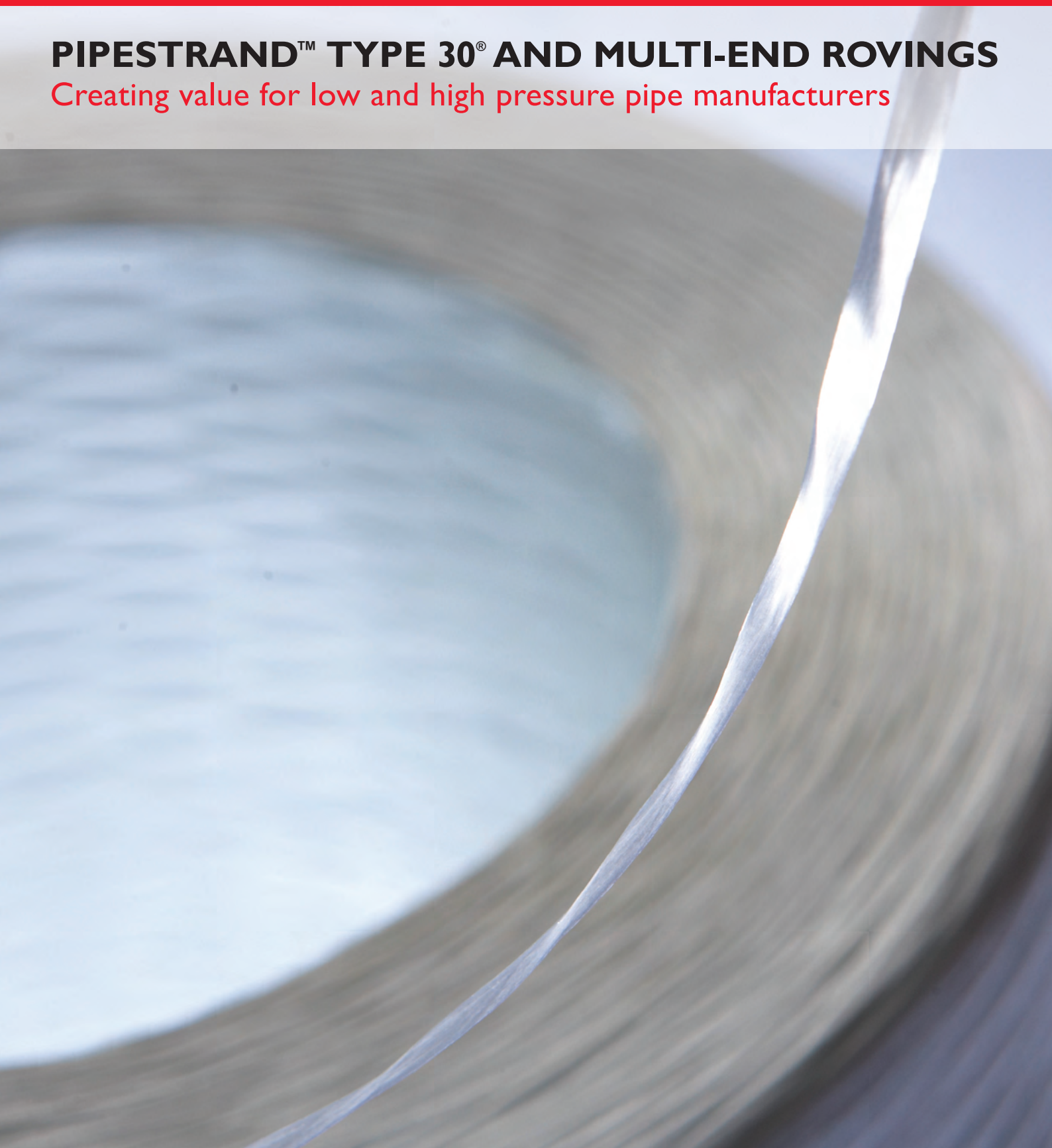


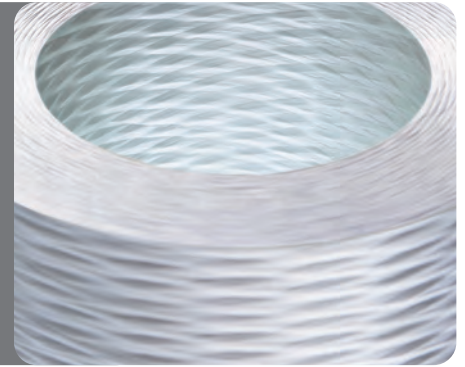
PIPESTRAND™ TYPE 30® AND MULTI-END ROVINGS

Creating value for low and high pressure pipe manufacturers



BEST IN CLASS PRODUCTS FOR THE LARGEST REINFORCEMENT MARKET IN THE WORLD

While filament winding is the largest reinforcement market in the world,² there are significant regional differences in customer needs and preferences. Typical applications are found in water distribution, petrochemical, infrastructure, marine transportation and power and energy installations, including refineries and off-shore platforms. Market-leading PipeStrand™ rovings from Owens Corning help meet these diverse requirements with dedicated focus on multiple resin and curing systems.



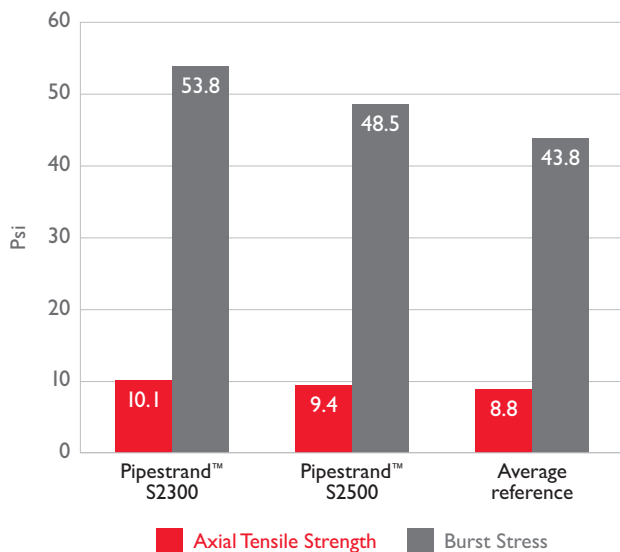
BEST PERFORMING PRODUCTS IN EPOXY RESINS

PipeStrand™ S2300 and S2500 single-end roving are targeting the high pressure and high-performance epoxy pipe market and show a 7-61 percent improvement over reference products in tested properties.¹ S2300 delivers best mechanical properties in aromatic amine cured epoxies, while S2500 excels in anhydride cured epoxies. Made with Advantex® boron-free E-CR glass, both show outstanding hydro-thermal stability under high pressure conditions for long pipe service life (+20 years).

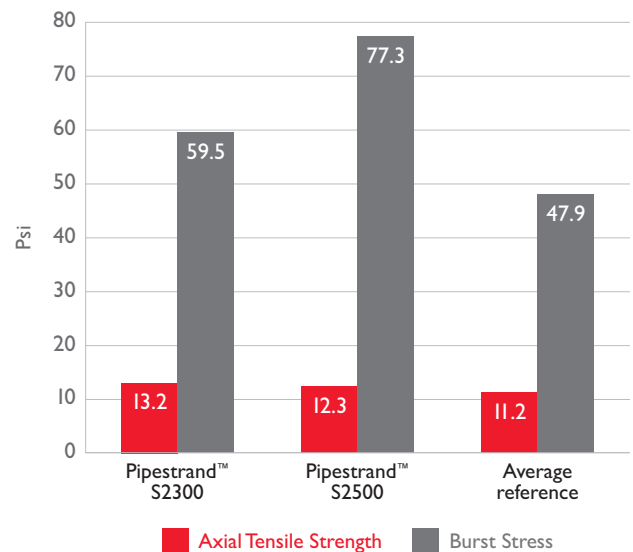


Photo Courtesy of Potok-M LLC, RU

Aromatic Amine curing system



Anhydride curing system



PipeStrand™ S2300 & S2500 easy processing helps with potential reduced resin consumption that permits cost-efficient designs with higher glass content.

- Low fuzz at high and low line speeds
- Quick opening strand which wets out fast
- Low drag tension, ability to increase tension to desired level

¹ Laboratory sample: Mechanical testing lab | Resin package: Epoxy | Test method: ASTM D5083 (ATS) & ASTM D1599 (Burst) Test temperature: 200°F | Test property: Axial tensile strength and burst stress | Units: ksi. ² Owens Corning internal estimates.



PipeStrand™ S1000 single-end roving for robust pipe design, with polyester, vinyl ester and polyurethane resins.

In the low pressure filament winding market, PipeStrand™ S1000 product is compatible with polyester, vinyl ester and polyurethane resins, which allows for potentially lower inventory and faster creel changes. Its excellent processing, long-term mechanical and hydrostatic properties provide a major step change over existing products and meet longer service life requirements for pipes, tanks and vessels (+20-50 years).

PipeStrand™ M6000 multi-end roving version for chopping elevates manufacturing and cost efficiencies in a labor intensive market.

Both products are made with Advantex® boron-free E-CR glass.

APP TOOL FOR MODELING PIPE DESIGN AND PERFORMANCE

To help customers optimize their design and manufacturing processes, Owens Corning offers a unique, epoxy focused Pipe App with product selection, material comparison and modeling tools. Ask your Owens Corning contact for details.

Modeling Tool: Performance Input

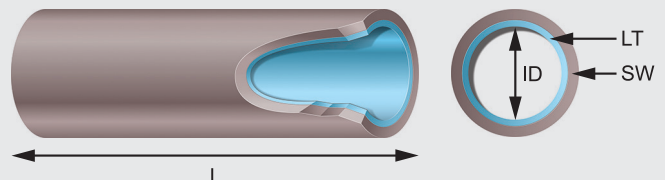
	Current	Proposed
Manufacturer	Select ▼	OC
T30 Cost per lb	Enter amount \$	Enter amount \$
T30 Weight %	Enter amount %	Enter amount %
Resin Weight %	Enter amount %	Enter amount %

Raw Material Factors

Epoxy Curing System	Aromatic Amine (ArAm) ▼
Resin Cost per lb	Enter amount \$
Veil Weight	0 ▼ g/m ²
Annual Vol. of Type 30®	Enter amount lb

Application and Design Factors

Structural Wall Thickness (SW)	Enter amount inch	Pipe Inner Diameter (ID)	Enter amount inch
Line Thickness (LT)	Enter amount inch	Pipe Section Length (L)	Enter amount ft
Total Pipe Thickness	Enter amount inch	Optimized – Part Thickness Reduction	0 ▼ %
Rated Pressure	Enter amount Psi		
Service (Design) Factor	0.67		
Safety Factor	1.49		
HDB Design Life	Select ▼ Years		



PIPESTRAND™ TYPE 30® AND MULTI-END ROVINGS

Creating value for low and high pressure pipe manufacturers



WHY CHOOSE OWENS CORNING?

Globally available products manufactured in multiple facilities providing unrivaled supply redundancy

PipeStrand™ S1000, S2300, S2500 rovings:

- Amarillo, TX, USA
- L'Ardoise, France
- Yuhang, China
- Gous-Khrustalny, Russia
- Rio Claro, Brazil
- Kimchon, South Korea
- Taloja, India

PipeStrand™ M6000 roving:

- Tlaxcala, Mexico
- Besana, Italy
- Rio Claro, Brazil.

Local technical support combined with global account coordination provides customers with outstanding response times and vital market intelligence



Broad range of glass fiber products offers customers more specialized combinations of polymer/resin matrix and reinforcement options



Inventor of Type 30® Single-End Rovings with a long history of introducing innovative, robust products that meet stringent performance and quality requirements throughout the value chain



North & Central America

Owens Corning
Composite Materials, LLC.
One Owens Corning Parkway
Toledo, Ohio 43659
1.800.GET.PINK™

Brazil

OC Fabrics Brazil
Rodovia Washington Luis,
Km 171
ZIP: 13501-600
Rio Claro - SP - Brazil
+55 19 2111-2602/2606

Europe

European Owens Corning Fiberglass Sprl.
166 Chaussée de la Hulpe
B-1170 Brussels
Belgium
+32.2.674.82.11

India

Owens Corning (India) Pvt. Ltd.
7th floor, Alpha Building,
Hiranandani Gardens,
Powai,
Mumbai - 400076.

China

Owens Corning Composite Solutions
Business
Asia Pacific Regional Headquarters
Unit 01, 02,05, 39/F,
Pudong Kerry Parkside,
1155 Fang Dian Road, Pudong,
Shanghai, 201204
China
+86-21-6101 9666

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