

MAGAZINE



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Our most recent successes and those of our customers.

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More profitable and competitive production processes thanks to ONA's automated solutions.

ONA AROUND THE WORLD · 44

We talk to those who know us best to get to know us better.



THE FUTURE OF TURBINE SECTOR

A tomorrow full of challenges and achievements.
We explore 5 future trends in the turbine sector.

The ONA logo, consisting of the word 'ONA' in a bold, sans-serif font, with a stylized 'A'.

+70

Years of EDM

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EDITORIAL

ONA, SHAPING TOMORROW

The world is moving forward, and we have to move with it. In a context where change is the only constant, EDM has emerged as a fundamental technique, driving significant advances in a variety of industrial sectors. This year, the machine tool market has experienced diverse fluctuations, marked by multiple challenges and opportunities. At ONA, and thanks to our leading position in EDM technology with more than seven decades of experience, we are constantly exploring the trends and developments that are shaping the EDM landscape globally, in order to maintain and reinforce the characteristics that define us, being at the same time non-conformist and a benchmark



JAVIER GONZÁLEZ BARAJAS
CEO

"One more year EDM continues to be a fundamental pillar in today's global manufacturing and an even more winning alliance when we couple it with other technologies."

In 2024 we have taken even more advantage of the benefits that automation can offer our customers when we incorporate them into our projects. Because betting on automation is betting on leading in your market, it is saving time and errors, improvement, simplicity and efficiency. In this context, automation is incorporating advanced technologies such as artificial intelligence, robotics and data analysis. ONA offers various automation options, with installations in several countries, including China, France and Spain; boosting efficiency and productivity in manufacturing wherever it is needed.

New this year, ONA HALLEY machines represent a milestone in EDM worldwide. A cutting-edge solution that begins to have its first interested customers and orders, demonstrating once again ONA's commitment to cutting-edge technology and commitment to excellence. It is precisely with this novelty that we are presenting ourselves to the Innovation Awards in the 32nd edition of the BIEMH.

But if we believe that there will be a protagonist during the rest of the year, it is the AEGT sector, and the many options and paths that EDM still has to offer to the changing challenges of a dynamic sector that evolves every day. In this issue we advance part of a study of the 5 main trends of the sector in the coming years. From digitalization, to the search for qualified talent or the challenge of decarbonization in a historically polluting sector.

In conclusion, once again this year EDM continues to be a fundamental pillar in current and global manufacturing, and an even more winning alliance when we join it with other technologies. And also when we bring together people and organizations, companies and partners, we are certain that we will be able to seize the opportunities that the market offers to continue shaping today and, above all, tomorrow.

ONA Y EL SECTOR TURBINAS

AN HORIZON FULL OF OPPORTUNITIES

EDM continues to play a crucial role in the AEGT industry and we know it will continue to do so in the future. At ONA we have continued to improve the efficiency and precision of the processes, adapting to the requirements, needs and constant changes that the sector is undergoing. A horizon full of opportunities and challenges that we want to continue overcoming..

ONA AND THE TURBINE SECTOR

EDM for the machining of the largest turbine disc fir trees.

ONA's WEDM technology has proven to be a match for conventional methods such as broaching and milling in terms of quality and precision, extending its capabilities to handle larger parts and providing manufacturers with additional versatility.

Being a pioneer in EDM research, especially for the aerospace industry, has been one of ONA's main goals. Addressing the challenge of developing EDM technology adapted to specific processes has allowed us to position EDM as a competitive and high-quality machining method, even in comparison with more established techniques in the sector, such as milling and broaching.

ONA has also taken another step forward to offer a more efficient response to the manufacture of aviation turbine fir trees, which require high standards of quality and precision. With this new development, ONA has been able to adapt its EDM technology to produce larger parts, while maintaining high standards of quality and competitiveness in machining. This new wire EDM solution extends manufacturing possibilities, allowing the creation of larger components without compromising on precision and process efficiency.



Manufacture of larger parts

ONA's new EDM solution can handle larger parts with greater ease. Based on the solid structure of the AV35 NEXT, this upgraded version offers an x-travel of 300 mm, a y-travel of 400 mm and a z-travel of 250 mm. In addition, it features a 45 kg coil for extensive autonomy and side access to the tank for easy maintenance.

The development of this EDM machine has been a major project for ONA. It has required intense collaboration between various departments, as well as hours of research and development by the technical team. However, the results speak for themselves. The enhanced capability of the machine has opened up new opportunities in sectors such as energy, where the manufacture of large, high-precision components is critical.

These are just a few examples of the manufacturing possibilities of the new model:

- **Maximum weight:** up to 250 kg
- **Diameter:** between 150 and 615 mm
- **Maximum weight:** up to 250 kg
- **Maximum diameter:** 545 mm
- **Maximum height:** 250 mm
- **Surface finish:** Ra<0.5um achieved with a maximum of 4 cuts.

ONA AND THE TURBINE SECTOR

Maximum adaptability to customer needs

The adaptability of the new model is another highlight. Unlike other EDM machines on the market, ONA's new wire EDM machine stands out for its ability to adapt to a variety of applications. It is not simply a machine designed for a specific task, but can be configured with different accessories and modules according to the customer's needs.



Accessory components that can be added to the new model include:

- **Sensor** to ensure accurate part positioning,
- **Script programming tools** for the creation of intelligent measurement programs.
- **2-axis rotary table with pneumatic chuck** for automatic and repeatable part clamping.
- **ONA Smart Connect** platform provides full part traceability and comprehensive process analysis, enabling monitoring of machining, statistics and failure prevention.



Automation is another key advantage of the new adapted model. With the inclusion of a robot, the machine can operate day and night with the same precision and efficiency, significantly increasing productivity and production autonomy.

Technology on a par with broaching and milling

Manufacturing gas turbine discs involves significant challenges: these critical rotating components must withstand extreme temperature and pressure conditions, while maintaining high strength and being lightweight. Traditionally, machining has relied on chip removal techniques such as broaching, grinding and milling, with broaching being the most commonly used method.

However, EDM has emerged as an increasingly important and viable alternative. Thanks to the development of new generators, EDM has evolved into a competitive process for the manufacture of aircraft components, including turbine discs. These advances have led to increased power and productivity, together with improved surface and geometrical quality of parts, which are crucial aspects in the aeronautical industry.

ONA's WEDM technology, represented by its AV35 NEXT machine and now also this new improved version, has proven to be on a par with conventional methods such as broaching and milling in terms of quality and precision. The new development has not only led to advances in terms of quality and productivity, it has also extended its capabilities to handle larger workpieces. This improvement is of fundamental importance, especially in the manufacture of critical components such as gas turbine discs, which can be considerably large in size. This ability to work with larger parts gives manufacturers additional versatility and the possibility of tackling a wider range of projects without compromising the quality or efficiency of the manufacturing process.



FIVE FUTURE TRENDS IN THE AEGT SECTOR

Aeronautical and Energy Gas Turbines



In a world where innovation and technology are rapidly transforming our lives, two crucial industries are constantly evolving such that they **lead the way into the future**: aerospace and energy. These sectors, intrinsically linked by their quest for **efficiency, sustainability and performance**, are undergoing unprecedented changes in their processes, products and perspectives.

“The market is expected to reach \$1,047,070 million by 2026 at a annual growth rate of 8.5%,” say the experts.

Despite the setbacks and operational challenges caused by the pandemic and the current turbulence in the global economies, analysts are very optimistic about the aerospace and defence (A&D) industry, expecting annual growth in earnings of 12% over the next five years.

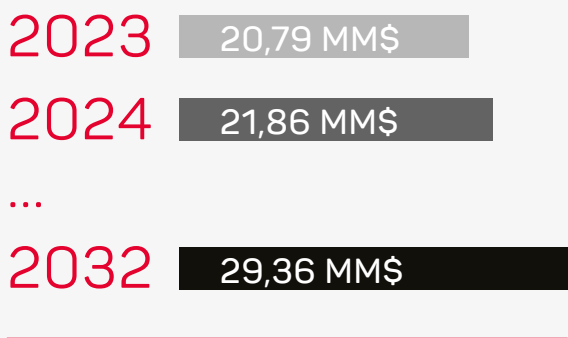
This optimistic outlook is due in part to the fact that trends in commercial air travel and customer order activity are stronger than previous post-Covid expectations and the fact that the defence industry was more insulated from the global impact of Covid-19 than the commercial aerospace industry.

In the US defence sector, new geopolitical challenges, coupled with the prioritisation of military modernisation, drove strong demand in 2023, particularly for next-generation weapons and capabilities. This momentum is helping to increase the focus on new technologies and evolving business models and to **drive greater digital and operational efficiency**.

ONA AND THE TURBINE SECTOR

Meanwhile, the global gas turbine market size was valued at \$20.79 billion in 2023 and is expected to grow from \$21.86 billion in 2024 to \$29.36 billion in 2032, exhibiting a compound annual growth rate of 3.76% over the forecast period.

Sector's evolution



3,76% anual rate

The North American gas turbine industry is projected to exceed 10 GW of annual installations by 2033. The **easy accessibility of raw materials** and the **constant incorporation of technologically advanced turbines** are important factors that accelerate the manufacturing of these facilities.

Both the **aerospace industry** and **gas turbine facilities** are facing a period of opportunity to **develop new products, improve designs, gain efficiency, reduce consumption and come up with solutions** to make the product much more competitive.

The Middle East and Africa are expected to emerge as other important markets in terms of capacity growth and orders. The pent-up demand can be attributed to the increasing inclination towards gas-fired combined cycle plants in the local oil and gas sector.



But how? Where is the market heading and what are the steps that will ensure the success of these industries?

As usual, the winning trends have a lot to do with the challenges and problems that exist and how we should address them. In this document, we will explore the **five most prominent trends that are shaping the future of the AEGT sector, for both aerospace and energy**. From digital transformation to the development of alternative fuels and the adoption of artificial intelligence, we will embark on a fascinating journey towards the new heights and energies of tomorrow.

ONA AND THE TURBINE SECTOR

01

IN SEARCH
OF TALENT

02

SUPPLY CHAIN
ISSUES

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DIGITAL
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SUSTAINABILITY AND
DECARBONISATION

05

ADVANCED
AIR MOBILITY

AEGT TRENDS

Do you want to see
the full document?

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SOME GOOD STORIES

HAND IN HAND WITH OUR CUSTOMERS

In life and in industry, the best stories are the ones that are shared. The ones that are written hand in hand. At ONA we have been working with our clients on their projects since their conception, in order to give them the precise answer they need. At ONA, solutions are much more than a product or a service, they are advice, analysis, testing and success.

Everything to ensure that our clients achieve their goals in a profitable way. In the following pages, we share some of our most recent success stories, or more precisely, our customers' most recent achievements.



SOME GOOD STORIES

WINDSOR MACHINE TOOLS INC

ONA EDM and Windsor Machine Tools: 30 years of successful collaboration to spread EDM in Canada



For over 30 years, ONA EDM has had a strong presence in Canada, with Windsor Machine Tools as a leading representative. They offer innovative solutions in the mould industry, pioneering large plates and filtering systems without spare parts. Success stories such as AarKel, Concours Mold and Windsor Tooling-Plasman Group highlight the efficiency and competitiveness that ONA brings to the sector, consolidating its leadership in the Canadian EDM industry.

The relationship between ONA EDM and Canada has a history that spans more than three decades, during which the company has established a solid strategic position within the country's industrial sector. Since 1993, Windsor Machine Tools, ONA EDM's representative in the country, has excelled in providing innovative and highly efficient solutions in the mould industry. This partnership made sense because ONA EDM was a pioneer in providing large plates at

competitive prices and with superior performance. In addition, their solutions featured a filtering system without the need for spare parts, which ensured exceptional finishes and increased production speed. Thanks to this collaboration, Windsor Machine Tools installed more than 50 EDM machines in the first few years, establishing itself as a benchmark in the market.

Today, the company has diversified its portfolio with another successful business, Windsor Tooling (Build a Mold). The company's EDM manager recently conducted a comprehensive benchmarking exercise, sending a series of test cuts to leading EDM suppliers, visiting each to evaluate the results in person. After careful analysis, ONA EDM proved to be the leader in speed, finish and wear, leading Windsor Tooling to purchase the ONA TX10 double head model, two ONA QX6 machines and the AV60 wire EDM model. This decision reflects Windsor Tooling's confidence in ONA's ability to offer state-of-the-art solutions to meet their demanding EDM requirements, and further strengthens their partnership. The COVID-19 pandemic prevented the ONA team from attending the installation of new machines in person. However, Windsor Machine Tools managed to carry out all the equipment installations successfully, thanks to detailed advice and technical

documentation provided by ONA. This achievement is testimony to the resilience and adaptability of both companies.

In the company's own words, "ONA continues to deliver speed, durability and superior finishes, as well as the best return on investment for EDM machines in the industry." In the past few years, they have installed 14 large ONA machines at several well-known Canadian companies such as AarKel, Omega Tool, Circle 5, Five Star and Windsor Tooling-Plasman. Here are some of the success stories that underline the mutual commitment of both companies to excellence and innovation in Canadian industry.



SOME GOOD STORIES

Success stories in Canada

AARKEL

AarKel has achieved a major breakthrough in the field of EDM machining through its successful collaboration with ONA. The installation of the ONA QX8 and ONA IRIS T10 C2 models led to significant improvements in several key aspects of the process. These include an outstanding 30% reduction in machining time, which represents a significant increase in production efficiency. In addition, there has been a clear improvement in the quality of the finished product, strengthening AarKel's competitiveness in the market. An impressive 50% reduction in manufacturing time has also been achieved, resulting in considerable optimisation of resources and greater agility in responding to market demands. This successful collaboration underscores the critical importance of establishing strong partnerships with reliable suppliers of EDM equipment to achieve excellence in the industry.

WINDSOR TOOLING-PLASMAN GROUP

Windsor Tooling-Plasman Group purchased four new EDM machines from ONA for its plant in Windsor, Ontario: TQX10 C2X, QX6+, QX6 and AV60. These join three existing ONA machines (H600, H400 and PRIMA S900). Prior to this purchase, the company ordered five EDM tests from ONA and four other manufacturers. The results were conclusive: ONA was chosen for its "accuracy, excellent support and better times".

The TQX10, the largest machine on the market, stands out for its double head that allows machining in half the time and simultaneous work on both sides of the tank, as if they were two independent machines. This technology, developed by ONA more than two decades ago, is ideal for the manufacture of large moulds with different cavities. In addition, the ONA machines were proven to be 15% faster than the

company's best competitor. This efficiency and capacity for innovation have been key to ONA's continued leadership as a preferred partner for top companies in the automotive and other industries.

CONCOURS MOLD

Concours Mold, an outstanding company with 20 years of experience in mould making, has consolidated its position as an industry leader by incorporating the advanced technology of the ONA TQX10 double head machine into its production line. After extensive EDM testing, the North American company chose the ONA machine for its exceptional production capacity and the superior quality of the end products.

Specialising in the design and manufacture of injection, compression and RIM (reaction injection moulding) moulds, Concours Mold serves a wide range of industries, including the automotive, heavy truck and consumer goods sectors. The North American company's strategic collaboration with world-class EDM suppliers such as ONA EDM underscores its unwavering commitment to innovation and quality. The addition of the ONA TQX10 double head machine has enabled Concours Mold to significantly increase its production capacity, streamlining its manufacturing processes. The ONA model offers exceptional precision and unprecedented machining speed, ensuring the production of high-quality moulds effectively and efficiently.



SOME GOOD STORIES

DUBRAL

Dubral optimises the precision and quality of its cutting with the acquisition of the ONA AV35 model

Dubral, a Portuguese company specialising in the manufacture of aluminium and PVC carpentry products, once again trusts ONA as its supplier of EDM machines. The acquisition of the ONA AV35 model has allowed the company to improve the precision in its cutting and raise the standard of quality in the company’s manufacturing process, increasing efficiency and productivity.



Dubral, a Portuguese company with a solid track record in the manufacturing of products and solutions for aluminium and PVC carpentry, stands out for its commitment to precision and quality in its products. With more than four decades in the industry and more than 40 million hinges sold, it has established itself as a benchmark in the industry. It offers a wide spectrum of services. These range from consulting to export, including research, design and prototyping, mould and tool manufacturing, assembly, packaging and more.

The search for maximum precision

In their constant search for improvements, they faced the challenge of finding a solution that guaranteed maximum precision and quality in their cutting, with a specific effective travel of 600 x 400 x 400 mm. All this without compromising efficiency and maintaining minimal maintenance costs. In response to this demanding requirement, Dubral turned to ONA, a leader in EDM technology, trusting that ONA's experience and cutting-edge technology would allow them to successfully overcome the challenge.

ONA solutions and its application

The solution presented by ONA was its ONA AV35 wire EDM model, equipped with a mineral filter. This machine, which incorporates the latest EDM technology, meets all the required specifications, offering exceptional performance and low maintenance costs.

With the implementation of the ONA AV35 machine, the Portuguese company has managed to make precision cuts in special alloys, thus raising the quality standard in its manufacturing process. ONA's advanced technology has allowed Dubral to improve efficiency and increase productivity, with unbeatable results in each manufactured part. "It is very gratifying for us to arrive at our premises every morning and witness

the way in which the ONA machine continues working," say its executive directors, Carla Costa and João Costa.

The AV35 model is not the only ONA EDM machine present in the Portuguese company's premises. Dubral had already demonstrated its trust in the manufacturer with the previous acquisition of the ONA NX3 die sinking EDM model. This new collaboration reflects the company's complete satisfaction with the performance, quality and reliability of the ONA products, as well as ONA's continued commitment to innovation and manufacturing excellence.

ONA AV35:
Ventajas de una apuesta segura

- **High precision:** Capable of producing parts with very tight tolerances.
- **Cutting speed:** Makes fast and precise cuts, reducing production times.
- **Intuitive numerical control:** 21" touch interface, intuitive menus and apps for easy operation.
- **Time optimisation:** Task planning and list of work (JOBS list) to maximise productivity.
- **Interactive 3D interface:** Allows you to manipulate parts with a touch of the screen for better visualisation and manipulation.
- **Real-time display:** Shows the cutting process and estimated completion time.
- **Full positioning control:** Includes ONA Script programming + in-process measurement to optimise the positioning and measurement of parts.
- **Finish quality:** Provides high quality surface finishes
- **Cutting-edge technology:** Equipped with advanced features and control systems for efficient operation and complex cuts.
- **Reliability and durability:** Robust and reliable machine, with low maintenance and long-term operating costs.

Company	DUBRAL – CARLOS ALBERTO & FILHOS, S.A.
Employees	120 employees
Premises	Empresa Carlos Alberto & Filhos S.A.
Services	Components and accessories for aluminium carpentry.
Equipment	▪ 1 wire EDM machine (AV35) ▪ 1 die sinking EDM machine model NX3 (with automatic change of 10 tools)

SOME GOOD STORIES

SABACAUCHO

Sabacaucho to machine large moulds for elastomeric parts with the ONA IRIS8 B1L+ machine

Sabacaucho, a leading company in the production of elastomeric parts with a track record covering more than 40 years, was faced with the challenge of machining and repairing increasingly large moulds. To satisfy this requirement, ONA offered them a comprehensive solution with its ONA IRIS8 B1L+ die sinking EDM machine. This model is characterised by its high capacity and cutting-edge technology, backed up by exceptional technical support. The close collaboration between ONA and Sabacaucho has ensured high quality results and agile solutions to meet the growing demand for large moulds.

The ONA technological solution for machining large moulds: ONA IRIS8 B1L+

Sabacaucho's requirement for a machine with a high capacity for machining and repairing larger moulds led the company to contact ONA. The Catalan company required a solution that would allow them to keep up with growing market demand and meet tight production deadlines.

ONA's answer to this challenge was its ONA IRIS8 B1L+ die sinking EDM machine. With tank dimensions of 2800 x 1500 x 1000 mm and a technological capacity of up to 8 simultaneously controlled axes, this model provided Sabacaucho with the necessary capacity to machine any type of part. Georgina López Soto, CEO of Sabacaucho, notes: *"With ONA's IRIS8 B1L EDM machine we can machine moulds for larger parts, including the large moulds required for the production of elastomeric parts."*

The first application of the ONA IRIS8 B1L+ model at Sabacaucho involved the modification of a large mould for the production of sealing gaskets for wind turbine propellers. This process

included the addition of 12 welded segments to increase the dimensions of the mould plates. Once the segments were welded, an EDM process was carried out with the **ONA IRIS8 B1L+** equipment comprising roughing, semi-finishing and finishing, using graphite electrodes and cavities across the diameter of the mould plates until the final shape was obtained. Georgina Lopez Soto also highlights the fact that: *"With this EDM process we can regulate the level of finish of the parts in terms of roughness and obtain the machining of complex figures that could not be obtained with other types of machining."*



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Innovation and technical support

Sabacaucho trusted ONA not only for the capacity and technological capabilities of its machine, but also for the exceptional technical support service. ONA's specialised team worked closely with the Sabacaucho staff from the initial machining phase through to the optimisation of the roughing and finishing parameters so that the entire process would be perfectly tailored to the specific needs of the Sabacaucho part. They guided us in creating the most suitable program and showed us the best options for part and electrode reference, confirms Georgina López Soto.

In addition, they offered valuable advice and recommendations throughout the process, demonstrating an in-depth knowledge of their products and the machining process in general.

In conclusion, the implementation of the ONA IRIS8 B1L+ machine has enabled Sabacaucho to successfully meet the challenge of machining large moulds for the production of elastomeric parts. In addition, the constant technical support offered by ONA throughout the implementation has been key to optimising the machining process, guaranteeing high quality results. The CEO of the company sums it up perfectly in one sentence: *Thanks to the flexibility, speed and adaptability of ONA we have been able to establish appropriate solutions to our needs in an agile and efficient way."*

Company	SABACAUCHO
Turnover	6 and 30 M€
Premises	5000 m2 in Castellar del Vallès (BARCELONA).
Services	•Sabacaucho Urban Division: Specialising in the production of high quality flexible bollards and posts, using the patented X-last® material to guarantee strength and durability. •Sabacaucho Industry Division: This division offers customised solutions for industry with a variety of elastomers, developed in-house to meet specific needs. •Sabacaucho Tech Division: Elastomer research and development centre offering solutions from formulation to production. •2D3 Solutions Division: 3D printing, laser cutting and marking services in various materials, as well as design and production of 3D moulds, prototypes and parts.
Equipment	Die-Sinking EDM machine ONA IRIS8 B1L+
International presence	The products of the Sabacaucho Industry division are distributed globally in the 5 continents. The Sabacaucho Urban division has distributors selling bollards and cycle lane separators all over the world.

SOME GOOD STORIES



DAMÁSIO GROUP

DAMÁSIO GROUP boosts its productivity with ONA IRIS technology

DAMÁSIO GROUP, a leader in EDM services, reaffirms its confidence in ONA with the recent incorporation of several ONA IRIS models into its production line. The implementation of this cutting-edge technology allows the company to tackle EDM work with greater speed and precision, thus optimising productivity and efficiency rates.

With a track record covering more than 30 years in the market, **DAMÁSIO GROUP** stands out for its focus on precision, detail and rigour. Specialists in the manufacture of precision parts for sectors such as aeronautics, moulds, military and naval, the Portuguese company has succeeded in expanding both nationally and internationally. Since the founding of the Damásio brand in 1990 up to the creation of DAMÁSIO GROUP in 2020, the company has

maintained constant growth, always focused on the adoption of state-of-the-art technology capable of improving productivity rates, optimising precision and efficiency. Its customers include prominent names such as **Mercedes, Jaguar, Volvo, Porsche, BMW, Audi, Bentley, Lamborghini, AEG, Hella, Leica and Siemens.**

ONA IRIS: Cutting-edge technology to optimise production

The main challenge faced by DAMÁSIO GROUP was to update its fleet of machinery in order to be able to respond more quickly, accurately and rigorously to the demands of its customers. In response to this requirement, ONA proposed the most technologically advanced die sinking EDM solution, the ONA IRIS model, both for its excellent erosion capabilities and for its technological integration.

The final ONA proposal involved the implementation of 4 ONA IRIS machines:

- 1 ONA IRIS T10 model, a machine with two heads, and with two Erowa robots with 121 positions each.
- 2 ONA IRIS 8 machines
- 1 ONA IRIS 6 machine equipped with a 40-electrode ONA rotary feeder.

These new acquisitions have allowed DAMÁSIO GROUP to tackle all types of EDM work with speed, efficiency, precision and rigour. According to Hugo Damásio, CEO of DAMÁSIO GROUP: "The main benefit of ONA is the flexibility and adaptability of the machine and software for a wide variety of areas, allowing a broader search for customers."

The best value for money option on the market

"From the experience and tests carried out in the past, I regard ONA as the machine with the best quality-price ratio on the market," says Hugo Damásio, CEO of DAMÁSIO GROUP. The Portuguese company gives a positive assessment of the technical support service that ONA offers in Portugal. "This has allowed us to develop a close relationship over the years with ONA, including a willingness to make improvements for specific and complex jobs," adds the CEO. The company specialising in EDM already has 7 ONA machines in its facilities. In addition to the recently installed machines (ONA IRIS T10, 2 x ONA IRIS 8, ONA IRIS 6), they have a wire EDM machine, the ONA AV130, the largest on the market, and another 2 die sinking EDM machines, ONA HS700 and ONA HS600.

The DAMÁSIO GROUP choice of ONA IRIS technology has allowed the Portuguese company to tackle EDM work with greater speed, efficiency and precision, ensuring greater flexibility and adaptability to satisfy the requirements of increasingly demanding customers.

Company	DAMÁSIO GROUP, EDM SYSTEMS
Year founded	1990
Premises	Estrada Real D. Maria I, Lote 1 2440-500 Batalha (Portugal)
Services	Provision of die sinking and wire EDM services.
Sectors	Moulds, aeronautics, military, naval.
Clients	Mercedes, Jaguar, Volvo, Porsche, BMW, Audi, Bentley, Lamborghini, AEG, Hella, Leica, Siemens, etc.
Equipment	▪ 1 wire EDM machine: ONA AV130, the largest on the market. ▪ 6 die sinking EDM machines: 1 ONA IRIS T10, 2 ONA IRIS 8, 1 ONA IRIS 6, 1 ONA HS700, 1 ONA HS600
International presence	Presence in Portugal, Spain, France, Germany, Brazil and the United States.

TECHNOLOGICAL DEVELOPMENTS

ONA EDM introduces its new technology Fast Hole EDM at the 32nd BIEMH

At the **32nd BIEMH 2024**, ONA EDM presents its latest innovation: the **ONA HALLEY** machine, equipped with **Fast Hole EDM technology**. This new development is designed to meet the demands of the aeronautical and power generation sector, providing precise and efficient solutions for the creation of cooling holes in blades and other essential turbine components. The presentation of the **ONA HALLEY** model at one of the most important trade fairs in the industrial sector highlights not only the company's technological capabilities, but also its commitment to continuous innovation. ONA's new machine has a number of advanced features that position it as a leading solution in the manufacture of high-precision components.



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Focused on innovation and development

Confident of the breakthrough that ONA's new solution represents for the industry, the company has submitted the **ONA HALLEY** model to the **2024 Award for Innovation in Advanced and Digital Manufacturing**, a recognition that seeks to highlight the most advanced and revolutionary developments in the sector. The relationship of this award with ONA goes back a long way. During its long history, ONA has been honored multiple times with this recognition, reflecting its constant dedication to design and innovation. From its early work with renowned designers such as Giugiaro in 1981 and L. Fernando Merino in 1988, to more recent collaborations with TRESA, the company has demonstrated a holistic approach to design that combines aesthetics, functionality and cutting-edge technology.



Meeting the exacting demands of the turbine industry

ONA's Fast Hole EDM project was launched in 2013 as part of a strategy of diversification and search for new business opportunities. This initiative responds to the growing demands of the advanced turbine component manufacturing sector. Demands for fuel consumption reduction, noise minimization, operating cost optimization, NOx emission reduction and increased reliability have generated new requirements in terms of designs, materials and manufacturing processes.

Fast Hole EDM technology enables the manufacture of cooling holes with complex geometries, which are essential for component performance under extreme conditions. This development not only strengthens ONA's position in the market, but also opens up new opportunities in the power generation and Oil & Gas sectors.

TECHNOLOGICAL DEVELOPMENTS

ONA HALLEY: Technological Differentiation

The ONA HALLEY machine has a number of advanced features that position it as a leading solution for high-precision component manufacturing. Among the most outstanding competitive advantages are:

- **Inmersion work:** Improves the stability of the fast drilling process
- **End-of-process detection:** Avoids damage to the inner cavities
- **Automatic electrode and guideway change:** Optimizes operation time and reduces manual intervention
- **Electrode wear control:** Ensures high precision and quality in each drilling.
- **High-pressure inner cleaning:** Up to 100 bar, guaranteeing clean cavities.
- **Spindle rotation:** Up to 1000 rpm, offering greater flexibility and precision
- **Applications** to improve user experience and integration in digital environments.



Better. Faster. Wiser.

From a communication point of view, the name **ONA HALLEY** refers not only to the development of a new product, but also to the launch of a new technology. This name is intended to link the machine to its turbine sector and, at the same time, to pay tribute to ONA's 71st anniversary, coinciding with the frequency of the passage of Halley's comet over the Earth. Under the slogan *BETTER. FASTER. WISER*, the main technical features that make this machine an innovation in the Fast Hole EDM drill technology market will be highlighted.

Throughout its more than 71 years of history, ONA has proven to be a benchmark in the market, and with the ONA Halley, the company reaffirms its leadership and its ability to adapt and evolve in a highly competitive and constantly changing environment. We invite all BIEMH 2024 attendees to come to our booth and see first hand the **ONA HALLEY model and the Fast Hole EDM technology**.

TECHNOLOGICAL DEVELOPMENTS

ONA EDM LEADS THE ERA OF INTELLIGENT AUTOMATION

Automation is revolutionising the manufacturing industry by incorporating advanced technologies such as artificial intelligence, robotics and data analytics. These technologies enable companies to become more efficient, reduce costs and improve the quality of their products. At the same time, workers are freed from repetitive tasks, allowing them to focus on value-adding tasks.

Automation also improves workplace safety and fosters innovation by speeding up design and manufacturing, enabling rapid adaptation to market demands. In a competitive environment, automation is crucial. At ONA EDM, we have been implementing automation solutions for our customers for years, ensuring that they are leaders in their industry.



Lean Manufacturing and Six Sigma

The incorporation of Lean Six Sigma methodologies has been fundamental in the optimisation of industrial processes, especially in sectors such as aerospace, where the requirements for precision and quality are more demanding. Lean Manufacturing focuses on minimising waste and maximising efficiency by identifying and eliminating activities that do not add value to the production process. This is particularly important in the manufacture of complex components, where even small deviations can have significant consequences.

By applying Lean Manufacturing and Six Sigma in the aerospace industry, more efficient and high quality production is achieved. The methodologies allow companies to optimise their workflows, reduce costs and improve the quality of the final product.

Automation in ONA LEAN: ONA IRIS 4 LEAN and ONA IRIS 6 LEAN

These machines retain the advanced features of the IRIS range, but with a more compact design. The relocation of the generator to the rear allows a reduced size, leaving only the work tank and control screen at the front. This design aims to optimise working space and improve efficiency and profitability through automation and resource optimisation.

The ONA IRIS LEAN models include digital tools to enhance the user experience, a powerful 3D graphics engine and a large touchscreen. In addition, their configurable digital generator allows complete customisation. Automation is a key feature of these models, facilitating the transfer and downloading of data, external connections, security, integration with other software and remote process management.

Leading OEMs in the turbine sector have chosen ONA EDM and its LEAN models because they take up less space without compromising quality and functionality.

Automation solutions at ONA EDM

ONA optimises its manufacturing processes through various automation solutions, including the following innovations:

▪ Rotary changers:

These devices, integrated into ONA IRIS machines, allow capacity to be increased to up to 80 electrodes, significantly improving operational efficiency.

▪ Multi-electrode Robot:

This compact robot handles workpieces and electrodes on fixed or rise and fall tank machines, with a load capacity of up to 30 kg and an X-axis travel of 1200 mm. Its implementation allows for more efficient and precise operation.

▪ Multi-machine projects:

Robots with automatic arms feed machines, enabling continuous operation throughout the night and increasing productivity by up to 400%. They ensure greater accuracy and efficiency, optimising resources and reducing downtime.

These automation solutions enable ONA to offer high quality and efficient production, adapting to the specific needs of each customer and ensuring that manufacturing processes are as efficient and cost-effective as possible.



IRIS 4 LEAN lineal changer.



IRIS 4 LEAN with 20-position changer.



IRIS 4 LEAN with 40-position changer.



IRIS 4 LEAN in a robotic cell.

Maximum Automation, Maximum Productivity

ONA EDM's latest breakthrough in automation is the development of a **complete robotic manufacturing cell** in collaboration with **ARMIN**, the company responsible for its control system. This automated cell integrates the ONA IRIS 4 LEAN model and is specifically designed to maximize efficiency and productivity for one of the world's leading turbine OEM's.

The goal of the robotic cell is to ensure repeatability, provide autonomy and improve process control. The main components of the manufacturing cell include:

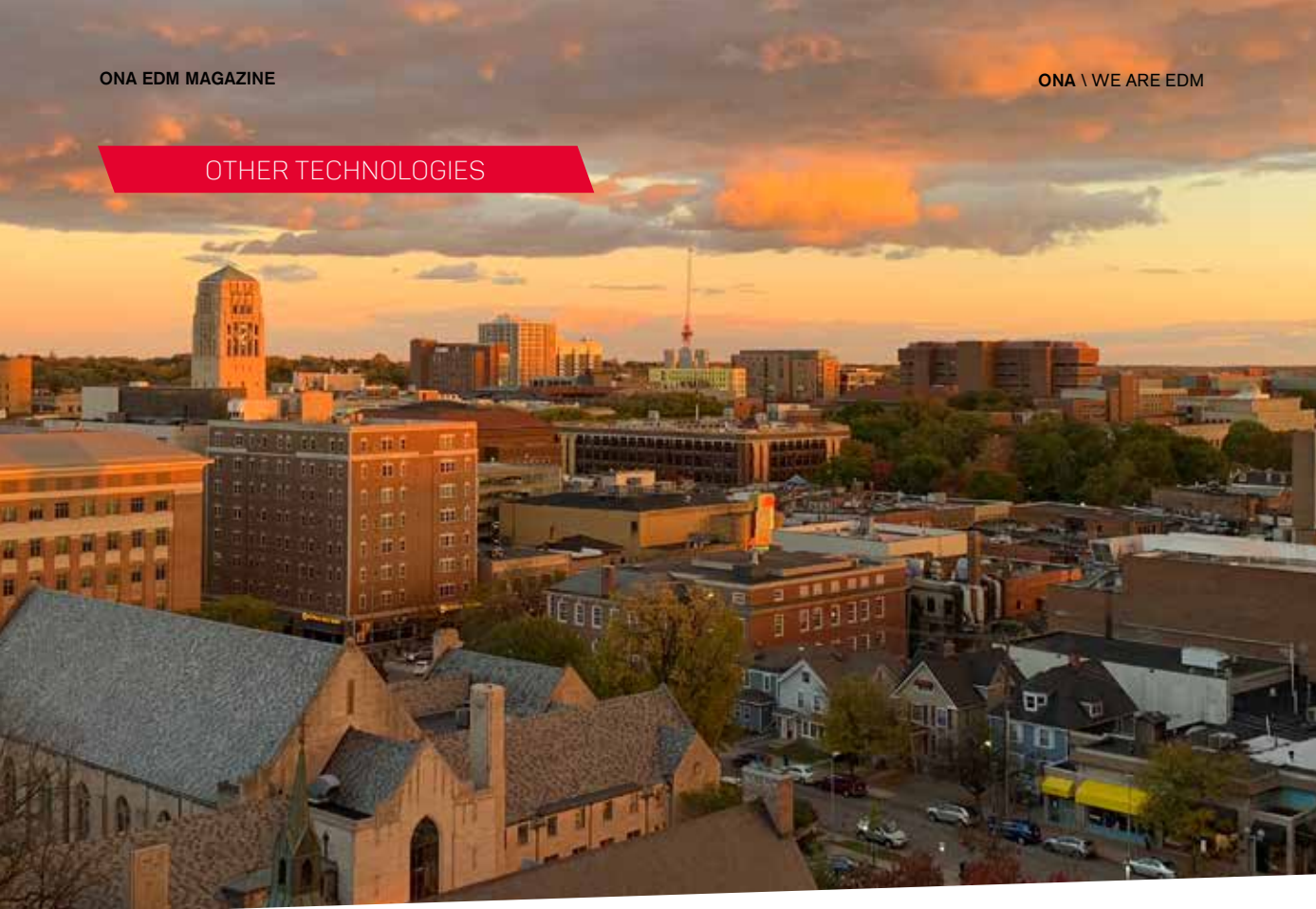
- Booth for electrode and part loading by the operator
- Electrode and part store (with capacity for 135 electrodes and 12 pallets of parts)
- Robot ABB

ABB RobotThe complete cell cycle includes the following stages, which is repeated for each electrode:

- Loading of the part into the machine
- Setup (SETUP) of the part and the sphere (placed on the ONA bed)
- Electrode loading
- Three-dimensional correction of the electrode-
- Erosion on the part.

For ONA, automation is essential in order to remain competitive in today's market. We are highly committed to the integration of advanced technologies and the continuous improvement of our manufacturing processes. The creation of a complete robotic cell is just the latest example of how we are leading the way towards more efficient, safer and high quality production.

OTHER TECHNOLOGIES



CATERPILLAR

CATERPILLAR HAS ONCE AGAIN PUT ITS TRUST IN AAEDM AND ONA BY PLACING AN ORDER FOR A CUSTOM-BUILT MACHINE

Since 2016, AAEDM has been part of ONA. A smart partnership that unites the niche experience of the American company and the expertise and capacity of ONA, and that has resulted in our microhole EDM machine..

ONA, leading the way in EDM for more than 72 years.

It is not surprising that such a partnership emerged in 2016. ONA, with more than seven decades of experience and innovation in EDM, acquired AAEDM in order to provide concrete microhole solutions to its customers around

the world. It gave AAEDM access to the ONA R&D&I department, its engineering capacity and its extensive sales network, resulting in successful projects such as the one developed for Caterpillar.

AAEDM More than 50 years in the manufacture of injectors

Specialists in turnkey projects, based on their track record and know-how:

AAEDM, more specifically, has over 50 years of experience in developing solutions for fuel injector manufacturing. Currently based in Ann Arbor, Michigan, they have built hundreds of machines for customers around the world, helping them manufacture superior injectors. From simple manual load-unload to fully automated and robotic loading, the machines work in many industries around the clock in real production environments.

The AAEDM patented technology is the result of developing, manufacturing and supplying more than a thousand microhole EDM machines since the 1970s. The company is constantly updating its technology,

designs and execution, while working closely with its customers to understand their needs, solve problems, customise and streamline their processes so they can be productive and competitive. It is a small and extremely innovative company that focuses on its area of expertise, but at the same time has the flexibility and know-how to design and execute solutions tailored to customers' needs, so that they can produce the best solutions for their own customers. Customers only have to define what they need, and the company will make it happen.



\ Benefits of the MICROHOLE machine of ONA



96% OEE (Overall Equipment Effectiveness)

Extremely high production capacity.



SIMPLE TO USE WITH A LOW MAINTENANCE COST

Easy installation, intuitive operation and solidly built machines.



SAVINGS IN CONSUMABLES

Our consumables last longer and cost less.



EXPERTS IN MODULAR DESIGN AND MINIMAL FOOTPRINT

Maintenance with a minimum size.



PRECISION AT ITS FULLEST

Parts are wear-free and the EDM head does not go off-center, so precision is not lost in time.



FROM THE SIMPLEST TO THE MOST COMPLEX PROJECT

Customized design and programming to meet your needs.



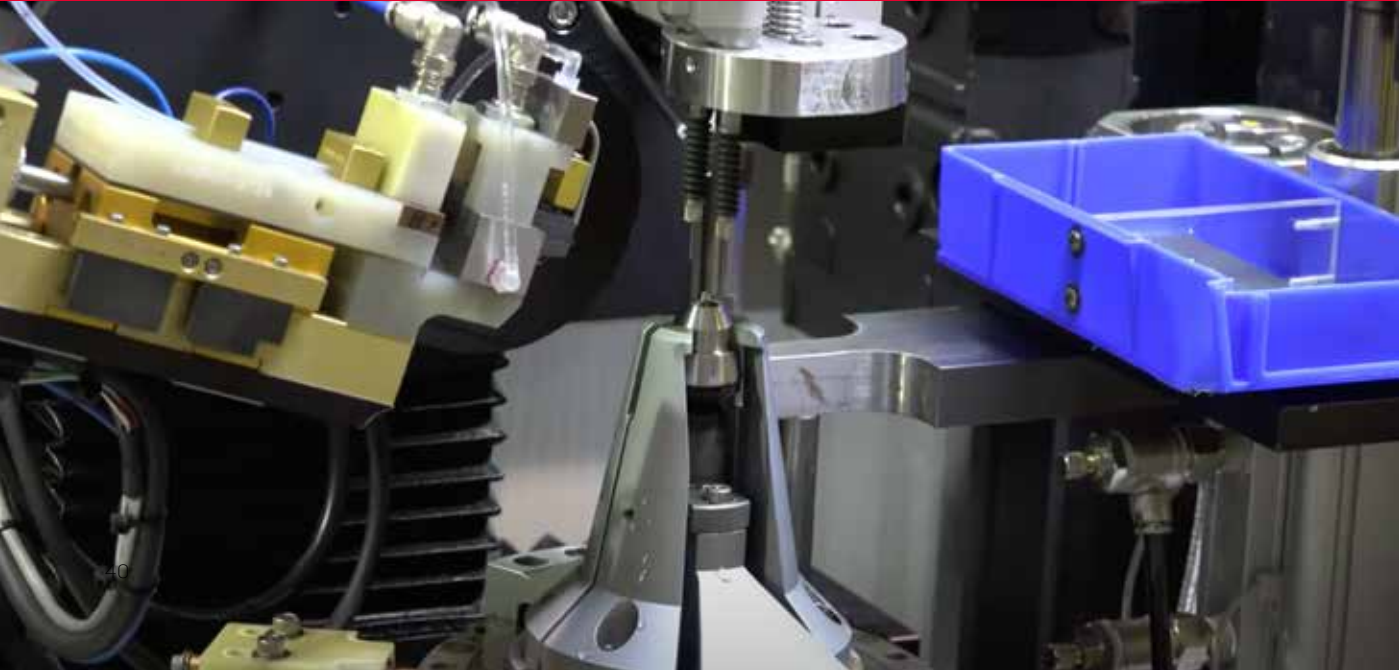
The Caterpillar project

Caterpillar has once again placed its trust in our technology in a project where customisation and automation have been key. The machine purchased was a fully automated K-factor double-station

Its operation is described below:

1. The robot picks up the part and verifies that it is a new, undrilled part.
2. The barcode reader reads the serial number, and the robot loads the part after verifying that it is empty.
3. Part height probes to adjust hole height accuracy with automatic hole height adjustment.
4. EDM is carried out. The robot loads the part after removing the pre-drilled part.

5. The completed part passes to the Coriolis water flow test station and the correct flow rate is verified.
6. The part is transferred to the unloading tray.
7. Además, al ser una máquina K Factor, es decir una máquina de conicidad inversa, incorpora un avanzado generador de microagujeros EDM con software específico para conicidades. Su cabezal cónico inverso es pequeño, ligero, duradero, fácil de instalar y de usar, lo que proporciona una mayor versatilidad y productividad.



Company	CATERPILLAR
Turnover	\$67.06B (2022)
Premises	Pontiac, IL, USA (Headquarters)
Services	Provision of die sinking and wire EDM services.
Services	Heavy equipment sales and rental, financing, spare parts service, technology and digital solutions
Equipment	Microhole machine - K factor double station
Sectors	Construction, Mining, Energy, Industrial, Transportation and Agriculture.

OTHER TECHNOLOGIES

A new model for a new revolution

The new **SAMYLABS ALBA 300+** is here: the most compact metal 3D printer on the market.



"Additive manufacturing by the melting of metal powder with a laser allows us to do things that cannot be achieved with any other technology." This is how Jon Martínez, CTO of **SAMYLABS**, describes it.

3D printing has a great impact in sectors such as aerospace, automotive, consumer products, government and defence, health, industrial machinery and education. In this context, Samylabs is at an important juncture after the launch of the new **ALBA 300+** model, which has significant improvements compared to the previous model. Versatility in material handling and adaptability to the medical sector, in addition to an expanded printing volume are some of the advantages that the model offers.

"The global 3D printing market is expected to reach a value of several billion dollars by 2025, with a compound annual growth rate (CAGR) of 20% or more."



New features of the new model **SAMYLABS ALBA 300+**

New work tank

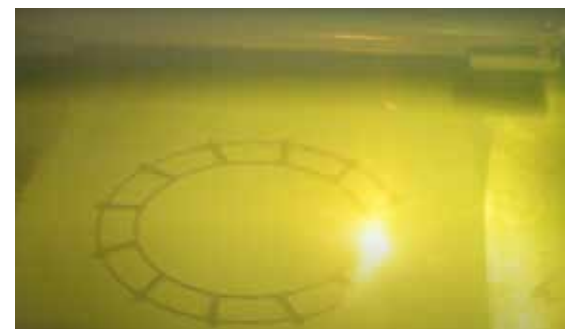
It incorporates a larger work tank (Ø 200mm x H 250mm) that increases the printing volume, allowing the creation of larger, more complex parts with exceptional precision.

Nuevos materiales

SAMYLABS ALBA 300+ can handle a wide variety of materials, including stainless steel, aluminum, cobalt chrome, Inconel and C300 steel.

For advanced medical applications

Adapted for the medical sector with new applications thanks to the parameterisation of grade 23 titanium. New possibilities open up in the manufacturing of medical components, taking advantage of the unique properties of this material to achieve exceptional results.



More and more companies and centers are betting on the power of **SAMYLABS ALBA 300+** additive

A high-quality, economically competitive option, the optimised size, ergonomic and easy to maintain, its own one-time payment software and its own high-power laser control system making this the perfect option for any project and requirement. This has been confirmed by a variety of customers, with FUNDACIÓ PRIVADA CENTER CIM, CETEMET (CENTRO TECN. METALMECÁNICO Y DEL TRANSPORT), AIDIMME, FEMPA and Jorcar 2009, S.L. in Spain, JOANNEUM RESEARCH Forschungsgesellschaft

mbH in Austria, and INOXFORM KFT in Hungary choosing the new model.

A collaboration of ONA together with SAMYLABS that seeks the democratisation of metal 3D printing. Our commitment to providing additive technology for everyone and to continue making progress in order to respond to the demanding requirements of all types of industries.

Isa Zhang

ONA China. General Manager



What do you like about EDM compared with other technologies?

According to my previous working experience, EDM can process some special shapes, some tools are difficult in various places, all need EDM machine tools to be processed.

How do you see the future of EDM? What are the challenges of the future?

The EDM machine of the future tends to be more intelligent and more automated. By integrating advanced sensors, artificial intelligence and adaptive control systems, real-time monitoring and adjustment of the processing process can be achieved to improve production efficiency and processing accuracy. According to <<DI Research>> research statistics, the global EDM market size shows a steady expansion trend, 2023 global EDM market sales will reach 16.23 billion yuan, is expected to reach 27.55 billion yuan in 2030, 2023-2030 compound growth rate (CAGR) of 7.85%.

What technologies do you think can be great allies of EDM in the future?

I don't have enough experience in this technology field, it is difficult to say, but according to our company's strategy, 3D printer should be closer to EDM technology.

What emerging markets do you foresee in the EDM world?

It's hard to say.

Do you recall any success stories with customers that have made a mark on you?

I joined ONA a little over a year ago and, based on feedback from our current customers, I think they are satisfied with our products. Earlier this year we signed a contract with Schlumberger for a new EDM machine,

which gives us an advantage over our competitors in the oil drilling field.

How many years have you been working at ONA? What is your role?

I have been working at ONA for almost a year. I am responsible for Chinese market.

What do you think makes ONA more characteristic and special?

1. ONA EDM technology, I can be very proud that we are the first brand in the world.
2. ONA has been focusing on EDM technology for 72 years, which is enough to prove that our experience surpasses our competitors in the industry.
3. We have a very excellent R&D application team, which can constantly update the technology and keep the leading technology.
4. Our service to customers is comprehensive.

What do you like most about working at ONA? I am still learning about EDM technology.

What I like most is that the head office has given me the greatest support.

A wish for the future of the company.

Continuous efforts and development, let ONA's centennial become a celebration of the industry.

ONA AROUND THE WORLD

Magnus Chronholm

LICHROM

LICHROM. Managing Director

What do you like most about EDM compared to other technologies?

In the case of die sinking EDM, we believe that surface area is very important for mold makers; in the case of wire cutting, we believe that high precision, thin walls and small parts with high accuracy are important. Power consumption can be a factor. Speed may be a factor; EDM is still a "slow" process. The future should be good for EDM, new technologies can turn EDM machines into mainstream machines.

What technologies do you think can be great allies of EDM in the future?

We think 3D printing is a good ally for the future. Perhaps scanning for measurement purposes could be useful in the future.

What emerging markets do you foresee in the EDM world?

In a world of turbulence it can be valuable to focus on the Defense industry.

What is your role?

General manager

What do you think makes ONA more characteristic and special?

The size of the machines, we believe that size will be more important in the coming years.

A wish for the future of the company.

We like the videos you post on social networks, you should keep betting on digital marketing.



Sujit Dutta



FRANCIS KLEIN & CO. Product Manager for ONA

What do you like about EDM compared to other technologies?

EDM is a non-traditional machining technology that allows you to create sharp corners and complex profiles with very small radii, which is challenging compared to other technologies. In addition to cutting hard material parts, the EDM process also provides an excellent surface finish. EDM makes it possible to produce complex shapes that would otherwise be difficult to produce with other conventional cutting tools.

What do you see as the future of EDM? What are the challenges for the future?

EDM is still preferred for large, complex parts in the mold and die, aerospace, aviation and defense industries. Of course, machining speed is slow. In addition, creating electrodes requires additional time and costs.

What technologies do you think could be great allies of EDM in the future?

Microjet Leser. Tool micromachining. Metal AM and EBM can be for smaller parts.

What emerging markets do you foresee in the EDM world?

Electronics. Toy industry. Medical equipment. Energy sector.

Do you recall any customer success stories that have made a mark on you?

With ONA's support, we have had many successes and have supplied and installed the largest size of EDM and wire EDM in India.

It is not about my individual success. We work as a team with our experienced marketing team spread all over the country.

How many years have you been with ONA? What is your role?

10 years, in sales and marketing. I look after the Indian market for all ONA products. I am supported by our team of engineers in our Pune, Delhi, Mumbai, Chennai, Kolkata and Bengaluru subsidiaries.

What do you think makes ONA special?

ONA is a world leader in the manufacture of large machinery and an expert in special solutions. ONA incorporates the latest advances in Industry 4.0 and digitalization in all its equipment. In short, pioneer in customized solutions and robust machines.

What do you like most about working at ONA?

Immediate solution and supply of spare parts to generate customer confidence.

A wish for the future of the company.

We have to develop strategies to increase our share in the private sector.

ONA FOR A BETTER WORLD

Towards a better future

In a world increasingly aware of environmental challenges, the 2030 Agenda offers a fundamental framework for global transformation. This set of ambitious goals set by the United Nations seeks to address the most pressing issues facing our planet. Outstanding among them, SDG 13 is an urgent call to action: combating climate change and its devastating effects. From reducing greenhouse gas emissions to promoting renewable energy, the measures required to achieve this goal are crucial to ensure the sustainability of our common home.

In this context, at ONA we are committed to adopting measures to reduce our environmental footprint and contribute positively to the environment around us, constantly adopting different measures that position us as a company that works in line with the 2030 Agenda. Because we believe that everything can and must improve.

Towards decarbonisation with MTPRINT

One of the projects that reflects this commitment is MTPRINT, led by ONA in collaboration with leading companies in the machine tool sector and backed by the consultancy Grunver Sostenibilidad, with the support of IHOBE. The main objective of this project is to develop a specialised solution for calculating the Corporate Carbon Footprint. This facilitates an accurate assessment of the environmental footprint by analysing in detail the greenhouse gas emissions at each stage of the production process.

660 photovoltaic panels

Another significant initiative is the installation of more than 660 photovoltaic panels at our headquarters in Durango. With a power of 330 kWp from the rooftop system, it is estimated that

these panels will cover between 39% and 43% of the company's current self-consumption, which is 243,097 kWh/year.

ISO 14021

At ONA we are working to obtain ISO 14021 certification for a number of our product ranges. This international standard provides guidelines for environmental self-declaration and environmental labelling of products and services. A guarantee of environmental responsibility that verifies the transparency and commitment of a brand.

In summary, every day at ONA we lead the way towards a more sustainable future in the machine tool industry through state-of-the-art and committed initiatives, ensuring the long life of our machines, retrofitting old machines, reducing waste, CO2 emissions and energy consumption.

This commitment is reflected in the development of specialised carbon footprint measurement tools, the adoption of renewable energy sources and the achievement of environmental certifications, demonstrating our firm commitment to protecting the environment and building a more sustainable world for future generations.



2015, the year of the transformation

ONA \ WE ARE EDM

What we are must resonate in how we appear. And in our daily communications and contributions, so that the brand remains coherent, a leader and a benchmark. For this reason, and on the basis that at ONA we have never stopped evolving in order to differentiate ourselves, in 2015 we decided to refocus the brand in terms of strategy, design and narrative with the aim of conveying what we are and what we do to the world in a meaningful and honest way.

We transformed our image by opting for a timeless, simple and versatile logo that sought to communicate, at first sight, who and what we are. A typographic logo that conveys our cutting-edge nature, organically incorporating a minimalist lightning bolt and associating ONA directly with its activity: EDM.

ONA
ONA \
ONA \

This strategic evolution brought with it a change of tone, of message. We opted for a claim that acted as a declaration of intent for a new stage in our development: WE ARE EDM. A conceptual translation of our brand essence. A direct and transparent message that conveys what we believe in and what we are pioneers and experts in. Our raison d'être and the key to

**WE
ARE
EDM**



We thus created a brand represented by three key colours: red, anthracite grey and pure white. Personality, energy, purity, precision and technique described a new path for ONA. All accompanied by a clean, subtle and minimalist photographic style, which sought to maintain neutral tones, giving prominence to the product in an elegant and aesthetic way.

2015 marked the beginning of a new stage that opened up thousands of new opportunities for ONA and drove the brand to continue evolving, adapting and progressing, the business growing at the same time as we did. Embracing change and the adoption



\People \Technology \Profitability



POSSIBLY THE WORLD'S BEST EDM CHOICE

\People \Technology \Profitability

www.onaedm.com