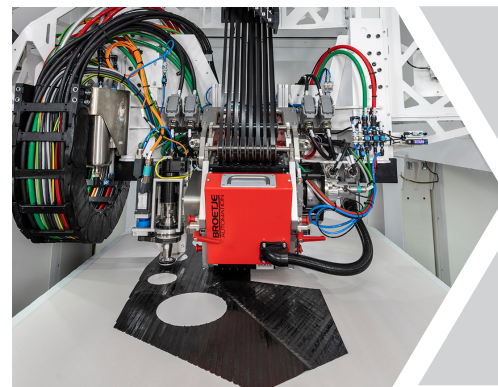


CUSTOMIZED COMPOSITES - INDIVIDUAL SOLUTIONS FOR YOUR SHOPFLOOR

For more than two decades Broetje-Automation has been integrating customized automated solutions with multiple industrial processes. Based on this experience we are able to provide the right solution for your individual task. Our customized systems provide the most efficient production systems for a variety of applications for the composite industry.



Automated Fiber Placement

The STAXX Family

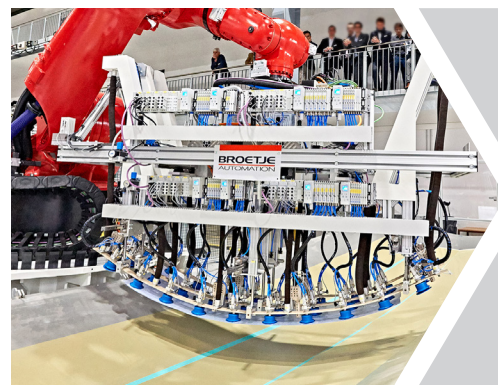
- Flexible AFP system, from mobile to large industrial solutions
- Extreme reliability and availability
- High efficiency and versatility
- Layup of simple and complex 2D and 3D parts
- Multiple material capability with thermoset and thermoplast
- Collision avoidance based on digital twin real time machine data



Automated Preforming

Continuous Preforming for large structures

- Ideal for preforming of complex composite structures
- High repeatability and high layup rate up to 100 kg/h
- Increased time and cost efficiency
- Continuous Stacking, Cutting and Forming
- Eight integrated process steps in one automated line
- Low energy and shopfloor consumption, saving up to 30%
- Supporting sustainable production and and emission reductions



Handling

Intelligent adaption to complex surfaces

- Composite handling system with adaptive structures
- High flexibility handling units and intelligent interfaces between systems
- High positioning accuracy - Broetje-Automation special vacuum generation
- Ply Stacking for preform build-up via local heating elements
- Automation of cutting tables enabled for line integration

EQUIPPING THE FACTORY OF THE FUTURE

Based on more than 40 years of experience Broetje-Automation strives to be the best companion for automated production solutions.

We build highest standard technologies to provide our customers with a tailored solution fit to their individual cases. Our strong suit is the individual integration of various processes into highly automated machine systems to make your shopfloor more efficient, ergonomic and flexible.

Close to our customers we naturally enhance the production and quality of simple and complex structures and therefore help to implement complex technologies and connected digital production possibilities for the Factory of the Future.

BROETJE-AUTOMATION WORLDWIDE

- We are global: 23 locations in seven countries
- We are experienced: More than 40 years of expertise in automated solutions
- We are diverse: More than 20 nationalities in one global company



COMPOSITE SYSTEMS

AUTOMATED SOLUTIONS FOR THE COMPOSITE INDUSTRY

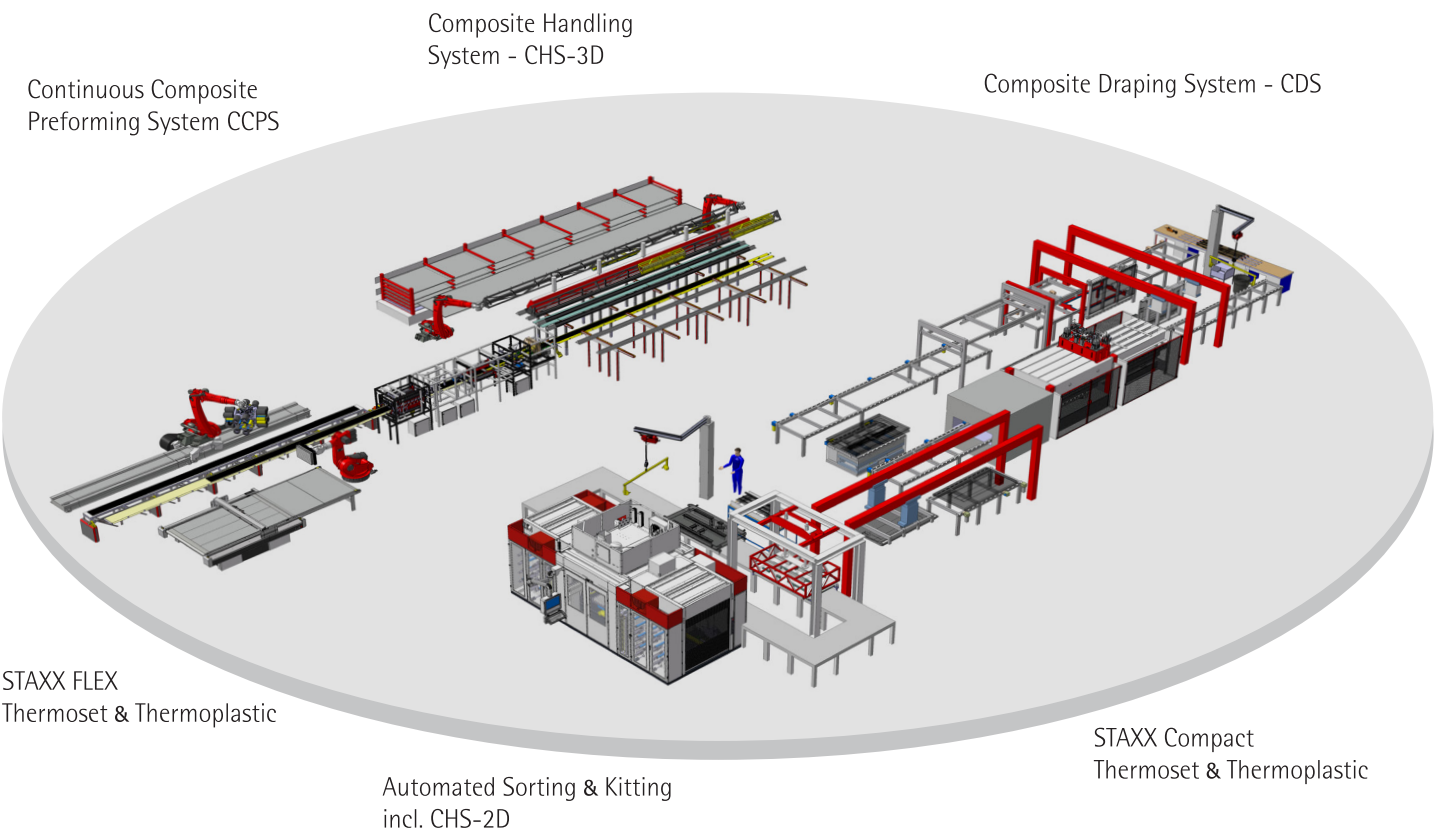
- High Efficiency and Versatility
- Scalability for high volume production
- Layup of complex parts



LINE INTEGRATION AND PROJECT MANAGEMENT

We focus on the big picture. As the world market leader for assembly lines in the aerospace industry, we always enhance the productivity, efficiency and quality trough our products or services.

Based on latest machine technologies we cover the entire process chain from the initial design phase throughout best suitable service during production.



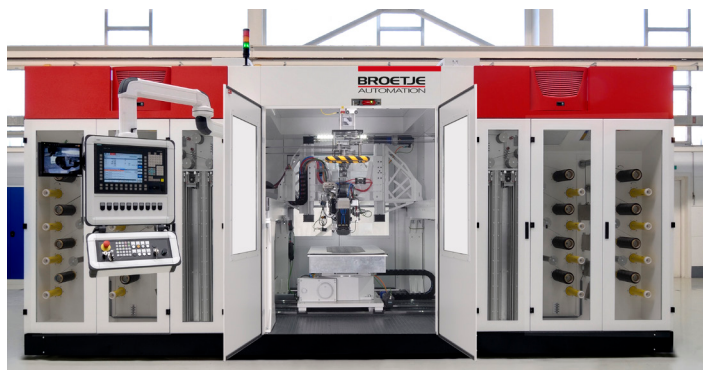
FIBER PLACEMENT

Our Automated Fiber Placement Solutions open new market segments for composite manufacturing. The machines and systems are especially designed for the layup of complex parts but can cover a wide range of applications. Our AFP heads are highly standardized and therefore provide unprecedented capabilities both in thermoset and thermoplastic applications with several machine types and robotic systems.

MANUFACTURING PROCESSES

Automated serial industrial production only is possible if all value creation steps are seamlessly integrated into the production line. We have automated the core production processes of the composite industry in order to minimize manual work. They integrate all relevant functions into complex production system. We make our customers' shopfloor even more efficient.

AUTOMATED FIBER PLACEMENT



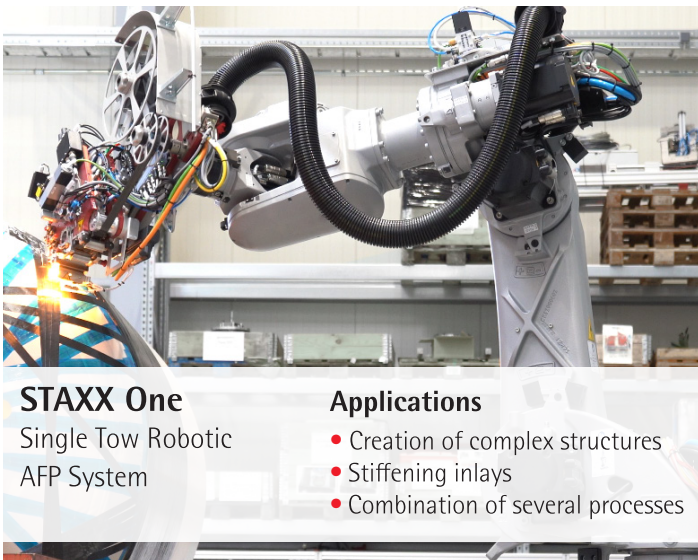
- STAXX Compact**
2D AFP Machining Center
- Applications**
 - Standardized serial part production
 - Bonnet and boot lid
 - Slightly curved panels



- STAXX 3D**
3D AFP Machining Center
- Applications**
 - Complex serial part production
 - Ribs and flat boards
 - Structural parts

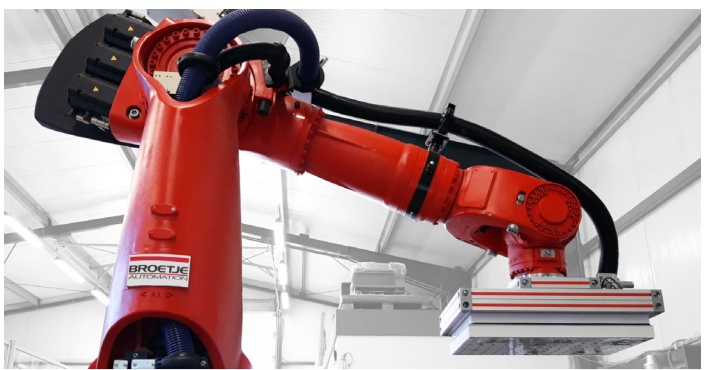


- STAXX Flex**
16 tow AFP End Effector for Serial Production of Complex Parts
- Applications**
 - Panels and Skins
 - Spars and Frames
 - Doors and Fairings



- STAXX One**
Single Tow Robotic AFP System
- Applications**
 - Creation of complex structures
 - Stiffening inlays
 - Combination of several processes

AUTOMATED MANUFACTURING PROCESSES



- Automated Handling**
Optimized Nesting for Complex Parts
- Applications**
 - High contour variety
 - Material independent
 - Extension for manual station



- Continuous Preforming**
High volume, long workpieces and complex parts
- Applications**
 - Stringers
 - Frames
 - Spars
 - Beams

