

iNews

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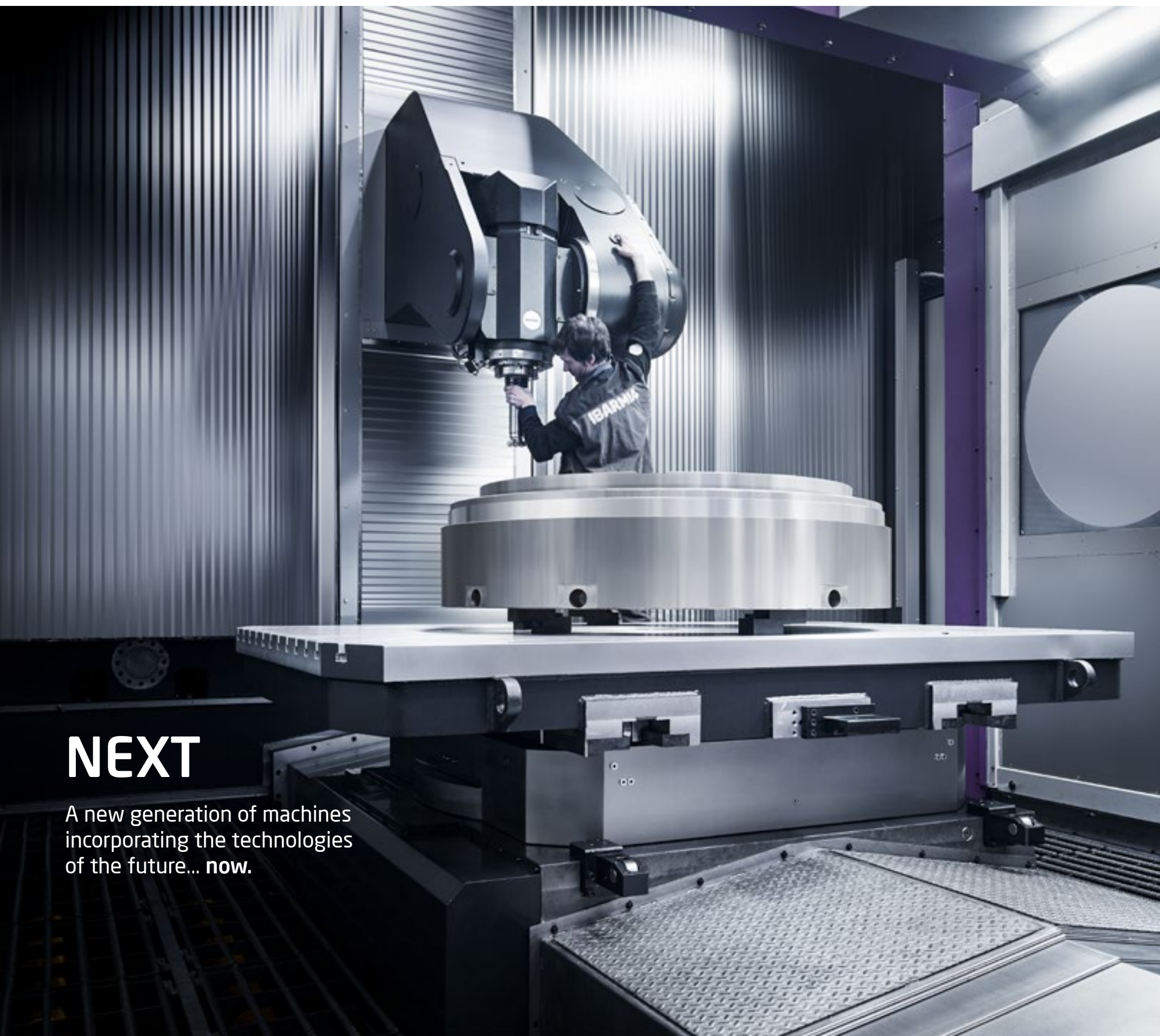
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NEXT

A new generation of machines
incorporating the technologies
of the future... **now.**



DEAR READER

WELCOME TO OUR JOURNAL

El iNews que tiene ahora ante sí es el 5º que publicamos con motivo de la EMO, de forma que entre todos los números editados cubren ya una década, un periodo relevante tanto en la vida de las personas como de las empresas. Y si bien vivimos por y para el futuro, en esta ocasión merece la pena echar la vista atrás y poner en valor la transformación sin parangón que IBARMIA ha sufrido durante este tiempo:

- Siete años de crecimiento consecutivo, marcando récords sucesivos en los últimos 5 años y habiendo duplicado la dimensión de empresa en 6 años.
- Un programa de máquinas absolutamente nuevo: la Serie T.
- La evolución del concepto Multiproceso hasta la incorporación de tecnología de rectificado y fabricación aditiva.
- Una filial propia en Alemania y una Joint Venture productiva en China.
- Importantes inversiones y modernizaciones en la matriz de Azkoitia con la incorporación de talento joven y cualificado.
- Pasos firmes en la digitalización de nuestra propuesta de valor para nuestros clientes.

Tras la EMO iniciamos una nueva década en la que queremos hacer tanto o más que en la precedente, para lo que es fundamental que esos clientes que nos reiteran su confianza se sientan más IBARMIA, más en su casa y que ese YOUR MACHINE TOOL POINT sea aún más cercano pasando a ser THE POINT, el Punto donde compartir retos y confidencias. Espero que los contenidos le generen una grata impresión.

Saludos.



This iNews in front of you is the 5th we have published on the occasion of the EMO, which means that all published issues now cover a decade, a significant period of time both in the life of a person and that of a company. And even though we live for the future, on this occasion it is worth looking back to assess the unparalleled transformation that IBARMIA has undergone during this time:

- Seven consecutive years of growth, setting successive records in the last 5 years and doubling the size of the company in 6 years.
- A completely new machine program: the T Series.
- The evolution of the Multiprocess concept up to the incorporation of grinding and additive manufacturing technology.
- Our own subsidiary in Germany and a joint production venture in China.
- Significant investment and modernisation with the incorporation of young and qualified talent.
- Firm steps in the digitalisation of our value proposal for our customers.

After the EMO, we will start a new decade in which we want to do as much or more than in the last one. For this, it is essential that these customers continue to place their trust in and feel more at home with IBARMIA, and that YOUR MACHINE TOOL POINT is even closer and becomes THE POINT. I hope that the contents make a good impression.

Kind regards.



Aurrean duzun iNews-a EMO dela eta argitaratu dugun 5.na da, kaleratutako atal guztiek hamarkada bat betetzen dute, denboraldi esanguratsua nahiz pertsonen bizitzan nahiz enpresetan. Eta etorkizunera begira bizi arren, oraingo honetan atzera begiratzek pena merezi du eta IBARMIAk denboraldi honetan izan duen paregabeko eraldaketari balioa eman:

- Zazpi urtetan etengabeko hazkundea, azken 5 urtetan segidako erronkak ezarri eta 6 urtetan enpresaren dimentsioa bikoiztuz.
- Makinen programa guztiz berriak: T Seriea.
- "Multiprocess" kontzeptuaren bilakaera, errektifikazio eta fabrikazio aditiboaren teknologiak gehituz.
- Delegazioa Alemanian eta 'Joint Venture' produktiboa Txinan.
- Inbertsio eta berriztatze garrantzitsuak Azkoitiko matrizean, talentu gazteak eta prestatuak sartuz.
- Pausu tinkoak gure bezeroentza proposamenen digitalizazioan.

EMOren ondoren, orain artekoa edo gehiago egitea nahi dugun hamarkada berri bat hastera goaz, horretarako funtsezkoa da euren konfidantza berretsi duten bezeroak IBARMIA gehiago senti daitezen, euren etxean bezela eta YOUR MACHINE TOOL POINT hori gertuagoa izan dadin THE POINT izatera pasaz, erroka eta konfidentziak partekatzeko Puntua.

Edukiek inpresio atsegina egin diezazuten espero dut.

Agurrak.



Cette iNews en face de vous est la 5ème que nous avons publiée à l'occasion de l'EMO, ce qui signifie que toutes les éditions publiées couvrent désormais une décennie, une période significative tant dans la vie d'une personne que dans celle d'une entreprise. Et même si nous vivons pour l'avenir, cela vaut la peine, à cette occasion, de regarder en arrière pour évaluer la transformation incomparable qu'IBARMIA a subi au cours de cette période :

- Sept années de croissance consécutives, en établissant des records successifs au cours des 5 dernières années et en doublant la taille de l'entreprise en 6 ans.
- Un programme de machines entièrement nouveau : T Series.
- L'évolution du concept Multiprocess jusqu'à l'incorporation de technologie de fabrication de broyage et d'additif.
- Notre propre filiale en Allemagne et une coentreprise de production en Chine.
- Un investissement et une modernisation importantes au siège d'Azkoitia avec l'incorporation de jeunes talents qualifiés.
- Des étapes fermes dans la numérisation de notre offre de valeur pour nos clients.

Après l'EMO, nous démarrerons une nouvelle décennie au cours de laquelle nous voulons en faire autant ou plus que lors de la dernière. À cet effet, il est primordial que ces clients continuent à accorder leur confiance et se sentent plus à l'aise avec IBARMIA, LE POINT où les défis et la confiance sont partagés. J'espère que les contenus feront une bonne impression.

Cordialement.



Koldo Arandia
PRESIDENT & CEO
OF IBARMIA



Dieses Exemplar ist mittlerweile die 5te Ausgabe der iNews, unser EMO Magazin. Das bedeutet das wir mit dieser Auflage ein Jahrzehnt in dieser Form informieren. Ein relevanter Zeitraum im Leben von Menschen sowie Unternehmen. Obwohl uns die Zukunft antreibt, möchten wir Revue passieren und die Transformation die IBARMIA in diesem Zeitraum durchgelebt hat nochmals mit Ihnen teilen:

- 7 Jahre kontinuierliches Wachstum, davon in den letzten fünf Jahre neue Rekorde aufgestellt und die Unternehmensgröße in sechs Jahren verdoppelt.
- Ein komplett neues Maschinenprogramm: die T Series.
- Weiterentwicklung des MULTIPROCESS Konzept mit der Integration der Schleiftechnologie und der additiven Fertigung.
- Niederlassung in Deutschland und Fertigung als Joint Venture in China.
- Wichtige Investitionen und Modernisierung im Hauptwerk unter Einbeziehung von jungen und qualifizierten Talenten.
- Neue digitale Plattformen für unsere Kunden.

Nach der EMO startet ein neues Jahrzehnt. Unsere Absicht ist es weiter hart zu arbeiten und innovative Entwicklungen voranzutreiben. Dafür ist es notwendig, dass die Kunden welches sich uns anvertrauen und IBARMIA als Ihr MACHINE TOOL POINT und festen Partner vor Ort betrachten. THE POINT, der Punkt wo wir Herausforderungen und Vertraulichkeit teilen. Ich hoffe, dass der Inhalt dieser Auflage einen angenehmen Eindruck hinterlässt.

Mit freundlichen Grüßen.



亲爱的客户，

现在摆在你面前的iNews是我们为EMO展会出版的第五本，也就是说我们出版iNews已经满了十年的历史。十年时间不管是人或是公司都有一定的重要性。虽然我们日常生活中总是不断地考虑未来，但偶尔也应该向后瞧瞧并珍惜我们已经过的成长和变化。对于伊巴米亚来说，在最近十年我们经历了：

连续七年的增长，在过去五年中不断地破纪录，在六年中企业规模翻了一番。

开发一个全新的设备系列：T系列。

车铣复合概念不断地进化增加上高精度磨床和3D打印生产技术。

在德国开发自己的子公司，在中国开发一个合资生产项目。

在阿兹科伊提亚总部进行重大投资和升级，大量引进年轻的新人才。

为我们的客户提供的方案和建议进行电子化的坚定步骤升级。

EMO展会之后我们将开始新的十年，在这十年，我们定的目标要比过去十年多很多。为了能达到这些目标我们需要我们贵重的客户更加信任伊巴米亚，加强我们关系的密切度，让往年的YOUR MACHINE TOOL POINT变为THE POINT也就是我们分享信息和挑战的热点。

希望这次iNews里的内容能引起您的注意和喜好。

祝好！

IBARMIA.

THE
POINT.

EST 1953

IBARMIA ROOTS

P/1

BASQUE INDUSTRY / BASQUE COUNTRY...
ABOUT IBARMIA'S LOCATION

MACHINE TOOL
MADE BY
BASQUE
INDUSTRY 4.0,
AT THE EMO 2019



Arantxa Tapia Otaegi
MINISTER FOR ECONOMIC DEVELOPMENT
AND INFRASTRUCTURES,
BASQUE GOVERNMENT



Basque industry arrives strongly and eagerly to the biannual EMO meeting. This time in Hannover, the Basque Government accompanies 45 Basque companies that occupy 5,504 square meters of exhibition space. A relevant presence, taking into account that the Basque Country is a small country, with about two million inhabitants, but with an avant-garde and technologically cutting edge industry. Our cover letter is summarized under the slogan of being a Big Little country.

We represent a territory in which political and economic stability prevails, despite the uncertainty that surrounds us, both in the context of the Spanish state and in the whole of the European Union. Hence, we give special importance to the effort for solid economic growth and for the generation of quality employment, based on political and institutional stability.

Current GDP growth prospects stand at 2.3% for 2019 and it remains at 2.0% compared to the expected growth for 2020. Likewise, job creation is progressing at a faster rate than we had anticipated, having managed to get the unemployment rate below 10%, a target set for 2020.

From now on, our challenge is to strengthen the economic structure itself and provide higher quality jobs that are generated. In this task, industry will play a decisive role and public policies, in tune and full public-private collaboration, are pointing in that direction.

Very slowly, but the importance of the manufacturing industry in the economy is growing, and represents 24.2%. In any case, we are increasingly aware that many of the services are part of an advanced industry. We refer to computer or telecommunications services, for example, which, are connected to industry, representing 52% of the Basque economy.

Machine Tools are no stranger to this new industry. The ability to incorporate

"intelligence" into our machines and provide them with connectivity is revolutionizing the entire design process, new capabilities and production solutions, an opportunity to offer prediction and maintenance systems. In short, we have entered a new industrial universe, which we serve from the Basque Industry 4.0 strategy, and in which we would like to accommodate the whole of the industrial fabric of the Basque Country, avoiding that any company in the Machine Tool sector should lag behind. For this we have enabled a new line of public aid, Renew 4.0, giving continuity to what we have been doing for six years with the Renew Machinery programme.

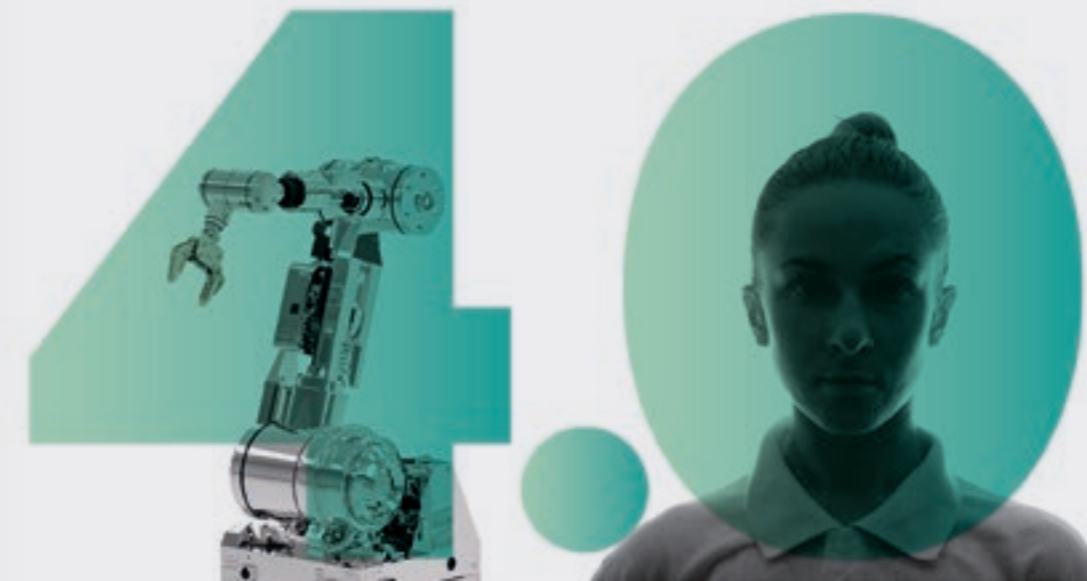
The Basque technology network has united around the BRTA-Basque Research and Technology Alliance in 2019, precisely to collaborate strategically with the whole industrial system, in which the machine tool represents its muscle and its DNA. An alliance that brings together twelve technology centres and four Cooperative Research Centres that add an unquestionable potential for research and development of new technologies.

The Basque Country's commitment is to offer greater added value. This challenge demands public-private involvement and complicity, and governance by the private sector based on the collaboration that Basque Machine Tool companies are demonstrating.



BASQUE
INDUSTRY

BASQUE
INDUSTRY



Hemen da industria berria

Euskal enpresak bultzatzen ditugu, eta, horretarako, enpresei nazioartekotzea, ekitea, finantzatzea, industria-lurzoria aurkitzea, teknologia berriak aplikatzea, berritzea edota industria berria (hots, Basque Industry 4.0 izenekoan) sartzeko beharrezkoa den prozesua gauzatzeko ahalbidetuko dieten tresnak erabiltzen ditugu.

La nueva industria ya está aquí

Impulsamos la empresa vasca con herramientas que le permitan internacionalizarse, emprender, financiarse, localizar suelo industrial, aplicar las nuevas tecnologías, innovar o llevar a cabo el necesario proceso de entrar en la nueva industria. Basque Industry 4.0.



AN IDEAL
LOCATION TO
MANUFACTURE
MACHINE-
TOOLS AND
MUCH MORE.



7.234 km²
Total surface area



54 %
Forest surface area

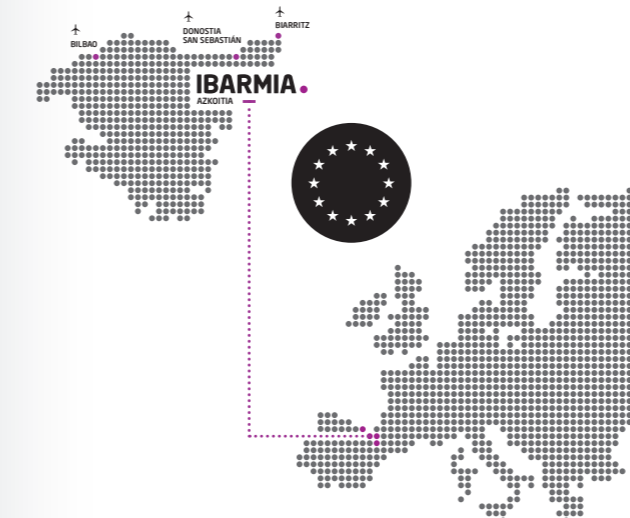


2.178.048
Number of inhabitants



0,915
Human development index

A region with a vast industrial tradition, hard working men and women, responsible and committed, a rich component and support industry, a market leading technology environment, mild climate and protected from natural disasters, well connected with the world by road, sea and air, a government sensitive to the importance of industry. From here, from this ideal environment, we approach the world.



34.079 €
Per capita income



24,1 %
Contribution (%) of Industry to the GDP



33,5 %
Export weight (%) on GDP



128
Labour productivity

BASQUE
COUNTRY

IBARMIA PRODUCT

P/2

ABOUT OUR MACHINING SOLUTIONS AND
TECHNOLOGICAL DEVELOPMENTS

NEXT

IS NOW

THE BEGINING OF A NEW AGE OF IBARMIA MACHINING CENTRES
Four concepts for defining a new generation of machining centres;
more ergonomic, efficient and connected machines that make
the future a reality now.

INSPIRATION
PERFORMANCE
PRECISION
DIGITIZATION



IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

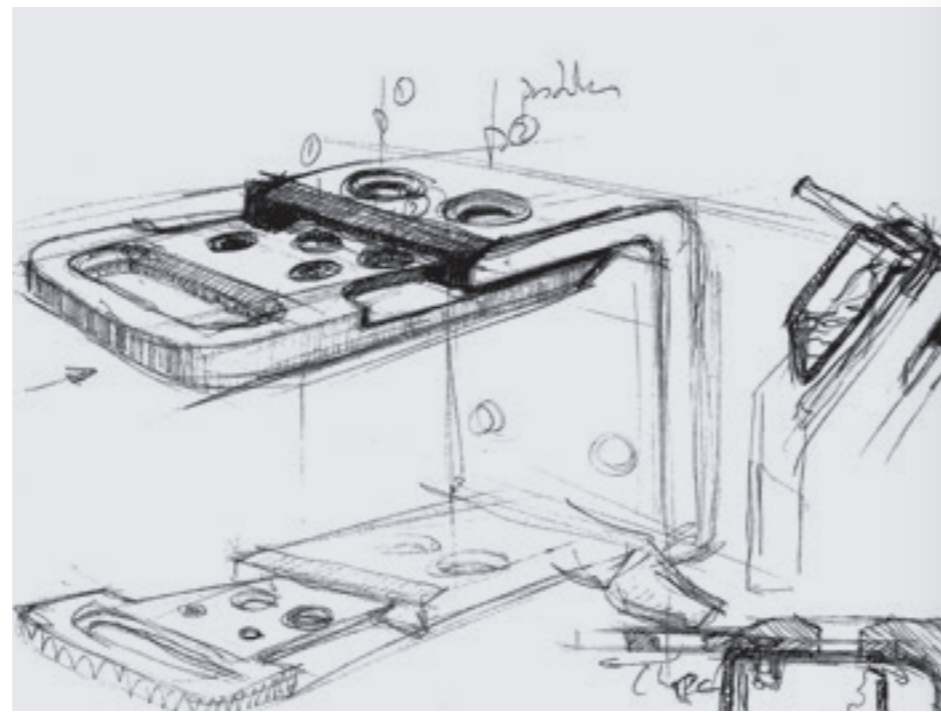
INSPIRATION_ RELEASE 2020 THE NEXT CONCEPT OF IBARMIA MACHINING CENTRES

THE PROCESS. "DREAMING IBARMIA"
Putting an emphasis on the value of the design, Josu Unzaga, Director of the Seelen studio and responsible for the New Release 2020 project, spoke to us of his motivations and professional experience after a year and a half of intense work with IBARMIA, a process whose direction rests on the solid concepts expressed below.



Images 1, 2, 3_ In Bilbao; "Soñar" means dream in Spanish. Thus, we fired the starting pistol for the Release 2020 project back in March 2018.

Image 4_ Josu Unzaga and Eider Garai together with their work team. The relationship between SEELEN and IBARMIA dates back to 2009, the date from which this studio has been co-responsible for the design of all IBARMIA machine programs.



Two years ago, at the end of EM02017, we felt that it was time for Ibarmia to take a step forward and renew the design concept of the Z SERIES range from the bottom up, so that the machine operators could feel proud of controlling a first-class product, developed with their safety and satisfaction in mind. It meant making machines more accessible, more human, cleaner and more valuable.

If someone comes to you with these expectations and does so with a wide smile and the shining eyes of someone with a dream... and proposes that you should be the driving force behind the process, convinced that you must take part to create something different, better than all the others do, that works and works first time, if possible... you also feel proud, of course, but at the same time a bit dizzy, a great emptiness and some fear of the unknown. Even so, there are many reasons why you know that it will be all right in the end.

The feelings of insecurity are repeated with each new project because of things that are not defined, and the challenge of being able to understand what others, who set the conditions of work, have in mind and are the ones who judge the proposals put forward. But you also know from the results of many similar cases that there is always a way forward and a good feeling at the end. You only know that by moving along and trusting in the knowledge of the team that Ibarmia sends to work with our team, it will be more feasible to reach the goal.

Our experience tells us that to be successful, we know that the formal proposals presented must be well-founded, and rooted in strong functionality that makes it easy to understand. Any design proposal presented must rest on these functional requirements.

We believe in the old principle, more so in the current atmosphere in industry, of "the design must follow the function". Technical

and functional needs, far from being a limitation, are a great source of inspiration for us. In addition, we know that the team that has to assess and approve our proposals knows how to measure, weigh, count, make estimates, judge the difficulties in assembly or manufacture in short, to consider the tangible aspects of the proposals. On the other hand, forms, design proposals, colours, textures, the reason for using a material, etc. are complex for them to assess and are to a certain extent an act of faith. That is why we try to make our proposals demonstrate clear functional advantages and the innovations requested in the specifications, so that they are unquestionably associated with these and approved because of them.

We generally seek concepts, multi-purpose and modular, for application to different products, integrating several functions, simplified assembly and easy to clean in short, obvious advantages. It can be surmised that such complexity requires a solid work process. We know that we want something different, distinctive, but we do not know for which aspects, even as far as wondering whether such ambitious goals really are for us, Ibarmia; whether they are within our reach, or if they are objectives we only see in our competitors.

Thinking inside four walls, surrounded by machines, with the noise from the workshop is very limiting if you want to be creative. The usual working atmosphere does not invite contemplation of new needs to be met, nor finding creative answers to these, thus, we decided from the outset that it would be more fruitful if we got away from the daily surroundings and sought inspiration and creative solutions by breathing fresh air, looking at proposed concepts, construction and materials, and at architecture, in a session we called "Dreaming Ibarmia". "Dreaming Ibarmia" came about as an exercise in association. Associating images with values that had

IBARMIA PRODUCT

to represent the Ibarmia brand. "Dreaming Ibarmia" is an exercise for subtly drawing out that people in industry find difficult to identify and put into words, but yet are essential for the designers to construct their proposals.

Images allow us to point out things that are near, what represents us, what we identify with, what we find strange, different, surprising, the materials, finishes, colours and textures that we understand should be the foundations of a new product.

We use the world of architecture as a reference point because it is easy to find examples, and especially because it is an infinite source of inspiration for us. It is a world in which the limitations of form are often very few, and in which there are very varied materials and finishes and cost levels, which border on the extreme. Proposals that are almost always far from the creative and construction possibilities in industry, but where there are always important details that can be extracted if you really look for them, almost your only salvation if you want to do something different. Compound materials, HPLs, ventilated façades, systems for hanging panels, sealing solutions, structural adhesives, metallic materials, façade moulding processes, metal skins, coloured plastics, textures, etc.

A group of people linked to management and belonging to various departments, with different needs and sensitivities, took part in the session organised.

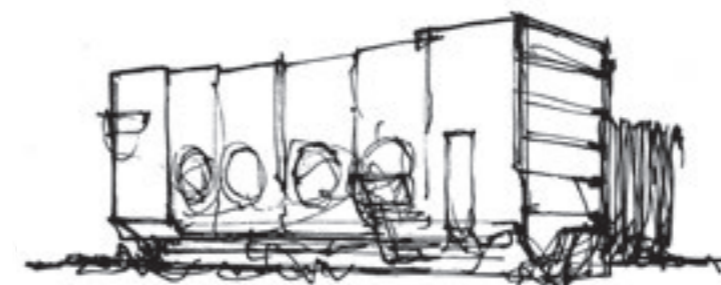
In this diffuse atmosphere, concepts of improvement in ergonomics were proposed in parallel with accessibility, safety and user-friendliness, which proved to be key in the definition and the future of the project.

In a few days, we drew up a questionnaire that we sent to the participants, and which was used to easily identify the points of agreement and images that should represent the Ibarmia of the future. Metal materials,

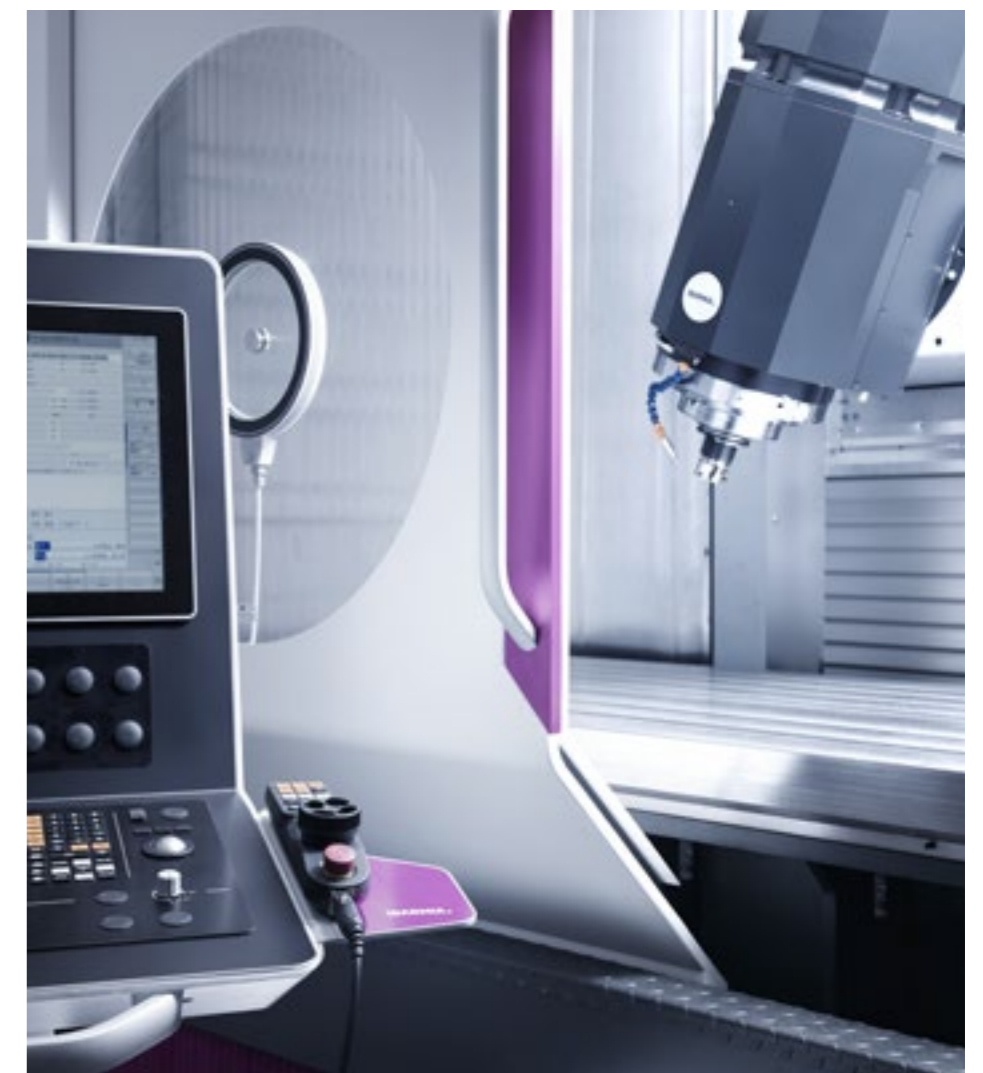
aluminium combined with black, components that repeated to form sequences, lightness, brightness, the circle, good finishes - these were the points of consensus. Like good Basques, even the lunch menu we shared was creative enough to be a source of inspiration and contrasting ideas on aesthetics. Day-to-day work takes away time in which to make parallel developments to test innovations. Therefore, it is essential for an industrial designer, as much or even more than knowing how to design, to motivate, to push forward when everything seems to have come to a halt, to collaborate with people from Ibarmia who know the details and problems and are able to carry out specific solutions to provide an outcome for conceptual proposals presented by our design team.

Fortunately, from the start, we have had an enthusiastic and hopeful vision, the fuel for the project. Without their contributions, without their dreams, this would definitely have been different, it simply would not have been. Therefore, it is important that his pride that we wanted to achieve with this new design for future operators of your machines, should be felt by everyone, for having reached this point. Only by feeling pride in the work will you be able to transmit it to your future customers.

IN SEELEN WE BELIEVE IN THE OLD PRINCIPLE: "THE DESIGN MUST FOLLOW THE FUNCTION"



NEW RELEASE 2020
Dreaming is the way of tackling the machine of the future from the present



NEW RELEASE 2020



THE RESULT A good design shouldn't say "look at me" but "look at this"... And this is what we try to do. We believe we have met the established objectives and we are proud of the result. Now it is up to us to make its case. The rest is in your hands.

"MORE" WHEN TO SUM DOES NOT MEAN TO ADD BUT IMPLEMENT

MORE ERGONOMIC

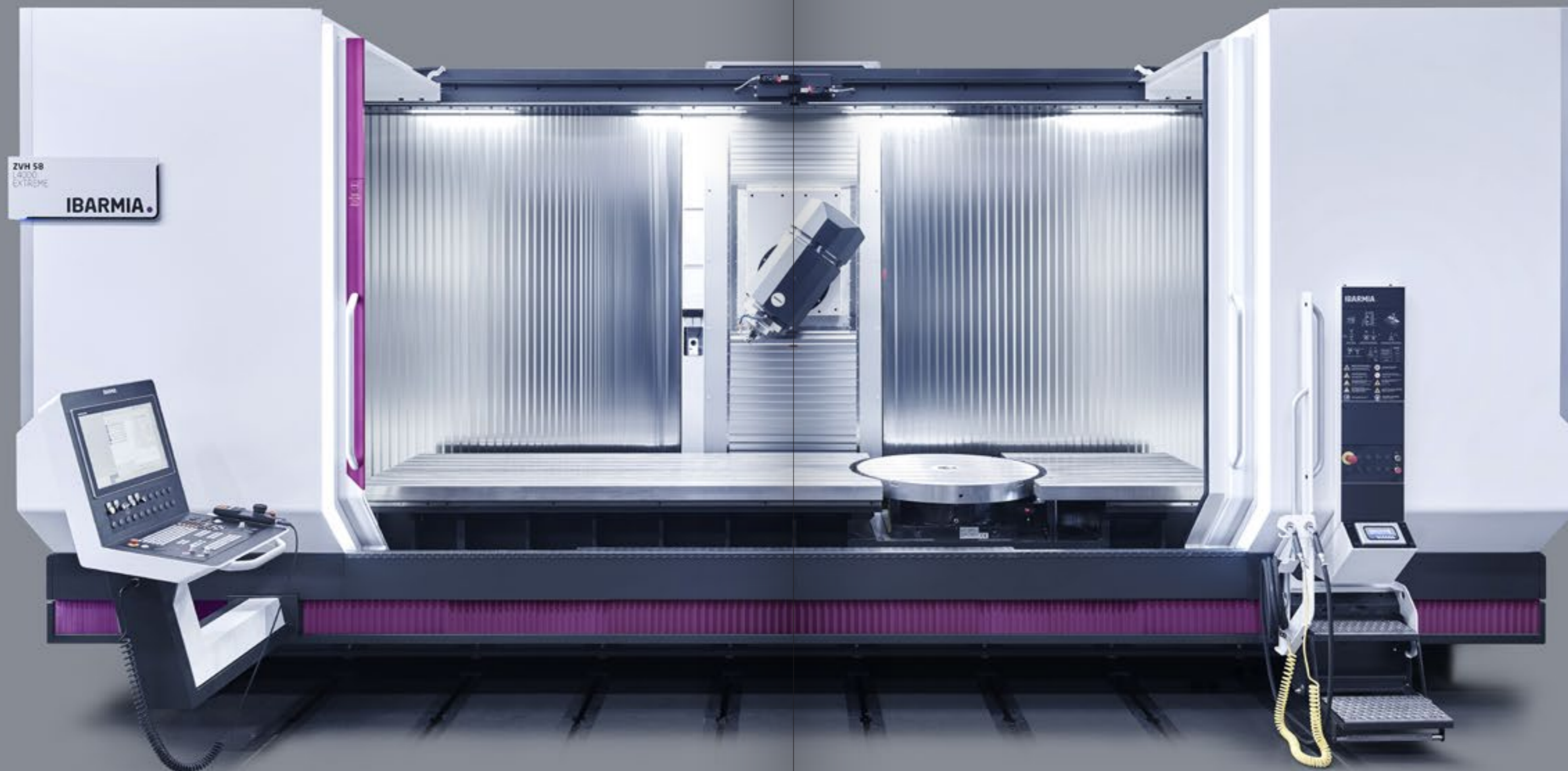
An entire series of measures incorporated into the design with the aim of optimising the machine-user relationship and that translate into an improvement both in the **accessibility (1)** and **usability (2)** of the machine.

MORE EFFICIENT

The new design incorporates a set of structural improvements that raise the efficiency level of a machine that not only makes life easier, but simply makes everything easier, which is a benefit to the user and is a clear improvement in the integration of the system into the environment.

MORE ATTRACTIVE

A formal evolution is not only about the functional aspects, but also seeks to offer a tangible benefit to the user through the provision of a more friendly and inviting work environment.



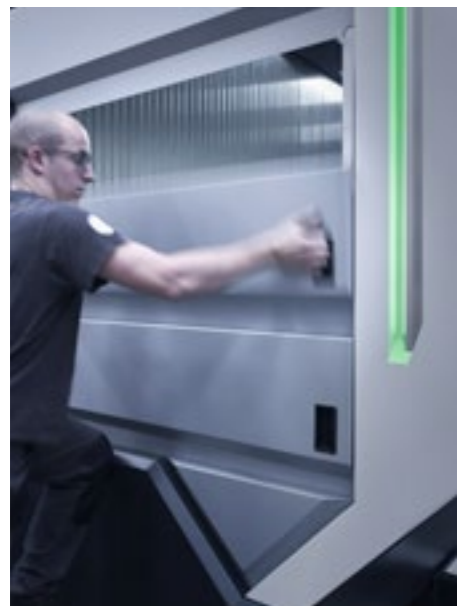
FUNCTION



MORE ERGONOMIC



• **More usable.** The same guideway for the control panel and access stairway allows the entire length of the machine to be covered with both elements. The control panel is lighter (manufactured in polyurethane), more adaptable and functional (it can rotate 360° over the entire longitudinal travel) and more flexible (it can hold screens of up to 24 inches). The side panelling is lighter and easily removable (using just two keys).



• **More accessible.** The sliding stairway allows access to the machine at any point on the longitudinal travel and the set of air and coolant guns are joined by means of a support that includes the drip collector. The new, completely redesigned bed now offers a machine front that is 150 mm lower and allows the operator to get closer to the work table.



"MORE" BECAUSE IMPLEMENT IS A SYNONYM OF IMPROVEMENT

MORE EFFICIENT



• **Easier to maintain.** The redesign of the bed also facilitates the optimal chip removal. Moreover, the machine's interior design has been completely overhauled, all horizontal planes have been eliminated both on the enclosure and the doors by means of chamfered joints. A new smooth top equipped with interior cleaners prevents undesirable drops on the bottom part.

FORM



MORE ATTRACTIVE



• **Cleaner.** Thanks to the concealing of both the single guideway for the stairway and control panel behind a protective bellows, as well as the wiring of the latter on the moving arm.
 • **Lighter.** The white enclosure and new quality finishes offer a warmer interaction with the work environment. The LED light signals integrated into the sides independently indicate the state of operation of each sector and are more comfortable and effective.



IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

PERFORMANCE_ INTEGRAL MANUFACTURING THE NEXT GENERATION OF IBARMIA MULTITASKING MACHINES

Only a little over 10 years ago, the only function performed by machines in the IBARMIA range was milling, but the technological development carried out means that now it can offer solutions for turning, grinding, manufacturing gears and additive manufacture.

It means working with the widest possible concept of flexibility, so that we have solutions for (almost) all customers. The MULTIPROCESS concept reduces times and errors, and increases productivity in factories dramatically.

The various technologies are applicable to all architectures making up the IBARMIA range, from travelling column machines (Z Series) to universal machining centres (T Series) and solutions for machining large circular pieces (C Series).

MACHINING GEARS

IBARMIA machining centres integrate a capacity for milling straight, oblique and helical gears, using a programming assistant to define the gearing parameters by entering the basic data. The process can use hobs and disc cutters reaching high quality.

Skiving technology has also been developed applied to IBARMIA machines with high-speed synchronization of head and divider. This technology has a production rate much higher than for milling and can reach very good quality of machining. To help in its implementation, specific CNC cycles have been developed to run the process from the input data for the gearing to be made.

By developing these functionalities, gears can be machined on machines that are not specifically designed for these pieces, thus avoiding heavy investment and moving pieces from one machine to another, which is of great value with small production runs or occasional lots.

TURNING

High-dynamic machines for turning without losing positioning precision for milling. Wide range of rotation speeds for vertical turning or horizontal turning with multiple

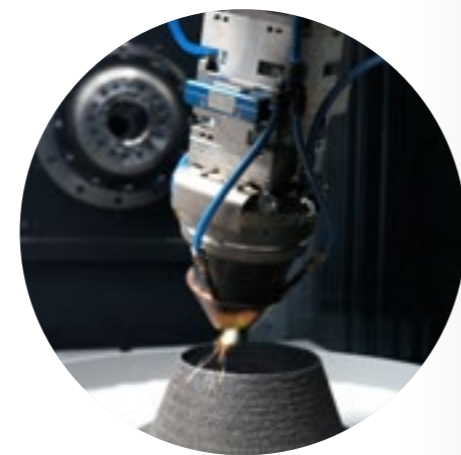
configurations for axes from ø250 mm up to ø3000 mm. In addition, there is the option to turn static pieces by integrating a U axis in the head.

GRINDING

Capacity for interior, exterior and flat grinding integrated in the whole range of IBARMIA machining centres, by defining a package of additional measures protecting the parts of machines that are sensitive to the dust generated during the process (extra scrapers, protection elements on spindle nuts, extra brushes in the machine bellows, etc.) and also incorporating a dresser in the work area.

Calibration cycles associated with the process have been developed, as well as systems monitoring contact between wheel and dresser, and contact between the wheel and piece.

As with turning, specific cycles have been implemented on the CNC to help the operator during grinding and controlling the process more thoroughly.



LMD_ LASER METAL DEPOSITION

As well as the chip removal mentioned previously, IBARMIA machining centres can also incorporate technology to supply material, in this case by deposition of molten metal by laser beam. The combination of addition and removal of material in the same facility means that repair operations, coating with the option of combining different materials and generating additional shapes on an already existing piece, can be done in one run, ending in most cases with the machining operations required to obtain the final shape. The combination of these technologies gives rise to the Add+Process machine program in which 3D printing is hybridised with milling and/or other processes of stock removal, such as turning and grinding.



Power Skiving: the latest integration in gear machining technologies on IBARMIA multiprocess machining centres.



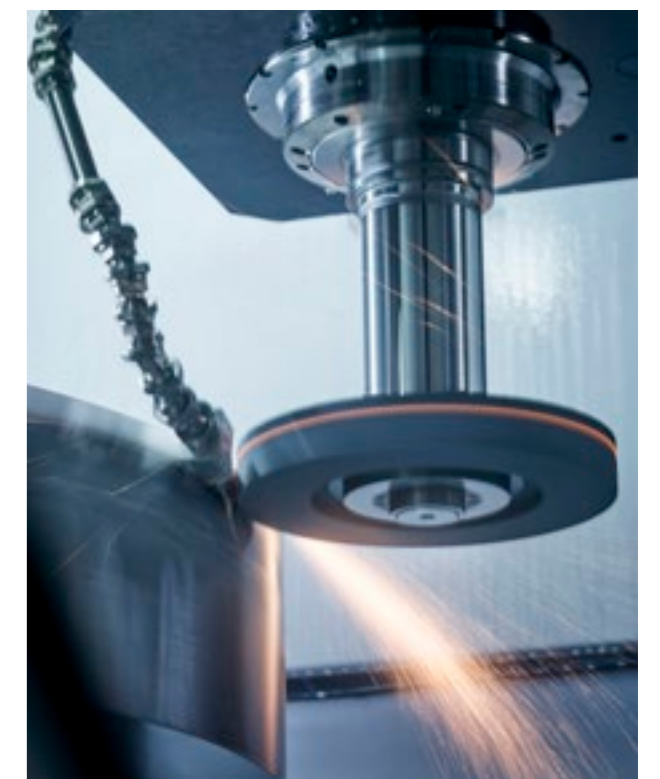
IBARMIA PRODUCT



5 AXIS MILLING



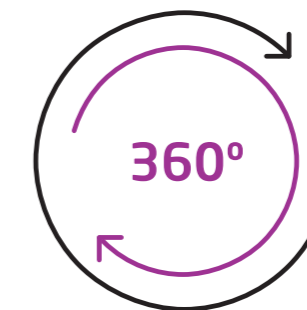
TURNING



GRINDING



MULTIPROCESS_ INTEGRAL MANUFACTURING OF COMPLEX PARTS IN ONLY ONE SET UP



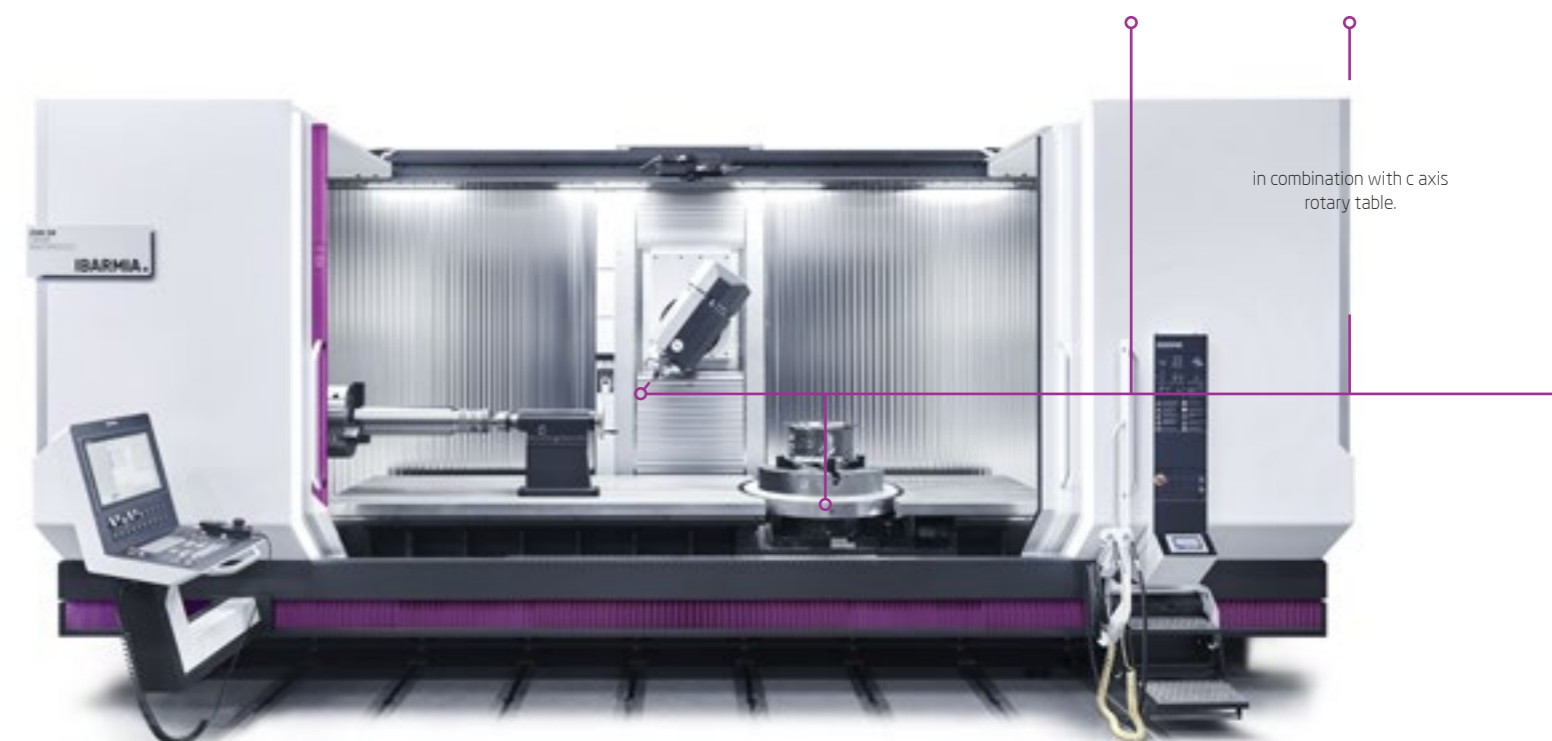
INTEGRAL MANUFACTURING

The "total" machining centre: Combine axes and processes to integrating 5-axis milling, turning and grinding capabilities, with the advanced gear machining and additive manufacturing technologies in a same machine.

Grinding Automatic change of grinding wheels

Power skiving Automatic change of gear skiving tools

Additive manufacturing Automatic change of LMD head



in combination with c axis rotary table.

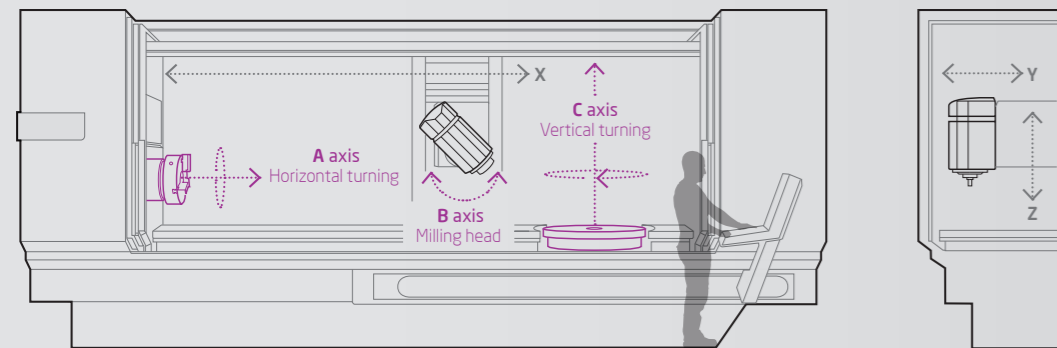
IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

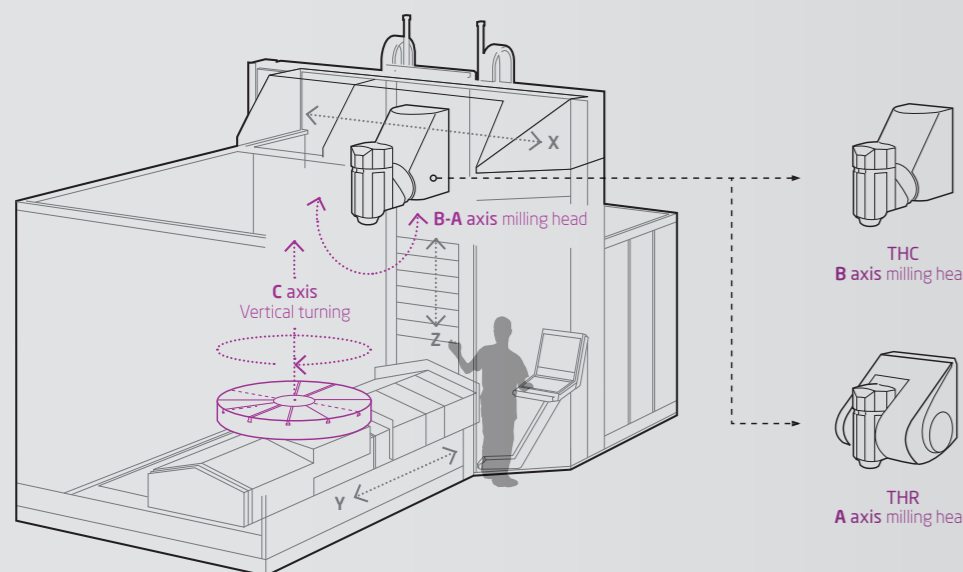
THESE TECHNOLOGIES ARE APPLICABLE TO ALL IBARMIA MULTIPROCESS MACHINING CENTRES

Considering MULTIPROCESS an integration of milling and turning technologies in one machine, lets see how we achieve that in our Z SERIES and T SERIES machine programs: (Know more about our machine programs on page 36)

5 axis machining with horizontal and vertical turning capacity
The maximum expression of flexibility, Z MULTIPROCESS can combine a fixed table with one or two rotating axes (A and C) for turning operations.



5 axis machining with vertical turning capacity
T MULTIPROCESS models are provided with highly dynamic rotary tables for turning operations and accurate for milling operations. The direct motors ensure and high torque and dynamics.



Shinichi Tanzawa
FANUC EUROPE CORPORATION
PRESIDENT & CEO

BUILDING ON A STRONG PARTNERSHIP

For 25 years now, we at FANUC have been proud to be a close partner for Ibarbia. Now we hope to take our relationship to the next level. As you know, FANUC provides a vast service network of 263 locations serving 108 countries in the world. While we have been located in Europe since the 1970s, we have been expanding a lot recently. Currently our European headquarter in Luxembourg counts 22 subsidiaries all over the continent. While we continue to open new offices, we are also upgrading our existing facilities: offices, showrooms, customization and repair centers as well as training rooms.

To better serve Ibarbia as well as other customers, FANUC Europe has grown its headcount by more than 25 % in the past 3 years. Out of our 1.600 European employees, more than 60 % are technical support engineers, trainers, field service engineers and other service support staff. We have also increased our product and service parts inventory as well as our capability of product repairs. We have achieved a 99,95 % availability for service parts within Europe which helps us to further minimize downtime of your machines. In fact, the MTBF (Mean time between failure) of our CNC is more than 30 years, while the MTBF of our robots is more than 25 years. To ensure a swift product delivery we store a big stock of CNC and other products in Luxembourg. FANUC also provides a wide range of robots, a variety of vision and force sensors and a strong relationship with robot system houses all around Europe and in the world. This enables the users of Ibarbia machines to do their robotisation very effectively.

Ibarbia as well as other European customers have specific market needs that we want to quickly respond to. Therefore in 2016 FANUC has established a European Development Center in Germany which will be further expanded. Our main goal is to increase our customer's satisfaction by providing high quality products and operations with excellent technology, reliable products, timely delivery and quick service. By respecting and realizing Ibarbia's requirements and building a long-term trusted partnership we hope to grow together with you – taking our relationship to the next level.



THE FACTORY AUTOMATION COMPANY



FANUC - your partner for factory automation



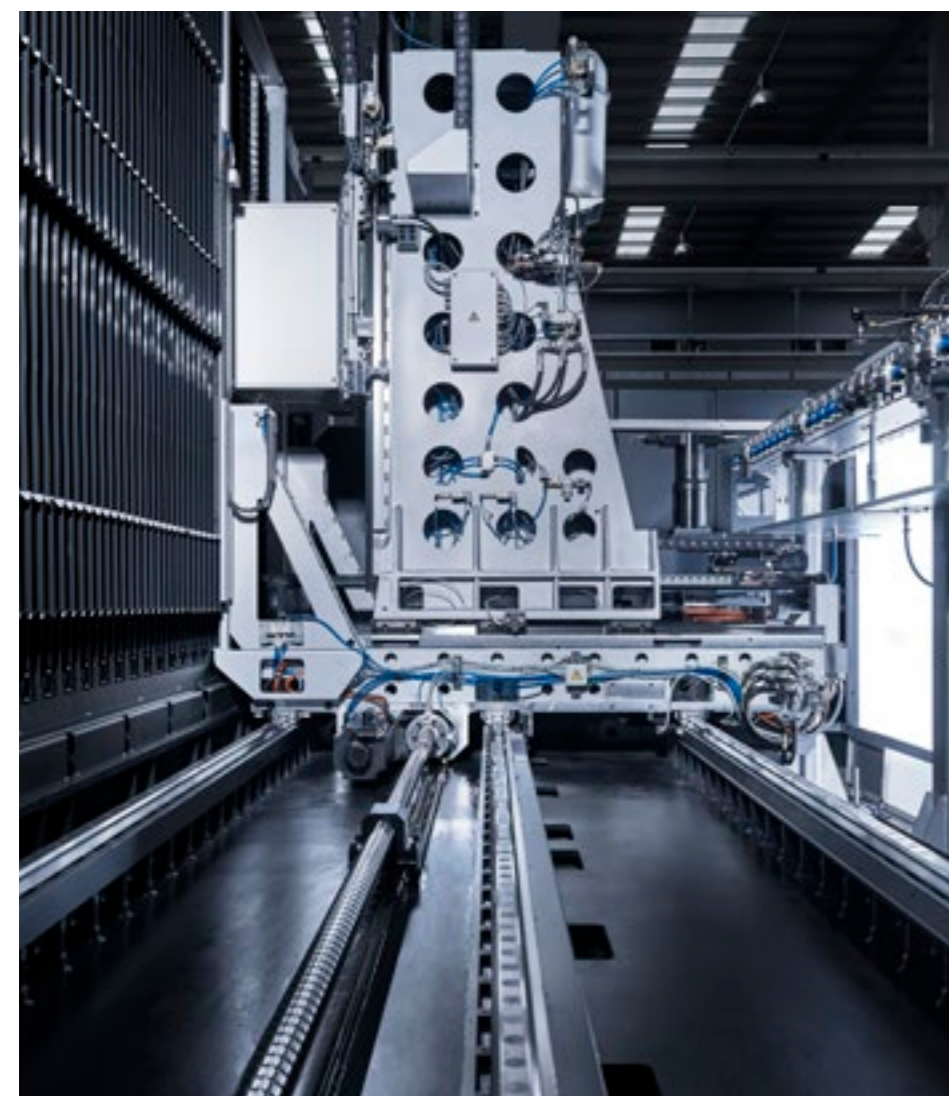
WWW.FANUC.EU

IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

PRECISION_ ULTRA-PRECISION THE NEXT STEP IN MACHINE ACCURACY

New thermo-symmetrical designs and a meticulous manufacturing process place IBARMIA machines at unprecedented levels of precision allowing IBARMIA machining centres be able to work in much more demanding scenarios.



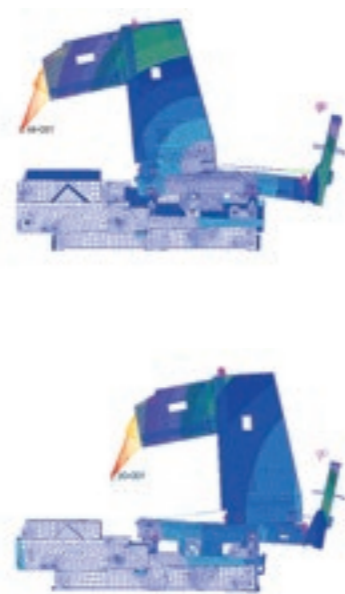
Following more than 2000 hours of testing by measuring various deformations at different points on the machine and identifying hot spots in order to act on them and analyse the impact of measurements implemented, the latest generation of IBARMIA machining centres can work in much more demanding scenarios from the point of view of precision machines.

As well as error correction built into the design to avoid their appearance, compensation algorithms for residual thermal error have been developed, based on data obtained during the intensive characterisation testing. The huge amount of data generated meant that a digital application was needed to record and consult them.

The data cloud was complemented by developing a twin digital thermal model of the various architectures in IBARMIA machines, defined from models of advanced parametric and transient finite elements.

One of the critical points examined was the head, the main part on the machine, which has high rotation speeds involving heat and, therefore, deformation. Compensation procedures for the deformations are implemented, based on a direct sensor integrated in the electro-spindle.

In this bid for precision, it is also essential to control the manufacturing process for each machine from start to finish, since every detail counts. In the first place, it is impossible to tackle the issue if the ambient temperature



The developing of twin digital thermal models of all IBARMIA architectures allows to accumulate very valuable data on the thermal behavior of the machines.

is not controlled. Therefore, IBARMIA decided to air condition its machine assembly facilities to ensure that the precisions set as goals are obtained.

Several levels of precision on machines have been set to meet market demands, since ultra-precision is not required in many cases and customers must have a choice of machine according to their needs.

For customers seeking levels of ultra-precision, packages of options for machines have been analysed, with the impact studied in theory and experimentally, so as to be aware of the improvement in each case and where the impact falls. This happens when cooled motors are incorporated on one or several machine axes; certain motor mounts or spindle nuts are cooled, the cooler temperature is programmed, etc. There are additional measures depending on the process, since these can generate hot spots e.g. by depositing large quantities of chips at high temperature in certain areas. In such cases, specific measures are suggested to the customer to remove chips more rapidly, while cooling the chip-machine or chip-piece contact area.

IBARMIA MACHINING CENTRES CAN BE PROVIDED WITH A SUPERIOR LEVEL OF ACCURACY

Higher levels of precision can be obtained if additional measures are implemented throughout the machine manufacturing process, reducing the dimensional tolerances on structural pieces in respect of flatness and straightness.

Development work on all these issues has meant implementing new procedures for geometric verification on the machine and a piece test, by measuring many more errors on the various axes and critical parameters on the machined piece, also providing traceability of the results over time, and of the conditions under which they were obtained.

The search for precision machining is an issue that can always be improved and IBARMIA has opted to continue working on R&D projects based on the subject in order to continue advancing. The ambient temperature is one of the key factors once the hot spots on the machine have been controlled, and compensating for their influence is one of the issues that will be seen in the machines of the future.

IBARMIA PRODUCT

THE KEY TO SUCESS IS A COMPLETE KNOWLEDGE OF OUR MACHINES BEHAVIOUR



THE HEAD
One of the critical points examined and the main part of the machine.

Thermal behaviour of the standard machine

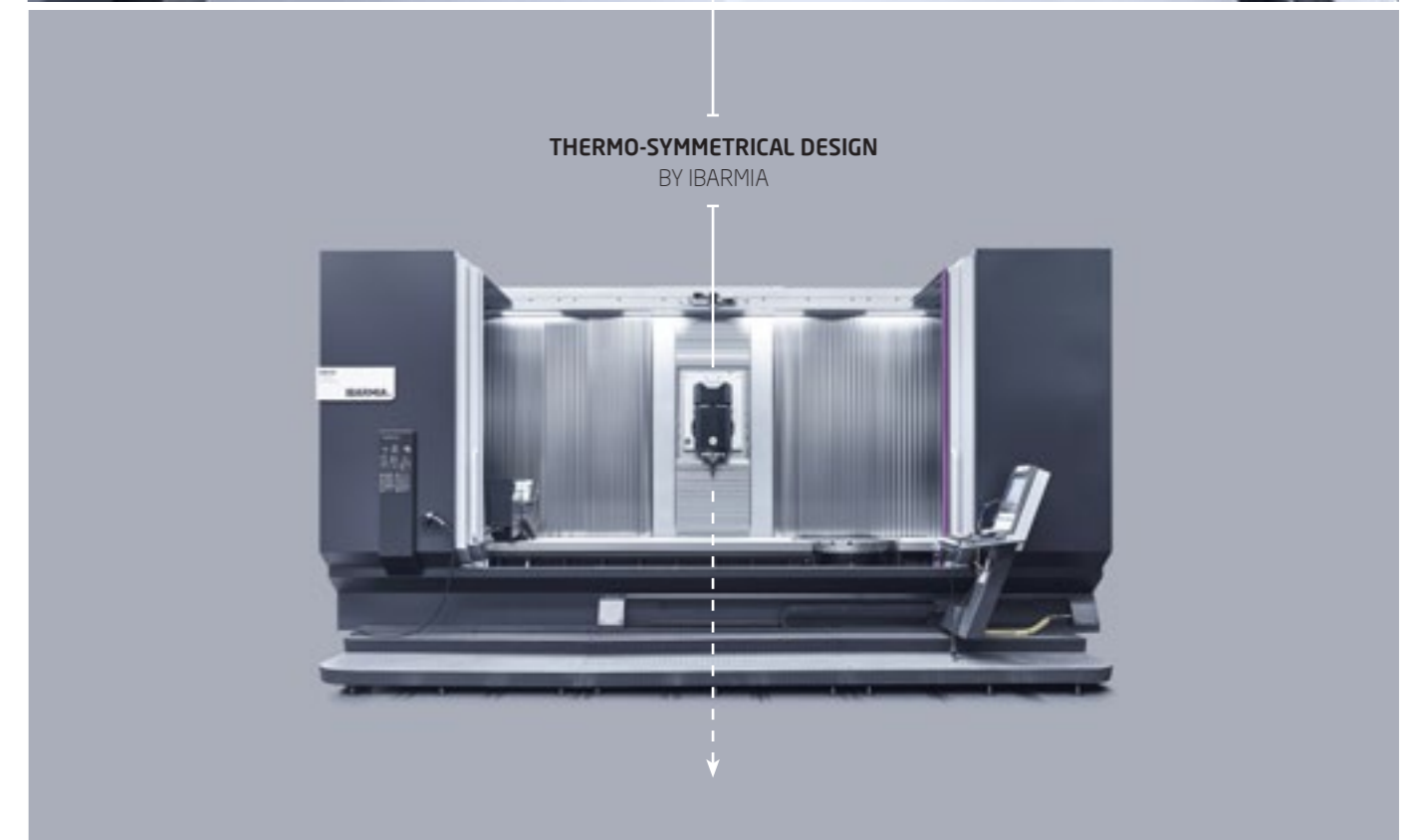
- Thermosymmetric and thermostable structure design.
- Water refrigeration of local heat points.
- Motor support of X and Y axis. Nut support of X axis. Spindle and B axis motor.
- Bearing and torque motor of rotary table in MULTIPROCESS machines.
- X, Y and Z axis motors refrigerated by convection in open areas.
- Control of the water temperature in the refrigerator.
- Thermocouple installed in the machine base for temperatura synchronization.
- Thermal isolation of the electrical cabinet versus machine bed.
- Thermal compensation system of the spindle.

Additional measures

- Water refrigeration of local heat points
- _ Support of the nut of the Y axis.
- _ X, Y and Z motors.
- Coolant chiller.



THERMO-SYMMETRICAL DESIGN
BY IBARMIA



IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

DIGITIZATION_ MAKING IT EASIER THE NEXT LEVEL IN BUSINESS INTELLIGENCE & MACHINE USABILITY

The concept of digitalization is evolving and at IBARMIA we are working on connectivity as one of the key lines on the road to the digital factory of the future. A factory based on open interfaces and standardized communication protocols to guarantee integration and interoperability of machines and processes.

All this development is focused on finding the maximum benefit for customers based on high-technology machines with constant connectivity, automation solutions aimed at maximising productivity and new models of interaction between people and machines that enable more efficient operation. Cyber-security concepts have been addressed from the start of developing this digital ecosystem, so that IBARMIA's connectivity solutions and the IP are guaranteed to be inaccessible by third parties, preventing sensitive information and the workpiece program, machine set-up and production records from being accessed.

Elements in digital manufacture:

SMART POINT

A solution developed by IBARMIA in collaboration with VIXION, its technology supplier, to provide customers with continuous information on the status of the machine and process. Its key functionality is real-time monitoring, capture and storage of data from the machine and process, regardless of the CNC on the machine (Siemens, Heidenhain, Fanuc). It enables remote display of the selected variables in real time to give information on the status of the machine, as well as providing regular diagnostic reports and controlling the evolution of multiple variables in time. It has a smart analysis tool for the captured and stored data to anticipate any problems with the machine and process, thus reducing downtimes.

A PARADIGM FOCUSED ON FINDING THE MAXIMUM BENEFIT BASED ON HIGH TECHNOLOGY MACHINES

UMATI CONNECTIVITY

IBARMIA has joined with UMATI (Universal Machine Tool Interface), an initiative from the VDW aiming to establish a world standard for machine connectivity based on OPC-UA. It means having an open standard for Machine Tool users throughout the world, that would enable the opportunities afforded by the digital factory of the future to be explored.

IBARMIA is taking part in this initiative to expand the connection capacity of its systems so that the machines operate in an environment of maximum connectivity.

SMART COMPONENTS

IBARMIA machines are incorporating an increasing number of elements capable of capturing variables in real time to optimise the operating conditions of the machine and prevent problems with wear and faults. This is the case with the iBallScrew developed jointly with our supplier, SHUTON, that integrates the sensors needed to measure the pre-load on the screw by a short cycle checking the drive and working in connection to make records, compare values with those defined as normal and propose actions to the machine operator to improve performance.

H.M.I. (HUMAN MACHINE INTERFACE)

The new HMI concept from IBARMIA seeks a new form of relationship between man and machine so that, despite the fact that machining facilities are becoming increasingly complex, they are also becoming easier to operate. The new HMI has a modern, user-friendly interface within a control panel following the parameters of the New Design Release 2020 and incorporates a large touch-screen to aid interaction. From the functional point of view, the new HMI has guided menus to simplify the most repetitive tasks, and help for programming by implementing technological cycles, or APPS, documentation displayed on the screen, control of cameras in the work area, etc.

In order to improve interaction with the machine, we are working on implementing alternative systems, such as voice commands, which will enable simultaneous interaction of the machine with other auxiliary tasks and have the option of asking for information on the status of the machine without interrupting other work; easy recognition, which will be an alternative to managing user profiles and can lock/unlock the HMI with ease; pre-set gestures for certain operations, etc. Existing technology has been integrated and applied in other areas of interaction with the CNC.

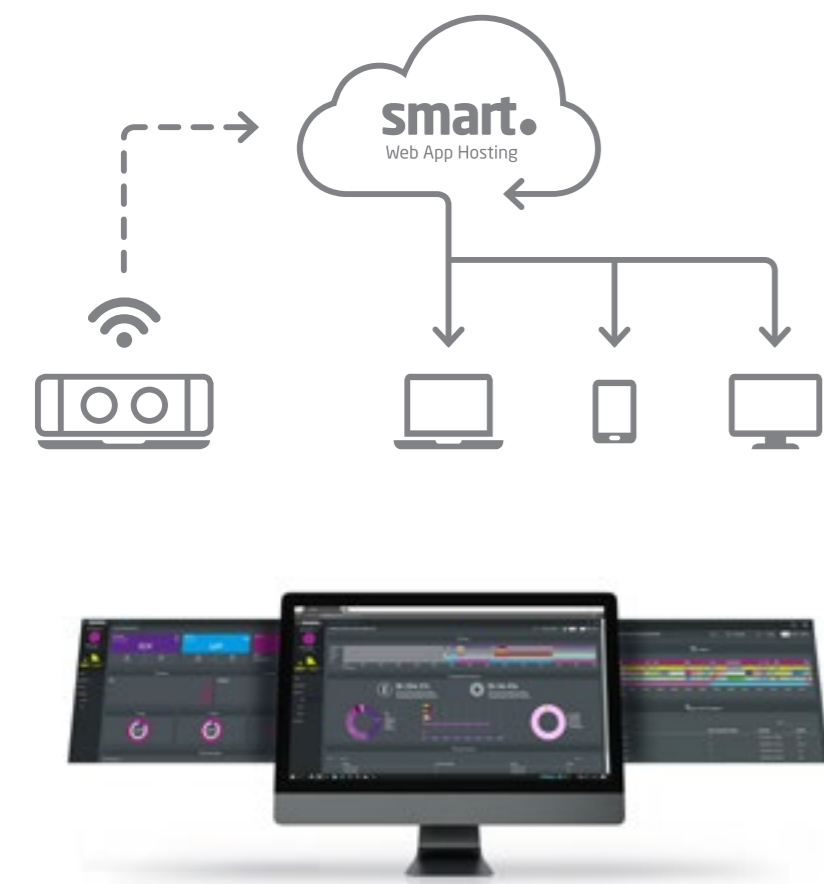
TECHNOLOGICAL CYCLES - APPS

High added value functionalities that IBARMIA provides for users to increase performance of the machines via various applications.

Some examples:

Autotuning: this cycle enables the axis control parameters (linear and/or rotary) to be adjusted depending on the inertia placed on the divider, so that the machine is always working in the optimum range.

Protection for the electro-spindle: since the head is the most critical part of the machine, a functionality has been developed for early detection of any abnormal situation that could affect the life of the electro-spindle - tools out of balance, too much vibration in machining, collisions, etc. The condition of



IBARMIA PRODUCT



Xabier Ortueta
AFM CLUSTER
GENERAL MANAGER

A NEW WIND BLOWS WITH A FUTURE FULL OF CHALLENGES AND IMMENSE OPPORTUNITIES

We have seen several years of very solid growth, based on China's great strength until 2015 and a resurgence of industry in the United States and Europe over the past few years.

We have taken the opportunity to set things in order, to further develop our products and to grow. In the last 5 years, industry 4.0, the Internet of Things and servitization have given a lot to talk about, and we have all tried to comprehend the dimension and scope of digitization in the industry.

We have applied digitization to our companies, our processes, and in the specific case of machine tools, also to our products. Sensors, CPS's, black boxes, the cloud...we have taken a great step towards managing a lot of information, which we use to monitor what is happening and to make decisions and offer services ranging from predictive maintenance, to increased productivity, to new value propositions. In a world that has been dominated by hardware, by mechatronics, we haven't fully come to terms yet how to make this new value profitable, and we are trying to decide what business model is best to tackle all this. But we are on the road to success. Our machines are becoming less hardware and more software, metal is losing its value and service is gaining force. You don't have to be a visionary to see that this is just the beginning.

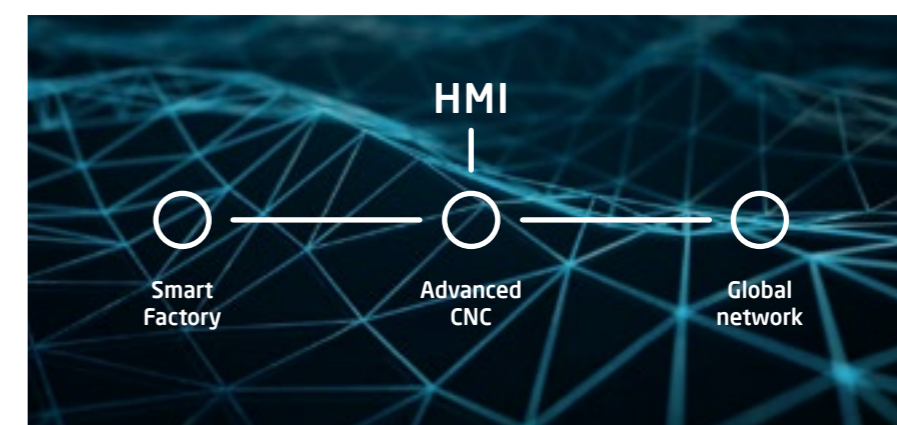
We are undoubtedly at the beginning of a new era. With digitization, devices and machines will talk to each other, learn, and in many cases decide for themselves. They will be more and more software, and their output will be products, parts, but also service. We will see an industry that is increasingly automated but tremendously flexible, capable of manufacturing customized products in close proximity and on time.

We are, without a doubt, the protagonists of one of the greatest paradigm shifts in the history of society, and therefore of industry. Some have already emerged, others we can't even fathom, and many will be gigantic. Precisely for this reason, it is becoming increasingly important to make intensive use of one of the skills that has characterised the sector of machine tools and advanced manufacturing: cooperation. Join to grow, together we are stronger and we will become stronger.



the bearings is monitored continuously, and safety parameters configured to stop the head, or suggest to the operator a change in working conditions, if required.

The developments in machine-process digitalization are continuous and demand more technology to be incorporated. Therefore, future developments will tend to include augmented reality to improve and/or simplify machine operation, or provide training and service operations, work much more with concepts of the virtual factory and use blockchain technology to develop traceability (pieces, piece program + machine set-up, machine data verifying its origin point, machine components, etc.)



IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

Z SERIES MACHINE PROGRAM_ THE MOST FLEXIBLE MACHINE SET UP IN THE MARKET



HORIZONTAL AND VERTICAL MULTITASKING

01

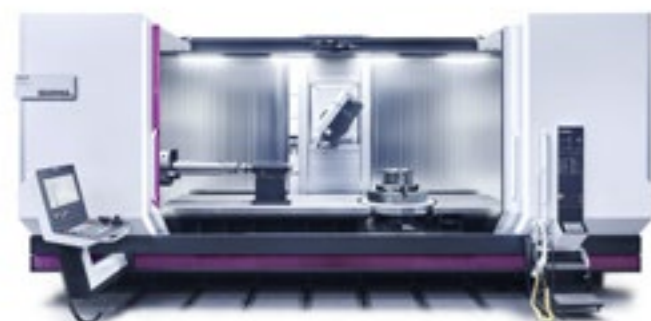
ZVH 58/L4000 MULTIPROCESS_ SN.16915

Horizontal turning and milling in 5axis provided with long boring bars for internal diameter jobs in parts up to 4 meters long, vertical 5axis machining of ø1400mm parts, a 4600mm x 1050mm big fixed table for an endless variety of parts clamped on the most suitable systems, a work dividing system so the machine can be used as a palletized machine to maximize its productivity. All this with accuracy, power and dynamics. The IBARMIA machine responds to practically all the machining requirements any workshop may have making it the most efficient investment in production solutions.



Many companies need to limit their production systems to the standard machines they have in hand. Maintaining the heart of the machine intact, IBARMIA can customize the working area with an unlimited range of solutions to adapt the machine to specific production requirements. IBARMIA users get EXACTLY what they need so they can maximize their production with systems created specifically for their needs.

Know more about the Z SERIES program on page 36.



Z SERIES MOVING COLUMN MACHINING CENTRES NEW RELEASE 2020

IBARMIA PRODUCT



SLIDING SUPPORTS

02

ZVH 55/L9000 EXTREME_ SN.16956

It is difficult to palletize a manufacturing unit when your production is a mix of long parts of various shapes and lengths that require machining on various faces. IBARMIA has created the perfect solution for this requirement. A set of manually sliding platforms on guideways that can be quickly re-positioned for different lengths without the need of screws, cranes or other weight handling equipment. These platforms are provided with Zero points so the operator can instantly attach part holding vices, rotary tables, tailstock, steady rests etc... A dividing wall so the operator can safely do these adjustments while the machine is producing parts without stopping for their market leading weaving machines.

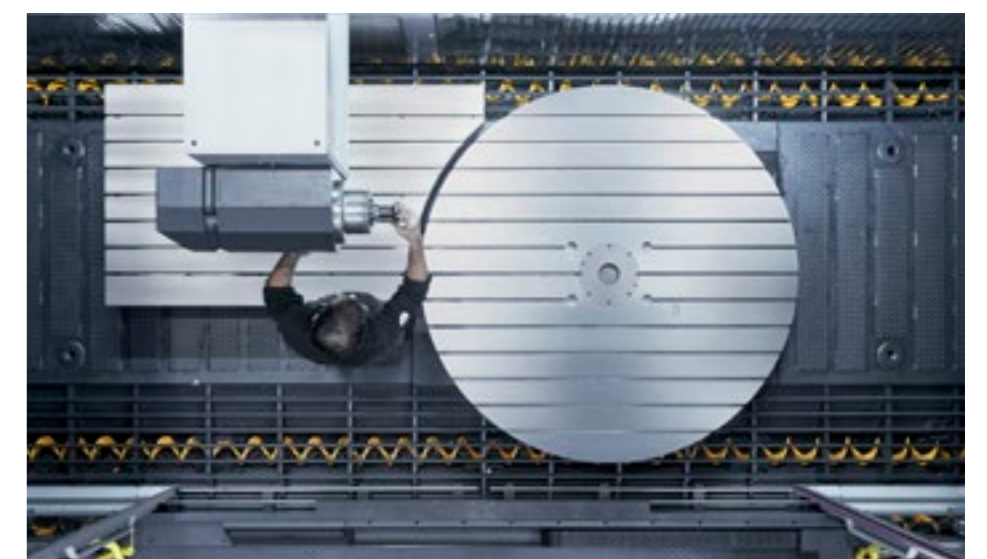


EXTRA LARGE ROTARY TABLES

03

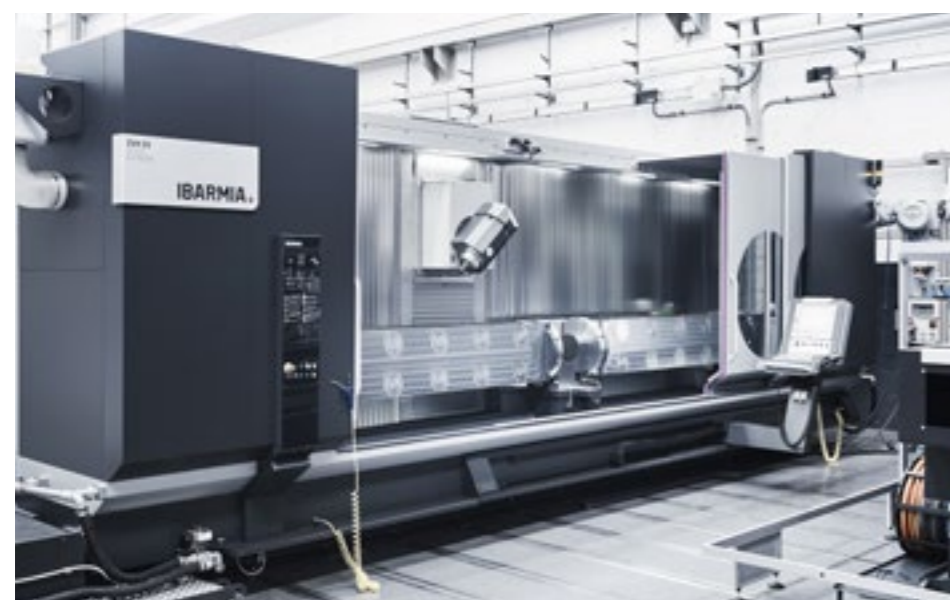
ZVH 48/L3000 EXTREME_ SN.171189

Big diameter parts usually require a machine specifically designed for this purpose and having large quantities to produce usually justifies the particular investment. However, if those parts are just one more reference of a large variety of work that covers different shapes requiring the use of IV axis systems, long fixed tables and other piece clamping systems, the investment becomes more complex. IBARMIA solves that issue by adapting their standard ZVH range to accommodate big diameter rotary tables (ø1800mm in this case) together with a fix table which can be used for completely different jobs in the same machine.



IBARMIA PRODUCT

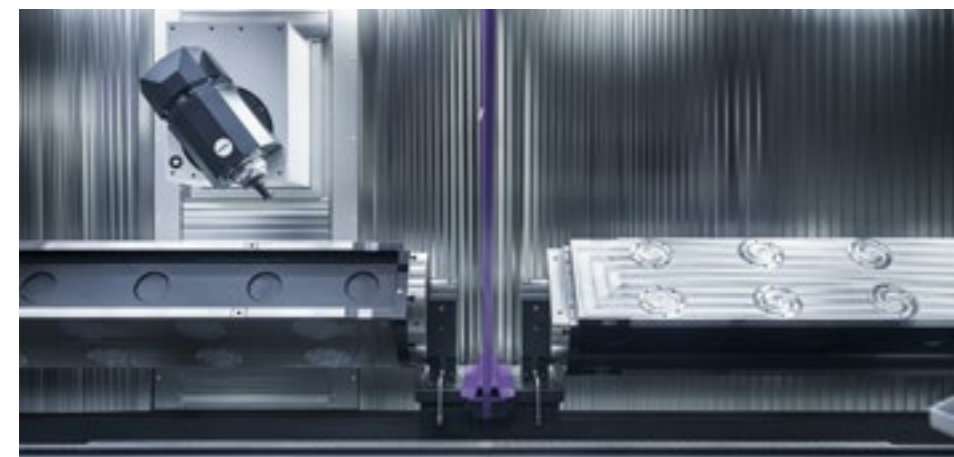
ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS



TRUNNION FIXTURES

ZVH 55/L6000 EXTREME_SN.180308

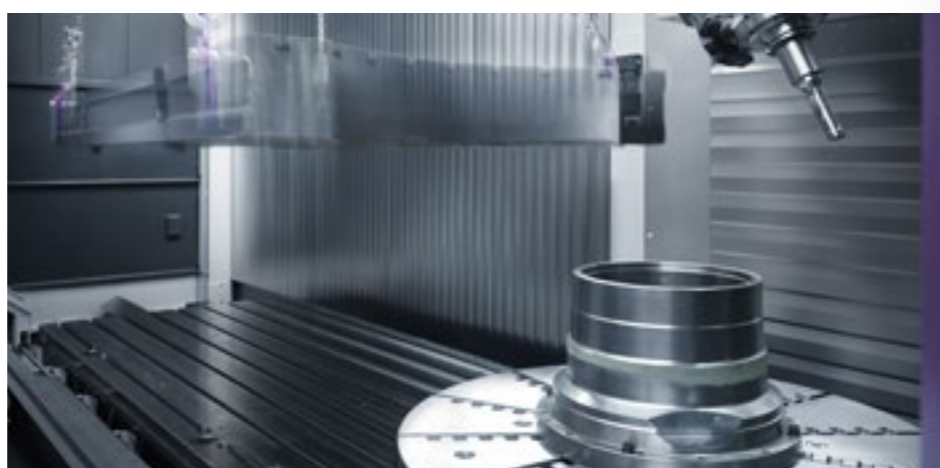
IBARMIA offers a dynamic machine with the perfect working area to produce these components accurately and efficiently. A dual trunnion fixture to increase the productivity by using the NSM (Non Stop Machining) option that can also turn into one long area for the biggest part requirements. High speed spindles combined with excellent chip evacuation to constantly flush tons of material without any blockages that would force production downtimes.



ROBOT INTEGRATION

ZVH 60/L3000 MULTIPROCESS_SN.180333

IBARMIA works with several robot builders to integrate automatic systems for loading parts, automatic changes of extra-large tools and right angle heads etc... These robots can work independently creating a fully autonomous production cell or can work together with an operator by distributing different tasks and automating only certain operations. In this case, a robot will change extra long tools on this ZVH MULTIPROCESS machine for deep internal diameter turning operations. Furthermore IBARMIA customized this unit with a removable fixed table to increase the clearance so extra tall parts can also be produced in this machine.



HEIDENHAIN



The TNC 640 and Extended Workspace Compact Keeping digital job management in view

In a fully digitalized and networked production environment, the user at the machine enjoys direct access to useful and relevant information. He can also bring his expertise to bear directly on the wider process chain. To make this possible, the TNC 640 with Extended Workspace Compact and a 24-inch widescreen offers an especially user-friendly workstation. The divided screen features two work areas, allowing the user to display additional applications next to the control screen and organize his jobs fully digitally right on the control.

DR. JOHANNES HEIDENHAIN GmbH 83292 Traunreut, Germany Phone +49 8669 31-0 www.heidenhain.de

Angle Encoders + Linear Encoders + Contouring Controls + Digital Readouts + Length Gauges + Rotary Encoders

IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

T SERIES

T36: THE ULTIMATE MODEL TO COMPLETE THE PROGRAM

The range of T Series machines is growing to meet the demand for high precision machining of parts with a swing of up to 3600 mm, providing solutions to a wide range of customers and applications with different dimensions and materials.

The T series has been renewed, not only because of the launch of a new larger model (T36), but also because a thorough analysis of the behaviour of these machines in operation has been carried out with a view to improving their performance, especially in terms of precision at the tip of the tool. This analysis, based on numerous tests to measure temperatures, deformations, operating ranges of different elements, wear, etc., has resulted in some points of optimization of the machine, so that all the machining centers of the T series offer even better performance if possible.

In this new range of T series machines, the manufacturing process has also been optimised, optimising those points that can be standardised and defining detailed procedures for the most critical operations and with the greatest influence on the final volumetric precision of the machine. A meticulous manufacturing process undoubtedly results in optimum performance.

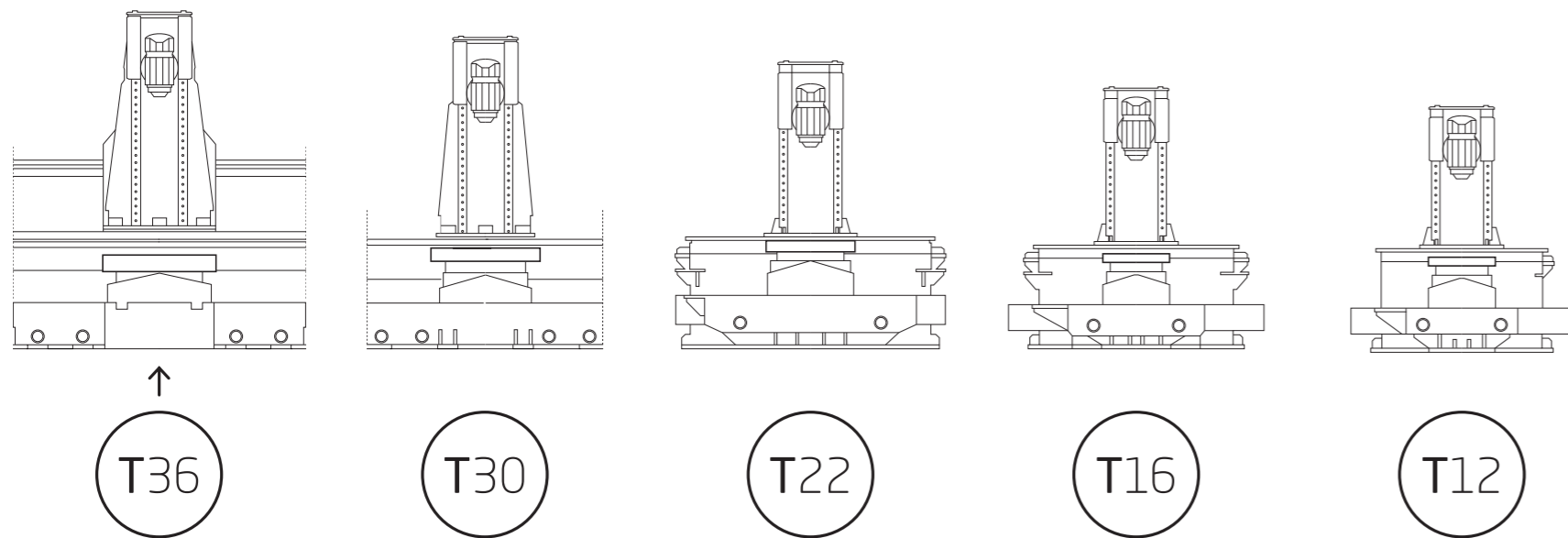
On this new model, T36, which is available with all the options of its range (different heads, multiprocess, different options for tool change...), special work has been done on the concept of automation, to ensure maximum return and productivity for the customer on final installation. Following the strategy defined for the T22 and T30 models, IBARMIA has its own palletising solutions for the new T36 machining centre: different numbers of pallets, one or more fixed or rotating loading/unloading

stations, alternatives for pit-mounted or non-pit mounted machines... In this line of automation and evolution in the customer-machine relationship model, there are different software options available for all machining centres of the T series: monitoring of machine variables, temperature control at different points, remote viewing with cameras in the work or pallet area, production management software...

In short, IBARMIA's T-range has been renewed in order to offer users an even wider range of solutions, always with a high level of performance and with special attention to guaranteeing optimum volumetric precision according to the working conditions in the end user's installations.

ACCURACY & AUTOMATION IN 5-AXIS ADVANCED MACHINING OF BIG SWING DIAMETER PARTS

T SERIES MACHINE PROGRAM



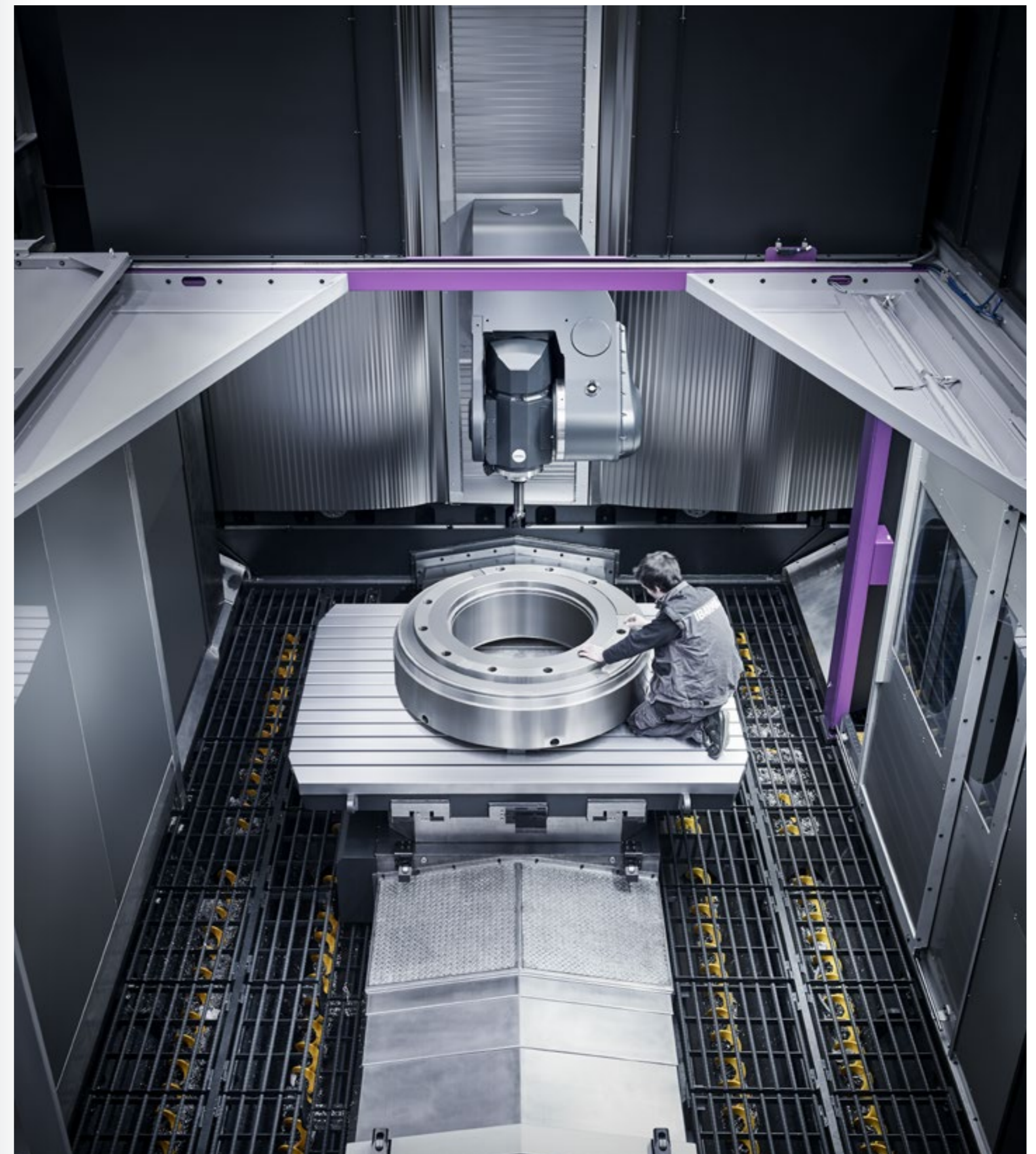
Maximum diameter of swing
 ø 3600 mm
 Piece maximum height
 h 2150 mm
 Maximum table load capacity
 30.000 Kg

Maximum diameter of swing
 ø 3000 mm
 Piece maximum height
 h 1950 mm
 Maximum table load capacity
 20.000 Kg

Maximum diameter of swing
 ø 2200 mm
 Piece maximum height
 h 1750 mm
 Maximum table load capacity
 10.000 Kg

Maximum diameter of swing
 ø 1600 mm
 Piece maximum height
 h 1450 mm
 Maximum table load capacity
 6.000 Kg

Maximum diameter of swing
 ø 1200 mm
 Piece maximum height
 h 1250 mm
 Maximum table load capacity
 4500 Kg

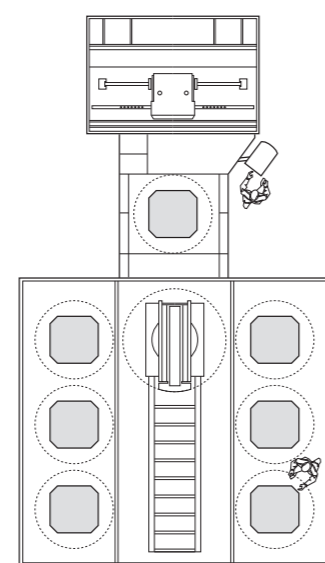
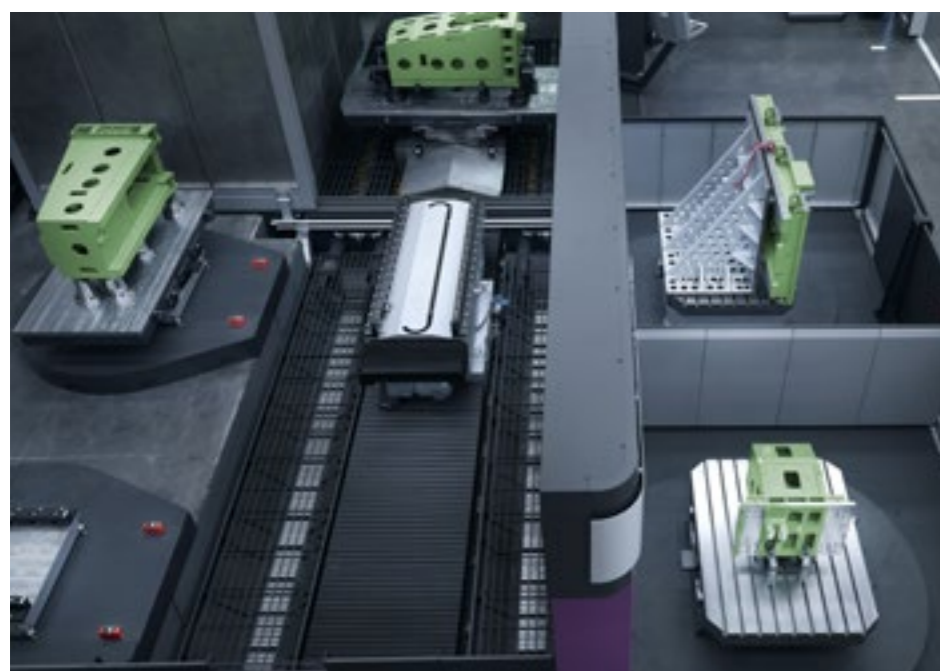


IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS



In the picture above, pallet changing on a THR 36 machine. These flexible manufacturing systems respond to large series and single unit fabrication, making them attractive to companies and sector of every size. (View on pages 40-41).



The key factors to determine the number of pallets are the average cycle time of the pieces and the length of unattended use of the machine. IBARMIA offers simple modular solutions of 2 and 4 positions for the T36 / T30 / T22 models. Projects requiring a larger number of pallets can have linear storage with capacity for future growth, either for station units and/or machining units.



Oscar Lage
TECNALIA
HEAD OF CYBER SECURITY
& BLOCKCHAIN

SECURE MACHINE CENTRES FOR SECURE MACHINE ECONOMIES

There was a time when CNC and DNC machining centres were "secured by obscurity", making them an isolated critical manufacturing infrastructure. Isolation of operational technologies (OT) from information technologies (IT) was a common practice in a wide range of industries and security was related with machine crashing or precision tolerances, rather than attacks or system exposure.

Today the extreme automation and networked operation of modern factories enables shorter and customized series at increasingly competitive terms, with extreme quality requirements. In order to achieve this, our production processes must have a flexibility in their configuration and operation that has never been imagined before. These flexibilities demand interoperability, real time control and platform-like IT-OT integration. It's time for secure machining centres, integrated in secure industrial control networks and mature IT-OT integration technologies.

Across a wide range set of cybersecurity technologies such as host, network or protocol-based intrusion detection systems, solutions against classic denial-of-service attacks, man-in-the-middle attacks or spoofing, we focus on the potential beyond pure security of distributed ledger technologies (DLT) such as Blockchain. There are at least four areas where DLT becomes a source of trust: Traceability, reliability, data sovereignty and machine economy. The last two represent a potential to reduce not just defensive issues but rather value-creating obstacles.

Sovereignty: Several initiatives such as the International Data Space consortium have created the grounds for Industrial Data Platforms aiming to manage and share data of industrial processes, as well as create value-added services based on them.

Machine Economy: Unlike the technologies that we usually handle for transaction processing blockchain offers us certainty, even an evidence that can be used to claim a third party if the recorded information is not real or accurate. Machine Economy or "Tokenomics" means a new paradigm of secure and reliable decentralization and disintermediation, which is already a small phenomenon in the world of currencies and will soon be a reality in many other areas.



WE CAN DO SO MUCH TOGETHER.



Our work is not understood without yours; we want to work together so your company can compete better. Because together, we can develop technologies that transform the present.

The future is technological, let's share it!



More contents at <http://tecnalia.com>



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IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

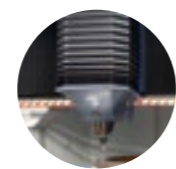
C SERIES EFFICIENT TURNING & DRILLING OF LARGE FLANGES AND BEARINGS



Either in gantry type machines or opposing machines, IBARMIA offers integral solutions machines and fixturing devices. These solutions respect the morphology of the rings, which are much better placed in a horizontal position. This way the part is placed on a central rotary table which indexes the exact degrees between centers of adjacent holes. The rotary tables are manufactured in-house using bearings or hydrostatic supports depending on the diameters and weights to be placed on them. In both cases a double pinion gear system triggers the dented crown generating the turning underneath the rotary table. The positioning accuracy is guaranteed thanks to a RCN type encoder in the turning axis of the table.

1_ HEADSTOCKS: DRILLING & TURNING CENTRES

Due to the experience of IBARMIA manufacturing machines for big dimensions rings we can propose several headstocks options for drilling centers as well as turning centers.



V
VERTICAL SPINDLE HEAD (Drilling)



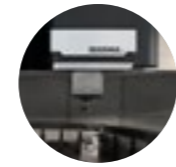
K
UNIVERSAL SPINDLE HEAD (Drilling)



U
INDEXING HEAD (Drilling)



H
CONTINUOUS TILTING HEAD (Drilling)



RAM+
ROTARY TABLE (Turning)

Machining large rings with IBARMIA: A Complete range of solutions for the machining of big dimensions rings_ It is not an easy task to find specific machines for niche market applications, as the low demand makes them unattractive for the manufacturers to develop specific solutions of high technology. IBARMIA has faced this issue and proposes a complete range of solutions for the machining of rings of big dimensions, up to a diameter of 8 meters, becoming one of the manufacturing leaders for this niche market.



IBARMIA OFFERS HIGH PERFORMANCE SOLUTIONS FOR THIS APPLICATION

IBARMIA PRODUCT

2_ MODELS BY ARCHITECTURE

2.1_ Portal machines_ Single & Dual

The Portal machines were developed to avoid that situation as the portal construction allows covering every range from the center of the rotary table to the limit of the axis at the end of the cross bar. Once again, we use a central rotary table underneath a fixed cross bar portal type construction where we can install either one (portal single) or two (portal dual) spindle heads.

When horizontal operations are required it is possible to use:

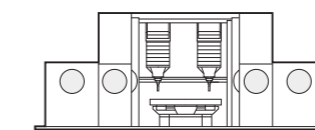
- VH Headstock, our last proposal to the market.
- Bi-rotational head
- An automatic change of 90° heavy duty angle heads
- Angular heads directly placed on the tool holder.

Since 2011 the portal range of solutions has been extended with high performance lathes specific for this application. For work pieces over 3500mm in diameter, the L series is made of a portal structure with cast iron bodies and rotary tables on a hydrostatic support. It is usually equipped with a double RAM although the machine can also be provided with a single RAM. Prioritizing the rigidity of the machine, we have chosen a fixed cross bar with a RAM stroke of 1200mm for work pieces up to 1050 height. Selection of manual clamping systems with independent or self-centering jaws as well as self-centering automatic clamping devices for first clamping (raw piece) or second clamping (previously machined piece). Wide range of options for tool changing, from manual tool holders to automatic tool change using a CAPTO system.

We find the top level of the range in the MULTIPROCESS series, where we add live RAMS to the high-performance lathes so we can execute operations that were in the past, impossible to do in one single machine. Apart from turning operations, the machine can also do drilling, tapping, milling, boring and even grinding operations. The machine incorporates tool and head changes to support its versatility. Due to our extended experience in this application, IBARMIA can advise on layouts of circular piece machining plants, piece handling and transportation, centralised chip evacuation systems... making us the perfect technological partner for the companies of this industry. Our global approach to sales and service with our own offices in Germany and China guarantee the proximity to our customers regardless of their location.



PORTAL MACHINES



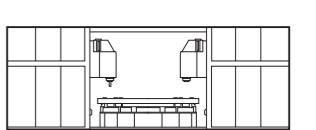
PORTAL SINGLE
PSV, PSU, PSH
DRILLING CENTRES
(PS+ V, U, H heads)



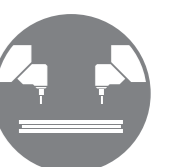
PORTAL DUAL
PDV, PDU, PDH
DRILLING CENTRES
(PD+ V, U, H heads)

LDV, LDV_MULTIPROCESS
TURNING CENTRES /
TURNING & DRILLING
CENTRES

VERTICAL MACHINES



VERTICAL SINGLE
SV, SVK
DRILLING CENTRES
(SV+ V, K heads)



VERTICAL DUAL
OPPOSING
FVV, FVK, FKK
DRILLING CENTRES
(FVV: 2 V heads)
(FVK: 1 V & 1 K heads)
(FKK: 2 K heads)

2.2_ Moving column machines_ Single & Dual Opposing

The basic models "S", with vertical spindle head (SV) or automatic vertical/horizontal spindle head (SVK) make the basic range at IBARMIA. Components fixed around a rotary table make an efficient drilling center. The machine is made by a transversal axis generated by the column to adjust to different diameters and a vertical axis generated by the spindle head. The SVK version with a vertical/horizontal universal spindle head is recommended for horizontal drilling works such as the hole for ball introduction and the drilling and tapping of the holes used to grease the bearing tracks.

The addition of a second column and spindle head to the previous range gives place to the "F" models. This time there are 2 spindle heads working simultaneously on the same part. The machine can be configured with 2 vertical spindles (FVV), with a vertical spindle head and a universal one (FVK) as well as 2 universal heads (FKK).

In case of having an odd number of holes or a variable distance between holes, the columns can be equipped with an intermediate saddle that generates an additional axis. It gives place to these models.

On this models and the previous one, the range of covered diameters is limited by the jig, distance between the spindle center and the guides of the vertical axis, making it impossible to reach the center of the rotary table for rings bigger than 2 meters diameter.



IBARMIA PRODUCT

ABOUT OUR MACHINING SOLUTIONS AND TECHNOLOGICAL DEVELOPMENTS

AT IBARMIA WE KNOW THAT THE COMPLETE KNOWLEDGE OF THE PROCESS IS THE KEY TO SUCCESS



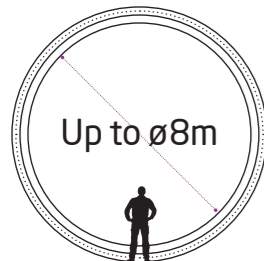
3_ MAIN FEATURES

3.1_ Fixturing Devices

Customers need more than just a machine, need a complete solution; therefore, it is essential to solve piece fixturing issues. During 20 years of experience, IBARMIA has developed several types of self-centering fixturing devices, manual and automatic. The flexibility and simplicity to change jaws and support positions for pieces of different diameters is something that has a clear impact on productivity which is highly valued by our customers.

3.2_ Control & Monitoring Of Tools

IBARMIA incorporates the most advanced tool wear monitoring systems. The automatic tool magazines allow the management of twin tools and a more autonomous use of production. Ensuring the process avoiding down times caused by broken tools is crucial in this application.

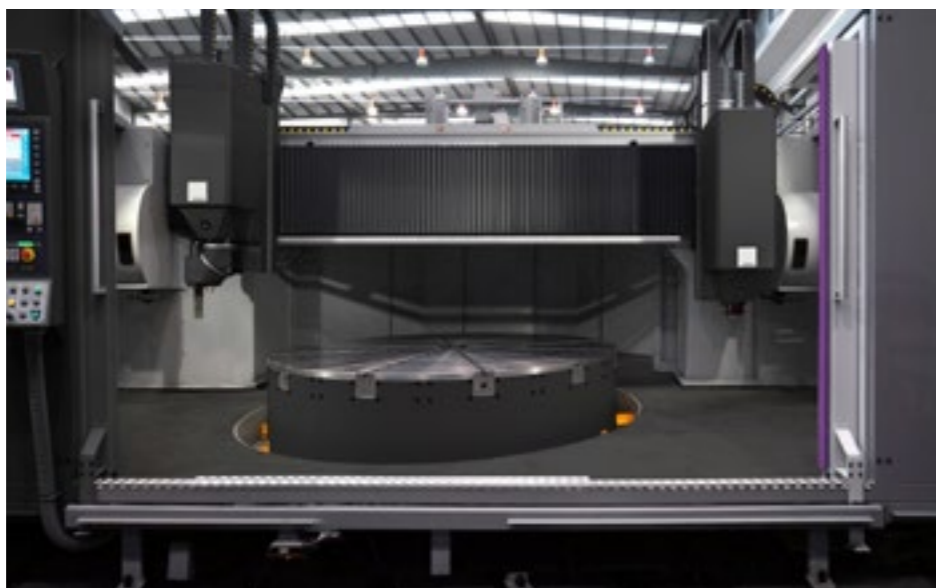


3.3_ Work Area Encapsulation & Coolant Through Spindle

Using tools with hard metal inserts to drill deep holes requires coolant through the spindle for two main purposes, reducing the elevated temperatures generated in the drilling process and using the pressure to push the chips out of the inside of the hole. High pressure (22, 40, 60, 70 bar) pumps are used for this purpose which combined with high feed rates, push chips with great violence so it is recommended to encapsulate the entire machine to prevent chips and coolant coming out of the working area as well as reduce the machining noise.

3.4_ Automatic Chip Evacuation

Evacuating the high volume of chips generated during the machining process is a great challenge for every manufacturer, especially when it comes to big dimension machines of intense use (usually 3 shifts). With this purpose, our design avoids flat surfaces where chips could settle and favor their fall to the central channel where the paddles that turn with the rotary table push the chips to an external evacuator.



Luis Norberto López de Lacalle
ADVANCE MANUFACTURING CENTRE
FOR AERONAUTICS - CFAA
DIRECTOR

MACHINE TOOL FOR AERONAUTICS INDUSTRY

Two sectors are in full cooperation at the Advance Manufacturing Centre for Aeronautics CFAA, aero engine component makers and machine tools. In the former, the current stress is how to produce new and more efficient engines. This brings up the necessity of improved milling centres, lathes and multitasking platforms that can help to accomplish the great demand for OEM and Tier 1 in aeronautics.

A typical milling centre in the sector must offer several characteristics. Firstly, to be precise because tolerances defined in new engine blueprints are tight. Secondly, productivity, more than 70.000 aircrafts are to be produced in the next 20 years. Thirdly, multitasking and even multiprocess concepts, since one machine of this size and cost will have to work on different pieces, segments and stage components or turbines. We can add a fourth aspects as well, the willingness to work with end users to define the best machine for specific families of pieces.

Ibarmia is one of the founder members of CFAA and a very active partner. CFAA's THR 16 Multiprocess machine is intensely use in all kind of research projects. The station can produce fine turning operations due to its rotary table, and five axis milling operations because of its advanced and stiff fork-type headstock. Recently the company has added grinding options, gear-making cycles, and metrology in-process sequences. The machine can use angular heads, special accessories and it has power enough to perform all operations needs on aero engine components, so this a real 100% multitasking station. In addition the company has expertise to integrate the additive manufacturing technology LMD in which the university of the Basque country (UPV/EHU) and CFAA have a deep know-how.

In the field of airframes and fuselage components such as spars, crossbeams, stringers and ribs, Ibarmia offers a full family of "travel column" milling centres, structure that can be escalated to long components. Aluminium or titanium alloys are not a problem.

During my years in the university and in the machine tool sector, I have been a witness of the company transformation. Really this is a good example of strategy, open mind management, good people, hard work, and an enterprise open to full collaboration with university and research centres. Knowledge put to work to obtain practical results for strategic sectors, that is the Ibarmia case!



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CoroPlus®

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KESSLER

EMO Hannover
16th – 21st September 2019
Hall 9
Booth E70

Modular solutions for individual demands!

For heavy cutting requirements, aerospace machining, automotive industry or process machines, KESSLER provides modular direct drive technology. In addition, our customer-oriented expertise enables us to realize special-purpose solutions.

Configure your own spindle model by specifying the installation position, motor, speed, bearing, lubrication and sensory system – to meet the perfect custom solution for your individual branch and application needs.

Increased productivity due to

- motor spindle lines achieving very short acceleration times
- rotary tilt tables featuring high tilting speeds
- motors achieving very high torque densities
- 2-axis heads featuring high maximum torque

SPINDLE TECHNOLOGY | DRIVE TECHNOLOGY | SYSTEM TECHNOLOGY | SERVICE SOLUTIONS

www.kessler-group.biz

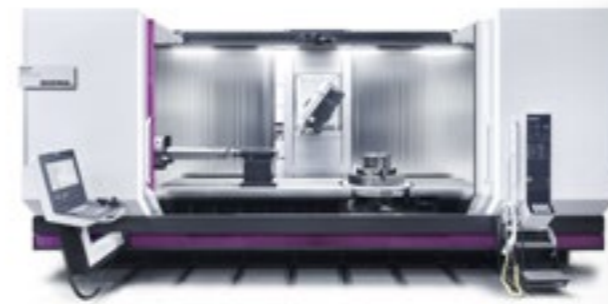
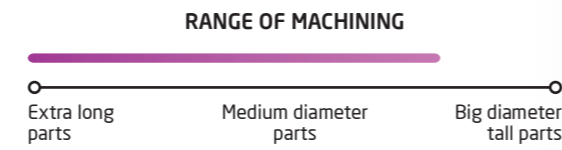
IBARMIA PRODUCT



Z SERIES MACHINE PROGRAM

MOVING COLUMN MACHINING CENTRES

THE MACHINE FOR ALMOST EVERYTHING THROUGH IT'S MORE THAN 700 CONFIGURATION OPTIONS.
 Since 1986 we have created the most extensive product range following the same concept. Our machines offer the highest quality, accuracy and power with excellent ergonomics, dynamics and flexibility.

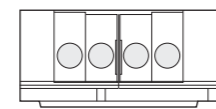


IBARMIA ADAPTS THE MACHINE TO YOUR SPECIFIC REQUIREMENTS

Our range of machines is designed to cover the widest range of production requirements either in standard configurations and personalised solutions.

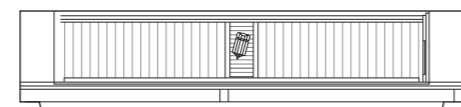
CONSTRUCTION SIZES

SK 40



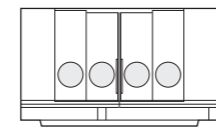
Specific machine construction for each spindle size: SK 40 - SK 50.

Up to 12000mm in X axis



L1600 / 2200 / 3000 / 4000 / 5000 / 6000 / 7000 / 8000 / 9000 / 10000 / 11000 / 12000

SK 50



HEADSTOCKS



ZVH
 B AXIS +/- 105°
 Fast continuous and accurate movements measured by glass scale.



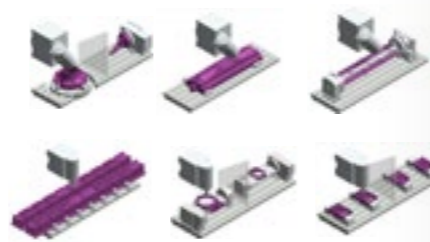
ZV
 VERTICAL HEADSTOCK

TABLES

Capacity to machine pieces in a wide range of sizes for multiple industrial sectors.

Multiprocess and 5 axis machining tables examples

3 axis machining tables examples



MODELS BY MACHINING TECHNOLOGIES



ZVH_ADD+PROCESS
 3D laser cladding and 5 axis advanced machining technology.



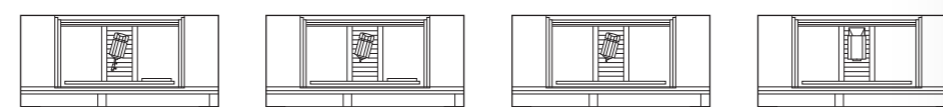
ZVH_MULTIPROCESS
 Milling / Turning 5 axis advanced machining technology.



ZVH_EXTREME
 5 axis advanced machining technology.



ZV_EXTREME ZV_CLASSIC
 Vertical 3 axis machining technology. EXTREME: Direct Drive Spindle transmission. CLASSIC: Belt and pulley transmission.



MAIN FEATURES

HIGH SPEED AND HIGH TORQUE SPINDLES

COOLANT THROUGH SPINDLE

PIECE AND TOOL PROBES

TURNING CAPACITY AVAILABLE

CNC CONTROL: HEIDENHAIN, SIEMENS, FANUC.

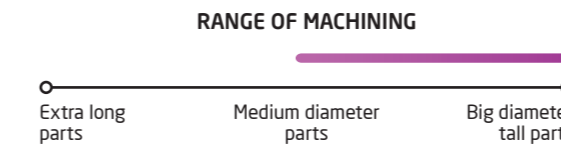
SMART WORK MANAGEMENT



T SERIES MACHINE PROGRAM

UNIVERSAL 5 AXIS MACHINING CENTRES

ADVANCED MACHINING OF BIG SWING DIAMETERS PARTS COMBINING POWER, DYNAMICS AND AUTOMATION.
 The IBARMIA T Series gathers a modern range of solutions to manufacture medium and medium/large pieces for the most demanding sectors which focus in high productivity and accuracy by using the multi-function and automation of machines.



CONSTRUCTION SIZES

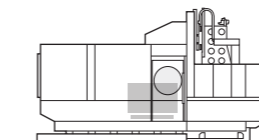
T36 ø 3600 mm h 2150 mm

T30 ø 3000 mm h 1950 mm

T22 ø 2200 mm h 1750 mm

T16 ø 1600 mm h 1450 mm

T12 ø 1200 mm h 1250 mm



Five different models depending on the swing diameter of the working area.

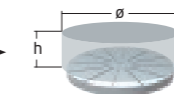
HEADSTOCKS



THC
 B AXIS UNIVERSAL HEADSTOCK
 - 180° +/- 15°



THR
 A AXIS FORK HEADSTOCK
 - 45° + 135°



ø Swing diameter
 h Piece maximum height

AUTOMATION

High production without dead times for piece preparation.



1_ PALLET POOLS
 Various systems available for all sizes.



2_ ROTOPALET
 Available for T12 and T16 sizes.

MODELS BY MACHINING TECHNOLOGIES



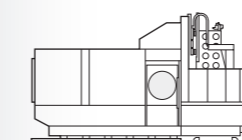
THC / THR
 ADD+PROCESS
 3D laser cladding and 5 axis advanced machining technology.



THC / THR
 MULTIPROCESS
 Milling / Turning 5 axis advanced machining technology.



THC / THR
 EXTREME
 5 axis advanced machining technology.



MAIN FEATURES

HIGH SPEED AND HIGH TORQUE SPINDLES

COOLANT THROUGH SPINDLE

PIECE AND TOOL PROBES

TURNING CAPACITY AVAILABLE

CNC CONTROL: HEIDENHAIN, SIEMENS, FANUC.

SMART WORK MANAGEMENT

AUTOMATION SYSTEMS

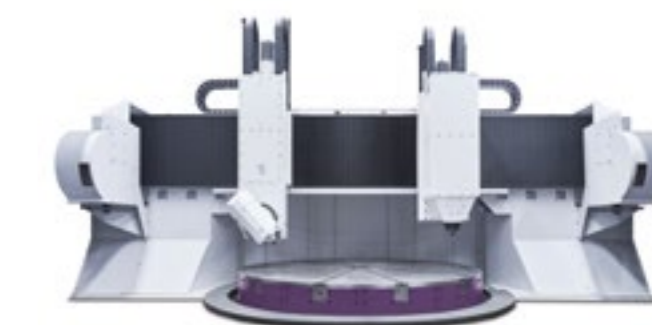
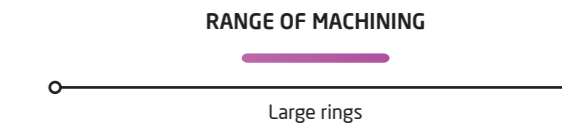
TOOL MAGAZINES UP TO 360 TOOLS



C SERIES MACHINE PROGRAM

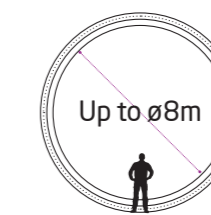
MACHINING SOLUTIONS FOR BIG CIRCULAR PIECES

A COMPLETE RANGE OF SOLUTIONS FOR THE MACHINING OF BIG DIMENSION RINGS.
 Engineering capacity and construction flexibility made IBARMIA a leader in machining big flange and bearings up to 8 metres diameter. Either in gantry type machines or opposing machines, IBARMIA offers integral solutions -machines and fixturing devices.



MACHINING SIZES

Maximum possible diameter ø 8000mm.
 Maximum possible height DRILLING CENTRES: h 350mm.
 TURNING CENTRES: h 1050mm.

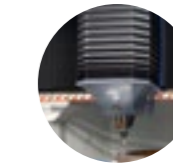


Up to ø8m

Efficient turning and drilling of big flanges and bearings.

Machining of rings up to ø 8000mm.

HEADSTOCKS



V
 VERTICAL SPINDLE HEAD (Drilling)



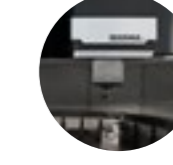
K
 UNIVERSAL SPINDLE HEAD (Drilling)



U
 INDEXING HEAD (Drilling)

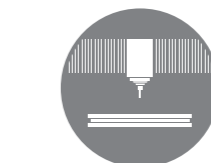


H
 CONTINUOUS TILTING HEAD (Drilling)



RAM+
 ROTARY TABLE (Turning)

MODELS BY ARCHITECTURE



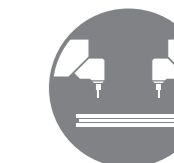
PORTAL SINGLE
 PSV, PSU, PSH
 DRILLING CENTRES (PS+ V, U, H heads)



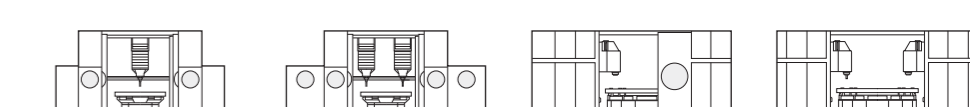
PORTAL DUAL
 PDV, PDU, PDH
 DRILLING CENTRES (PD+ V, U, H heads)



VERTICAL SINGLE
 SV, SVK
 DRILLING CENTRES (SV+ V, K heads)



VERTICAL DUAL OPPOSING
 FVV, FVK, FKK
 DRILLING CENTRES (FVV: 2 V heads) (FVK: 1 V & 1 K heads) (FKK: 2 K heads)



PORTAL ARCHITECTURE

Drilling centers & Turning centers. With single or double Spindle head (Drilling). With single or double RAM (Turning).
 • Drilling: V - U - H headstocks.
 • Turning: RAM+ hydrostatic rotary table.

VERTICAL ARCHITECTURE

Drilling centers. With single or double Spindle head.
 • V - K headstocks.

YOU & IBARMIA

ABOUT OUR SOLUTIONS
FOR MOST DEMANDER CUSTOMERS

MOGEMA_ HIGH PRODUCTION WITH ULTRA-PRECISION TO MEET YOUR CUSTOMERS' GROWING DEMANDS.

MOGEMA, is a company belonging to the Dutch group, AALBERTS ADVANCED MECHATRONICS, that has more than 16,000 employees in spread over 50 countries. MOGEMA has more than 40 years' experience in supplying products with high added value, based on welding, machining and vacuum technology, with its main sectors of activity in equipment for producing semi-conductors, vacuum systems, Oil&Gas components and defence equipment. This range of solutions is based on the development-to-supply of modules and complete systems in aluminium, steel and stainless steel.



P/3

MOGEMA is the main supplier of aluminium structures for the frames of machines for printing microchips. These are components with very high added value, as the sector makes heavy demands on quality, precision and complexity of the systems. Significantly large components of around 2.5 x 1.5 x 1.5 m in aluminium, made up of single pieces or by welding several pieces.

To meet its customers' demands, MOGEMA has first-class installations, air-conditioned to ±0.5°C, that are clean, tidy, well structured and with production, handling and checking equipment in accordance with such demands. The growing demand for quantity, size of the pieces and high quality, which MOGEMA supplies satisfactorily, shows the need to invest in new means of high-technology production. To this end, MOGEMA considers IBARMIA as a suitable partner, following a study of possible suppliers from among the world's leading manufacturers and suppliers of machining equipment. IBARMIA accepted the challenge of working with MOGEMA in meeting their customers in terms of excellence, taking into account the high demand in matters such as specifications, technology and delivery times for the equipment.

MACHINE 1: THC 30P EXTREME

The first machine, a model THC30P EXTREME bought in 2017, was a centre with 5 continuous, high-performance

axes with a loader for 4 pallets with 12 Ton capacity for 1600x1250 mm, travel along 3000/2000/1700 mm axes in XYZ and turning of Ø3000 mm, a continuously rotating head and electro-spindle at 12000 rpm 74Kw (S1), with a magazine for 360 HSK-100 tools.

It includes tool and workpiece sensors, a calibration system for rotating axes, refrigerated coolant and filtering equipment at 70bar, a pick-up for heavy tools, and a chip removal system that extracts over 6L/min continuously. This allows customers to work with the machines unattended.

The first machine has been in operation since January 2018, with excellent results. In producing very demanding aluminium pieces, it has exceeded the customer's theoretical expectations. It starts with single blocks and grinds off large amounts of stock from the pieces, removing up to 60% of the original material. Using 4 pallets enables the piece to be changed after heavy grinding to allow the pieces to stabilise before proceeding



YOU & IBARMIA



MOGEMA: THE MAIN SUPPLIER OF ALUMINIUM STRUCTURES FOR MACHINES FOR PRINTING MICROCHIPS



to semi-finishing and finishing them. The processes also include making innumerable orifices in the different surfaces of the piece.

This first machine answered the need for serial manufacture of high added value pieces in aluminium, with short machining times and high quality.

MACHINE 2: THR 36P EXTREME

Bearing in mind the impressive result from the first machine, MOGEMA did not hesitate to order a second one equipped to similar specifications, but with the added condition of being ultra-precision.

The second machine is a model with 5 axes and high-performance, the THR 36P EXTREME. It has a loader for 3 pallets with 15 Ton capacity for 2400x1800 mm, travel along 3600/2300/1900mm axes in XYZ and turning of Ø3600 mm, a fork-type continuously rotating head and electro-spindle at 12000 rpm 74Kw (S1), with a magazine for 360 HSK-100 tools.

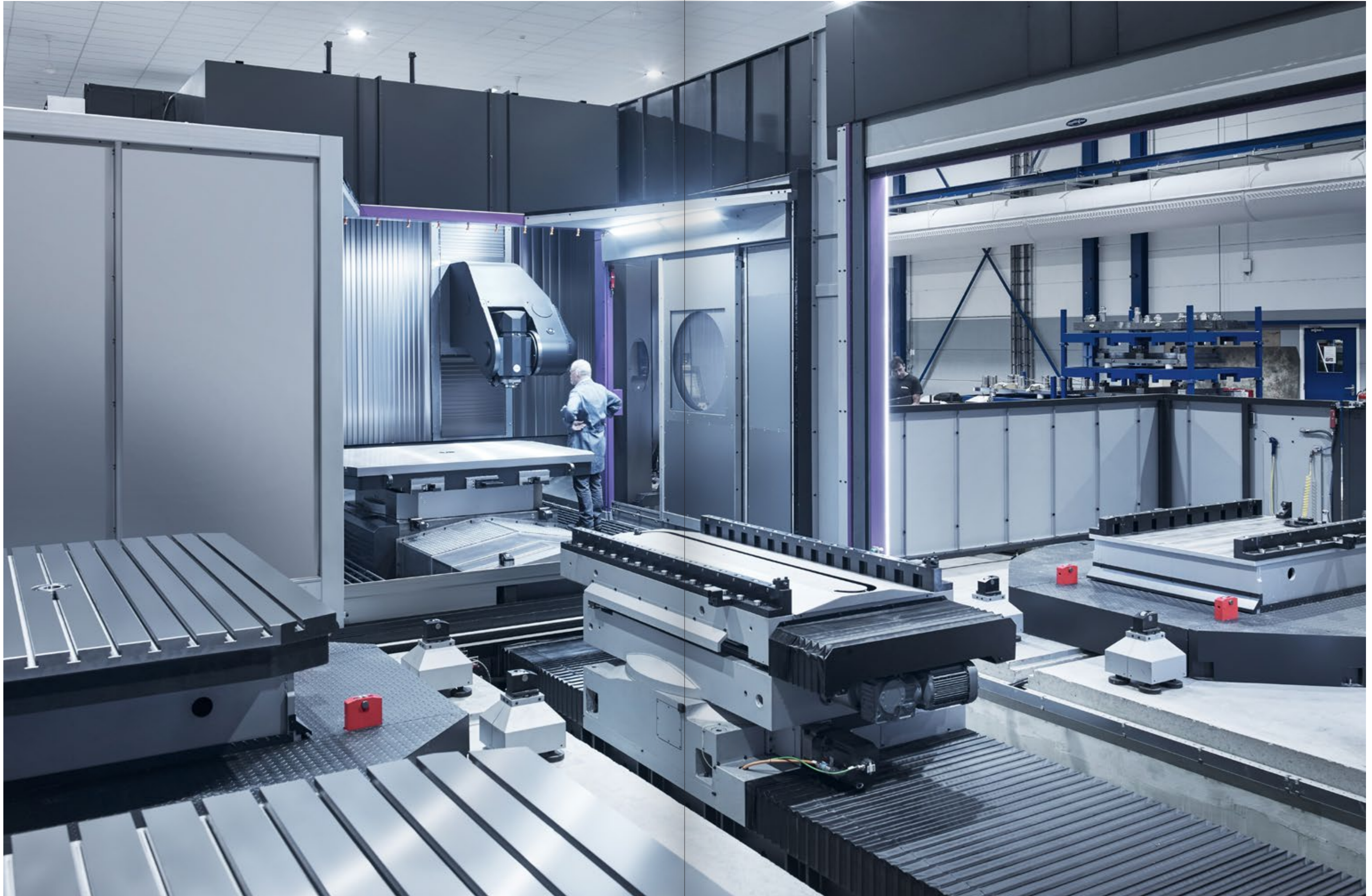
It includes tool and workpiece sensors, a calibration system for rotating axes, refrigerated coolant and filtering equipment at 70bar, a pick-up for heavy tools, and a chip removal system that extracts over 6L/min continuously.

In addition, this machine is higher precision and can finish the entire piece. The machine is equipped with the ultra-precision package, that includes concepts for design, equipment



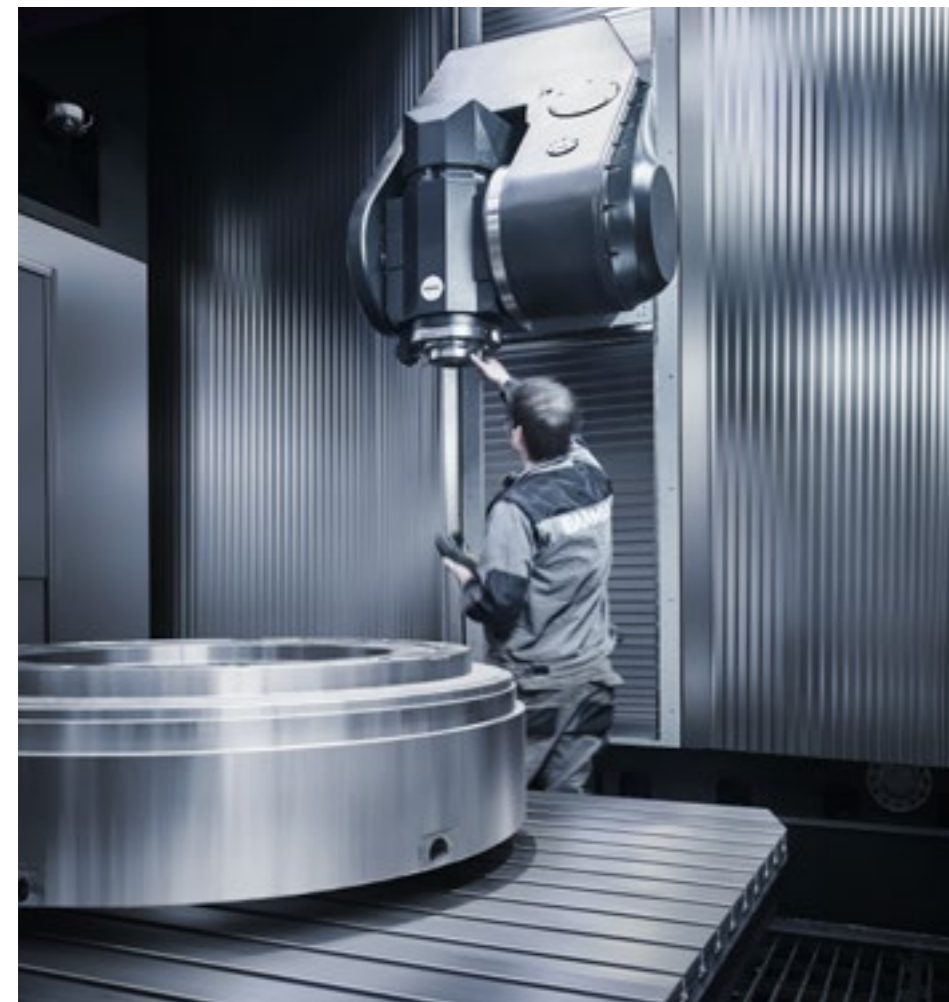
THC 30P_ This model is focused in high production of big aluminum parts of great formal complexity and high technical requirements.





YOU & IBARMIA

ABOUT OUR SOLUTIONS
FOR MOST DEMANDER CUSTOMERS



On these lines, the final touches to the THR 36P prior to commissioning tests. Below, representatives of MOGEMA and IBARMIA pose satisfied after checking that the machine meets the established requirements.

MACHINES FOR SATISFYNG QUALITY, PRECISION AND VERY HIGH PRODUCTION PARAMETERS

and special attention to rigorous control of manufacturing and geometric verification processes. It must also be mentioned that assembly was carried out at a controlled temperature of a constant 20°C, essential for meeting demands for tolerances.

The second machine was installed in MOGEMA in June 2018. The results from the geometric measurements show that the machine has a volumetric precision of 28 µm, in compliance with the technical specifications required. The customer uses the machine to make the frames that are too large for production on the THC 30, with highly satisfactory results for machining times, precision and quality.

DATA ANALYSIS: SMART POINT

Both machines are equipped with the SMART POINT system, which acquires and records the main machine parameters, and the status of sensors on it.



From an online platform, which can be accessed from any remote platform connected to the Internet, it monitors the machine parameters in real time, also makes analyses and generates graphs with statistics on the production process, tool management, machine temperatures, alarms, incidents, work modes and percentage of use of the main spindle. Properly interpreted and exploited, these data are of vital importance in improving the current process, reducing machining times and prolonging the life of tools.

It is a system designed to reduce operating costs of the machine by analysing how it functions and helping to make the right decision based on real and comparative data.

In short, these two machines supplied to MOGEMA enable the customer to meet emerging production demands, and satisfying very high production, quality and precision parameters.



SIEMENS
Ingenio para la vida



More information on our website. Use the attached Bidi code.



SINUMERIK

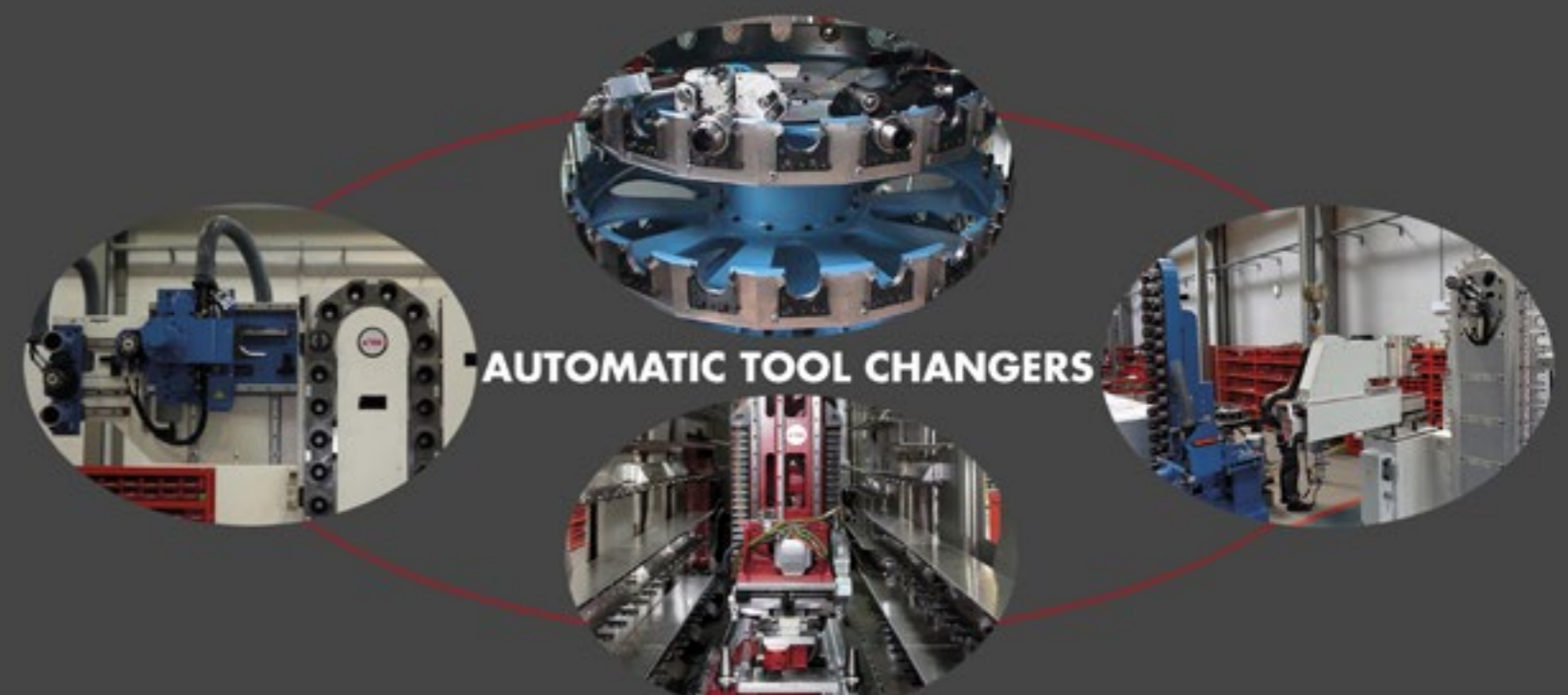
Intelligent solutions for machine tools

Highly productive automation solutions are demanded for workshops, jobshops and large series production – that accompany and support users along the path to digitalization. SINUMERIK CNC solutions always provide companies, operating machine tools, with the optimum solution to address their specific requirements. Whether for individual parts or mass production – basic or complex workpieces.

Increase productivity with SINUMERIK and digitalization solutions

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automation
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AUTOMATIC TOOL CHANGERS

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comercial@aitek.es / www.aitek.es



YOU & IBARMIA

ABOUT OUR SOLUTIONS
FOR MOST DEMANDER CUSTOMERS

ABC COMPRESSORS_ HIGHLY RELIABLE SOLUTIONS FOR MULTIPLE APPLICATIONS



Its international outlook and growth started with the first exports in the 1950s and with further expansion abroad, where it now sells in over 120 countries. ABC has opted for solutions customised to its customers' needs and the demands of new markets, such as the PET blow moulder, which it pioneered in the 1980s with its four-stage compressor, or the gas applications it has been working on since the 1970s. In the same spirit that has made ABC a worldwide benchmark for piston compressors, the company continues to develop and consolidate its position as a global service provider (with factories in China and Brazil and the opening of new service platforms) and to sell more robust and efficient compressors.



After a lengthy and thorough analysis of products on the market, the technical team at ABC COMPRESSORS chose IBARMIA's technology as the most complete solution to meet its machining needs in the firm's main plant in Eibar in Guipuzcoa, Spain. Bearing in mind the machining processes carried out so far and the number of runs/machines needed to complete machining pieces, ABC COMPRESSORS decided to look for a multiprocess machine that would integrate turning, milling and drilling in a single unit. In order to reduce the number of runs and improve machining times, it also wanted the machine to manage loading and unloading pieces independently.

Based on the main technical requirements and described in the specifications, ABC COMPRESSORS has always held to the idea of buy a state-of-the-art machine that adhered to the most important parameters in Industry 4.0. From the start of conversations, and in response to ABC COMPRESSOR's requirements, IBARMIA opted for a customised version of the THC16 MULTIPROCESS in the successful T Series, which is outstanding for its high technological and innovative development. IBARMIA suggests its T Series machines for customers looking for several turnings on the pieces (cubic and circular), or processing in a single run, where two types of head are combined (with continuous automatic rotation for efficient, dynamic machining on multiple faces or with 5 axes) with a rotary transfer table and travelling column. The whole range of machines is available



with a fixed table or pallet changer, similar to the EXTREME machining centre or the MULTIPROCESS milling and turning centre, which increases its versatility and flexibility.

IBARMIA has met the following main requirements for the ABC COMPRESSOR project:

1_ PROCESSES INTEGRATED INTO A SINGLE UNIT

MULTIPROCESS technology, and unstoppable trend over the last few years that places its users at the forefront of technology, integrates several processes in one machine for high-performance machining. IBARMIA sells this technology on its whole range of machines, to minimise the number of machines used and significantly reduce the machining times for complex pieces. The efficiency of MULTIPROCESS centres is, if

YOU & IBARMIA

anything, more important in the T Series, since they can machine larger pieces and handling and clamping is more difficult. This makes the MULTIPROCESS concept key to the competitiveness of companies, improves the quality of pieces by using fewer machines and therefore fewer runs, reduces the initial investment costs since fewer machines take up less space in the plant, removes the transfer of pieces between centres and simplifies industrial management by ensuring heavy use of production facilities.

2_ WORKING UNATTENDED

Automation is one of the driving forces in present-day industry, because it allows machines to work the longest hours and without attendance, where possible. Thus, the focus on improving productivity is constant, and minimises production times and response to the market. Nowadays, more than ever, just in time techniques aim to reduce the work-in-process inventory. IBARMIA provides standardised, competitive solutions to integrate various pallet containers combined with one or more Series T machine.

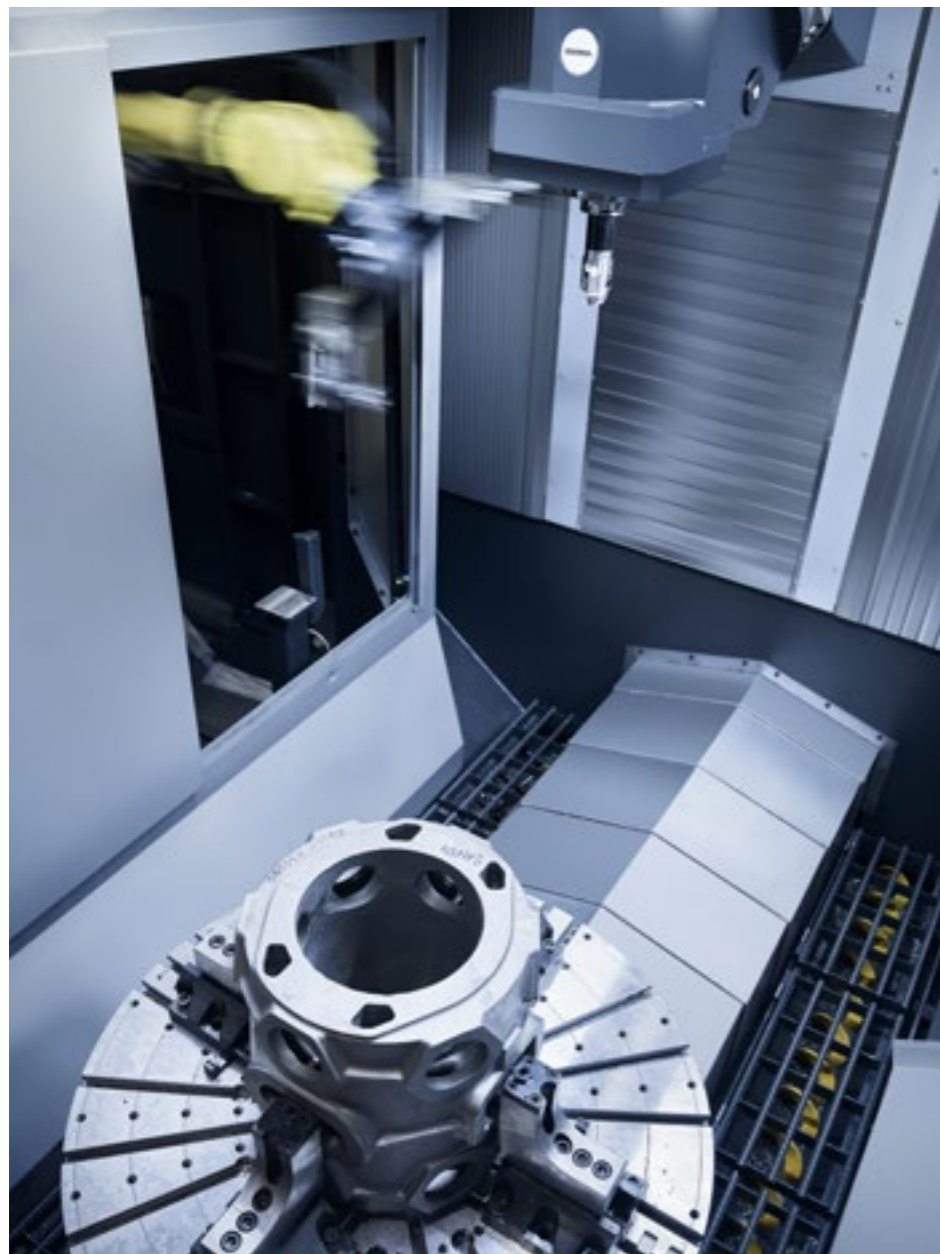


ABC HAS ALWAYS HELD TO THE IDEA OF BUY A STATE-OF-THE-ART MACHINE THAT ADHERED TO THE MOST IMPORTANT PARAMETERS IN INDUSTRY 4.0



YOU & IBARMIA

ABOUT OUR SOLUTIONS
FOR MOST DEMANDER CUSTOMERS



These facilities, with integrated flexible pallet magazine, ensure maximum performance from the unit, by exploiting it to the full, even in unattended shifts, thus speeding up amortisation through intensive use and constant machining. Large storage capacity taking up little space in the plant.

3_ TOOL (ATC) AND HEAD (AHC) MANAGEMENT

An appropriate number of tools and correct management are essential for optimum use of the machine.

Complete traceability of cutting tools by reading a microchip on the tool, the data are automatically entered into the CNC, reducing set-up times and errors from manual data entries. Various devices to control tool ruptures and wear via sensors, laser beam or measuring the consumption of the head.

Shelf-type tool and head magazine, with a maximum of 450 stations for HSK100 and CAPTO C6 tools, managed by a robot with a double-grip arm that offers the tool at the point of change. Ideal for combining tool management with automatic change of heavy heads, such as boring heads, angular heads, special U axes, extensions for heavy turning with and automatic tool change at the end. Several dynamic configurations for the robot, depending on the weight of the tools and heads, up to 100 kg. With a tool loading/unloading station with an additional control panel for the operator (SAS).

4_ DATA ANALYSIS: SMART POINT

Permanently connected machines equipped with the technology required to comply with the highest demands for production.

The SMART POINT platform was designed for intelligent management of the multiple data captured during machining operations, piece and tool management.

In addition, apps developed by IBARMIA for active assistance at manufacturing processes are implemented.

After several months of ABC and IBARMIA working together in the various phases of the project (design, manufacturing and commissioning), at the end there is still an open debate with the project management team at ABC, comprising Gaizka Oyarbide, Aitor Larruskain and Aiert Gurrutxaga to find out their opinion and comments on the scope of the stages in the project:

1. Main objective and reasons for investment:

"To meet production needs for increasingly smaller lots and shorter delivery times, a flexible automation solution was chosen, joining several existing machines into one unit. The unit is fully sensorized for detailed traceability on machine performance. Process automated towards an unattended machine, the first objective is to work in 3 shifts with 2 attended and the third unattended".

2. Assessment of project management and the collaboration ambience between ABC and IBARMIA:

"Collaboration between ABC and IBARMIA during the project was excellent. Regular meetings were used to adapt the solution to the needs arising during execution of the project by sharing knowledge from both IBARMIA and ABC".

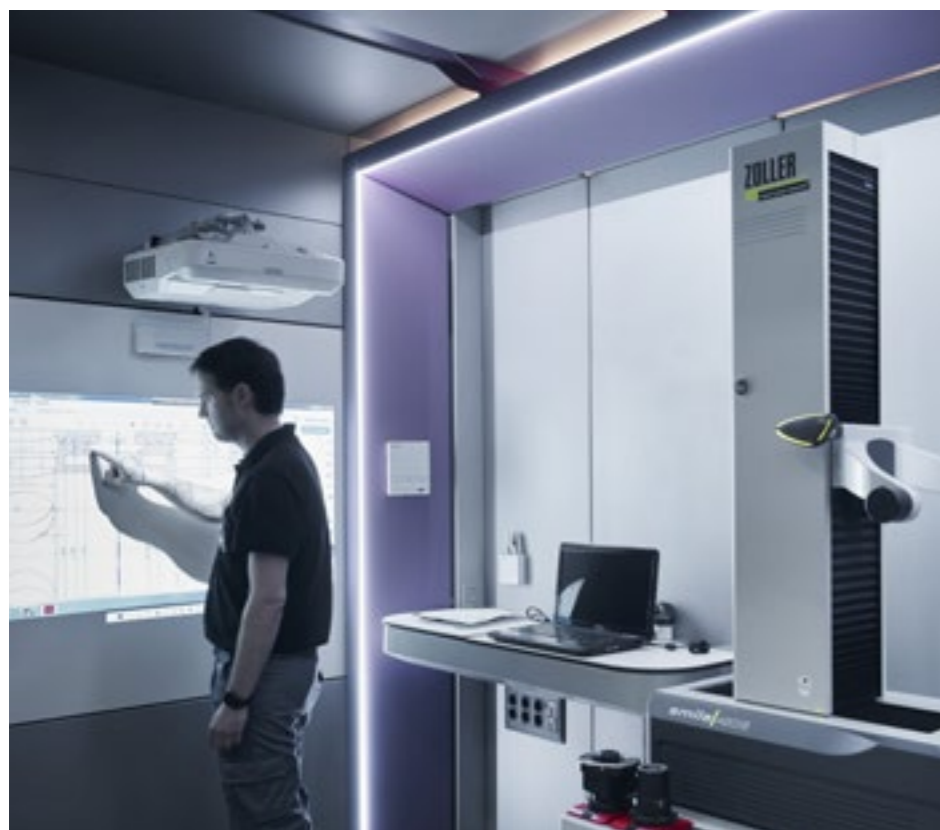
3. Satisfaction level obtained during installation and the services provided:

"Installation of the machine was completely correct, and we adapted efficiently to new needs created during the project, with minimal impact on the initial plan".

4. Open microphone: ...

"We want to point out the total accessibility of the IBARMIA machine, satisfying ABC's needs on all levels, Commercial department, head of project, engineers, mechanics, electricians, etc.". On the other hand, some details need addressing, and we trust we will receive a solution as soon as possible. Looking at the future from ABC, we hope to continue with support from IBARMIA, so that they bring their knowledge and experience in programming new references, as they have done until now, to achieve the end goal".

The concept of the THC16 MULTIPROCESS FPC has provided the solutions required by the customer. With the machine entering production, ABC COMPRESSORS will gain in competitiveness by improving the process and earning a reputation for reliability to take firm global leadership in manufacturing compressors.



A CONNECTED MACHINE EQUIPPED WITH THE TECHNOLOGY REQUIRED TO COMPLY WITH THE HIGHEST DEMANDS FOR PRODUCTION

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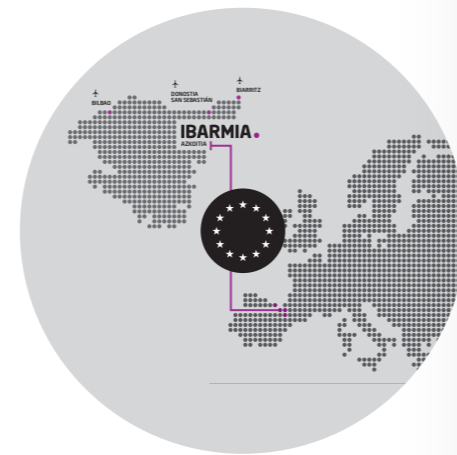
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IBARMIA WORLD

P/4

ABOUT THE IBARMIA PROJECT

IBARMIA COVERING THE WORLD WITH STRONG LOCAL ROOTS



IBARMIA headquarters is located in Azkoitia the Basque Country-Spain, a land with a strong tradition in machine tool manufacturing.



IBARMIA has an unprecedented presence both in production capacity and sales activities in the two biggest machine tool markets in the world. During this time of renovation and expansion works at the headquarters in Azkoitia, IBARMIA opened the sales branch in Eisingen/Fils Germany and established the Joint-Venture in Shandong, China.

IBARMIA CONQUERING MARKETS FROM THREE BASE CAMPS

1_ BASQUE COUNTRY, SPAIN_ HEADQUARTERS IN AZKOITIA PRODUCTION PLANT

The culmination of the expansion works in Azkoitia allowed to triplicate the space for machine manufacturing, with specific areas for different machines depending on their size and required manufacturing time. Apart from investments in the buildings, IBARMIA has also added:

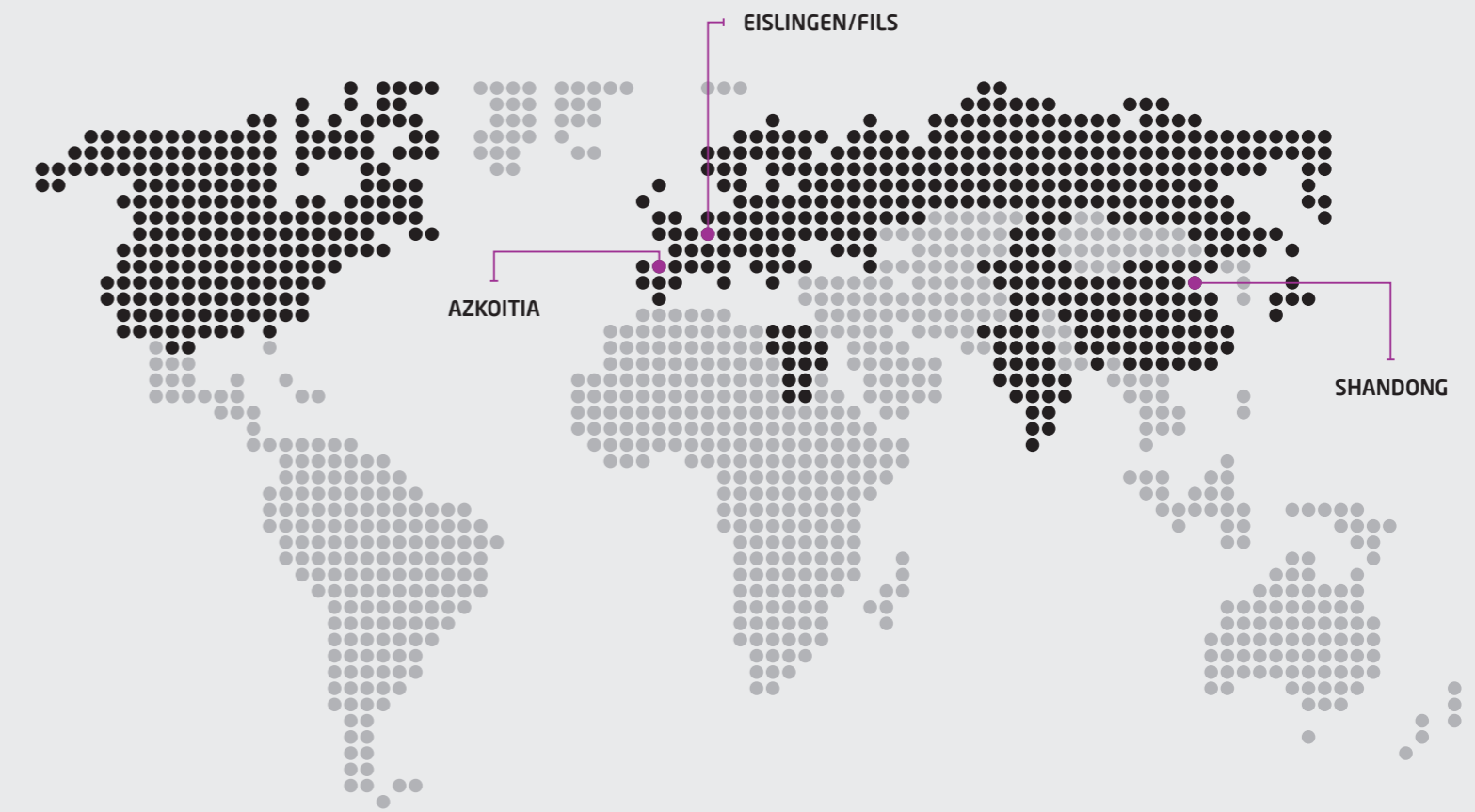
- New production machines such as the THC30 EXTREME to manufacture the moving structures of the full IBARMIA range in an autonomous pallet system.
- New quality control area with a great capacity ZEISS CMM.
- New warehouse and logistics area, with an independent stocking area for spare parts and tools.
- New machining shop of 1.200 m² in climatized environment for various machine components.
- New offices for the Production, Purchasing and Logistics departments. The new premises take 9300 m² and 1220 m² for the offices.

2_ SHANDONG, CHINA_ SHANDONG IBARMIA CNC, CO., LTD. PRODUCTION PLANT

With the new century, IBARMIA started their landing in the Asian giant. The first sales came from European companies with production plants in China. In a second stage local private and public companies showed an interest on the IBARMIA machines which due to their quality and affordable price won various tenders of big companies in the Energy, Aerospace and Railway sector. China is today, the world's main producer, consumer and importer of machine tools and IBARMIA does not ignore that reality. Shandong IBARMIA is the first production plant outside the headquarters and is responsible for the sales and service activity of the IBARMIA range, both the one manufactured locally and the one made at the headquarters. IBARMIA counts with a building of 5.563 m² for production and 951 m² offices and a 15.000 m² advanced manufacturing plant. The company is based in Zhangqiu, Jinan - Shandong Province, conveniently connected to major areas such as Beijing, Tianjin, Jinan and Qingdao.

3_ EISLINGEN/FILS, GERMANY_ IBARMIA WERKZEUGM. GMBH COMMERCIAL DELEGATION

Germany is the biggest machine tool market in Europe, and it is where the moving column machines like the ones made by IBARMIA are most popular. After several years working with agents and distributors, in 2016 IBARMIA Werkzeugmaschinen GmbH was opened in the heart of the German machine tool industry, Eisingen/Fils just at a few kilometers of Stuttgart, in the region of Baden Württemberg. Heading the sales office, we have Andreas Soine, a machine tool professional with a wide and proven experience in the sector. With this office, IBARMIA establishes their presence in the German market with real proximity to the customers. The sales and service network is managed from Eisingen/Fils ensuring a quick and efficient response in their home language.



Global Presence

Production plants: Azkoitia (Basque Country-Spain) & Shandong (China)
Commercial delegation: Eisingen / Fils (Germany)



COMPETING IN THE GLOBAL MARKET



A YOUNG TEAM WITH HIGH FORMATION

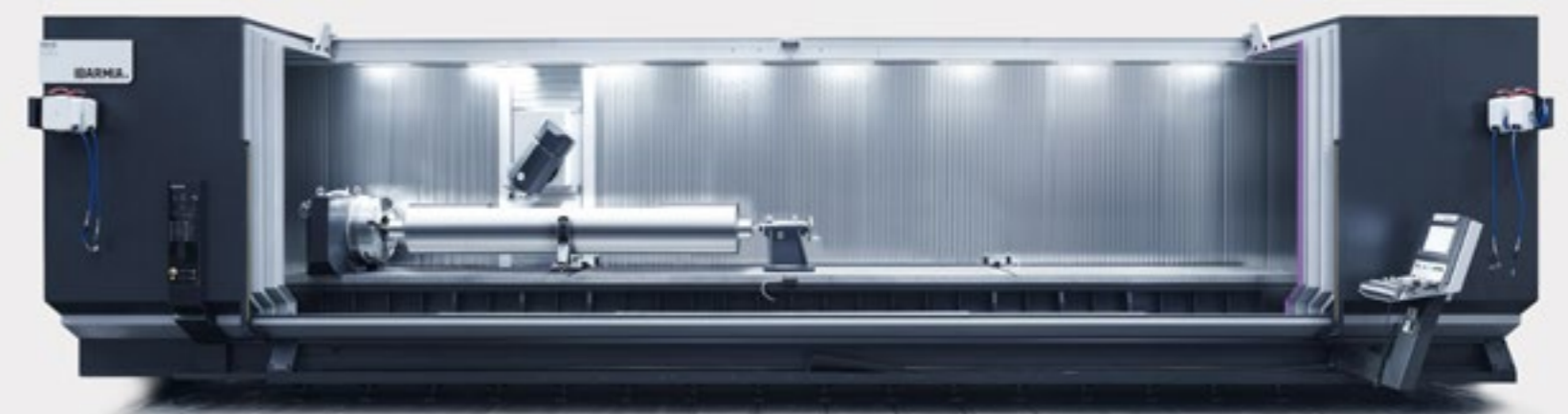


INTEGRATED MANUFACTURING



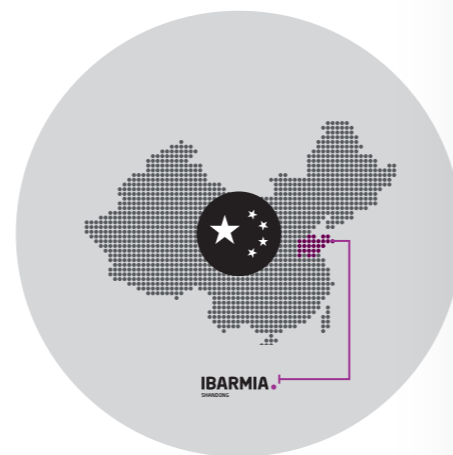
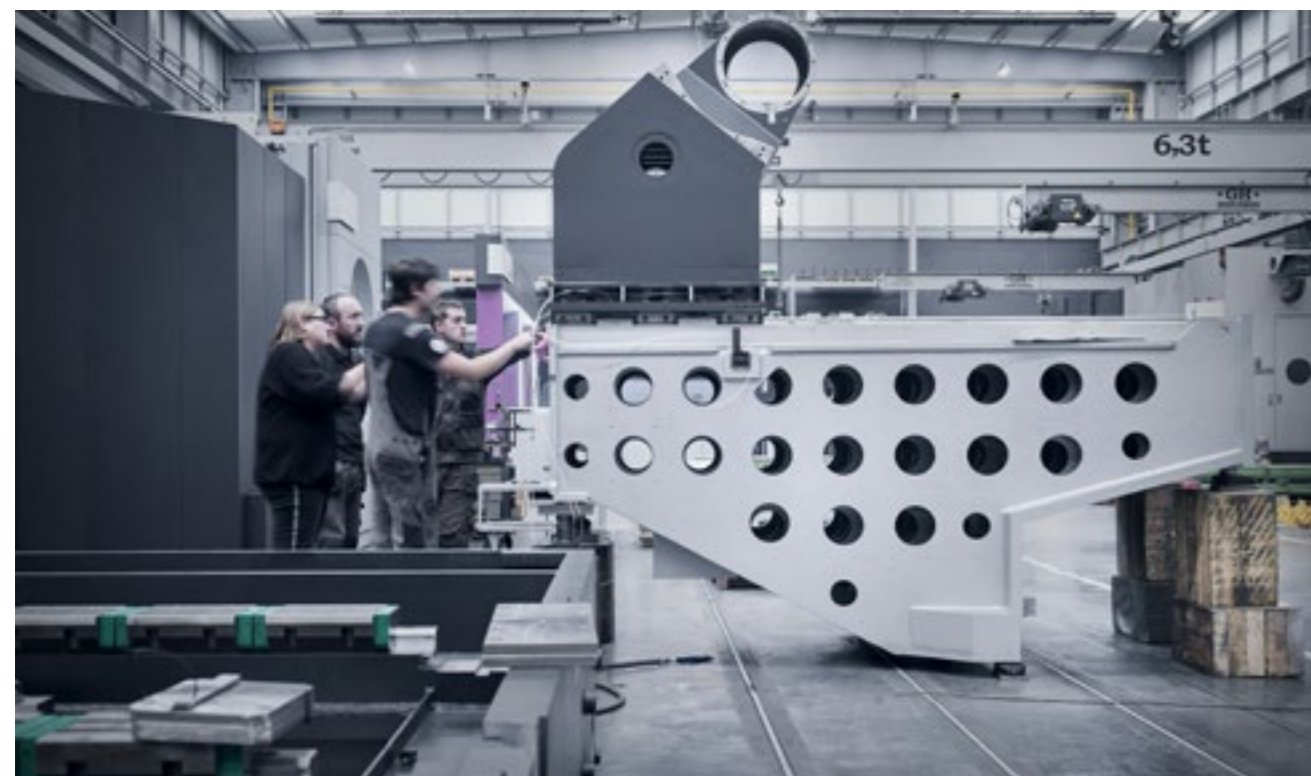
TRADITION VS MODERNITY

RECOGNIZED SPECIALISTS IN MOVING COLUMN MACHINING CENTRES



IBARMIA WORLD

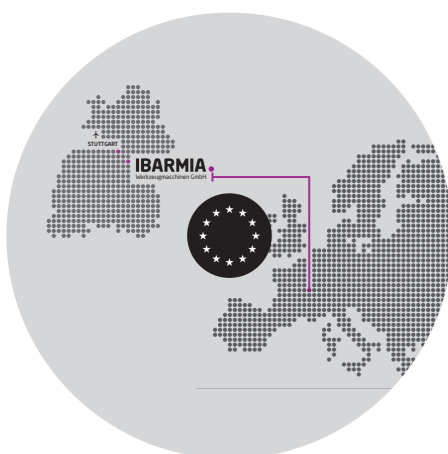
ABOUT THE IBARMIA PROJECT



The millenary region of Shandong is a key location near South Korea, Japan and other main business areas in China.

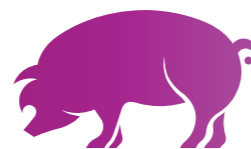


SHANDONG IBARMIA IS THE FIRST PRODUCTION PLANT OUTSIDE THE BASQUE COUNTRY



IBARMIA manufacture machines incorporating talent and motivation of our people. A young team with a high formation, live together for a big part of the day. Feeling identified with the project, the importance of a job well done, team work, respect and supporting the colleagues are essential values to be part of our team.

THE YEAR OF THE PIG



2019

Eislingen/Fils is located in the southwest of Germany in the region of Baden-Württemberg, a key economical area in the European Union.



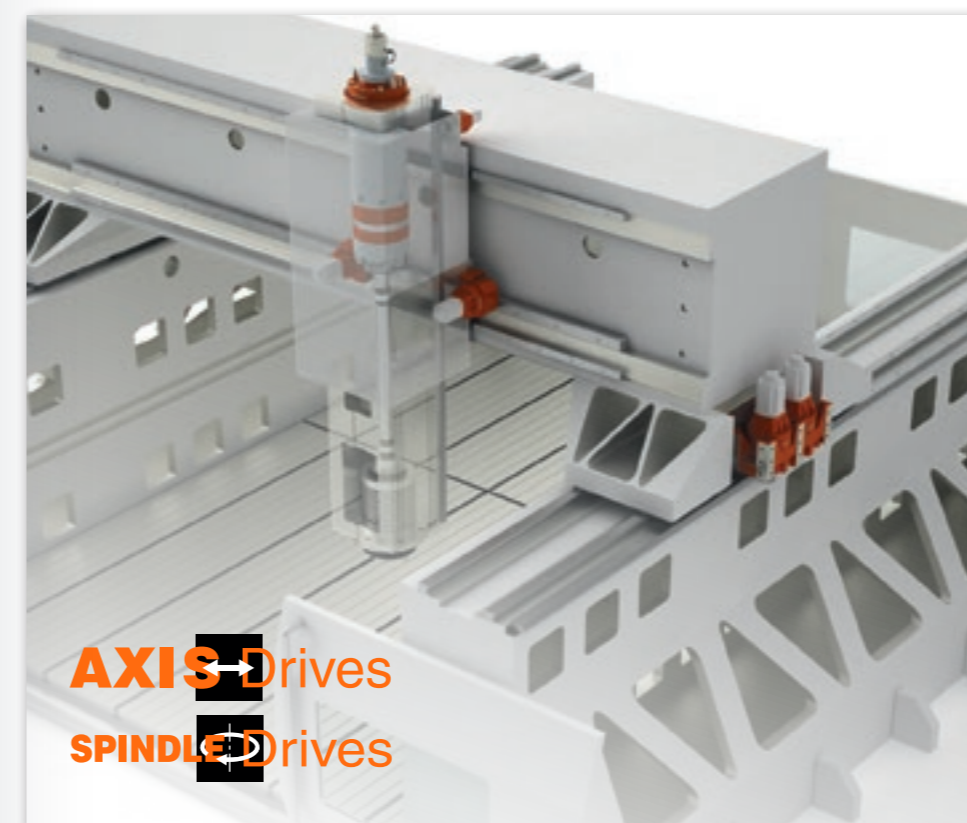
IBARMIA DEUTSCHLAND IS LOCATED IN THE HEART OF THE GERMAN MACHINE TOOL INDUSTRY



Industrial premises of SIHI in Jian Shi (Shandong) where IBARMIA CNC Machine Manufacturing Co.,Ltd. is located. The plant manufactures large batches of standard machines destined to supply the local market.



At the top, the building of IBARMIA Werkzeugmaschinen GmbH in Eislingen/Fils. Over these lines, in the centre of the image, Andreas Soine, Managing Director of IBARMIA Werkzeugmaschinen GmbH.



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IBARMIA WORLD

ABOUT THE IBARMIA PROJECT

IBARMIA_ A PATH FIRMLY LEADING TO HIGH EXCELLENCE IN TECHNOLOGY

More than 65 years of an enriching trajectory place IBARMIA in the high added-value segment within the machine tool sector, from where we offer customised solutions to customers who require precision, reliability, performance, flexibility and/or automation.

The origins of the company go back to 1953 with the start of manufacturing column drills, characterised from the beginning by seeking a quality product, taking the standards of the German and Swiss markets as benchmarks. This activity was successful due to an early push into exporting which sent thousands of IBARMIA drills to the five continents, even gaining entry to the Japanese market.

With the appearance of Numerical Control in the 1980s, the company saw the clear need to adapt its products to the new technology that would guide the future of machine tools, by starting development of the first IBARMIA machining centres that evolved over the next few years, together with expansion into the market and in the range of products in the business area of column drills. However, the business model required for each product line went along increasingly separate lines: a great deal of technological development, few projects, but very customised, and direct dealings with customers for machining centres on volumes, little incorporation of technology and sales via a distributor for the drills, whose market was threatened by the appearance of a growing number of competitors from Asia.

This situation led to the company reorganising in 2006, with a proposal for a holding structure to separate the various activities in order to develop different directions for strategies for each case. Thus, suggestions were made for IBARMIA NOVATEK (design, manufacture, sales and

service for machining centres), IBARMIA UNIVERSAL (manufacture, sales and service of drills), IBARMIA PRECISION (machining of critical pieces for the group) and IBARMIA GESTINVER (general services).

In 2009, investment was removed from IBARMIA UNIVERSAL to a Guipuzcoan company, and all activity linked to the product that had started the company off ceased, with all efforts focused on finding good positioning as manufacturers of prestige machining centres with a high level of specialisation. Many crises have affected IBARMIA throughout its history, but the last one that started in 2008 was an important milestone in its development as a company project. In a complicated situation, with a large drop in orders, the company decided to work towards its future by developing two key areas: internationalisation and innovation. For internationalisation, the sales team was expanded and work was started on bases to gain access to more markets by diversifying risk and seeking new pastures outside Europe, until now the main supplier of orders at IBARMIA. As for innovation, Engineering was reorganised into a specific team for New Developments, while also constituting an Innovation Management area to undertake a specific strategy of technological and product development.

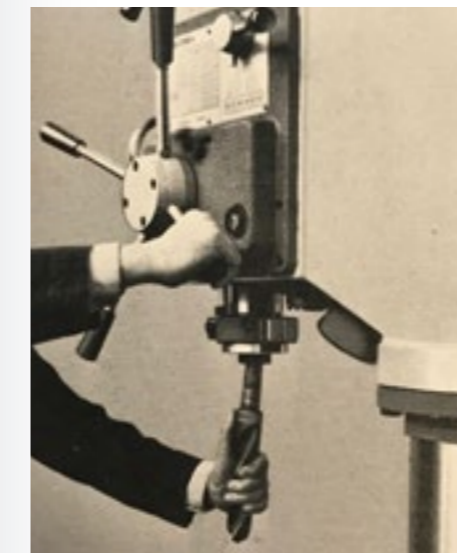


IBARMIA ORIGINS GO BACK TO THE 40'S, WHEN THE IBARMIA FAMILY STARTED A SMALL SHOP FOR PARTS OF OTHER MACHINE TOOLS

1_ The beginnings in the workshop under the family home in the neighborhood of San Martín in Azkoitia. In the foreground, brothers Enrique and José Ramón IBARMIA under the affectionate gaze of their father José María.



IBARMIA WORLD



2_ The evolution of this work takes them to the manufacturing of column drills in which they become internationally known. In the 70's, IBARMIA is recognised as a leading exporter to 5 continents.



3_ In 1986 IBARMIA manufactures the first moving column machining centre, paving the way to the current Z SERIES.

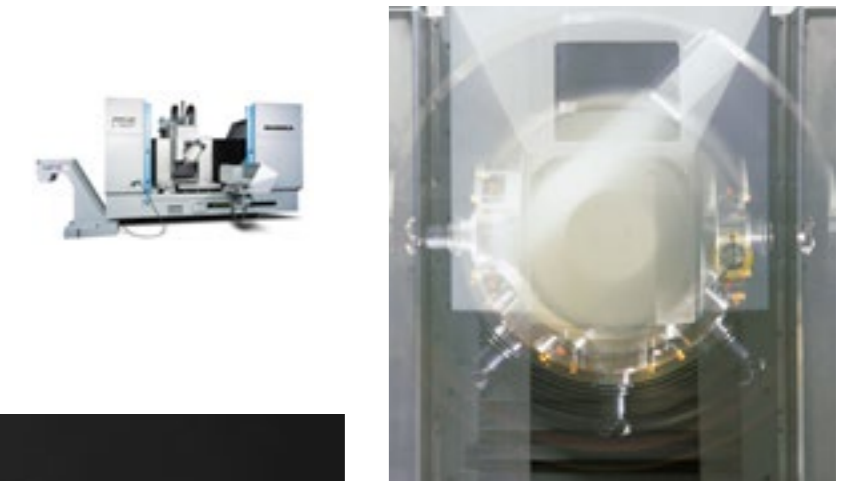
IN 1986 IBARMIA MANUFACTURES THE FIRST MOVING COLUMN MACHINING CENTRE



From 2011, the project representing IBARMIA today has grown and consolidated with the implementation of 3 tri-annual strategic plans for the following milestones:

- 2011 - 2013_ Development of a new product line, structuring of the organisational chart and company management organs to tackle market growth as the objective and consolidating the team.
- 2014 - 2016_ Under the acronym TOP202430, a lift-off plan was designed to double turnover in this three-year period together with a social pact based on a work commitment to reach the set objectives and, if successful, divide profits among the whole team and execute an investment plan to improve implementation of activities.
- 2017 - 2019_ The current plan was developed under the acronym +40 and proposes challenges on the size of the company, its commercial deployment, technical and industrial development, the implementation of a Lean culture and especially in everything referring to talent management.

4_ At the beginning of the 21st century IBARMIA launches a range of solutions for big circular pieces combining the knowhow in drilling processes and the experience building CNC machines. The current C SERIES begins.



5_ In 2001 IBARMIA adds automatic tilting heads to the moving column machining centres. Nowadays the ZVH range of Z SERIES.

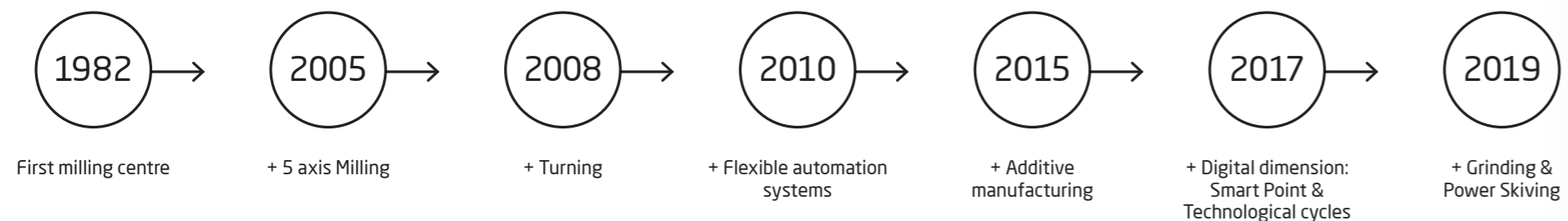


6_ In 2011 takes place the launch of the machining centres with moving column and moving-rotary table: T SERIES.

IBARMIA WORLD

ABOUT THE IBARMIA PROJECT

THE EVOLUTION OF IBARMIA MACHINING CENTRES CAPABILITY



6_ In 2019, IBARMIA is presenting the 2020 concept, whose enclosure conceals the high point of the technological evolution experienced by the company over 65 years of history in the form of new more flexible, accurate efficient and connected machining centres.

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IBARMIA WORLD

ABOUT THE IBARMIA PROJECT

IBARMIA PROUD OF PRIZES AND AWARDS 2017/2019

Prizes and awards are always welcome and a source of satisfaction. They confirm that external entities see something noticeably successful in us, and internally reinforce the strategy being followed, raising the spirits and self-esteem of those working on the project.

IBARMIA has been recognised with various awards over its 66 years of history, but never more so than in the last 2 years. **Let's look at:**

SECTOR

Special mention at the National Innovation in Advanced and Digital Manufacture Technology Awards at the 30 BIEMH in Bilbao, in the Prize for Innovation in integrating Industry 4.0 concepts into advanced manufacturing systems.

REGIONAL

Industrial SME 2019 from the province of Guipúzcoa Chamber of Commerce for being a company that identifies with the values of Basque industry: a family company linked to the region, with a high level of internationalisation, strongly committed to innovation, high level of investment, a highly-qualified team and a change of culture in labour relations.

NATIONAL

CEPYME500 2018 awarded by the Spanish Confederation of Small and Medium Enterprises (CEPYME) and which chooses the top 500 companies with most growth in Spain from the results obtained and capacity to generate activity, employment, potential for innovation and international presence.

These awards give us strength and hope to be better tomorrow than today, particularly that of CEPYME500, which confirms us as a member of a group with great potential for growth on the national stage. All of this could not happen without our customers who award us with their trust, and a team of highly-qualified, fully committed people.



Arrate Olaiz, Innovation Manager of IBARMIA, receiving the Special Mention in the 13th National Innovation Award in Advanced and Digital Manufacturing Technologies for the Project "Intelligent and connected machines for servitisation throughout the value chain: components - machines - users".



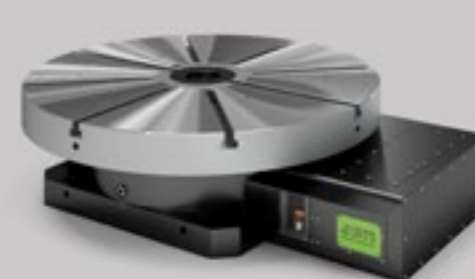
In the picture above, Koldo Arandia, President and CEO of IBARMIA speaking to the public present at the Industrial SME of 2019 Award ceremony. Over these lines, the IBARMIA team shows theirself proud with the received award.



The jury during the awards CEPYME500 2018 presentation ceremony. The main function of this initiative is to grant recognition and national and international projection to the companies that have been selected, contributing to boost their growth potential.



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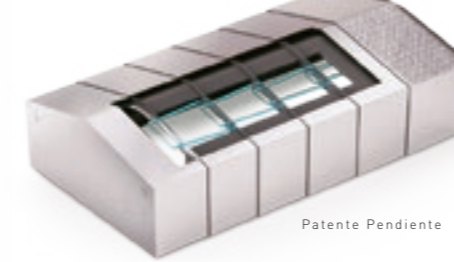
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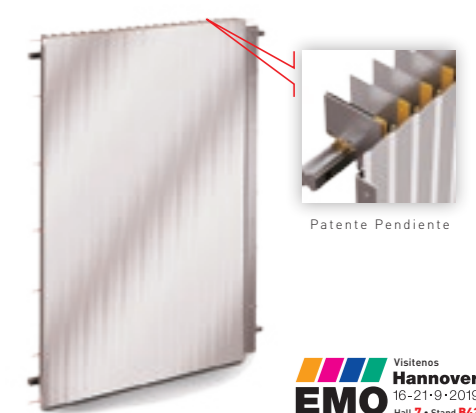


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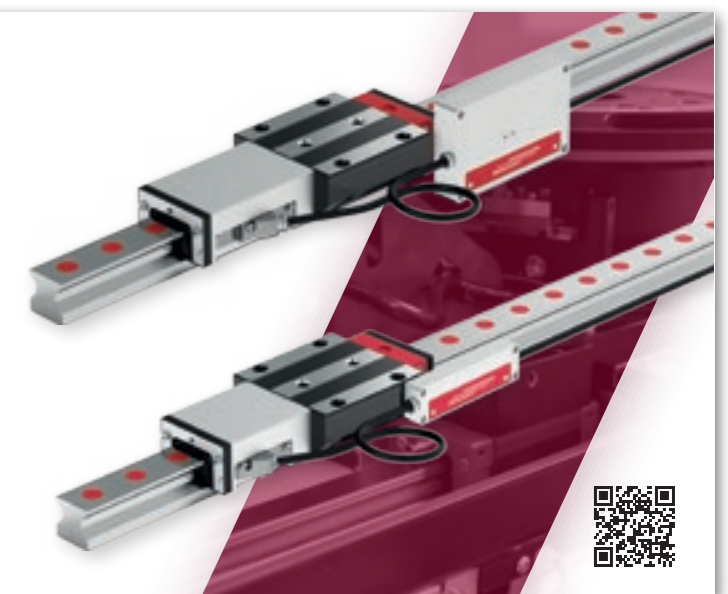
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