MarFlex to implement the first onboard NQZR system

NQZR combines smart measuring and pump technologies in one system that can be safely accessed and read out via a satellite link. Pump- and tank-integrated sensors measure the temperature, pressure and level of the cargo while the operation of the pumps and electric motors is also monitored continuously. All data can be read out from a touch screen in the vessel's control room. Any alarms, generated automatically by the system, are forwarded to the palmtop computers of the crew on board and to receivers on the shore.

The idea behind NQZR emerged five years ago during talks to shipping companies, says MarFlex chief executive officer Paul van Beveren. "Our customers wanted to have more information about the loading and discharging operations on board. This is something which the MarFlex pump systems are part of as this forms the basis of a more efficient form of service and maintenance. And, for the last couple of years, we have been able to service the drive and control systems [VSDS] remotely, so that we no longer always have to send our mechanics to destinations all over the globe. This lowers the total cost of ownership of the system. Remote access also enables us to quickly diagnose and troubleshoot the systems."

But the possibilities go beyond this. The readings that are logged automatically by the NQZR system can also be used as proof that the cargo has been handled properly. "Some insurance companies are even willing to grant discounts if this is recorded properly," says product manager David Stam. "In this way, the system immediately generates money for shipping companies."

The eventual goal is to integrate the information from the NQZR system into the maintenance systems of shipping companies, giving them a better insight into their maintenance budget. The maintenance cost of pumps is often hard to predict because they are complex systems that operate under varying conditions. A wide range of variables comes into play: the cargo's temperature, specific weight and viscosity are some of the aspects that affect the maintenance cost. "By logging this data, we get a better view, enabling us to predict how much maintenance a specific vessel will require," says Mr van Beveren. This enables optimum planning of preventative maintenance overhauls so that, in future, shipping companies could pay an annual maintenance fee based on historic data and trends.'

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Kuwait Oil Tanker Company (KOTC) is the first customer to have NQZR built in on board four new medium-range (MR) tankers that are being built at the Hyundai Mipo Dockyard in Korea. The first of these four sister vessels has now been launched and MarFlex supplied a highly advanced version of NQZR, some parts of which were developed in conjunction with the customer. "We are not going to re-engineer every NQZR system," explains Mr van Beveren, "but the layout and operation will be adjusted to the customer's wishes. The system is highly flexible in that respect."

Mr Stam adds: 'We specifically try to involve the end users, the crew. The control screen on the KOTC tankers was co-developed with the KOTC people. That will also be our approach for any follow-up projects: the core of the system is unchanged, but it will be given a bespoke look and feel.'

NQZR can be fitted on any tanker, but is especially suitable for large vessels. Its modular construction enables MarFlex to implement separate components as well. "We go for the full system on new vessels," says Mr Stam, "but we can also upgrade the tank management systems of existing tankers at different levels, ranging from adding a logging system to implementing extra sensors, linking to other systems on board and enabling remote access."

NQZR will get an even more integrated position on board in the future. MarFlex is currently involved in a project where the anchor winches will also be controlled from NQZR. "In principle, the other systems on board a vessel can also be connected to the frequency drives of our pump systems," says Mr van Beveren. "These systems range from the main engine's seawater cooling pump to ventilation systems, air conditioners, compressors and the steering gear systems. This lets shipping companies use these systems more efficiently and save fuel."

MarFlex brought in its sister company Snijders Intelligent Automation to help develop NQZR, while a German company, Vega, delivered the sensors for the tank management system.

MarFlex recently inaugurated a tanker training centre at the Scheepvaart en Transport College (STC, Shipping and Transport College), based on NQZR in the Netherlands, where shipping students, tanker crews and tank terminal employees can practise. A demonstration kit has been developed in order to introduce shipping companies to all aspects of NQZR – from operation to logging, trending and reporting.

"Now it is up to the shipping companies to make their move," says Mr van Beveren. 'This is primarily a cost consideration. And furthermore, customers are always looking for references. It needs time. Our electric-drive deepwell pump was not automatically accepted by the market either, but now it has proven its worth, NQZR will fare the same way.' **TST**

NQZR is especially suitable for larger vessels. MarFlex believes market acceptance will follow a similar trajectory to the uptake of its electric-drive deepwell pump