



CORROSION CONTROL

Using Induced-Tension Polymer Wraps

- One-piece construction
- Totally UV-stable
- High abrasion resistance
- Easily removable for inspection
- Custom-designed
- Conforms to any size and shape
- Hot work permit not required
- 10-year warranty
- Free engineering assistance



RETROWRAP™

- “Active” corrosion protection in splash zone and subsea
- Substrate preparation reduced to its simplest form
- Easy one-piece installation to provide long service life
- Highly abrasion- and impact-resistant
- Environmentally safe

Retrowrap STD (Standard)

Retrowrap is used for inshore splash zone and underwater corrosion protection for piles, pipelines and risers. Designed to suit any diameter from 50 mm to 3 meters, it may be interlocked to accommodate any required protected length. Full-length Geon™ closure flanges are factory-fitted with corrosion-resistant self-threading fasteners designed to retain Retrowrap in position throughout its service life. During installation, the flanges permit the creation of induced hoop tension within the multilayer fabric, which induces the corrosion-inhibited gel to flow and totally encapsulate and protect the substrate without the use of primers, fillers or tapes.

FEATURES:

- Easy one-piece installation; no primer, filler or tapes
- Minimal surface preparation
- Full-length flange closure for easy installation
- Easy removal and replacement for substrate inspection
- Provides active protection with environmentally safe corrosion inhibitors
- Abrasion-resistant
- Totally UV-resistant
- May be fitted with corrosion rate monitoring

Retrowrap HD (Heavy-Duty)

Retrowrap HD is the heavy-duty, multi-scrim version of the STD. It is specifically designed to provide protection to offshore oil and gas risers or inshore applications subject to external impact damage. As with the STD, installation has been reduced to its simplest possible form, saving hours of diver and rigging time.

FEATURES:

- Multilayer, heavy-duty construction
- Supplied in interlocking modular lengths
- Does not require substrate shotblast preparation
- Polyurethane provides the highest abrasion resistance
- Full-length closure flanges for easy installation
- Now available with unique anti-fouling outer layer
- Easy removal and replacement for inspection
- Provides active protection with environmentally safe corrosion inhibitors
- Hoop tension forces created within the outer skin resist high wave suction forces
- Cold-applied – no hot work permit required

Before



After





Anode Wrap

Anode Wrap is a long-life, self-powered, self-regulating galvanic corrosion protection device for rebar within structural concrete piles. The combination of two well-established processes – a flexible outer jacket and a continuous zinc or zinc alloy inner layer – provides a unique, highly efficient anode system, which overcomes the major problems of increased topside weight and installation time associated with retrofit applications. Hoop tension maintains the zinc/zinc alloy layer close to the irregular pile surfaces. This, coupled with a negative connection directly to the rebar, insures even current distribution over the entire wrap-covered surface, including the upper splash zone. Residual hoop tension along with the wicking action of our built-in felt carrier elevates seawater (electrolyte) to initiate and maintain an effective circuit for galvanic action and to provide long-term protection.

FEATURES:

- Lightweight
- Fast and easy to install
- Secured by full-length closure flange, which acts as a carrier for a supplementary bracelet anode, if required
- Flexible and highly comfortable to pile surfaces
- Secured by full-length closure flange



Timberwrap

Oxygen levels rise as water cleanup continues around coastal areas. O₂ levels as low as 1 ppm will support marine borer activity, compromising timber piles supporting major waterfront structures. Highly elastomeric, Timberwrap provides a water-tight bottom seal which prevents water pumping action and eliminates the supply of oxygenated water necessary to sustain borer activity.

The nontoxic, environmentally safe, time-release additive in Timberwrap accelerates the cessation of existing borer activity. Inspections of current Timberwrap projects show no further degradation and confirm the cessation of borer activity.

FEATURES:

- Proven UV-stable, highly conformable, heavy-duty EPDM fabric
- Pre-installed stainless steel fasteners provide divers the ability to install in zero visibility
- Changes biological conditions inside wrap to stop borer activity
- Secured by full-length closure flange
- Easy removal and replacement to facilitate pile inspection



Retrowrap SL (Slim Line)

In the offshore conductor connector industry, severe environmental conditions dictate a need for superior performance with fast and simple installation. As testimonial, Retrowrap SL has been selected for all phases to date on the world's toughest project, the "Hibernia."

Manufactured with the same monocoque fabric as Retrowrap, the SL utilizes a unique mortise and tenon closure, thus eliminating flanges and allowing for easy passage through guide tubes. Due to the unique memory characteristics of the fabric, jackets can be designed to accommodate **dual-diameter** fully upset connectors. The diametric increase at joint areas can be reduced to 10 mm. Using our specially designed, robust closure tools, installation can be accomplished in less than five minutes.

FEATURES:

- Cold-applied – no hot work permit required
- Minimal surface preparation
- Quick and easy drill floor installation
- Provides easy passage of guide tubes without snagging or damage
- Unaffected by connector running fluid
- Conforms to full upset connectors' external shape without using foam packing
- Easy removal and replacement for pull-back
- Environmentally safe inhibiting thixotropic gel provides active external protection
- Now available with unique anti-fouling outer layer



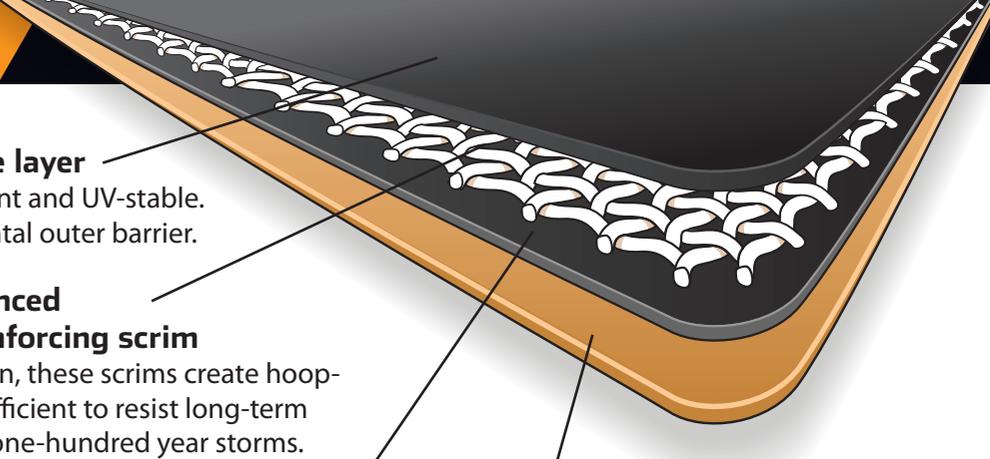
Laywrap

Laywrap is designed to provide simple high-speed installation for a multitude of sub sea and onshore applications. It has been independently tested to operate in the temperature range of up to 120°C. Laywrap provides an ultrafast alternative field joint coating solution on the lay barge and tie-in coating stations, or it may be applied subsea by divers, when used as a coating repair method. Installation topside, underwater or in a pipeline trench is carried out with pneumatically or hydraulically operated tools, driving a reusable closure caliper. Closure around the joint is via a thermally formed flange, designed to follow field joint contours. Typical installation times for pipe diameters of 200–610 mm are 6 minutes per joint. Low-temperature versions are available for above-ground applications where ambient temperatures can be as low as -40°C.

FEATURES:

- Cold-applied – no hot work permit required
- Does not require shotblast substrate preparation
- Hoop tension induced into the fabric during installation locks the system in place
- High-temperature, hydrophobic corrosion-inhibiting gel prevents water entrapment during underwater applications
- Easy installation with factory pre-installed corrosion-resistant fasteners
- Easy removal and replacement to facilitate inspection





Outer polyurethane layer
Highly abrasion-resistant and UV-stable.
Long-term environmental outer barrier.

Memory-enhanced polyamide reinforcing scrim
During installation, these scrims create hoop-tension forces sufficient to resist long-term creep, as well as one-hundred year storms.

Inner polyurethane layer

Polyester felt inner layer
Active corrosion inhibitors or biocides are pre-blended into a range of hydrophobic and thixotropic gels. These gels are factory-applied to the absorbent felt inner layer in quantities calculated to provide a service life of more than 25 years.



How Does Retrowrap Work?

Sandwiched between layers of polyurethane are memory-enhanced textile-reinforcing scrims that lock the system in place over the substrate. A unique in-line manufacturing process produces a dedicated monocoque fabric that is cut to shape during factory-assembly and thermal-welded into any size required. Full-length Geon closure flanges are attached to provide a long-term re-enterable closure. These flanges are factory-drilled to accept a variety of fasteners supplied in materials ranging from SS-316L to Inconel 625. During installation, the thixotropic gel is forced into the surface interstices without any requirement for separately applied fillers, primers and tapes. The result is a one-piece, easily installable jacket that provides a long-term service life in a marine environment.

Since production began in 1985, Retrowrap has reached the fourth generation of perfection.



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