

Fagor Automation EMO'11

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FAGOR 
FAGOR AUTOMATION

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 **EMO**
Hannover
19-24. 9. 2011
Hall 25 Stand F09

INTERVIEW WITH KLAUS RICHTER, NEW GENERAL MANAGER OF THE GERMAN BRANCH OFFICE

«In Göppingen we rely on an experienced and extremely competent team in sales, technology and management»

A new edition of the EMO'11 is about to begin, one of the most important European trade shows in the machine-tool sector. We interview Mr. Klaus Richter who has just joined the Fagor Automation organization in Germany as its general manager with vast experience in the sector and is going to describe to us the international reality, especially regarding the current German market.



From left to right: Stephan Schroll, Klaus Richter, Reinhard Steckhan, Erich Widmayer, Sandra Salazar, Nancy Spieth, Jens König, Hakan Kiziltan, Albert Janovsky and Katharina Holecek.

First of all, how have you become part of Fagor Automation?

I have come to know this market very well through many years of experience in the machine control and equipment areas of well-known control equipment and drive equipment manufacturers. Being manager of FAGOR Automation GmbH in Germany is for me a very interesting and new challenge. With an expert team of proven experience it is possible to further increase the FAGOR product market penetration in Germany. I am very glad to carry out this new and appealing task.

He is now a member of an organization that is more than 25 years old. What's your impression of the whole team, sales, technical and administration, to face future challenges? How do you picture the organization in the short and medium run?

FAGOR is a supplier of machine tools worldwide, and is an established name especially in Asia.

In Germany there is still room for maneuver. So we are in the situation to promote established products (measurement systems, CNC ...) in the sales and marketing areas. In Göppingen we rely on an experienced and extremely competent team in sales, technology and management. Thus, we have a very good basis to

implement these goals in the short and medium term.

This edition of EMO brings together the most relevant manufacturers and distributors in Europe and in the world, to present their novelties and latest technological innovations. What do you expect from this edition?

EMO is a global marketplace that will provide us contacts, prospects and a growing business in the future.

Which are the most significant changes with respect to the last edition in 2009 in Milan?

The last EMO in Milan was very much affected by the economic crisis. I expect a very positive atmosphere in Hannover solely from the recovery of the markets and again due to a very good machine manufacturer situation and the good exports of Germany.

On the German market, what's the customers' opinion on Fagor Automation's products and services?

Our customers in Germany certainly appreciate the very reliable FAGOR products.

Besides, controls highlight our easy handling and time-saving programming system as an advantage. Specifically at the cycle-controlled operations, we achieve

up to 50% time savings in programming compared to the standard programs. Currently, our absolute measuring systems and linear scales arouse great interest, since they are very attractive alternative systems.

What are the challenges for these coming years?

We must promote the name FAGOR on the German market very strongly, based on our good and proven products and relying on our ongoing market-oriented developments. We need to raise awareness among our engineering team and among our users that there are real ALTERNATIVES.

How do you think the machine-tool sector will behave on the German market?

This question has been discussed for quite some time, considering the colossal growth of the machine tool industry in Asia and particularly in China. In Germany, we will continue to rely heavily on special solutions and will have to react quickly to the international markets.

And finally, of all the novelties presented by Fagor Automation at this trade show, which ones do you think will be most popular among your customers?

Which novelty would you consider «most expected»?

From all the novelties, I would especially point out the features of absolute and incremental encoders and the 8065 CNC.

Fagor Automation encoders offer direct connection with Siemens, Fanuc, Mitsubishi or Panasonic protocols. We also present the only absolute linear encoder on the market that can reach 40 m and can provide a resolution of up to 0.1 microns. Not to mention, the considerable time and cost saving in installation and after-sales service thanks to their new design.

On the other hand, the 8065 CNC will excel at this show by the numerous solutions it offers to high-end machine tools. Among the great benefits it offers, I would point out its compatibility with existing CNC and PLC programs; its programming language based on the IEC61131 standard; it saves up to 50% in operations programming time; it admits automatic assignment cycles in several CNC channels resulting in cost savings of up to 30%.

Throughout these pages, we will bring the present and future of Fagor Automation closer to our German, European and international customers. We hope to meet the expectations of those who trust us and create new ones with those who don't know us yet ■

EMO 2011

Fagor Automation is glad to attend a new edition of EMO, one of the leading machine-tool trade shows at the global level.

The Fagor Automation team are coming to Hannover full of hope and optimism.

We are optimistic because, despite the ups and downs, and the associated uncertainties, of the global economy, we are strengthening our presence in the market through the development of new products, such as high-performance CNC's or improved linear encoders. Also, because we have strengthened our professional team in Germany.

We are hopeful because we are in contact with you, our customers –the main reason why we are now here, showing our latest developments.

At EMO 2011 we will be showing our latest control and measuring systems, and the qualitative technological leap we've taken to deliver integrated solutions for high-performance machines.

One of our new star products is the 8065 CNC, a high-performance CNC that is ideal for demanding machines requiring high-complex functions to manufacture quality pieces.

In addition, visitors to EMO 2011 will be able to see the extraordinary improvements we have introduced in our feedback systems, making installation and setup easier and reducing routine maintenance time by 10% or more. Our range also includes the longest absolute linear encoder available on the market (up to 40 meters), with 0.1-micron resolution ■



Pedro Ruiz de Aguirre
General Manager

At Fagor Automation we like providing global solutions to individual needs: one solution for each customer and for each machine

In this edition of EMO, we are introducing four innovations that complement our already wide range of products and services. Global solutions for large, complex machines with high-end features.



3 absolute solutions

Fagor Automation will show their full range of absolute encoders: the widest on the market with 3 solutions. The communication protocols implemented ensure encoder connectivity with the products of main CNC manufacturers.

10% time reduction in installation time

EMO visitors will be able to see that these improvements make installation easier and drastically reduce installation time by 10% and maintenance/service time by up to 50% depending on the type of machine and encoder length. Consequently, the new generation of F and L series linear encoders offers an unmatched saving opportunity.

CNC

A solution tailored to your machine

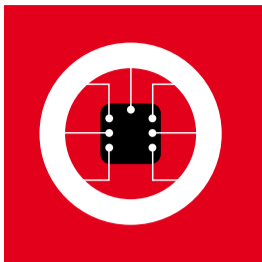
One of Fagor Automation's main characteristics is always being tuned to the requests from machine operators and manufacturers. That's how it offers solutions tailored to the needs of the different types of machines for our customers.

Global solutions

Our values enable us to offer different and global solutions. One solution for each type of machine.

Klaus Richter
New General manager of the
German branch office

stand



Our values enable us to offer different and global solutions

Fagor Automation offers one solution for each type of machine, from the simplest to the most complex.

Thanks to a continuous improvement process, Fagor Automation's products are the ideal solution for the requirements of the machine-tool world. Our CNC's complement our wide range of products: motors, servo drive systems, feedback systems and accessories.

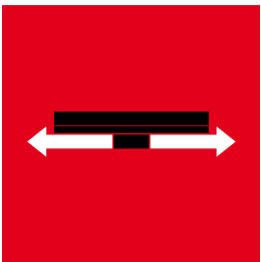
One of Fagor Automation's main characteristics is that our relationship with the customer does not end when the product is sold. We participate in the design, development and user training processes to ensure the success of the project.

At Fagor Automation we firmly believe that our customers and their needs are all important; this is why we keep a very direct and close relationship with them. In our company, the sales and technical areas go hand in hand. This is a great advantage for our customers because, should anything happen, they can call their contact person at Fagor Automation and he/she will personally offer a solution. This flexibility has to do with our ability to respond to customers' needs and problems, from product delivery times to everyday after sales support. In other words, we create a bond with customers that goes beyond the sale process.

Another added value of our products is Fagor Automation's wide sales and technical network. We are currently present in more than 50 countries through our own branch offices and distributors, who allow us to provide direct service to our customers, wherever they are.

One of the most appreciated aspects is our excellent quality-price ratio, given our products' high features, efficiency, durability, stability, after sales service and flexibility, which allows manufacturers to use devices from other suppliers as well.

To all this we should add the advantages and warranties of belonging to a large multinational organization like MONDRAGON Corporation ■



Reading head removable from either end



Outstanding time saving improvements with the new generation steel-tape linear encoders up to 60 meters.

Fagor Automation's know-how, the analysis of the chain of value and the meticulous study of external contributions have resulted in a unique product that further strengthens Fagor Automation's leadership in feedback systems for long and extra long measuring lengths (from 3 m to 60 m).

EMO visitors will be able to see that these improvements make installation easier and drastically reduce installation time by 10% and maintenance/service time by up to 50% depending on type of machine and encoder length. Consequently, the new generation of F and L series linear encoders offers an unmatched saving opportunity.

Fagor Automation has introduced three great improvements that further strengthen our commitment to customers and add value to our end products: a new tape tensioning system that allows removing the reading head through either end of the encoder, reference points and ease of installation as described below ■

Removing the reading head from either end reduces installation and maintenance times by up to 50%.

	Others	FAGOR
		
installation		
Align modules	7 hrs 30 min	6 hrs 18 min
Insert tape	20 min	12 min
Secure tape	12 min	5 min
maintenance time		
	4 hrs 1 day 1 hr	2 hrs 2 hrs 1 hr

1



New tape tensioning system that allows removing the reading head from either end

2



Reference alignment points during installation for faster and more accurate alignment of the modules

3



Easy mounting of extra-long linear encoders thanks to the multi-punched tape

Global solutions



3A

3 absolute solutions

Fagor Automation will show their full range of absolute encoders: the widest on the market with 3 solutions. The communication protocols implemented ensure encoder connectivity with the products of main CNC manufacturers.

Absolute angular

The absolute angular model offers a resolution of up to 27 bits.

Absolute tape-based linear

Regarding the absolute linear encoders, Fagor Automation's range includes the longest absolute linear encoder on the market; it may reach up to 40 meters while offering a resolution of up to 0.1 microns.

Absolute glass-based linear

Absolute technology in linear encoders of up to 3 meters and resolution up to 0.05 microns.

CNC

A solution tailored to your machine



One of Fagor Automation's main characteristics is always being tuned to the requests from machine operators and manufacturers. That's how it offers solutions tailored to the needs of different types of machines for our customers.

8065 CNC: Friendly as always, more powerful than ever

Our 8065 CNC has an innovative ergonomic design, featuring a new line of keyboards with touch screen, integrated mouse and USB connector, and a very visual browsing system with a really intuitive operation.

It has been especially designed to control highly demanding machines such as high production turning centers, vertical lathes with several turrets and spindles, boring mills, bridge-type 5-axis milling machines, RTCP's, dual-purpose (lathe-mill) machines, etc.

The 8065 CNC provides better machining quality with tighter tolerances and better part surface quality, thanks to its ample range of tools including the HSSA (High Speed Surface Accuracy) machining system. The benefits for the user are twofold: On the one hand, the mechanical stress on the machine is lower and the lifespan of its components is longer; on the other, thanks to lower vibration, the movements are smoother, allowing higher feed rate and less machining error.

More info:

www.automationintheworld.com

8055 CNC: With the user in mind, more powerful than ever

This CNC has been designed to optimize the manufacturing of both large series of parts and small series or single parts, where programming time is critical for machine productivity.

The 8055 CNC is particularly aimed at controlling high production turning centers, vertical lathes, parallel lathes, milling machines and machining centers.

The operation of the 8055 has been designed for operators of conventional machines without prior programming knowledge, as well as for experts in ISO-code language. It offers quick and intuitive access through hot keys to the various operations and cycles. Each operation or cycle has a specific key with a graphic icon. The simple pressing of a key, without having to browse through complex submenus, gives access to the relevant operation screen, thus optimizing part programming time.

8070 CNC: Adaptable to any application with the best features

The 8070 CNC is designed to provide a solution to every kind of machine (wood, marble, laser, grinders, etc.), making integration and the operator's job easier. With a fully customizable interface, it can be used with Fagor's own tools or by integrating third-party applications.

This CNC combines Fagor's experience and technology with worldwide PC standards. It makes it possible to deal with very complex applications while customizing the interface to make the operator's job easier, adapting it to the work environment and to the specifications of each machine.

Programs created in other software platforms may be installed at the 8070 CNC to create CNC programs and execute them. The CNC, in turn, contributes axis control algorithms and its powerful CPU to execute the program as fast as possible while meeting user requirements.

solutions

OSCAR ANITUA, SALES MANAGER AT GURUTZPE

«Fagor Automation CNC's adapt to every customer's needs»

Gurutzpe is a leading company in large horizontal CNC lathes. Since it began manufacturing its conventional model M1 in 1957 to date, with the last-generation CNC lathes, Gurutzpe has sold more than 5,000 machines worldwide. For more than half a century, it's known how to adapt to the circumstances and demands of the times, which makes it one of the most prestigious horizontal CNC lathe manufacturers in the world.

Sales manager Oscar Anitua describes the reasons why Gurutzpe has chosen Fagor Automation CNC's for its products.

With such a wide range of horizontal lathes, why have you chosen Fagor Automation CNC's for your machines? How long have you been working with them?

There are several strong reasons for that: their reliability and ease of operation, or their conversational programming, which is great for turning and threading operations, to mention a couple of their strengths. All this makes programming very easy, getting operators familiarized very quickly and making them lose their fear of using CNC's. In our case, since we do not machine large series of parts due to their size, their operation is easy and reliable.

The horizontal CNC lathes manufactured by Gurutzpe are aimed for a lot of sectors with very different needs and demands, such as railways, oil, naval, wind energy or aerospace, to mention a few. How do Fagor Automation CNC's perform in these sectors? Do they deliver tailored solutions?

Yes. They basically adapt to every customer's needs. Even when some have demanded for very specific solutions, we have had a very positive response from Fagor, and we have worked together to meet these particular needs.

Even some multinational companies that were used to working with other CNC's, after seeing the tests, chose Fagor. It is true that it is the customer who decides, and quite often we have little chance to suggest a CNC brand, but sometimes we do so, to great results.

Which characteristics would you point out of the whole CNC line by Fagor Automation: reliability, power, ease of operation?

It's clear that all these characteristics are important but, from my experience, I would highlight ease of operation.

What's your opinion on the service offered by Fagor Automation?

My opinion is really good, also based on our experience in countries like Germany, UK, India and others.

Besides, when faced with a machine behaving strangely, we have always had a



very positive response in terms of warranty support, equipment replacement, etc.

Gurutzpe has a well-consolidated history worldwide. What do you think will be the horizontal CNC lathe market demands in the short-to-medium term?

As I see it, there is a growing demand for larger machines with greater distance and weight between centers, all this together with extreme precision and reliability. They also demand multi-process machines; in other words, lathes that are capable of turning, boring and grinding.

That's where the future is. And a company our size must meet the needs of large multinational companies. Our goal is to offer tailored solutions based on a standard structure while, at the same time, being capable of solving specific machining problems. That's why we work with Fagor Automation.

I think that the simple 2-axis machine market complicated due to the quality-price ratio on one hand, and to the pressure from

really inexpensive Korean and Taiwanese machines on the other. But, at Gurutzpe, we believe that, although it is a difficult market, it is the source for the many relationships we keep with our customers. It is, in a way, the door to our relationship with them.

Anyway, we believe that we must combine relationships with multinational companies, those who buy during a crisis and out of it, and contacts with small customers, shops and family-run companies, where the customer-supplier relationship matters; in this case, purchasing may be a lot less frequent, but it turns out to be crucial for staying in business ■



INAXIO UGARTE, HEAD OF TECHNOLOGICAL DEVELOPMENT AT DANO-RAIL

Fagor Automation's CNC's have allowed us to implement new features in our products

Dano-Rail, S. Coop. –a company of Danobat Group– offers integral solutions and services for railway running gear maintenance. Dano-Rail has provided its innovative solutions to customers like Renfe, Metro de Madrid, CAF, Metro Bilbao and many tramways. The group it belongs to, Danobat Group Railways, exports 80% of its production to countries like Argentina, Mexico, Venezuela, France, Portugal, Turkey, India, Russia and Morocco, among others.

With a vast product line, aimed for maintenance shops at various levels, their solutions cover predictive, preventive and corrective maintenance. Corrective maintenance includes one of their most innovative developments: the under-floor wheel lathe.

Dano-Rail and the R&D Department of Fagor Automation have been working in close cooperation to develop new features for their under-floor wheel lathes, especially designed for the maintenance of running gear and brake disks without having to

dismantle the train axles. Inaxio Ugarte, head of Technological Development at Dano-Rail, describes their experience working with Fagor Automation.

With such a variety of choices on the market, why did Dano-Rail choose Fagor Automation? What advantages did Fagor Automation offer over other brands?

We chose Fagor Automation for this development for proximity, affinity and especially because they allowed us to



include new features as required by this type of machines, under-floor wheel lathes. Plus, Fagor offers really competitive prices that they further complete with an efficient technical support service.

What added value does the 8070 T CNC offer when installed on a Dano-Rail under-floor wheel lathe in terms of ease of operation and programming?

Dano-Rail has its own operator interface regardless of the CNC model used, so the Dano-Rail staff and machine operators have to get used to only one operating environment.

Since all the software developed by Dano-Rail is based on Windows, the project required a PC-based CNC. As the FAGOR 8070T CNC has a PC for developing the operator interface, it was possible to develop a customized operating environment for the maintenance operations performed on train wheels. The close cooperation with the R&D Department at FAGOR allowed us to include a new diameter measuring feature in the CNC, an operation that we could only perform with third-party hardware and software.

How many axes, spindles and execution channels does the Fagor Automation 8070T CNC control on a Dano-Rail under-floor wheel lathe?

Usually an under-floor wheel lathe has to machine both wheels of an axle at the same time. The Fagor Automation 8070T CNC of Dano-Rail's D-1500 under-floor wheel lathe controls two execution channels, one spindle and two axes (X, Z) per channel.

There are also tandem under-floor wheel lathes that can machine two axles of the same bogie at the same time. In this case, machining the four wheels of the bogie simultaneously requires twice as many channels, spindles and axes. In these cases, we could choose a four-channel CNC but at Dano-Rail we prefer having two independent yet connected CNC's (one per axle).

How are the machining programs generated in the car wheel maintenance process?

The operator selects the maintenance operations (reprofiling, calibrating, measuring, etc.), sets the parameters related to that operation, and the machining programs are generated automatically. In under-floor wheel lathes the wheel must be reprofiled according to a particular profile for each type of train. This type of lathes allow entering different profiles for each type of train. This way, the operator must only select the desired profile and the tool paths are generated automatically.

How would you grade the technical support service provided by Fagor Automation?

The truth is, we haven't had to use this service, for there have been no problems so far. But our work experience with Fagor Automation is really positive, and we are thankful for their cooperation in setting up the first machines, which are already running at our customers' facilities. An under-floor wheel lathe is a type of machine for which it is rather difficult to find testing materials such as trains and bogies. Therefore, final validations are usually done at the maintenance shops where the machines are installed. The only way to validate the application is by running real reprofiling operations without dismantling the train bogie, and this cannot be done until the machine is fully installed in the maintenance shop and the fleet of trains is ready for commercial use ■



ews

Hannover

Cultural events



BALLET *La Piaf. By Mauro Bigonzetti*
Music by Edith Piaf, Maurice Ravel, Camille Saint-Saens and Others
WHERE Opernhaus, Opernplatz 1, 30159
WHEN Wednesday 21.09.11 / 19:30



OPERA *La Traviata. By Giuseppe Verdi*
In Italian with German surtitles
Opernhaus, Opernplatz 1, 30159
WHERE
WHEN Tuesday 20.09.11 / 19:30
Friday 23.09.11 / 19:30



OPERA *The Marriage of Figaro. By W. Amadeus Mozart*
By Pierre Augustin Caron de Beaumarchais
Opernhaus, Opernplatz 1, 30159
WHERE
WHEN Saturday 24.09.11 / 19:30 to 22:45

⌚ Visiting Hours EMO'11

	Hannover	New York	Tokyo	San Francisco
Opening	9:00	03:00	16:00	00:00
Closing	18:00	12:00	01:00	09:00

«We have developed a micro milling machine that can make 50 micron holes»

Marcelino Novo, head of innovation at Fagor Automation, talks about «Micromanufacturing» a project his company has taken part in



Human hair with laser micromachining.

nnovation



What is the purpose of this project?

In the context of «Micromanufacturing» we have developed a micro milling machine that can make holes that are 50 microns in diameter. To realize how important this is, you should consider that a hair is about 70 microns.

The project was funded by the Spanish Ministry of Science and Innovation and the European Regional Development Fund (ERDF). We worked with 21 partners with wide experience and high prestige in precision manufacturing.

What was Fagor Automation's role in the project?

We focused on four different areas: adjustment of CNC systems to nanometric resolutions (trajectory optimization,

look-ahead algorithms, jerk control); development of a nanometric resolution measurement system and optimization of counting algorithms; development of new linear motor control algorithms; and cooperation in the design and tune-up of a micro milling demo prototype.

Fagor Automation has incorporated two main systems into micromachining: numerical control systems and feedback systems. How have your products evolved to meet the needs of this micro machine?

With regard to numerical control, our latest developments allow axis coordinate programming with up to six decimals, that is, with a 1-nanometer resolution, whereas the usual one is 1 micrometer. This meant changing the software to use floating-point numbers for the coordinates of both logical and physical axes.

As to capture systems, we have developed a new optical system and electronics to meet the requirements of micromachining: 10-nanometer resolution and less than 1-micron absolute error throughout the

useful trajectory. Likewise, the counting algorithms can be optimized, based on sinusoidal signals with known amplitude and offset values, through the implementation of automatic calibration mechanisms for the signals' amplitude, phase lag and offset values.

What will be the industrial applications?

Micro technologies are expected to grow steadily at an annual rate of 10% over the next few years, and they will play a key role in the development of electronics, the automotive industry, the medical sector and biotechnology. Some of these industries are already using these technologies, but not in the large scale they are expected to use them in the near future.

How will Fagor Automation apply the knowledge produced in this project?

Although the results of the project can be applied to various types of technologies, we will be consistent with our main lines of work and apply them to micromachining by chip removal, and especially to milling and turning processes ■



FAGOR AUTOMATION

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