

**CAPRI - TORRE ANNUNZIATA CABLE PROTECTION
ITALY**

PIPELINE PROTECTION

Product: ACBM (articulated concrete block mattress), Lifting frames

Terna, the company that manages electricity transmission in Italy, implemented an historically important electricity project in Capri: for the first time, Capri was connected to the mainland by a 30 km long HV submarine power line.

The “Capri-Torre Annunziata” project increased the safety and reliability of the island’s electricity supply with the objective of reducing risks of blackouts, particularly during the summer months when tourism is at its peak and energy consumption increases. With the start of operations of the new connection, Terna estimates savings for the electricity system, for communities and businesses of at least €17M/year.

This zero environmental–impact project strongly focuses on the environment and the territory allowing to preserve the enormous natural value of the island and of Campania’s coast: the practically invisible power line will extend underwater for 30km, whilst preserving the marine ecosystem, and for 1 km it will use a buried cable. The aim is to reduce CO₂ emissions by almost 130,000t/year.

The electricity cable from the mainland will reach the ecological island of Gasto where Terna is building an innovative power station with a low environmental impact and sustainable design. It will be connected to the local distribution grid and will be a unique example of a high-tech project in the field of electricity infrastructure.

Solutions

Deployment and installation of the new power electric cable revealed, as usual in underwater projects, interference with existing pipelines.

Before installing cables at crossing points with the existing pipelines, ACBM concrete mattresses, characterized by a high degree of flexibility in both longitudinal and transverse directions, were placed. After cable installation, ACBM protection mattresses were installed as well as protection to the crossing point.

Client:

TERNA

Main contractor:

PRYSMIAN POWERLINK

Designer:

TERNA - PRYSMIAN POWERLINK

Products used:

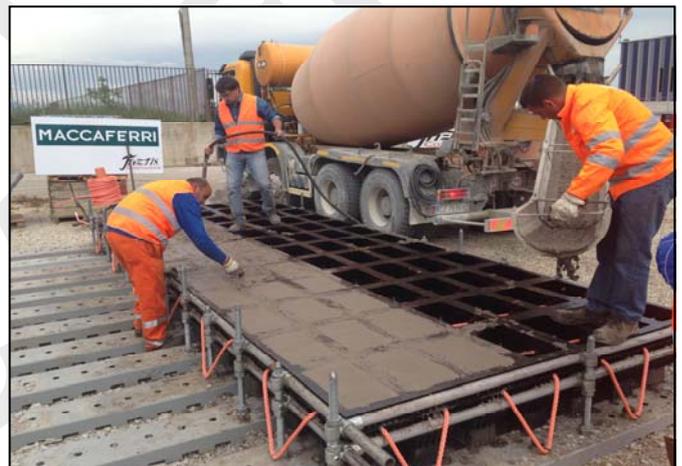
ACBM MATTRESSES - LIFTING FRAMES

Date of construction

AUTUMN 2014



Giulio Verne Vessel



ACBM Manufacture



ACBM formwork



The design of the mattresses took into account the following requirements and conditions:

- Interaction forces exerted by the mattress on the pipelines
- Water depths
- Geo-morphological conditions.
- Environmental conditions.
- Design life to match the pipeline (30 years).

The ACBM concrete mattresses have to ensure their functionality and structural integrity even in the case of accidental impacts equivalent to:

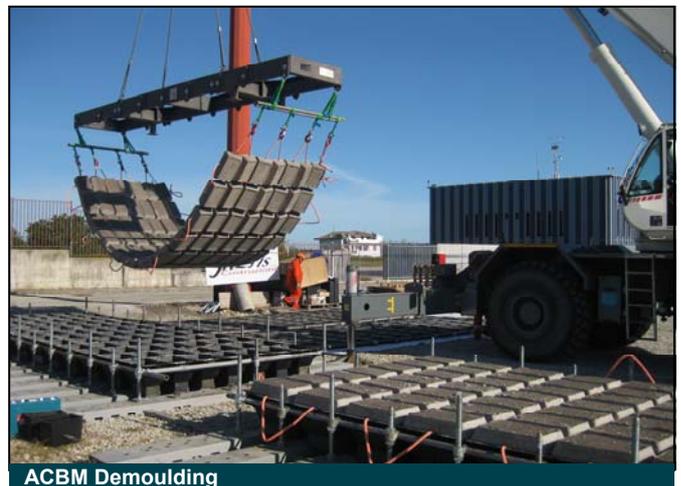
- 20kJ energy involving a 500mm diameter impacting object;
- 5kJ energy involving a 100mm diameter impacting object

Maccaferri issued 3rd-party Bureau Veritas certification on its ACBM units to verify their impact resistance.

Installation of Maccaferri units was performed by the vessels Giulio Verne and ASTREA in two campaigns; one for pre-laying mattress at crossing points and one for the protection mattresses,

Maccaferri supplied:

- 50 No. ACBM dimensions 5.26 x 2.26 x 0.30m
- 2 No. manual lifting frame for on-shore operations
- 1 No. automatic lifting frame for off-shore operations



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