

# HEAT EXCHANGERS

for marine and offshore industry



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## TTC Titanium Coils made for Seawater systems

Autumn 1988 TTC Norge AS was contacted by Statoil and Aker Engineering with request to find the reason why some seawater coils with CuNi 90/10 and CuNi 70/30 tubing were leaking. They contacted us cause we were (and still are) the only Norwegian producer of air to liquid heat exchangers and as supplier of seawater coils to all Gullfaks and Oseberg platforms.

After a search through available literature and dialogue with experts from the nuclear industry, we found strong evidence that the CuNi material used by shipbuilders for decades were unsuitable. Based on advices from Institute for Energy Technology (IFE) we developed titanium coils and made the first supplies in 1990.

TTC Titanium coils are now included on most seawater systems on Norwegian offshore platforms and are supplied to offshore projects worldwide. We have not had any complaints on these coils during all these years.

### Cooling and heating coil - "all in one"

Titanium coils with seawater as air cooling medium are also used as pre-heaters during wintertime (North Sea). This is a big cost and weight saving advantage.



(Above: Titanium coil with cleanable headers)

### Fin Fan Cooler with titanium tubing

One of our core products in this range of coils is room-coolers with seawater as cooling medium. Such units are used as coolers for generator units and technical rooms (containers, engine rooms, thruster room and more.)



(Above: Room cooler with hydraulic fan)

The coolers are tailor made according to specification and supplied with fans for standard or Ex zone. Control system for the fan can be included if required.

### Materials used in a Titanium coils:

- Tubing in Ti Grad 1, Headers in Ti Grad 2
- Fins in SS316L or Titan. These can also be supplied in other materials; such as CuSn or AlMg3
- Plate and angle framework in SS316L.

The coils are pressure and penetrant tested. Third party inspectors may certify the tests.

There are several optional designs available. You are welcome to call our sales office – we are ready to make calculation and give an offer.

Heat exchangers designed and produced since 1967  
Titanium Tube Coils for seawater since 1990's

