aerospace

CMS Industries

CNC solutions for aerospace

CMS INDUSTRIES
SOLUTIONS FOR AEROSPACE

* Courtesy of: DAHER-SOCATA

Cronus

Poseidon

Cronus

.01

Structural aluminium components

High speed cutting technology, generous working space and customized CNC solutions for aircraft structural aluminum components obtained from solid material

Different machine configurations available.

- Single and double mobile bridge, with single or double 3 or 5 axis working units.
- Large working areas and double milling zone.
- Modular structure, wide range of configurable strokes.

Wide choice of working unit spindles.

- From 12 kW up to 28 kW, power is your partner.

High-speed cutting technology. Power and control.

- Travel feed up to 85 m/min.
- Accelerations up to 5 m/s^2.
- Spindle rotation speed up to 40,000 rpm.

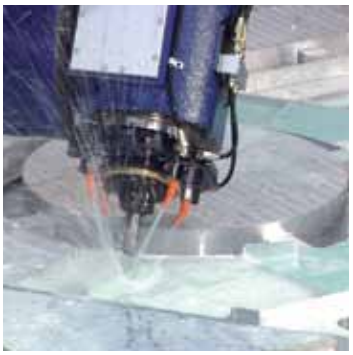
Different table solutions.

- Cast-iron table with T slots.
- Vacuum table.
- Shuttle table.
- UHF table

Integrated swarf extraction systems.

Full environment protection.

- Protection cabin with automatic doors.
- Sliding roof for loading/unloading.



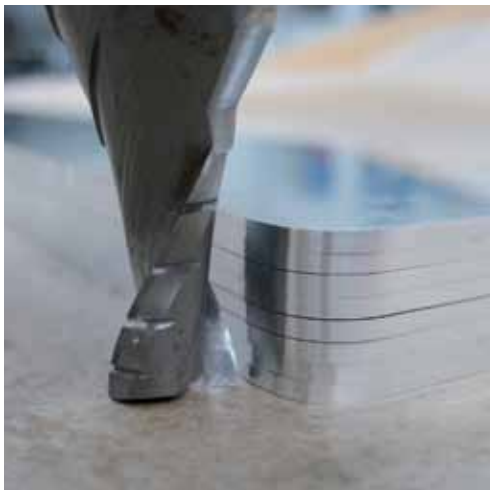
FXB

FXB

MBB

.02

Aluminium parts from stacked sheets



High productivity, flexible and fully integrated solutions for the production of aluminum parts from stacked sheets (without using rivets or screw)

CMS has a wide experience in the production technology of aluminum components obtained from stacked sheets.

Different machine configurations available.
- Fixed bridge with single or double table, for tandem cycle.
- Mobile bridge and fixed, medium to-large clamping table with single or double cutting zone.

Wide choice of working unit spindles.
- Single or double independent working unit from 12 kW up to 20 kW, in order to increase flexibility and productivity.

High-speed cutting technology.
- Travel feed up to 100 m/min.
- Accelerations up to 5 m/s^2.
- Spindle rotation speed up to 40,000 rpm.

Bridge cut technology.
- Dedicated device for external contouring without using rivets or screws.
- No top sheet sacrifice, scratching value lower than 0.011 mm.

High productivity assured.
- Sheet stacks up to 12 mm.

Integrated swarf suction devices.
- Dedicated powerful suction devices for total swarf evacuation.

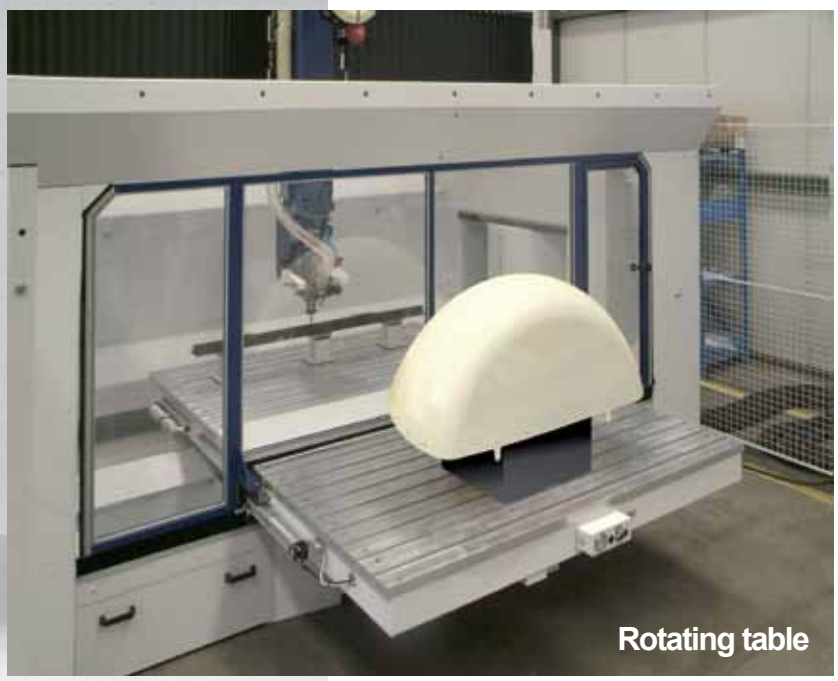
Integrated and dedicated nesting CAD-CAM software.
- Automatic nesting, with possible manual intervention.
- Import-export of DXF IGES – DWG files.
- Sheet Optimization.
- Postprocessor for bridge cut technology.

Multi purpose machine.
- Removing the pressure ring, the machining centre can be used for other applications; i.e. solid aluminium plates, sandwich panels, etc.

Options
- Bar code reader.
- Special clamping system.
- Sheets loading unloading units.

Full enclosure

Shuttle tables


Rotating table

.03

Composites milling, trimming and drilling

High speed cutting CNC machine for trimming, drilling and finishing aircraft components in carbon fiber, Kevlar, composite reinforced material and Glare

Different machine configurations available.

- Single and double mobile bridge, with single or double 3- or 5-axis working units.
- Large working area and double cutting zone.
- Modular structure, wide range of configurable strokes.

High speed cutting technology. Power and control.

- Travel feed up to 85 m/min.
- Accelerations up to 5 m/s^2.
- Spindle rotation speed up to 40,000 rpm.
- Spindle power from 12 to 28 kW

Different table solutions.

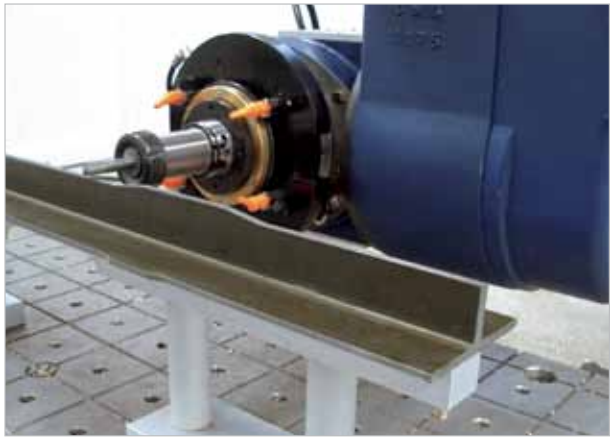
- Cast-iron table with T slots.
- Vacuum table.
- Shuttle table.
- Vacuum cups flexible table with independent management of single cups.

Integrated dust extraction devices.

- Dedicated powerful suction device for dust extraction.

Full environment protection.

- Protection cabin with automatic doors.
- Sliding roof for loading/unloading.



Cronus K

Cronus - Poseidon

.04

Patterns, moulds and tools for composite reinforced parts

5-axis CNC machining centres for the production of patterns, moulds and jigs

UHF table

* Carbonfiber mould

* Pattern

* Aluminium mould

* Holding tool

* Trimmed and drilled part

* courtesy of:

Antares

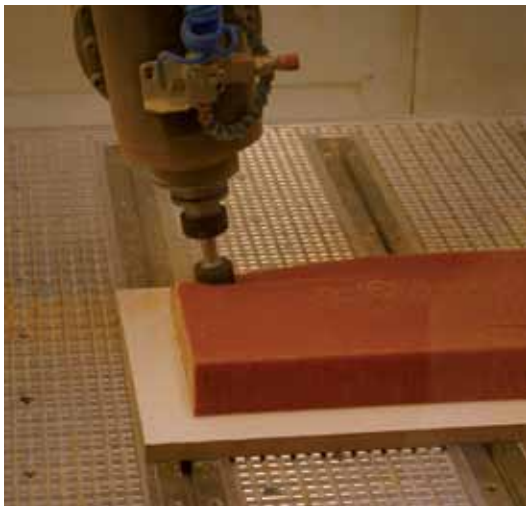
Ares

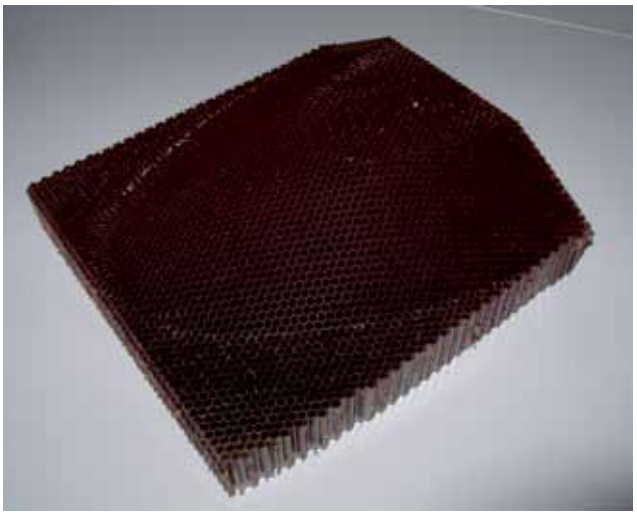
Poseidon

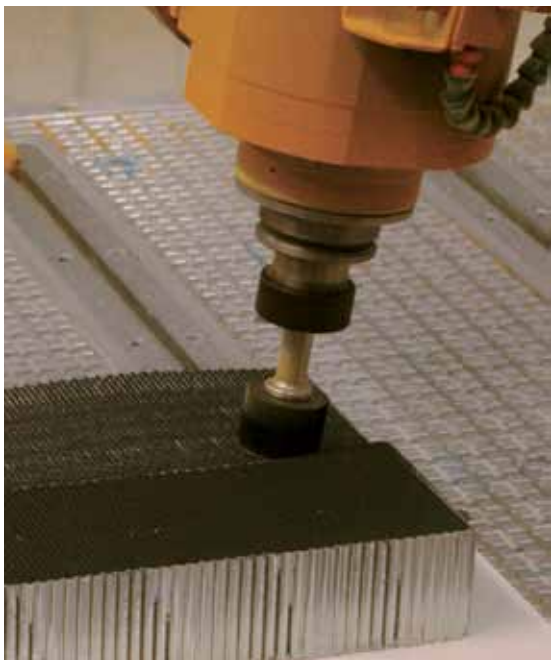
.05

Core materials and sandwich panels

**Customized 5-axis CNC applications
for cutting core and sandwich materials**







Idea

Idroline

Jetpower EVO

.06

Waterjet applications

CMS Tecnocut
waterjet technology

3-5 axis standard or customized waterjet applications for trimming aluminium, titanium and composite aircraft parts

Tecnocut is an innovative CMS industries company specializing in manufacturing complete waterjet cutting systems:
cutting robots, high pressure intensifiers and software solutions specifically developed for this field.
Today Waterjet cutting technology is used in the aerospace field for manufacturing many components, including: bracket mounts, control panels, blanks for turbine blades, skin, struts, seats, brakes, landing gear, etc.
The use of 3 and 5 axis Waterjet cutting systems, makes it possible to produce components in aluminium, titanium, stainless steel, laminated, temperate steel, alloys, composite materials, glass fibres, plastic, rubber, synthetic materials, etc.

Waterjet cutting advantages in the aerospace field

Wide range of materials:
The waterjet cutting technology makes it possible to cut virtually every kind of material, with thicknesses varying (from 0 to 250 mm) producing very complex shapes and permits using nesting techniques for perfect optimization of the space the material.

Cutting quality:
The cutting technique produces a burr free edge and quality can be adjusted to suit the final production needs, thus allowing production costs to be balanced with the output times required.

No heat zone:
The technology uses water and abrasive as cutting tools, this way there is no thermal or structural changes to the material.

Environmentally friendly:
It provides a dust and fume free environment during the production process.

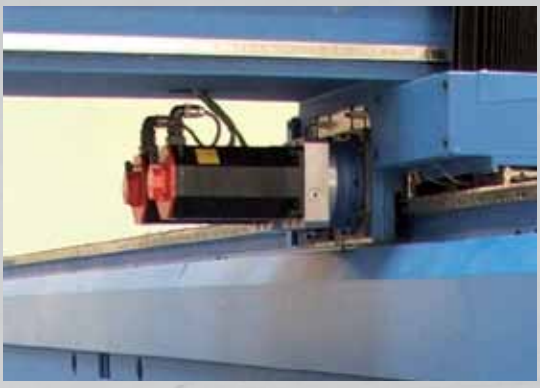
Manufacturing process realization:
Due to the cutting process, fixtures and fixing systems are not required and neither is it necessary to change tools due to changes in material or processes etc.

CMS spindles are made in CMS
After many years of experience we choosed to design and manufacture the electrospindles that equip our machines, thus resulting in reliability, fast and reasonably priced service.
Wide size choice tailored on your applications:
12 - 15 - 20 - 28 kW

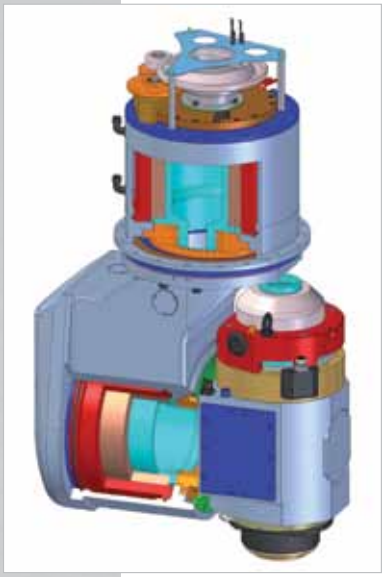
Combined milling and waterjet cutting solutions

Dedicated software packages are available on demand:

- post-processor
- virtual machining
- OMV power inspect
- part locator



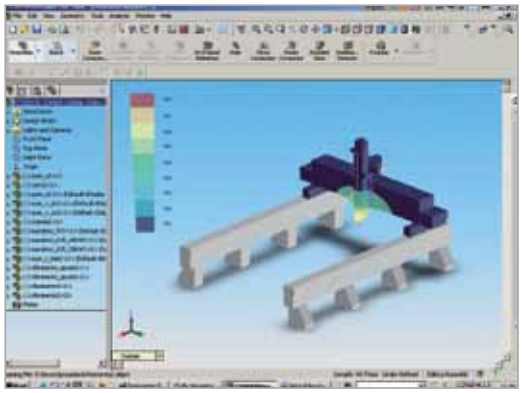
Kinematics with double driving motors on linear axes:
backlash recovery, higher rigidity, fast movements



Torque Head
Five axes milling unit with direct drive technology

.07

State-of-the-art technology and partnership



FEM (Finite Element Method)
The structural dimensioning executed through finite element computation program (FEM-FEA) adopting aerospace type webbed solutions results in rigid but light-weight structures giving high precision and quick milling cycles.

High accuracy guaranteed
Machining centres geometry and accuracies are granted by the use of laser systems both in CMS and at customer premises.

CMS partnership approach

From the very first contact, CMS approach is to give customers the right solution for their production needs. A dedicated sales engineering department works side by side with the customer to define it.

Development and design

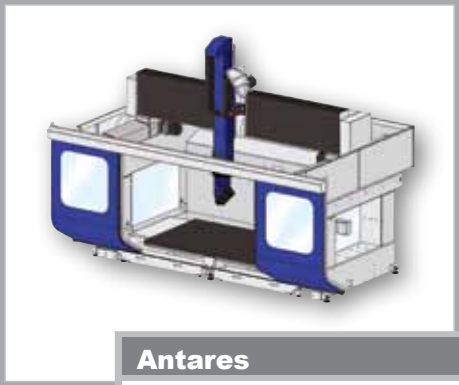
Since 40 years the technical skill is one of the strong points of CMS (namely “Construction of Special Machines”). An experienced group of engineers is constantly giving answers to new challenges coming from the market: from concept to process application.

Training

Through his worlwide network - subsidiaries and distributors CMS offers comprehensive training at customer’s premises: from machine use, programming and maintenance to milling strategy and appropriate tool choice.

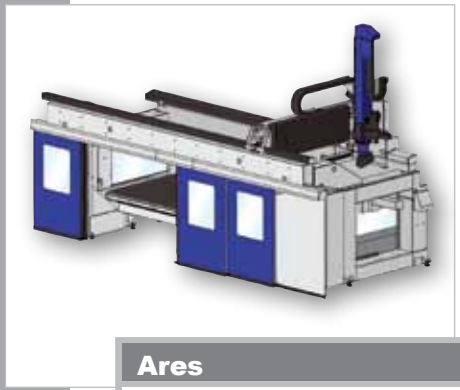
After sales service

CMS after sales service, through a worldwide network of technicians, who are regularly trained in CMS, offers a fast and skilled support.
CMS is still supporting, overhauling and retrofitting machines which are more than 20 years old. Free infoline available.



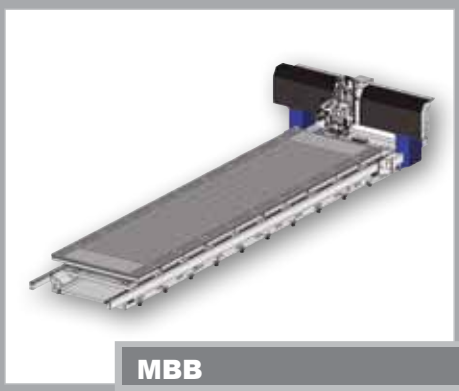
Antares

Working area	2600 x 1500 mm Z = 1200 mm
Max axes speed	80 m/min



Ares

Working area	from 3600 x 1800 mm to 6000 x 2600 mm Z = 1200 mm
Max axes speed	80 m/min



MBB

Working area	from 1520 x 3500 mm to 2900 x 9800 mm Z = 300 - 700 mm
Max axes speed	100 m/min

FXB

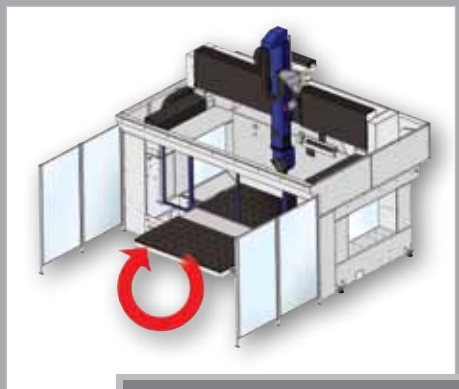
Table working area	from 1260 x 1560 mm to 3120 x 3120 mm Z = 300 - 700 - 1200 - 2000 mm
Max axes speed	100 m/min

Idea Waterjet

Working area	from 2000 x 6000 mm to 12000 x 3000 mm z = 200 mm
Max axes speed	20 m/min

Idroline Waterjet

Working area	from 1700 x 2000 mm to 2000 x 4000 mm z = 250 mm with 3 axes 150 mm with 5 axes
Max axes speed	40 m/min



Rotating Table

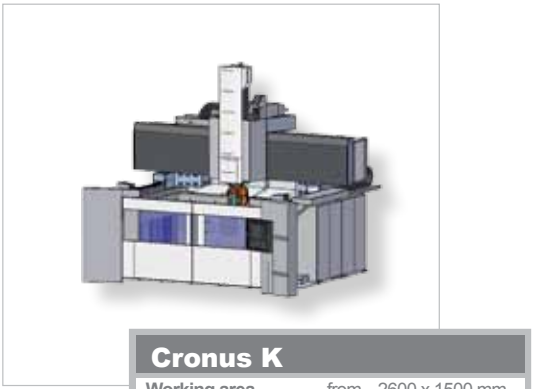
Shuttle Tables

.08

The range

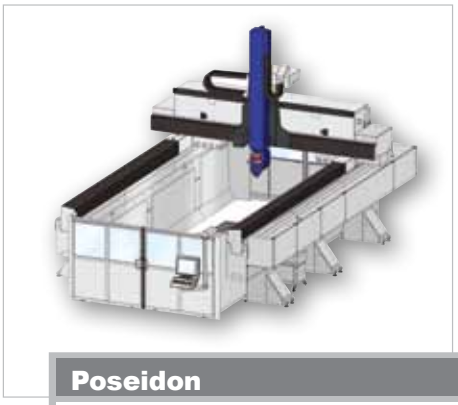
Cronus

Working area	from 2600 x 2500 mm to 4000 x 18000 mm Z = 900 - 1300 - 2000 mm
Max axes speed	85 m/min



Cronus K

Working area	from 2600 x 1500 mm to 4000 x 1500 mm Z = 1300 mm
Max axes speed	85 m/min

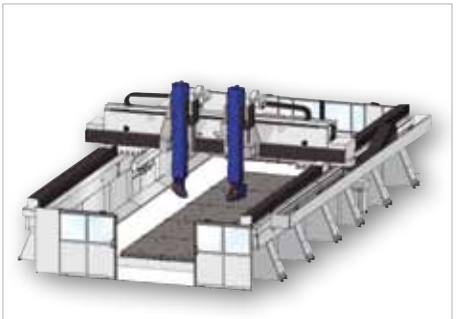


Poseidon

Working area	from 2600 x 2500 mm to 6200 x 31000 mm Z = 1300 - 2000 - 2500 mm
Max axes speed	85 m/min

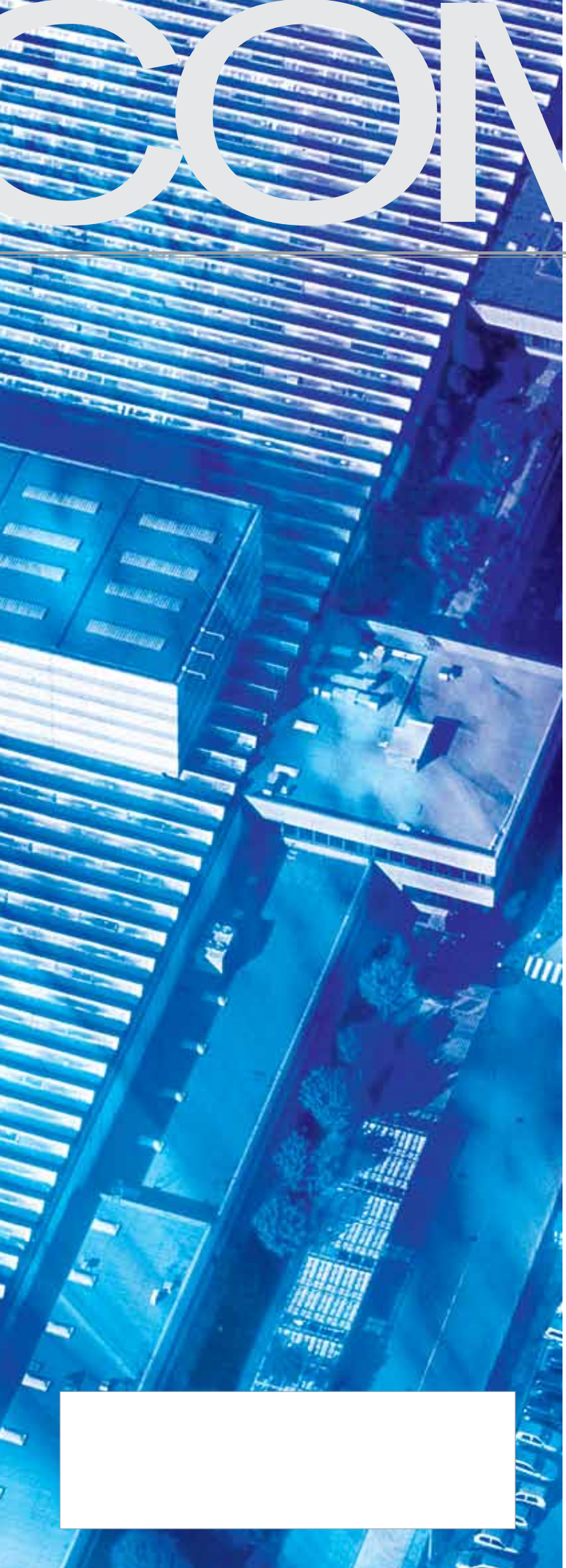
Poseidon K

Working area	from 2600x1500 mm to 4000x1500 mm Z = 1300 mm
Max axes speed	85 m/min



Twin Head

Double Bridge



THE COMPANY

Cod. ACAEROS-0609E

CMS Industries

Founded in 1969, CMS SpA (Costruzione Macchine Speciali) consists of three industrial divisions under the brand CMS Industries, with a turnover of 100 Million Euros, 4 branches and a worldwide sale & service network.
CMS Industries is specialized in the production of multi-axis CNC machining centres, thermoforming machines, CNC routers and waterjet cutting systems, providing machining solutions to the major industries and their subcontractors in several sectors: aerospace, automotive, marine industry, energy generation, building, mechanics, moulds, prototypes, eyeglasses, stone, glass and wood.
This wide, precise and high quality lines of products offer a comprehensive range of flexible, innovative and cost effective solutions, covering many production phases as well as customized solutions for specific processes.

CMS Balestrini
wood technology

CMS Cms
advanced materials - plastic - wood technology

CMS Brembana
glass - stone technology

CMS Tecnocut
waterjet technology

www.cmsindustries.it

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

CMS Industries

C.M.S. SpA

Headquarters
via A. Locatelli, 123
24019 Zogno (BG)
Tel. +39.0345.64111
Fax +39.0345.64281
info@cmsindustries.it