

General description



RETROWRAP X is a wraparound corrosion protection solution for inshore and offshore splash zone and underwater corrosion protection for piles, pipelines and risers. RETROWRAP X is specifically designed to endure extreme marine conditions, variations from high temperatures to sub-zero icy conditions and high level of debris in the water.

RETROWRAP X is designed to suit any pile diameter from 100 mm to 3 meters, also square, hexagonal and octagonal shaped piles, and it may be interlocked to accommodate any required protected length. Full-length closure flanges are factory-fitted with corrosion-resistant marine grade 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.

RETROWRAP X panels are a thicker multi-layer construction consisting of a polymeric textile reinforcement encapsulated within the polyurethane matrix and outer layer and bonded in-line to a polyester, penetration resistant, felt impregnated with a corrosion inhibitor or biocide contained within a water-resistant gel, as dictated by the application for which the system will be supplied.

RETROWRAP X resists long term immersion, both in seawater and in fresh water. RETROWRAP X provides permanent protection from extreme waves and strong currents, while standing tall against severe UV-radiation, ozone and temperature variations.



The materials in the system are stressed below their operational limits ensuring a high safety factor in all parameters while in service, and they resist both high wave suction forces and increasing heavy sea growth. If accidentally punctured, the hoop tension will cause the gel impregnated within the inner layer carrier to be exuded from the damaged area and "self-seal". The inhibitor within the gel will neutralize any oxygenated water which has permeated through the damaged wrap at the time of impact. The design of the laminar membrane and the hoop tensions involved combine to ensure that in the extremely unlikely event of a tear being introduced to the RETROWRAP X, the tear will not propagate.

RETROWRAP X Installation is cost effective, fast and easy. Using our specially designed draw bolt installation set, installation can be accomplished fast and safety even in demanding installations conditions. No labor-intensive ancillary materials such as tapes, sealants or adhesives are used in order to reduce to a minimum the possibility of human error and/or non-compatibility of components in the installation of the system. See RETROWRAP X installation instructions for further information regarding the installation procedure.

Features & benefits

- Maintenance free corrosion protection concept
- Cost effective installation. Quick and easy to install; no primer, filler or tapes
- Environmentally friendly and low lifespan Carbon Footprint due to long design lifetime, 25 years.
- Minimal operational lifetime costs
- Easy removal and replacement for inspection
- Minimal pile surface preparation -does not require substrate shotblast preparation
- Cold-applied – no hot work permit required
- Hoop tension forces created within the outer skin resist high wave suction forces and sea growth
- Material to retain hoop tension throughout the projected operational life of the fabric
- Thick multilayer fabric, heavy-duty construction for extreme operational conditions
- Supplied in interlocking modular lengths
- Polyurethane provides the highest abrasion resistance
- Provides active protection with environmentally safe corrosion inhibitors
- Excellent UV, Ozone and Oxidization resistance
- Resistance to big climatic temperature variations and hydrocarbon oil contamination
- May be fitted with corrosion rate monitoring



Technical specification RETROWRAP X

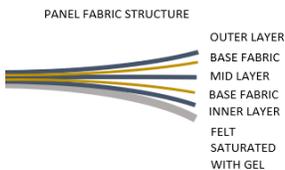
Wrap Main Components

- Polyurethane coated multilayer fabric panel
- Extruded marine and impact resistant polymetric closure flanges
- Stainless steel fasteners and nylock nuts
- Corrosion protection gel, Retrogel P or Retrogel S

Product Data:

Product name	Retrowrap X	For Extreme conditions
Product HS Code	39269092	Including gel and fastening bolt sets
Pile Diameters applicable	Ø 100 - 3000 mm (typically) Also for Hexagonal, Octagonal and dual/various diameter piles	If smaller or bigger diam contact CCI Oy
Wrap Height (Pile height to protect)	Tailor made according to customer needs. Depending on protected height , wraps are made in one, two or several pieces	Typical one piece height 1 - 3 meter
Wrap Weight, including gel (as delivered)	7.5 ± 0.2 kg/sqm excl. fastening bolt sets	@ gelling ~3 kg / sqm
Wrap max total thickness as installed	57 ± 2 mm , including fastening flanges Panel only ~ 6.5 mm	Distance from pile/structure surface
Fastening Bolts	Stainless steel, Marine Grade A4 , M10 DIN 931	HS 73181575
Fastening Nuts	Stainless steel, Marine Grade A4 , M10 DIN 934	HS 73181631
Fastening Washers	Stainless steel, Marine Grade A4 , M10 DIN 921 or DIN 522	HS 73182200
Nylon Nuts (Optional)	M10 PA 6.6, DIN 555	HS 39259080
Wrap Operating Temperature	-20 to +90°C , using Retrogel P gel -40 to +120°C using Retrogel S gel	Normal conditions At high temperatures
Storage Recommendations	In crates, max +50°C ambient temp , non-dusty area, no direct exposure to sun	

Panel specifications



Panel Type	Reinforced coated multi layer fabric	
Outer and inner layer coating	Polyurethane, PU	
Color	Black	
Base fabric type	Polyamide, PA 66	
Fabric weight (excl. felt)	2.6 ± 0.1 kg/sqm	
Felt type	Polyester	
Felt weight	0.64 kg/sqm	
Fabric thickness including felt	6.25 mm ± 6%	Excl. Gel
Tensile strength MD/XMD	5300/5300 N	ASTM D-751
Tear strength MD/XMD	890/890 N	ASTM D-751
Impact resistance	12 m/N (175 ft/lbs)	ITI/1477
Coating adhesion	178 N/ 2,54 cm (40 lbs/inch)	ASTM D-751
Accelerated weathering	1000 hours , excellent	ASTM D-4396
Closure Flanges / Rods	Geon , Black Vinyl / PVC	

Gel specifications

Gel name	Retrogel P	Retrogel S
HS Code	34039900	34039900
Operating Temperature Range	-20 to +90°C	-40 to +120°C
Base material ,approximate	Refined petroleum wax, 50 %	Flourocarbon gel, 90%
Corrosion inhibitor, approximate	Thixatropic media, 40 %	10%
Other ,approximate	Oxyalkylates and alcohol in heavy aromatic naphtha, 10 %	-
Hydrophobic	Yes	Yes
Color	Tan	Off-white
Appearance	Soft paste	Soft paste
Odor	Oily Hydrocarbon	Slight
Specific gravity	1.2	1.23

Specifications subject to change without notice

Designed and sold by:

U.S. Patent No. 5,435,667
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