Applications **Sub Sea**

CASE STUDIES

PARAFIL Subsea
Arch Riser Teather

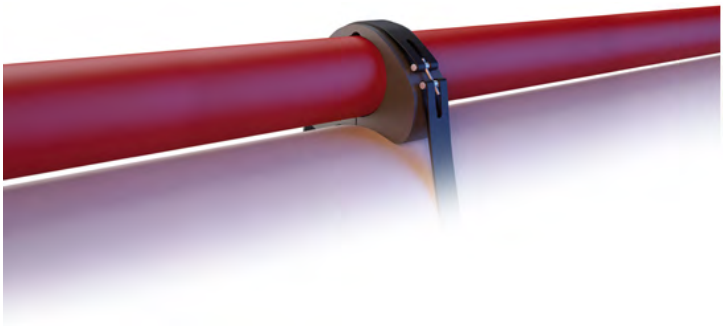
Suitable products

PARALOOP®: Subsea Applications

PARALOOP® straps have a high tensile strength and modulus, desirable creep characteristics, thermal stability over a wide range of working temperatures and are resistant to environmental and chemical attack. Alongside these properties **PARALOOP®** straps have a tough polymeric sheath which makes them abrasion resistant. The combination of these physical properties result in a neutrally buoyant product with a long design life which is ideal for buoyancy modules, piggy backing systems, anchorage and strapping systems.

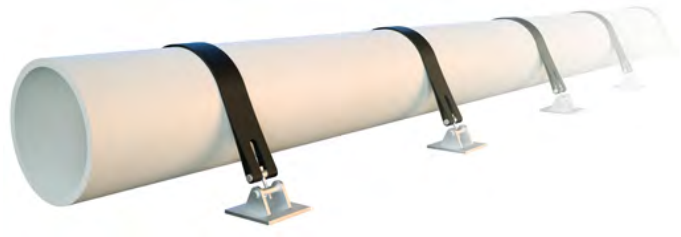
Buoyancy and Thermal Insulation Modules

PARALOOP® straps are used to fasten buoyancy modules on to flexible risers. When pipelines require thermal insulation covers **PARALOOP®** straps area used to permanently secure them.



Piggy-Backing Straps

PARALOOPS are used to strap parallel pipes together allowing an efficient, combined pipelaying operation. This quick and easy method reduces installation costs and saves time. **PARALOOPS** have also been used to secure monitoring equipment to pipelines in a similar manner to the combined pipelaying operation described above.



Anchorage

PARALOOPS are used to anchor pipes to the seabed or subsea structures. The non-corrosive and abrasion resistant nature of **PARALOOPS** makes them an ideal material for permanent anchorage applications.

Multiple Fixing Bundle Clamp Straps

In applications where in-situ welding is not permitted or where non-inductive restrainers are required **PARALOOPS** are used as bundle clamp fixing straps. As with anchorage **PARALOOP®** bundle clamp straps can be used to anchor pipes to the seabed or subsea structures.

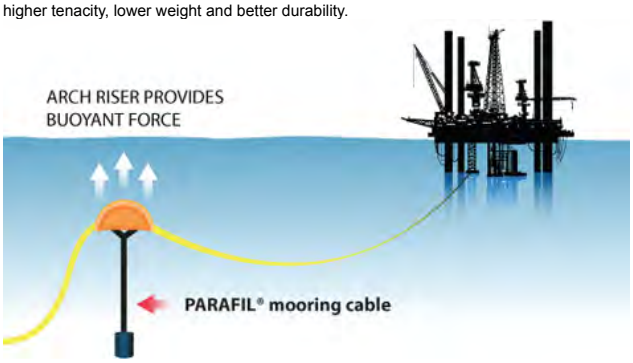
PARAFIL®: Subsea Applications

The corrosion resistant nature of **PARAFIL®** makes it an excellent choice of material for securing subsea structures. **PARAFIL®** has a high tensile strength and modulus along with desirable creep characteristics, high energy absorption and damping, good tension – tension fatigue life and thermal stability over a wide range of working temperatures.

Alongside **PARAFIL®** Linear Composites Ltd supply a wide range of specially designed termination fittings which allow **PARAFIL®** to be secured to almost any subsea structure. No system is too complex for **PARAFIL®**.

Subsea Arch Systems

Riser arches are used to provide a buoyant force to subsea pipelines which would otherwise fail under their own weight. **PARAFIL®** is used to moor the buoyant arch to the seabed or subsea structure. The high strength, durability, low creep and resistance to corrosion make **PARAFIL®** an ideal material for this application. Advantages of using **PARAFIL®** over chain or steel wire include; neutral buoyancy, higher tenacity, lower weight and better durability.



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