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DATA SHEET

Model: EFESTO

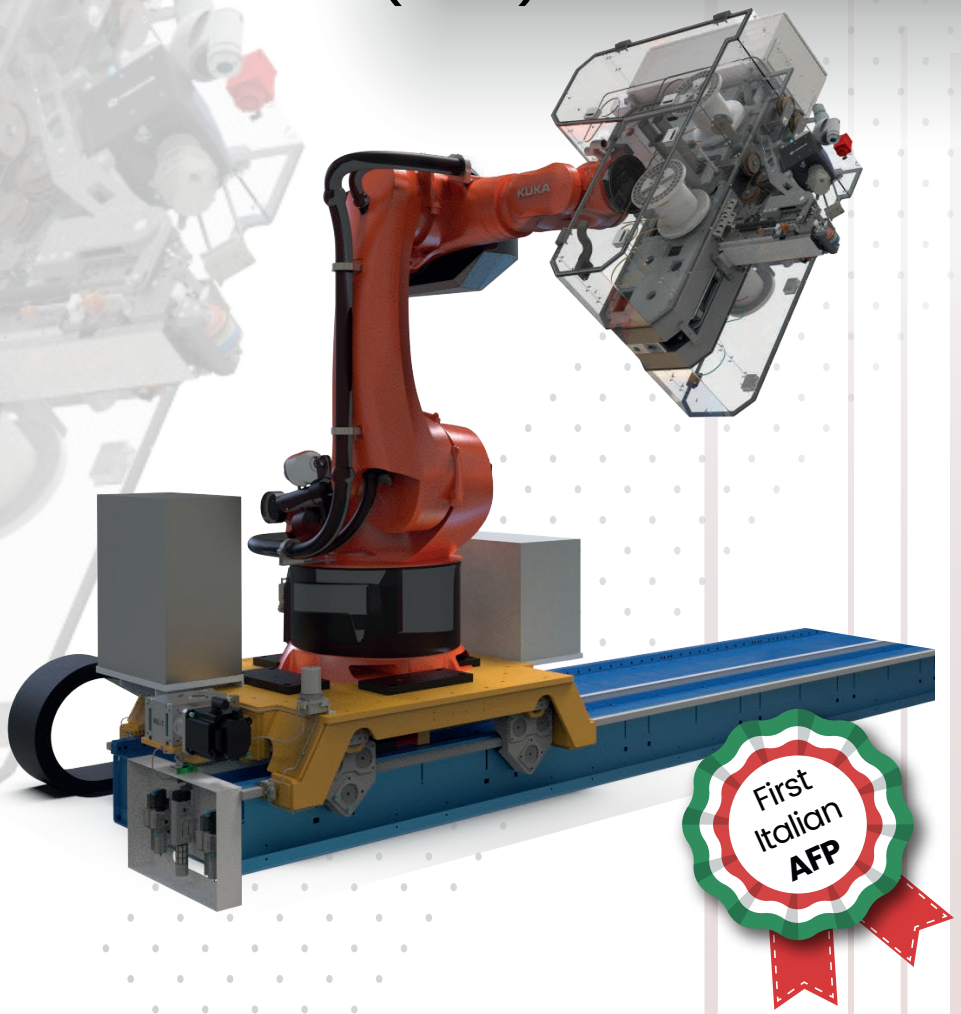
Automatic Fiber Placement (AFP)

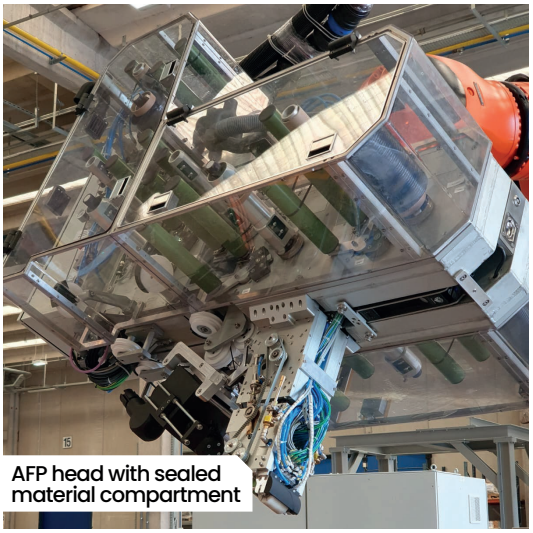
Product INFO

ESEA modular AFP head has demonstrated high productivity and high quality in the aerospace production.

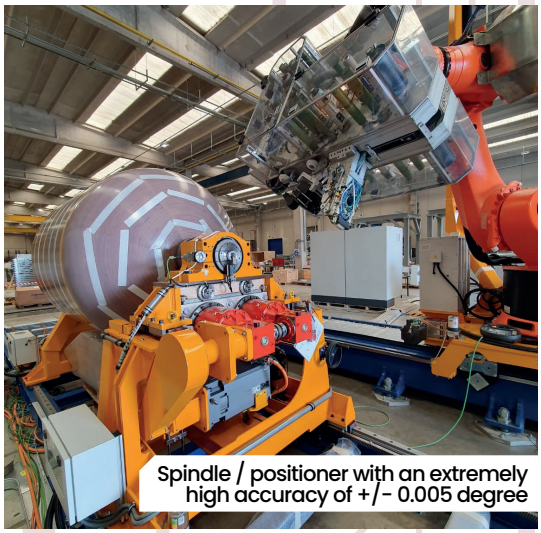
This innovative AFP head has been developed to optimize the capability to work on complex convex and concave structures. The user friendly programming software supports tailored trajectories to ease the production.

The EFESTO head improves the technology by using:
- different sizes of slittape or towpreg in one head
- rapid set-up
- high laying accuracy
- high productivity in production




AFP head with sealed material compartment

AFP head in operation


Spindle / positioner with an extremely high accuracy of +/- 0.005 degree

TECHNICAL DATA

AFP PROCESS SPECIFICATIONS	
Head configuration	Modular approach. The head can be assembled in different configuration. The basic configuration is equipped with 4 spools (basic design). It is possibile to add a second set of 4 spools to increase the productivity. It is possible in alternative to remove the spool delivery device by each side of the head.
High accuracy robot laying	+/- 0,1 mm
Fiber configuration	1/4'' and 1/2''
Cut and feed repeatability	± 2 mm at 700 mm/s
Compaction force control	3 N to 30 N (automatic, sectable along trajectory)
Temperature and Humidity head control	6° to 20°
Maximum lay-up speed	Up to 1,2 m/s
Tolerance between laid tapes	0/+0,2 mm
Minimum fiber length	100 mm
Tape tension	3 N to 20 N
Spool (on board)	4+4
Release film rewinder	4+4
HMI for advanced production management	Visual process control with intuitive windows for operation and maintenance
Bar-code reader for material traceability	
Offline simulation software	VERICUT VCS Composites solution 9.4.2
Offline postprocessing software	VERICUT VCP Composites programming 9.4.2
IP CAMERA	Visual control cam during operation
Quality assurance	Laser profilometer, recording and storage of the main process parameters

CELL CONFIGURATIONS	
Robot Kuka	KR600
Robot on a linear axis	Up to 80 m in length
Tool AFP	
Humidity and temperature head air control	
IR Heater	500 W
IR Camera control	
Electrical Cabinet	Insulation code IP56 and air condition system
Horizontal positioner	
• Payload	40,000 kg
• Maximum mandrel diameter	Ø 2,500 mm
• Maximum mandrel lenght	10,000 mm
• Angular accuracy	0,005°

COMPONENTS	
Robot	Kuka
Controller	Siemens CNC
Linear axis	Güdel
Positioner	ESEA Composites

MATERIALS	
Termoset Tape	Compatible
Thermoplastic Towpreg	Compatible

OPTIONS	
Laser heater	For thermoplastic process with optical zoom to adapt the laser spot to the bandwidth and trajectory specifics.
Vertical axis positioner	
• Payload	5,000 kg
• Table Diameter	2,700 mm
• Angular accuracy	0,005°
Smart maintenance service with augmented reality functions	