

# ethos k

Monobloc CNC machining centers for vertical milling



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** 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 cutting-edge 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.

# ethos k

<b>APPLICATIONS</b>	4-5
<b>ETHOS K TECHNOLOGICAL BENEFITS</b>	6-7
<b>ETHOS K OVERALL DIMENSIONS AND TECHNICAL DATA</b>	8-9
<b>CMS CONNECT</b>	10
<b>CMS ACTIVE</b>	11
<b>SERVICE</b>	12-13
<b>THE RANGE</b>	14-15



# APPLICATIONS



aerospace | trains | automotive | marine industry



F1 & motor sport | defense | aeronautics



**U**nparalleled.

**N**ew.

**I**nnovative.

**Q**uality.

**U**ltra.

**E**ffective solutions.

The **UNIQUE** cnc machines.

Monobloc CNC machining centers for vertical milling

# ETHOS K

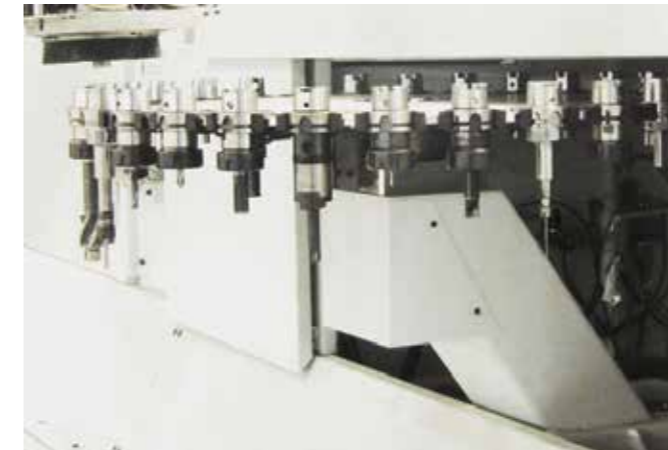
## TECHNOLOGICAL BENEFITS

### 5 AXES HIGH SPEED CNC MACHINING CENTERS WITH MONOBLOC STRUCTURE

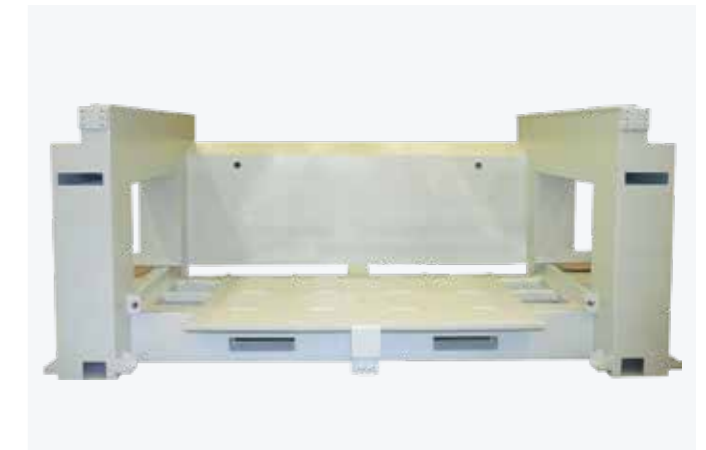
This is the most compact machining center of the ETHOS serie. The monobloc system provides the stability, accuracy and high machining quality even under the presence of heavy stresses.

The compact dimensions allow easy fitting to every productive environment, whilst providing a large work envelope.

- Mechanical moving parts designed to optimize the power/ weight ratio, driven by high-performance motors with high speed and acceleration characteristics.
- High operating power, geometric accuracy and machining reliability.
- High thermal stability totally exempt from torsional instability, even during heavy machining operations.



30 stations automatic rotary tool changer



Monolithic structure ensures accuracy and lifelong reliability



Electrospindles fully designed and manufactured inside scm group. power up to 32 kw-synchronous with controlled axes



Integrated flood coolant system

### KEY BUYER BENEFITS

- + **Power and control.** Ethos k 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. Ethos K also features high-performance electrospindles with powers up to 32kW/S1 and torque up to 100 Nm.
- + **Tool change in a flash.** Ethos k is equipped with a high speed automatic tool changing system with 48-station chain magazine and exchange lever: all the tools you need in no downtime.
- + **The power of water.** Ethos k has been conceived and designed to manage an integrated 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.



TORQUE 5 working unit



FX5 working unit.

# ETHOS K

## OVERALL DIMENSIONS & TECHNICAL DATA



WORKING TABLES	
MODEL	WORKING TABLES [mm]
ETHOS K 2620	2600x2000
ETHOS K 2630	2600x3000

OVERALL DIMENSIONS	
A	Z AXES STROKE [MM]
	1300
B	X AXES STROKE [MM]
	2000 3000
C	Y AXES STROKE [MM]
	2600
	6840

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°
	C	+/-300°	+/-300°	+/-300°	+/-300°	+/-361°	+/-361°
RAPIDS	9000°/min	9000°/min	24000°/min	24000°/min	24000°/min	24000°/min	24000°/min
ELECTROSPINDLES TYPE	ASINCRONOUS	SINCRONOUS	ASINCRONOUS	SINCRONOUS	ASINCRONOUS	SINCRONOUS	SINCRONOUS
NOMINAL POWER (S1)	18 kW	32 kW	18 kW	32 kW	18 kW	32 kW	31,4 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 (S1)	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						

\* HSK63A available only for controlled spindle

ETHOS K		
STROKES AND SPEED		
AXES	AXES STROKE	RAPIDS
X/Y [mm]	2000/2600 - 3000/2600	85 m/min
Z [mm]	1300	45 m/min
A [°]	+/-110° (KX5-T5-FX5)	9000°/min, 24000°/min
C [°]	+/-300° (KX5 - T5), +/-361° (FX5)	9000°/min, 24000°/min

TOOL CHANGER MAGAZINES		
	30 STD Tool carousel	48 Chain tool magazine*
N.STATIONS	30	48
Ø MAX WITHOUT LIMITATION [MM]	80	100
Ø MAX WITH LIMITATION [MM]	300	250
MAX TOOL LENGTH ** [MM]	400	400
MAX WEIGHT SINGLE TOOL [MM]	8 kg - tot 90 kg	6 kg - tot 250 kg

# 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.



## SERVICE OUR TECHICIANS BY YOUR SIDE ALL OVER THE WORLD

-  Training
-  Installation
-  Remote Customer Care (RCC)
-  On-site assistance
-  Maintenance
-  Changes & Retrofitting
-  Spare Parts

## A GLOBAL PRESENCE FOR BEST-IN-CLASS SERVICE

- 36,000 different codes to serve machinery of all ages;
- 1 central warehouse at the headquarters in Zogno and 6 bases around the world fully integrated at IT level and controlled by a shipping optimisation software to reduce waiting times;
- 98% of orders available in stock;
- spare parts guaranteed thanks to a scrupulous control process and validation via our internal quality laboratory;
- availability to draw up recommended spare parts lists based on client needs, to reduce down time to a minimum;

# 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**



**VM 30**



**ETHOS K**

## GANTRY CNC MACHINING CENTERS FOR LARGE-SIZE WORK AREAS



**MX5**



**POSEIDON**



**ETHOS**



**CONCEPT**

## HYBRID ADDITIVE MANUFACTURING AND MILLING SYSTEMS



**KREATOR ARES**

## MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING

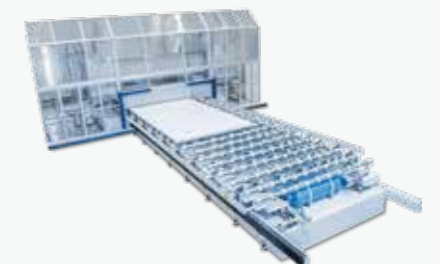


**IKON**

## FIXED AND MOBILE BRIDGE CNC MACHINING CENTERS



**FXB**



**AVANT**

## CNC MACHINING CENTER FOR THE EYEWEAR INDUSTRY



**MONOFAST**



**EOS**

## WIND BLADE WORKING SYSTEMS

## CNC MACHINING CENTERS FOR GUNSTOCKS PROCESSING



**MULTILATHE**



**MONOFAST**



**KARAT**

## WATERJET CUTTING SYSTEMS



**TECNOCUT PROLINE**



**TECNOCUT SMARTLINE**





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