

THERMOSET PREPREG MANUFACTURING PROCEESS

From Resin to Reinforcement: A Complete Process Guide

Aerospace Advanced Composites Solutions by Jota Machinery

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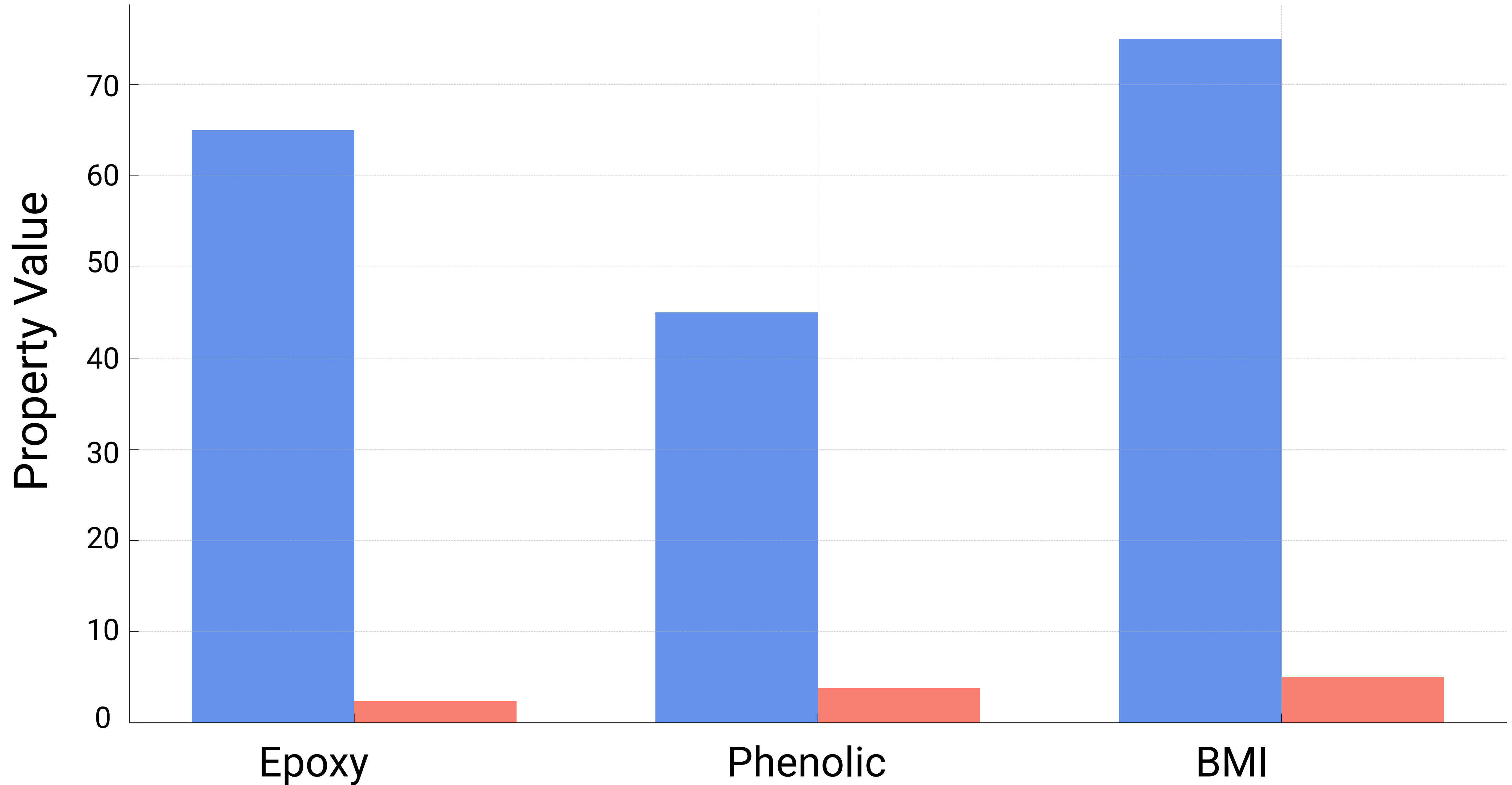
What Are Thermoset Prepregs, and Why Do They Matter?

Thermoset prepregs are semi-cured fiber-reinforced materials pre-impregnated with resin, widely used in aerospace, automotive, and energy sectors for high-performance composites. Unlike traditional lamination, prepregs offer consistent resin distribution, high strength-to-weight ratio, and optimal process control.

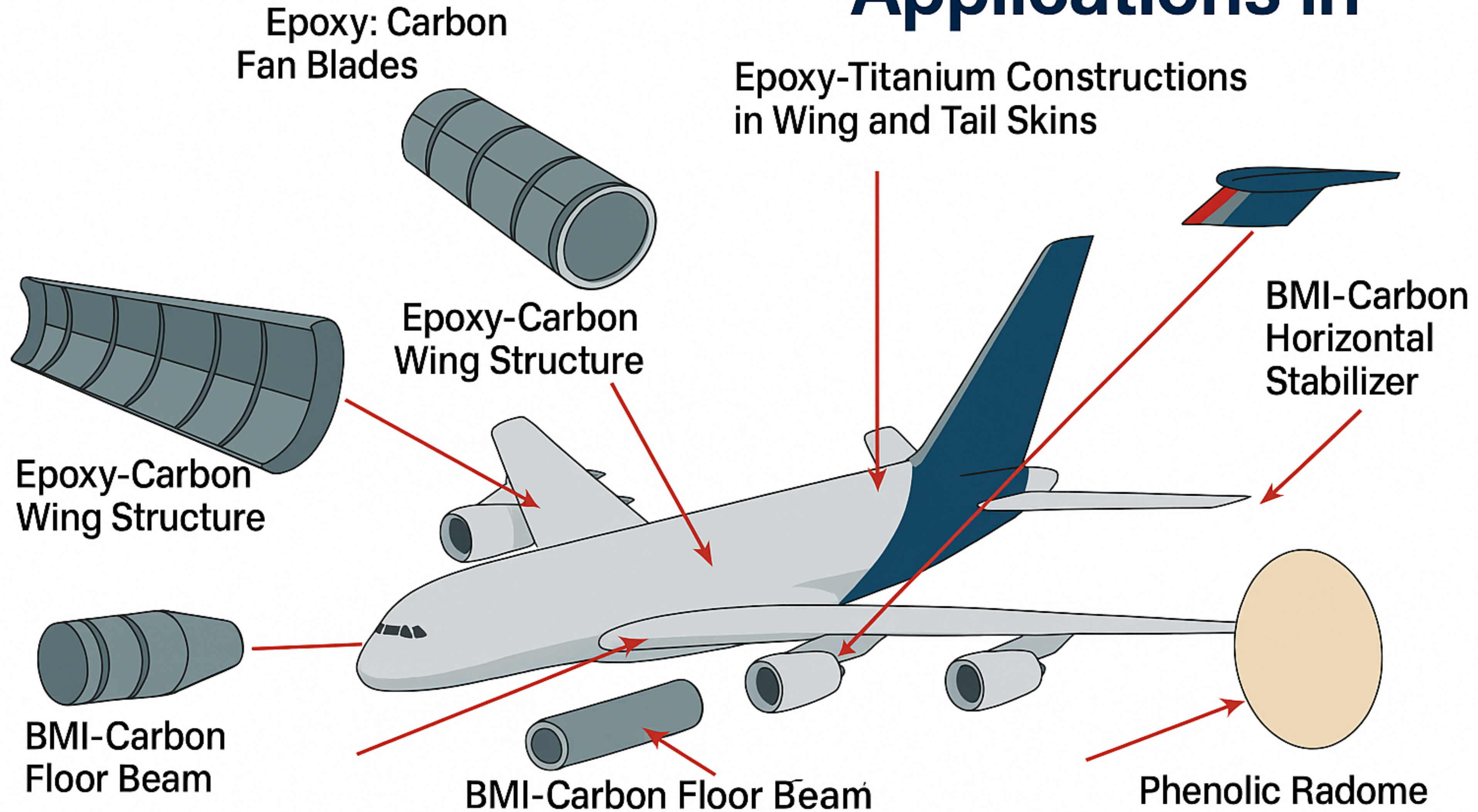
This guide outlines the manufacturing process of thermoset prepregs—focusing on the proven two-step method used by leading suppliers. It also introduces the advanced equipment engineered by Jota Machinery, helping manufacturers achieve tighter tolerances, higher productivity, and superior composite quality.

Comparison of Specific Strength and Modulus

■ Specific Strength (MPa·cm³/g)
■ Specific Modulus (GPa·cm³/g)



Major Epoxy, Phenolic, and BMI Resin Applications in



1300mm Prepreg Machine

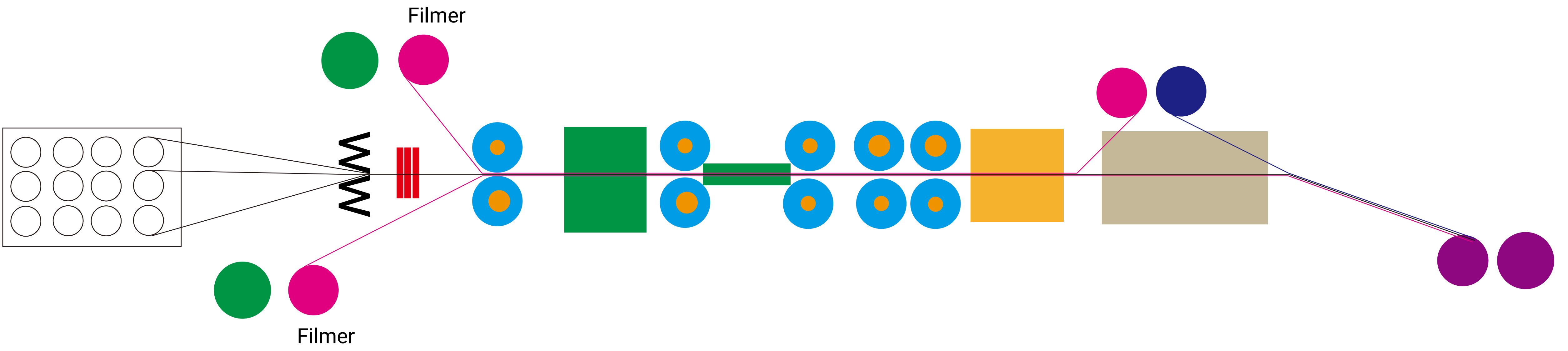


- PE Film

Fiber

Paper
- Heating

Cooling



2 Step Hot Melt Process

Step 1: Resin Film Preparation

Epoxy resin is transferred onto release paper using a resin coating machine.

A **traverse coating head** ensures uniform width and thickness across the film.

The coated film is passed through a heating and cooling section to form a stable resin filmer.

Output: dry, solidified epoxy film laminated onto release paper.

Step 2: Fiber Impregnation & Prepreg Formation

Carbon fiber (UD or fabric) is spread and flattened via vibration.

The epoxy filmer is laminated using heated rollers or plates, allowing resin to impregnate the fiber under pressure.

The prepreg then passes through:

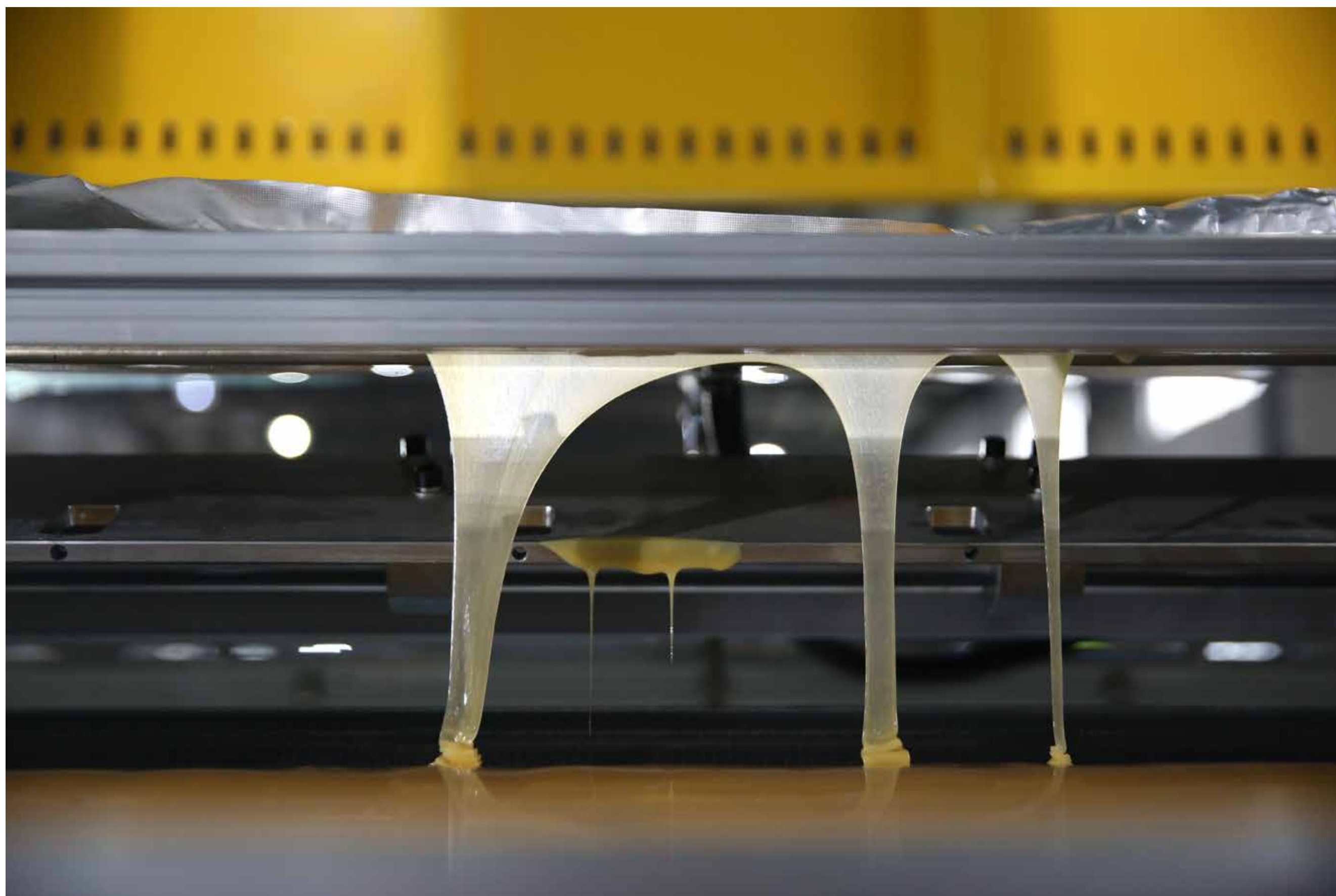
Cooling section

Thickness scanner

Edge trimming

Rewinding or sheet cutting

Output: high-quality unidirectional or fabric prepreg rolls

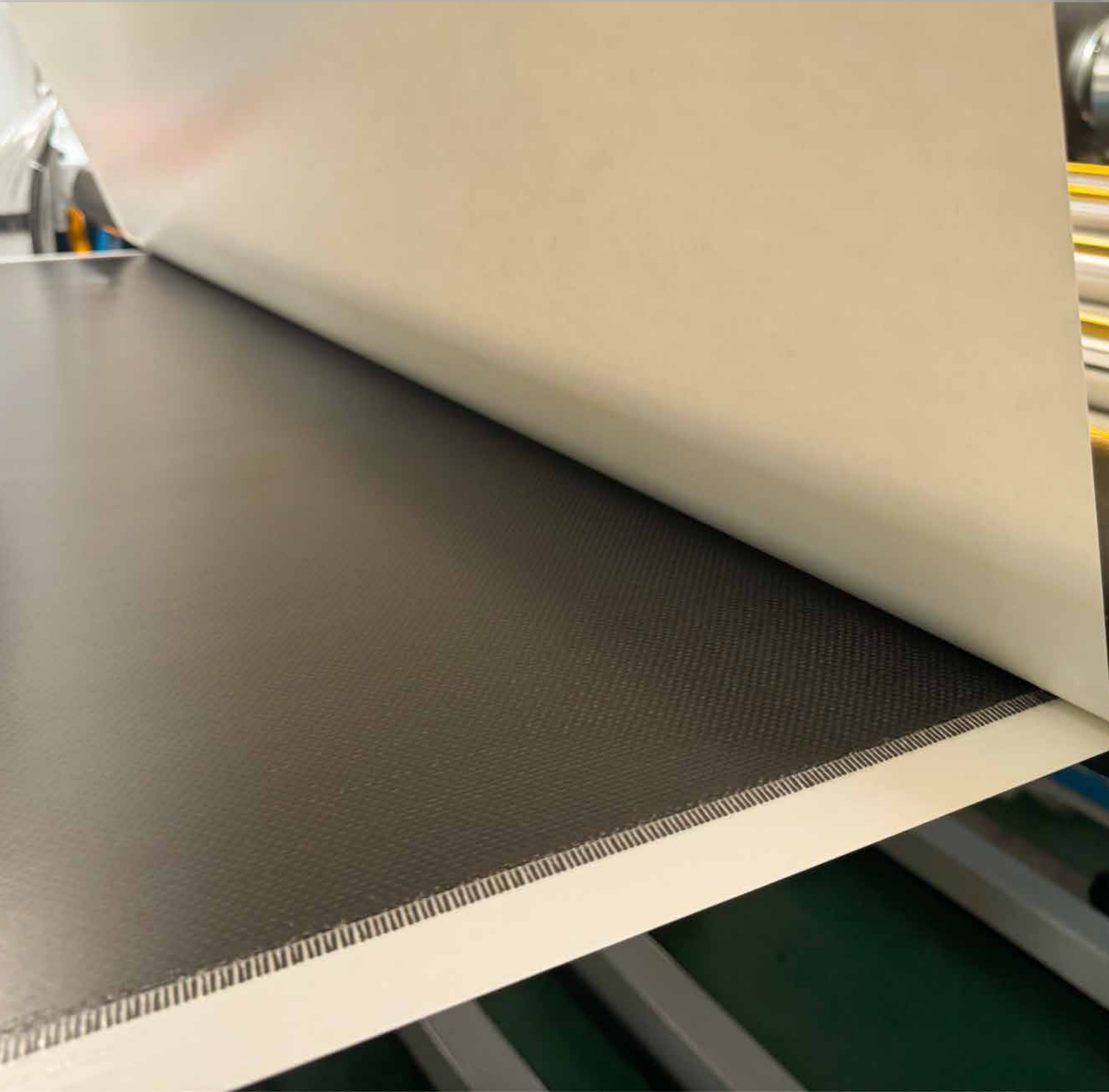








Epoxy Fabric Prepreg



CF/EP UD Prepreg

