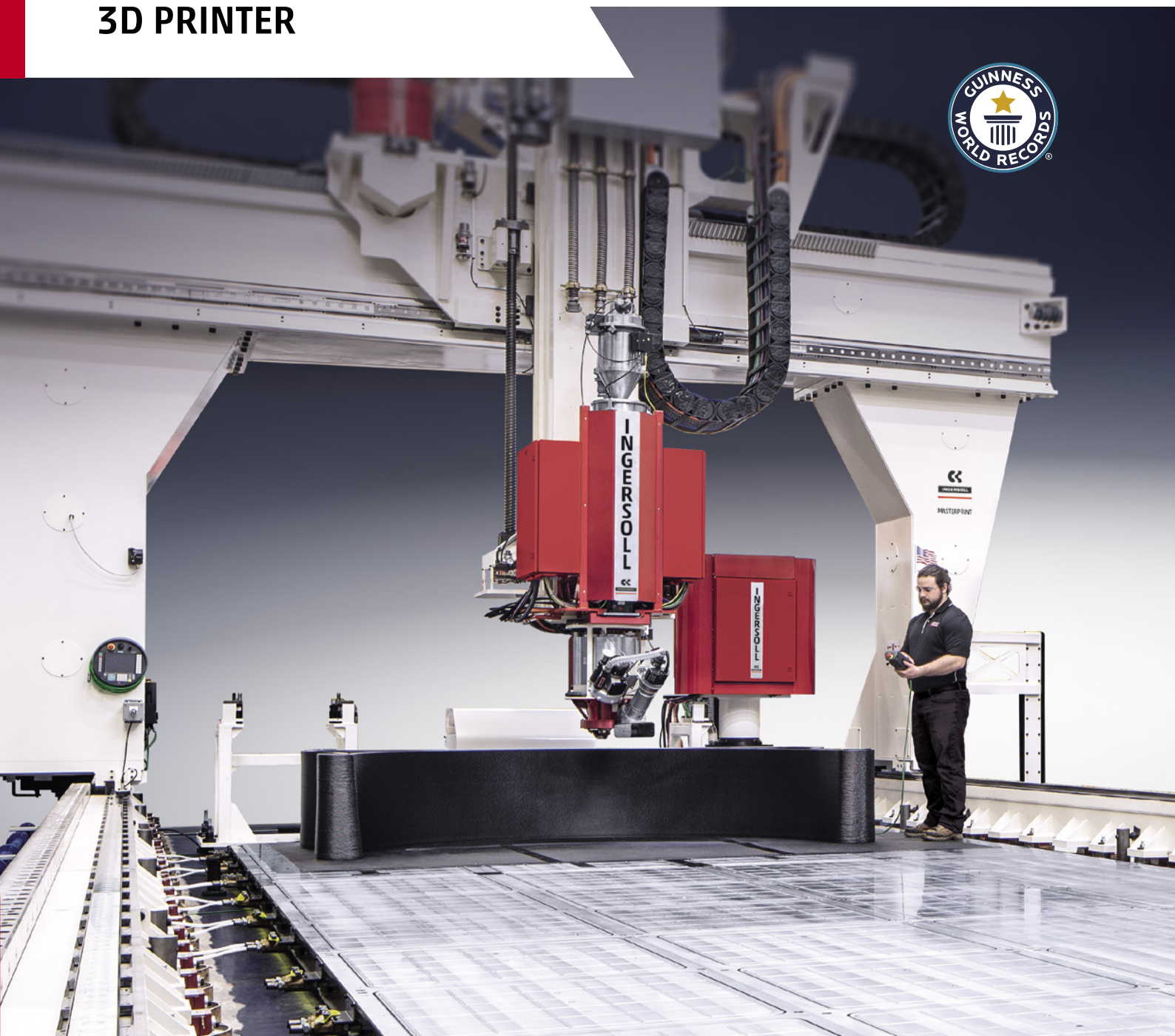




INGERSOLL

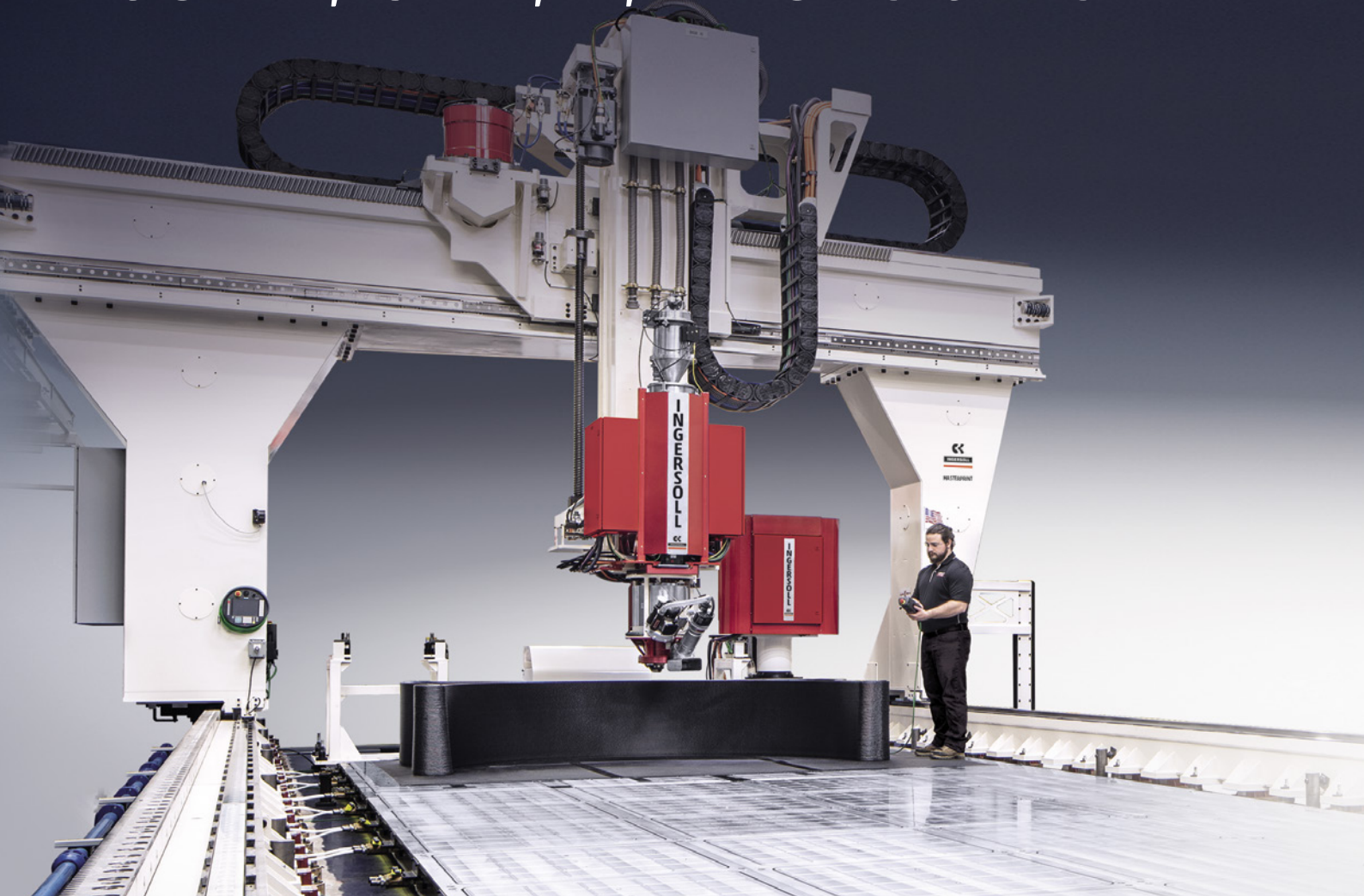
Machine Tools

MASTERPRINT® 3X THE LARGEST EXISTING THERMOPLASTIC 3D PRINTER



MASTERPRINT® 3X

'INGERSOLL MACHINE TOOLS' INDUSTRY-LEADING SOLUTION FOR ADDITIVE MANUFACTURING OF COMPLEX GEOMETRY, DURABLE, XXL, THERMOPLASTIC PARTS.



MasterPrint® 3X is Ingersoll Machine Tools' large-format, industrial, 3 axes, 3D-printer for additive manufacturing and milling of complex-geometry, durable, XXL, **thermoplastic components** for the space, aerospace, automotive and naval sectors.

MasterPrint® 3X **can print, overprint and reinforce** hollow structures at any fixed angle between 0° and 90°

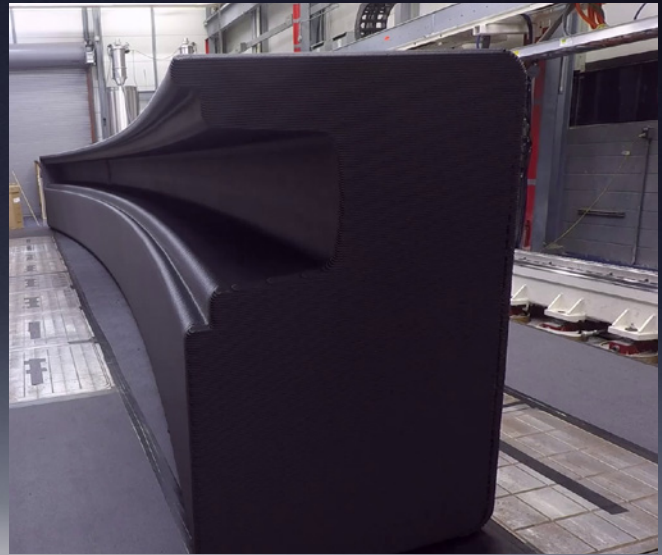
MasterPrint® 3X can then finish these structures by **automatically dropping off its extruder module** and picking up its industrial **2-axis milling end effector**.

MORE THAN A 3D PRINTER

MasterPrint® 3X is also offered as **Hybrid** with the addition of modules for **composite manufacturing** (fiber placement, tape laying, trimming, inspection, ...)



Genoa bridge
Inspection System Mold



BENEFITS



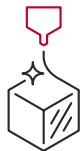
Capacity

3D print parts of large and extra-large volume



Feasibility

3D print parts of complex, contoured geometries



Quality

Match the mechanical and thermal properties for the same parts obtained with subtractive processes (rigidity, resistance, thermal expansion, vacuum tightness ...)



Productivity

Reduce the manufacturing time (from months to weeks)



High ROI/ Low TCO

Low Technology Acquisition Costs and Low Operating Costs

MASTERPRINT® 3X FEATURES AND BENEFITS

01

Large Volume X – Y – Z Gantry Positioner

BENEFIT

- 3D print parts of large and extra-large volume (**Capacity**)
- Reduce the manufacturing time (from months to weeks) (**Productivity**)

05

Material Delivery System

06

07

Automated Module Exchange and Additional Milling and Fiber Delivery Modules

BENEFIT

- Reduce the manufacturing time (from months to weeks) (**Productivity**)
- Option to add subtractive and composites processes as complements of the additive one
- Possibility to select only the process(es) needed and to implement them when they become necessary
- Option to add multiple work-zones to enable running processes in parallel (**Versatility**)
- Low Technology Acquisition Costs
- Low Decommissioning Cost (**High ROI / Low TCO**)

02

Sinumerik One (the latest generation of powerful reliable and widespread, industrial CNCs)

BENEFIT

- Low Operating Costs
- Low Maintenance Cost

08

Vacuum table



03

Operator console and CMTnet

BENEFIT

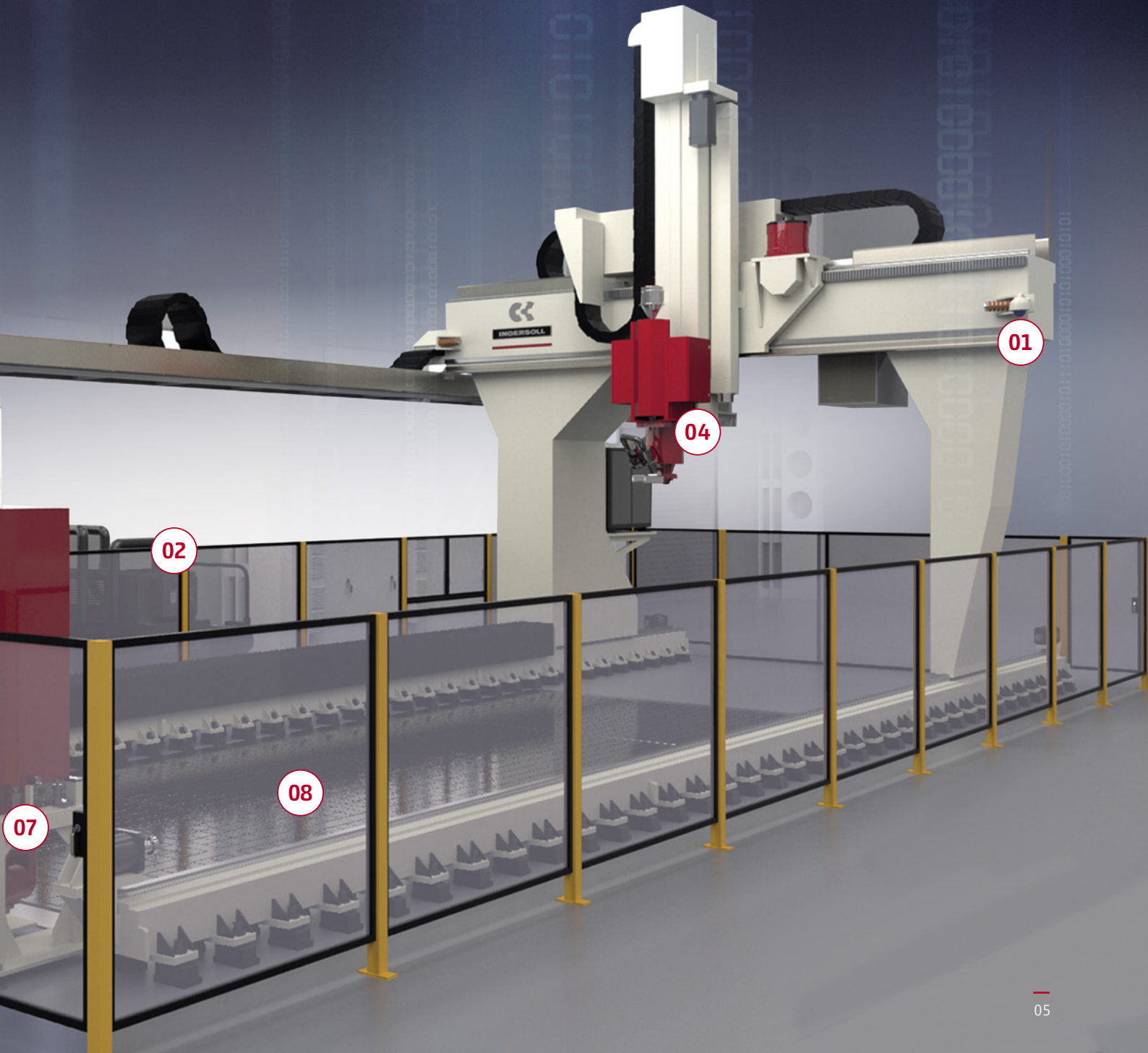
- Ergonomics
- Low Operating Costs
- Low Maintenance Cost

04

Manually Adjustable Nozzle

BENEFIT

- 3D print parts with outer surfaces that are contoured
- 3D print hollow parts with overhangs
- Lay variable cross-sections while 3D printing



MASTERPRINT® 3X VERSIONS

MasterPrint® 3X comes in two versions with 150 lbs./hr. and 500 lbs./hr. flow rate extruders paired with equal capacity Material Delivery Systems.

- MasterPrint® 3X 150
- MasterPrint® 3X 500





MASTERPRINT® 3X 150

150 lbs./hr.

Extruder

Throughput	150 lbs./hr. nominal (when using ABS 20%CF)
Barrel/Screw Size	30mm Diameter, L/D = 24 (~720mm Length)
Heat Zones	(4) barrel zones, (1) nozzle band (multiple for angled nozzles) heating to 500°C (PEI, PPSU, PESU capable)
Restart Assist Heater	Auto-indexing motorized heater
Manual Indexing Nozzle	0° - 90°

Material Delivery System

Material Ready Hopper	600 lbs. capacity raw material
Dryer and Handling System	150 lbs./hr. capacity prepared material
Capable of Delivering	150 lbs./hr. prepared material



MASTERPRINT® 3X 500

500 lbs./hr.

Extruder

Throughput	500 lbs./hr. nominal (when using ABS 20%CF)
Barrel/Screw Size	60mm Diameter, L/D = 24 (~1440mm Length)
Heat Zones	(6) barrel zones, (1) nozzle band heating to 500°C (PEI, PPSU, PESU capable)
Restart Assist Heater	Auto-indexing motorized heater
Manual Indexing Nozzle	0° - 90°

Material Delivery System

Material Ready Hopper	2000 lbs. capacity raw material
Dryer and Handling System	500 lbs./hr. capacity prepared material
Capable of Delivering	500 lbs./hr. prepared material

AUXILIARY EQUIPMENT

All machine models can be equipped with:

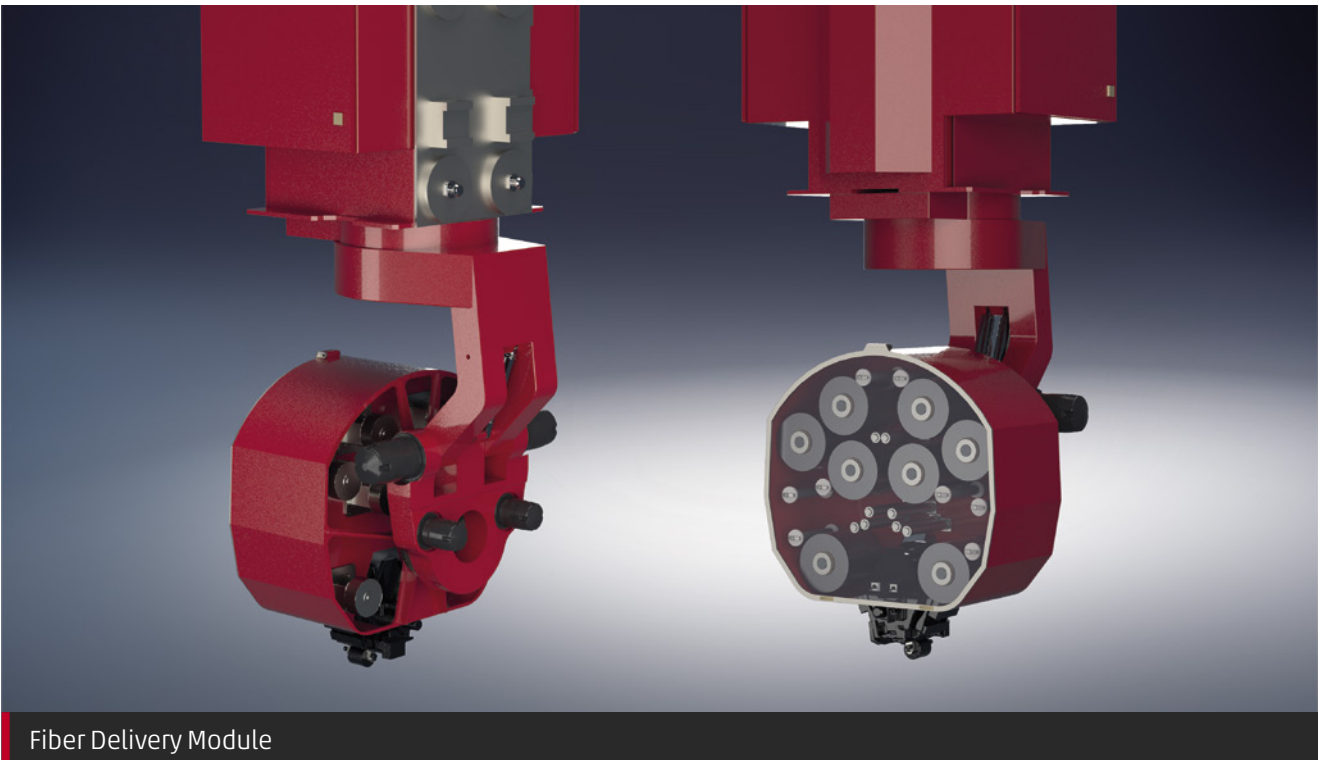
- Milling module
- Vacuum table
- Fiber Delivery Module



Milling module



Vacuum table



Fiber Delivery Module

APPLICATION SECTORS

■ AIRCRAFT



■ ENERGY



■ NAVAL



Other sectors:

- DEFENSE
- AUTOMOTIVE
- MOLD MANUFACTURERS
- UNIVERSITIES AND RESEARCH CENTERS

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