

Kongsberg - one call provides all

When it comes to cargo control and monitoring, Kongsberg Maritime (KM) likes to market its full-service capabilities, whereby customers can depend on the supplier to meet all their needs through one point of contact.

The Marine Automation Section provides AutoCargo 2000 radar-based level gauging systems for all types of tankers. If required, these systems can be provided as part of a package which includes integrated systems for valve and pump control, cargo and ballast level monitoring and control, ship draft systems, vapour monitoring, temperature monitoring, high level alarm systems, loading computers and level displays, along with custody transfer systems for gas carriers.

"Our division derives about 20 per cent of its sales from cargo monitoring and control systems," states Leif Kristian Weum, business development manager for KM's Marine Automation Section. "Sales of this type of equipment so far in 2003 is about on a par with our performance in 2002, but it must be remembered that last year was a very good one for us. So, we are keeping up the momentum."

Korean success

One market where Kongsberg has enjoyed particular success in recent years is Korea, now the largest shipbuilding nation in the world. Following a sustained marketing push in the late 1990s, KM was able to increase its share of the Korean markets it served from 8 per cent in 1998 to a record 41 per cent in 2001. The supply of AutoCargo 2000 cargo level gauging systems based on microwave tank radars for crude oil, product and chemical tankers has been a notable part of this success. However, the company is also providing substantial numbers of its integrated DataChief C20 machinery automation systems and AutoChief 4 propulsion control systems for ships building in Korea. KM recently sold its 1,000th AutoChief 4 to the Korean market, and since the Datachief C20 was introduced in 1998, well over 500 ships worldwide have been equipped with this machinery automation system. Another part of the success is due to the marketing role played by the recently established subsidiary company Hanguk Kongsberg Maritime (HKM). Amongst other things, having a local presence has ensured that documentation and support meets the demanding requirements of the Korean market.

Creating the base

Kongsberg established its strong presence in the global cargo control and monitoring system market when it acquired Autronica and merged it with Kongsberg Norcontrol several years ago.

The core component of the AutoCargo 2000 is the intrinsically safe GL-100 radar-based level gauge. Featuring one signal processor per tank, the gauge measures ullage based on microwaves transmitted to and reflected from the cargo surface. Temperatures in cargo tanks, cargo lines, manifolds and in pumps are measured using temperature sensing elements.

Other functions which are accommodated are the measurement of cargo tank inert gas and vapour line pressures, ballast pump and line pressures and ballast and service tank levels, all based on capacitive pressure transmitters. The same principle is used to measure ship draft, the pressure transmitter sensing the hydrostatic pressure. Thereafter, the measured draft is used to calculate ship trim and list which, in turn, are utilised as part of the process of determining the correct level inside the cargo tank.

Ship valves, pumps, and heaters are controlled from PLC units. Feedback signals are received from this equipment and commands are executed at Windows NT-based workstations. Load calculators, for use with ship strength, intact stability and

damage stability calculations, can be provided with an online connection to the AutoCargo 2000 system.

LNG to the fore

"Probably the most important development in the cargo equipment sector over the past 12 months has been the strengthening of our presence in the gas tanker sector," says Leif Kristian Weum. "We have now become the market leader amongst suppliers of radar-based level gauging system for LPG and LNG tankers, and we have developed a AutoCargo 2000 system for gas carriers complete with a custody transfer system (CTS)."

Towards the end of 2002, for example, KM won contracts to supply integrated bridge, cargo level measurement and custody transfer systems to seven LNG carriers ordered at Daewoo Shipbuilding and Marine Engineering Co Ltd. Three of the carriers are being delivered over the 2003-2004 period to Bergesen of Norway. The other four LNG carriers are also under construction for Bergesen, for delivery in 2005-2006.

The BridgeLine 10 integrated bridge system is designed to provide an automatic navigation and collision and grounding avoidance capability. The AutoCargo 2000 radar-based cargo level measuring system for the Bergesen ships includes a custody transfer system that offers the unique AutoCAL calibration/verification method. More recently, the KM Marine Automation Section has been selected to supply AutoCargo 2000 level gauging systems CTSs and automation systems for two LNG carriers under construction at Mitsubishi Heavy Industries in Nagasaki on behalf of Leif Høegh, Statoil and MOL.

Challenge ahead

"One of the most important cargo monitoring and control issues currently confronting the tanker shipping industry is the need to provide the market with rugged, stable, reliable and intergrated level gauging systems which have low maintenance requirements," asserts Leif Kristian Weum.

"Furthermore, the ability to integrate this equipment with other control and automation systems will be important, so that the customer only needs to rely on one single source for all equipment and backup service needs worldwide.

"Notwithstanding the good progress that KM has already made towards this goal, our Marine Automation Section is pressing ahead with several development projects aimed at optimising the integration potential of the liquid cargo monitoring and control, level gauging and automation functions."