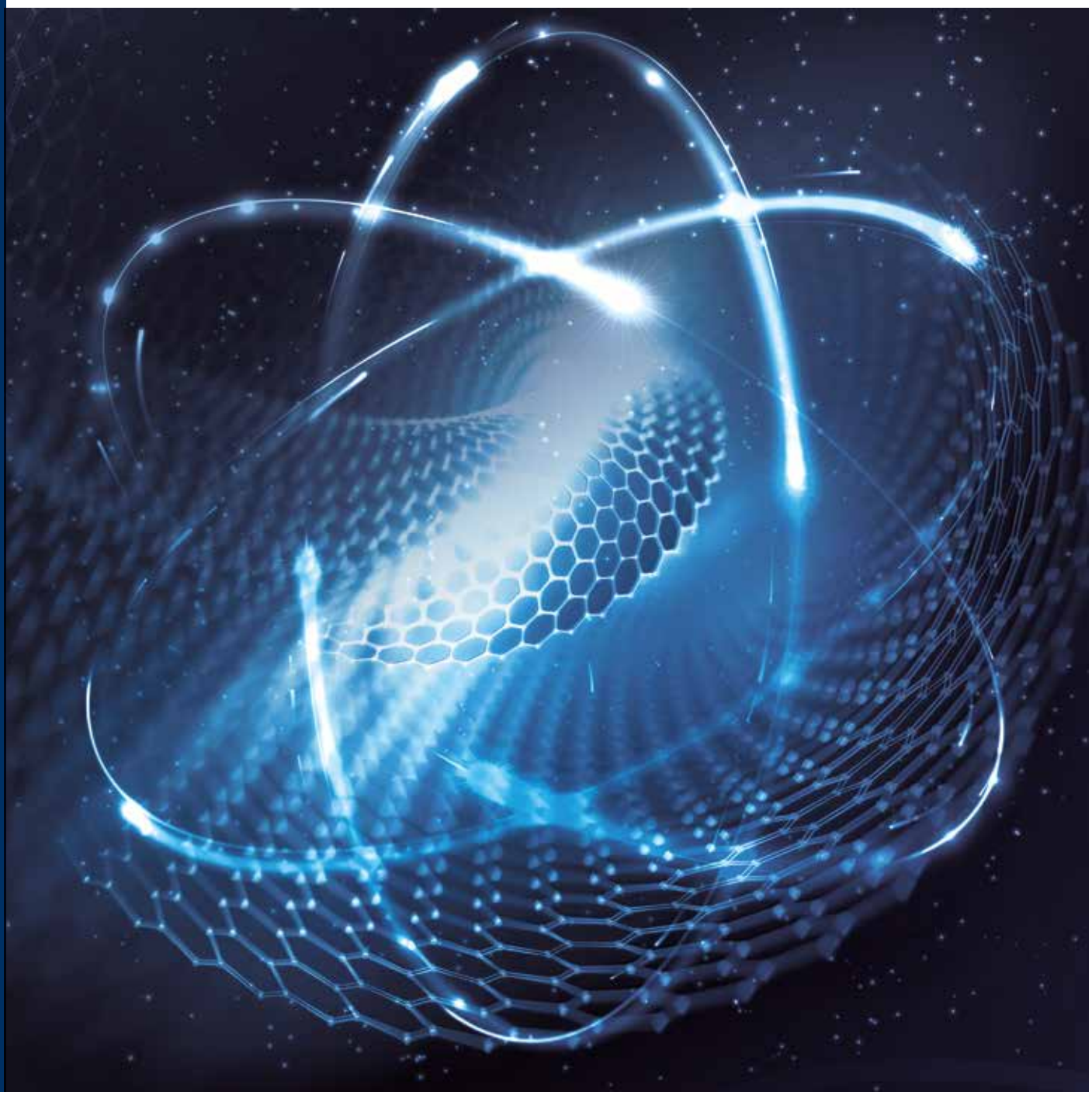
ADVANCED MATERIALS

kreator

additive manufacturing solutions



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 processing composite materials, carbon fiber, aluminum, light alloys, plastic, glass, stone, and metals. It was established in 1969 by Pietro Aceti, with the aim of offering customized and state-of-the-art solutions based on an in-depth understanding of customers' production needs. Significant technological innovations originating from substantial investments in research and development and take-overs of premium companies have led to constant growth in the various sectors.

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 cutting edge design, with machines that ensure best-in-class performance in terms of accuracy, execution speed and reliability to meet the needs of customers operating in the most demanding sectors. 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, racing boats, Formula 1, and the most advanced railway industry.

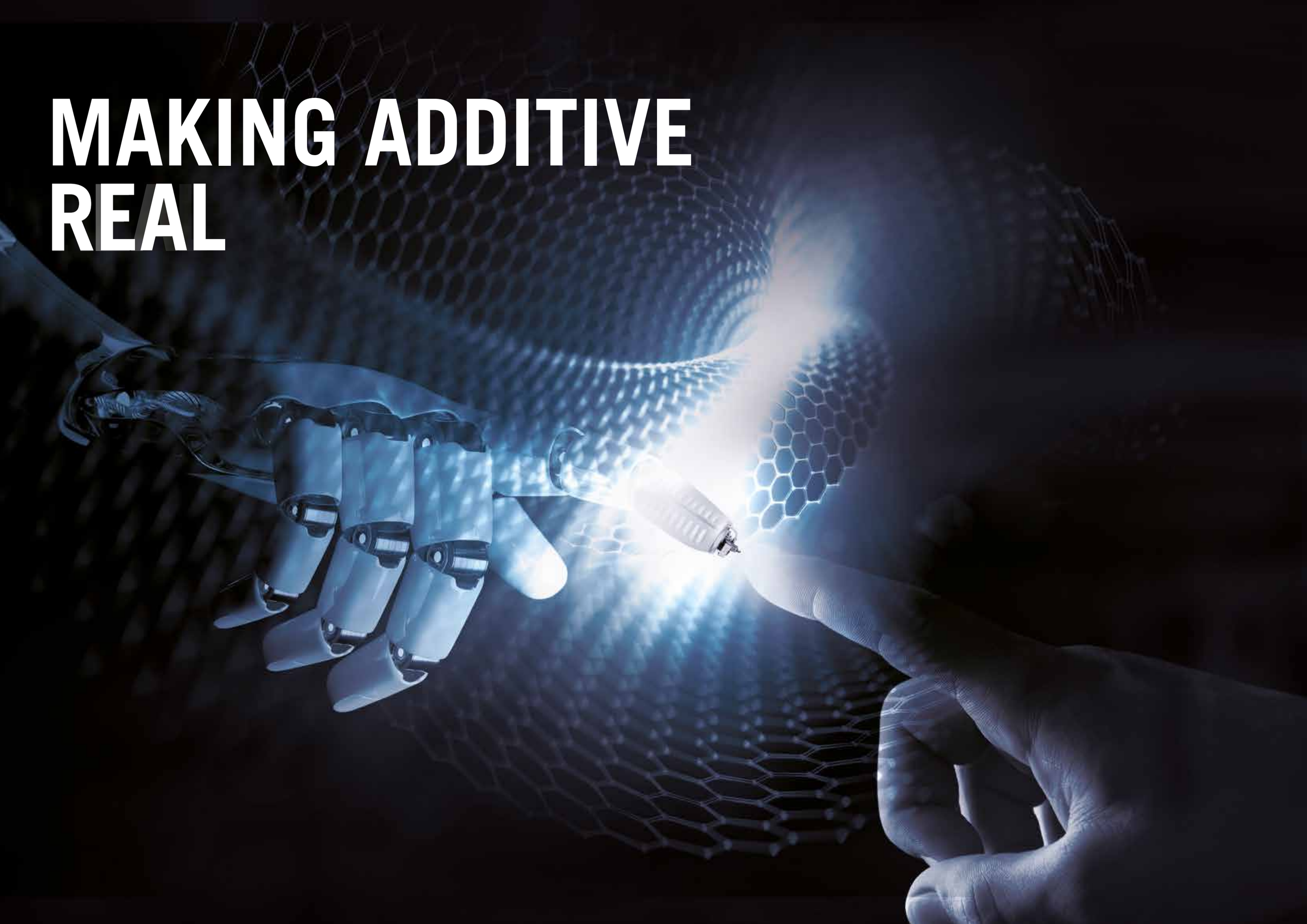
scm group | *industrial machinery and components*

Cms | *your technology partner*

kreator

a company of scm group

MAKING ADDITIVE REAL



Revolutionary.

Efficient.

Accurate.

Largely sustainable.

Tooling with large-format 3D printing

Making Additive REAL.

additive manufacturing solutions

CMS KREATOR

CMS, a pioneer in CNC machinery for material processing, began developing innovative LFAM (Large Format Additive Manufacturing) solutions in 2018 to increase competitiveness in the composite materials and tooling sectors.

Large Format Additive Manufacturing

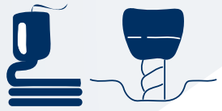
Large Format Additive Manufacturing (LFAM) technology with granulated thermoplastic polymer extrusion is rapidly growing in the production of composite material tooling. Applications include molds for laminating carbon components, autoclave molds, models, trimming jigs, and fixing equipment.

Reduced delivery times, material savings and recyclability make LFAM technology a competitive alternative to traditional tool manufacturing technologies.

KEY BUYERS BENEFITS

1

CUSTOMISED SOLUTION: CMS PROVIDES SPECIALISED LFAM SOLUTIONS EXCLUSIVELY FOR 3D PRINTING OR ADVANCED HYBRID SYSTEMS THAT SEAMLESSLY INTEGRATE 3D PRINTING AND MILLING TECHNOLOGIES.

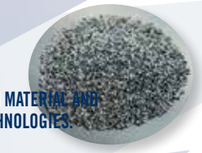


2

HIGHLY FLEXIBLE: CMS LFAM TECHNOLOGY ENABLES VERTICAL (0°), INCLINED (45°) AND HORIZONTAL (90°) 3D PRINTING ON A SINGLE MACHINE.

3

MATERIAL SAVINGS: MANUFACTURE OF SEMI-FINISHED TOOLS WITH MATERIAL AND WEIGHT SAVINGS OF UP TO 80% COMPARED TO CONVENTIONAL TECHNOLOGIES.



4

SUSTAINABLE SOLUTION: 60% REDUCTION IN GREENHOUSE GAS EMISSIONS COMPARED TO TRADITIONAL TOOL MANUFACTURING PROCESSES (LIFE CYCLE ASSESSMENT).

5

EASE OF USE: ICARUS SLICING SOFTWARE AND THE HMI PRINT INTERFACE SIMPLIFY THE PROCESS AND TEMPERATURE MANAGEMENT, THUS REDUCING PROGRAMMING AND PRINTING TIMES AND IMPROVING PRODUCTION FLOW.

3D PRINT

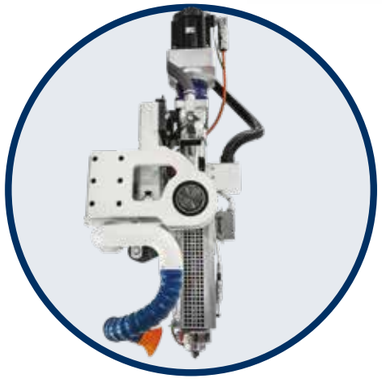
MILLING

LAMINATION MODEL FOR AUTOMOTIVE BUMPERS

Material: ABS + 20% carbon fiber
Dimensions: 900 x 1,000 x 400 mm
Weight: 50 kg
Operating temperature in autoclave: 60 °C
Printing time: 9 hours
Thickness: 16 mm
Milling cycle time: 18 hours
Material saving: 50%

EXTRUDERS

EXTRUDER **E1**



EXTRUDER **E3**

EXTRUDER **E10**

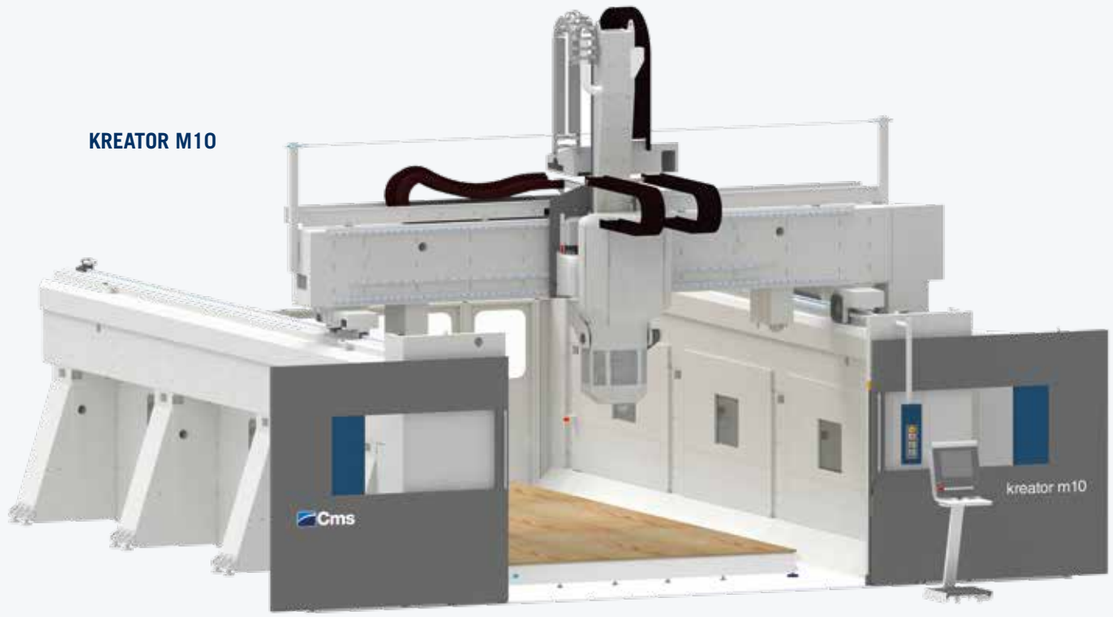
Thanks to its comprehensive range of extruders, CMS is able to provide the most suitable solution for the customer's application. The extruders are designed for optimal processing of a wide range of thermoplastic polymers used in large-scale 3D printing, including PLA, PETG, ABS, PA6, PC, PEI and others, reinforced with carbon or glass fibers. The material loading system integrates granule drying and dust filtration to ensure a high-quality product.

	EXTRUDER E1	EXTRUDER E3	EXTRUDER E10
SCREW DIAMETER	20 mm	25 mm	35 mm
MAXIMUM FLOW RATE	10 kg/h	30 kg/h	100 kg/h
HEATING AREAS	5	5	6
MAXIMUM TEMPERATURE	450 °C	450 °C	430 °C
COOLING	Forced ventilation	Liquid-cooled	Liquid-cooled
NOZZLE DIAMETER	8 – 13 mm	10 – 15 mm	12 – 20 mm
MELTING SENSORS	Temperature and pressure	Temperature and pressure	Temperature and pressure
DRYER CAPACITY	80l	120l	600l

PRINTING SOLUTIONS

KREATOR A3

KREATOR M10



EXTRUDER VERTICAL PRINTING

EXTRUDER INCLINED PRINTING (45°)

	KREATOR A3	KREATOR M10
PROCESS	Additive production	Additive production
EXTRUDER	E3 (30 kg/h)	E10 (100 kg/h)
PRINTING STRATEGIES	Vertical, 45°, and horizontal	Vertical and 45°
X AXIS	2,500 – 9,800 mm	3,000 – 10,500 mm
Y AXIS	2,500 mm	4,000 mm
Z AXIS	1,300 mm	1,600 mm

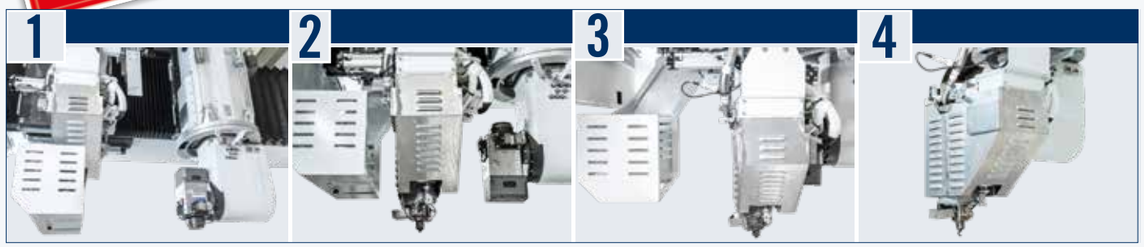
HYBRID SOLUTIONS

KREATOR ARES

KREATOR POSEIDON

KREATOR MX5 10, POSEIDON 10 AND ETHOS 10
(DUAL-BRIDGE HYBRID SOLUTIONS)

PATENTED !



AUTOMATIC TRANSITION FROM MILLING TO PRINTING WITHOUT MANUAL INTERVENTION

	KREATOR ARES	KREATOR POSEIDON
PROCESS	5-axis milling + Additive production	5-axis milling + Additive production
EXTRUDER	E1 (10 kg/h)	E1 (10 kg/h)
EXTRUDER ENGAGEMENT METHOD	Automatic head change	Automatic head change
PRINTING STRATEGIES	Vertical, 45°, and horizontal	Vertical and 45°
X AXIS	3,400- 5,800 mm	4,000- 10,000 mm
Y AXIS	2,000 mm	3,400 mm
Z AXIS	1,100 mm	1,300 mm
SPINDLE	20 kW	20 kW

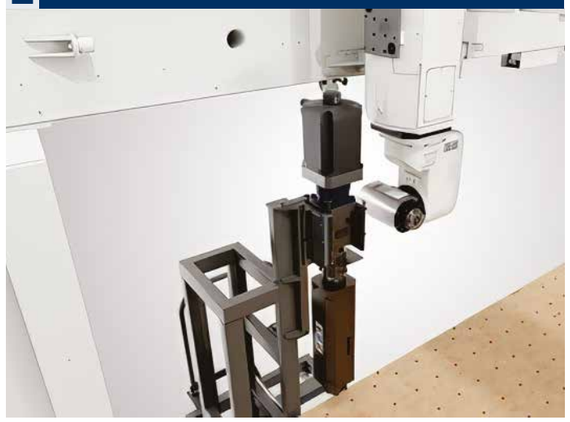
	KREATOR MX5 10	KREATOR POSEIDON 10	KREATOR ETHOS 10
PROCESS	5-axis milling + Additive production	5-axis milling + Additive production	5-axis milling + Additive production
EXTRUDER	E10 (100 kg/h)	E10 (100 kg/h)	E10 (100 kg/h)
ENGAGEMENT METHOD EXTRUDER	Second bridge	Second bridge	Second bridge
PRINTING STRATEGIES	Vertical and 45°	Vertical and 45°	Vertical and 45°
X AXIS	3,000- 12,500 mm	4,000- 13,000 mm	4,000- 13,000 mm
Y AXIS	4,250 mm	4,000 mm	4,000 mm
Z AXIS (CUTTER)	2,000 mm	2,000 mm	2,000 mm
Z AXIS (CUTTER)	1,600 mm	1,600 mm	1,600 mm
SPINDLE	12 - 32 kW	12 - 32 kW	18 - 32 kW

PICK-UP SYSTEM

The "pick-up" solution allows **semi-manual engagement of a screw plasticizing unit with a capacity of 30 kg/h, enabling flexible, low-impact integration of the large-format printing process** for thermoplastic materials on 5-axis machining centers.

1

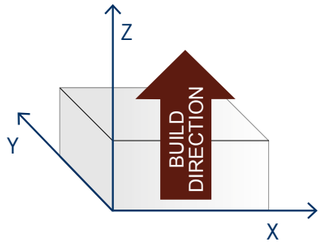
2



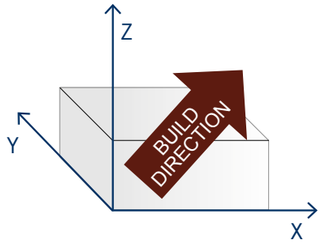
3

4

The solution allows you to work with vertical and 45° printing strategies. The red arrow indicates the direction of growth of the piece.



VERTICAL PRINTING with standard nozzle



45° PRINTING with dedicated nozzle

TECHNICAL DATA PICK UP SOLUTION

PICK UP IS AVAILABLE ON ARES, ANTARES, MX5, POSEIDON, ETHOS

	KREATOR ANTARES 3	KREATOR ARES 3	KREATOR MX5 3	KREATOR POSEIDON 3	KREATOR ETHOS 3
PROCESS	5-axis milling + Additive production	5-axis milling + Additive production	5-axis milling + Additive production	5-axis milling + Additive production	5-axis milling + Additive production
EXTRUDER	E3 (30 kg/h)	E3 (30 kg/h)	E3 (30 kg/h)	E3 (30 kg/h)	E3 (30 kg/h)
ENGAGEMENT METHOD EXTRUDER	Pick-up system on trolley	Pick-up system on trolley	Pick-up system on trolley	Pick-up system on trolley	Pick-up system on trolley
PRINTING STRATEGIES	Vertical and 45°	Vertical and 45°	Vertical and 45°	Vertical and 45°	Vertical and 45°
X AXIS	2,600 mm	3,600 – 6,000 mm	3,000- 10,500 mm	2,500- 10,000 mm	2,500- 10,000 mm
Y AXIS	1,700 – 2,800 mm	1,800 – 2,600 mm	3,600- 4,250 mm	2,600- 5,000 mm	2,600- 5,000 mm
Z AXIS	1,300 mm	1,200 mm	900- 2,500 mm	1,300- 2,500 mm	2,600- 5,000 mm
SPINDLE	12 - 20 kW	12 - 20 kW	12 - 32 kW	12 - 32 kW	18 - 32 kW

NEW!

DISCOVER ICARUS !

ICARUS

EASE OF USE

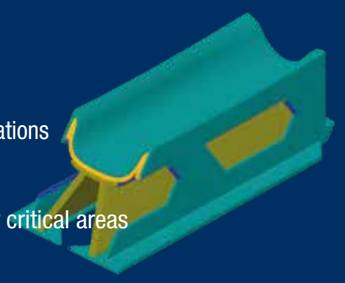
GENERATE PRINTING PARAMETERS AUTOMATICALLY

The software analyzes the part geometry, properties of the printed strand and selected material, and automatically suggests the best printing parameters

CREATE PROJECTS WITH SIMPLIFIED 3D MODELS

Projects can be developed and modified using elementary geometric shapes

PRODUCT-ORIENTED SOFTWARE



CREATE PARAMETRIC MODELS

Templates can be created for various materials, printing strategies and applications

EXCLUSIVE FEATURES

Create internal reinforcement structures, reduction zones and supports for critical areas

PROCESS SIMULATION

WITH 3D PRINTED MODEL

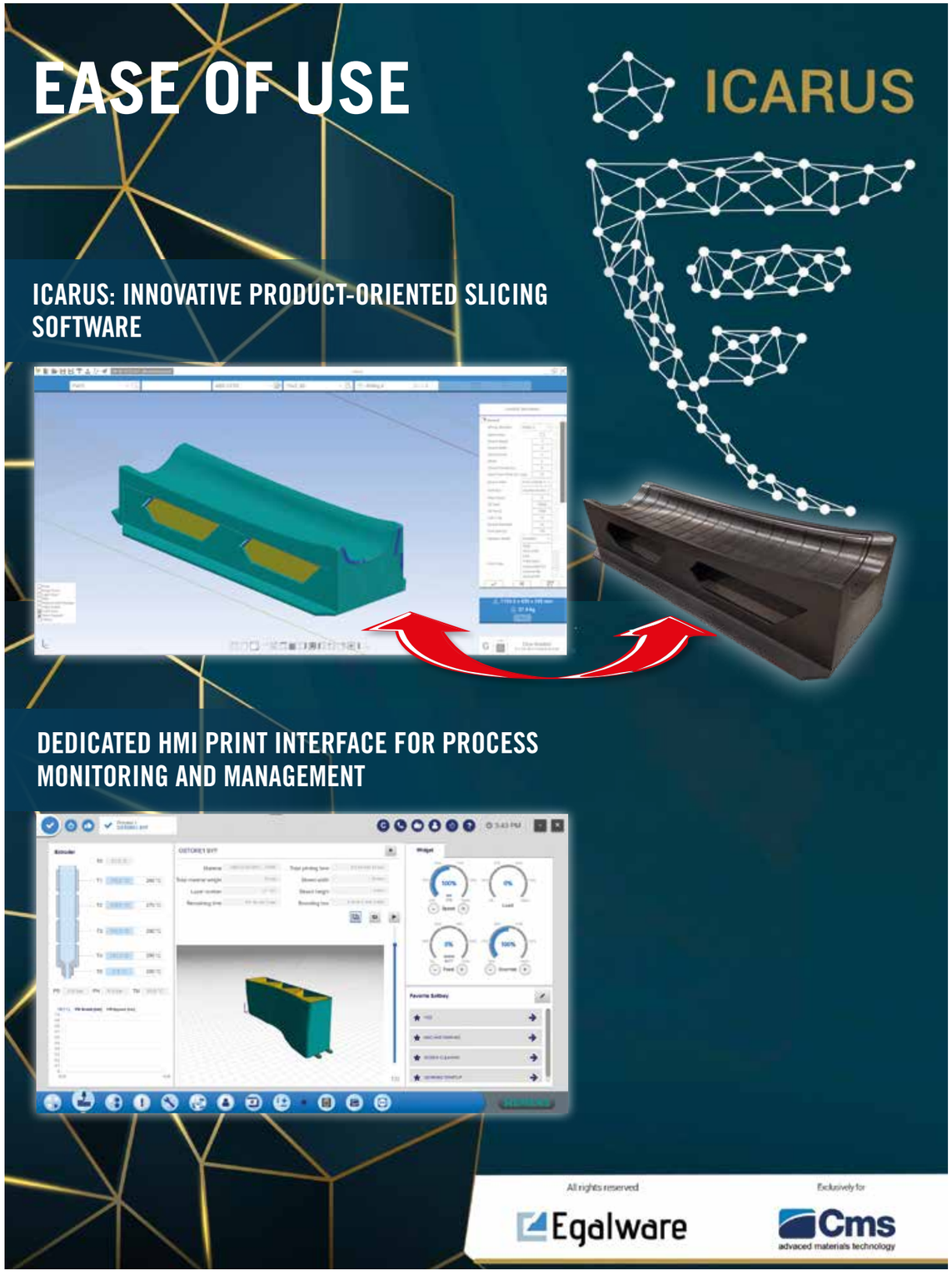
Export the 3D model generated, which exactly represents the final printed result

CONTINUOUS ANALYSIS

The 3D model can be used to analyze printed thicknesses and, with the aid of specific software, perform structural analysis

DEDICATED HMI PRINT INTERFACE

PROCESS MONITORING AND MANAGEMENT REAL-TIME PRINT PREVIEW

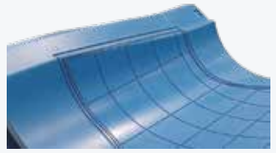


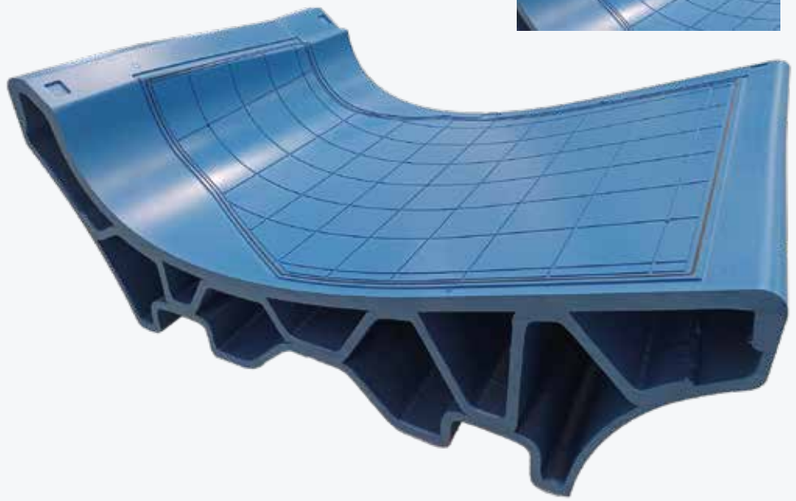
CASE STUDIES

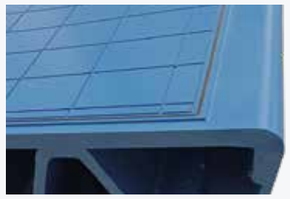
FASTENING EQUIPMENT FOR MECHANICAL PROCESSING OF CARBON COMPONENTS

AEROSPACE

Material: **PC + 20% glass fiber**
Dimensions: **2,200 x 1,500 x 900 mm**
Weight: **470 kg**
Printing time: 26 hours
Thickness: 40 mm
Milling cycle time: 12 hours







HIGH TEMPERATURE LAMINATION MOULD

AEROSPACE

Material: **PEI + 20% carbon fiber**
Dimensions: **1,200 x 900 x 1,000 mm**
Weight: **190 kg**
Operating temperature in the autoclave: **170 °C**
Printing time: 8 hours
Thickness: 36 mm
Milling cycle time: 24 hours

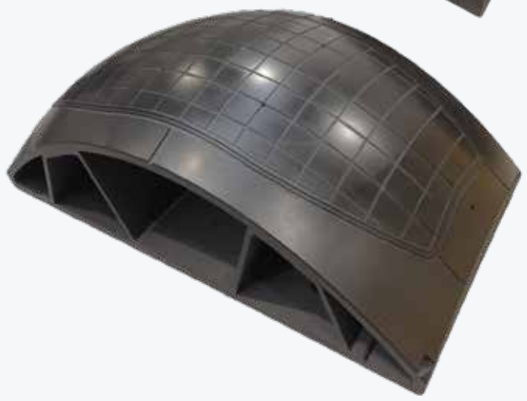
CFRP ANTENNA REFLECTOR FOR DEFENCE SYSTEM

AUTOCLAVE LAMINATION MOULD

Material: **PC + 20% carbon fiber**
Dimensions: **1,400 x 800 x 800 mm**
Weight: **135 kg**
Operating temperature in the autoclave: **120 °C**
Printing time: 20 hours
Thickness: 20 mm
Milling cycle time: 8 hours

FASTENING EQUIPMENT FOR MECHANICAL PROCESSING

Material: **ABS + 20% carbon fiber**
Dimensions: **1,400 x 750 x 500 mm**
Weight: **110 kg**
Printing time: 12 hours
Thickness: 20 mm
Milling cycle time: 9 hours



CMS ADVANCED MATERIALS TECHNOLOGY - MACHINE RANGE

FOR PROCESSING COMPOSITE MATERIALS, ALUMINIUM, AND METAL

MONOBLOC CNC MACHINING CENTERS FOR VERTICAL MILLING

ATHENA

ANTARES MK3

ANTARES MK3 FLOOD

ARES

VM 30

CNC MACHINING CENTERS FOR LARGE WORK AREAS

MX5

POSEIDON

ETHOS

CONCEPT

SOLUTIONS FOR LARGE FORMAT ADDITIVE MANUFACTURING

KREATOR ARES

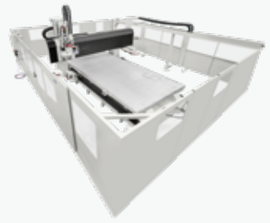
KREATOR A3

MONOBLOC CNC MACHINING CENTERS FOR HORIZONTAL MILLING

IKON

D. FIXED AND MOBILE BRIDGE CNC MACHINING CENTERS

FXB



MBB

AVANT CARAVAN

CNC MACHINING CENTERS FOR EYEWEAR MANUFACTURING

MONOFAST EVO

WORK SYSTEMS FOR WIND TURBINES

EOS

CNC MACHINING CENTERS FOR RIFLE STOCKS

MULTILATHE

MONOFAST GUNSTOCKS

KARAT

WATERJET CUTTING SYSTEMS

TECNOCUT PROLINE

TECNOCUT SMARTLINE

ACKREAT-1025E

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