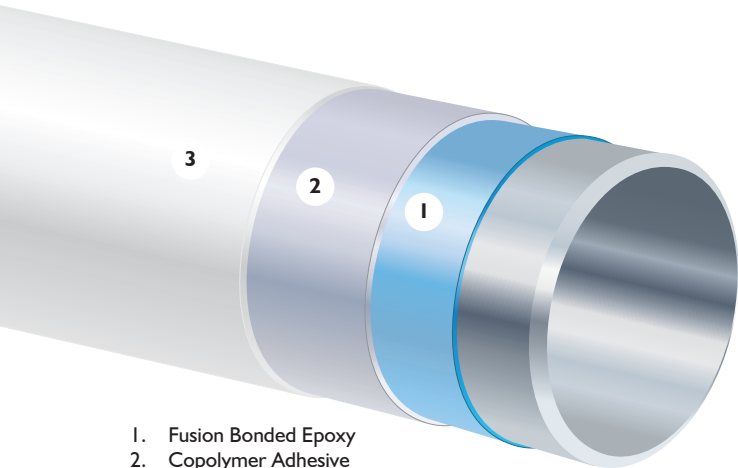


# 3LPP

## Three Layer Polypropylene Coating



1. Fusion Bonded Epoxy
2. Copolymer Adhesive
3. Polypropylene

### Product Description

Bredero Shaw is the world's leading provider of Three Layer Polypropylene Systems (3LPP). Bredero Shaw's 3LPP System is a multilayer coating composed of three functional components. **This anti-corrosion system consists of a high performance fusion bonded epoxy (FBE) followed by a copolymer adhesive and an outer layer of polypropylene which provides the toughest, most durable pipe coating solution available.** 3LPP Systems provide excellent pipeline protection for small and large diameter pipelines with high operating temperatures.

### Applications



Oil & Gas Pipelines



Large Diameter Pipelines



Small Diameter Pipelines



High Operating Temperatures



High Abrasion Environments

### Related Standards and Specifications

- CSA Z245.21
- NF A49-711
- DIN 30670
- ISO 9001:2008
- DIN 30678

For additional standards and specifications with which this product complies, please contact your Bredero Shaw representative.



### High Temperature Corrosion Protection

- The FBE component of the 3LPP System provides excellent adhesion to steel, providing superior long term corrosion resistance and protection of pipelines operating at high temperatures.
- The superior adhesion properties of the FBE also results in excellent resistance to cathodic disbondment, reducing the total cost of cathodic protection during the operation of the pipeline.

### Engineered Solutions

- Advanced manufacturing techniques allow the 3LPP System to be customized to your specific project.
- Can be applied to various pipe diameters from 90 mm (3.5") to over 1220 mm (48").
- Can be applied in a wide range of thicknesses to cost effectively meet unique project specifications and performance requirements.

### Excellent Mechanical Protection

- The tough outer layer of polypropylene protects pipelines during transportation and installation thereby reducing costly repairs and providing added in-ground protection against shear forces, chemicals and abrasive soil conditions.
- By increasing the thickness of the polypropylene outer layer, 3LPP can provide the highest level of mechanical protection across many diverse environments without requiring the use of costly select backfill.

### Global Availability

- 3LPP can be manufactured in a single plant or in multiple coating plants to improve project logistics.
- High capacity within the Bredero Shaw plant network allows the client to benefit from single source advantages, providing more cost effective management of pipe coating needs.

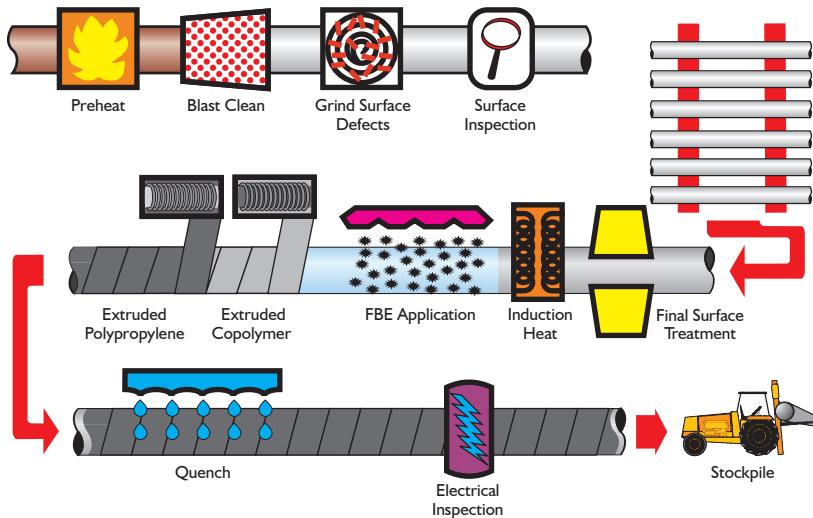
## Three Layer Polypropylene Coating

### Typical Plant Capabilities and Product Properties

Capability/Property	3LPP
Minimum Pipe Diameter .....	90 mm (3.5")
Maximum Pipe Diameter .....	1220 mm + (48"+)
Minimum Pipe Length .....	5.5 m (18')
Maximum Pipe Length.....	24.4 m (80')
Minimum Recommended Operating Temperature .....	-40°C (-40°F)
Maximum Recommended Operating Temperature .....	110°C (230°F)*

Values shown are typical and may vary from plant to plant. Consult Bredero Shaw for special requirements.  
\* The 3LPP product can be used at higher temperatures under certain conditions.

### Product Application Process



3LPP\_rev024

### Plants

#### North America

Fontana, California  
Pearland, Texas

#### Latin America

Monterrey, Mexico  
Veracruz, Mexico  
Belo Horizonte, Brazil

#### EMAR

Leith, Scotland  
Orkanger, Norway  
Jubail, Saudi Arabia  
Ras Al Khaimah, UAE

#### Asia Pacific

Kuantan, Malaysia  
Kabil, Batam Island, Indonesia

### About Bredero Shaw

Bredero Shaw is the global leader in pipe coating solutions. With more than 80 years of experience, the largest team of dedicated pipe coating professionals, the most extensive network of strategically located plants worldwide and with proven innovative coating technologies, the company has protected more pipelines in virtually every environment and operating condition than anyone in the industry.

Bredero Shaw offers technologically advanced solutions for anti-corrosion coatings, protective and weight coatings, thermal flow assurance coatings, internal coatings, custom coatings and field joints for both onshore and offshore applications. This broad range of products and services provides Bredero Shaw with the unique capability to service the full spectrum of pipeline protection and flow assurance requirements. Consult your Bredero Shaw representative for your unique project requirements.

#### HEAD OFFICE & AMERICAS

**Bredero Shaw**  
3838 N. Sam Houston Pkwy E.  
Suite 300  
Houston, Texas  
77032-3400, USA  
Phone: +1-281-886-2350  
solutions@brederoshaw.com

#### EUROPE, MIDDLE EAST, AFRICA & RUSSIA

**Bredero Shaw**  
Lakeside House  
1 Furzeground Way  
Stockley Park, Uxbridge  
UB11 1BD, United Kingdom  
Phone: +44-208-622-3071  
EMAR@brederoshaw.com

#### ASIA PACIFIC

**Bredero Shaw**  
101 Thomson Road  
#17-01/02 United Square  
Singapore 307591  
Phone: +65-6732-2355  
asiapacific@brederoshaw.com