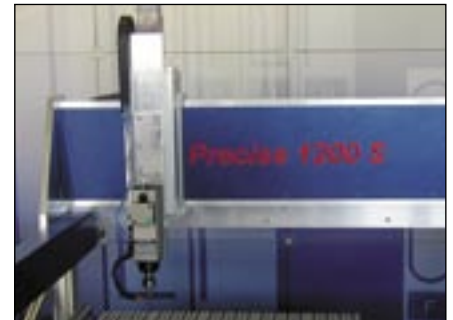
## More Powerful

What is more, the use of standard system profiles for the machine base facilitates processing solutions that would be out of the question, or extremely difficult, on other machinery. For example, a great variety of board chucking devices can be implemented ranging from the relatively simple T-slot table and vacuum board to complex chucking devices involving a sliding table.

The Precise 1200/1600 unit can be made faster and even more powerful to cope with a more extensive



■ Servo drive



■ large working range

range of options by ordering the machine together with a servo drive system, as a result of which a very high milling speed is reached (up to 12 m/min positioning speed) without any step loss. Your investment will pay off very quickly!

## STEP-FOUR Trade Fair Calendar

21-23 October 2004

**PRO SIGN** in Frankfurt  
This large advertising technology fair is an important event in our trade fair calendar.

19-21 November 2004

**Modelbuilding on Lake Constance** in Friedrichshafen  
This is the first time we will be at this promising trade fair.

1-4 December 2004

**EUROMOLD** in Frankfurt  
Molding and prototyping are the main features at this international trade fair.

# Successful Customized Machines

***During the past five years working with hot-wire technology developed by STEP-FOUR has become a simple routine for Cock van Driel at 3EL-Company bv in Holland.***

Cock van Driel introduced this technology in 1999 for Holland's foremost manufacturer of wind-turbine rotor blade AERPAC systems as an extremely cost-effective way to produce large-scale models for the molds of such rotor blades. The new technology had to be implemented when the company realized its budget for the planned models had been set too low, even though they were needed urgently. Instead a new construction technique was designed for the models and STEP-FOUR built the customized machine PC-CUT 4000.

## High Accuracy

Initially, the management had cold feet about the accuracy of the system. However, their scepticism soon changed into great enthusiasm.



■ The PC-CUT 5000 is installed



■ Base for the rotor blade created using hot-wire cutting technology.

asm as soon as they saw the first results. The system turned out to be a lot more accurate, cheaper and faster than other alternatives. Apart from that, the models were much lighter and could be stored for long periods without losing in accuracy.

In 2001 Cock van Driel became co-founder of AE-RotorTechniek, the wind turbine development company. Here the technology was geared towards new products. This time STEP-FOUR built the next stage of the PC-CUT 4000, the PC-CUT 6000. A "direct mold" was cut for the first four prototypes of the 35 m long wind-turbine rotor blades, which meant that the complete molds could be created by means of hot-wire technology. As a result, the prototype blades could be produced and tested ahead of the workpieces for batch production, which saves a great deal of money. Once two half-molds (weighing approx. 1000 kg each and 35 m long!) have been produced, they



■ Prototype model of the casing of a wind turbine.

have to be placed on top of each other with the aid of a special device. The special device was also created using polystyrene cut by hot wire, which was then strengthened with thin layers of glass resin and epoxy resin. After the first series had been manufactured successfully, another machine was designed to produce such parts day in day out for a long period.

## Growing Interest

In 2004 the next step followed when the 3 EL-Company was founded. This company is specialized in hot-wire applications implementing the latest development at STEP-FOUR, the PC-CUT 5000. The machine combines the features of the previous model but provides a far more flexible cutting length. Great interest has been shown for the technology not only in the wind-turbine industry, but also by companies manufacturing reinforced plastics, by the construction industry, road building and many other sectors.

# 10 Years of STEP-FOUR

## A Dream Made in Salzburg

***"To my annoyance the model wing drawings that I had carefully calculated on the computer did not work out in practice. That's how it all started." Dieter König says.***

This happened because the computer's accuracy was lost as soon as cutting ribs and polystyrene cores were cut manually. Together with his friend Franz Schober, who is a trained commercial artist and has been head of Corporate Design at STEP-FOUR since the very beginning, Dieter König spent endless "workshop sessions" at the end of the 80s searching for a computer-controlled solution for this problem. Since he had a great deal of professional experience in automation and EDP, it did not seem such an effort to come up with the right electronics and software.

### New Ideas

The real obstacle was the mechanics, as it soon became clear that standard components were too expensive and that creating customized milling and rotating parts would be impossible without a



■ 1994: Ernst Ramberger aligning the system.

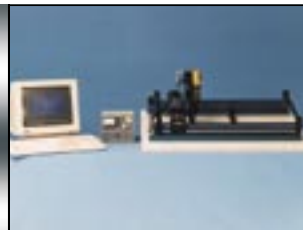
proper set of machinery. But need is the mother of invention, and so Franz Schober used simple blocks of polystyrene to make molds for the required carriage and junction parts. By means of a highly creative method, the parts needed were molded in epoxy resin. Only one or two simple rotating components were manufactured externally. After hundreds of hours working on the mechanics and a great deal

more on the software and electronics, the two men were finally able to hold their first computer-cut wing core in their hands. Seeing as the cutting results were good, many model-building pals were fascinated and the whole project looked optimistic, they decided to start producing this type of machine for the commercial market.

In the businessman Ernst Ramsberger they found some-



■ 1991: The first hot-wire cutting unit.



■ 1992: The first milling machine is put on the market.



■ 1996: Gerhard Högl in our first office in the Techno-Z centre in Salzburg.



one who was willing to turn their brainwave into a viable venture, and STEP-FOUR was founded in March 1994. The first office was located in the Techno-Z centre in Salzburg. The software was improved, further prototypes appeared, and finally all the hard work paid off. The special mechanics system allowed various materials, such as wood, metal and plastics to be processed. By implementing a contour milling machine and a cutting device it was now possible to process workpieces effectively, the milling unit or cutting wire being controlled with the utmost precision by way of the PC.

### Smash Hit

STEP-FOUR's innovative system became a smash hit in the model-building scene. The successful "Basic 540" has been sold 1800 times so far. "In the first year our company made € 270 000 euros, and for 2004 we expect a turnover of around € 1.6 m." Ernst Ramsberger enthuses. The range of machinery was initially extended from two to sixteen types of series machines, not including the large number of special machines. The business and industrial sectors also began to show an interest in STEP-FOUR's creative ideas and systems. Since workpieces for this sector call for



■ 1997: Dieter König at our booth at a trade fair.

larger dimensions, STEP-FOUR developed models with a wider working range for both the milling and the hot-wire cutting systems. One of our customers is the aircraft engineering company Airbus which buys machines from our industrial range.

In 1997 the company moved to the Haunspergstraße in the centre of Salzburg. Three years later a supplementary floor in the building had to be rented due to lack of space. In 2000 STEP-FOUR also began to take on trainees. Today the list of applications extends beyond private and professional model construction to the building of proto-

type, industrial and architectural models. In addition, numerous businesses, universities, training workshops and research institutes use our wide range of products. We are the one and only Austrian manufacturer to offer its products for sale all over the world. Our sales figures speak for themselves: more than 1800 milling machines and around 600 cutting units from our standard selection have been sold. STEP-FOUR has also gained an excellent reputation with its special, customized machinery. In 2001 the team from Salzburg supplied a unit to Holland with which 35 m long rotor blades can be constructed for wind power stations. A similar machine was sent to India in 2003.

### Home-Made

Everything: the hardware, the software, even the mechanics is designed inhouse. Home-made is best is our motto. This guarantees that everything fits. Years of experience have proven that STEP-FOUR units always meet the highest requirements in terms of quality, precision and price/performance ratio.



■ Since 1998 the web-site providing software support has been available at



■ In 2000 the wing designer was launched.



■ Days out together help create a wonderful team spirit.

# "United We Stand"

**In this interview, the managing director, Ernst Ramberger, talks about the early stages and future plans of STEP-FOUR.**

■ *How did it all start?*

I wanted to work independently and put my ideas into practice, and so I set up my own business in 1987. Initially, we at INTEC designed electronic devices and techniques for industries, such as Alcatel, for which we built a telephone call logger, for instance. In 1990 I attended the Hernstein seminar for young managers, where I learned everything I needed to know on how to run a company, which was vital for someone like me with a technical background. A year later I began to develop Dieter König's idea of a computer-controlled hot-wire cutting system for polystyrene. This was soon followed by a CNC milling machine. We are still the only company in Austria that sells these machines.

■ *What inspired you to call your company STEP-FOUR?*

Well, the name actually comes from the drive involving four stepper motors. STEP-FOUR just made sense and can be used internationally.

■ *What are your company's main strengths?*

We meet our customers' individual requirements, our employees are highly qualified and very reliable, and quality is paramount for all of us.



■ Ernst Ramberger

■ *Do you consider yourself successful?*

At the outset we only had one idea, and now we supply the whole world with STEP-FOUR products. Yes, I believe I'm successful. The fact that STEP-FOUR has become what it is today would never have happened without the energy and support of my team. Many employees have been here from day one, so that they are my partners really. We are united in our aims, and I am very happy to have such committed colleagues.

■ *Is there anyone who has inspired you professionally?*

Dieter König certainly. He has been involved in the development of all our products at STEP-FOUR from day one, and he still is.

■ *What do you aim to achieve?*

I would like to expand my company workforce to about 25 employees. In my private life it has now become important to have more time for travel and for my family.

■ *How do you like your new company building?*

I am delighted that we have found this new location and I am really looking forward to working here. At last we have enough room for everyone and also of course for our machines.

■ *What are your plans for the future?*

The big priority is to introduce the Windows software and the corresponding controllers, which we will also sell as an OEM product, on the market. In the near future we also plan to expand our hot-wire cutting applications with the aid of the two industrial machines PC-CUT 2500 and PC-CUT 5000.

At the same time we are extending our accessory activities, so that we will be designing special solutions in the field of engraving, the construction of architectural models and advertising technology. We are particularly interested in opening up the markets in the new EU member states. For many years we have already cooperated successfully with our partners in Hungary and the Czech Republic. In the long term we would like to consolidate our presence in North America, Australia and in the far east, as there is still a lot of potential there.



# The Team at STEP-FOUR



**Ernst Ramberger**

Managing Director  
Hobbies: family and sailing



**Dieter König**

Research and Development  
Hobbies: flying and skiing



**Reinhard Leithner**

Marketing and Sales  
Hobbies: travel, reading, cookery and architecture



**Gerald Höbler**

Software Development  
Hobbies: paragliding and mountaineering



**Artur Dimo**

Technology and Production  
Hobbies: Radio transmissions and football



**Franz Tutschka**

Technical Support  
Hobbies: Cycling and inline skating



**Patrick Reidl**

Mechatronics trainee  
Hobbies: Radio transmissions, model building,



**Christian Söser**

Mechatronics trainee  
Hobbies: Sports

The following people were unfortunately away when the photos were taken:

**Jutta Schober:** Office Manager

**Daniel Sadjak:** Software Development

**Roman Tutschka:** Construction

**Birgit Joiser:** Manufacturing

**Michael Schmalzer:** Mechatronics trainee

## Architects Study with STEP-FOUR

At the institute for representation and design that is part of the faculty for architecture at the university of Stuttgart students have been constructing models with the aid of a STEP-FOUR PC 760 for the past six years. The wide range of models is being extended continuously. Topographical models, complex construction models, model buildings, facades in every possible size, using solid wood, plywood, acrylic glass, polystyrene, you name it, the STEP-FOUR machine has become an essential part of architectural modeling.

Thanks to the user-friendly STEP-FOUR software, the data from the various drawing programs can be processed easily. Serial activities and complex shapes can be finished quickly and effortlessly with

the machine, enabling the budding architects and engineers to convert their designs into effective 3-D models.

Nevertheless, students and teaching staff at the faculty for architectural design in Stuttgart realize that precisely milled model parts are just the first stage in the process, showing the full, aesthetic picture of a model design, and cannot substitute the sensitive treatment of materials and the skilful combination of elements portraying terrain, buildings, road surfaces, trees and shrubs, etc.

Martin Hechinger  
Assistant professor and head of the workshop at the University of Stuttgart



■ Leopoldina University



■ A student of architecture at work.

Foto: Boris Miklausch/Hans-Joachim Heyer

Foto: Martin Hechinger

## Tiny Milling Parts

“At the moment I’m working on models of fairground trailers on a scale of 1:87. The only components bought are the axles and wheels. The open trailers consist of up to 65 components, because I want as much detail as possible. The frame alone has 15 individual cross-beams that are slotted in the two main sections of the frame. Such intricate work is now possible, as I have a second milling machine from STEP-FOUR and operate it with an SF spindle system connected to an adhesive mat. I spent a lot of time weighing up the pros and cons of buying a milling machine and am now absolutely convinced that your company gives the best possible support for my hobby.

When you’re involved in a project, you think about it all the time. Due to my experience with the first milling machine from your company, I had the new machine up and running within 5 hours after it had been delivered. From the start I made sure that the components were positioned correctly and mounted the parts very carefully. The machine runs so smoothly and quietly that operation is even possible during the lunch break, and my neighbors don’t even notice anything.”

Mr Merten, Lahnstein in Germany



■ Pay booth



■ Semitrailer. Further photos are shown at [www.kirmesmodell.de](http://www.kirmesmodell.de)

## "I Would Buy It Again Tomorrow!"



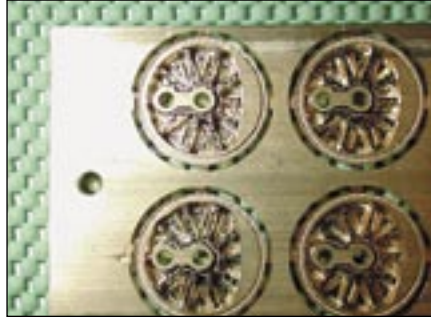
■ Mr. Krammer

On the occasion of STEP-FOUR's anniversary our longstanding customer, Mr Krammer from Lower Austria, has sent us the following letter.

"From early childhood I have been into functional model-building. At that time (just after the war) there was very little in the way of tools: a fretsaw, a soldering iron and a couple of files. People had other concerns and no time to produce comfortable tools for d-i-y or model constructors. Salzburg was always a progressive place. I'm sure people remember the first UNIMAT-SL small tool machine with 90 W power that appeared in the workshop (or on the kitchen table). Quite a few amateurs (in fact thousands...) experimented with a small lathe from Hallein.

Most model-builders are far from locksmiths or precision mechanics. Real amateurs have to teach themselves their technical know-how and craftsmanship. Nowadays of course everyone, including "old hands", uses computers and modern tool-making machines.

That's how I got to know STEP-FOUR. I had visited their booth at



■ Brass locomotive wheels

various trade fairs in Salzburg and was fascinated how such a small milling unit – it was as if a ghost was operating it – could cut such perfect wing ribs from very thin plywood. By then I had specialized in steam-engine modeling, my material being brass mainly. Would it be possible....?

### Solid Metal Parts

My next step was to call them in Salzburg. From the way they responded to my questions I got the impression that processing "solid" metal parts had not yet occurred to them. I certainly thought it was worth a try. I made an appointment in the autumn of 1998 and drove over, armed with a CAD drawing on disk and a 5 mm thick plate of brass. The initial scepticism (on both sides) soon turned into great enthusiasm when the machine started to mill 40 mm "circles" in the brass plate with the aid of a 0.8 mm HM router. As the years went by I kept finding new possibilities for the machine to make itself useful. Whenever I needed a new component for my steam engine I thought of producing it with the STEP-FOUR unit as soon as I had made a draft with my CAD program. What makes the machine such an indispensable tool

for any serious model-builder considering producing in series is the repetition accuracy plus the first-class software. The only limits are the cutting length of the small solid metal router and the performance of the HF spindles. Have a look at my pictures and see what this amazing little machine is capable of. I would buy it again tomorrow.

P.S. Find out more about my activities on my DAMPF (steam) homepage!

<http://user.acw.at/krammer>

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# Loads of Anniversary Prizes

## Special Basic 540 Package

Includes mechanics kit, control electronics, V4 Profi milling software, tool and reference switches, Kress router, relay box and spare router

**Only € 3000.-**  
Save € 600.-

## Basic 540 Power Package

Includes mechanics kit, control electronics, V4 Profi milling software, tool and reference switches, 160 W SF spindle system and spare router

**Only € 4 200.-**  
Save about € 750.-

## Special Precise 760 Package

Includes assembled mechanics, control electronics, V4 Profi milling software, tool and reference switches, Kress router, relay box and spare router

**Only € 5 500.-**  
Save about € 1000.-

## Hot-Wire Cutter Professional Package

Includes mechanics kit, control electronics, V3 Profi cutting software and cutting transformer

**Only € 3 000.-**  
Save about € 600.-

## Raffle

All orders reaching us before 31 October 2004 will draw lots for a voucher worth € 500.- A cash payment is not possible. Legal action cannot be taken.

**Super Prize Draw**

## 20% Discount

**On all STEP-FOUR software products!**

Until 15 October 2004 we are giving a 20% discount on all STEP-FOUR software products, incl. both the complete and light versions, and all upgrades, except DeskProto products.

**20% discount!**  
Until 15 October only.

Grab your chance! Only 5 packages of each item available.

All prices incl. VAT

**Big Open Day Party**

**Snacks provided.**

**Welcome!**

**Open Day! on 2 October 2004**

10.00 – 17.00. Enjoy the world of STEP-FOUR!

## How to get there:

In Salzburg exit the A1 motorway at Klessheim. Past the European cup football stadium you turn right into the Mielestraße at the second roundabout and continue to 380 Bayernstraße.

