

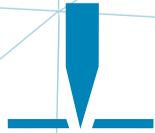
# COMPOSITE FABRICS CUTTING MACHINES

**SM-381-TA** ↓ 

**SM-805-WJ** ↓ 



# PRODUCTION CYCLE



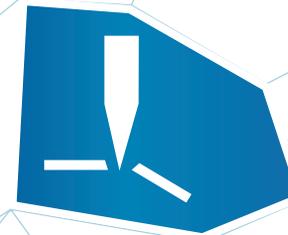
## **FABRIC CUTTING WITH THE SM-381-TA**

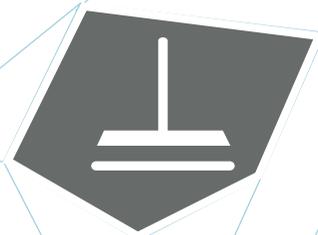
With its oscillating blade technology the SM-381-TA easily cuts a wide range of fabrics both prepreg and dry. Thanks to its automatic nesting software it optimizes the position of the shapes to cut on the work surface.



## **PRODUCT FINISHING WITH THE WATERJET SM-805-WJ**

Thanks to its waterjet with the diameter of a fraction of a millimeter and to its interpolate 5 axis cutting head, the SM-805-WJ finishes the product by cutting holes and the exceeding material off the edges. The product is now ready for the final production phases.





### **POSITIONING OF THE PIECES OF FABRIC ON THE MOLD**

After they have been cut the pieces of fabric are positioned on the mold, ready for the solidification process.



### **SOLIDIFICATION PROCESS**

The fabric generally undergoes an autoclave solidification process. The semi-finished product that is obtained with this process has the shape of the final product.

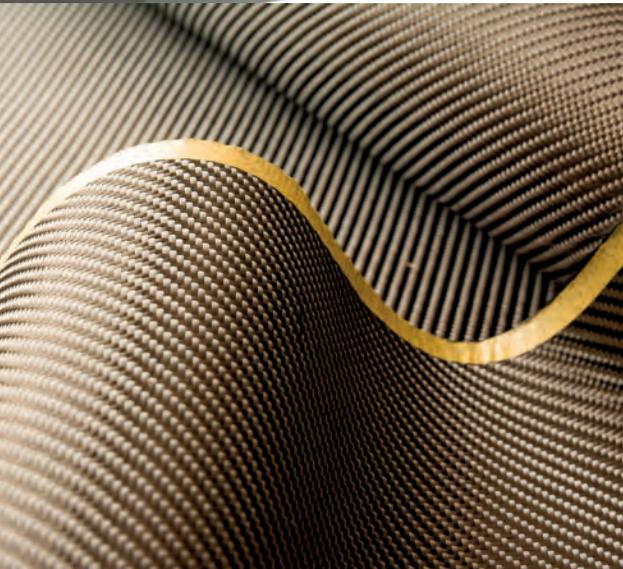


# APPLICATIONS

The **SM-381-TA** allows operators in a wide range of industries to cut and mark with uncompromising quality and creates highly professional products. A high performance industrial work station with a reduced footprint and an entry level price, the SM-381-TA can process a wide array of fabrics, both single fiber and hybrid, composed of carbon, glass, Kevlar or aramids in general, either unidirectional or multiaxial.

The **SM-805-WJ** pure water waterjet cutting plotter, is an all-round cutting solution suitable for numerous applications and an infinite range of materials. With its powerful waterjet of just a fraction of a millimeter, the SM-805-WJ allows to cut all composite fabrics after they have undergone the solidification process. Waterjet is a cold cut technology so it does not alter the structural features of the cut material either mechanically or aesthetically.





made with  
**SM-381-TA**  
**SM-805-WJ**

**HIGH SPEED**  
HIGH PRECISION CUTTING



DESIGNED FOR THE  
**COMPOSITES INDUSTRY**



**FLEXIBILITY**  
OF USE



**OUTSTANDING VALUE**  
FOR MONEY



# SM-381-TA

Multiple tool digital cutting plotter



40  
m/min

TOP SPEED

5  
m/s<sup>2</sup>

ACCELERATION

The SM-381-TA is a high performance machine designed specifically for cutting both dry and prepreg composite fabrics. Sturdy and with a reduced footprint, thanks to its aluminum compact mono-block structure, it allows fast and precise cuts. The SM-381-TA is the ideal solution for the production of prototypes, small lots and also for the mass production.

Its very competitive price, its low maintenance costs, and the extremely high quality cuts it grants, make the SM-381-TA the best value for money solution currently available on the market.

The SM-381-TA is equipped with 5 brushless servomotors and a belt transmission system which assure high performances and extreme precision in the axis movements.

The worktop, made from a solid milled aluminum plate, grants a perfect planarity. The grooves of the worktop, traced with a specific design, together with a powerful 5,5 kW vacuum turbine and the worktop 4 sector partitioning system, grant a perfect grip of the material on the cutting surface.

The SM-381-TA is available both in a version with a static worktop and sacrificial carpet, as well as in a version equipped with an extremely robust conveyor belt that allows the automatic unloading of the material after it's been processed.

# SM-381 - TA

Multiple tool digital cutting plotter



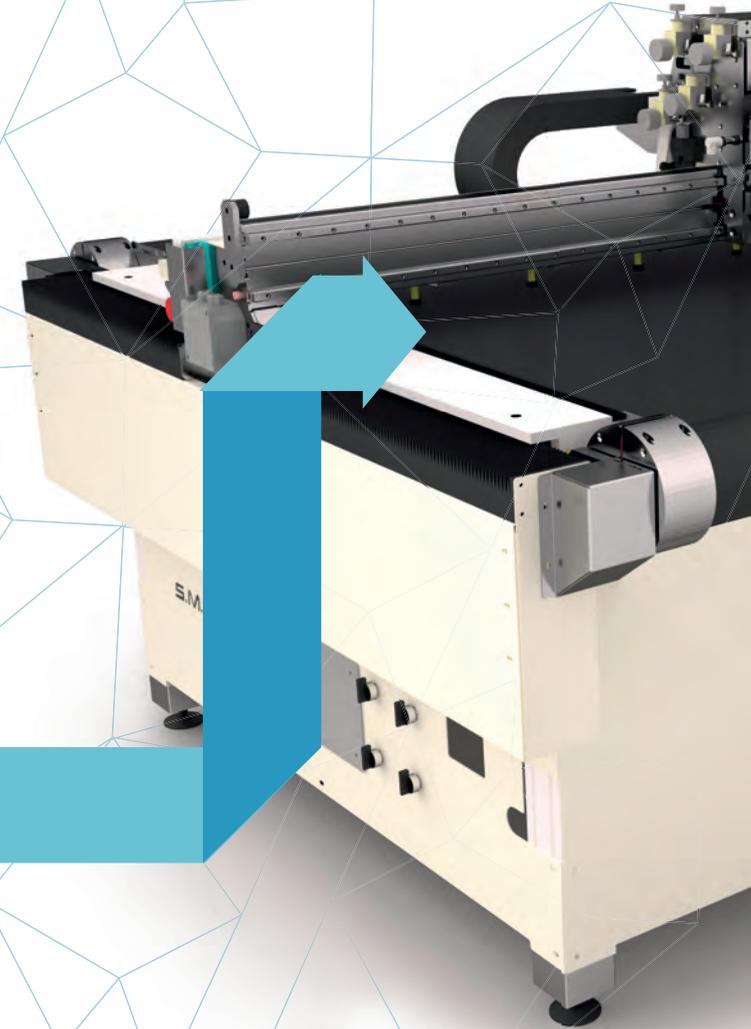
## Reduced footprint

The SM-381-TA can be installed inside small workshops thanks to its reduced footprint. This feature makes the SM-381-TA an ideal solution for small companies and start-ups.



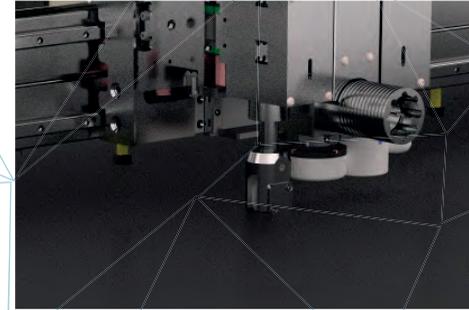
## Multi-tool moving head

The moving head can be equipped, either singularly or simultaneously, with multiple tools and accessories for processing and marking a wide range of composite fabrics.



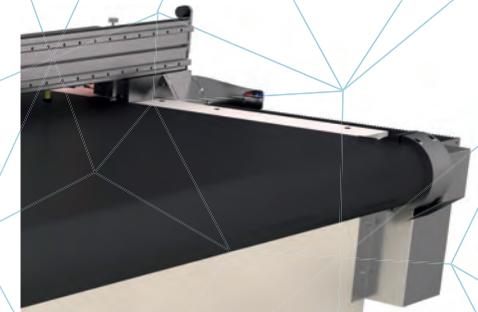
High **speed**, high **precision** cutting and marking

A brushless servomotor and a belt transmission system together with top of the bill cutting and marking tools, grant great precision and high operating speed.



**Static** worktop or **conveyor** belt

The SM-381-TA is available both with a static worktop and with a felt conveyor belt which makes it an extremely flexible productive solution.



## CONCEIVED FOR CUTTING COMPOSITES

**Solid** industrial structure

The SM-381-TA features a sturdy aluminum structure and worktop. In its conveyor belt version the belt is made of robust felt which grants durability and negligible maintenance costs.



# INDUSTRIAL PRECISION TOOLS

SMRE offers a wide selection of industrial tools: they can be installed individually or simultaneously, in a variety of combinations, providing an enormous versatility of application.

## Oscillating Blade.

A powerful electrically driven cutting tool able to create complex patterns in materials difficult to process with a drag knife. The high oscillating frequency allows high speed and high precision cutting of carbon fiber, fiberglass, Kevlar and aramids.

## Drag knife.

Allows high cutting speeds on a great variety of composite fabrics. Ideal for straight cuts, curves, complex shapes and holes with reduced diameters.

## Rotary blade.

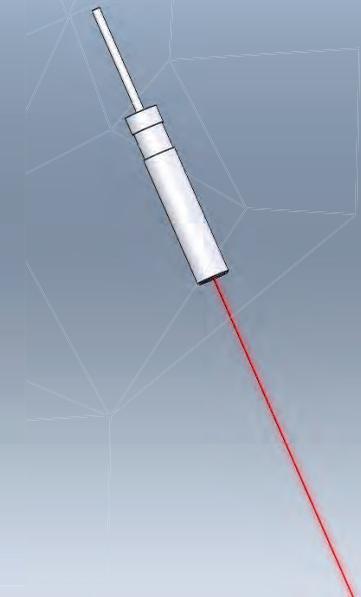
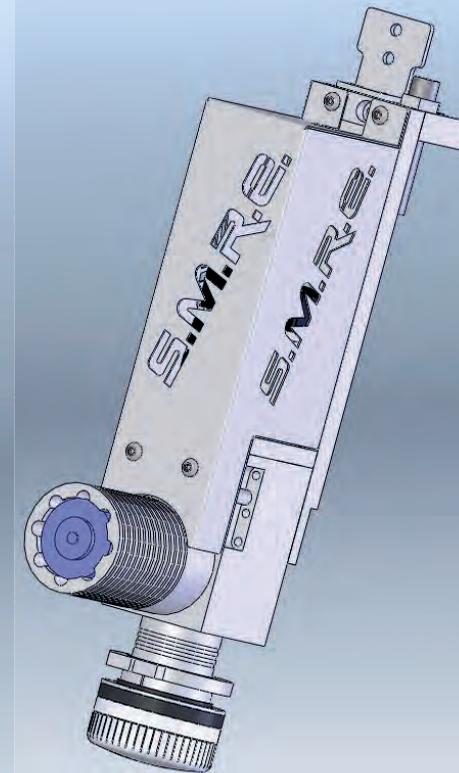
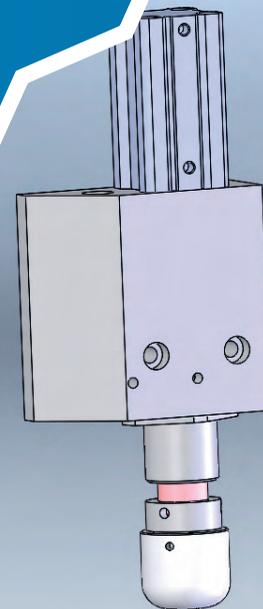
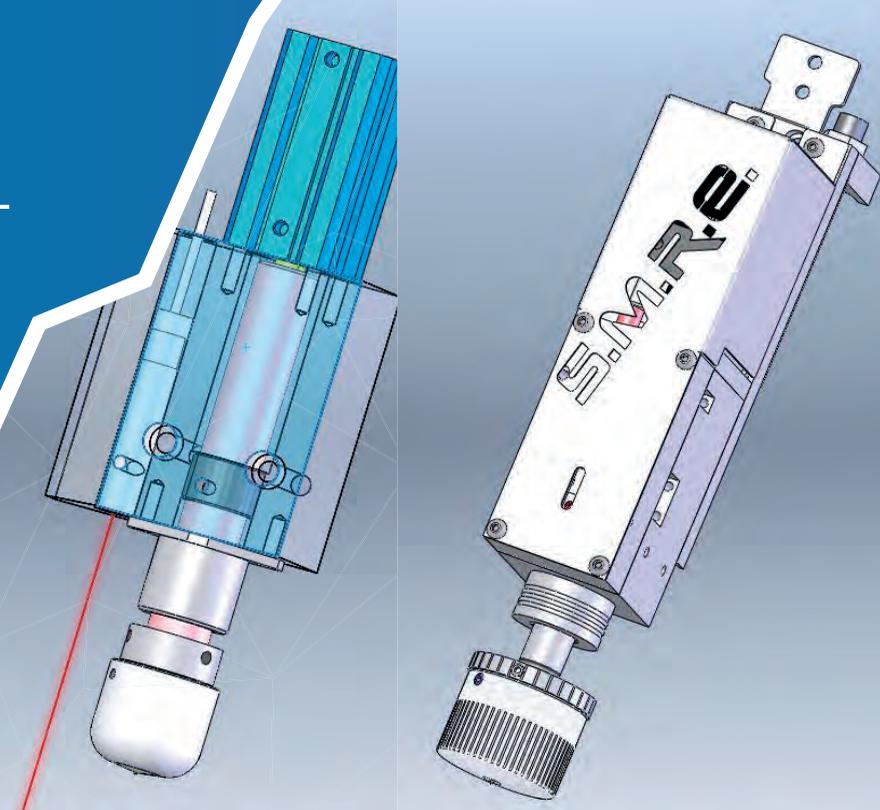
Diameters, extension of the blade and cutting pressure vary according to the production requirements and to the cut material. Suitable for carbon fiber and fiberglass.

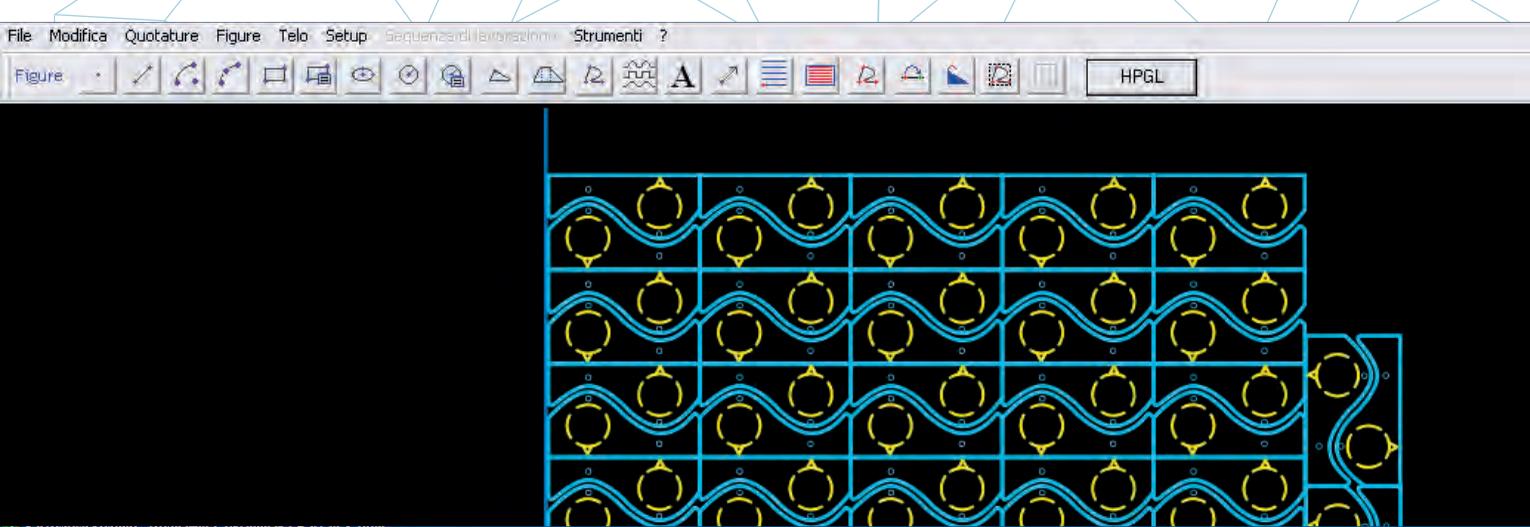
## Socket for pen marker.

Holds a marker (ballpoint, felt pen, etc.) to draw lines, curves, circles but also complex shapes, letters and numbers.

## Laser pointer for the dynamic zero point.

Allows the operator to choose a new ZERO point by moving a laser dot over the cutting frame. An accessory particularly useful when processing damaged materials.





## Easy Work Xtreme CAD/CAM.

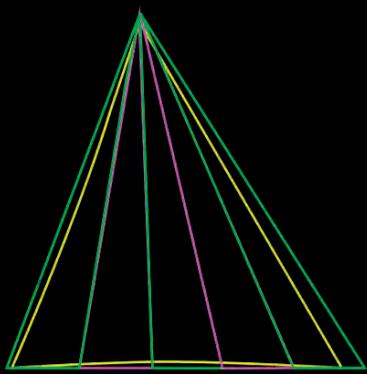
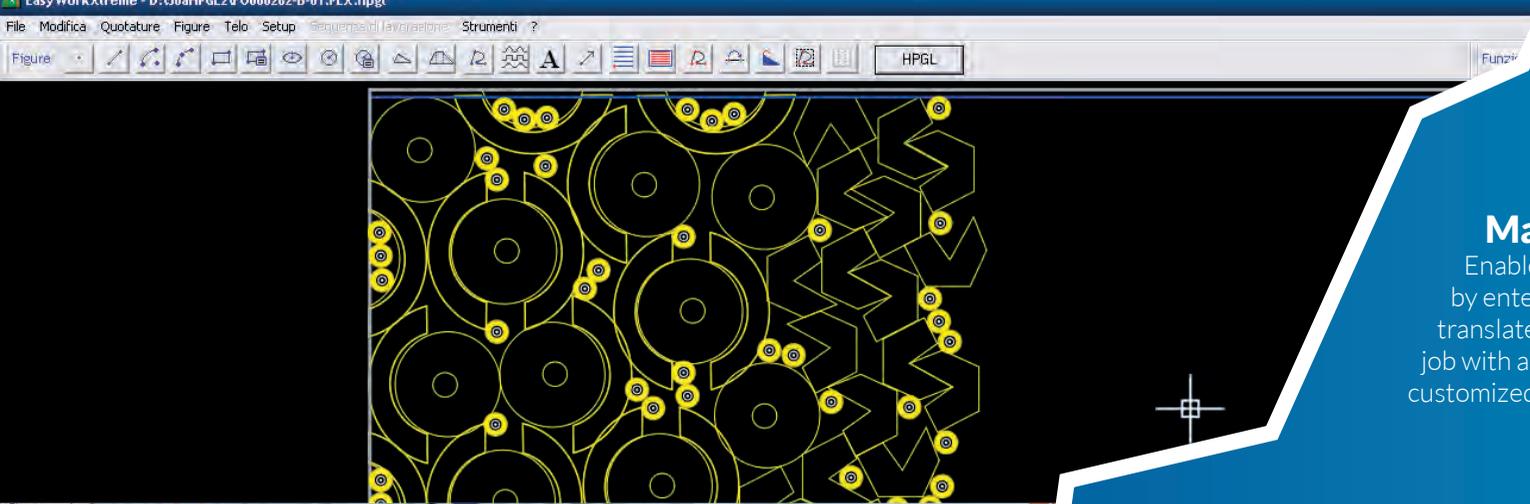
Calculates the most efficient way of cutting one pattern after the other, and saves all the settings for future jobs.

## Automatic nesting.

Automatically calculates the best way to fit the shapes on the cutting frame and cut as many pieces as possible out of the available material.

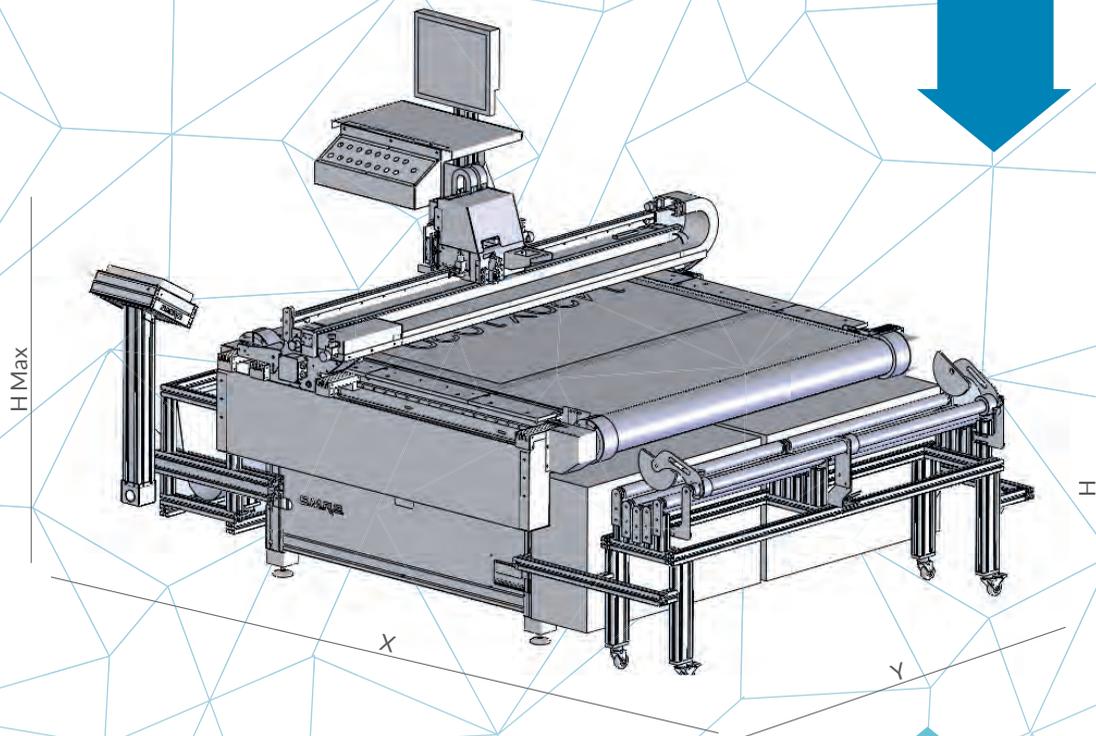
## Macro.

Enables the operator to program highly complex cutting jobs by entering a limited number of key parameters. The machine translates the information into a cutting file and starts the job with a simple push of a button. Macro packages are often customized according to our customers' requirements.



# SOFTWARE

Available usable **frame** - WxL **1,5x1/1,8x1**



	<b>Machine</b>
Power (KW)	9,5 Kw
Voltage (V)	400 (3 phases+N+E)
Circuit breaker (mA)	300
Air (Quality class 1.4.2 ISO 8573) (bar)	6
Max. axes speed x/y/z (m/min)	40/40/15
Precision axes repeatability (mm)	0,1
Certification	2006/42/EC; 2014/30/EU; EN ISO 12100

<b>Footprint</b>	<b>Machine (1,5x1)</b>	<b>Machine (1,8x1)</b>
X (mm)	2.200	2.700
Y (mm)	2.000	2.000
H (mm)	1.600	1.600
Weigth (Kg)	1.200	1.300
<b>Roll holder footprint</b>		
X (mm)	550	550
Y (mm)	2.100	2.600
H (mm)	950	950
Weigth (Kg)	45	50



# SM-381-TA

Multiple tool digital cutting plotter

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# SM-805-WJ

Digital cutting station with waterjet technology



25  
m/min

TOP SPEED

4  
m/s<sup>2</sup>

ACCELERATION



The SM-805-WJ is a pure water waterjet cutting plotter designed for cutting a wide variety of materials. Particularly suitable for cutting hardened composite fiber panels, it grants the best performances in its range as for reliability, cutting speed and precision.

The axis movements are generated by 4 powerful servomotors and a recirculating ball transmission system.

The extremely small diameter of the waterjet, a fraction of a millimeter, together with high speed cutting and precision, reduce the residual humidity on the processed material, and allow to cut even very complex shapes from materials that are almost impossible to process with other cutting technologies. The worktop can be equipped with a vacuum system to eliminate the cutting vapors.

The SM-805-WJ can be equipped with multiple cutting heads and a conveyor belt to increase the productivity.

# SM-805-WJ

Digital cutting station with waterjet technology



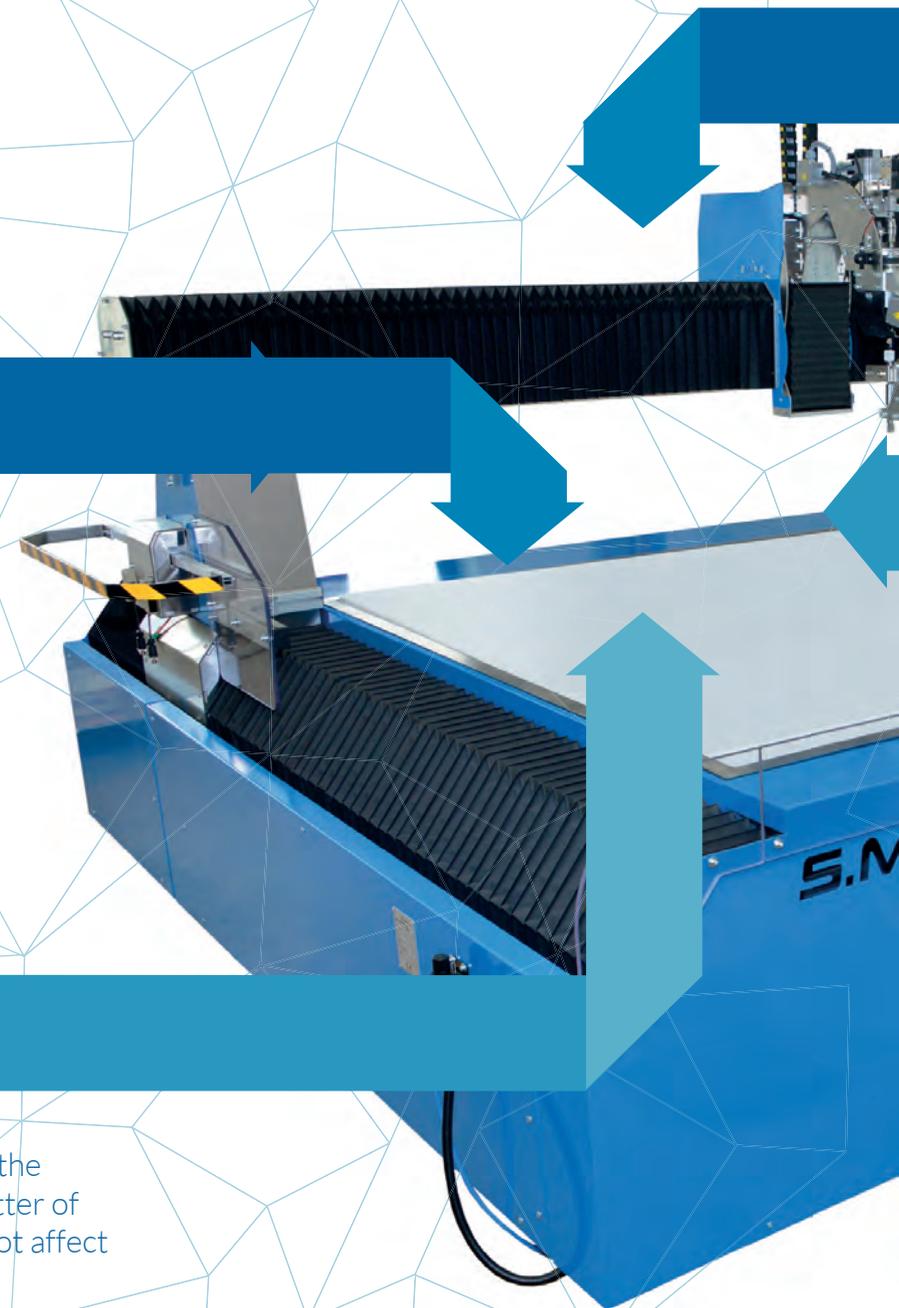
## Drastic **reduction** of **discards**

The extremely small diameter of the jet of water and the fact that the tangential forces on the material are reduced to the minimum, allow to leave very small gaps between one cut and another thus reducing the discarded material to almost nothing, especially when the position of the patterns is optimized with the nesting software.



## No **heat affected** zone

As opposed to other cutting technologies the waterjet does not burn the edges, as a matter of fact it is a cold cutting method that does not affect the structural properties of the material.



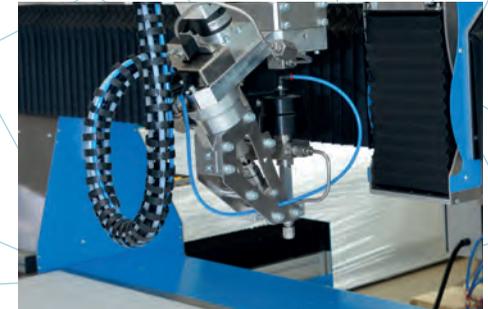
## High cutting precision

Thanks to the reduced weight of waterjet cutting heads, the SM-805-WJ grants great acceleration and deceleration performances and ensures an outstanding precision of the cuts. The waterjet, with a diameter of a fraction of a millimeter, cuts through the material with surgical precision.



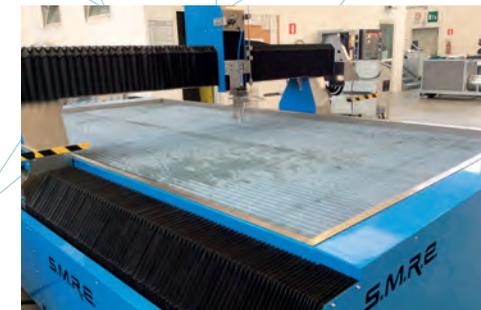
## Twin cutting heads and conveyor belt

The machine can also be equipped with twin cutting heads and a conveyor belt to increase the production volume and to allow continuous cutting cycles.



## Solid industrial structure

Its solid structure makes the SM-805-WJ suitable for the most challenging cutting jobs. The machine features top of the bill mechanic, electric and pneumatic components.



# INDUSTRIAL PRECISION TOOLS

## Pure water cutting head.

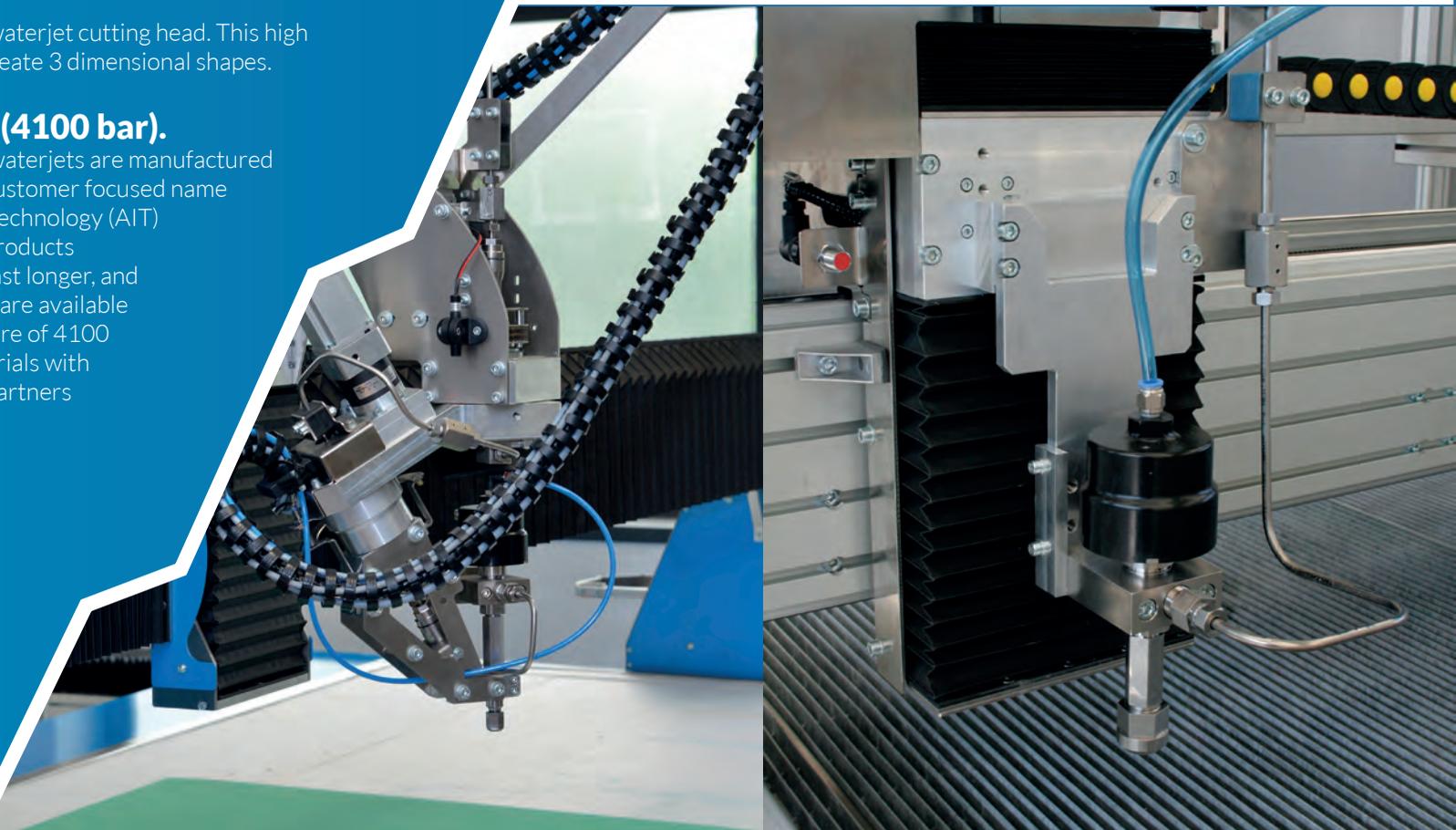
Waterjet is a technically simple, low cost cutting technology that ensures fast, precise and clean cuts, even on thick sheets or multi-layer materials. A waterjet does not burn or otherwise alter the physical characteristics of the material and leaves the cutting edges clean and smooth.

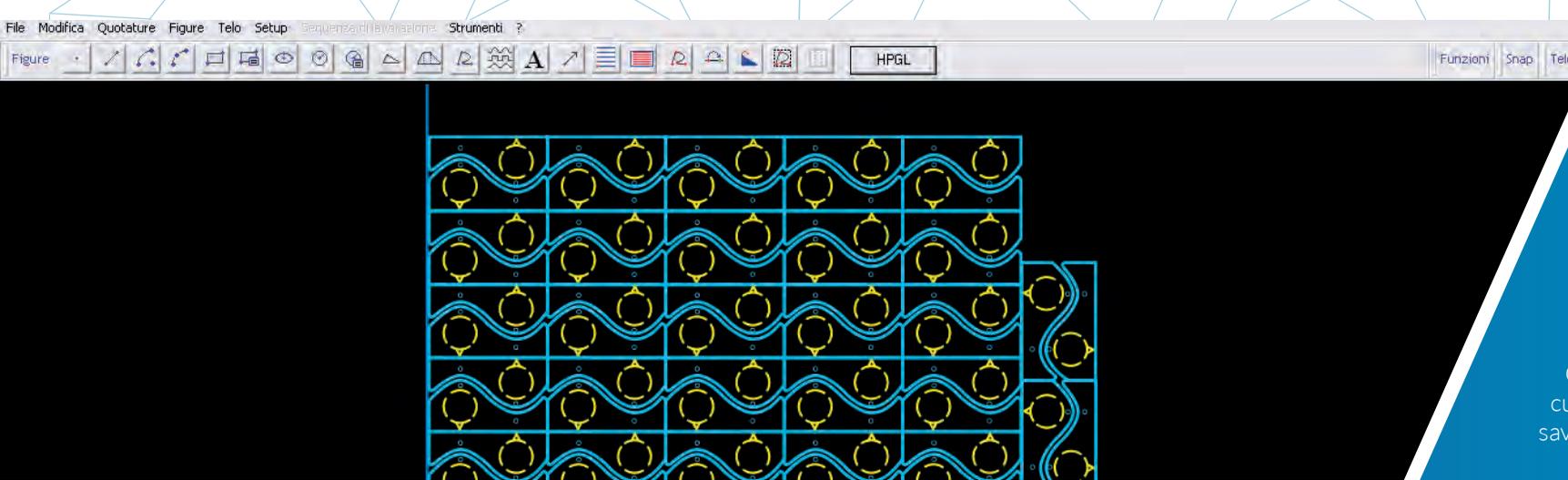
## Pure water cutting head for 3D cuts with 5 axes (X/Y/Z/W/360°).

The SM-805-WJ features an optional 5 axes waterjet cutting head. This high performance mechanism makes 3 D cuts to create 3 dimensional shapes.

## Intensifier pump 15/30/50 HP (4100 bar).

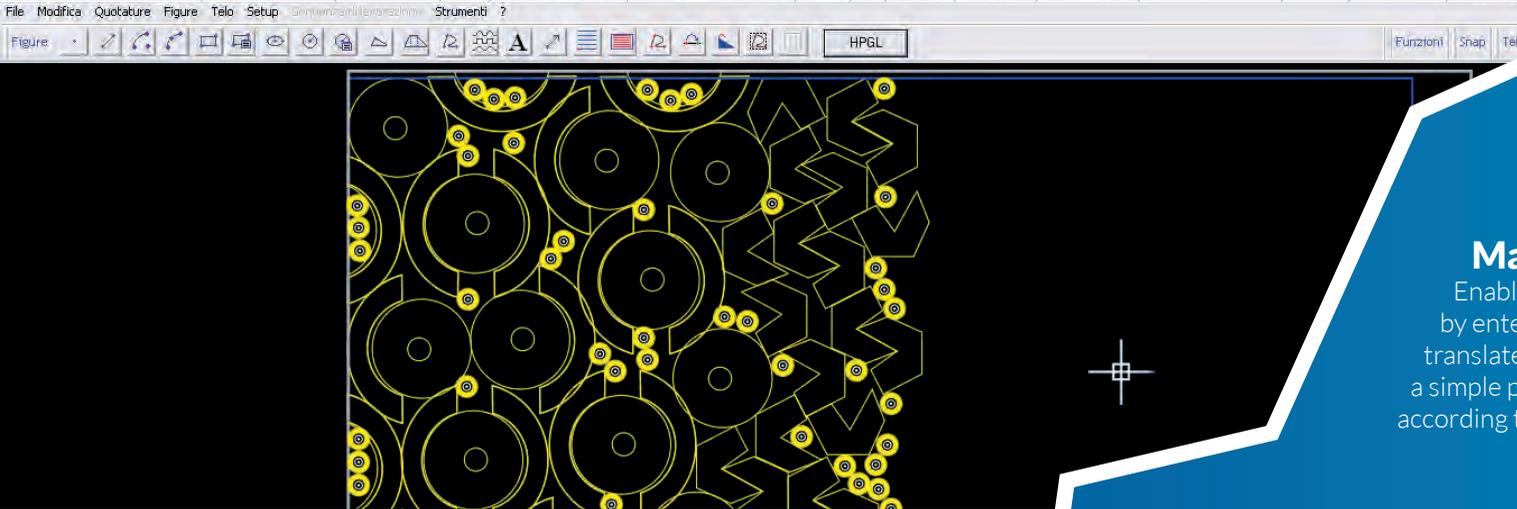
The intensifier pumps installed on the SMRE waterjets are manufactured by Hypertherm (USA), the most reliable and customer focused name in waterjets. With their Advanced Intensifier technology (AIT) Hypertherm pumps stand out from all other products available on the market as they work harder, last longer, and require less service time. Hypertherm pumps, are available in 15, 30 and 50 HP and create a hyper pressure of 4100 bar allowing to cut through the toughest materials with surgical precision. SMRE and H/A have been partners since 2008.





## Easy Works Xtreme CAD/CAM.

Calculates the most efficient way of cutting one pattern after the other, and saves all the settings for future jobs.

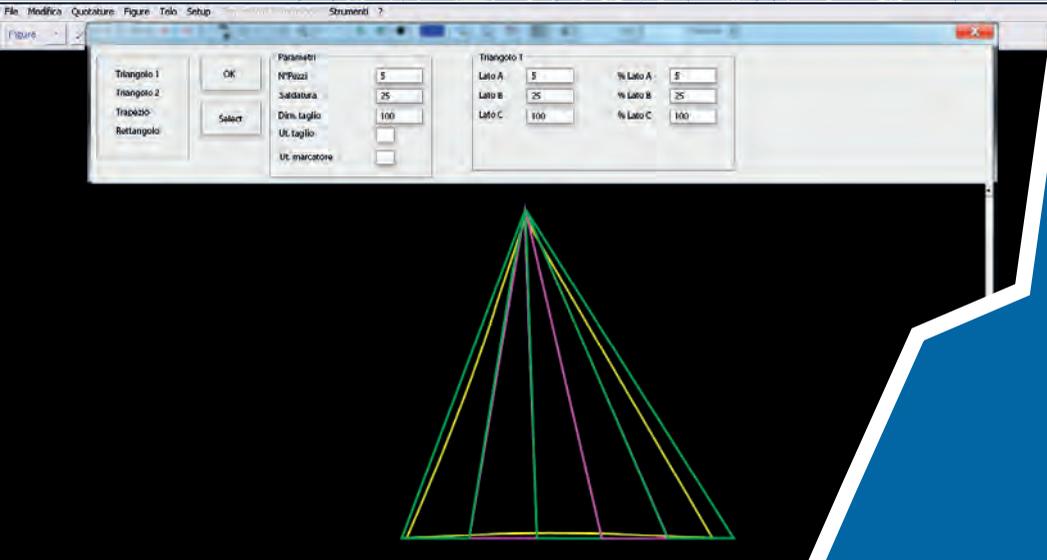


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# SOFTWARE

# SM-805-WJ

Digital cutting station with waterjet technology



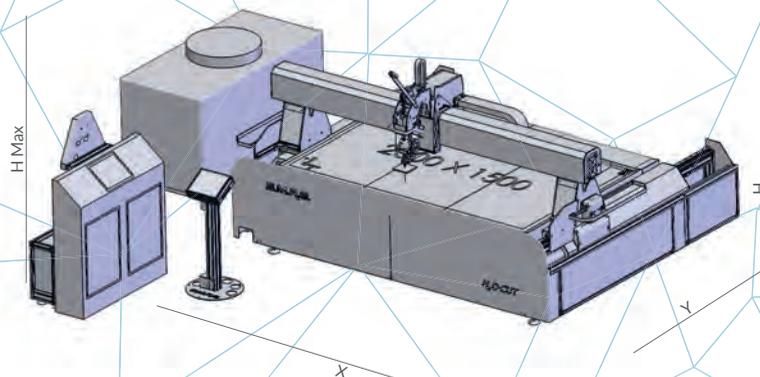
# Intensifier Pumps

Footprint	Machine (2,0x4,0)	Machine (2,5x1,5)	Intensifier Pump (30 HP)
X (mm)	3.680	4.360	1.778
Y (mm)	6.400	3.960	864
H (mm)	827	827	-
H Max (mm)	2.000	2.200	1.168
Weight (Kg)	2.185	2.185	1.500
Power (kW)	4	4	22
Voltage (V)	400 (3 phases+N+E)	400 (3 phases+N+E)	400 (3 phases+N+E)
Circuit breaker (mA)	300	300	300
Air (Quality Class 1.4.2; ISO 8573) (bar)	6	6	6
Air consumption (nl/min)	250 (including pump)	250 (including pump)	-
Max. axes speed X/Y/Z/W (m/min)	30/30/15/15	30/30/15/15	-
Precision axes repeatability (mm)	0,1	0,1	-
Min. water quantity (l/min) - Cutting:	-	-	5
Min. water quantity (l/min) - Cooling:	-	-	8
Min - Max. water pressure (bar) - Cutting:	-	-	1,5 - 7,2
Min - Max. water pressure (bar) - Cooling:	-	-	2,5 - 7,2
Certification	2006/42/EC; 2014/30/EU; EN ISO 12100		

General	HyPrecision 15		HyPrecision 30		HyPrecision 50	
	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Maximum output flow	0.30 gpm (1.14 lpm)		0.60 gpm (2.27 lpm)		1.0 gpm (3.79 lpm)	
Maximum orifice	0.007" (0.178 mm)		0.011" (0.279 mm)		0.014" (0.356 mm)	
Continuous output pressure	Adjustable to 60,000 psi (4137 bar)					
Intensifier configuration	Single					
Pressure control	Dual manual					
Bleed-down valve	Air					
<b>Pump power</b>						
Motor Power	15hp (11.2 kW)		30hp (22.4 kW)		50hp (37.3 kW)	
Voltage	400 V	208-230/460	400 V	208-230/460 V	400 V	208-230/460
Full load	24 A	43-39/19 A	44 A	83-75/38 A	73 A	135-122/61
Main breaker	25 A	50/25 A	50 A	100/50 A	100 A	175/100 A
Soft start	-		-		Wye-Delta	

Intensifier Pump	HP 15	HP 30	HP 50
X (mm)	1.778	1.778	1.778
Y (mm)	864	864	864
H (mm)	1.168	1.168	1.168
Weight (Kg)	1.315	1.315	1.315
Kw	11,2	22,4	37,3

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Available usable **dimensions** - WxL **2,5 x 1,5/ 2,0 x 4,0**



# S.M.R.E. THE GLOBAL MANUFACTURING SOLUTION

Founded in 1999 by Samuele Mazzini, SMRE S.p.A. is a **globally operating company based in Italy** specialized in the **design and construction of industrial manufacturing solutions.**

SMRE builds **cutting, welding and sewing machines, and special, custom-made solutions** that **streamline** our customers' manufacturing processes, **optimize** their efficiency, and **increase the quality and output** of their production.

More than **1000 manufacturing solutions** provided to customers in **40 nations** and on **6 continents** secure our position as **leading supplier of industrial machines.**

SMRE is quoted on **AIM Italia** since April 2016.



CUTTING  
MACHINES



WELDING  
MACHINES



SEWING  
MACHINES



SPECIAL  
MACHINES



SOFTWARE  
SOLUTION

INDUSTRIAL GROUP

1

USA BRANCH

1

MANUFACTURING  
PLANTS

2

CUSTOMERS IN 40 NATIONS  
ON 6 CONTINENTS

40  
6

SPECIALIZED  
BUSINESS UNITS

3

INTERNATIONAL  
PARTNERS

13

PRODUCT LINES

5

HIGHLY SKILLED  
EMPLOYEES

65



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