ADVANCED MATERIALS

antares / ares

Monobloc CNC machining centers for vertical milling









Cms
advanced materials technology

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 three large, highly specialized production centers employing more than 4,000 workers and operating in five 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 fiber, aluminum, light alloys, plastic, glass, stone, and metals. It was established in 1969 by Mr Pietro Aceti with a vision 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
advanced materials technology

CMS Advanced Materials Technology is a leader in the field of numerically controlled machining centers for the working of advanced materials: composites, carbon fiber, aluminum, and light alloys. Substantial investments in research and development have allowed the brand to always be on the forefront of cuttingedge design, with machines that ensure best-in-class performance in terms of accuracy, speed of execution, and reliability; meeting the needs of customers operating in the most demanding divisions.

Since the early 2000's, **CMS Advanced Materials Technology** has established itself as a technology partner in areas of excellence such as aerospace, aviation, automotive, race boating, Formula 1, and the most advanced railway industry.

scm group | industrial machinery and components

Cms | your technology partner



antares / ares

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a company of scm group

APPLICATIONS







carbon fiber components | aluminum parts | F1 & motor sport






marine industry | defence | automotive | aeronautics







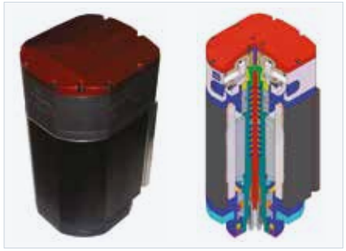
ANTARES
TECHNOLOGICAL BENEFITS

5-AXIS HIGH SPEED CNC MACHINING CENTER WITH MONOBLOC STRUCTURE FOR ADVANCED MATERIALS PROCESSING

Its compact design easily fits into any production environment, while still benefitting from the large working envelope.

- The monobloc structure ensures stiffness and accuracy throughout its lifetime.
- Maximum accessibility to the working area for piece loading / unloading by manual or automated systems.
- Full acoustically-lined enclosure to contain dust and to reduce the noise generated by the machining operation.





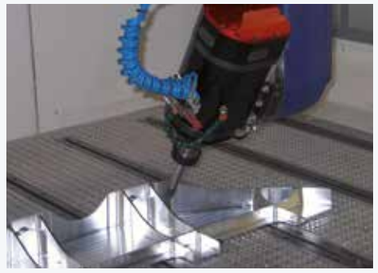
Wide range of electrospindle designed and manufactured inside SCM Group.



Soundproof full enclosure with pneumatic opening for the loading with the crane.

PROCESSING









KEY BUYER BENEFITS

+ **Produce more and better: today and tomorrow** The advanced design of the structure, a result of CMS' research center, and the technical solutions adopted guarantee rigidity and precision over time so that the high finish and accuracy of the workpieces remains a constant feature of your production over the years. The accuracy of ANTARES CMS boasts the industry's best-in-class performance in its category: +23% machining precision and accuracy.

+ **Zero downtime** The maximum accessibility to the working area for workpiece loading and unloading operations, even with automated systems, makes production lean, handy and quick; moreover, the availability of a version provided with two working areas and rotary table enables zeroing equipping and loading/unloading times.

+ **Dust? no problem!** The machine has been designed to better manage dust, chips and noise produced during machining. The total enclosure and the outfit of a wide range of accessories and systems expressly designed for the various types of materials and productions ensures the safety of the operators, cleanliness of the working environment and production efficiency.

ANTARES K
TECHNOLOGICAL BENEFITS

HIGH SPEED 5-AXIS CNC MACHINING CENTRE WITH MONOBLOC STRUCTURE AND FLOOD COOLANT SYSTEM
Antares k is a monobloc machine, specifically designed for flood coolant application.

- Monolithic structure
- Flood coolant system
- Integrated chip conveyor and filtering unit complete with high pressure pump
- Steel table with T-slots
- Largesafetywindowsinlaminatedsafetyglass(impactresistantpolycarbonate on the outside, hardened glass on the inside for chip resistance)
- Roller-type guides
- Full enclosure roof with pneumatic opening for crane loading/ unloading



KEY BUYER BENEFITS

+ **Flexiblity that counts.** The compact dimensions, with overall dimensions that are up to 11% smaller in its class, allow an easy and cost-effective installation in any production context; at the same time the wide working volume available does not limit the size of the workpieces.
+ **The machining center that can change your company.** Antares k is the solution with the best ratio between investment and productivity in the industry. The technical solutions adopted, such as the synchronous NC-controlled electrospindle for high torque already at low rpm, the effective power of 20 kW (S1-100%), the lubrication and cooling system, the monobloc structure with recirculating roller guides, the high axis accelerations, make it possible to obtain a removal volume in aluminium machining that is 33% higher than the average of the category.
+ **The power of water** Antares k is the only machine in its category designed with a built-in lubrication and cooling system for the machining of aluminium parts. Each component of the machining centre is specifically designed for this function: from the sealed base with built-in steel table, to the layered safety windows, to the evacuation system. Each detail is designed and integrated to ensure uncompromising performance.



PROCESSING





ARES
TECHNOLOGICAL BENEFITS

5-AXES HIGH SPEED CNC MACHINING CENTERS FOR COMPOSITES, ALUMINUM AND CARBON FIBER PROCESSING

Movable-bridge machining centers specifically designed for high speed processing of composite materials and light alloys, providing exceptional motion dynamics to ensure high productivity. The advanced structural design avoids machining vibration and achieves excellent finishing quality.

- Very large working areas for the maximum production freedom Wide range of electrospindles, designed and manufactured inside SCM Group
- Broad variety of working areas (single zone or tandem cycle)
- Accuracies ensure suitability for the most demanding machining operations (aerospace, motor sport, etc.)
- CMS Adaptive Technology integrated into the control which allows the user to achieve the maximum material removal rates from a given surface simply by specifying the most suitable adaptive strategy in the part program. Adaptive Technology allows a complex surface to be produced in significantly reduced cycle times without reducing the surface quality or accuracy

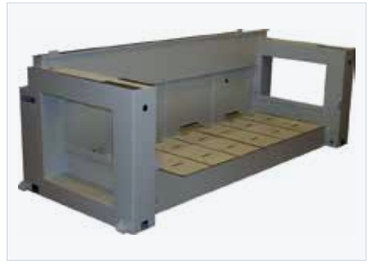




HX5 - 20 KW operating unit



PX5 operating unit for continuous 5-axis interpolated machining



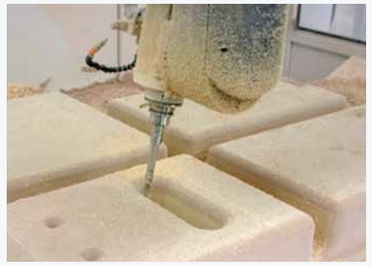
Monolithic structure ensures accuracy and lifelong reliability



CX5 operating unit for continuous 5-axis interpolated machining

PROCESSING











KEY BUYER BENEFITS

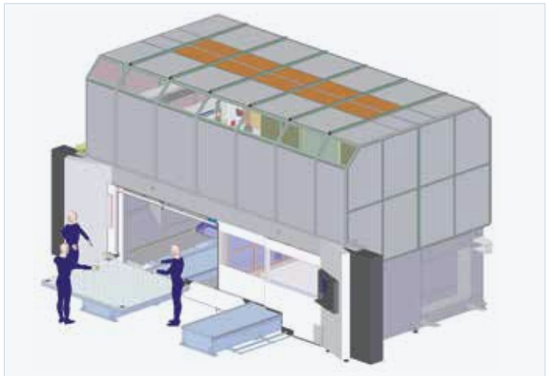
+ **Limitless configurability.** Ares has large-sized working areas to offer maximum space availability and new production opportunities. The wide configurability of the working areas with the possibility of alternate machining and the availability of versions with extractable tables (APC) and rotary tables (TR) makes Ares the solution that can really transform every company.
+ **The power of innovation.** All the electrospindles are fully designed and constructed within the group and are the result of 30 years of experience and ongoing innovation. The wide range allows our Customers to always choose the electrospindle that provides the ideal torque, power and speed for their own machining requirements, thus enhancing the productivity of their machining center. Besides, it is possible to match the milling units with ultrasonic cutting units by combining the two technologies, obtaining exceptional synergy in the machining of core materials.
+ **Cleaning and safety: efficiency means success.** Designed for maximum efficiency in dust management, it is equipped with the most advanced retention and suction systems to guarantee cleanliness of the working environment, safety for operators and total reliability, which are the indispensable prerequisites for achieving the highest levels of production efficiency.

ARES APC
SHUTTLE TABLE VERSIONS (APC)

Ares quality further enhanced by the shuttle tables (APC) for the loading/ unloading outside the machine. APC system enable an easier access to the tables in an area totally protected from dust and noise.

2 modes are available:

- Alternate: the tables move independently for pendulum production
- Syncronized: the tables are coupled to create a larger working area



APC tables allow the loading and unloading outside the working area

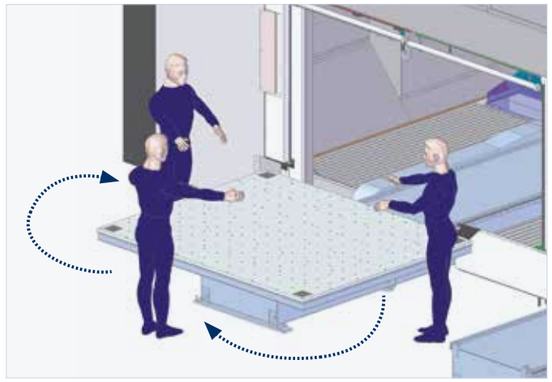


ARES / ANTARES TR
ROTATING TABLE VERSIONS

Ares 3618 and Antares are also available with rotating working tables (TR). These models can offer

- Reduced overall dimensions for the same working areas
- Easier integration in the production flow

The rotating table (TR) is managed by an NC axies to ensure speed, accuracy, position repeatability and reliability.



Rotary table: easy access to the work table in total safety

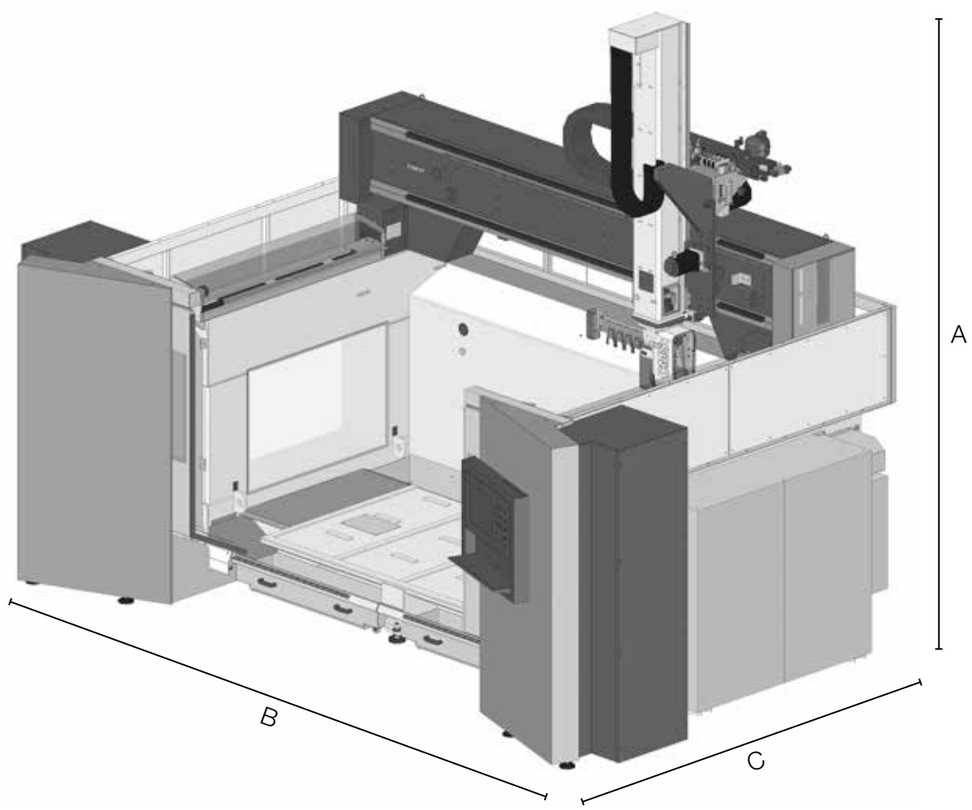
PROCESSING





ANTARES

OVERALL DIMENSIONS & TECHNICAL DATA



ANTARES: ENCUMBRANCE			
A	Z AXIS STROKE		
	4250/4500*		
B	X AXIS STROKE		
	2600 5500	2600 K Version 7300	
C	Y AXIS STROKE		
	1500 3600	1700 3850	2800 5200

* Dimension with roof

ANTARES: WORKING PLANE	
MODEL	DIMENSIONS X (mm)
ANTARES 26/15	2500x1500
ANTARES K	2600x1700
ANTARES 26/28	2500x2800
ANTARES 26/15 TR	(1900x1100) x 2

ANTARES K								
LINEAR AXES					REFERENCE STROKE			
(mm)			(°)		(m/min)		(°/min)	
X	Y	Z	B	C	X/Y	Z	B	C
2600	1700	1200	±120	±270	80	70	9000	

PRECISION AND REPEATABILITY			
LINEAR AXES*	REFERENCE STROKE	A	R
X/Y	2000 mm	0.031 mm	0.021 mm
Z	1200 mm	0.026 mm	0.019 mm
B	+/- 120°	26 arcsec	
C	360°	16 arcsec	

* Precision with linear scales and direct encoders on PX5 Accuracy (A) and Repeatability (R) on the basis of the ISO-230-2 Regulations

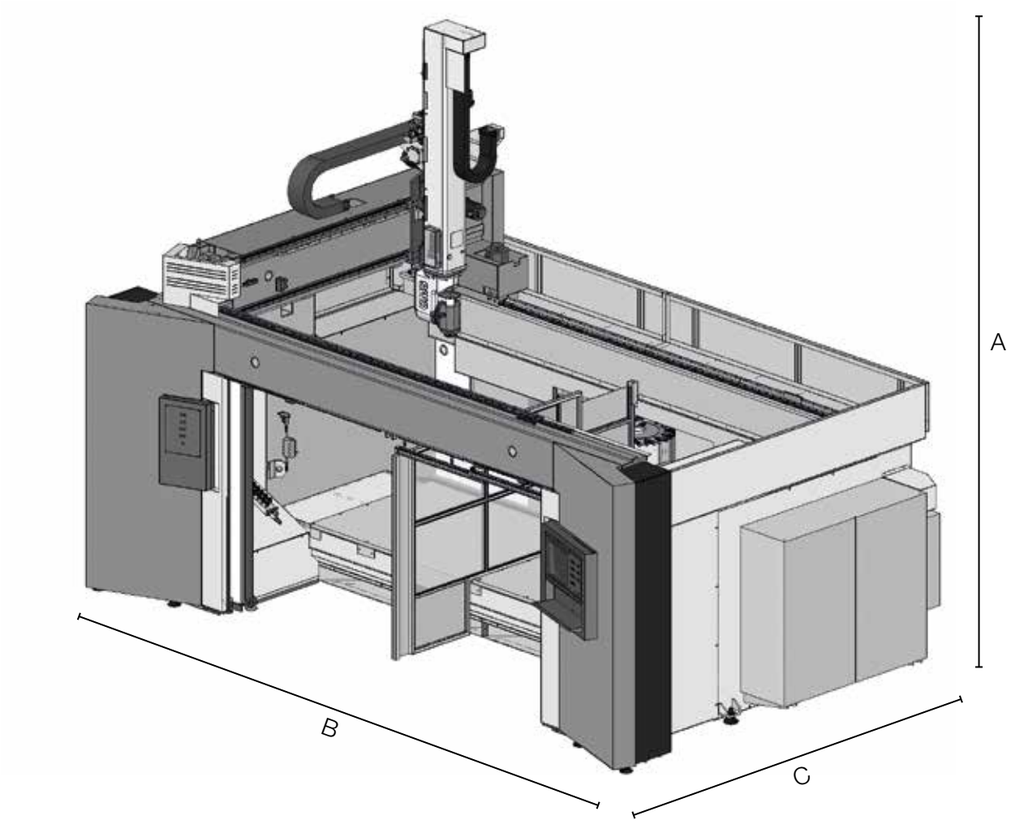
ANTARES WORKING UNITS AND ELECTROSPINDLES						
	CX5 - 8_40	CX5 - 8,5_24	CX5 - 10_24	PX5/HX5 - 12_24	PX5/HX5 - 15_24	PX5/HX5 - 20_24 (sincronous)*
B, C STROKES	B=+\- 120°, C=+\- 360°			B=+\- 120°, C=+\- 270°		
RAPID B, C	10800 °/min			9000°/min		
NOMINAL POWER (S1)	8 kW	8,5 kW	10 kW	12 kW	15 kW	20 kW
MAX POWER	9 kW	10 kW	12 kW	15 kW	17 kW	22,3 kW
MAX RPM	40.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm
MAX TORQUE	6 Nm	8 Nm	9,5 Nm	12,2 Nm	13,8 Nm	20 Nm
TOOL CHANGER	MANUAL AND AUTOMATIC					
TOOLHOLDER	HSK 32 E	HSK 63 F	HSK 63 F	HSK 63 F	HSK 63 F	HSK 63 A
COOLING	LIQUID					

ANTARES: TOOL CHANGER MAGAZINES					
	Standard FOR CX5	Standard FOR PX5	OPTIONS		
N. STATIONS	8 on board	8 on board	additional 8 on board	16 carousel	8 pick up
HOLDER INTERAXES (MM)	100	80	80	117	80
Ø MAX WITHOUT LIMITATION (MM)	90	70	70	110	70
Ø MAX WITH LIMITATION (MM)	250	400	400	230	400
MAX TOOL LENGTH (MM)	265	265	165	300	465*
MAX WEIGHT SINGLE TOOL	3 kg	3 kg	3 kg	6 kg	5 kg

* Values from the spindle nose

ARES

OVERALL DIMENSIONS & TECHNICAL DATA



ARES: ENCUMBRANCE (mm)			
A	Z AXIS STROKE		
	4450		
B	X AXIS STROKE		
	3600	4800	6000
	6400	7810	9610
C	Y AXIS STROKE		
	1800	2600	
	3920	4820	

ARES: WORKING PLANE	
MODEL	DIMENSIONS X (mm)
ARES 3618	3640x1360
ARES 3618 TR	(2430x1100) x 2
ARES 4818	48400x1360
ARES/6018	6040x1360
ARES/3626	3640x2360
ARES/4826	4840x2360
ARES 6026	6040x2360

ARES: SRTOKES AND SPEEDS									
MODEL	AXES STROKES					RAPIDS			
	(mm)			(°)		(m/min)		(°/min)	
	X	Y	Z	B	C	X/Y	Z	B	C
36/18	3600	1800	1200	±120	±270	80	70	9000	
48/18	4800								
60/18	6000								
36/26	3600	2600	1200	±120	±270	80	70	9000	
48/26	4800								
60/26	6000								

ARES APC: SRTOKES AND SPEEDS									
MODEL	AXIS STROKES					RAPIDS			
	(mm)			(°)		(m/min)		(°/min)	
	X	Y	Z	B	C	X/Y	Z	B	C
36/18	3600	1800	1200	±120	±270	80	70	9000	
48/18	4800								
60/18	6000								
36/26	3600	2600	1200	±120	±270	80	70	9000	
48/26	4800								
60/26	6000								

ARES / ANTARES TR: SRTOKES AND SPEEDS									
MODEL	AXES STROKES					RAPIDS			
	(mm)			(°)		(m/min)		(°/min)	
	X	Y	Z	B	C	X/Y	Z	B	C
ARES 36/18 TR	3600	1800	1200	±120	±270	80	70	9000	
ANTARES 26/15 TR	2600	1500	1000	±120	±270	80	70	9000	

ARES WORKING UNITS AND ELECTROSPINDLES						
	CX5 - 8_40	CX5 - 8,5_24	CX5 - 10_24	PX5/HX5 - 12_24	PX5/HX5 - 15_24	PX5/HX5 - 20_24 (sincronous)*
B, C STROKES	B=+\- 120°, C=+\- 360°			B=+\- 120°, C=+\- 270°		
RAPID B, C	10800 °/min			9000°/min		
NOMINAL POWER (S1)	8 kW	8,5 kW	10 kW	12 kW	15 kW	20 kW
MAX POWER	9 kW	10 kW	12 kW	15 kW	17 kW	22,3 kW
MAX RPM	40.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm
MAX TORQUE	6 Nm	8 Nm	9,5 Nm	12,2 Nm	13,8 Nm	20 Nm
TOOL CHANGER	MANUAL AND AUTOMATIC					
TOOLHOLDER	HSK 32 E	HSK 63 F	HSK 63 F	HSK 63 F	HSK 63 F	HSK 63 A
COOLING	LIQUID					

PRECISION AND REPEATABILITY			
LINEAR AXES*	Reference stroke	A	R
X/Y	2000 mm	0.031 mm	0.021 mm
Z	1200 mm	0.026 mm	0.019 mm
B	+/- 120°	26 arcsec	
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* Precision with linear scales and direct encoders on PX5 Accuracy (A) and Repeatability (R) on the basis of the ISO-230-2 Regulations

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Ø MAX WITHOUT LIMITATION (MM)	90	70	70	110	70
Ø MAX WITH LIMITATION (MM)	250	400	400	250	400
MAX TOOL LENGTH (MM) *	265	265	165	465	465
MAX WEIGHT SINGLE TOOL	3 kg	3 kg	3 kg	6 kg	5 kg

* Values from the spindle nose.

ACCESSORIES



Cold air gun



Tool changer magazine; 16 stations



Full roof enclosure for dust and noise reduction, lighting plant included



Dust suction hood



Electronic touch probe



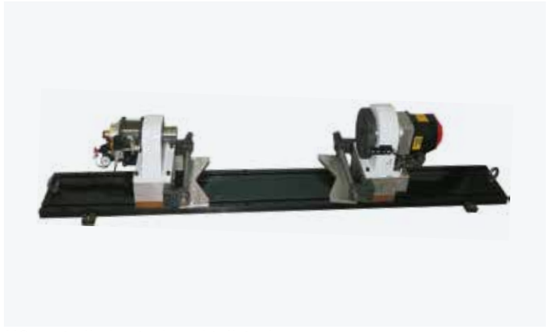
Oil mist unit



Vacuum / air connections



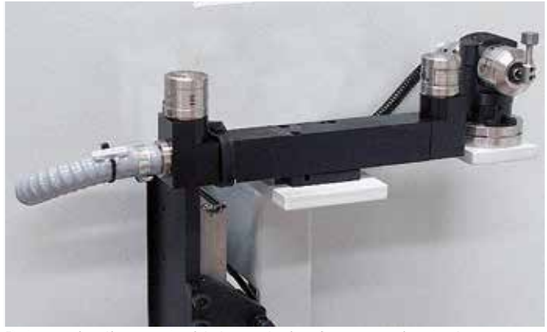
Dust suction hood



NC controlled - stock and tailstock group



Bellow-type roof for dust containemen



Rotary axis alignment with laser device for measuring tool length and diameter



Dust extraction vents



Aluminum vacuum table with steel T slots



Steel table with T slots



Multilayer phenolic vacuum table



Aluminum vacuum table

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 ser- vices, 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-theart 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, maintainance 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.

CMS ADVANCED MATERIALS TECHNOLOGY RANGE OF MACHINES

MONOBLOC CNC MACHINING CENTERS FOR VERTICAL MILLING



ARES



ANTARES



ANTARES K



ATHENA



POSEIDON K



ETHOS K

GANTRY CNC MACHINING CENTERS FOR LARGE-SIZE WORK AREAS



MX5



POSEIDON



CONCEPT



CRONUS



ETHOS

MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING



IKON

FOR COMPOSITE MATERIALS, ALUMINUM AND METAL PROCESSING

FIXED AND MOBILE BRIDGE CNC MACHINING CENTERS



FXB



AVANT



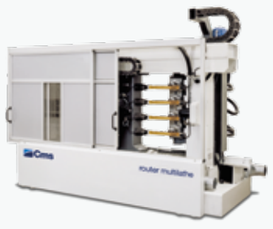
MBB

CNC MACHINING CENTER FOR THE EYEWEAR INDUSTRY



MONOFAST

CNC MACHINING CENTERS FOR GUNSTOCKS PROCESSING



MULTILATHE



MONOFAST



KARAT

WIND BLADE WORKING SYSTEMS



EOS

ACAREAT-0620E

Technical data are not binding and may be changed by CMS without prior notice.

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