



Schmidt & Heinzmann

COMPOSITE EQUIPMENT & MACHINERY

Newest Advanced Technologies in Automation/Material preparation

Christian Fais

Schmidt & Heinzmann | Key Facts

1949

Founding



130

Employees



Privately

owned company



Manufacturer

of composite machinery



World wide

delivery



**Subsidiary
Cleveland,
USA**

- Services
- Customer Support

**Subsidiary
Phoenix,
USA**

- Sales & Services
- Customer Support

**Bruchsal,
Germany**

Headquarters

**Subsidiary
Shanghai,
China**

- Sales & Services
- Customer Support



Composite Equipment & Machinery

**Schmidt &
Heinzmann**
COMPOSITE EQUIPMENT & MACHINERY



SMC Production



Automated Bonding



Automated Preforming



Fiber Processing



Press Automation



Cutting & Stacking



Automation & Robotics

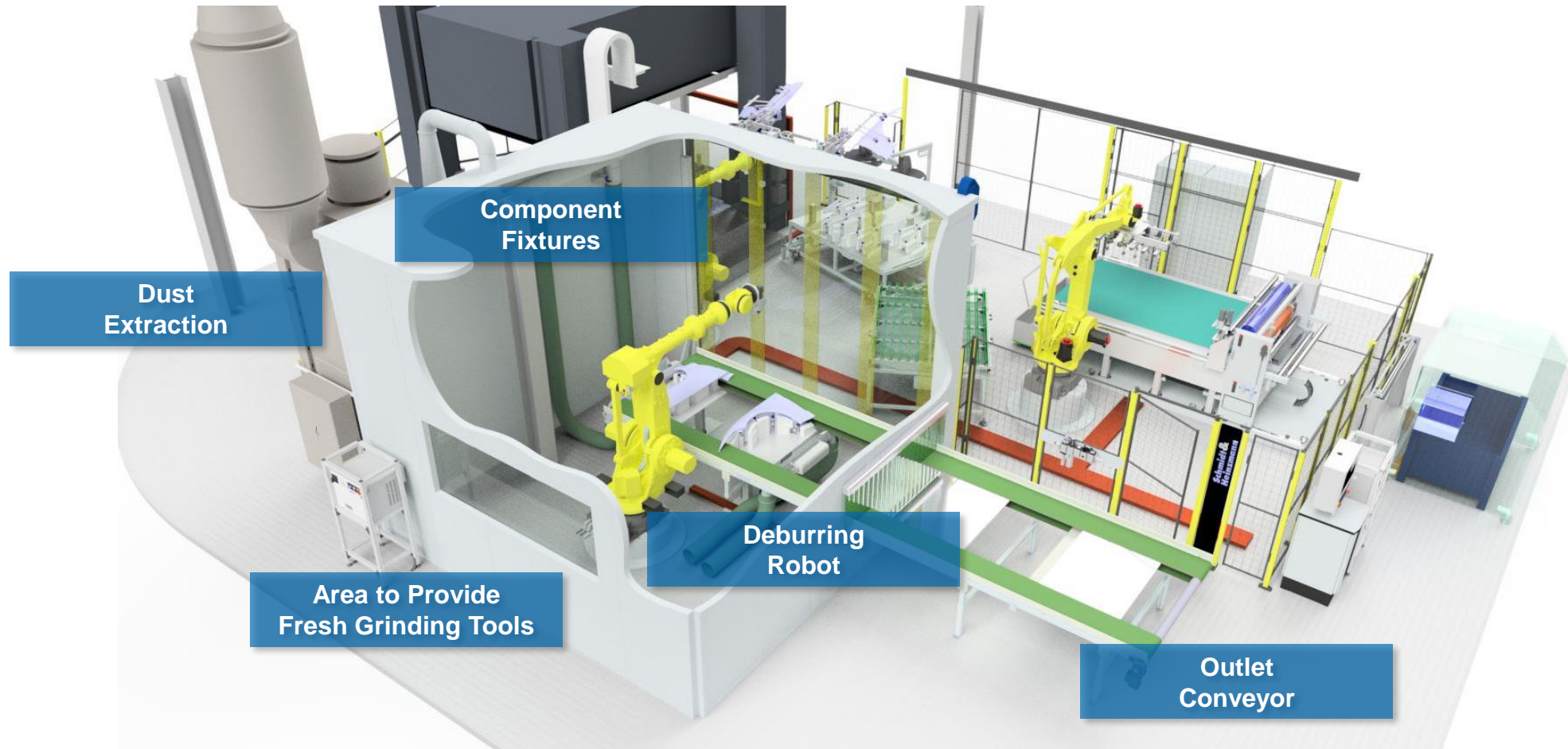


Polyester Plate Production



Automated Deburring

Deburring Cell



Highlight: Dust Extraction

Dust Separation

Local Extraction
included in Fixation

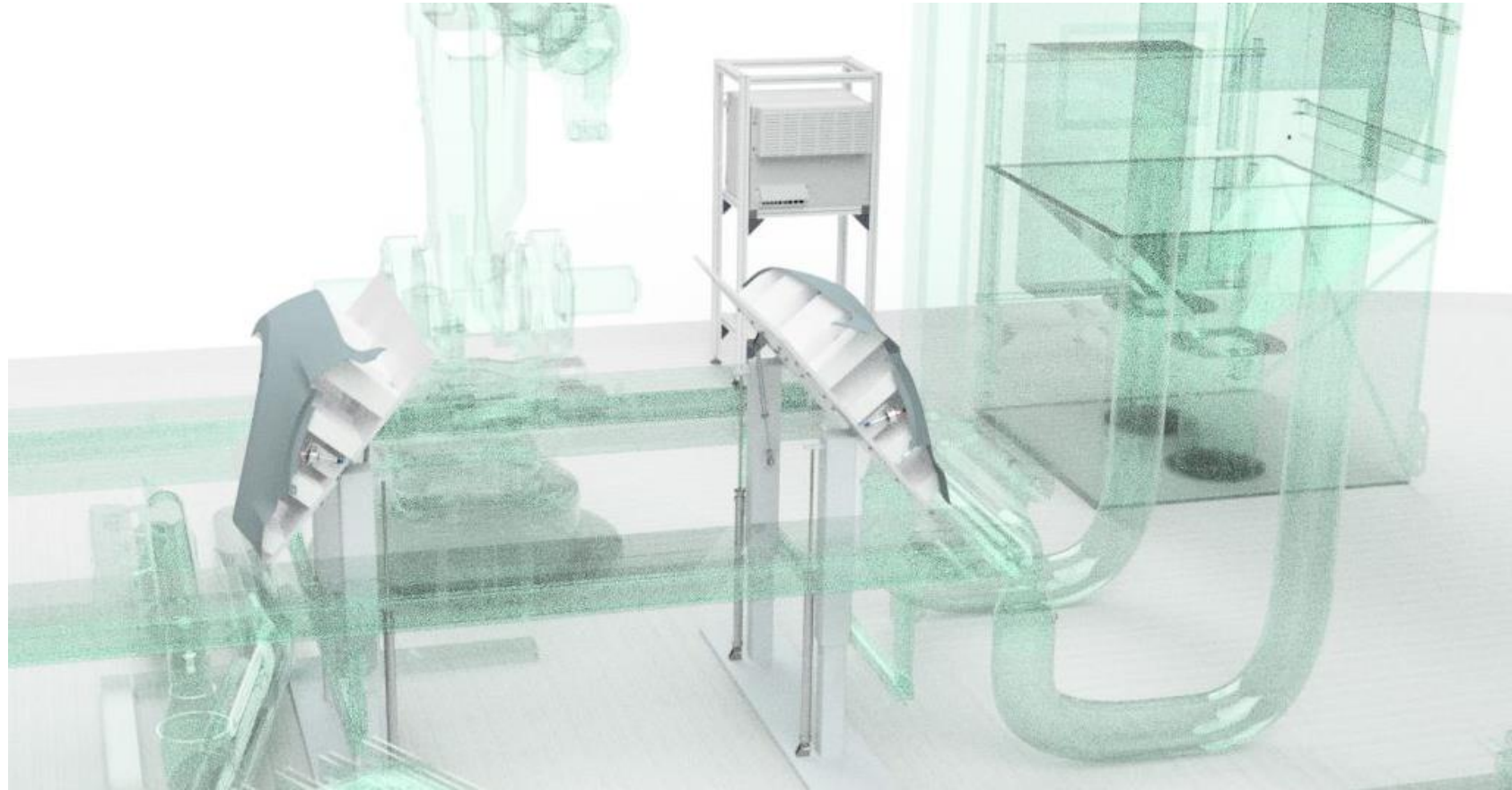
Tornado Systems

Ionization of Air

Highlight: Component Fixation

Lifting and Tilting of the Components

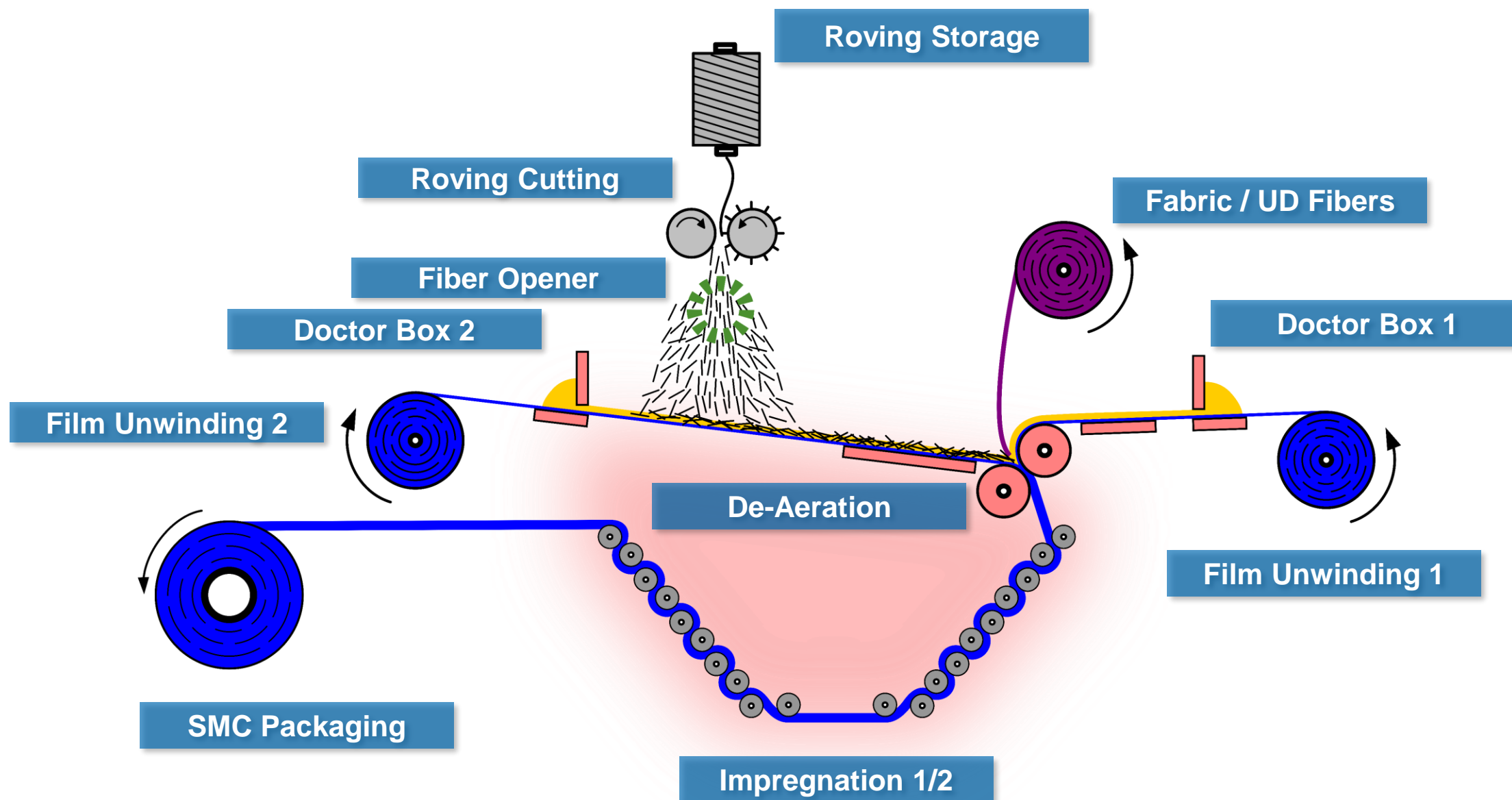
- Reduces waste on surface
- Places components on conveyor after deburring



Next-Gen SMC Line



Layout



De-Aeration

- ✓ New concept with heated precision rolls
- ✓ De-aeration is not hindered by film

Control

- ✓ Acquisition of over 100 material and process related parameters
- ✓ Easy to operate by touch screen and user interface
- ✓ No separate control cabinet
- ✓ Plug-and-play

SMC Packaging

- ✓ Tension controlled
- ✓ Visualization of winding process

Impregnation

- ✓ Two independent impregnation units
- ✓ Impregnation rollers adjustable for SMC or Prepreg
- ✓ Heatable
- ✓ Slide out of impregnation for easy cleaning

... and a truckload more highlights ...



Roving Storage

- ✓ 119 Bobbins
- ✓ Bearings, for minimum friction while unwinding
- ✓ Ceramic eyelets instead of pipes
- ✓ Mechanical brake in case of machine stop

Roving Cutting

- ✓ Optimized for carbon
- ✓ Sensors to monitor wear and fiber feed
- ✓ Spreader - fiber opening roll

Unidirectional Fibers

- ✓ Equidistant feeding of up to 119 rovings

Fabric Unwinding

- ✓ Tension free or
- ✓ Tension controlled

Resin Application

- ✓ Doctor blade precision in μm range
- ✓ Individual gap control for left and right side
- ✓ Active matrix height control by spectroscopy
- ✓ Heatable
- ✓ No resin leakage in case of machine stop
- ✓ Easy to clean

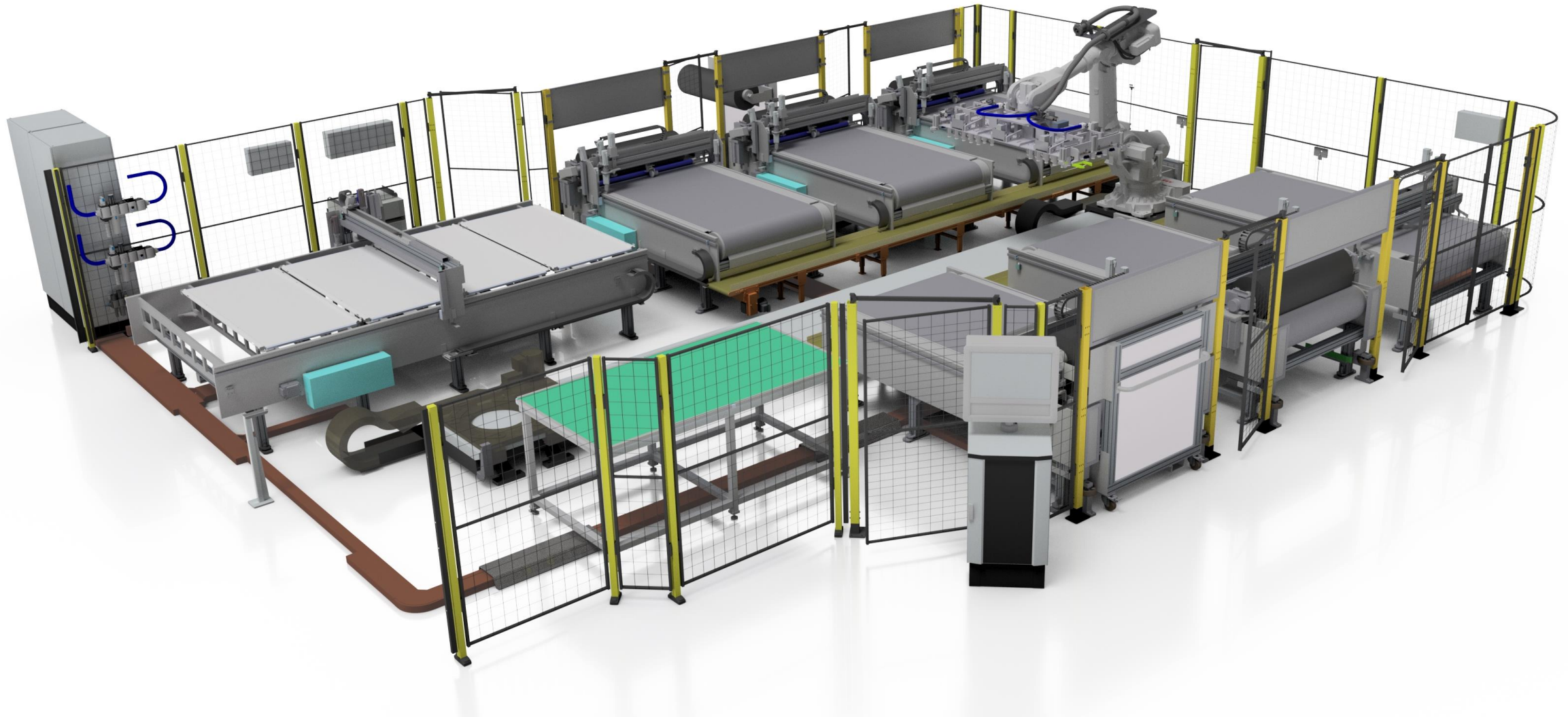
Film Unwinding

- ✓ Tension controlled
- ✓ Predictive film tear detection



Cutting & Stacking

Layout Cutting & Stacking Center



Adaptive Nesting Algorhythm

Material definition

material-related definition of cutting parameters

Stacking definition

Logical and easy data input to define each stack

Nesting

Optimized Nesting for perfect material usage of each cutter

Production process improvement

Automatic optimization of overall process including all cutters and robots

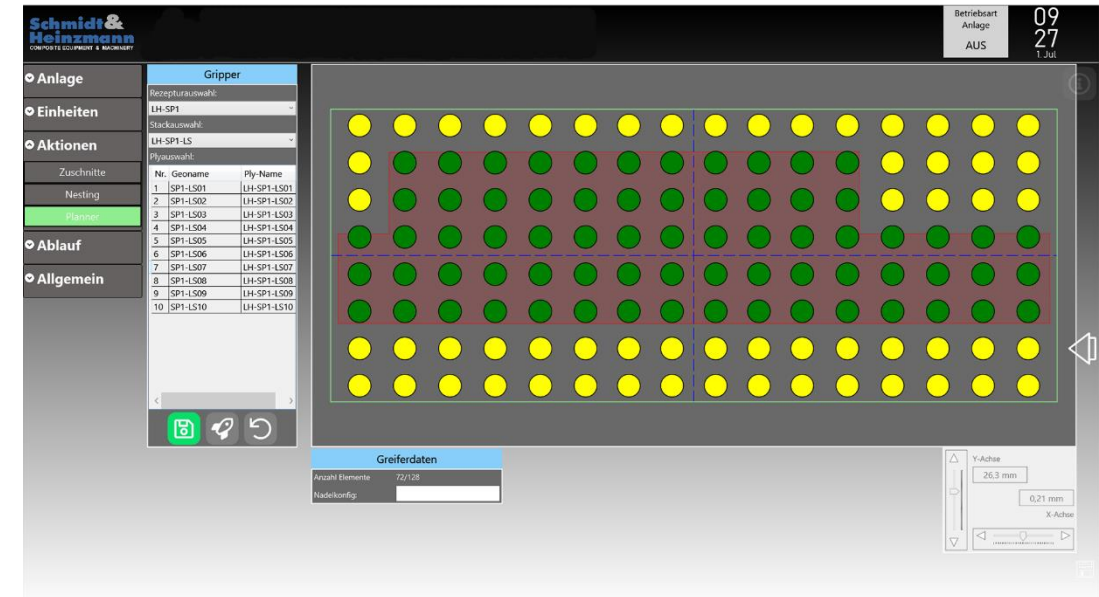
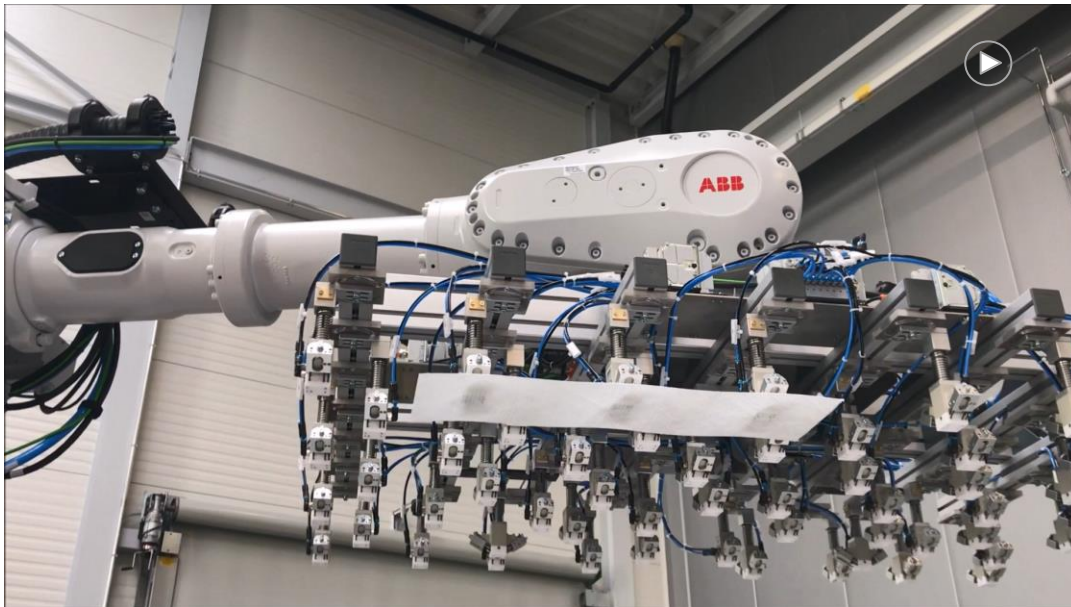
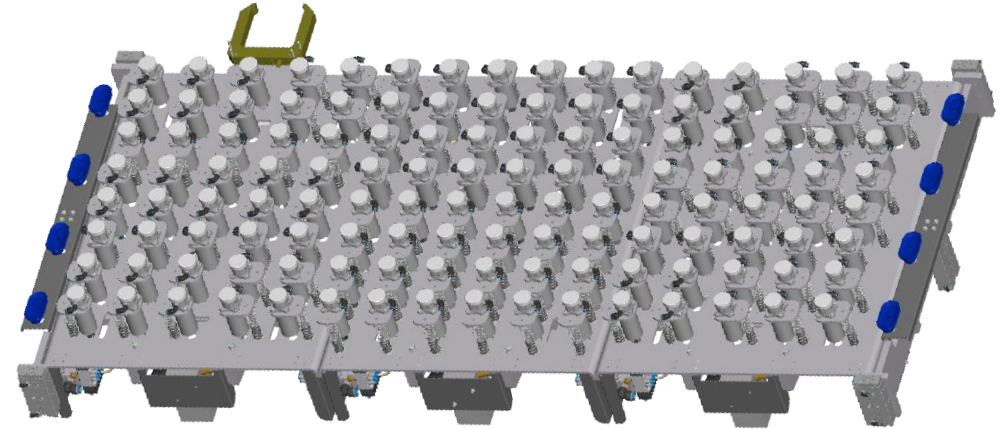
The screenshot displays the Schmidt & Heinzmann software interface for the Adaptive Nesting Algorhythm. The interface is organized into several key sections:

- Left Sidebar:** Contains navigation options: Anlage, Einheiten, Aktionen, Ablauf, and Allgemein. The 'Aktionen' section is expanded, showing 'Zuschnitte', 'Nesting', and 'Planner'.
- Top Status Bar:** Displays 'Betriebsart Anlage AUS' and the date/time '09 27 1. Jul'.
- AutoCut 1 Section:** Shows material definition parameters for 'LH-SP1' (Blax 45/135) and a nesting diagram with green and yellow shapes.
- AutoCut 2 Section:** Shows material definition parameters for 'LH-SP1' (Blax 90/0) and a nesting diagram.
- Planner Section:** A grid showing nesting plans for different cutters (AutoCut 1, 2, 3, 4, 6) and materials (Blax 45/135, Blax 90/0, Blax 135/45, Blax 0/90).
- Stacking Section:** A table defining stacking for different materials (LH-SP1-LS, LH-SP1-IFS, LH-SP1-MS+OR, LH-SP1-SS, LH-SP1-US) across three columns (A, B, C).

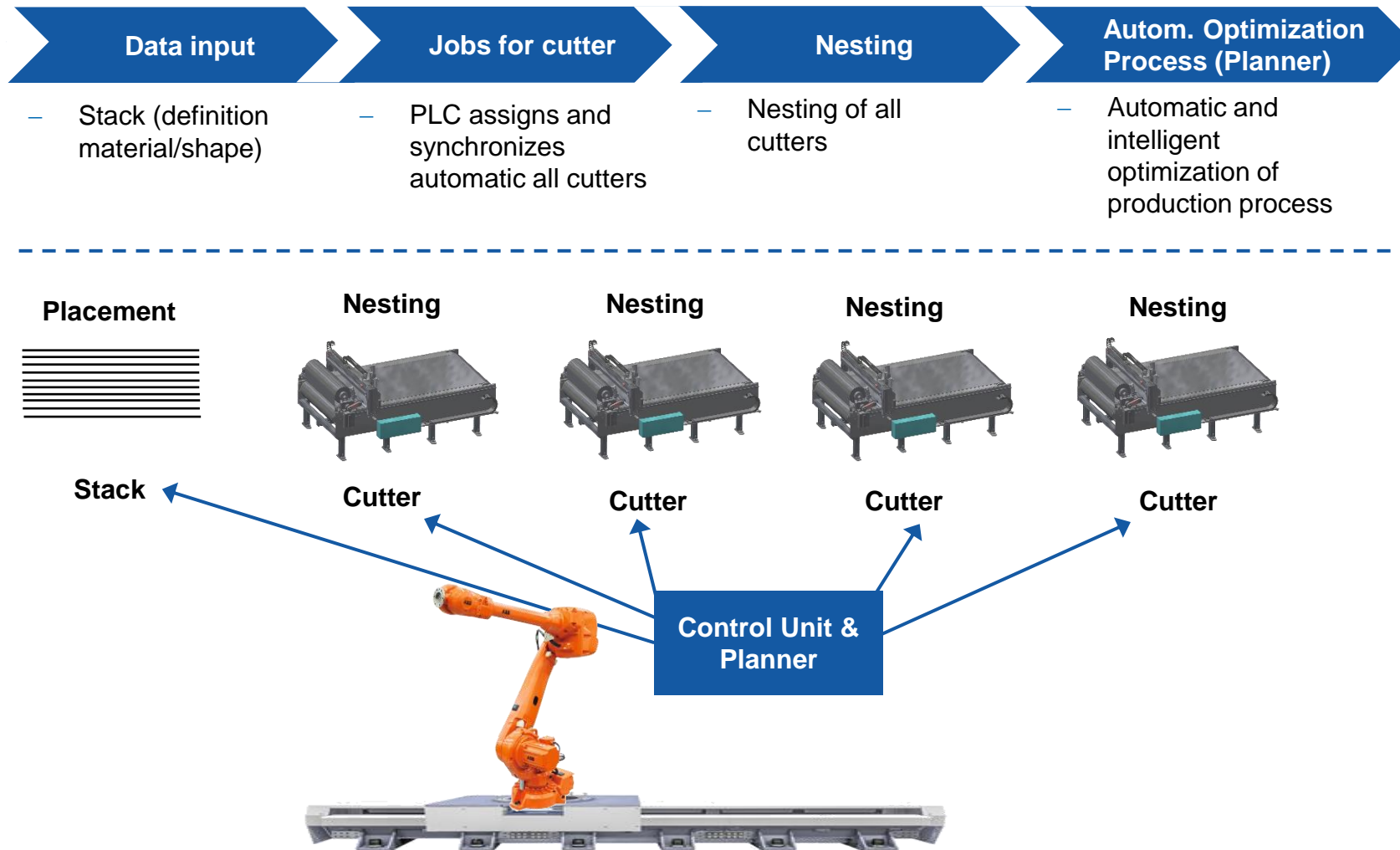
Adaptive Nesting Algorhythm

Automatic setting of parameters
by the algorhythm for:

- cutters
- robots
- gripper



Central control unit manages all cutters directly for optimized process and includes nesting of each cutter.





Automated Cutting & Stacking Center for Dry Fiber Fabric Applications in Aerospace Industry

Thank you for your kind attention

