



### General description

RETROWRAP SL is a wraparound corrosion protection concept with a joint area thickness of only ~12 mm. This concept is especially suitable for corrosion protection on areas or piles where allowed increase in pile diameter are limited or traditional flange fastening not wanted or feasible.

RETROWRAP SL is an excellent corrosion protection alternative for the offshore conductor connector industry, but is also fully suitable also for other applications in the splash zone, subsea or onshore. The SL can be made for single, dual or various diameter applications.

RETROWRAP SL resists long term immersion, both in seawater and in fresh water. The system is built to last for over 25 years in the most demanding conditions. Attacks, both chemical and biological, will be fought off. RETROWRAP SL provides permanent protection from waves and currents, while standing tall against severe UV-radiation, ozone and temperature variations.

RETROWRAP SL panels are a multi-layer monocoque construction consisting of a polymeric textile reinforcement encapsulated within the polyurethane matrix and outer layer and bonded in-line to a polyester or polypropylene, 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. Manufactured with the same monocoque fabric as Retrowrap HD2, the SL utilizes a unique mortise and tenon closure, thus eliminating flanges and allowing for easy passage through guide tubes

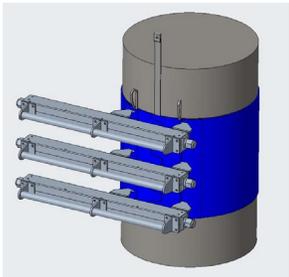
The materials in the system are stressed below their operational limits ensuring a high safety factor in all parameters while in service. If accidentally punctured, the hoop tension will cause the gel impregnated within the inner layer carrier to be exuded from the damaged area and "self-seal". The inhibitor 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 SL, the tear will not propagate.

RETROWRAP SL Installation is fast and easy. Using our specially designed, robust closure tools (tensioning calipers), installation can be accomplished in less than five minutes.

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.

The wrap connecting flanges are interlocked with a slim but rigid marine grade stainless steel closure bar. Two removable steel rods are temporary used during the installation procedure to ensure an even, safe and reliable fastening.

See RETROWRAP SL installation manual for further information regarding the installation procedure.



### Features

- Cold-applied – no hot work permit required
- Minimal surface preparation; does not require substrate shotblast preparation
- Quick and easy drill floor installation; no primer, filler or tapes
- Provides easy passage of guide tubes without snagging or damage
- Unaffected by connector running fluid
- Supplied in one piece interlocking modular lengths
- Easy removal and replacement for inspection
- Provides active protection with environmentally safe corrosion inhibitors
- Multilayer, heavy-duty but conformable construction
- Polyurethane provides the highest abrasion resistance
- Material to retain hoop tension throughout the projected operational life of the fabric.
- Excellent UV, Ozone and Oxidization resistance
- Resistance to high climactic temperature.
- Resistance to hydrocarbon oil contamination
- May be fitted with corrosion rate monitoring



### Technical specification RETROWRAP SL

#### Wrap Main Components

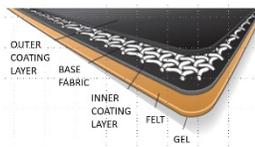
- Thermoplastic Polyurethane fabric panel
- Stainless steel locking bar
- Corrosion protection gel, Retrogel P or Retrogel S

#### Product Data:

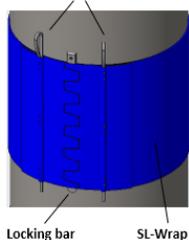
Product name	Retrowrap SL	Slim Line
Product HS Code	39269092	Including locking bar and gel
Pile / Connector Diameters applicable	Ø 200 - 1200 mm (typically) For Single or Dual/Various diameter piles and connectors, risers	If smaller or bigger diam contact CCI Oy
Wrap Height (height to protect)	Tailor made according to customer needs.	Typically made in one piece
Wrap Installation direction	All directions	
Wrap Weight, including gel (as delivered)	5.2 ± 0.2 kg/sqm	@ gelling ~3 kg / sqm
Wrap max total thickness as installed	12 ± 1 mm, including flanges and locking bar	Distance from pipe or connector surface
Wrap Operating Temperature	-20 to +90°C, using Retrogel P gel -40 to +120°C using Retrogel S gel	Normal conditions At high temperatures
Wrap Locking bar	Stainless steel, Marine Grade A4, 3 x 25 mm	(Enclosure bar)
Removable/Reusable Rods for tensioning flange	2 pcs, Ø 12 mm, steel	For installation procedure only
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	Thermoplastic Polyurethane, TPU	HD2
Color	Black	
Base fabric type	Polyester, PET	
Fabric weight (excl. felt)	1.6 kg/sqm	
Felt type	Polyester	
Felt weight	0.6 kg/sqm	
Fabric thickness including felt	4.5 mm	Excl. Gel
Tensile strength MD/XMD	4000/3000 N/5cm	DIN53354, EN ISO 1421
Tear strength MD/XMD	550/450 N	DIN 53363
Impact resistance	(> 160 lbf in). 118.6 m/kg	IT1/1477
Coating adhesion	170 N/5cm	IVK 3.13
Accelerated weathering	7000 hours, excellent	



Removable rods in tensioning flanges (for installation only)



#### 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 %	Fluorocarbon gel, 90%
Corrosion inhibitor, approximate	Thixotropic 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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