

## Cable Protection

1998

### KOREA project ( COPS )

a world first in submarine cable protection using steel fibre reinforced grouted mattresses

#### PROJECT SUMMARY :

Area / Period :  
Far East - February to August 1997  
Project :  
Protection of a 300 MW power link in water max depth 35 m.

#### LD TRAVOCEAN SCOPE OF WORK :

( in cooperation with COFLEXIP STENA OFFSHORE ) Protection of 48 km power cable, previously buried at 0.5 m, with an additional protection cover against vertical impact aggression. Such protection is capable of withstanding the impact of a 600 kg steel pole falling in water from 35 m height.

#### LD TRAVOCEAN SCOPE OF SUPPLY :

Design, build, test and operate the 15.9 tons crawling vehicle " COPS " for remote deployment of mattress form work.  
Develop and operate continuous logistic support for on-site delivery of :

- dry cement ( 37 000 tons )
- fresh water ( 15 000 tons )
- metallic fibres ( 800 tons )
- mattress reels ( 90 )

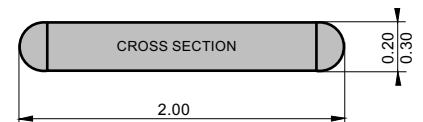
Marine means :

- 1 DSV ( offshore operation )
- 1 barge ( shallow water operation )
- Logistics : 1 bulk carrier as floating logistic base, 1 feeder vessel.

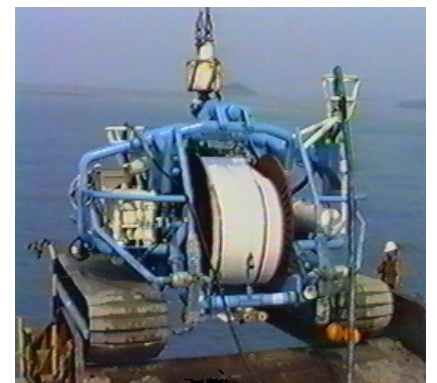
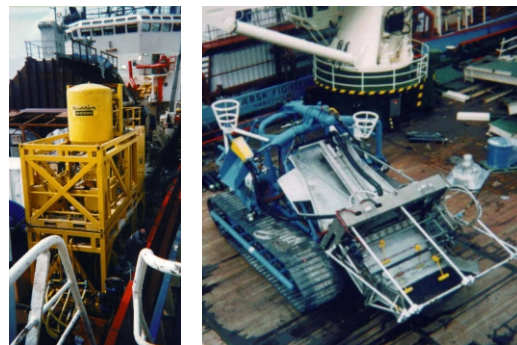
#### METHOD : ( COFLEXIP concept )

Deployment of mattress form work ( 600 m/unit - 2 m wide - 0.25 m thick ) over the cable with subsea vehicle. Simultaneous filling of mattress form work by injection of cement grout with steel fibres.

#### STANDARD MATTRESS FOR VERTICAL IMPACT PROTECTION



Thickness	Width	Submerged linear weight
0.20 m	2.00 m	360 kg / m
0.30 m		540 kg / m



### Submarine Cable Installation

Etablissement de Marseille

Le Mistral C - Z.A. Athélia IV  
375, avenue du Mistral - CS 60136  
13703 La Ciotat Cedex ( France )

Tel. +33 (0)4 42 18 34 00  
Fax. +33 (0)4 42 70 46 64  
E-mail: ldtravocean@ldtravocean.com

