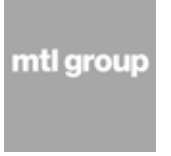
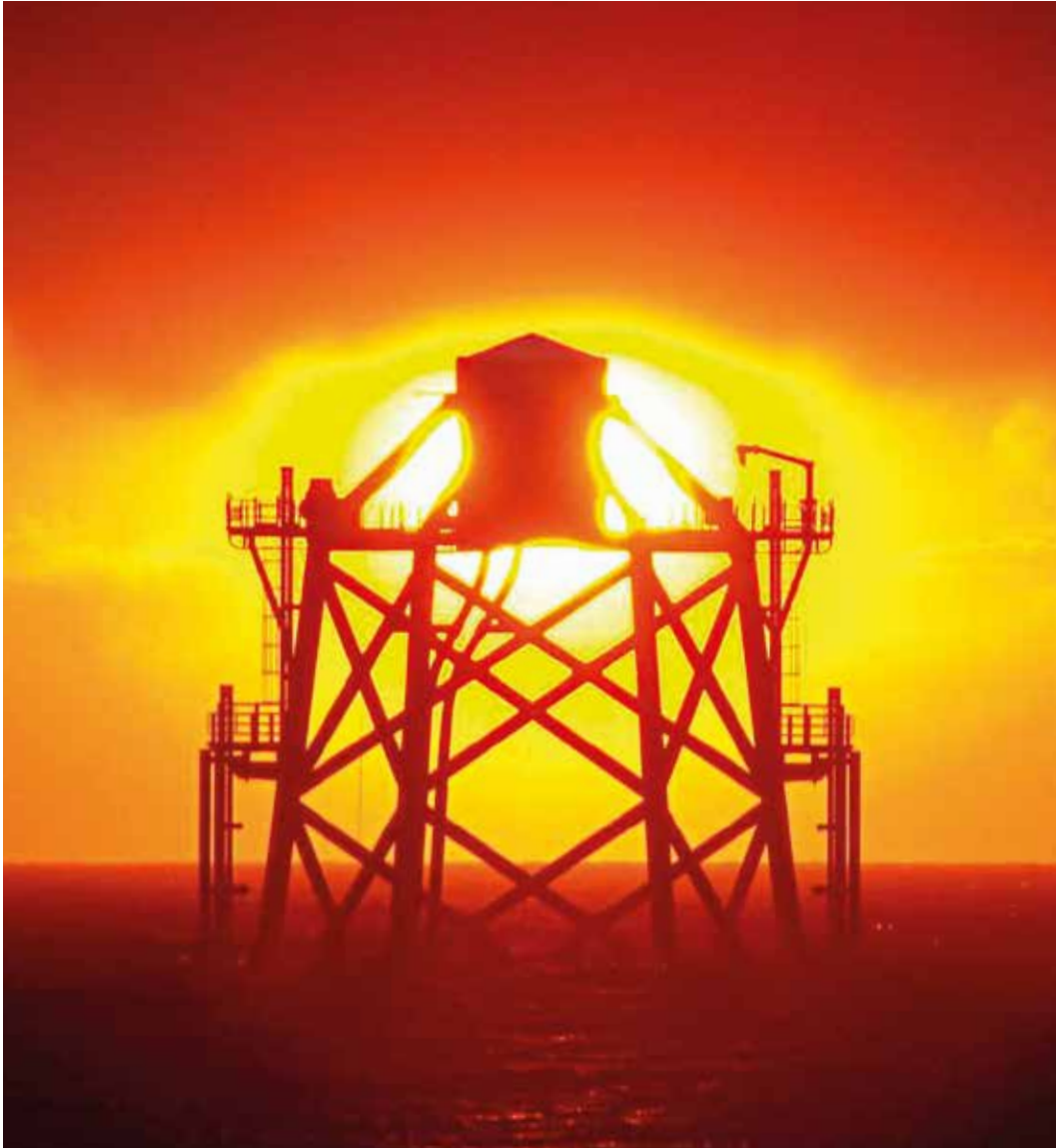


Copper-Nickel Sheathing and inserts on Boat Landing Systems to avoid marine growth



Safer Landings - a low cost solution

KME Germany GmbH & Co. KG/MTL Group Limited
Copper-Nickel Sheathing and inserts on Boat Landing Systems
[GB]





KME Germany GmbH & Co. KG

For more than a century now, Copper and its alloys has strengthened KME's reputation as one of the world's leading integrated metal manufacturers. KME offers not only top quality products for highly corrosive environments, but also a broad and diverse range of project packages tailored to the individual performance requirements. Seamless & welded pipes as well as fittings & flanges from Copper Nickel & other copper alloys are part of the company's safe investments into the future.

KME's special products' division additionally manufactures tube bundles (OSNALINE®) made of special corrosion resistant materials for hydraulic control systems used for various industrial applications including shipbuilding and Oil & Gas. The company maintains an extensive stock for their products ensuring fast delivery even where large quantities are required.

KME manufactures with today nearly 6,000 employees for the national and international markets at production and sales sites in the major countries and markets of Europe and China. Its extensive product range encompasses quality products and technologically leading special solutions for the needs of the most diverse industrial fields.

www.kme.com



MTL Group Limited

MTL Group Limited is a UK contract manufacturing specialist in the metal sector. Founded in 1995 the MTL Group has grown to become a partner of choice for many major global OEMs.

MTL Group operates from two modern manufacturing sites. The Head Office and main facility is in Rotherham, South Yorkshire, and offers 30,000 sqm of manufacturing space set in 3 hectare's acres of private land; the Blyth site in Northumberland offers a dockside fabrication and assembly facility where we are able to produce fabricated assemblies up to 300 tonnes.

The core sectors that currently serve include Defence, Renewable Energy, Offshore Oil & Gas, Construction, Quarrying, Rail and Recycling. MTL Group manufactures Boat Landing Systems to customer specific requirements together with other specialist offshore components.

MTL Group is well known on a global basis as a major supplier of components and fabrications manufactured from specialist materials such as Wear Resistant steels, High Strength steels and Armour plate both in steel and alloys. Many of its customers rely on MTL Group for its manufacturing expertise with these materials and often utilise its services in its design for manufacture phase. This collaboration on the innovative use of copper nickel is one such example.

www.mtlgrp.com



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Present Corrosion Protection

Conventional Coating Systems

- actual service life is well below the expected 15 years
- potential damages due to tie-up of service ships and drift ice
- corrosion at damage
- increased static loads and flow resistance

Costs

- corrosion allowance for steel
- all time-high maintenance costs
 - difficult access to offshore location
 - scaffolding very costly to erect and dismantle
 - effectiveness of offshore repairs difficult
- operational cost problems out of proportion
 - to repair only 3% area failure could cost more than the total initial cost of painting

Lifetime Corrosion Protection

Copper-Nickel Cladding

- proven track record for 30 years in the splash zone
- mechanical damages prevented by robust nature
- excellent resistance to uniform and localized corrosion in seawater
- not susceptible to stress corrosion cracking
- free of heavy fouling

Costs

- reduced steel costs
 - no corrosion allowance of steel necessary
- much lower maintenance costs
 - minimal maintenance/ cleaning/ no repairs
- 100% protection of steel structure
 - directly welded on steel legs
 - no negative impact on the quality of the welded joints
 - no negative galvanic corrosion effects

Several areas of damages on the boatlanding/steel surface.



After several years the transition piece is completely covered with mussels and the ladder has disappeared amidst the growth.



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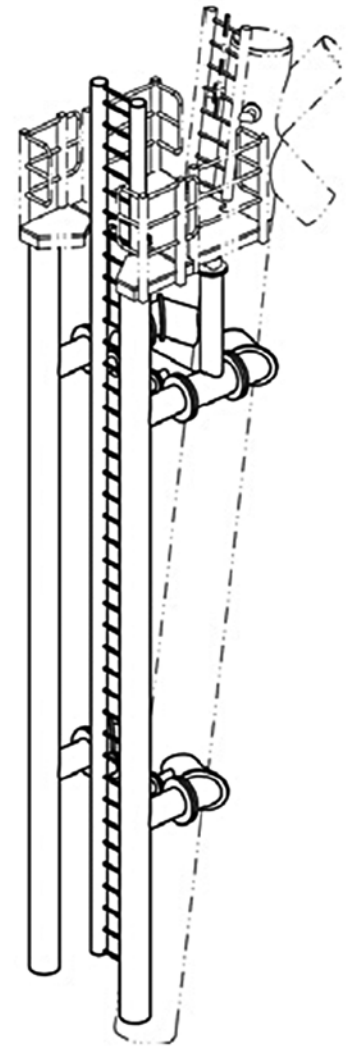
Corrosion protection of offshore wind farm structures is an important requirement which is currently under much scrutiny, since wind energy is widely recognised as a keystone in the future supply of energy. However, offshore locations expose the structures to heavy stresses and a severely corrosive environment. Coatings must withstand and protect the steel structures against seawater, reflecting UV light as well as tidal and wave action in order to achieve acceptable service lives. One thing that these systems have in common is that they have to be repaired and partially renewed regularly to achieve their designed lifetime.

Experience has shown that, in reality, the actual service life of conventional coating systems is well below the expected 15 years. Furthermore, the growth of marine fouling is still a serious problem for wind farm owners. The transition piece, in particular, causes considerable expense. All time high maintenance and operational costs have become a significant problem.

Copper-nickel 90/10 is known to be a seawater-resistant alloy that is widely used in marine applications because of its excellent high resistance to both fouling and corrosion. It is used for seawater and firewater piping systems, and to sheath the steel jackets of oil and gas platforms. Massive copper-nickel has reduced maintenance requirements, compared to other materials. Fouling organisms, or other organic material, do not easily attach to it. These physical properties of massive copper-nickel also facilitate the removal of bio-fouling organisms from the surfaces. The impairment of initial attachment of bio-fouling organisms also prevents the further build-up and accumulation of bio-fouling layers on surfaces made of massive copper-nickel in comparison of other materials.

One of the first large projects in which CuNi 90/10 was used as corrosion protection in tidal and splash zones was in 1984 on the columns of the platforms in the Morecambe Field, a large gas deposit in the Irish Sea. Because of the extremely corrosive atmosphere that structures are exposed to, the classification companies specify a corrosion allowance of 12 mm when steel and conventional coating systems are to be used. This allowance is not necessary with 90/10 copper-nickel sheathing, which meant that, it was possible to save almost 700 t steel. Together with much lower maintenance costs of the corrosion protection compared to conventional systems, this variant was chosen as the least expensive.

In this context, KME has designed and developed a new type of Boatlanding. By joining together KME's technology with our OSNA®-10 copper nickel 90/10 alloy and MTL's process of manufacturing Boat Landing Systems we have produced a new concept in lifetime corrosion in protection offshore wind farm structures which are a cost effective solution to conventional protection methods.



KME Germany GmbH & Co. KG

Value adding at KME covers all the stages of processing the basic material copper into semi-finished and finished products. Cathodes and secondary preliminary materials from the recycling process are melted, refined and continually cast into slabs and billets. The slabs are then formed into strips, plates and sheets in a rolling mill.

In extrusion and drawing processes the billets are formed into tubes, profiles and rods, some of which are further refined in cutting processes.

The modified chemical composition from KME meets the requirements of all international standards products and ensures excellent ductility and weldability, corrosion performance and highest reliability as well as economical efficiency.



MTL Group

Robotic Tube Cutting

Robotic tube cutting will make the fabrication of complex tubular joint structures a simple task. Our tubecutter is capable of cutting up to 40mm wall thickness with complex weld preps.

Large Fabrication Load out

MTL Group's quayside Port of Blyth facility has been strategically placed to make it possible to assemble, weld and load out fabrications up to 300t in weight. Our semi and fully automated welding systems allow us to handle components up to 18m long.

European qualified welding engineers are capable of supplying parts to DIN 18800-7, EEMUA 158, NORSOK M101, EN ISO 3834-2 and DNV standards.



KME Germany GmbH & Co. KG
Business Units Marine Applications
OSNALINE® Tube Bundles
P.O. Box 3320
49023 OSNABRUECK
Klosterstrasse 29
49074 OSNABRUECK
GERMANY
Fon + 49 (0) 541-321 3220
Fax + 49 (0) 541-321 3020
info-maritime@kme.com
www.marine-applications.com

MTL Group Limited
Grange Lane
Rotherham S60 5AE
United Kingdom
Fon + 44 (0) 114 261 7979
Fax + 44 (0) 114 242 5177
contact@mtlgrp.com
www.mtlgrp.com