

LEVELMASTER®

Success story - M/V Viking Queen

The Kockumation Group company, Kockum Sonics AB Delivers remote ballast tank level gauging LEVELMASTER to PCTC Viking Queen ex Hoegh Delhi.

The Pure Car and Truck Carrier (PCTC) Viking Queen has for 10 years served as Hoegh Delhi in the Hoegh Autoliners fleet. The vessel is now returned to owners Gram Car Carriers in Norway. Prior to entering service for the new charter, the vessel dry docked at Besikitas Shipyard in Turkey.

The vessel was designed without manual sounding pipes in the double bottom ballast tanks. So it was therefore essential to ensure a good functionality on the remote sounding system. The original pressure sensors installed in the tanks was causing some trouble and a high maintenance costs so Kockum Sonics was contacted in order to evaluate an alternative.

After a survey Kockum Sonics offered the Viking Queen a new electro pneumatic LEVELMASTER H8 system. The scope of supply included not only instrumentation cabinets, but also pipes and fittings for the entire installation. As a cost saving feature, the LEVELMASTER H8 system was equipped with an output identical to the original system so no modifications were required in the presentation system.

Kockum Sonics' supervisor attended the vessel as she arrived in Besikitas Shipyard. With good support from the yard, there were 2000 meters of Polyamide pipe, power cabling and communications cabling installed. All materials were in place in about one week's time.

When the Viking Queen left the she had a new DNV-GL approved remote tank level gauging system.





Pipe installation on car deck

Kockum Sonics conducted an 8 hour pre-survey when the vessel called into port close to our office. The forthcoming installation was planned in detail. Pipe routing was decided. The position of the LEVELMASTER H8 cabinet locations were chosen along with the power and air source. All process connections that were required were measured by our engineer.

In just a few weeks, Kockum Sonics AB had supplied all the required materials to the vessel at a convenient port. Where possible, parts were pre-assembled in Kockum Sonics' own factory to reduce installation time.

As the vessel arrived in Besikitas Shipyard, we commenced the installation immediately. The yard provided labour and we supervised work at 3-4 different places simultaneously. Polyamide pipes were used to connect our LEVELMASTER H8 cabinets and the ballast tanks. The pipes were routed on the existing cable trays. The polyamide pipes used were supplied in coils of 100 meters, making the installation quick and easy.

The LEVELMASTER H8 measuring cabinets were fitted on the bulkheads. The Polyamide pipes from each ballast tank were connected under the cabinet using push-in fittings. No special tools were used to guarantee a 100% leak free installation.

Our customer wanted to avoid expensive modification of the existing visualisation software so Kockum Sonics tailor made an output from the measuring cabinets so that each tank could be wired straight into the old terminal. The automation system could not detect that the remote level gauging system had been upgraded.

The air supply to the LEVELMASTER H8 cabinets was taken from the Viking Queen's instrument air. A copper pipe was installed to each cabinet including an extra moisture filter. As the air came from a hot engine room to a colder deck, an air filter ensured no future problems would occur with condensed water.



LEVELMASTER H8 installation

In Total, 24 tanks were included in the new LEVELMASTER H8 system. The three aft peaks and the fore peak used a side penetration into the tank. Kockum Sonics measured the existing flange and installed a non return valve with a flange that fitted onto the existing valve. A new valve was not necessary which shortened our installation time. The flange and the non return valve are made in stainless steel 316L making the component robust enough to last during operations.



Side penetration

The double bottom tanks were penetrated from the top. The old pressure sensor that was removed had a junction box just outside the tank. Kockum Sonics replaced this with a Stainless steel non return valve and a ball valve.

The pipe continued into the tank through a Kockum Sonics supplied flange including an IP65 cable gland.



Top penetration

All the double bottom tanks had two measuring points in each tank as there were no manual sounding pipes. The Polyamide pipe entering the tank was drawn through an existing conduit. The pipe had no need for support and could pass through the conduit comfortably.



Conduits for pipes inside ballast tanks

Each top penetrated tank terminated with a stainless steel end piece. The end piece fitted to the existing bracket without any issue formerly used for pressure sensors.

The end piece's wider diameter and diagonal cut ensure the accuracy of the LEVELMASTER H8.



End piece inside the ballast tank

LEVELMASTER system capabilities

The LEVELMASTER remote level gauging system provides a complete range of tank gauging equipment. Kockum Sonics offer an electro pneumatic system with pulse measurement as well as constant flow measurement.

Pressure sensors are available for both dry and submerged installation. The LEVELMASTER presentation provides a good overview of the tanks and their content. With built in warnings, the tanks are constantly monitored and alarms alert the user in the event of unexpected changes.

A LEVELMASTER Utility software is provided with all level gauging systems. The unique software tool provides the user with a good overview of the system. Periodical tests are done very quickly in an easy manner. Tests can be scheduled periodically easily through the software.

LEVELMASTER is of course compatible with other KOCKUM SONICS products such as LOADMASTER® and SHIPMASTER®.

Project Management

The entire system was developed and produced in Malmö, Sweden. During the development phase the team were in close contact with Hoegh Wallem ship management to ensure a functioning system that met the high demands set by the system users.

We wish Viking Queen good luck on her future assignments.

Always ready to support you!

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