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FAGOR AUTOMATION

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INTERVIEW WITH THE SALES TEAM OF FAGOR AUTOMATION SPAIN

“Values such as proximity and accessibility are the reasons why our customers choose us”



Fagor Automation customers gather at the 26th edition of the BIEMH'10, one of the most important exhibitions for the Machine-tool sector in Europe. All expectations are conditioned to the economic situation we are now living. The efforts of Fagor Automation for innovating its products and services and offer solutions and business opportunities to its customers anywhere in the world are very well known. We interview the sales team of Fagor Automation in Spain, formed by Mr. Jose M^a Larrañaga, CNC sales manager, Mr. José M^a Viniestra, FEEDBACK/DRO sales manager and Mr. Xabier Hernandez, head of MC-CNC sales, to get us closer to the reality of the international market.

The technical-sales team of Fagor Automation is crucial to keep offering quality service and to capture customer suggestions to help us keep improving our products and services. How many people make up the team? What type of customers do you attend to?

The technical-sales team for the domestic market is made up of nine people: three sales people and six application engineers. Most of them have more than 12 years of experience. Technical knowledge is essential in our sales activity, that's why we talk about the technical-sales team and here the global team

of the company (engineering, R&D, application engineers, marketing and sales) work together to satisfy the needs of our customers.

The Fagor Automation team, with its experience, attends to machine manufacturers and retrofitters without forgetting the users of those machines whose requirements are more and more demanding.

This BIEMH gathers the most important manufacturers in the world to present their latest developments in technology and service. Does the Machine-Tool sector have specific peculiarities?

The Machine-Tool sector in Spain and in the rest of Europe has changed a lot in the last fifteen years. Before, our customers manufactured large series of machines, but in the last decade, they have evolved towards more complex machines, with higher value, but smaller quantity. On the other hand, the machine retrofitting sector has grown considerably pushed by sectors like eolic (wind energy), aerospace, etc.

The BIEMH will be good to keep in direct touch with your many customers. What do your customers value the most?

I'd say values such as proximity and accessibility to the organization at all levels: technical, R&D, sales and marketing. This is something our customers always point out as a strong point of Fagor Automation. We adapt to your needs. Our flexibility refers to our ability to respond to your needs, incidences, to the product delivery time in an urgency as well as in everyday after-sales support.

One of the great values of our products, especially our latest 8065 CNC, is the combination of power and operating ease. What other features are offered by this CNC and other star products you are presenting now?

Everything that we are presenting at the BIEMH is the result of what our customers need today and we are ready to meet the requirements that may come up in the near future. The 8065 CNC and the solutions of absolute measuring or feedback systems are products that respond to the needs of complex machining on large machines that demand high-end features.

The 8065 is the result of a strong technological bet that offers power and operating ease thinking about the user that operates the machine. It combines the best of the two CNC models 8055 and 8070.

As for servo drives, we have expanded the range of motors with higher torque and higher power.

In feedback, we present the absolute angular encoders and the longest steel-tape-based absolute linear encoder in the world, with a measuring length of up to 30 m. Absolute feedback solutions are very much appreciated on the market because they do not require a home search when beginning to work at the machine or when the main power goes out.

Although you are a multi-cultural company, with your own branch offices in 18 countries around the world. How do you foresee the future of the sector?

We move in a global market and the scenario of recent years demands our presence with subsidiaries (branch offices) on emerging markets like Asia, South America, etc. Fagor Automation bet on exports 30 years ago and that means 85% of sales today. Fagor Automation has a consolidated position in Asia and Brazil, which are the markets with the highest growing potential in the years to come.■

At home

It is quite a pleasure for Fagor Automation to exhibit at this new edition of the BIEMH due to its international prestige and because it is always exciting to present the result of our work at home, right here in the Basque Country.

All of you, our customers, have always been and are the reason why we are here today showing our advances and evolution.

This progress would not have been possible without your trust; without working with you everyday and hand in hand. You have helped us grow, become more and more reliable, closer, more international and increase our knowledge and excitement to keep innovating.

All this has resulted in the novelties we present at this edition of the BIEMH: the new 8065 CNC and the leading solutions in absolute feedback that we hope will be as exciting to you as developing them has been to us.

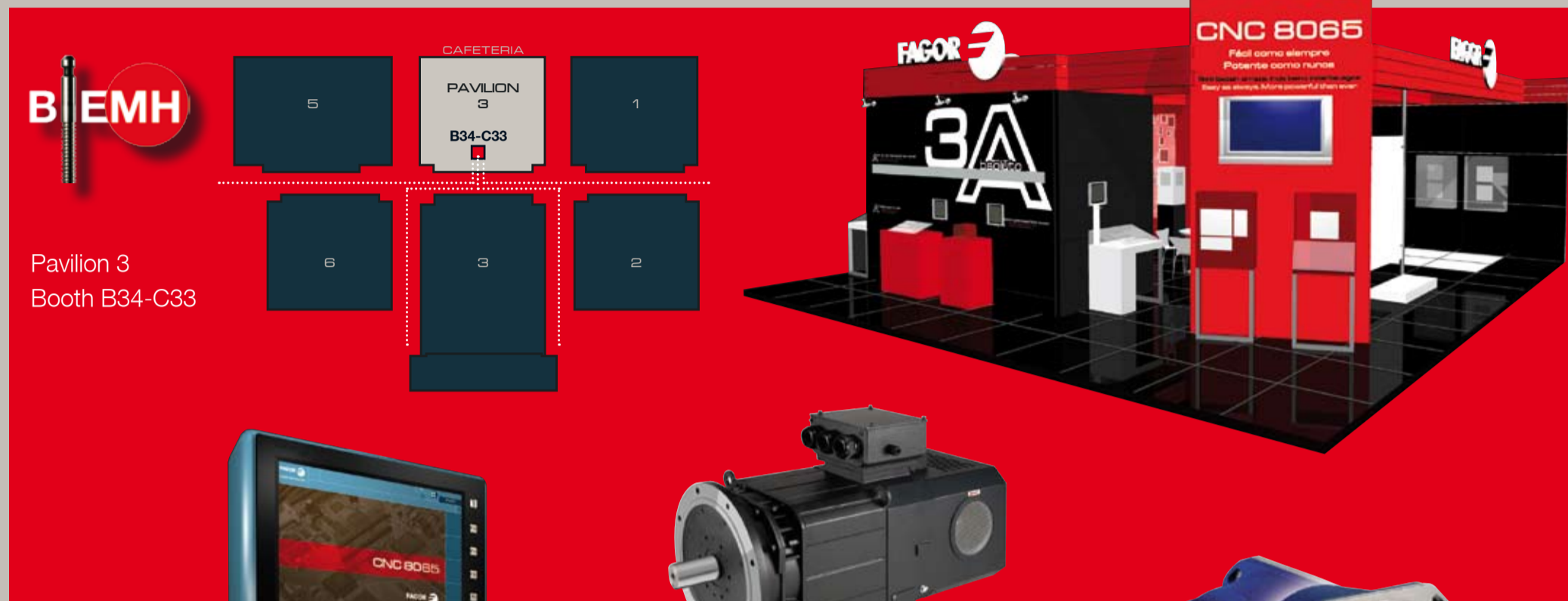
We're still at home; in our home.■



Pedro Ruiz de Aguirre
General Manager

Integral solutions for complex machines: Large and with high-end features

In its more than 30 years of existence, Fagor Automation has given solutions to all kinds of machines, from the simplest looking for flexible operation and production to the most complex with very high technical and productive demands.



During the BIEMH exhibition, Fagor Automation is going to present their latest advances in control and measurement systems showing a qualitative leap in the technology used to provide integral solutions to high-end machines. There are three main products to point out:

8065 CNC: Friendly as always; more powerful than ever

The new CNC combines the operating and programming experience of the 8055 and the technological power of the 8070. The 8065 CNC makes it easy to set up all kinds of machines. It offers tools to integrate any type of kinematics, standard as well as those made up by machine manufacturers adapting to the innovative machinery designs that are created nowadays. It also offers volumetric compensation which is becoming a common demand in the search for high machining accuracy. While machining, it permits detecting and correcting in 3D the

minor mechanical imperfections that the machine may have and obtain high-precision parts. Another novelty of the 8065 CNC is the adaptive control that detects the machining conditions of the tool such as consumed power, temperature of the tool tip, how fast the tool is wearing and part surface finish. All this data is processed and both the axis feedrate and the spindle speed are adapted for machining under the best conditions in order to achieve maximum productivity and longest useful life of the tools.

Servo systems: High power motors

In order to meet our customers' demands, Fagor Automation now offers more high-torque axis motors and high-power spindles. As for axis motors, the range of the FKM family now goes up to 115Nm for large machines that require higher motor power. Likewise, this type of machines need to move large spindles and that's why new FM9 spindle motors have been created to further complete the FM7 motor range with power reaching 130 kW in S1.

Measuring systems: The longest linear encoder on the market

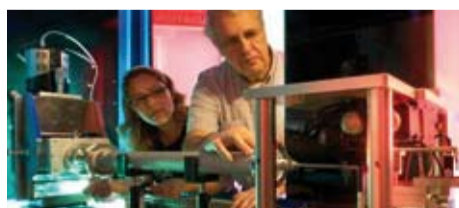
Fagor Automation has manufactured linear and rotary optical encoders for the machine-tool sector from the very beginning. Optical technology has always been preferred over other technologies due to their high quality and optimum performance. Throughout the years, Fagor Automation has polished several aspects of the design of their linear encoders to offer, today, one of the highest-quality linear encoders on the market. This opinion is shared by their customers

through independent tests run using both incremental and absolute technologies.

BIEMH visitors will be able to enjoy the presentation of the new absolute encoder LA, with a measuring length of up to 30 m, the longest on the market. It has been designed and manufactured by Fagor Automation to provide solutions to the machine-tool world. Fagor Automation presents also the absolute angular encoder that integrates existing technologies with new technologies to deliver a product with absolute performance that fully covers the needs of position for the machine-tool industry.

So, starting with the CNC, going through the servo drives and reaching the measuring systems, Fagor Automation offers an integral solution for all kinds of machines. Choosing Fagor Automation allows you to have a single interlocutor for designing your machine and they will make it easy for you to integrate their products.

news



Stanford University turns to the precision of Fagor Automation encoders

The Stanford Linear Accelerator Center is a pioneer research facility in the field of astrophysics, photovoltaic science, molecule accelerator and research on physical particles. This center is affiliated to US department of Energy and is also the

headquarter for 3km-diameter accelerator ring, one of the largest in the world.

The SSRL (Stanford Synchrotron Radiation Lightsource) is located inside this facility.

This facility uses 20, high accuracy absolute linear encoders from Fagor Automation.

This lab is supplier of synchrotron radiation i.e. X rays produced by the electrons that circulate through a ring at near-light speed. This beam of X-rays is used to investigate the behavior of the molecules and atoms of materials with extraordinary properties. This is a very important activity for our society because the basis of new technologies today is the creation of new materials that may have considerable impact in areas like environment, future technologies, health or education.

4 linear encoders of 48 m and 42 m are already at Hanland, China

Fagor Automation has recently sold to the Chinese company Hanland, two 48m linear



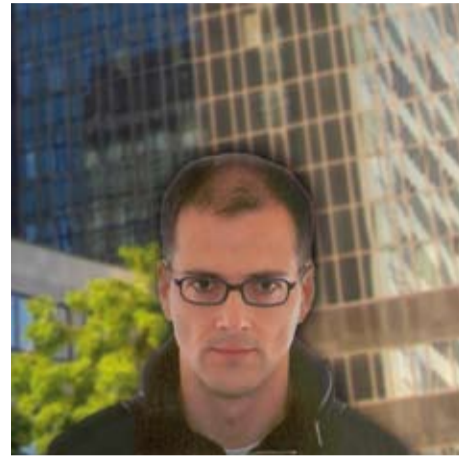
encoders and two 42m linear encoders for their machines.

With this project, they foresee to maintain the existing tight cooperation with them.

Hanland Machine Tool Group Co.Ltd., is a large key company in the Chinese national machine-tool industry. They have been developing, designing, manufacturing and selling precision products for more than 40 years. Hanland products has got more than 60 awards from national, ministries and commissions. It is a reference in precision machine tools, such as vertical machining centers, boring mills, milling machines, horizontal drilling machines and EDM machines.

INTERVIEW WITH MR. JAVIER DOMINGUEZ, HEAD OF MANUFACTURING AND MAINTENANCE:

“Fagor Automation’s effort to develop new products like absolute linear encoders is very important”



To me, the attention provided by Fagor Automation’s technical support and R&D is very important. They are always interested and willing to satisfy the new needs that come up when manufacturing our products.

Your star product is the steam generator. What has been your experience with steel-tape-based incremental linear encoders on this product?

Our experience with incremental linear encoder is good, but I’d like to emphasize the efforts that Fagor Automation is making to develop new products like the long absolute linear encoders (4-5 meters). For ENSA’s machines, it is important to have equipment of these characteristics and, right now, we are testing absolute linear encoders on machines.

How does ENSA benefit from Fagor Automation’s control and measuring products in your passion for technological

innovation and improvement on your processes as a key competitive factor?

At the end, what we’re trying to get is that the measuring and feedback system installed on the machine to be reliable and accurate; that besides reading the correct position they can also make changing the processes easier and faster (tooling, checking, calibrations, etc.). In other words, we look for a feedback system that is not another problem to solve.

What is your opinion on Fagor Automation’s service?

I find it excellent. The attention received by ENSA is good both in terms of technical quality and quickness. An aspect where we are especially happy with Fagor Automation is their willingness to develop new applications that respond to the specific needs of our productive process. ■

Since 1973, ENSA is a **world leader** in manufacturing and services for the civil nuclear industry. All that thanks to the efforts of their human team that contributes to generating **clean energy** for our planet. Their products and services are present in all five continents, in more than thirty plants in fifteen countries, six of which are in Spain.

Ensa bets on the automation and robotizing of their processes and manufacturing engineering which are the pillars of their activity. Which are the selection criteria for a collaborator like Fagor Automation for these tasks?

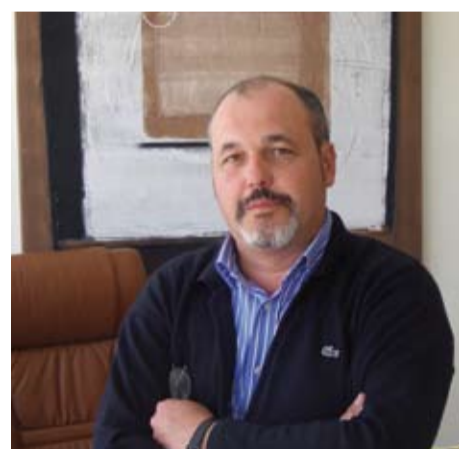
Our main reason to choose Fagor Automation as a provider of equipment like CNC’s and feedback linear encoders has been that their CNC model 8070 was capable of managing the type of special machines that we have at ENSA. There aren’t that many capable CNC’s on the market.

Why have you been working with Fagor Automation for 10 years?



INTERVIEW WITH J. MANUEL MUÑOZ, GENERAL MANAGER OF IMERON

“Reliability and service are the reasons for choosing Fagor Automation”



“IMERON, Industria Navarra de mecanizados pesados s.l.” is a company dedicated to machining blueprint-based parts, mainly steel rings for the eolic industry, petro-chemical industry, capital goods, transmission equipment and large bearings.

Out of the 6 machines that Imeron has, 5 vertical lathes and a milling-drilling machine, 5 are controlled by a Fagor 8070 CNC. Why did you make that choice?

Already back in 1995, I purchased my first CNC machine, which, although it wasn’t a Fagor CNC, we had the chance to replace it with a Fagor 8025 CNC. This decision was based on the proximity to the factory in Mondragón, on the reliability of the unit and on their technical service. Since then, we have always equipped all our machines, more than 40, with different Fagor CNC models. The last step has been to incorporate the 8070, mainly because it allows controlling 2 channels, it is easy to

operate and because their service support is always very fast when having any problems.

Which are the main features of the 8070 CNC that you would point out for your everyday work?

It is a very complete CNC, easy to operate and the learning curve for the operator is very short and it also offers

new machining solutions that help us reduce machining time considerably.

What is your opinion on Fagor Automation’s service?

Excellent, we consider them friends who always listen to us not only to quickly solve the problems, but also to implement any improvements that the CNC could provide. ■



All the staff will wait for you at the booth

CNC

- 1_JM Larrañaga. National sales person
- 2_Xabier Hernandez. National sales person
- 3_Rafa Aranzabal. Export sales person
- 4_Asier Lopez. Export sales person
- 5_Xabier Inza. National technical engineer
- 6_Pablo Hernandez. National technical engineer
- 7_Luis de Andrés. National technical engineer
- 8_Bingen Artano. National technical engineer
- 9_Raul Sainz. National/Export technical Engineer
- 10_Iñaki Antoñanzas. Export technical engineer
- 11_Iñaki Golmaio. Export technical engineer
- 12_Mikel Erasquin. Export technical engineer
- 13_Iñaki Apaolaza Head of training
- 14_Garbiñe Nuñez. Sales assistant
- 15_Arantza Garai. Sales assistant
- 16_Ihanire Igartua. Sales assistant

CAPTACIÓN

- 1_JM Viniestra. National sales person
- 2_Aitor Eraña. Export sales person
- 3_Fernando Sanz. National/Export technical engineer
- 4_Arantza Irazola. Sales assistant
- 5_Ana Rosa Etxeberria. Sales assistant



Mr. Tong Guorong. Resp. de I + D

Haland is known for its “high technology, excellent quality and even better service” and became the famous brand in customers with good selling in China and abroad. ■

INTERVIEW WITH MARCELINO NOVO, FAGOR AUTOMATION R&D MANAGER

“As a result of this project, cooperation between people and machines will be done in a more natural and intuitive way”

Marcelino Novo, R&D manager, has led the Cenit project of Machine-tool at Fagor Automation, and ambitious project with the participation of more than 20 companies and the cooperation of 16 universities and technological centers and with a budget of €30M.



After four years of intense work, the Cenit eEe project has been fulfilled its goal successfully: The research on advanced technologies for manufacturing equipment and processes of 2015. Have all the initial goals, including the foreseen deadline, been achieved?

I think that, although the project is mainly pre-competitive and, consequently, has undergone target changes in some lines of research, we can be very happy with the results we have obtained. The development deadlines, overall, have also been adjusted to those foreseen.



The project, framed in a collaboration context has had four lines of research.

Why these four lines? In which one of them has Fagor Automation taken part and why?

The goal of the project has been to research and develop technologies that are believed to be essential for the machine-tool of the year 2015. In that near future, cooperation between people and machines will be done in a more natural and intuitive way so as to carry out the desired tasks with higher quality, more efficiently, wasting fewer energy resources and being respectful with the environment.

For that, we have been working in 4 large lines:

- Ecological machine, respectful with the environment.
- Intelligent machine, capable of adapting itself and changing its behavior.
- Multi-functionality, machine that integrates several manufacturing processes (new or conventional).
- Increased accuracy and productivity, concepts that usually conflict with each other.

Fagor Automation and its Fagor business R&D unit Aotek have led the second line using all its activities and future concerns or interests. In this line, another 12 companies and 8 research organizations have also participated.

Which have been the action areas in this second line led by Fagor Automation?

The work has been divided into 5 tasks:

- An adapting and autonomous machine.
- Friendly and intuitive interaction with the user.
- Advanced control algorithms and new control strategies.
- Reliable and safe machine.
- Intelligent position feedback devices.

Have the results of the project been as expected?

At the end of the project we have evaluated the degree of fulfillment of the goals initially set and we estimated that it has been 95%. We have not only fulfilled all the initial 54 technical goals, but also an additional 8.

What was it like to collaborate with companies and research organizations?

Besides the technical results obtained, being able to cooperate with many companies and research centers of the machine-tool sector has been, in my opinion, very

positive. This type of cooperation projects provides some sort of multiplying effect. Also, participating in eEe has allowed us to create new jobs in our R&D department.



How do you share the knowledge acquired from the research between the participating entities?

The property of the results obtained is regulated through a consortium agreement signed at the beginning of the project. Basically, the percentage of property is directly proportional to the effort made.

Fagor Automation is also collaborating in the European project Chameleon, that belongs to the FP7. Roughly, what is the project about?

It intends to get polyvalent machines using intelligent devices integrated into them. We lead Work Group 4, in charge of developing an intelligent control software capable of coordinating all the available devices. Using Artificial Intelligence techniques, the new generation machines will be capable of cooperating with the users to carry out the desired tasks more safely and more efficiently.

Agenda

Weather in Bilbao

Monday May the 31 th	Tuesday June the 1 th	Wednesday June the 2 th	Thursday June the 3 th	Friday June the 4 th	Saturday June the 5 th
max: 21°	max: 25°	max: 20°	max: 22°	max: 27°	max: 18°
min: 13°	min: 13°	min: 14°	min: 13°	min: 13°	min: 14°

Timetable

	Bilbao	New York	Tokyo	San Francisco
open	10:00	04:00	17:00	01:00
close	18:30	12:30	01:30	09:30

How to arrive BEC

By Metro: Take Line 2 towards Portugalete and get off at Ansio station (beside the north entrance to BEC)

By bus: Take Bizkaibus Line 3136 (Bilbao-Cruces-Barakaldo)

International airport: Loiu 13 km. Take the N637 towards Santander and then the Barakaldo/BEC exit

By tren: RENFE. Barakaldo station

By car:

- From Bilbao, take motorway A-8 towards Santander, leave at exit 8: Barakaldo/Bilbao Exhibition Centre BEC.
- From Álava take A-68 towards Bilbao, take A-8 towards “Santander”, leave exit 8: Barakaldo/Bilbao Exhibition Centre BEC.
- From Guipúzcoa, take motorway A-8 towards Bilbao, exit 19: Aeropuerto/Getxo, an then towards Santander, exit 9: Barakaldo/Bilbao Exhibition Centre BEC.
- From Santander, take motorway A-8 towards Bilbao, exit 9: Barakaldo/Bilbao Exhibition Centre BEC.

Global Positioning System - GPS:

North Entrance	Parking
N43.29027°	N43.28683°
W2.98891°	W2.98727°

CNC8065
Friendly as always; more powerful than ever.

3A
Fagor go to new lengths in absolute technology.

FAGOR
FAGOR AUTOMATION

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