

VANZETTI ENGINEERING

CRYOGENIC PUMPS FOR LNG



Being essential to have cryogenic fluids at very low temperatures and transfer the fluids from one tank to another, cryogenic pumps are also widespread in the marine field. We talked about it with Giancarlo **Geninatti**, Lng Marine Sales Manager at Vanzetti Engineering.

What are the main types of cryogenic pumps in the marine field?

The cryogenic centrifugal pumps for marine applications are always submersibles: this means that the engine is submerged in the LNG. Compared to the industrial ones, then, there is an important difference also in pump types. Besides the centrifugal ones, there are also reciprocating cryogenic pumps.

What about applications instead?

There are basically two applications. One is the pump used to feed liquid methane to the ship engine. The second one is that of so-called cargo pumps, which are used to

move the methane from the tank of a ship to the tank of another ship or rather to a liquid methane tank on ground. In the marine sector, as mentioned, the other family is that of reciprocating pumps, suitable for engines that need very high pressure, up to 350 bars.

Vanzetti Engineering cryogenic pumps for LNG handling and transportation can act as cargo pumps or feed liquid methane to the engine.

Will there be space for pleasure boats in the near future?

Let's talk in more detail about products. How does the Artika 120-3S differ from stationary application pumps?

The Artika 120-3S is the smallest pump in the Vanzetti Engineering Artika range and is mainly used in the marine field. The big difference, as far as marine industry is concerned, is the class certification; Vanzetti Engineering has got experience with virtually all marine



Left, Artika Series cryogenic submerged pumps made by Vanzetti Engineering. Above, the Siem Confucius car carrier, powered by LNG.

certification bodies. To be certified all materials must come from certified production chains, from steel to aluminum alloy up to the individual parts of the pump. Once mounted, the pump have to be thoroughly tested in order to be compliant with some quite strict standards. The whole quality control is therefore much more expensive, also affecting the cost of products.

What are the pressure ranges and the scopes for implementation?

On Artika Series pumps, which are low-pressure pumps, we have two ranges. The one around 10 bars is used for instance on cruise ships, carrier vessels or chemical tankers, for instance, and features 4-stroke engines.

The pumps that reach around 20 bars are on the other hand intended for much larger ships, such as large container carriers with 2-stroke engines. In addition to Artika pumps our range also includes alternative high-pressure pumps, for 2-stroke engines requiring up to 350 bars.

What is missing for the LNG to take hold once and for all in pleasure boats, maybe on megayachts, then on boats at least from 80 feet up? Besides structural issues linked to tanks layout, are there any other key issues that should be addressed?

There's been a lot of talk about LNG in pleasure boats and several projects are now in place. Sooner or later, we think that they will be fina-

lized. For the time being, the most important issues are size and supply infrastructure. In a nutshell, the ship and therefore the tank have to be quite large.

Yachts, even megayachts, are obviously smaller in size than commercial boats. Therefore switching to an LNG tank is not easy.

From a safety point of view, however, we do not see any particular obstacles. Then there's the infrastructure: surely LNG refuelling stations are not so widespread at the moment. A high-level infrastructure system is essential for projects of this kind to have an important boost. We are also confident because we see that the market is globally evolving and we keep talking about it with shipyards.