Cms
advanced materials technology

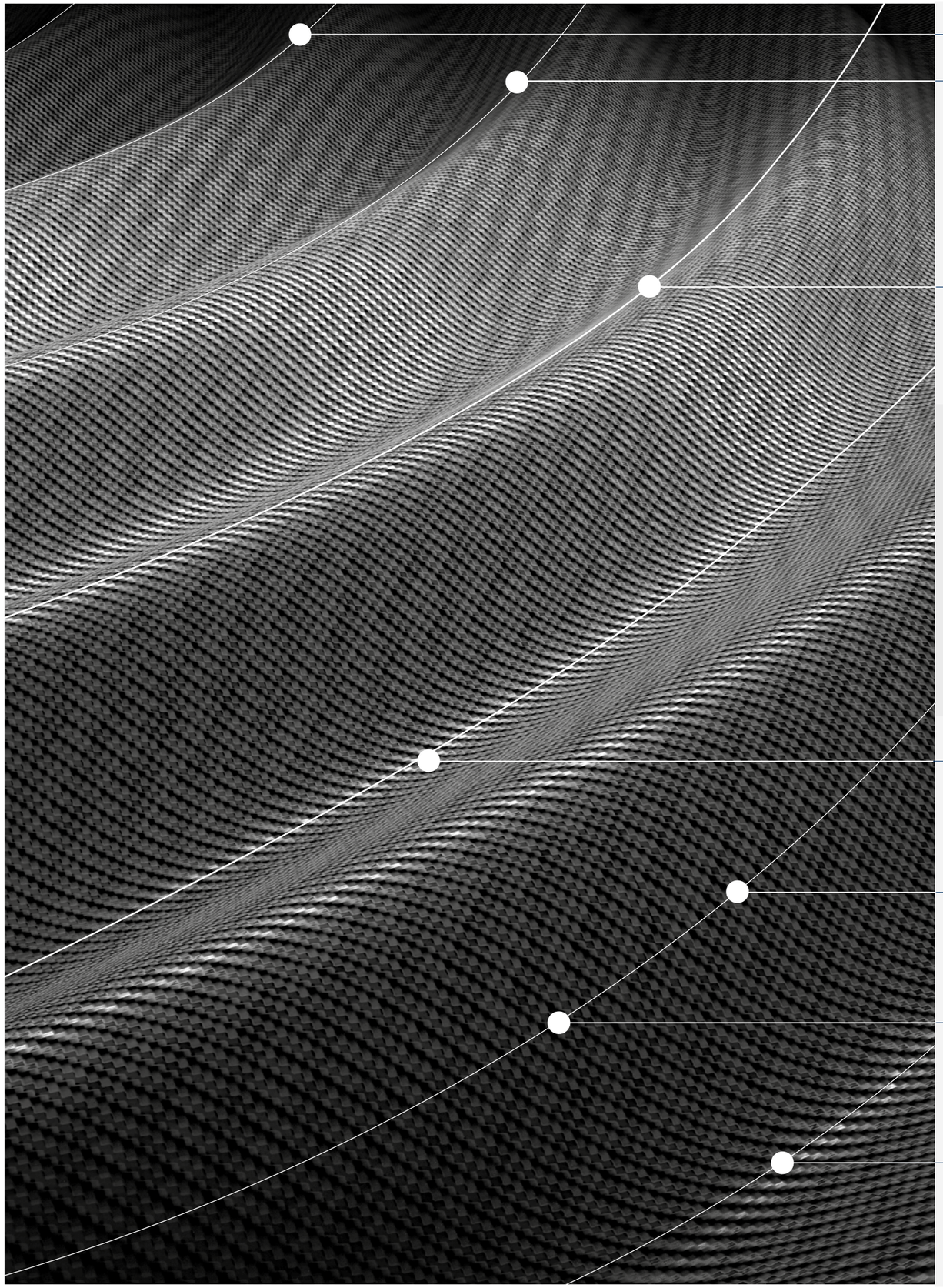
a brand of scmgroup

advanced materials technology

CUTTING-EDGE TECHNOLOGIES FOR THE PROCESSING OF **ADVANCED MATERIALS**

CMS Advanced Materials Technology is the leader in the field of numerically controlled machining centers for the processing of advanced materials: **composites, carbon fiber, aluminum, light alloys and metal**. Since the early 2000s, CMS Advanced Materials Technology has established itself as a **technological partner** in areas of excellence such as **aerospace, aviation, automotive, race boats, Formula 1 and the most advanced railway industry**.

The ability to be close to its customers represents a precise guarantee that **CMS Advanced Materials Technology** has the organizational power to be a real partner, as well as a provider of excellent technologies.



1969

CMS is established. CMS is the acronym for **Costruzione Macchine Speciali (Special Machines Manufacturing).** The company introduces itself to the market as a manufacturer of traditional machine tools, powered by mechanical, pneumatic or hydraulic systems.

1989

CMS joins the sector of processing machines for **advanced materials,** immediately becoming a reference point. The company operates in many sectors: **aerospace, aviation, automotive, race boats, railway industry, Formula 1** and many others.

2015

SCM Group, which had already acquired 51% of CMS in 2002, takes over the remaining shares. **CMS therefore becomes 100% part of the Group**, which guarantees international solidity and capillarity.

FOR CMS, THE FUTURE IS THE DESTINATION OF A CONTINUOUS JOURNEY WHICH BEGAN IN **1969**. IT IS BASED ON TWO FUNDAMENTAL ELEMENTS: IN-DEPTH UNDERSTANDING OF THE **CUSTOMER'S NEEDS** AND HIGH LEVEL OF SPECIALIZATION, TO PROVIDE UNIQUE **ADDED VALUE** TO THE CUSTOMER'S MANUFACTURING PROCESSES.

2017

CMS **doubles its production capacity** with the opening of a **new production center**, PLANT Z, located in Zogno (Bergamo)

2018

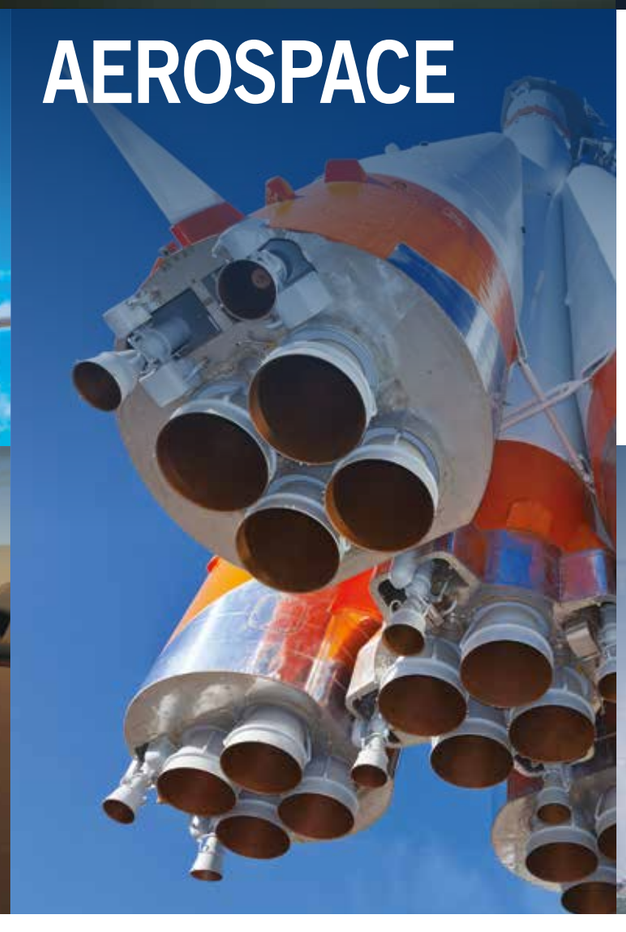
CMS starts to develop its project of Technology for the **Additive Manufacturing** in partnership with the Fraunhofer Institute, a prestigious German research center. In the same year, CMS acquires the American company **Diversified Machine Systems (DMS)**.

2020

The new technology center is inaugurated in Zogno (Bergamo)

2021

Sales forces of CMS North America and **Diversified Machine Systems** merge in a single organization for the US market.



UNIQUE SOLUTIONS FOR ANY NEED

CMS Advanced Materials Technology works with companies and research centers operating in sectors where efficiency, versatility and high quality performances are indispensable requirements. CMS Advanced Materials Technology machines make it easier to respond continuously to the needs of increasingly complex processes in extremely demanding sectors, such as **automotive, aerospace, F1 & motorsport, railway industry, race boats and more.**

CMS ADVANCED MATERIALS TECHNOLOGIES

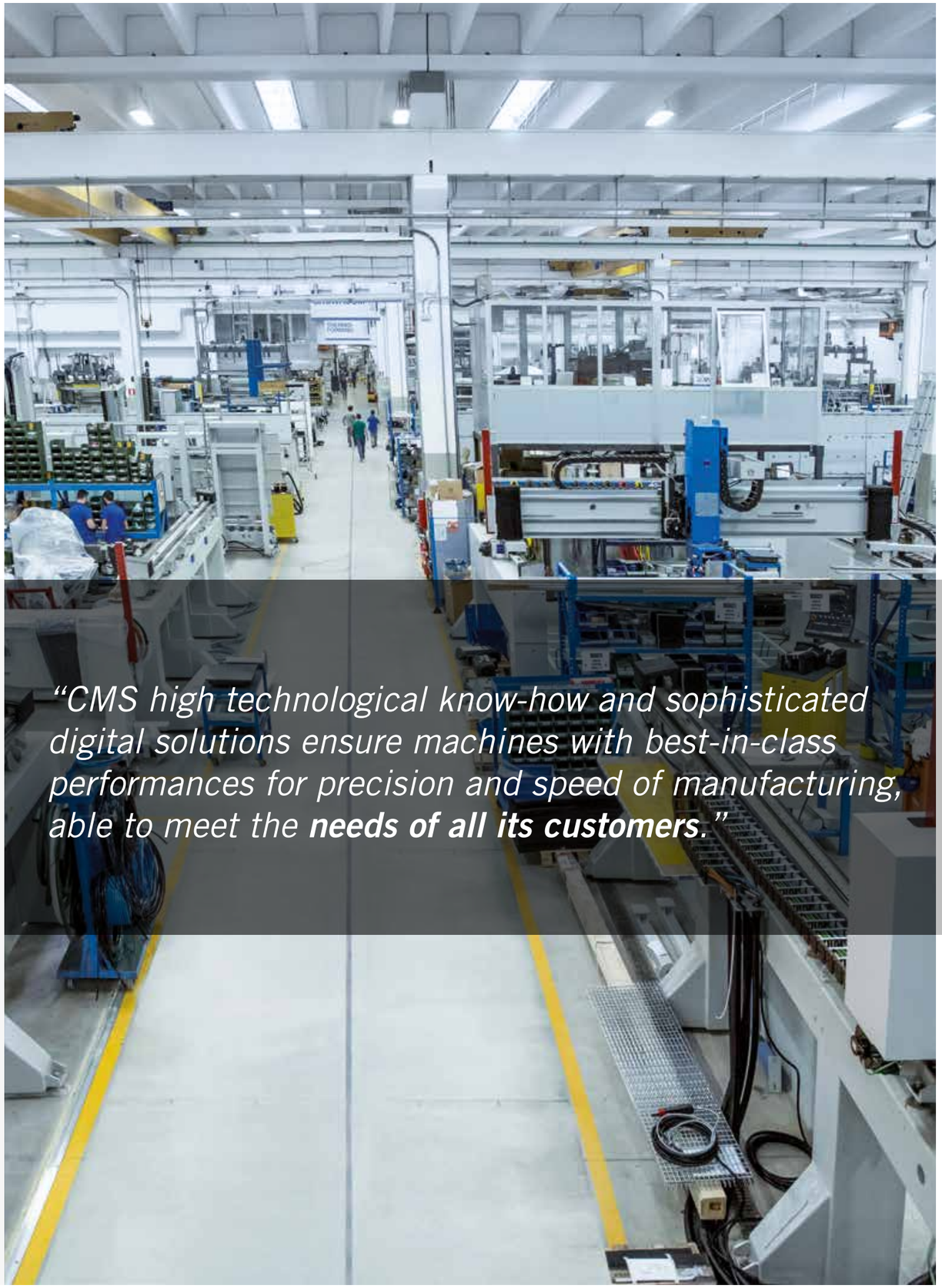
5-axis machining centers, highly specialized and specially designed for the processing of **composite materials, carbon fiber, aluminum and light alloys.** Its wide range of machines ensures CMS Advanced Materials Technology's ability to meet the needs of all its customers.

TECHNOLOGIES FOR THE PROCESSING OF ADVANCED MATERIALS
A. MONOBLOC CNC MACHINING CENTERS FOR VERTICAL MILLING
B. 3/5-AXIS CNC MACHINING CENTERS, PASSAGE IN Z UP TO 500 MM
C. GANTRY CNC MACHINING CENTERS FOR LARGE-SIZE WORK AREAS
D. MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING
E. SOLUTIONS FOR ADDITIVE MANUFACTURING
F. FIXED AND MOBILE BRIDGE CNC MACHINING CENTERS
G. WATERJET CUTTING SYSTEMS
H. CNC MACHINING CENTERS FOR THE EYEWEAR INDUSTRY
I. CNC MACHINING CENTERS FOR GUNSTOCKS PROCESSING
J. WIND BLADE WORKING SYSTEMS

CMS DIGITAL SYSTEMS

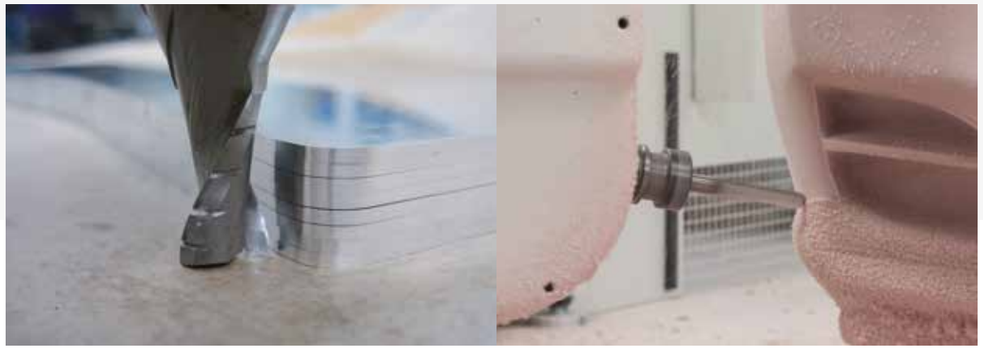
CMS accompanies its customers through the whole production process, combining **machines with software solutions** and digital services, with a constant attention to **performance improvement** in order to optimize the company productivity. CMS software solutions are developed to allow their integrability with the company pre-existing software, in order to **optimize the machine use** and the whole process.

DIGITAL SOLUTIONS
1. CMS CONNECT
2. CMS ACTIVE



A. MONOBLOC CNC MACHINING CENTERS FOR VERTICAL MILLING

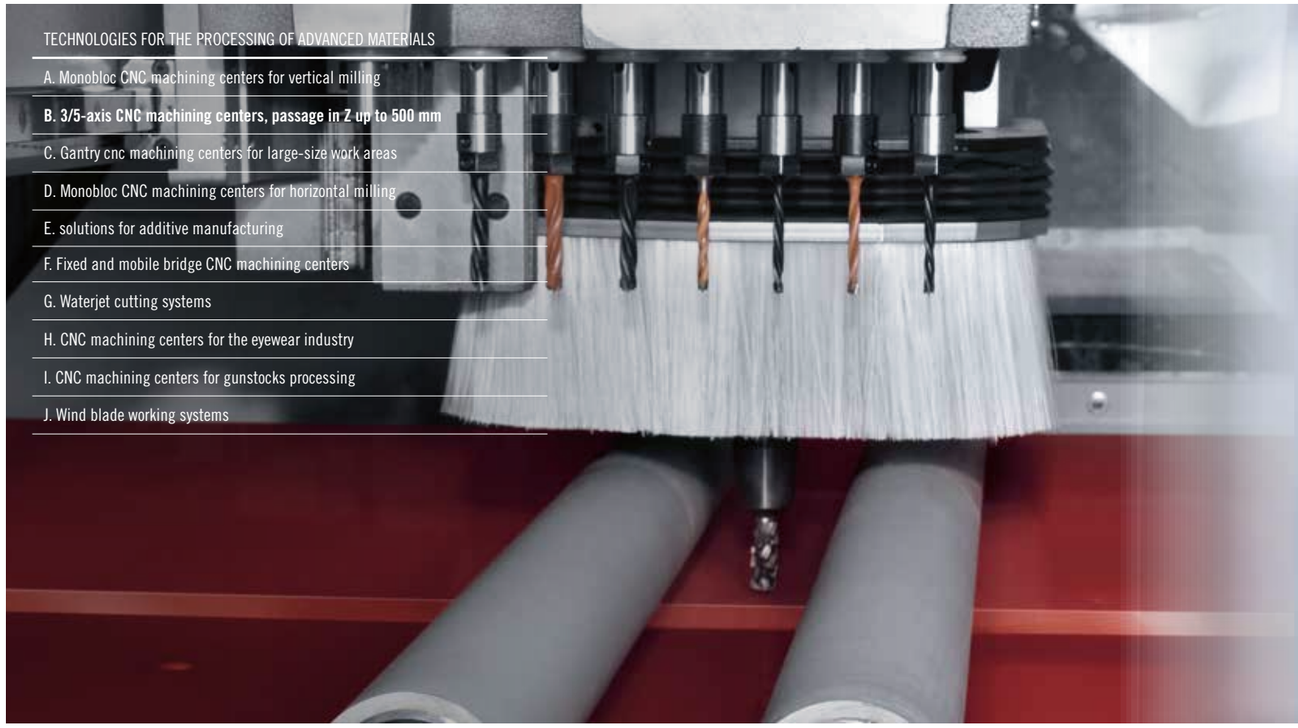
Monobloc machining centers for vertical milling, ideal for the processing of **composite materials, aluminum and metal**. The advanced design of its structures, result of CMS Advanced Materials Technology's continuous investments in research and development, and the sophisticated technological solutions adopted provide rigidity, **precision over time, speed and flexibility**, to guarantee **an exceptional level of finishing and an incomparable accuracy**. Thanks to CMS Adaptive Technology, a function integrated in the control, the operator obtains the maximum parameters of material removal on a specific surface by simply recalling the relevant mapping. CMS Adaptive Technology significantly reduces cycle times on complex surfaces, without compromising finishing quality and precision. **Every detail of these machines is designed to guarantee performances without compromise**.

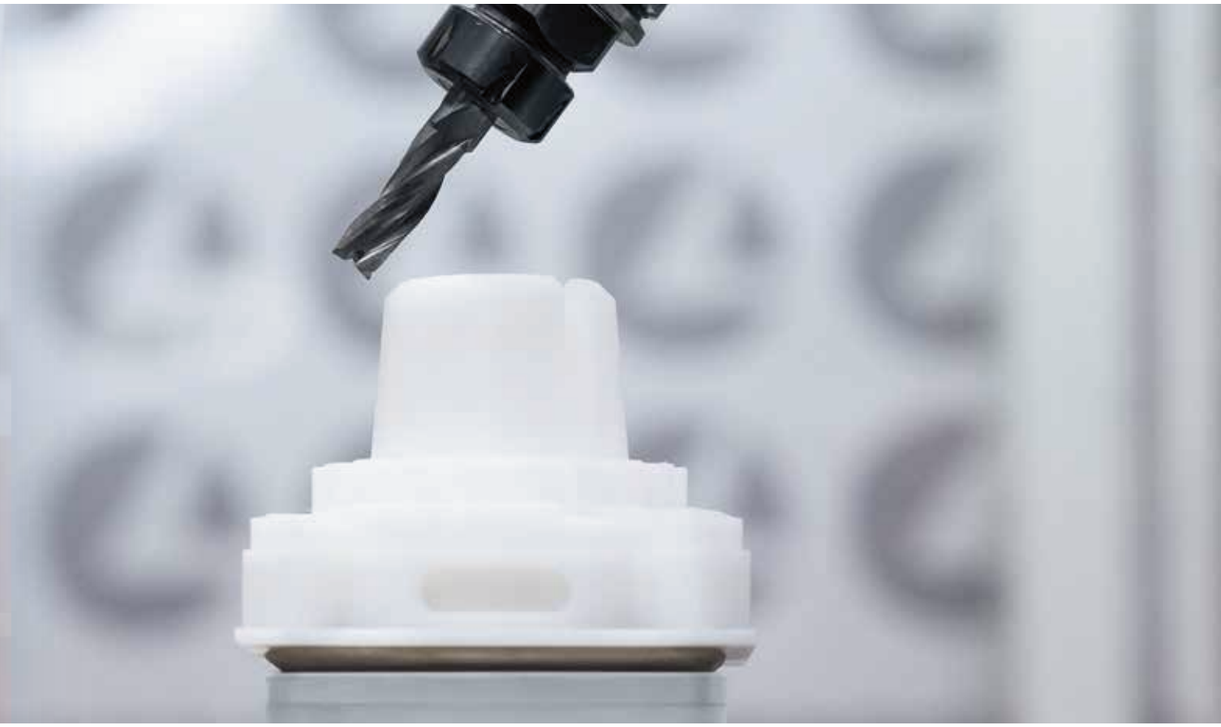


NO-LIMIT CONFIGURABILITY
These machining centers feature **large-size work areas**, to offer maximum freedom and new production opportunities. In many models, this configuration flexibility is expressed through the possibility of **pendular working** and the availability of **configurations with extractable** (APC) and **rotating** (TR) tables, in order to obtain the highest production flexibility.

THE POWER OF INNOVATION
All the **electrospindles** are **fully designed and manufactured within the group**, and represent the result of 30 years of experience and continuous innovation. The extensive range allows our customers to always have the electrospindle with the ideal torque, power and rpm features for their processing, **maximizing the productivity of the machine**. In addition to the milling units, it is possible to add an ultrasound cutting unit, combining the two technologies for **an exceptional synergy** in machining core materials.

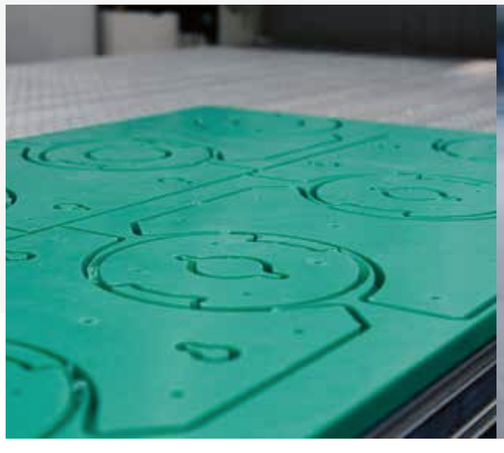
THE POWER OF WATER
Some models are designed with **integrated lubrication and cooling systems**, ideal for the machining of aluminum parts. Each component is specifically designed for this function: from the base sealed with integrated steel panel, to the laminated safety glass, to the evacuation system. Each detail is designed and integrated to ensure **uncompromising performances**.





B. 3/5-AXIS CNC MACHINING CENTERS
WITH UP TO 500-MM Z-PASSAGE

"All in one" 3- and 5-axis machining centers equipped with high-tech solutions for **the processing of advanced materials, technical articles and plastics**.
All the necessary to give the best response to the most diversified processing requests: **from nesting technical items to cutting low-drawing thermoformed products**, without compromising.
The structure of these machines guarantees **maximum reliability and performance consistency over time**.



CUTTING PERFORMANCES
Maximum performances in the processing of plastic materials thanks to the operating units optimized for this type of machining. **Total absence of vibrations** both during the removal processes and during the high-speed trimming of thermoformed parts.

EVERY SECOND SAVED IS A SECOND EARNED!
Work cycles **on average 9% faster** thanks to the rack magazines inside the mobile cabins. The tools are always available in the front part of the operating unit for **changes in less than 15 seconds**.

MINIMUM VOLUME, MAXIMUM FREEDOM OF ACCESS
Thanks to the "pro-space" protections, the loading areas are completely free to **minimize the space they take up**. The absence of perimetral protections allows to access the work plane from all sides of the machine, **saving on average 15% of the work surface taken up**.

C. GANTRY CNC MACHINING CENTERS
FOR LARGE-SIZE WORK AREAS

Numerically controlled machining centers designed according to CMS philosophy: these machines are the result of the experience acquired in the **automotive, aerospace, railway and marine industries**. The structure and the technical solutions adopted, together with selected components, ensure **high level of finishing, high speed of processing, reliability, structural rigidity, flexibility of use and high productivity.**

PERFORMANCES WITHOUT LIMITS
Workpiece dimensions are not a problem anymore - not even those of highly challenging sectors such as aerospace, boating and wind energy. In addition, thanks to the aeronautic engineering concepts applied to the structures, CMS does not compromise in terms of performances, ensuring volumetric precisions 21% lower than the average for the sector.

BETTER AND FASTER
The high operating power, the **geometric precision** and **the reliability** even in the most complex machining operations lead to a single result: **producing better workpieces more quickly**. These machines are designed to adapt to your productive reality and make it even more efficient and competitive.

TAILOR MADE
This type of machine allows to choose the most suitable solutions to your needs: **single or double operating unit, single or double work area, 5-axis milling unit from 12 to 32kW, 5-axis unit with waterjet technology**. With **more than 100 dimensions,** it is impossible not to find the most efficient configuration for each productive reality. Without compromise.

D. MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING

Ikon is the 5-axis machining center with **vertical table geometry** for the processing of components in composite materials and aluminum. Equipped with one or two operating units, it is able to **ensure high productivity** and guarantee **maximum visibility of work areas**. The advanced design of the monobloc structure, result of the CMS research center, and the technical solutions adopted ensure **rigidity and precision over time**.

POWER AND PRECISION
Ikon is **fitted with 2 vertical rotating tables** for equipping and loading/unloading of workpieces in masked time and a double 5-axis operating unit for simultaneous machining of 2 workpieces or combined machining of both units on a large-sized workpiece. **The high operating power**, the **geometric** precision and **the reliability even in the most complex machining operations** lead to a single result: producing better workpieces more quickly.

ALL-AROUND FLEXIBILITY
The geometry of the machine, with vertical rotating tables, offers **extremely compact dimensions**, with **configurations** that are **41% smaller than usual**, to allow an easy and cost-effective installation in all production contexts. Moreover, the accessibility for loading/unloading outside the work area makes the operation safe and efficient, as well as **easy to integrate in highly automated contexts**.

DUST? NO PROBLEM!
The machine includes **a full enclosure to retain the dust, chips** and **noise** produced during machining, for the maximum safety of the operators. A motorized belt attends to the automatic evacuation of chips, which are dropped thanks to the special geometry of the machine with vertical tables, while special suction inlets ensure the dust cleaning operation.

E. SOLUTIONS FOR ADDITIVE MANUFACTURING

CMS, a pioneer in CNC machines for materials processing, began developing innovative Large Format Additive Manufacturing (LFAM) solutions in 2018 to enhance the competitiveness of the composite and tooling industries.

Large Format Additive manufacturing

Large Format Additive manufacturing (LFAM) using screw extrusion of thermoplastic pellets is a rapidly growing technology for producing composite tooling. Applications include CFRP autoclave layup molds, master molds, trimming jigs, and machining vacuum fixtures. Reduced lead times, material savings, and recyclability make LFAM a competitive alternative to conventional technologies for tool manufacturing.

EXTRUDER E1
Max Flow Rate 10 kg/h

EXTRUDER E3
Max Flow Rate 30 kg/h

EXTRUDER E10
Max Flow Rate 100 kg/h

TAILORED SOLUTION:
Cms provide specialized LFAM solutions exclusively for **3D printing,** as well as advanced hybrid systems that seamlessly integrate 3D printing and milling technologies.

MATERIAL SAVING
Near net shape tool manufacturing, **up to 80% material and weight saving** compared to conventional technologies.

SUSTAINABLE SOLUTION
60% reduction in green gases emissions compared to traditional tool manufacturing process (life cycle assessment).

EASE OF USE
Icarus slicing software and print HMI simplify process and temperature control, thereby reducing programming and printing times and Improving production workflow.

HIGHLY FLEXIBLE
Cms LARGE FORMAT ADDITIVE MANUFACTURING Technology enables vertical (0°), inclined (45°) and Horizontal (90°) 3D printing all on a single machine.

F. FIXED AND MOBILE BRIDGE CNC MACHINING CENTERS

3, 4 or 5-interpolated-axis machining centers dedicated to high speed processing of **large panels** or **long and narrow workpieces** in composite materials, aluminum or sandwich materials. Structures and mechanics (with high precision guides and racks) offer **high power, geometrical precision and reliability,** to ensure high speed even in case of heavy machining.

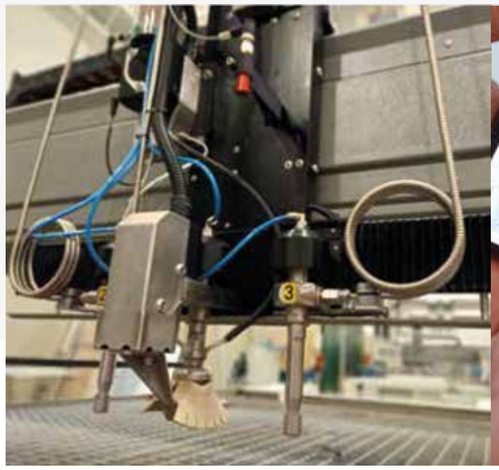
IDEAL FOR THE MOTORHOME AND REFRIGERATED TRUCKS SECTORS
With more than **150 machines** installed and operating around the world, CMS Advanced Materials Technology is the reference for **the caravan/camper sector** and more. For instance, these machines have been used for successful applications even in the **refrigerated trucks** sector. This is a winning solution for customers that look for **automation, productivity and maximum reliability**.

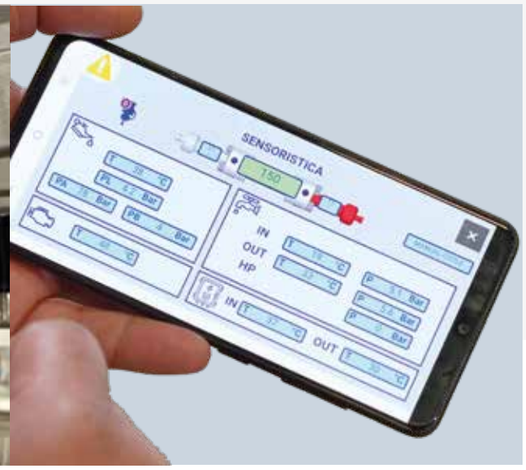
MAXIMUM CONFIGURABILITY
Over the years, CMS has developed several operating units that can be used, also in coupled mode, to **reduce the manufacturing time of many machining operations by 53%**. 3, 4 and 5-axis heads and new floating operating units to carry out recesses, avoiding the use of expensive aggregates requiring continuous maintenance.

FULL INTEGRATION
This type of machines can be configured for **full integration in unmanned production lines**, where all machining phases, such as loading of the panel, alignment, and blockage, are carried out in full automatic mode. This is made possible thanks to the use of the most advanced technologies and **the extreme reliability of the machines**, which become an indispensable element in advanced production systems.

G. WATERJET CUTTING SYSTEMS

CMS Advanced Materials Technology offers a wide range of **complete waterjet cutting systems and pressure intensifiers.** Thanks to CMS Tecnocut's **know-how** in this technology, the machines offered are the perfect solution for a wide range of applications.
These solutions perfectly combine the **power of high-pressure waterjet cutting with the reliability of sturdy, modular structures, with large worktables** capable of guaranteeing unique positioning precisions and repeatability.

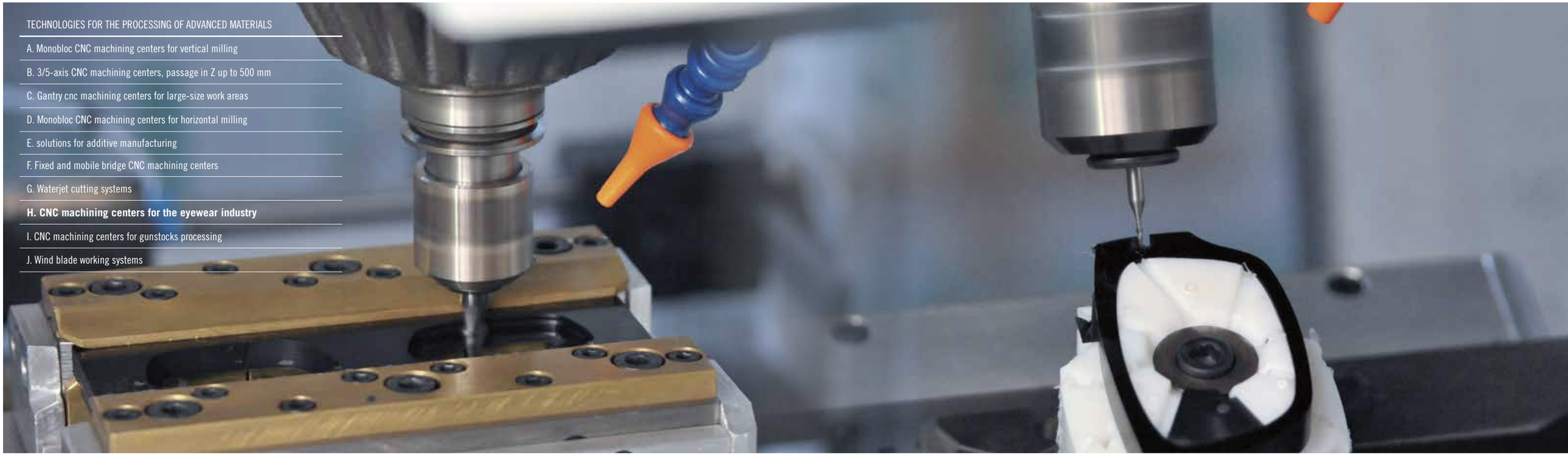




**LIMITLESS OPPORTUNITIES:
SAVING OF UP TO 33% IN CYCLE TIME**
Cutting heads with limitless rotation that guarantee a 33% reduction in the cutting cycle, by eliminating the need to recover C-axis rotations to align wires and pipes.

**INCREASE
IN PRODUCTIVITY**
A wide range of materials can be processed thanks to the versatility of the waterjet technology. Customized solutions, like the one for pendular working and configuration of up to 4 independent 3-axes heads, mean production can be increased up to 75%.

**LOADING ERGONOMICS:
SMART OPERATION**
Maximum loading ergonomics, compact monolithic and open frame structures simplify workpiece loading and unloading.



H. CNC MACHINING CENTERS
FOR THE EYEWEAR INDUSTRY

Since 1997, CMS has stood out as a pioneer in technology for the production of acetate eyeglass frames. The company began its journey with the revolutionary monoposto machining center, and today presents **monofast evo,** an evolution that further refines the already established monofast model. This exclusive system was developed specifically for the optical industry, and has won the trust of leading eyeglass manufacturers because its innovative features respond to the needs of highly automated production.
Its combination of speed, precision and automation makes monofast evo an indispensable tool to remain competitive in the dynamic eyewear sector.

FULLY AUTOMATED.
All is worked out in detail! The high level of automation and HW - SW integration in the new advanced HMI make monofast evo the winning solution. The machine has blank magazines with automatic loading and unloading. It can turn the glasses over automatically, making it extremely easy to process all six sides. Maximum ergonomics and operator safety in a small space.

NEW 20-POSITION TOOL CHANGE MAGAZINE. The new single-spindle operating unit with liquid cooling and ultra-fast
20-position tool change ensures fewer process interruptions and greater flexibility.

NEW TECHNOLOGY WITH DIRECT TORQUE MOTOR for the W rotary head and new rotary axis dynamics; no backlash, less maintenance and better quality. The entire process takes a step forward in efficiency.

GUARANTEED CLEANING: revised and optimized machine base, chip suction system, blowers and integrated ionizing bar, all to facilitate and limit cleaning procedures: cleaning becomes an added value.

COMPATIBILITY with programs made with the previous model for a smooth transition.

I. CNC MACHINING CENTERS
FOR GUNSTOCKS PROCESSING

Fixed bridge and 3-4-5-interpolated-axis machining centers, **ideal for processing mechanical seats of rods, rifles, semi-automatic and over-and-under guns,** where absolute precision is required. This machine range meets all the needs: from the **first gunstock processing**, to the **manufacturing of the seats dedicated to mechanics** and the **re-processing and lathing operations** involving external surfaces. Workpieces produced with CMS technologies appear perfect in every detail and ready for the following process operations, such as smoothing and laser engraving.

INTEGRATED AUTOMATION
Unmanned machining with automatic loading/unloading blank magazines. **Integral cabin enclosure, chip conveyors, suction inlets** and **blowers** - nothing is left to chance: do you want to integrate the machine with a robot? We can do that.

ALWAYS BY YOUR SIDE! 24/7
High reliability components, integral soundproof cabin, blowers, dedicated suction points, workpiece breakage sensors, cameras and much more. Everything developed **to get the most out of your machine.**

THE LEGEND
The manipulator that is now a legend. Precision, repeatability and sturdiness have always characterized the CMS manipulator dedicated to the world of rifles.

NO COMPROMISE
The highest expression of productivity and quality. Machining of mechanical seats of rods, rifles, semi-automatic and over-and-under guns. Up to 4 operating units and 2 manipulators work in sync and without compromise; **cycle times reduced by up to 53%**.

J. CNC MACHINING CENTERS
FOR WIND BLADE WORKING SYSTEMS

Eos provides **a complete range of drilling and milling processes for wind blades**, with the benefits of an **automatic solution** and the architecture of a CNC machine. Thanks to its technical features, it ensures **productivity, accuracy and repeatability of the operations.** The machine structure is extremely flexible, and it adapts to the machining of several wind blade models. Easy to program and manage, it represents the evolution of the CMS technology for this kind of applications.

LARGE-SIZE PRODUCTION WITH FLEXIBILITY
Rotor blade holder: **carriages managed by CNC**, fully integrated with the system. This ensures high productivity, accuracy and repeatability. By using the CMS machining solution, **the highest precision on the market** is ensured and, therefore, the most effective wind turbine operation.

THE PROGRAM DEDICATED TO YOUR NEEDS
Automatic blade alignment. The CNC program of each blade is automatically adjusted according to the actual position of the blade. **Instant configuration** based on the different blade dimensions.

DUST? NO PROBLEM!
Full enclosure and suction hood on each operating unit. **Extremely efficient dust suction.**

1. CMS CONNECT IS THE IOT PLATFORM PERFECTLY INTEGRATED WITH THE LATEST-GENERATION CMS MACHINES

CMS Connect is able to offer customized 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. Real-time data collected by the machines become useful information **to increase machine productivity, reduce operational and maintenance costs and cut energy costs.**

SMART MACHINE: continuous monitoring of machine operation, with information on:
STATUS: machine status overview. It allows to check the machine availability, in order to identify potential bottlenecks in the production flow;
MONITORING: instantaneous, live display of the operation of the machine and its components, currently running programs and potentiometers;
PRODUCTION: list of machine programs run within a given time frame 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 the machine components report a potentially critical state associated with reaching a certain threshold. This way, it will be possible to intervene and schedule maintenance interventions without stopping the production.

SMART MANAGEMENT
Section dedicated to KPI presentation for all the machines connected to the platform.
The indicators provided assess the availability, productivity and efficiency of the machine and the product quality.

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

ADVANTAGES
- Optimization of production performances
- Diagnostics to support the optimization of component warranty
- Productivity increase and downtime reduction
- Improvement of quality control
- Maintenance costs cut down

2. CMS ACTIVE A REVOLUTIONARY INTERACTION WITH YOUR CMS MACHINE

CMS Active is our new interface. The operator can easily manage different machines, as the CMS Active interface software maintain the same look&feel, icons and interaction approach.

EASE OF USE
The new interface has been especially designed and optimized to be immediately used via touch screen. Graphics and icons have been redesigned for an easy and comfortable navigation.

ADVANCED ORGANIZATION OF PRODUCTION
CMS Active allows to configure different users with different roles and responsibilities according to the use of the machine (e.g.: operator, maintenance man, administrator...).
It is also possible to define the work shifts on the machine and then survey activities, productivity and events that have occurred in each shift.

ABSOLUTE QUALITY OF THE FINISHED WORKPIECE
With CMS Active, 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.

CUSTOMER SERVICE
OUR TECHNICIANS BY YOUR SIDE AROUND THE WORLD

- Training
- Installation
- Remote Customer Care (RCC)
- On-site support
- Check up, preventive maintenance and calibrations
- Changes and retrofitting
- Spare parts

WORLDWIDE PRESENCE
AND DEDICATED WAREHOUSES AT THE SERVICE OF EVERY CUSTOMER

- 36,000 different codes to serve machines of all ages
- 1 central warehouse in Zogno and other 6 fully equipped warehouses in the world, in order to ensure shipping optimization and cut waiting times
- 98% of orders available in stock
- spare parts guaranteed by a scrupulous control process and validated by our in-house quality laboratory
- availability to prepare lists of recommended spare parts based on the customer's needs, in order to minimize downtime risk

World leader in the field of technologies for the processing of a wide range of materials - wood, aluminum, plastic, glass, stone, metal and composite materials - and industrial components.

The Group companies around the world are reliable partners of well-known companies working in several product sectors: from the furniture, construction, automotive industry to aerospace, boating and plastic materials processing.

Scm Group coordinates, supports, and develops a system of industrial excellence, with highly specialized and integrated plants in Italy and other sites in Germany, the United States, and Brazil, with production dedicated to local markets.

Scm Group has a turnover of 900 million euros, over 4,000 employees, and a direct presence in five continents.

INDUSTRIAL MACHINERY

Stand-alone machines, integrated systems and services dedicated to processing a wide range of materials.

scm
Woodworking technology

Cms
Composite, aluminium, plastic, glass, stone, metal technology

MECAL
Technologies for the profiles processing of aluminum, PVC and light alloys

TECNOLOGICA
Automated systems for industry

INDUSTRIAL COMPONENTS

Technological components for the Group's machines and systems, for those of third-parties and for the mechanical industry.

HITECO
Electrospindles and technological components

es
Electric panels

steelmec
Carpentry and mechanical machining

scmfonderie
Iron castings

SCM GROUP IN A NUTSHELL

900 Million/Eur of consolidated turnover	**+4.000** employees in Italy and abroad	**5** main production centers	**5** continents with direct and widespread presence	**7%** of turnover invested in R&D

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