

poseidon k / poseidon / concept

Gantry CNC machining centers for large size working areas



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.



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 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.



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APPLICATIONS



earthmoving machines | trains | refrigeration | F1 & motor sport



marine industry | defense | automotive | aeronautics



POSEIDON K

TECHNOLOGICAL BENEFITS

5 AXES HIGH SPEED CNC MACHINING CENTRES WITH MONOBLOC STRUCTURE

This is the most compact machining centre of the series; providing Poseidon' performance levels with the additional advantages of a monobloc system - 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.



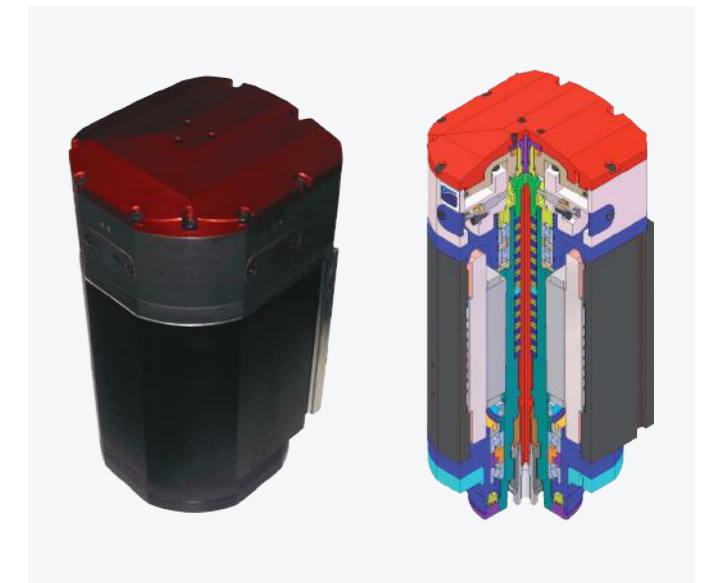
Monolithic blocks structure ensures accuracy and lifelong reliability



Operating unit KX5 - 18/31/32 KW



30 stations automatic rotary tool changer



Wide range of electrospindle fully designed and manufactured inside the group. Available synchronous and controlled models.

KEY BUYER BENEFITS

- + **Power and accuracy.** Poseidon k also features high-performance electrospindles with powers up to 32 kW / S1 and torque up to 100 Nm. Factors like synchronism and controlled axis management allow a particularly favourable torque supply at low rpm and the execution of rigid threads maximizing the machining center productivity (48 sec reduction in the CMS test cycle with a total duration of 625 sec compared to standard electrospindles).
- + **The power of water.** Poseidon 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.
- + **Tool change in a flash.** Poseidon 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.

POSEIDON / CONCEPT

TECHNOLOGICAL BENEFITS

HIGH SPEED 5-AXIS CNC MACHINE

Numerically controlled machining centre designed according to CMS' philosophy: the machine is the result and culmination of experiences developed in the aerospace and marine 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.



Operating unit PX5 - 12/15/20 KW



Operating unit HX5 - 20 KW



Bellows-type roof for dust and chips control



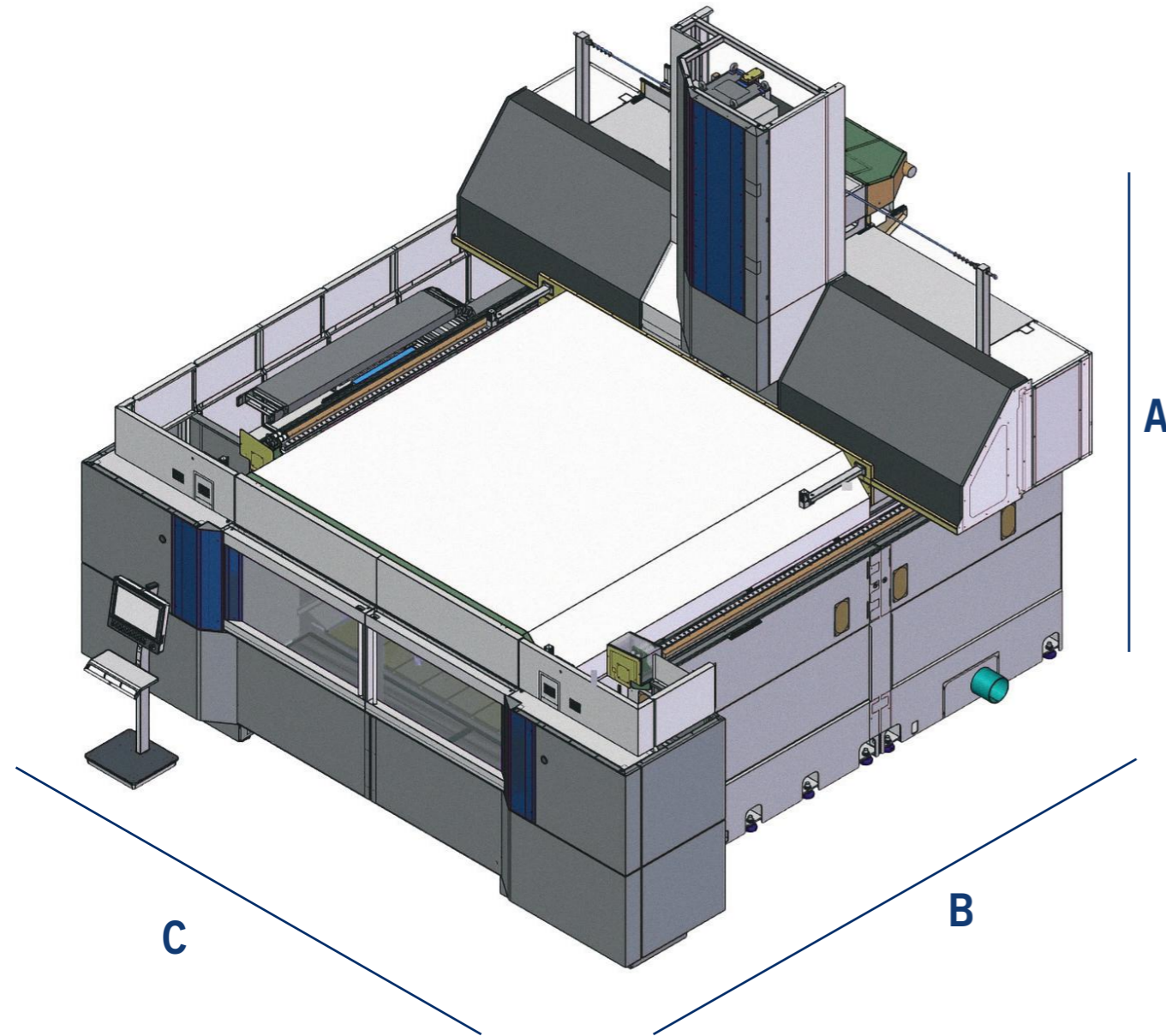
To the excellent performances of the poseidon, the concept has kinematics with two drive motors on linear axes - backlash recovery

KEY BUYER BENEFITS

- + **Limitless performan.** With these machines there are no problems with the workpiece sizes; even in the extremely complex sectors like boating, wind power and automotive. Above all, thanks to the aeronautical design concepts applied to the frames, CMS has made no compromises on performance with volumetric accuracies 21% lower than the segment average.
- + **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. Poseidon has been designed to adapt to your manufacturing reality and make it even more efficient and competitive.
- + **Tailor made.** Single or double operating unit, single or double working area, 5-axis milling unit from 12 to 32 kW, 5-axis units with waterjet technology, over 100 dimensions: undeniably the most efficient configuration for every production reality. No compromises!

POSEIDON K

OVERALL DIMENSIONS AND TECHNICAL DATA



POSEIDON K		
STROKES AND SPEEDS		
AXES	AXES STROKES	RAPIDS
X/Y [MM]	2000/2600 - 3000/2600 - 4000-4000	85 m/min
Z [MM]	1300	45 m/min
A [°]	+/-120° (PX5, HX5), +/-110° (KX5)	9000°/min
C [°]	+/-270° (PX5), +/-245° (HX5) +/-300° (KX5)	9000°/min

WORKING TABLES	
MODEL	WORKING TABLES
POSEIDON K 2620	2600X2000
POSEIDON K 2630	2600X3000
POSEIDON K 4040	4000X4000

ENCUMBRANCE			
A	Z AXES STROKE		
	1300		
B	X AXES STROKE		
	2000	3000	4000
	5800	6620	7600
C	Y AXES STROKE		
	2600	4000	
	6840	8900	

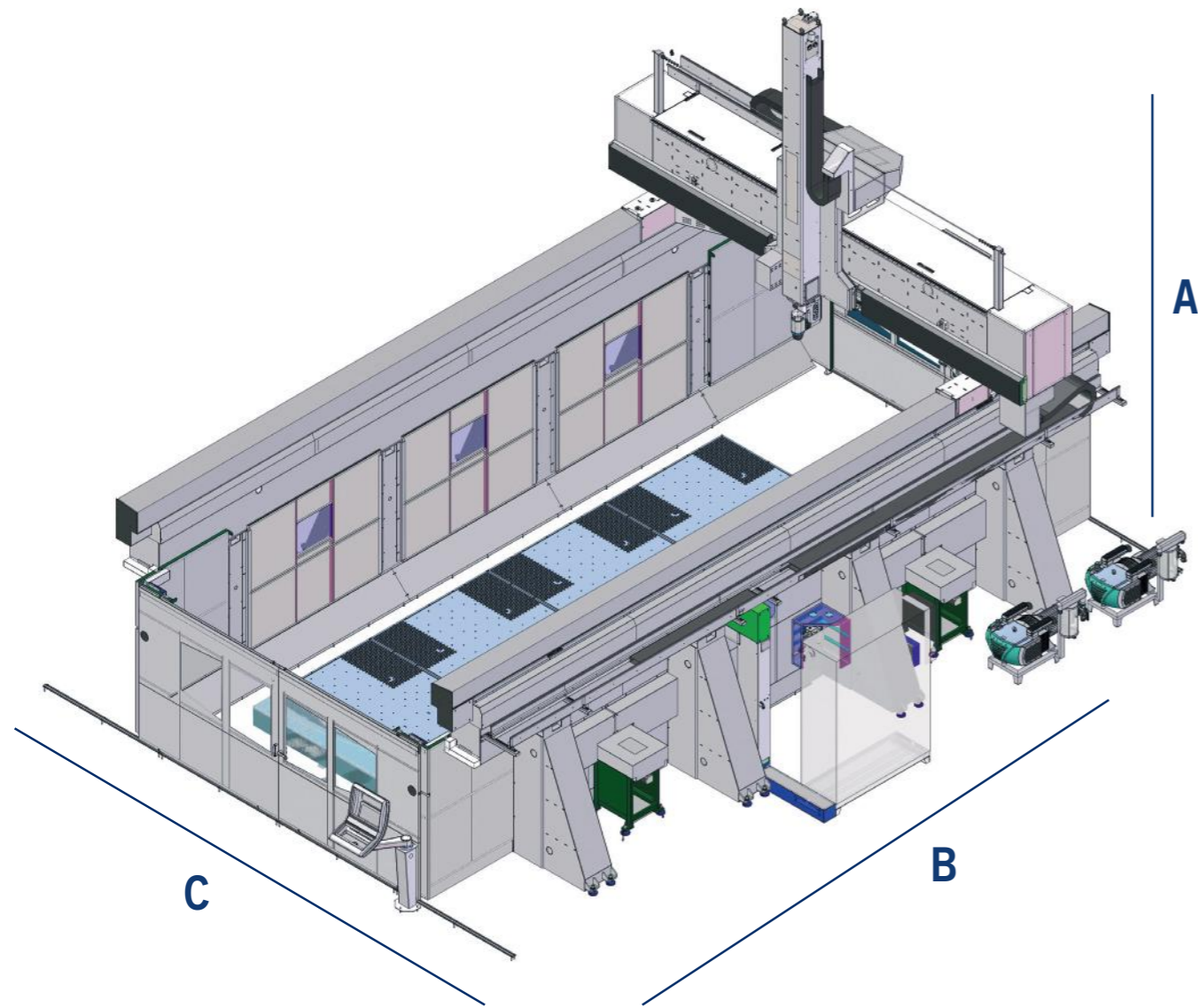
WORKING UNITS AND ELECTROSPINDLES							
	PX5 12_24	PX5 15_24	PX5 20_24	PX5/HX5 20_24	KX5 18_24	KX5 32_24	KX5 31_15
WORKING UNIT TYPE	Mono Arm	Mono Arm	Mono Arm	Mono Arm / Fork	Mono Arm	Mono Arm	Mono Arm
TYPES OF ROTATING AXES	Servomotors - Gear Box						
ROTATING AXES STROKES	A +/-120°	+/-120°	+/-120°	+/-120°	+/-110°	+/-110°	+/-110°
	C +/-270°	+/-270°	+/-270°	PX5 +/-270°, HX5 +/-245°	+/-300°	+/-300°	+/-361°
RAPIDS [°/MIN]	9000	9000	9000	9000	9000	9000	9000
ELECTROSPINDLES TYPE	ASINCRO-NOUS	ASINCRO-NOUS	ASINCRO-NOUS	SINCRONOUS	ASINCRO-NOUS	SINCRO-NOUS	SINCRO-NOUS
NOMINAL POWER [KW] (S1)	12	15	20	20	18	32	31,4
MAX POWER [KW]	15	17	20	20	22.5	32	31,4
MAX RPM [RPM]	24.000	24.000	24.000	24.000	24.000	24.000	15.000
TORQUE [NM]	9,7	12,1	17,2	17,2	14,5	68	100
TOOL CHANGER	AUTOMATIC						
TOOLHOLDER	HSK 63 F	HSK 63 F	HSK 63 E	HSK 63 A	HSK 63 E	HSK 63 A	HSK 63 A
COOLING	LIQUID						
KX5 - AVAILABLE FOR Z<=2500 mm							

TOOL CHANGER MAGAZINES		
	30 STD TOOL CAROUSEL	60 CHAIN TOOL MAGAZINE*
N.STATIONS	30	60
HOLDER INTERAXES	87	104
Ø MAX WITHOUT LIMITATION	80	100
Ø MAX WITH LIMITATION	300	250
MAX TOOL LENGTH **	400	400
MAX WEIGHT SINGLE TOOL	8 - tot 90	6 tot - tot 250

*it is not allowed to use devices with antirotation.
**values from the spindle nose.

POSEIDON / CONCEPT

OVERALL DIMENSIONS AND TECHNICAL DATA



POSEIDON		
STROKES AND SPEEDS		
AXES	AXES STROKES	RAPIDS
X [MM]	2,5-4-5-6-7,5-8-10-13-15,5-18-20,5-23,5-26-28,5-31-34-36,5-39-41,5	85 m/min
Y [MM]	2600-4000-5000-6200	85 m/min
Z [MM]	1300-2000-2500	45 m/min
A [°]	+/-120° (PX5, HX5), +/-110° (KX5)	9000°/min
C [°]	+/-270° (PX5), +/-245° (HX5) +/-300° (KX5)	9000°/min

CONCEPT		
STROKES AND SPEEDS		
AXES	AXES STROKES	RAPIDS
X [MM]	2,5-4-5-6-7,5-8-10-13-15,5-18-20,5	85 m/min
Y [MM]	2600-4000-5000-6200	85 m/min
Z [MM]	1300-2000-2500	45 m/min
A [°]	+/-120° (PX5, HX5), +/-110° (KX5)	9000°/min
C [°]	+/-270° (PX5), +/-245° (HX5) +/-300° (KX5)	9000°/min

POSEIDON - CONCEPT		
TECHNICAL FEATURES	POSEIDON	CONCEPT
MOTORIZATION X	GANTRY SINGLE SERVOMOTOR	GANTRY DOUBLE SERVOMOTOR
MOTORIZATION Y	SINGLE SERVOMOTOR	GANTRY DOUBLE SERVOMOTOR
MOTORIZATION Z	SINGLE SERVOMOTOR	SINGLE SERVOMOTOR

POSEIDON				CONCEPT			
CAST-IRON WORKING TABLE							
Table Width				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				Table Length			
2.000 mm, 3.200 mm, 4.400 mm				From 2 m to 40 m, 2 meters'pitch			
STROKES AND ENCUMBRANCE							
AXES STROKES [mm]							
Z STROKE [MM]	1300	2000	2500	3000/3000 Telescopic	3500	4000/4000 Telescopic	5300 Telescopic
A [MM]	5000	6400	7500	8400/7100	9400	10400/8600	10700
AXES STROKES X [mm]							
X STROKE [MM]	2500	4000	5000	6000	7500	8000	10000
B [MM]	6200	8000	8800	10700	12100	12600	14800
X STROKE [MM]	13000	15500	18000	20500	23500	26000	28500
B [MM]	18100	20700	23500	26600	30500	33200	35800
X STROKE [MM]	31000	34000	36500	39000	41500	...	
B [MM]	38500	41700	44400	48000	50600	...	
AXES STROKES Y [mm]							
Y STROKE [MM]	2600	4000	5000	6200	8500	10000*	
C [MM]	5600	7600	8600	10000	13700	14850	

* The Y 10000 version has the X kinematics with two drive motors -backlash recovery
 NOTE: Approx values
 NOTE: The values for the encumbrance in Y direction can change with different door models

TOOL CHANGER MAGAZINES			
	STANDARD		
	PICK UP MAGAZINE	TOOL CAROUSEL	ON BOARD*
N.STATIONS	16	30	8
HOLDER INTERAXES [MM]	110	85	80
Ø MAX WITHOUT LIMITATION [MM]	100	80	70
Ø MAX WITH LIMITATION [MM]	300	300	200
MAX TOOL LENGTH** [MM]	500 (for Z1300) 750 (for Z >=2000)	471	150
MAX WEIGHT SINGLE TOOL [KG]	5	8	3

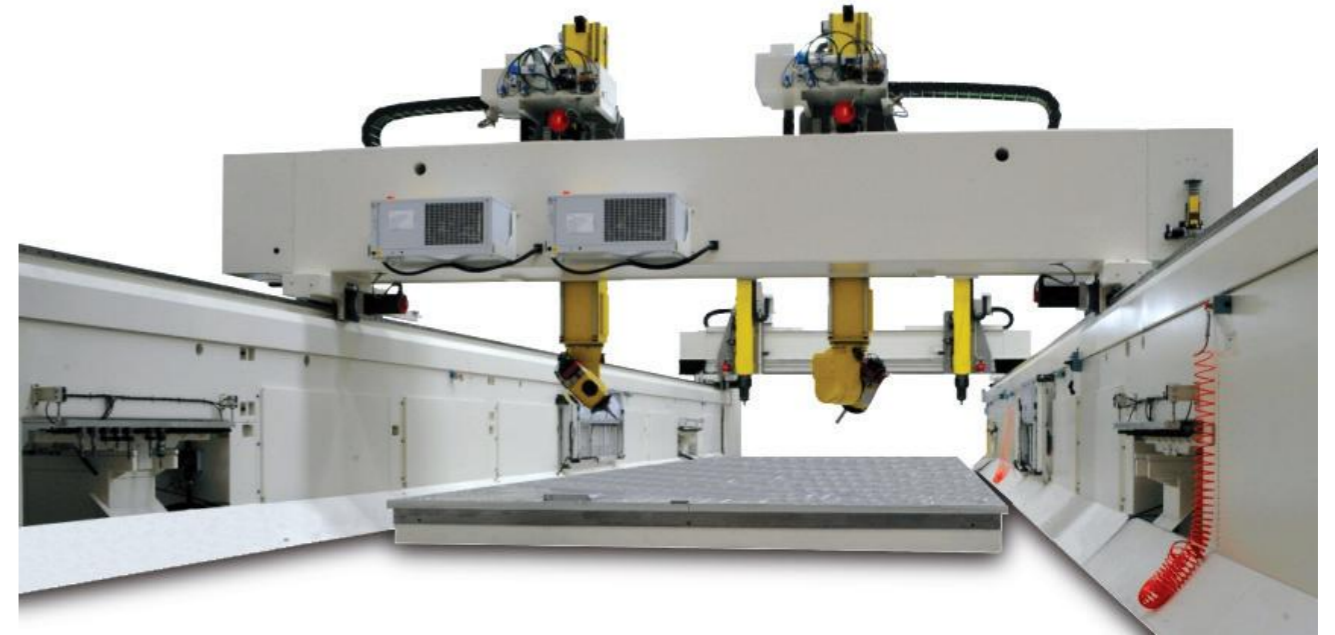
* Available only for PX5
 Working unit multiple configuration available
 ** Values from the spindle nose.

POSEIDON K / POSEIDON / CONCEPT

SPECIAL SOLUTIONS



APC EXTRACTABLE TABLES ALLOW THE LOADING AND UNLOADING OUTSIDE THE WORKING AREA



DOUBLE BRIDGE WITH TWIN OPERATING UNITS



ROTARY TABLE: SIMPLIFIES LOADING/UNLOADING OUTSIDE THE MACHINE AND ALLOWS PENDULUM CYCLE USING THE COMPLETE WORKING AREA



5-AXIS HYBRID SOLUTION: MILLING + WATERJET CUTTING SYSTEM WITH CATCHER

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.

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



ETHOS K

GANTRY CNC MACHINING CENTERS FOR LARGE-SIZE WORK AREAS



MX5



POSEIDON



CONCEPT



CRONUS



ETHOS



IKON

MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING

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



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