

# ONA AV

AV RANGE CATALOG  
WIRE EDM



ONA AV

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WIRE EDM



# ONA AV

# NEW TIMES FOR EDM

The eco philosophy as a way of being represents us and our products; they are the future.

The eco technology used in our product design processes combines power and precision, taking care of every last detail, without neglecting efficiency in both performance and consumption.

Products conceived from our commitment to efficiency that adapt to the needs of our customers.

A new generation of high-end machines with a revolutionary and intuitive touch screen control, to make life easier for our customers.

A new concept for new needs. Welcome to the future.

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# ON A, POSSIBLY THE WORLD'S BEST EDM CHOICE..

At **ON A** we are technological pioneers in EDM. Our path has always been closely linked to this technology throughout more than **70 years of history** that have made us the most specialized manufacturer in the world. With ON A, the customer can count on a highly qualified team, expert in the manufacture of EDM machines and precision assemblies. We are known for our proximity and accessibility, which is why we are present worldwide with a wide network of distributors. In our main production center, which has more than 11,000 m<sup>2</sup>, we design and create tailor-made solutions for each customer; a large infrastructure designed to provide effective support to our customers and to work on each project individually.

70

years of experience

60

countries

100%

manufactured in Europe.



## EUROPEAN TECHNOLOGY

guaranteeing  
maximum reliability.



98%

overall effectiveness of  
the equipment.

15.000

machines installed.







## PEOPLE

An expert team of specialists focused on your needs. Working hand in hand, with the diligence and flexibility you require and with the expertise and precision that more than 65 years in the world of EDM give us.

ONAV IS HUMAN CAPACITY.

## TECHNOLOGY

Everything that comes with being pioneers in EDM, more than 65 years of experience and our commitment to developing our own technology, have enabled us to always provide you with the perfect and most profitable solution for your project. Our secret: combining the expertise of our two key departments; applications and R&D&I.

ONAV IS TECHNOLOGICAL CAPACITY.

## PROFITABILITY

Yes, we give you the solution you need, but we strive to also make it the most profitable solution. Your success and long-term profitability is the cornerstone of each one of our proposals; offering you the most reliable solution with the highest profitability.

ONAV OPTIMISES YOUR INVESTMENT.

Profitability

People



Technology

ONA AV

# INSPIRED BY TECHNOLOGY

## HIGH TECHNOLOGY WITH THE GREATEST PRECISION.

The **AV range** wire machines combine cutting-edge technology within the EDM sector with great robustness in their mechanics and design. Their great precision and capacity to obtain excellent surface finishes make these machines the perfect solution. They include an advanced numerical control with an intuitive interface designed to simplify production processes, thus guaranteeing maximum productivity. Their new generator ensures low roughness surface finishes even in the most complicated materials, and guarantee maximum productivity with full traceability.

ONA

The most advanced technology with more intuitive control.

## INNOVATION AND SIMPLICITY WITH THE BEST NUMERICAL CONTROL.

We have taken the final step for optimising EDM work processes, making them simpler and more intuitive. The new machines in the AV wire cutting range have a very powerful numerical control whose main advantage is its easy operation. All users can obtain excellent results thus improving performance and optimising times. Yet another example of innovative development aimed at designing increasingly perfect machines adapted to the demands of the current market.

The new numerical control, designed on the concept of usability, has:



**A touch interface.**



**Intuitive and visually friendly menus.**



**Applications represented by icons.**



**Real-time information, greater control of the process.**

It includes the maximum number of functions with an aim to optimising the production cycles and reducing programming and set-up times. By simplifying each EDM job, we get greater capacity for improvement and enhance the performance of each piece of equipment.



## PERFECT RESULTS. CNC-CAM WITH 3D GRAPHIC ENVIRONMENT.

The AV machines include very simple programming thus reducing possible human error. Their technology was designed for all kind of users, and achieves top quality results without the need of being experts, and necessary work near the machine itself is reduced. With an aim to increasing performance, we have optimised processes and times, thus guaranteeing a perfect result from the start. Technology aimed at achieving maximum automation, with centralised control software and integration with CAD/CAM for the automatic generation of programs.

The new interface displays the workpiece in 3D and allows the operator to rotate and move it according to their requirements with a simple tap on the screen thanks to its tactile technology. This screen also displays the execution in real time of the wire cutting process on the workpiece, and provides information on the location of the wire and the completion time for each piece.



**Maximum automation.**



**Centralised control software.**



**Integration with CAD/CAM for the automatic generation of programs.**

## TASK PLANNING

The optimisation of work times is another of the main functions of the AV machines. The system allows you to view the list of jobs (JOBs list). Each user can order their tasks according to their priority. In addition, they can bring jobs forward, thus ensuring the greatest autonomy possible to each machine.



### GREATER CONTROL, RAPIDITY AND EFFICIENCY. UP TO 8 AXES.

AV wire cutting machines have a very powerful control with up to 8 interpolable axes working simultaneously. They are quicker and more efficient and can self-adjust in order to always obtain the best possible performance with minimum operating costs.

Their high resolution ensures excellent finishes with perfect precision due to the precise control of the positioning of the machine at every moment. Its interface allows a display resolution of up to 0.0001 mm.

### MAXIMUM COMPATIBILITY WITH FUTURE NEEDS.

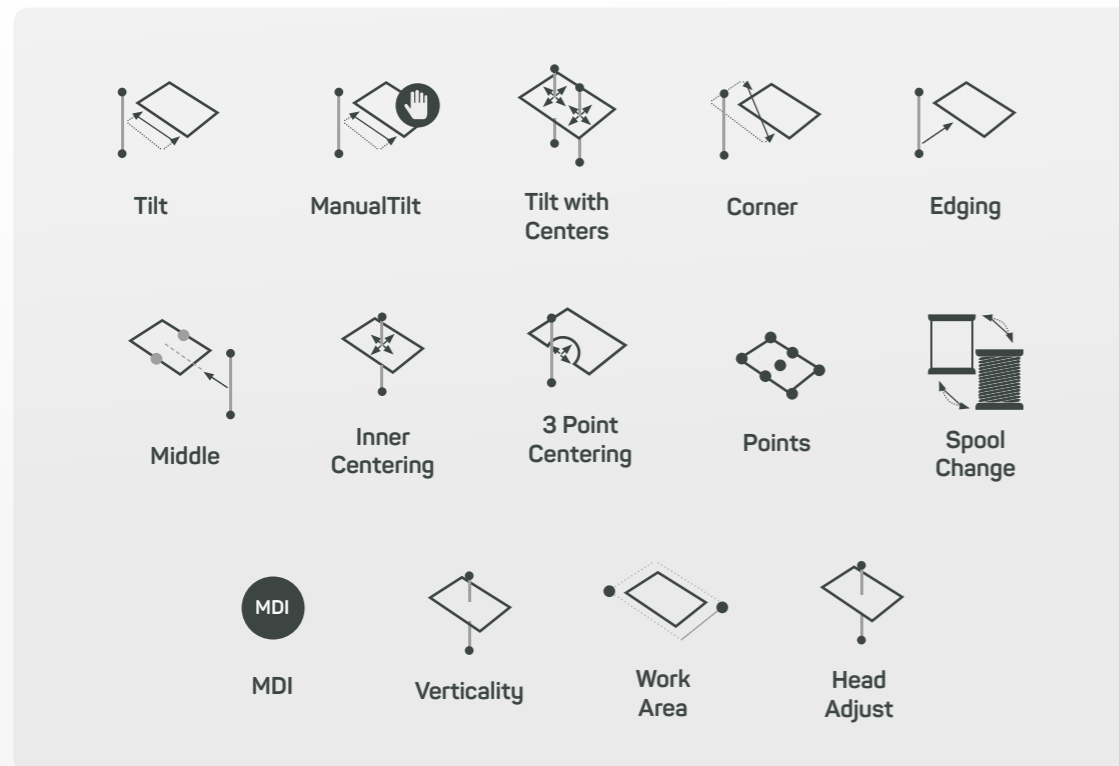
AV machines are designed to adapt to possible future requirements. They include proven and highly reliable architecture which is compatible with the installation of any software responding to future demands relating to measurement, display systems of the erosion process, etc. We are therefore in the position to offer our clients a guarantee for the future with more flexible machines with a great capacity to update.

### DOCUMENT MANIPULATION.

The control includes direct accesses to the different programs in order to easily run them. Everything is digitalised. All the flow of information relating to the machining of workpieces is stored digitally, thus avoiding the loss of data and errors.

### VOLUMETRIC COMPENSATION.

Much more precise than linear compensation, it guarantees maximum precision and delivers excellent quality finishes. Thanks to the measuring of the mechanics of the axes, the program is capable of automatically compensating any deviation.



### ONA SCRIPT PROGRAMMING.

For the very demanding, customised setup cycles can be created, actions conditioned to a series of premises can be carried out, programming with variables is possible and personalised dialog boxes can be generated, etc. In addition, as it includes in-process measurement, thanks to auxiliary elements, it can optimise the workpiece measurement process without the need to remove them from the machine, as it has the autonomy to take decisions depending on the result.



INSPIRED BY TECHNOLOGY

# Digital generator

The AV range machines have a digital generator which optimises speed and precision by up to 50%, thus enhancing their performance.

In addition, precision at the critical points of the workpiece (corners and circles) is increased thanks to new

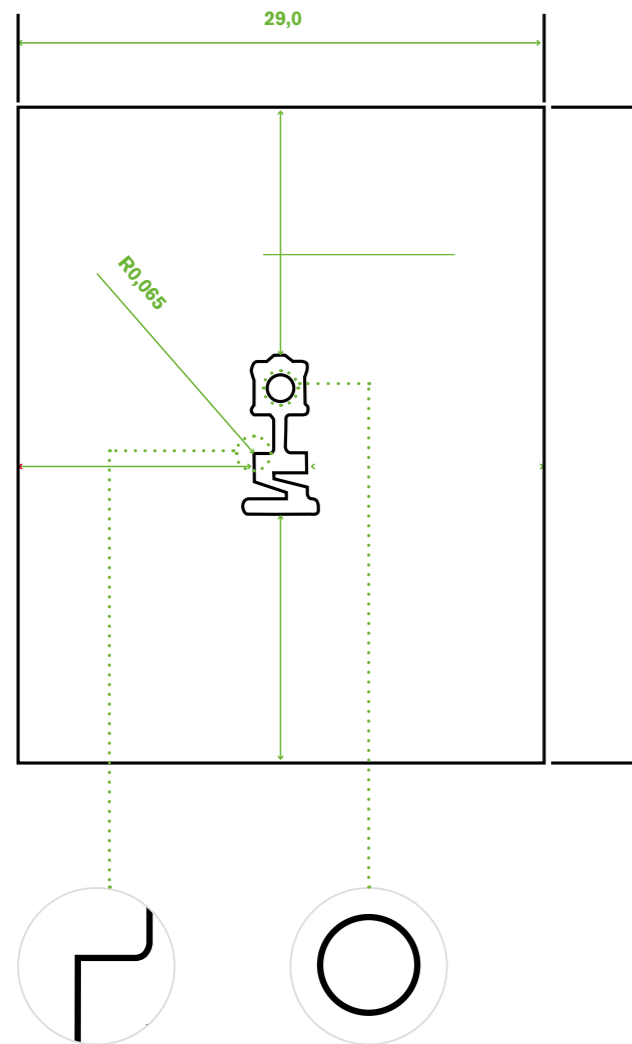
compensation algorithms and to the control of the lateral discharge during reruns. The new generator was designed to maintain precision at these points where change in direction is critical and the optimisation of braking ramps helps prevent losing time on the curves.

## GREAT PRECISION IN THE CUTTING PROFILE.

As it can select the discharges, the new digital generator allows you to select only those with the best quality. The discharges are monitored to obtain statistics in order to evaluate the status of the process. This means that it is an intelligent generator that adjusts automatically.

All the technological improvements in the process implied by the new generator mean you can work with high voltages without breaking the wire, which improves verticality precision. The combination of the new generator with the automatic corrections of the new intelligent CNC prevents errors being made in relation to conicity or the appearance of curvatures in the central part of the workpiece.

The client can create pieces with very complex geometries with great speed and precision thanks to all these improvements which are standard in all ONA's AV range.



## GUARANTEED SURFACE INTEGRITY.

The control of each of the digital generator's discharges ensures the surface integrity of the workpieces even in the strictest conditions. The AV machines deliver perfect finishes without micro-crack, thus preventing the appearance of the recast layer (white layer). The material does not undergo any changes in properties and maintains its original hardness. The new generator significantly reduces brass waste even in roughing conditions.



## LOW SURFACE ROUGHNESS AND PERFECT FINISHES.

The greatest accomplishment of the new generator is undoubtedly its capacity to deliver micro-fine surface roughness of 0.1 µm Ra. We can achieve even better results if the conditions are right and with more complicated materials like steel.

The impeccable result of the finish is ensured by the fact that the table is insulated with ceramic materials and by the addition of a super-finish module. AV machines can guarantee this precision in processes at great speed due to the fewer reruns required.

Our machines can work with all kinds of wires and cut all kinds of materials even those which are particularly complicated to erode, like Inconel, in the aeronautical sector, or tungsten carbide. Moreover, the new technology means that we can work with Moldmax.



SAVINGS OF  
**30%**  
IN TIME

**Savings of up to 30% in time with fewer reruns.**

## \ GREATER SPEED, MAXIMUM PERFORMANCE.

The new generator enables cutting at high speeds and guarantees great efficiency of the machines. Savings of 30% are obtained in production time with excellent precision. In record time, with fewer reruns, finishes of 0.1 Ra are achieved, with a guaranteed reduction in the cost of each piece.

14 2800 <b>Cb</b> CBN	95 98,478 1,3 <b>Cm</b> CMC	04 07,08 1,6 <b>Mo</b> MOLDMAX	98 3,569 1,4 <b>Dp</b> DIAMANTE POLICRISTALINO
	1599 2589 20,3 CMC	3306 5069 2,58 Moldmax	4889 2658 2,73 Polycrystalline diamond
	74 183,85 1,7 <b>Ct</b> CARBURO TUNGSTENO	29 63,54 1,9 <b>Cs</b> MATRIZ CERAMICA (CMC)	03 05,83 1,9 <b>Si</b> SISIC
	3380 9530 19,26 Tungsten carbide	1082 2592 8,96 Ceramic Matrix Composites (CMC)	1982 3417 9,11 SiSiC

INSPIRED BY TECHNOLOGY

# Great robustness in mechanics and design.

## TABLE FOR WORKPIECES OF UP TO 10 TONS.

The AV range enables working with large workpieces of up to 10 tons. The machine's fixed table ensures the automation of the process and the adaptation of each machine to the client's requirements, by helping to enhance the machine's accuracy.

## FAIL-SAFE PRECISION OF POSITIONING.

Linear scales with direct measuring of positioning which guarantees precision throughout the machine's entire useful life. Direct measurement of position using linear scales with a resolution of 0.1  $\mu\text{m}$ . We have designed an error detection process guaranteeing foolproof verification of positioning in real time, thus preventing precision errors. In addition, it removes the need for periodic maintenance and calibration operations.

## HIGHLY RELIABLE ANTI-COLLISION SYSTEM.

The machine has a quicker, more reliable anti-collision system, with the capacity to detect collision forces of just 0.8 kg (8 N), thus guaranteeing the perfect condition of the machine and preventing damage caused by human error. The machine always stops just in time, and prevents the workpiece from being damaged.

## SELF-CLEANING SEALING SYSTEM.

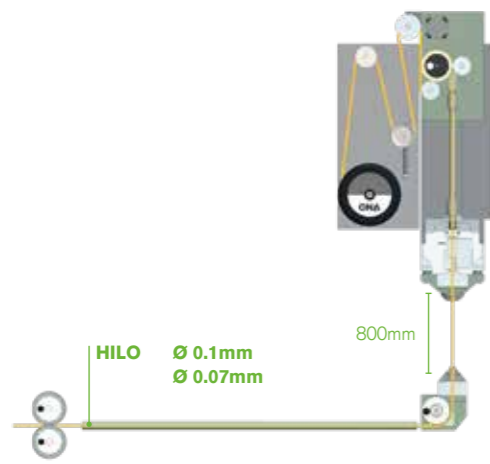
The machines have a sealing system ensuring the proper functioning of the machine while preventing leaks. This system includes a self-cleaning system which ensures continuous operation, without downtime, thus maximising performance.



### THREADING WITH ALL KINDS OF WIRE.

The AV machines include a threader that is leader in the market due to its simple design and its minimum number of mobile parts. Its simplicity implies savings in replacement parts and helps in its maintenance. Yet another step towards increasing profitability and reducing costs while guaranteeing its reliability even with soft and coated wires.

We have improved the movement of the wire, without stress or vibrations, to make it uniform so as to reduce wire breakage. It allows threading in groove and submerged.



### GREAT AUTOMATION WITH COLLAPSIBLE DOOR.

The new Smart Design with collapsible door enhances automation and increases the machine's autonomy. Access to the table is quick and easy, and was designed to raise performance and help in positioning the workpiece.

### 3D SET-UP.

The alignment of the machine's axes with respect to those of the workpiece makes it easier to work on pieces in any direction and angle. The machine itself is in charge of setting the coordinates with respect to the workpiece, thus saving the user from having to do so manually, and optimising their work time.

\ 3D Set-up.

Angles of up to 45°.

MULTIPLE SOLUTIONS FOR DIFFERENT IDEAS

# Unprecedented flexibility.

The versatile, modular design of our large machines allows more than **40 different combinations**. Each client can configure their own equipment depending on their needs and can work on workpieces of up to **10,000kg**.



Y Axis (mm)  
400, 600, 800  
1000 o 1300

X Axis (mm)  
600, 800, 1000, 1500 o 2000

Z Axis (mm)  
500, 600, 700 o 800



MULTIPLE SOLUTIONS FOR DIFFERENT IDEAS

# Customized projects for each client.

We analyse what the client needs and offer the perfect machine for them.

At ONA, we always adapt to the specific requirements of each client. We offer all kinds of solutions; from highly flexible, versatile machines for various types of applications to machines designed especially in accordance with a client's needs with an aim to optimising their work process so as to improve their business's profitability. These machines can be designed to work with large workpieces.

They are incredibly flexible and there are no limits to their adaptation to the client's specifications. We offer the possibility to increase the automation of processes, including any accessory whatsoever from third parties, like rotary tables, sensors, display systems, etc.

## MORE AUTONOMOUS AND EFFICIENT MACHINES.

Maximum number of hours without downtime thanks to process automation.

At ONA, we offer an integral automation service to each client to improve their work processes, with the possibility of integrating machines in flexible manufacturing cells. We work together with each client throughout the entire process, and carry out customised monitoring of the working of each machine and adapt to what each user requests. We are flexible and analyse the type of workpiece of each client and study how to manufacture it in the most efficient way possible.

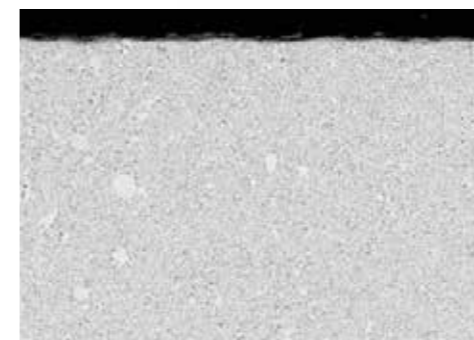
Our aim is to achieve maximum profitability by offering equipment with great autonomy. The 45-kg spool and

mineral filter guarantee a significant reduction in manual tasks, and ensure that the machines work unattended for long periods of time, thus reducing human error. In addition, the machine's design facilitates access to the work area by robots, thanks to its collapsible door.

At ONA, we continue to advance towards monitoring and greater control of erosion with new services included in ONA Smart Connect, such as traceability.

## EASY INTEGRATION OF TABLES AND ROTARY AXES.

Its robust mechanics and great control means it can work with up to 8 interpolable axes simultaneously, and can run applications requiring all kinds of rotary tables.



60µm



ECO DESIGN

# Resource optimisation to raise productivity.

One of our objectives is to optimise resources while looking after the environment. The whole range of AV machines was conceived from the point of view of industrial **Eco Design** with the clear goal to improve their performance by designing more efficient and user-friendly machines. Our Innovation and Development team has done research for many years on new, cleaner production processes which respect people and their natural environment. We include two concepts under the term **ECO: Economics and Ecology**; offering the most profitable and environment-friendly solutions in the EDM field.



## OPTIONAL ECO FILTER SYSTEM.

There is nothing but advantages when using the environment-friendly filter with hardly any maintenance costs.

- 100% environment-friendly: without any waste, apart from that from the erosion process itself.
- Lower maintenance costs.
- Suitable for all kinds of materials.
- Filtration quality of 3µm.
- Maximum productivity.



## SMART DESIGN: MORE COMPACT AND ERGONOMIC.

Compact design. We focus on a compact design which helps reduce the carbon footprint from transport and packaging materials by 30%.

Ergonomic design: A more ergonomic and functional design thanks to the new head. The opening system has been renewed, making it more convenient and improving access for tasks like the handling of the wire, thus saving on maintenance time and user time.



## LONG-LASTING RELIABLE MACHINES.

The new generation of ONA AV machines maintains the traditional robustness and reliability that has always characterized ONA machines. Their robust design and the top quality of their manufacture guarantees a useful life of the machine of over 30 years. The quality of their assembly and materials make them "machines to last".



## MAXIMUM PROFITABILITY. THE LOWEST OPERATING COST IN THE MARKET.

The AV range is the machine with the lowest operating cost on the market, guaranteeing unbeatable performance.

- A more efficient, low-energy generator. It allows for higher productivity and great energy savings with a reduction in losses from cable length. Its maximum electricity consumption is less than 7kva at full capacity.
- Optimum consumption adaptation of pumps. Designed to consume only the required energy at all times.
- Reduction in outlay on consumables. Low-energy wire technology.



# Technical Specifications



ON A AV35NEXT

**SPECIFICATIONS**

MACHINE	inches	mm
X axis travel	23.62"	600
Y axis travel	15.74"	400
Z axis travel	15.74"	400
U-V travel	4.72" x 4.72"	120 x 120
Maximum dimensions of the workpiece	41.73 x 29.52 x 15.74"	1060 x 750 x 400
Maximum weight of the workpiece	3306.93 lb	1500 kg
Maximum speed of the axes	78.74"/min	2000mm/min
Maximum cutting cone angle	30°/3.43"	30°/87
	27°/3.93"	27°/100
	±45°/1.57"	±45°/40
Wire diameter*	0.002"-0.012"	0.07-0.33
Wire guide	High-precision enclosed diamond	
Automatic wire threader	Standard	
Wire cutter	Optional	
Cutting technology	By immersion	

Due to its continuous review of technology and design, ONA ELECTROEROSIÓN reserves the right to modify the specifications of this catalogue without prior notice.

**SPECIFICATIONS**

ON A AV35NEXT

CNC	
Display	22" TFT colour touch
Min. programmable and controllable increase	0.0001 mm/0.001°
Memory capacity	8Gb RAM
Remote control	Standard

**GENERATOR**

Maximum cutting speed	450 - wire Ø 0.33 (XCC) mm <sup>2</sup> /min
Minimum final surface roughness	0,1 Ra

**FILTRATION UNIT**

Filtration Unit	2 cartridges / ONA Eco Filter
Dielectric capacity	1200 l

**GENERAL CHARACTERISTICS**

Units

Total weight	kg	4000
Maximum height	mm	2560
Floor surface area	mm	2740 x 3350

**OPTIONS**

Automatic mineral filter (no replaceable cartridges).

CAD CAM programming system. Rotary B axis.

Wire guides\*: 0.07 0.1

Optional wire: 0.07

Automatic ONApure/E.KO IONISER© machine for deionising water by Easymetal Prozesstechnik GmbH.

# Technical Specifications

mm



SPECIFICATIONS	ONA AV60	ONA AV80	ONA AV100	ONA AV130
<b>MÁQUINA</b>				
X travel	800mm	1000mm	1500mm	2.000mm
Y travel	600mm	600/800/1000mm	1000/1300mm	1000/1300mm
Z travel	500/600/700mm	500/600/700	600/700mm	600/700/800mm
U-V travel	500 x 500mm	500 x 500mm	500 x 500mm	500 x 500mm
Maximum dimensions of the workpiece	1300 x1040 x 500 (*)	1500 x1040 x 500 (*)	1950 x1600 x 600 (*)	2450 x1600 x 600 (*)
Maximum weight of the workpiece	10000kg	10000kg	10000kg	10000kg
Maximum speed of the axes	2000 mm/min	2000 mm/min	2000 mm/min	2000 mm/min
Maximum cutting cone angle	±30°/400mm	±30°/400mm	±30°/400mm	±30°/400mm
Wire diameter	0.20 - 0.33mm	0.20 - 0.33mm	0.20 - 0.33mm	0.20 - 0.33mm
Wire guide	High-precision enclosed diamond			
Automatic wire threader	Standard			
Wire cutter	Optional			
Cutting technology	By immersion			

(\*) Request the different configurations available. The data specified correspond to the configuration of the smallest machine in each of the models.

SPECIFICATIONS	ONA AV60	ONA AV80	ONA AV100	ONA AV130
<b>CNC</b>				
Monitor	22" TFT colour touch			
Min programmable and controllable increase	0.0001 mm/0.001°			
Memory capacity	8Gb RAM			
Keyboard	Flat, anti-dirt			
Remote control	Standard			
<b>GENERATOR</b>				
Maximum cutting speed	450 - wire Ø 0.33 (XCC) mm <sup>2</sup> /min	360 - wire Ø 0.33 (XCC) mm <sup>2</sup> /min		
<b>FILTRATION UNIT</b>				
Filtration Unit	2 cartridges / ONA Eco Filter			
Dielectric capacity	1610 l (*)	1980 l (*)	3500 l (*)	4500 l (*)
<b>GENERAL CHARACTERISTICS</b>				
Total weight	7500 kg	9000 kg	15500 kg	21000 kg
Maximum height	2920 mm	2920 mm	3100 mm	3280 mm
Floor surface area	3625 x 3345mm	4140 x 3345mm	5490 x 4330mm	6200 x 4330mm

**OPTIONS**

Automatic mineral filter (no replaceable cartridges). Working tank door with window.  
 CAD CAM programming system. Rotary B axis.  
 Wire guides: 0.20, 0.30, 0.33.  
 Automatic ONApure/E.KO IONISER© machine for deionising water by Easymetal Prozesstechnik GmbH.



# Technical Specifications

inches



SPECIFICATIONS	ON A AV60	ON A AV80	ON A AV100	ON A AV130
<b>MÁQUINA</b>				
X travel	31.49"	39.37"	59.05"	78.74"
Y travel	23.62"	23.62"/31.49"	39.37"/51.18"	39.37"/51.18"
Z travel	19.68"/23.62"/27.55"	19.68"/23.62"/27.55"	23.62"/27.55"	23.62"/27.55"
U-V travel	19.68" x 19.68"	19.68" x 19.68"	19.68" x 19.68"	19.68" x 19.68"
Maximum dimensions of the workpiece	51.18" x 40.94" x 19.68"(*)	59.05" x 40.94" x 9.68"(*)	76.77" x 62.99" x 23.62"(*)	96.45" x 62.99" x 23.62"(*)
Maximum weight of the workpiece	11023.1 lb	11023.1 lb	11023.1 lb	11023.1 lb
Maximum speed of the axes	78.74"/ min	78.74"/ min	78.74"/ min	78.74"/ min
Maximum cutting cone angle	±30°/15.74"	±30°/15.74"	±30°/15.74"	±30°/15.74"
Wire diameter	0.007"-0.012"	0.007"-0.011"	0.007"-0.011"	0.007"-0.011"
Wire guide	High-precision enclosed diamond			
Automatic wire threader	Standard			
Wire cutter	Optional			
Cutting technology	By immersion			

(\*) Request the different configurations available. The data specified correspond to the configuration of the smallest machine in each of the models.

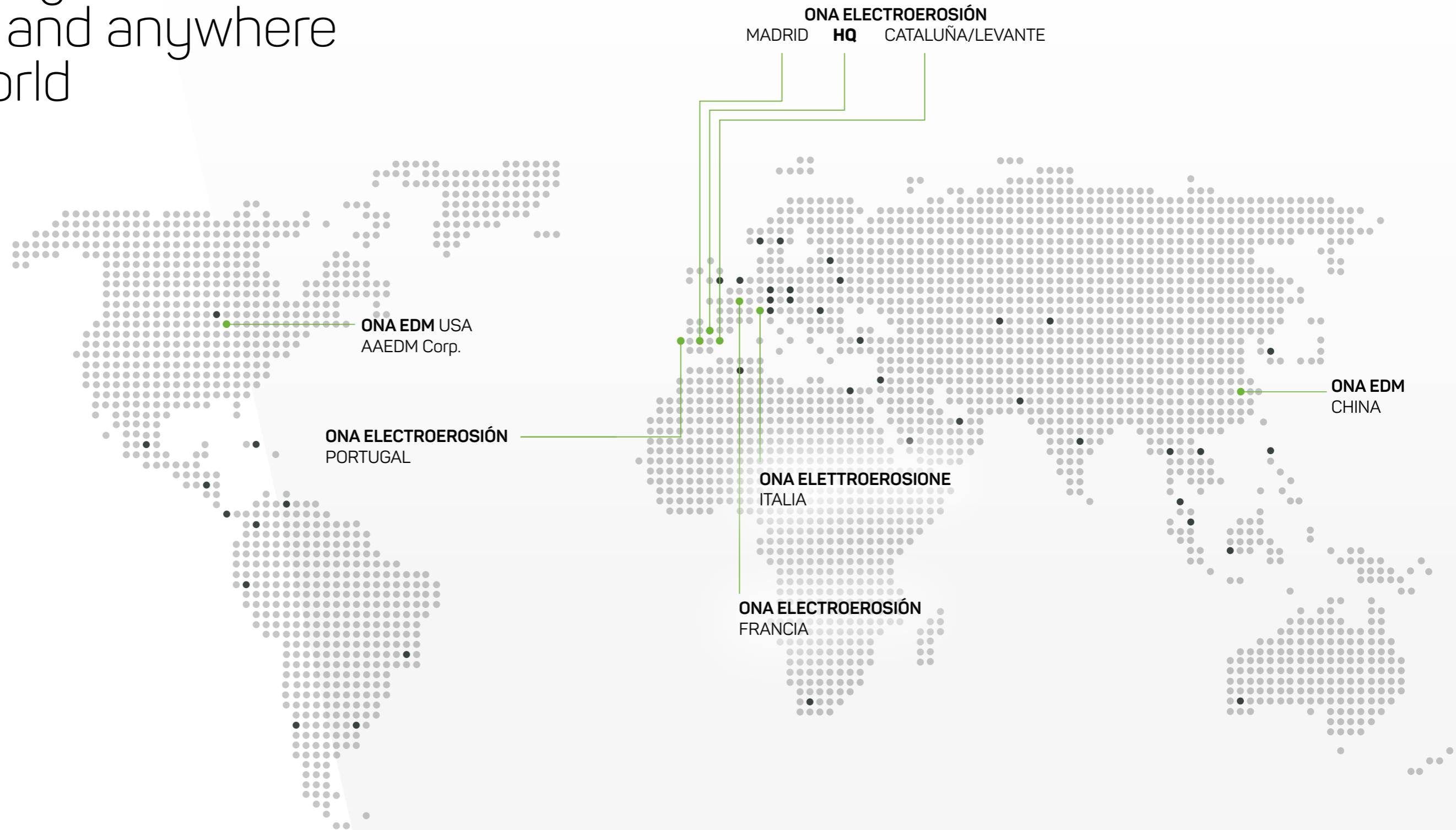
SPECIFICATIONS	ON A AV60	ON A AV80	ON A AV100	ON A AV130
<b>CNC</b>				
Monitor	21" TFT colour touch			
Min programmable and controllable increase	0.000004"/0.001°			
Memory capacity	8Gb RAM			
Keyboard	Flat, anti-dirt			
Remote control	Standard			
<b>GENERATOR</b>				
Maximum cutting speed	450 - wire Ø 0.0005 (XCC) "2/min		360 - wire Ø 0.0005 ( (XCC)"2/min	
<b>FILTRATION UNIT</b>				
Filtration Unit	2 cartridges / ONA Eco Filter			
Dielectric capacity	1610 l (*)	1980 l (*)	3500 l (*)	4500 l (*)
<b>GENERAL CHARACTERISTICS</b>				
Total weight	16534,65 lb	19841.58 lb	34171.61 lb	46297.02 lb
Maximum height	114,96"	114.96"	122.04"	129.13"
Floor surface area	142,71" x 131,69"	142,71" x 131,69"	216.14" x 170.47"	244.09" x 170.47"

**OPTIONS**

Automatic mineral filter (no replaceable cartridges). Working tank door with window.  
 CAD CAM programming system. Rotary B axis.  
 Wire guides: 0.20, 0.30, 0.33.  
 Automatic ONApure/E.KO IONISER© machine for deionising water by Easymetal Prozesstechnik GmbH.



We are at your service  
anytime and anywhere  
in the world







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