



# CONCRETE CANVAS™

*Concrete Impregnated Fabric...*

## PIPE PROTECTION



ROAD



RAIL



AGRO



OTHER



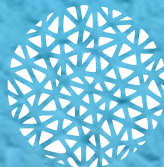
DESIGN



2011 Expert's Choice Winner  
Most Innovative Product



MTP Gold Medal Award  
BUDMA 2011



Material ConneXion  
Material of the Year 2009

Material ConneXion®  
MEDIUM AWARD  
MATERIAL of the YEAR 20



Design to Improve Life Award  
Nominee, 2011

## Concrete Canvas™ Pipe Protection

Concrete Canvas (CC) can be used as practical, simple to install coating for pipeline protection. CC is flexible prior to hydration and can be wrapped around the pipe to provide mechanical protection, negative buoyancy and backfill protection of anti corrosion coatings.

The unique properties of CC make it suitable for the most demanding pipeline applications. In remote areas it can be used to coat steel pipe on site without setting up expensive fixed wet concrete application plants. It can be used wherever the following properties are required:

- Rapid strength gain.
- High impact and tear resistance.
- Abrasion and sag resistant when hardened.
- Heat resistant for high temperature or fire proofing applications.
- Chemically resistant for situations subject to chemical attack in aggressive soil conditions or in inter tidal marine areas.
- Underwater setting (including seawater), ideal for subsea applications

### 04.10.10 Case Study : Doha, Qatar

Iberdrola, an international energy company, commissioned Doha Engineering Services Co. to provide protection for a 1200m shallow water pipeline carrying water and chlorine for their facility in Qatar.

CC13 was specified to provide impact protection and negative buoyancy to the 6" diameter PVC pipe.

The CC was installed in-situ at a depth of 5m below tidal waters. Divers were able to line approximately 60m of pipeline per day. The CC was cut into sections on site which were latitudinally wrapped around the pipe and fixed in position using heavy duty cable ties. CC can be hydrated using seawater, so the Canvas set underwater providing a durable and impact resistant protection.

"The end customer was extremely satisfied with the speed and ease of use of CC. There was no other material that could have been used to provide underwater pipeline protection in this way."

**S. Raghavendra**

General Manager, Doha Engineering Services CO. WLL



## 19.08.10 Pipe Protection Trial : Heidelberg, South Africa

In August 2010, Concrete Canvas was trialled along a section of a multipurpose pipeline used for the transport of fuel and oil between Gauteng and KwaZulu Natal. The CC provided a rapid means of protecting the 2m circumference pipe and helped to resolve a number of technical challenges:

1. The risk of damage to the welded joints during the process of lowering the pipe into a rocky trench and subsequent backfilling. The CC provided a durable protective layer that was extremely quick to apply.
2. Protection of the pipe at bends where traditional concrete applications were not possible. The flexibility of CC allowed it to conform and wrap around the contours and bends of the pipe.
3. Providing negative buoyancy. The CC13 effectively prevented the pipe from floating through wetland areas.

The trial was extremely successful and the engineers expressed great interest in specifying Concrete Canvas for future projects.



2m circumference PVC coated multi-purpose fuel/oil pipeline



Cutting to length and unrolling of CC layer



Industrial stapling of CC overlap



Hydration of the CC



CC layer strapped to secure during setting



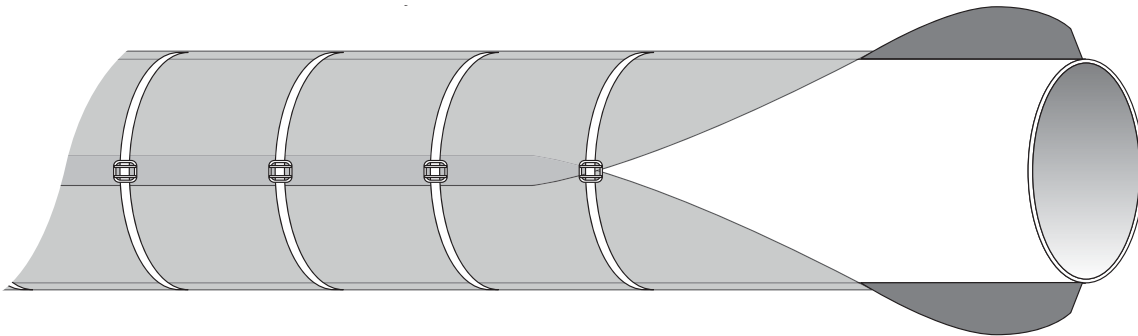
Completed CC reinforced pipe section

## Concrete Canvas™ Application Methods

Suggestions of possible methods for applying Concrete Canvas (CC) to the exterior of pipes are shown below. The preferred method will depend on the diameter of the pipe, level of access and thickness of CC to be used.

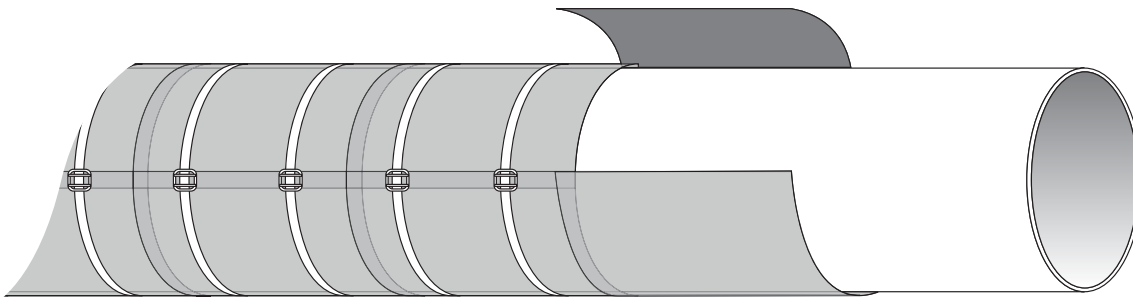
### Longitudinal wrapping

1. Unroll CC parallel to the pipe which is to be protected
2. Place CC on top of the pipe
3. Wrap CC around the pipe overlapping the edges by a minimum of 50mm
4. The CC can be secured with plastic straps or by thermally welding the PVC backing for a waterproof seal (see thermal welding guide)
5. Cut ends should be over-lapped by a minimum of 100mm



### Latitudinal Wrapping

1. Cut CC into strips to fit the diameter of pipe to be protected ensuring there is sufficient material to allow a minimum of 100mm overlap at the cut ends.
2. Secure in place using plastic straps or thermal welding



### Spiral wrapping

1. Wrap CC around the pipe ensuring a minimum of 50mm overlap between adjacent strips
2. Secure in place using plastic straps or thermal welding

