

milestone s

Waterjet cutting machine



CMS is part of SCM Group, a technological world leader in processing a wide range of materials: wood, plastic, glass, stone, metal and composites. The Group companies, operating throughout the world, are reliable partners of leading manufacturing industries in various market sectors, including the furniture, construction, automotive, aerospace, ship-building and plastic processing industries. SCM Group coordinates, supports and develops a system of industrial excellence in 3 large highly specialized production centres employing more than 4,000 workers and operating in all 5 continents. SCM Group: the most advanced skills and know-how in the fields of industrial machinery and components.

CMS SpA manufactures machinery and systems for the machining of composite materials, carbon fibre, aluminium, light alloys, plastic, glass, stone and metals. It was established in 1969 by Mr Pietro Aceti with the aim of offering customized and state-of-the-art solutions, based on the in-depth understanding of the customer's production needs. Significant technological innovations, originating from substantial investments in research and development and take-overs of premium companies, have enabled constant growth in the various sectors of reference.



CMS Metal Technology is the brand dedicated to the production of metalworking machines and technical articles offering a wide range of complete water-jet cutting systems, pressure intensifiers and dry or wet deburring and satin finishing machines. Since the 90's, thanks to the acquisition of Tecnocut and constant internal developments, **CMS Metal Technology** has been able to gain high international prestige, boasting more than 1,500 installations worldwide. **CMS Metal Technology** is the reliable partner of leading industries in various sectors such as automotive, aerospace, machining, furniture and industrial architecture.



tecnocut milestones

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APPLICATIONS



countertops | gaskets | aeronautics | foam materials | workshop machining



tables | ventilated facades and windows | inlays and mosaics



TECNOCUT MILESTONE S

TECHNOLOGICAL BENEFITS

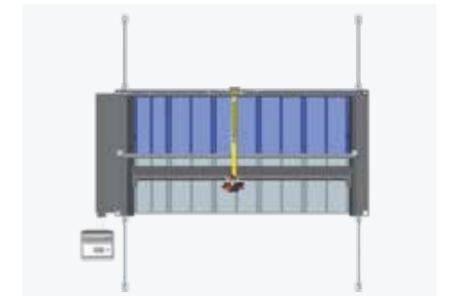
3- AND 5-AXIS WATERJET CUTTING SYSTEM

Tecnocut Milestone S is an advanced, versatile, high-performance waterjet cutting system – either pure water or hydro-abrasive – able to accommodate the most diverse production demands in different application fields, delivering highly accurate cuts even in 3D.

- The bridge structure with fixed table, mobile crossbeam and high guides make it compact and able to move quickly
- All motions are carried out by tempered ground rack, driven by brushless motors
- The axes' guideways are housed within the structure and protected by an innovative system called "Powder-Free", which provides full protection against water and powders

KEY BUYER BENEFITS

- + **Unmatched cutting performance:** the monolithic structure with electric gantry offers a sturdy and rigid solution for a speed of 40 m/min and acceleration of 2 m/s² at the top of the market standards.
- + The most compact solution on the market with infinite rotation, **31% less cutting cycle**, avoiding to recover the revolutions of the C axis to align internal wires and tubes.
- + **Sliding guides enclosed within the machine structure and protected by a machine tool style labyrinth**, named "Powderfree", avoiding that moisture and abrasive media can damage the motion system.
- + The versatility of waterjet to cut a wide range of materials, with custom solutions to increase the productivity up to 75%, like pendulum cycle or the multiple cutting configuration up to 4 independent 3 axis heads.



Double cutting table solution for pendular working (opt)



Hardware and software for the waterjet cutting system designed to offer simple and userfriendly management of all system functions, including conicity control (JDC) for 5-axis machining centres



New Z axis strokes up to 350 mm 3-axis and up to 200 mm 5-axis and tube cutting up to ø 500 mm (std)

ACCESSORIES

Cleaning system located on the bridge to clean the workpiece. (Opt)



PROBE
Probe system, continuous or periodic, available also with large ring for foam or glass cutting. It enables to maintain the same distance from the material being cut at all times even if the material is not perfectly flat.

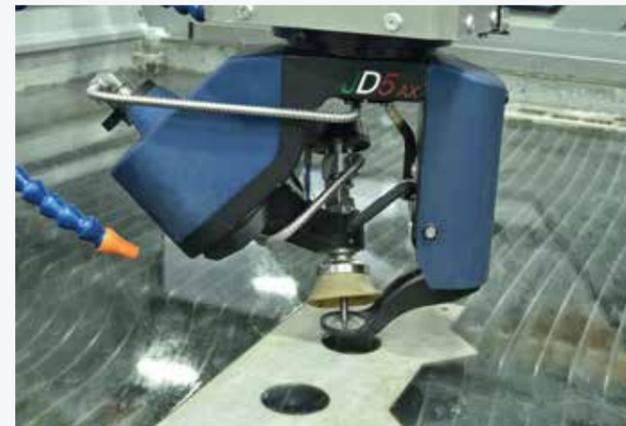


Dredging system for “no maintenance” abrasive removal with tank protection (Opt available only with stainless steel tank)

Cleaning system for the work area which reduces the chances of scratches on the cut piece. It also enables the feeler to detect correctly the thickness of the material (opt).



Front and back doors – electro-pneumatically driven – integrated into the main structure to ensure a totally dry work environment (Opt)

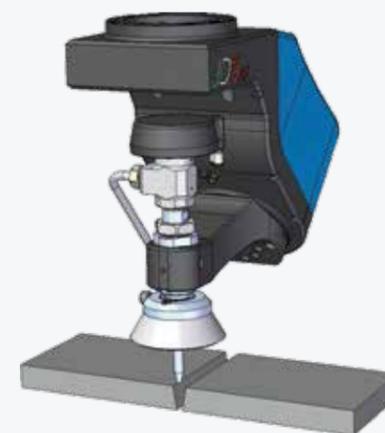


powered by
JDC

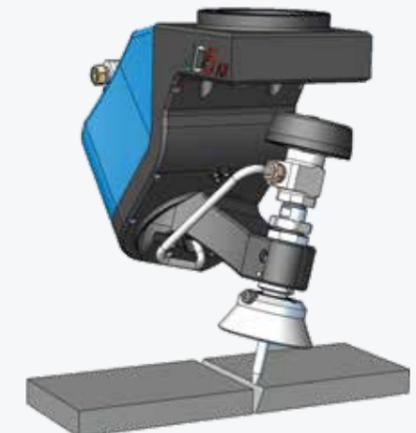
5-axis cutting head with JDC technology - Jet Drive Compensation -. Effective head management to carry out inclined cuts and check cut conicity (Opt) Lavorazione tradizionale



Cross Laser device for setting one or multiple starting point on the sheet positioned on the cutting table (opt).



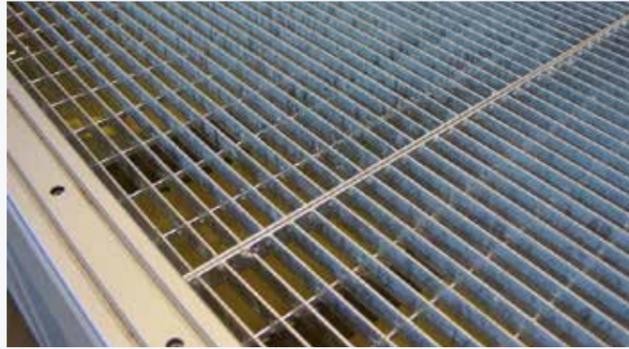
3-axis traditional machining



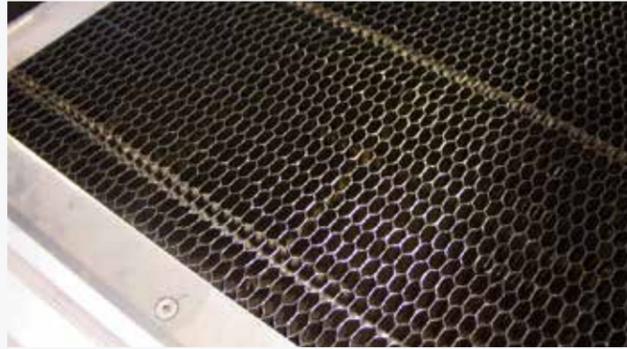
JDC technology

ACCESSORIES

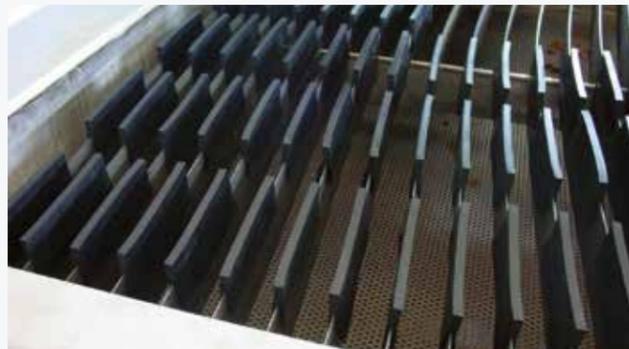
WORKING TABLES INTENDED FOR DIFFERENT CUTTING APPLICATIONS



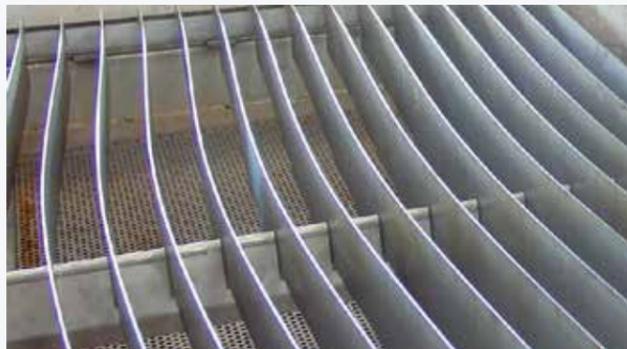
Standard grid



Honeycomb grid (opt)



Anti-reflective surface for glass (opt)



Anti-reflective surface (opt)



Electronic hopper that automatically controls the abrasive flow. If the abrasive flow is interrupted for any reason, the system will automatically stop cutting to prevent damage and scrape materials. In addition, a vacuum sensor connect to the mixing chamber constantly detect the abrasive amount and flow, providing complete real-time information on the state of wear of the cutting head

Control panel with real-time view of all machine parameters: consumption, electronic adjustment of the garnet flow, dredge, consumables and forecast of cutting time. (std)



Remote control unit for driving up to 6 axes; it allows to operate close to the cutting table and set multiple starting points.

Automatic lubrication of all axes (std)



AUTOMATIC HOSE REEL:
Air and water sprayer kit, useful for cycle end clearing of cut material (std)

TECNOCUT JETPOWER EVO

HIGH-PRESSURE INTENSIFIER

PRESSURE INTENSIFIER ENTIRELY MADE BY CMS

CMS brought about a new concept in ultrahigh pressure intensifiers, enhanced by technological solutions designed to satisfy the needs of most demanding users. This new technology is based on an intensifier equipped with several pressure multipliers independent, parallel and electronically synchronized. This innovative solution results in an everconstant pressure avoiding any drops typical of traditional opposecylinder intensifiers.

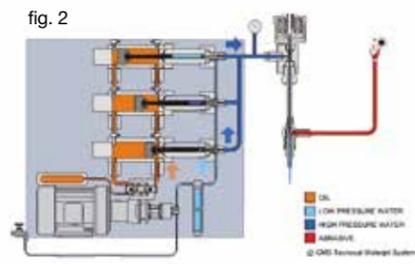
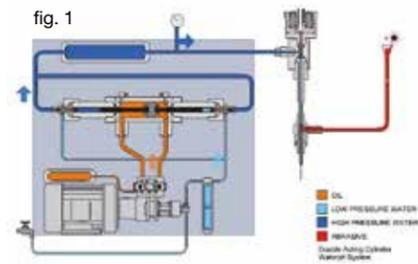
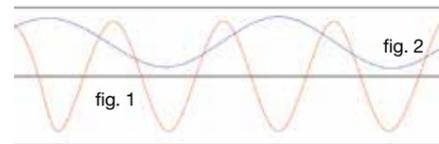
KEY BUYER BENEFITS

- + Hydraulic intensifier with 2 or 3 **independent and electronically synchronized** parallel cylinders to guarantee a constant **signal of output pressure without** the use of attenuator.
- + The technology with 3 independent cylinders allows **the bypass of a single cylinder that needs maintenance, while the machine is working, avoiding unnecessary downtime.**
- + The parallel cylinders architecture is designed for a low cycle frequency that reduce the high pressure components wear and **consquently the maintenance costs.**
- + **Reduction of oil consumption and operating costs:** Water flow rate up to 5 l/min to satisfy a wide range of cutting applications, adapting the oil consumption thanks to an independent variable flow pump for hydraulic circuit.

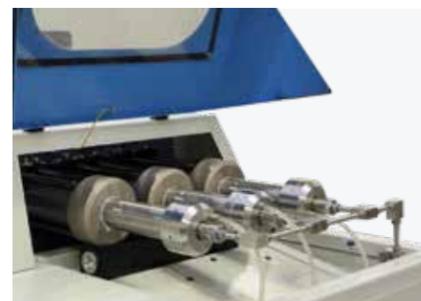
fig. 1 Traditional opposing-cylinders intensifier

fig. 2 CMS parallel cylinders intensifier

Pressure



Software-based electronic control of cutting pressure



Pressure multipliers



Hydraulic unit



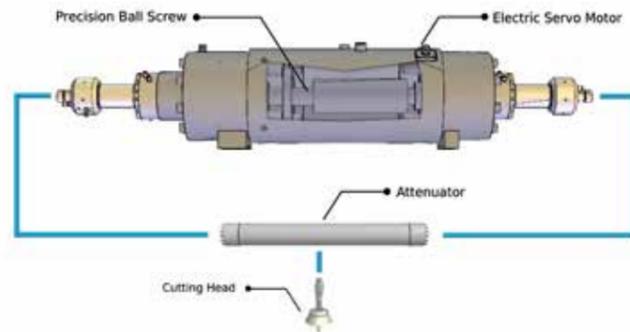
Oil/air heat exchanger

TECNOCUT GREENJET EVO

ELECTRIC PRESSURE INTENSIFIER

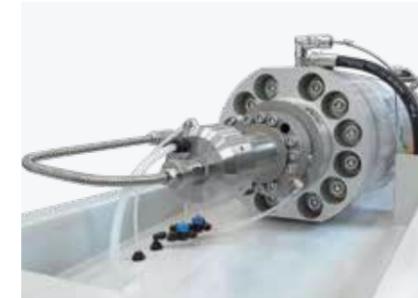
THE HIGHEST EFFICIENCY, THE LOWEST CONSUMPTION

Tecnocut Greenjet Evo is a groundbreaking, highly efficient electric pump. A top-performance torque servomotor supplies a very high pressure level while removing the hydraulic unit and up to 80% of components compared to a traditional hydraulic intensifier. Tecnocut Greenjet Evo is equipped with one electrically driven actuator and a pair of opposed-piston high-pressure cylinders. Such a structure - electrically driven - delivers an extremely constant pressure level, a monitoring of the pressurization cycle and an efficiency at least 30% higher than hydraulic intensifiers.



KEY BUYER BENEFITS

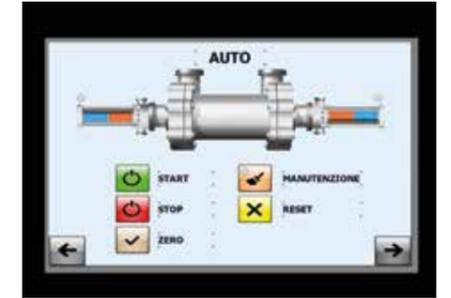
- + Electric pump actuated by a brushless servomotor capable of generating a constant pressure signal with an **efficiency greater than 35% compared to traditional hydraulic intensifiers.**
- + **Reduced environmental impact:** The electric actuator generate the high pressure without the hydraulic components with the advantage to avoid the disposal of the exhausted oil typically 200 liters every 2000 h.
- + Less than 81% of hydraulic and mechanic components and 73% less intensifying cycle than a direct drive pump, with consequently **less maintenance costs and machine downtime.**
- + **33% less power consumption than a traditional hydraulic intensifier** thanks to precise power control of the motor when required and setting down near to zero when the cutting head is closed.



Servo-motor

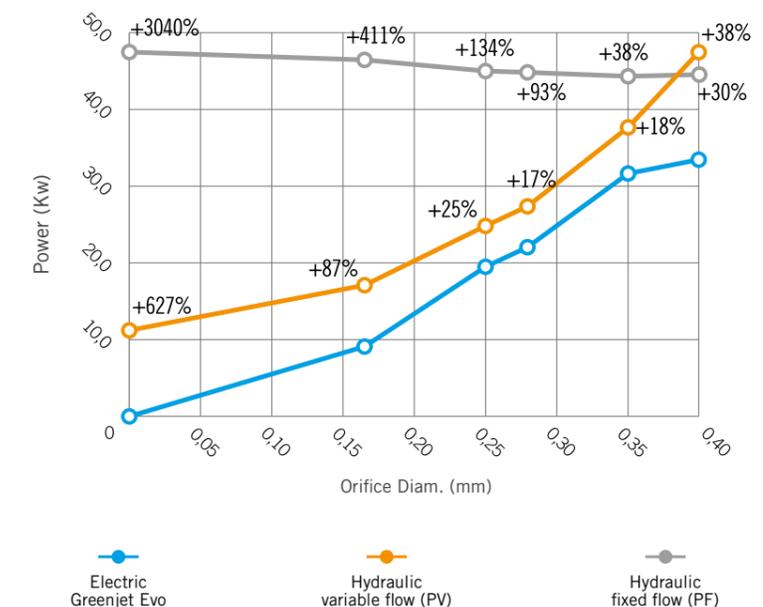


Air/oil heat exchanger (std)



TOUCH CONTROL 17" for remote diagnostics, power check, cycle numbers and pressure electronic management (only on Tecnocut Greenjet Evo Stand Alone version)

4139 BAR INTENSIFIER CONSUMPTION: ELECTRIC VS HYDRAULIC

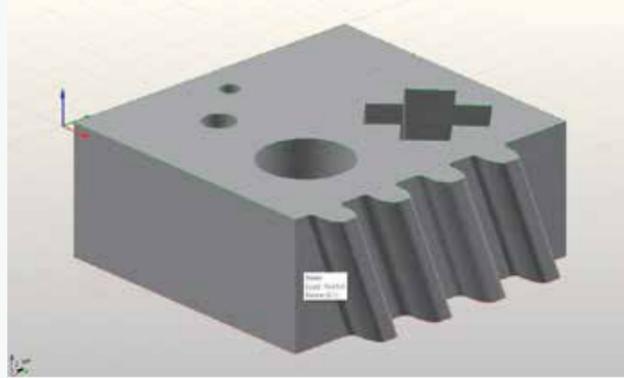


EASYJET DDX SOFTWARE

Easyjet is a complete CAD/CAM suite for all-round management of every aspect of the 3 and 5-axis waterjet machining, that eliminates purchasing costs, maintenance and training of further third-party software products.

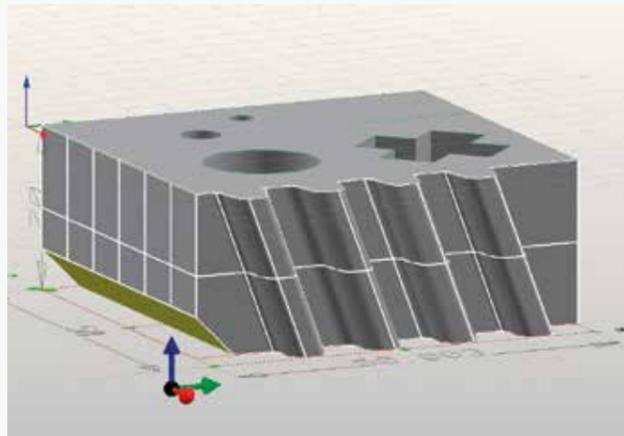
THE GENERAL FUNCTIONS INCLUDE:

- Graphic management of the zoom and shift tools
- 3D and photo-realistic rendering of the project
- Functions to measure the profile and analysis of the individual entities
- Functions to delete and reset the most recent operations
- Option to configure the parameters database on-line to share it with numerous software stations
- Automatic e-mail management to request assistance
- Python Module and Scl included to customise software and interface with other systems



THE CAD FUNCTIONS INCLUDE:

- Free drawing of geometrical entities like arches, lines, polylines, rectangles, squares, ellipses, circles, regular polygons, radii, clip-pings, nurbs, etc..
- Advanced surface drawing (loft, swept, polimesh, gordon) curve grid surface drawing
- PNT importing
- Definition of the surface using a point file elaborated by a laser scan
- Interactive change of surfaces, even complex ones, to insert chamfers, trimmings, insertion of sloping sides etc
- Definition of construction tables
- Associating different colours to each tool path
- Change and elaboration of projects (shearing, extension, sub-division, union, interpolation, duplicate, symmetrical, rotation, deletion, etc.)
- Importing DXF, ISO, IGES, STEP, PARASOLID, 3DM and STL files
- Dimensioning

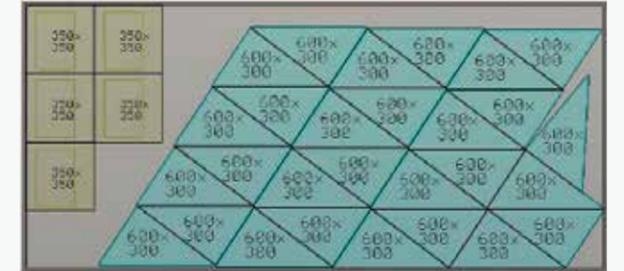


THE CAM FUNCTIONS INCLUDE:

- Automatic generating of cutting paths with WaterJet head
- Automatic generation of input and output paths, boring included with interactive graphic change (optional)
- Continuous automatic management of the feeling cycles, at the start of the profile or the sole detection of the plate thickness
- Projection cutting management, adhesion and development for pipe machining.
- Interpolated 5-axis control + 1
- Estimating project times and costs.
- Production of the ISO program optimised for the CNC
- Cutting management in common with the different algorithms to optimise the tool path
- Cutting with semi-automatic technology in the space.
- Automatic and/or custom-designed optimisation of the machining sequence to reduce cycle times.
- Automatic and/or manual management of the micro-joints and bridges.
- Cam-Auto module to automatically and intelligently create machining technology 18



In addition, the Easyjet software has powerful, fast multiple nesting algorithms in the work area, even with entities that differ from one another, with the possibility of graphically changing the arrangement of the objects and defining customised points of origin.



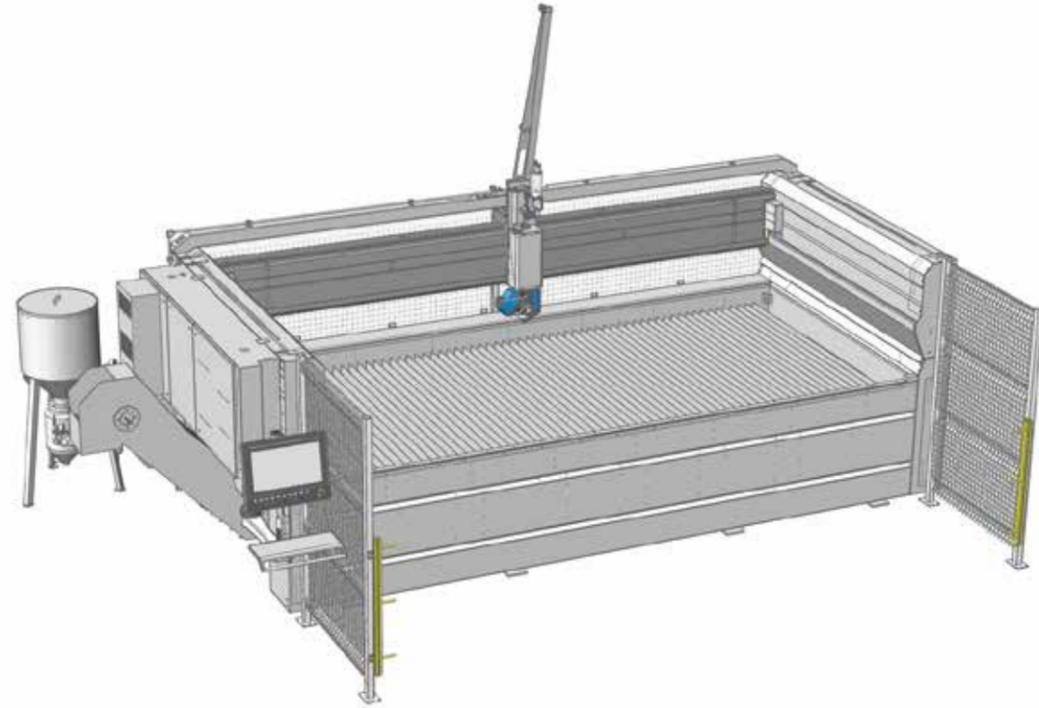
The JDE plug-in is included in the package to manage the cutting technologies archived in a complete materials database. The machine program is automatically generated on the basis of the selection of the cutting quality required out of 5 options (Q1, Q2, Q3, Q4 and Q5) that establish the speed advancement and acceleration settings in the internal/external corners. The ISO program can then be transferred to the machine using the local network or via USB drive.

The correct setting of the machining parameters can be checked in advance thanks to the 3D simulation of the machining process using a 3D graphic model of the CNC that reproduces the table, handling axes, tool and pieces arranged on the table.



TECNOCUT MILESTONE S

OVERALL DIMENSIONS AND TECHNICAL DATA



TECNOCUT MILESTONE S: TECHNICAL DATA		
MODEL	1730	2040
X AXIS	3000 mm / 118 in (2 heads) 3300 mm / 130 in (1 head)	4000 mm / 157 in (2 heads) 4250 mm / 167 in (1 head)
Y AXIS	1700 mm / 67 in	2000 mm / 79 in
Z AXIS	350 mm / 14 in (200 mm / 8 in with 5-axis head)	350 mm / 14 in (200 mm / 8 in with 5-axis head)
B AXIS	+/- 60°	+/- 60°
SUPPORT PLANE	3700 x 2050 mm / 146x81 in	4650 x 2050 mm / 183x81 in
OVERALL DIMENSIONS WITH LIGHT BARRIERS	5010 x 3600 mm / 197x142 in	5960 x 3900 mm / 235x154 in
WEIGHT (EMPTY)	3600 kg	4000 kg

Max capacity of support surface: 1000 kg/m² - Speed: 0->40000 mm/min - 15" TFT colour screen, membrane keyboard with built-in mouse.
External port for USB key interface - Connection to the computer network: RJ45 10/100 Mb connector.

PRESSURE INTENSIFIERS

TECHNICAL DATA



TECNOCUT JETPOWER EVO: TECHNICAL DATA		
MODEL	TECNOCUT JETPOWER EVO 30 HP	TECNOCUT JETPOWER EVO 60 HP
POWER	22,5 kW / 30 HP	45 kW / 60 HP
MULTIPLIERS	2	3
MAX WATER PRESSURE	4150 bar / 60000 psi	4150 bar / 60000 psi
MAX WATER PRESSURE	2,5 L/min / 0,66 gpm	5 L/min / 1,32 gpm
MAX DIAMETER ORIFICES	0,28 mm / 0,011 in	0,40 mm / 0,016 in
VOLTAGE	400V +/- 5% 50-60 Hz (Different voltages and frequencies on request)	



TECNOCUT GREENJET EVO : TECHNICAL DATA				
MODEL	TECNOCUT GREENJET 4139	TECNOCUT GREENJET 6200	TECNOCUT GREENJET 4139 SA	TECNOCUT GREENJET 6200 SA
POWER	34 kW / 45 HP	34 kW / 45 HP	34 kW / 45 HP	34 kW / 45 HP
MULTIPLIERS	2	2	2	2
MAX WATER PRESSURE	4139 bar / 60000 psi	6200 bar / 90000 psi	4139 bar / 60000 psi	6200 bar / 90000 psi
MAX WATER PRESSURE	5 L/min / 1,32 gpm	2,61 L/min / 0,32 gpm	5 L/min / 1,32 gpm	2,61 L/min / 0,32 gpm
MAX ORIFICES DIAMETER	0,4 mm / 0,016 in	0,28 mm / 0,011 in	0,4 mm / 0,016 in	0,28 mm / 0,011 in
VOLTAGE	400V +/- 5% 50-60 Hz (Different voltages and frequencies on request)			

CMS connect the IoT platform perfectly integrated with the latest-generation CMS machines

CMS Connect is able to offer customised micro services through the use of IoT Apps that support the daily activities of industry operators - improving the availability and use of machines or systems. The platform displays, analyses and monitors all data from connected machines. The data collected by the machines in real time become useful information increase machine productivity, reduce operating and maintenance costs and cut energy costs.



CMS active a revolutionary interaction with your CMS machine

Cms active is our new interface. The same operator can easily control different machines as the “CMS Active interfaces maintain the same look&feel, icons and iteration approach.



APPLICATIONS

SMART MACHINE: Section designed for the continuous monitoring of machine operation, with information on:

Status: machine status overviews. The representations provided allow machine availability to be checked - to identify possible bottlenecks in the production flow;

Monitoring: instantaneous, live display of the operation of the machine and its components, of currently running programs and potentiometers;

Production: list of machine programs run within a given timeframe with best time and average running time;

Alarms: active and historical warnings.

SMART MAINTENANCE

This section provides a first approach to predictive maintenance by sending notifications when machine components indicate a potentially critical state associated with reaching a certain threshold. In this way, it is possible to take action and schedule maintenance services, without any down-time.

SMART MANAGEMENT

Section designed for KPI presentation for all the machines connected to the platform. The indicators provided assess of the availability, productivity and. The indicators provided assess of the availability,

productivity and efficiency of the machine and the quality of the product.

MAXIMISED SECURITY

CMS Connect uses the standard OPC-UA communication protocol, which guarantees the encryption of data at Edge interface level. CMS Connect's Cloud and DataLake levels meet all state-of-the-art cyber-security requirements. Customer data are encrypted and authenticated to ensure total protection of sensitive information.

ADVANTAGES

- ✓ Optimisation of production performance
- ✓ Diagnostics to support components warranty optimisation
- ✓ Productivity increase and downtime reduction
- ✓ Improvement of quality control
- ✓ Maintenance costs down

EASY OF USE

The new interface has been especially developed and optimized to be immediately used via touch screen. Graphics and icons have been redesigned for user-friendly and comfortable navigation.

ADVANCED ORGANIZATION OF PRODUCTION

Cms Active enables configuring different users with different roles and responsibilities according to the operation mode of the machining centre (e.g.: operator, maintenance man, administrator, ...).

It is also possible to define the work shifts on the machining centre and then survey activities, productivity and events that have occurred in each shift.

ABSOLUTE QUALITY OF THE FINISHED WORKPIECE

With CMS aActive the quality of the finished workpiece is no longer jeopardized by worn-out tools. The new Tool Life Determination system of CMS Active sends warning messages when the tool life is running out and recommends its replacement at the most appropriate time.

TOOL SET-UP? NO PROBLEM!

CMS Active guides the operator during the tool magazine set-up phase, also allowing for the programs to be run.

THE RANGE OF CMS METAL TECHNOLOGY

FOR METAL AND TECHNICAL ARTICLES PROCESSING

WATERJET CUTTING MACHINES



TECnocut SMARTLINE



TECnocut EASYLINE



TECnocut MILESTONE S



TECnocut IDROLINE S



TECnocut PROLINE



TECnocut AQUATEC



TECnocut WATERSPEEDY S

PRESSURE INTENSIFIERS



TECnocut EASYPUMP



TECnocut JETPOWER EVO



TECnocut GREENJET EVO

DRY DEBURRING-FINISHING MACHINES



DMC M950



DMC EUROSYSYSTEM



DMC METALSYSTEM

WET DEBURRING-FINISHING MACHINES



DMC M950 WET



DMC TOP METAL



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