

ABRASIVE WATER JET CUTTING CENTRE

WJA II

> Versatile
> Robust
> High-end

FRANCE
DESIGN & MANUFACTURE

CE Our products conform to applicable standards

Find full information on our website

WJA

ABRASIVE WATER JET CUTTING CENTRE

Model shown
WJA II 10.20 2TI 3X 5X AW



STANDARD CHARACTERISTICS

- > Max displacement speed 30 000 mm/min
- > Repeatability +/- 0,02 mm
- > Absolute precision +/- 0,03 mm
- > 304L stainless steel tank

“LDSA’S MOST ADVANCED WATER JET CUTTING MACHINE TO DATE...”

EN 9100 BUREAU VERITAS Certification

ISO 9001 BUREAU VERITAS Certification

FANUC

CUTTING-EDGE TECHNOLOGY

VERSATILE, ROBUST AND UPGRADEABLE

LDSA, the French leader, designer and manufacturer of water jet cutting centres, presents its most advanced model, the WJA II with 3, 4 or 5 simultaneous axes as standard, and up to 14 simultaneous axes as an option.

This machine represents the core of the LDSA range, showcasing all our experience and expertise. It has options and adjustment to suit all your projects, and is designed to evolve over time! Available in all sizes on request.

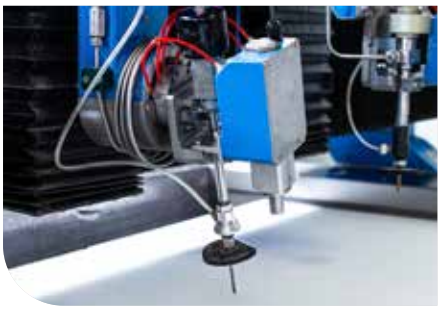
The machine is controlled by one or two latest generation **CNC** units from **FANUC (world No.1)**, offering ease of use coupled with unrivalled **reliability and precision**. The very high pressure water supply (4000 Bar – 6200 Bar) is provided by a pump manufactured by **BFT** (European No.1), **KMT** (world No.1) or **HPYERTHERM** (USA).

The HMI (human machine interface) is fully **developed and programmed in house**, making it fully adaptable and customisable. The machine operates under **Windows 11 IoT Entreprise LTSC**, allowing for easy, secure integration into your IT network.

A range of sensors enable the system to be controlled and managed remotely. That digital compatibility means that remote assistance can be provided easily, quickly and efficiently.

The machine, which is highly compact, uses only the highest quality mechanical and electrical components, to ensure the greatest possible reliable.

CONFIGURATION BENEFITS



AVAILABLE IN 3, 4 OR 5 SIMULTANEOUS AXES, AND UP TO OPTION



MACHINE FULLY CONFIGURABLE AND UPGRADEABLE



STANDARD EQUIPMENT :
Height/evenness touch probe,
Managed abrasive doser



INTUITIVE HMI - MOVABLE TOUCHSCREEN CONTROL CONSOLE 15" AS STANDARD (21" AS OPTION)



STRUCTURAL RIGIDITY > HIGH PRECISION HEAD ADJUSTMENT AND POSITIONNIG



EASY IMPLEMENTATION ON SITE

CONFIGURATION FULLY UPGRADEABLE AND ADAPTABLE TO YOUR PROJECTS

For optimal integration into your production flow.

LDSA ADDED BENEFITS

FANUC CNC

COMPLETE MACHINE
turnkey

LOCAL AFTER-SALES

TRAINING
free and unlimited

ALL SECTORS

/ AERONAUTICAL / AEROSPACE / INDUSTRY / AUTOMOTIVE / NAVAL / NUCLEAR / SHEET METAL & METALLURGY / MARBLE MASONRY / TEACHING...

ALL MATERIALS

600 mm and over
soft materials
glass wool, rubber, fabrics, cardboard, polypropylene...

500 mm
hard materials
stone, ceramics, aluminium, brass, plastic, carbon...

200 mm
very hard materials
steel, titanium, stainless, Inconel, Creusabro...

VIEW THE FULL specifications of this machine on our website

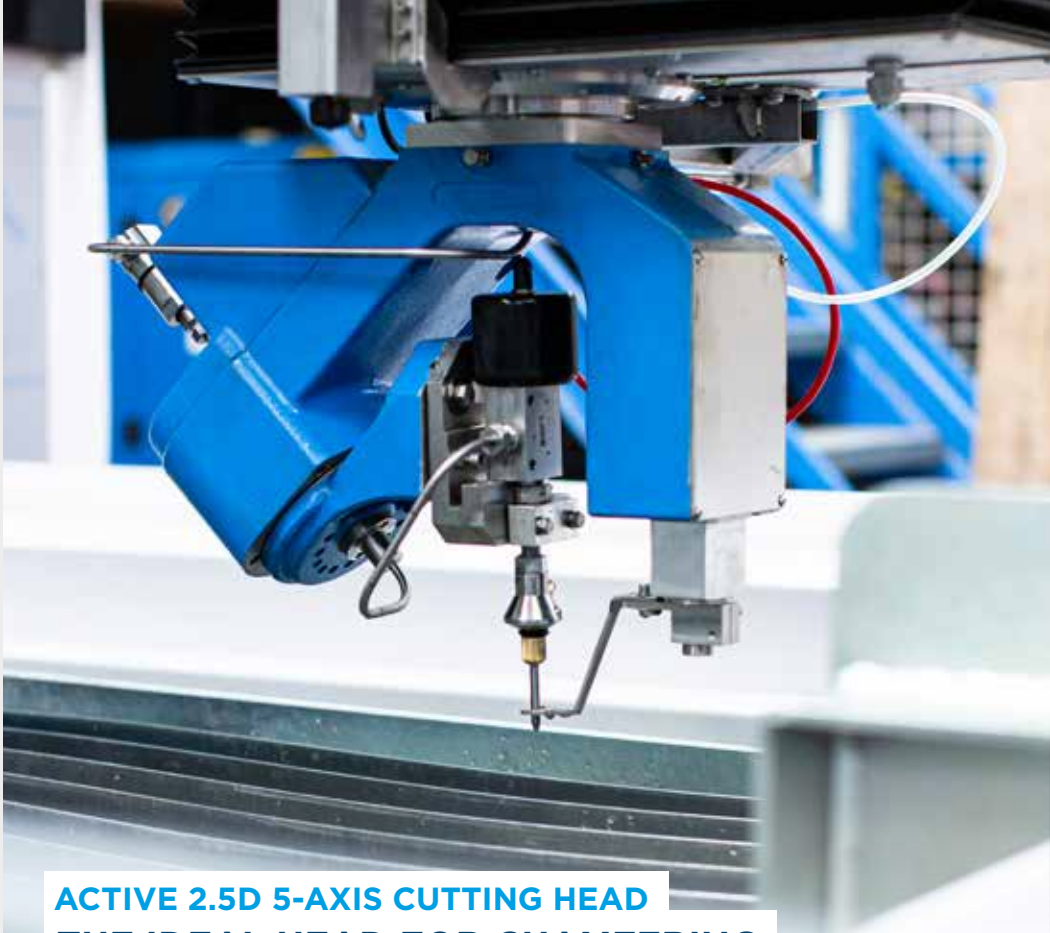
> 5-AXIS CUTTING HEAD

The main characteristic of the LDSA 3D or ACTIVE 2.5D 5-axis heads is the addition of two rotary cutting head movements to the 3 traditional Cartesian axes.
The System always uses the touch probe.

USEFUL Z STROKE IS INCREASED TO 350 MM, FOR IMPROVED ERGONOMICS.

This way, the jet can cut in all directions, the A axis being electronically limited to 45° for safety reasons (+/- 60° possible). This guarantees significant precision and also allows the use of the 2D system with the same performance and same costs as a traditional 3-axis machine.

Finally, our 5-axis head allows automatic taper correction, for cutting with geometrically perfect results.



ACTIVE 2.5D 5-AXIS CUTTING HEAD
THE IDEAL HEAD FOR CHAMFERING OF YOUR FLAT MATERIALS

ADVANTAGES

> **Unique concept** of the 5-axis head, allowing **high precision 2.5D** cutting, while retaining the precision of a 2D system along with all its capabilities
> **High precision in head adjustment and positioning**
> 5 **digitised and simultaneous** axes : X, Y, Z, A, C (A and C serve head rotation and inclination)
> Height/flatness touch probe as Standard, for use in 2D and 2.5D cutting
> **Simplified programming**
> **Ease** of implementation and use
> CNC, Motors, Encoders **by FANUC**.

TECHNICAL CAPABILITY

> Z = 200 mm in 2.5D cutting
> Z = 350 mm in 2D cutting
> A = -45°/+45° (-60°/+60° possible)
> C = -370°/+370°

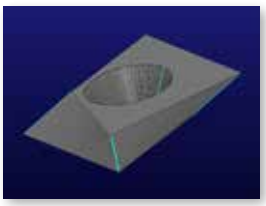
TYPICAL APPLICATIONS

> Chamfered edge cutting
> Internal and/or external chamfers
> Chamfers with heel
> Chamfered diameters
> Taper and cutting delay correction.

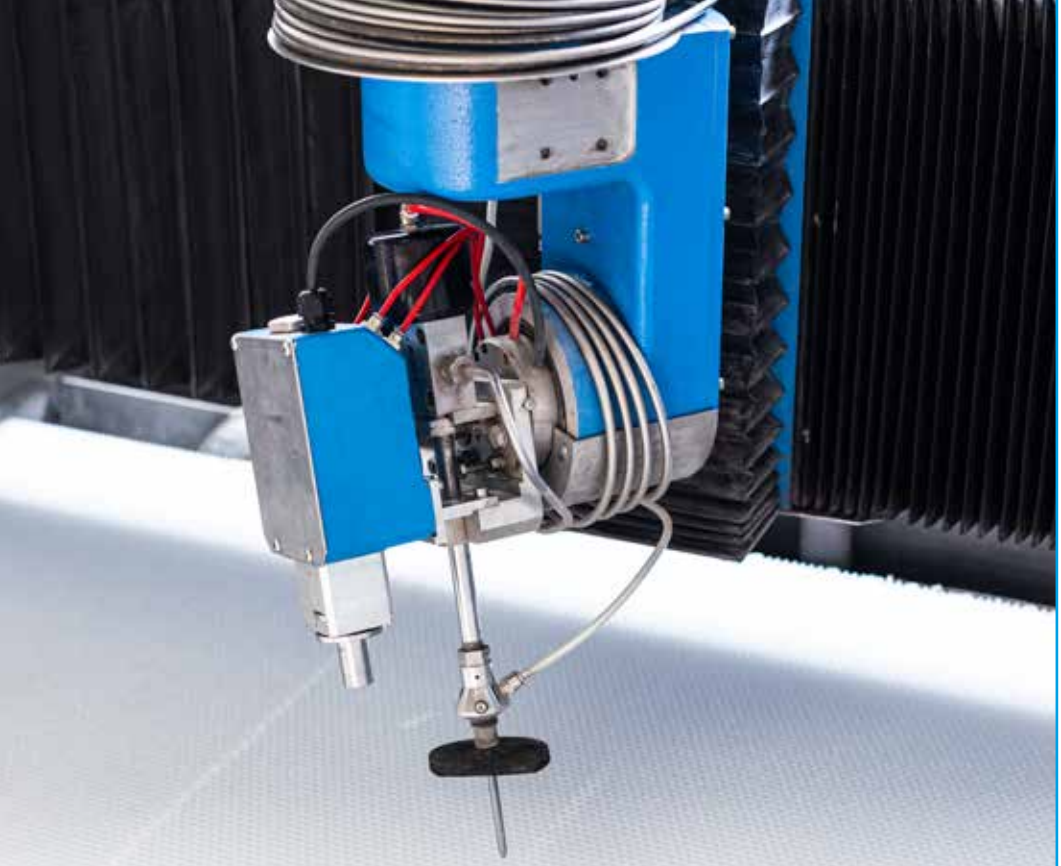




Flat impeller



Variable chamfer



3D 5-AXIS CUTTING HEAD
FOR COMPLEX 3-DIMENSIONAL CUTTING IN 5 AXES

ADVANTAGES

> **Unique 5-axis head concept** allowing high precision 2.5D cutting, while retaining the precision of a 2D system along with all its capabilities

> **High precision in head** adjustment and positioning

> 5 **digitised and simultaneous** axes: X, Y, Z, A, C (A and C serve head rotation and inclination)

> Height/Flatness touch probe as Standard, usable in 2D cutting only

> **Simplified programming**

> **Ease** of implementation and use

> CNC, Motors, Encoders **by FANUC**.

TECHNICAL CAPABILITY

> Z = 350 mm in 3D cutting

> Z = 350 mm in 2D cutting

> A = -45°/+45° (-90°/+90° possible)

> C = -190°/+370°

TYPICAL APPLICATIONS

> Cutting of complex contours in 3 Dimensions

> 3D trimming

> Tube cutting

> Chamfered edge cutting

> Internal and/or external chamfers

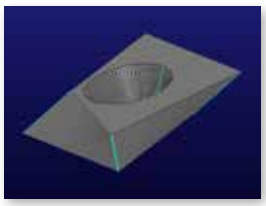
> Chamfers with heel

> Chamfered diameters

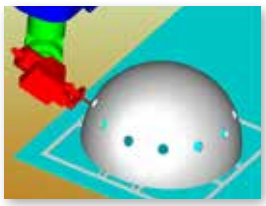
> Taper and cutting delay correction



3D trimming



Variable chamfer

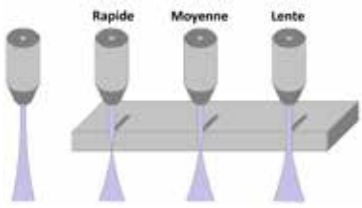


3D cut out

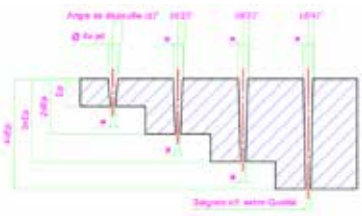
FOCUS

TAPER CORRECTION

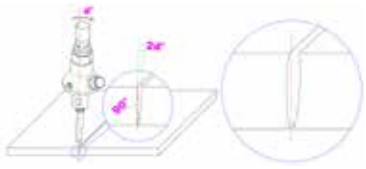
Taper refers to a difference in kerf size between the top and bottom of the material being cut. A water jet has a natural tendency to diverge in air. However, it will become focused within the material, especially when the cutting speed is increased.



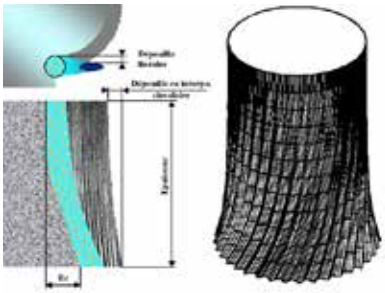
The taper is always identical for the same quality of cutting, and as a result the taper angle reduces if the thickness increases.



To restrict this problem, the tool can be inclined so as to limit the taper on the part side, doubling it on the waste side. That inclination allows the upper edge to be aligned with the lower edge, but cannot eliminate the warping effect on the surface, which is a characteristic of fluid cutting technologies.



The same will be true for circular interpolation: a movement during which the effects of the taper and delayed cutting will combine. This compensation will therefore have no practical effect on improving cylindricality.



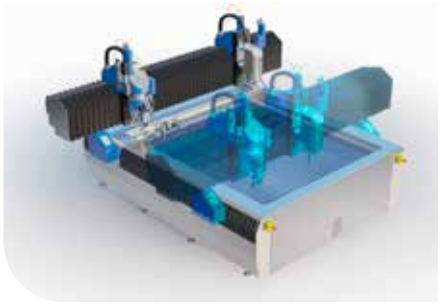
UPGRADEABILITY
GUARANTEED

The core of the LDSA range, our new WJA II model embodies our complete expertise, the fruit of 30 years' experience in this Technology :

PERFORMANCE, PRECISION, RELIABILITY, EXTREME VERSATILITY !

It can accommodate our full range of options and accessories :

> Pneumatic Drilling Unit (Ideal for composites)
> Increased Z axis stroke
> Encoding rule (Increased precision)
> 2T abrasive storage hopper (For increased autonomy)
> Reinforced work surface and tank (Heavy load)
> Automated loading/unloading table
> Collision detector
> Remote control crank
> Softener
> Osmosis system
> Waste water filtration
> Safety enclosure, Safety guards
> Cutting/handling robot
> ...



MULTI-BRIDGE
Combine productivity with flexibility.



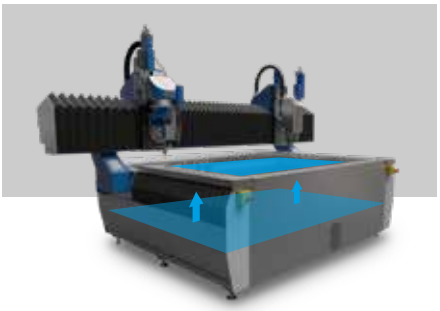
MULTI-HEAD (UP TO 4 HEADS)
Increase your productivity.



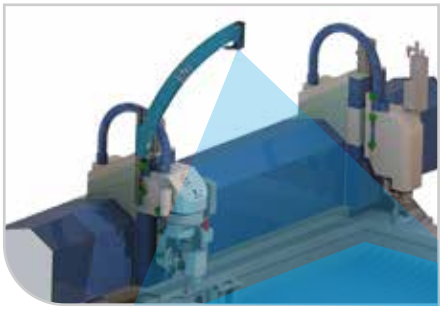
4TH ROTATIONAL AXIS
Cut in 360°



BI-ZONE OR ADAPTIVE ZONE WORK SURFACE
Load and unload in the background to increase your productivity. Save on workshop space.



SUBMERGED CUTTING
Cut silently with our CNC controlled system, for automatic BALLAST type water level adjustment.



LDSA VISION +
True up your metal sheets with just a few clicks using our camera-assisted system.



APPS

my LDSA

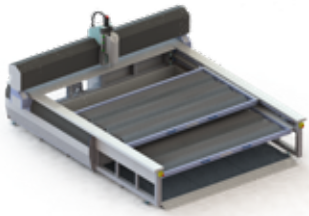
Discover our app and maintain control over your machine remotely.



SPECIAL
APPLICATIONS

We can create or adapt our solutions to meet your needs.

▼ **Automated loading/ unloading table**



▼ **Automatic evacuation and grabbing of parts**



▼ **Intelligent and submerged part positioning**







Our technical teams will put their entire expertise at your disposal to bring your most demanding plans to successful fruition.

PERFECT INTEGRATION INTO

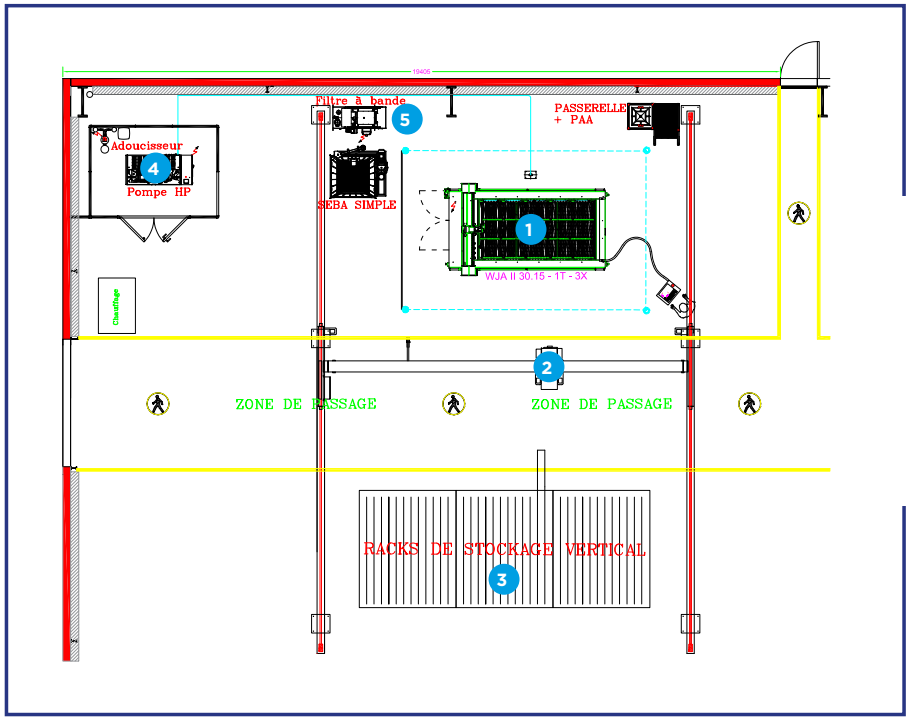
ITS ENVIRONMENT

The technical developments we have brought to our machines over the past 30 years mean we can now offer you our latest generation model.

Our design office is there to advise you, to support you in studying your specifications, to adapt our machine to your various needs and constraints, considering the space available, the environment, the process and so on...

POSSIBLE OPTIONS

> Automated Loading/ Unloading of your parts
> Integration into a production line
> Cutting robot cell
> Integral safety barriers (Increased productivity)
> Integration into its environment
> Made-to-measure safety enclosure
> Soundproof and/or air conditioned enclosure
> ...



TURNKEY DELIVERY OF A COMPLETE CUTTING WORKSHOP

1 - cutting machine
2 - handling resource
3 - material storage
4 - water treatment and HP pump
5 - effluent management

COMPARE

OUR PRODUCTS

	WJA II	LCJET III	FBJETIII	ECJET III
Useful stroke (X x Y x Z) mm	**Min** 1000 x 1000 x 200 **Max** 6000 x 18000 x 200	**Min** 1200 x 1100 x 200 **Max** 1100 x 1200 x 200	**Min** 1700 x 3300 x 200 **Max** 2000 x 4000 x 200	**Min** 1000 x 1000 x 150 **Max** 2000 x 3000 x 150
Overall dimensions (X x Y) mm	**Min** 2000 x 2000 **Max** 7100 x 19100	**Min** 2270 x 2680 **Max** 2270 x 2680	**Min** 4140 x 5700 **Max** 4350 x 6300	**Min** 2000 x 2000 **Max** 3000 x 4000
3D 5-axis head (Z = 350 mm)	Yes (option)	Yes (option)	No	No
ACTIVE 5-axis head 2.5D (Z = 200 mm)	Yes (option)	Yes (option)	Yes	No
Z displacement =500 OR 750mm	Yes (option)	Yes (option)	No	No
Max no. heads/bridges (On separate carriage)	4	2	1	2
Max no. bridges	4	1	2	1
Height/Flatness touch probe	Yes	Yes	Yes	Yes (option)
Abrasive doser managed by CNC with sensors	Yes	Yes	Yes	Yes (option)
Touch screen (control console)	Yes	Yes	Yes	No
Max possible pressure (Bar)	6200	6200	6200	4150
Movement speed Max. (m/min)	50	50	40	30
Positioning precision (+/- mm)	0.03	0.03	0.03	0.05
Repeatability (+/- mm)	0.02	0.02	0.02	0.05
Standard load accepted by table (kg/m²)	1000	1000	1000	1000
Load accepted by Table 2T/m² or 3T/m² option	Yes (option)	No	Yes (option)	No
Nozzle diam. (mm)	**Min** 0.08 **Max** 0.4	**Min** 0.08 **Max** 0.4	**Min** 0.08 **Max** 0.4	**Min** 0.08 **Max** 0.4
AUTOMATIC water level adjustment INTEGRATED into machine tank (Ballast)	Yes (option)	Yes (option)	Yes	No
MANUAL water level adjustment from OUTSIDE machine tank (external tank - Retrofit possible)	Yes (option)	Yes (option)	No	Yes (option)

In addition to this document,
also see the following documents :
> Pumps > SEBA > Abrasive
Visit our website

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