


# Automated Preforming

Airborne automated solutions | 2020

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- Eliminates manual lay-up
  - 100% net-shape
  - Suitable for dry fibre and thermoplastic
  - Extremely versatile: can handle any material form

**Airborne**

# Automated Preforming

Many composite forming processes such as press consolidation, press forming, vacuum forming or diaphragm forming are based on the use of tailored 2D preforms or blanks. Although the forming processes are usually efficiently automated, the blanks or preforms going into these processes are often produced manually. By automating the production of preforms, you can match the rate of follow-on processes and significantly reduce manual labour.

## Why automate

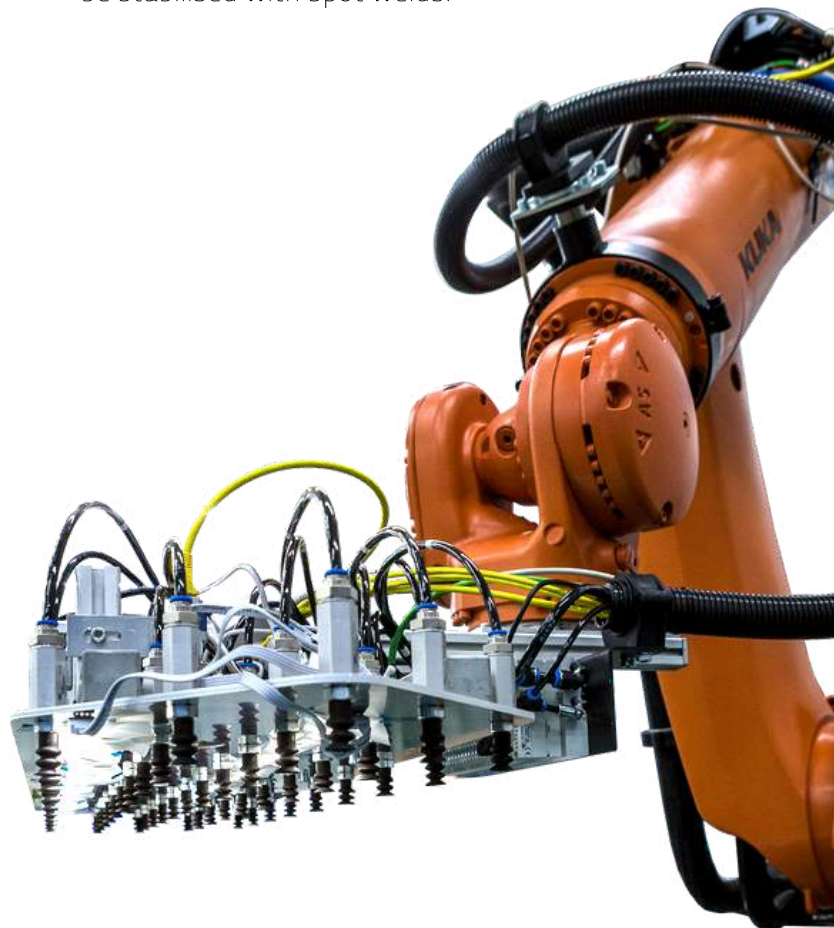
Automation of preforming ensures high volume production at constant quality. Manual preforming is a repetitive process which requires both skill and concentration from the operators. With higher production rates it becomes increasingly difficult for operators to keep up with production while maintaining quality.

Automated Preforming can solve these challenges by handling plies, assembling blanks robustly and can even include automatic inspection systems. Digital traceability throughout the process ensures transparency on your shop floor.

- Reduce manual labour
- Redeploy skilled workers
- Reduce cost of quality control
- Easy adaption of production rate
- Allows for high product mix with short turnover times

## How it works

To go from roll or ply kits to stabilised 2D preforms, Airborne has developed a toolbox of technologies to suit a large range of materials and production rates. The building blocks can be combined to achieve the optimal automation solution, from small, flexible R&D systems to high volume production lines. Easy programming allows for short start up times with minimum engineering effort. Thermoplastic composite blanks or dry fibre preforms with a binder can be stabilised with spot welds.



# Specifications

Every Preforming cell is a bespoke product for our clients. Using a building block approach, we combine our existing, proven technologies into one turn-key cell for specific requirements. Airborne is able to digitally connect all building blocks. You can keep an overview of the progress in your production remotely. We offer personal consultation with our technical experts to identify the optimal solution for your manufacturing challenge.

## Choose a loading option



## Preform/Blank

- Ply: max. 2.5 m<sup>2</sup>
- Blank: max. width 2.5m length unlimited
- Variable thickness
- Patch placement
- 100% net-shape
- 2D or mild curvature

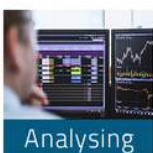
## Define inspection and accuracy requirements



## Choose an offloading option

- Automated offloading
- Integration with forming, injection or consolidation process
- Manual offloading

## Consider Factory Integration and Performance goals



Maximise efficiency by linking it up with your factory

## Identify material for the end effector solution



## Choose a fixation method

- Ultrasonic welding
- Heated pins

# Airborne's Digital Automation Portfolio

Production volumes in the composites industry are increasing, while unit prices are reducing and cycle times are shrinking. Companies therefore look for ways to radically reduce touch labour and takt time, minimise footprint, improve material utilisation and reduce time to market of new, complex, engineered composites products. To meet these needs, Airborne developed a suite of digital manufacturing solutions for composites manufacturing. Automated Preforming is one of the building blocks in Airborne's digital offering.



## Automated Honeycomb Potting

Our Honeycomb Potting solution enables easy manufacturing of locally reinforced honeycomb sandwich panels, while reducing work preparation, material waste and the cost of quality.



## Automated Laminating

Our Laminating solution makes the layup of tailored thermoset prepreg preforms effortless, by combining tape laying, cutting, and pick & place in a single cell.



## Automated Kitting

Our Kitting solution delivers fully sorted and sequenced composite ply kits to increase productivity, improve material utilisation and reduce work preparation.

## About Airborne

At Airborne we know that innovation in manufacturing through automation, digitalisation and advanced analytics is the catalyst for the significant increase in productivity that companies need to stay competitive. We understand the complexity and cost involved in producing composite products for demanding applications in highly regulated industries. Our legacy in advanced composites manufacturing makes us experts in developing and delivering automated solutions that enable our customers to achieve high production rates and radically low conversion costs.

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