

WINDSTRAND® 4000 SINGLE-END ROVING

Higher modulus,
higher performance



Type 30® WindStrand® 4000 single-end roving combines high weaving efficiency and superior pultruding processability with the power of a higher-modulus glass specially designed for wind blades. WindStrand® 4000 allows more efficient blade designs for the production of lighter, longer blades that reduce the cost of wind energy.

✓ Produced with H² Glass, the second-generation high-modulus glass specifically designed for wind blades.

✓ Compatible with epoxy, polyester, and vinyl ester resin systems. Contact us with questions regarding compatibility with other resin systems.

FOR PRODUCTION OF LONGER, LIGHTER BLADES

Product Benefits



Proven Performance

- Fiber Modulus: 91 GPa – true performance proven by sonic modulus of glass fiber (NOL TR 65-87) testing method.



Reliable Supply

- H² Glass is continuously produced at scale and increasing capacity, delivering reliable product supply and consistency.



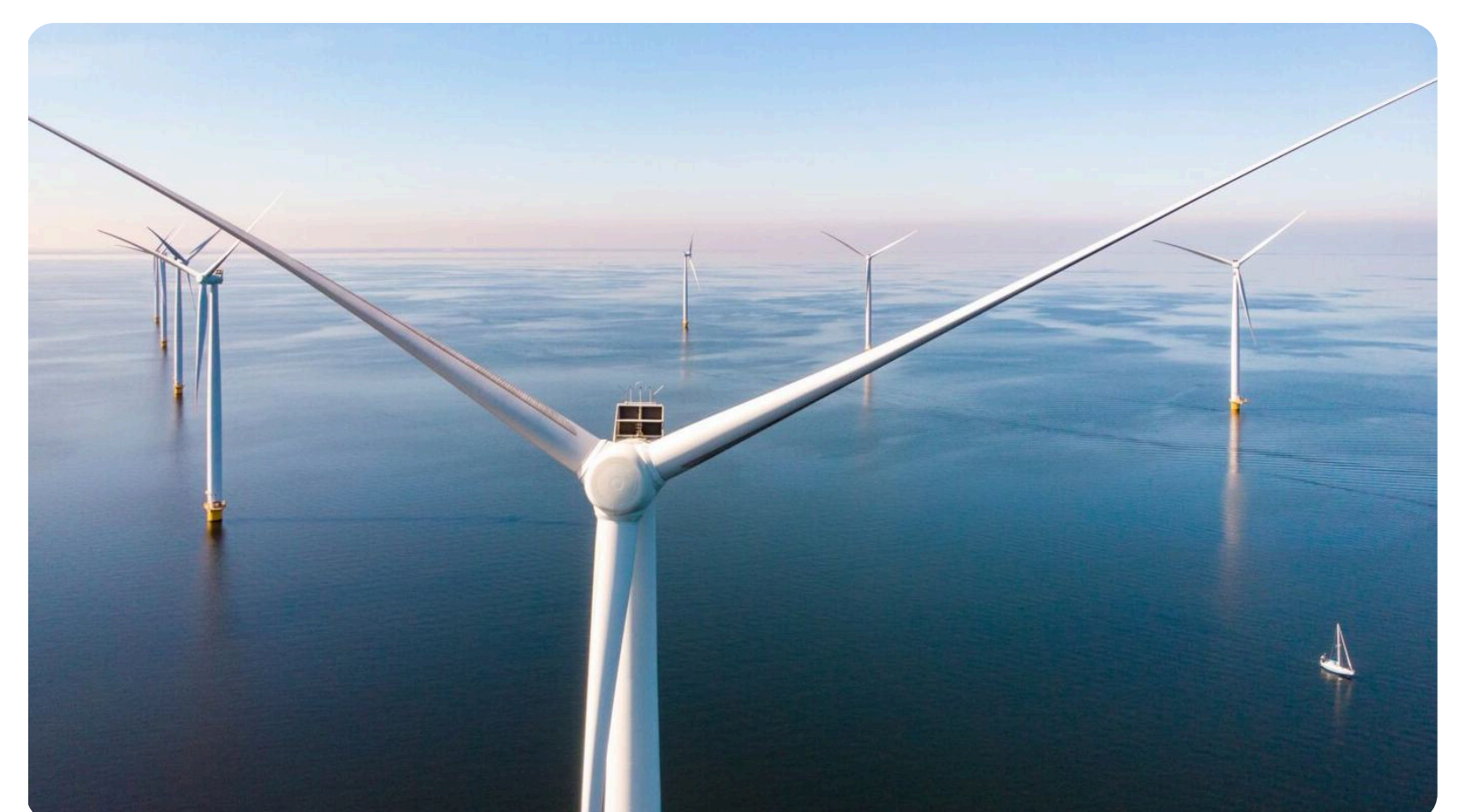
Consistency And Productivity

- High weaving efficiency that enables resilient fabrics.
- Superior pultruding processability for consistent profiles.
- Fast wet-out, good processing and handling characteristics.
- Operation at increased Fiber Volume Fraction (FVF) levels.

Application

WindStrand® 4000 is designed for the manufacturing of higher-performance fabrics and pultruded profiles, tailored for wind blade making. WindStrand® 4000 improves material systems for:

- Spar caps
- Shell
- Root
- Shear web
- Trailing edge



Properties

PRODUCT	NOMINAL FILAMENT DIAMETER (µm)	LINEAR DENSITY (TEX) ISO 1889	SOLIDS (%) ISO 1887	MOISTURE (%) ISO 3344
WS4000 600 tex	17	600 +/- 30	0.55 +/- 0.12	<= 0.1
WS4000 1200 tex		1200 +/- 60		
WS4000 2400 tex		2400 +/- 120		

Product name code may differ based on resin system compatibility.

Availability & Packaging

This product is available globally. Type 30® single-end roving is available in a single-end internal-pull package. Each pallet weighs approximately 1 metric ton. Pallets are stretch-wrapped for load stability. All doffs are wrapped with Tack-Pak® for protection and to aid package run-out and transfer. Full doffs are approximately 19 kg (40 lb) and can be packaged in bulk or Creel-Pak® format.

Standard package

- Cylindrical doff without tube, outside diameter (OD) +/- 270 mm, height 260–300 mm
- Partial doffs have small diameters
- Max doff weight must not exceed 19 kg (40 lb)
- Doff covered by a Tack-Pak® film

Pallet

- Size: 1,150 x 1,150 mm, 4-way entry
- 16 bobbins (max OD) per layer
- Pallets 3 or 4 tiers high
- Pallet is stretch-wrapped

Labeling

Each individual doff is labeled with information including product name, tex/yield, producing plant, and production date and weight. Each pallet has four labels, one on each side.

Storage

Unless otherwise specified, it is recommended to store glass fiber products in a cool, dry area. Ideal conditions are at a temperature between 10°C and 35°C and a relative humidity between 35% and 85%. The glass fiber products must remain in their original packaging material until the point of usage. If the storage temperature is below 15°C, it is recommended that the product be stored in the workshop, within its original packaging, at least 24 hours prior to use to help prevent condensation. The packaging is not waterproof. Be sure to protect the product from the weather and other sources of water. When stored properly, there is no known shelf life to the product, and retesting is advised after three years from the initial production date to ensure optimum performance.

MAKE
MORE
POSSIBLE™

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