cronus

Gantry CNC machining centers for large-size work areas

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.

cronus

Cms
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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

a company of **scm group**

APPLICATIONS

aerospace | F1 & motor sport | automotive | marine industry

trains | defense | wind energy | aeronautics

CRONUS
TECNHNOLOGICAL BENEFITS

HIGH SPEED 5 AXES CNC MACHINES

Numerically controlled machining center designed according to CMS' philosophy: the machine is the result and culmination of experiences developed in the aerospace and automotive sectors. The structure and the technical solutions adopted, along with the selected components, ensure a highest level of component finish, high machining speeds, reliability, structural rigidity, operating flexibility and outstanding productivity.

• The large work surface dimensions enable the effective machining of mid to large-sized workpieces.

• High power, geometric accuracy and reliability even in the most complex machining operations.

• Modular structure, extreme versatility, easily adaptable to the needs of customers operating in very demanding sectors, such as the automotive and aerospace industries.

Kinematics with two drive motors on linear axes: backlash recovery, higher rigidity

Bellows-type roof for dust and aluminium chips control

5 axes milling unit with direct drive technology

FX5 fork type double torque operating unit

KEY BUYER BENEFITS

+ **Precision like never before.** Thanks to Aero-Design technology, the frames of the machining centre boast structural rigidity up to 23% higher than the average in its category, with a high capacity of vibration absorption. In addition, recirculating roller guides and zero backlash kinematics allow the achievement of unprecedented accuracies on such types of machining centers. The combination with state-of-the-art acceleration and speed ensures, as a result, the perfect balance between precision and speed for the most demanding productions such as automotive and aerospace.

+ **Better and faster.** High operating power, geometric precision and reliability even in the most complex machining operations lead to a single result: producing better workpieces more quickly. Cronus has been designed to adapt to your manufacturing reality and make it even more efficient and competitive.

+ **Power and control.** Cronus can be fitted with an innovative 5-axis operating unit equipped with torque motors on the rotating axes; this technology allows direct coupling between the motors and the axes, eliminating all the transmission components and therefore all inaccuracies and mechanical wear; the torque motors can also reach accelerations and speeds up to 5 times higher than traditional solutions while ensuring 41% higher precision.
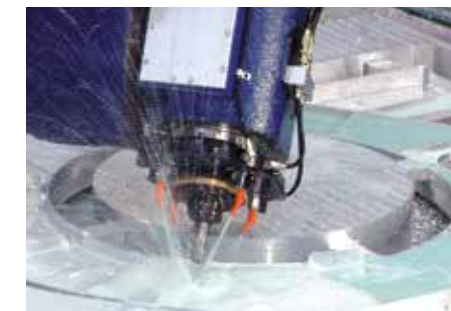
CRONUS
5-AXES CMS UNIVERSAL HOLDING FIXTURE UHF

Fully automatic universal system for holding complex shaped parts, designed and produced by CMS. The system replaces all fixtures and jigs normally required for a single component.

Main advantages of the CMS design

- 5-axes active NC-controlled vacuum cups ensure extremely accurate automatic height and compound angle positioning.

- Extremely compact design: the smallest 5-axes active actuator in the industry.

- Plug and play configuration: each actuator can be replaced or relocated in few minutes without any electronic or mechanical re-configuration.

- The fastest set-up: simultaneous positioning of all actuators without manual intervention.

- Full sealing: the entire system is designed to work in a dusty or wet environment; the location of the most sensitive components make them inherently protected and the use of the most advanced sealing materials guarantee the long term reliability.

- Bespoke configurations: the same main components can be configured to suit the customer's specific needs.

5X ACTUATOR WITH CN-CONTROLLED ORIENTATION IN THE SPACE (0-90° / 360°)

AVAILABLE CONFIGURATIONS
CMS Universal Holding Fixtures (UHF) are available in different design configurations, horizontal, vertical, tilting, single axis, multi axis (including a patented 5-axis solution) and in any required size to be integrated with other Cronus machines.

UHF MATRIX TABLE
Grid configuration structure with plug-and-play actuators.

TILTING UHF TABLE
The central portion of the table is fixed while the two lateral areas can be inclined up to 45°; the inclination is motorized and NC controlled. A very efficient solution for curved parts which have tight radius.

3/5-AXES UHF TABLE
The system allows the location of the actuators and cups very precisely in areas that specifically require supporting during the machining operation.

UHF CONTROL TABLET
UHF programming and anti-collision control software, directly integrated with the CAD/CAM system.

KEY BUYER BENEFITS

+ **UHF: CMS UNIVERSAL SYSTEM FOR AUTOMATIC WORKPIECE CLAMPING*** (*patented).
As a rule, the problem of fixing complex workpieces is solved by means of dedicated equipment for each single workpiece; therefore, the solution is expensive both in terms of realization and logistics (storage and handling) but above all it is not efficient for productions with single lots or very small batches as it often occurs in aerospace. CMS has developed a universal and automatic clamping system, capable of reconfiguring itself in a few seconds to adapt to the (sometimes) extremely complex shapes of each new workpiece. Zero downtime: a revolution in the effeciency and management of production.

CRONUS
OVERALL DIMENSIONS & TECHNICAL DATA

WORKING UNITS AND ELECTROSPINDLES

		KX5 18_24	KX5 32_24*	TORQUE 5 18_24	TORQUE 5 32 _24*	FX5 18_24	FX5 32_24*	FX5 31_15*
WORKING UNIT TYPE		Kompact-MonoArm	Kompact-MonoArm	Kompact-MonoArm	Kompact-MonoArm	Fork	Fork	Fork
TYPES OF ROTATING AXES		Servomotors - Gear Box	Servomotors - Gear Box	Single Torque	Single Torque	Double Torque	Double Torque	Double Torque
ROTATING AXES STROKES	A	+/-110°	+/-110°	+/-110°	+/-110°	+/-110°	+/-110°	+/-110°
	C	+/-300°	+/-300°	+/-300°	+/-300°	+/-361°	+/-361°	+/-361°
RAPIDS		9000°/min	9000°/min	24000°/min	24000°/min	24000°/min	24000°/min	24000°/min
ELECTROSPINDLES TYPE		ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS	ASINCRONOUS e SINCRONOUS
NOMINAL POWER (S1)		18 kW	32 kW	18 kW	32 kW	18 kW	32 kW	31,4 kW
MAX POWER		22.5 kW	32 kW	22.5 kW	32 kW	22.5 kW	32 kW	/
MAX RPM		24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	24.000 rpm	15.000 rpm
TORQUE		14,5 Nm	68 Nm	14,5 Nm	68 Nm	14,5 Nm	68 Nm	100 Nm
TOOL CHANGER		AUTOMATIC						
TOOLHOLDER		HSK 63 E	HSK 63 A	HSK 63 E	HSK 63 A	HSK 63 E	HSK 63 A	HSK 63 A
COOLING - LIQUID		LIQUID						

*HSK63A available only for controlled spindle

THE RANGE

		Y			
		2600	4000	5000	6200
Z	1300	Cronus	Cronus	CRONUS	CRONUS
	2000	Cronus	Cronus	CRONUS	CRONUS
	2500	CRONUS	CRONUS	CRONUS	CRONUS
	3000	CRONUS	CRONUS	CRONUS	CRONUS

CAST-IRON WORKING TABLE

TABLE WIDTH [MM]	TABLE LENGTH
2.500 mm - 3.500 mm - 4.500 mm	Please use the machine stroke less 500 mm

STEELWORK TABLE AND RELEVANT PLANES

TABLE WIDTH [MM]	TABLE LENGTH
2.000 mm - 3.200 mm - 4.400 mm	From 2m to 40m, 2 meters' pitch (version 16m not available)

TOOL CHANGER MAGAZINES

	30 STD	60
	Tool carousel	Chain tool magazine*
N.STATIONS	16	30
HOLDER INTERAXES [MM]	110	85
Ø MAX WITHOUT LIMITATION [MM]	100	80
Ø MAX WITH LIMITATION [MM]	300	300
MAX TOOL LENGTH ** [MM]	500 (for Z1300) 750 (for Z >=2000)"	471
MAX WEIGTH SINGLE TOOL [MM]	5 kg	8 kg

* Multiple configurations available
** Values from the spindle nose

STROKES AND OVERALL DIMENSIONS

Z STROKE [MM]	1300	2000	2500	3000		
A [mm]	5000	6400	7500	8400		
X STROKE [MM]	2500	4000	5000	6000	7500	8000
b [mm]	6200	8000	8800	10700	12100	12600
X7 STROKE [MM]	10000	13000	15500	18000	20500	
b [mm]	14800	18100	20700	23500	26600	
Y STROKE [MM]	2600	4000	5000	6200		
c [mm]	5600	7600	8600	10000		

Aapprox. values

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

FOR COMPOSITE MATERIALS, ALUMINUM AND METAL PROCESSING

MONOBLOC CNC MACHINING CENTERS FOR VERTICAL MILLING

ARES

ANTARES

ANTARES K

ATHENA

POSEIDON K

CRONUS K

GANTRY CNC MACHINING CENTERS FOR LARGE-SIZE WORK AREAS

MX5

POSEIDON

CONCEPT

MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING

ETHOS

CRONUS

IKON

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

Cms

a company of scm group