Demand drives technology and innovation in every industry. This is very apparent in the containership sector, where demand for ULCS in recent years has pushed conventional technical boundaries. Today, 20,000 teu ships exceeding 400 m in length are on designers’ drawing-boards. This considerable increase in size makes ULCS inherently more flexible. But it also means that hull girders are susceptible to both sea-induced vibration and to periodic vibration induced by mechanical equipment. Hull girder vibrations from whipping challenge the ultimate strength of the ship. Resonant hull girder vibrations from springing influence the fatigue life of longitudinal members, hatch corners, hatch coamings and other fatigue-sensitive elements. If not properly addressed, springing may result in accelerated fatigue damage during operation.

In addition, periodic vibration can lead to localised structural failures, influence the behaviour of the engine and other equipment, and also impact negatively on crew comfort. The increased flexibility of ULCS in comparison with their stiff shaft alignment may also lead to damage to the shafting system during operation, which is costly to repair. BV is at the forefront of research in this area, and has developed dedicated software and procedures to tackle these challenges. Its HOMER software analyses in detail the effects of whipping and springing, and pinpoints the areas which need special attention due to hydro-elastic effects, thus helping to optimise design innovation and efficiency. A dedicated global vibration analysis can eliminate the risk of damage caused by excessive periodic vibrations. BV’s elastic shaft alignment calculation software LILAS examines the static and dynamic interactions of the shaft with the flexible hull, providing for proper alignment during construction.

ULCS also need to be fuel-efficient to fully capitalise on their size advantage. BV has partnered with CFD specialist HydrOcean which provides advanced numerical studies that can cost-effectively evaluate and optimise to a high degree of accuracy the ship’s hull form using state-of-the-art solutions. Using these tools, and following a weighted average optimisation approach for a range of drafts and speeds, the industry’s new ULCS can achieve genuine energy savings for their complete operational life.

The market will dictate how much ULCS will increase in size in the future. BV, meanwhile, is already providing the means by which to make these vessels safer and more energy-efficient.
BUREAU VERITAS KICK-STARTS LNG BUNKERING

Bureau Veritas has published a comprehensive set of guidelines on LNG bunkering, with the aim of speeding adoption of LNG as a ship’s fuel by kick-starting the LNG bunker chain. LNG has great potential as a clean fuel for shipping. But fears over its availability in the bunker chain are holding back owners from adopting it. Part of the issue is that ports and terminals wishing to provide LNG to bunkers and shipowners wishing to have LNG-powered ships do not have agreed international standard bunker procedures to work with. Bureau Veritas has very wide experience with LNG in the marine context and these guidelines will give ports, terminals, LNG suppliers and shipowners confidence to proceed.

BV’s Guidance on LNG Bunkering NI 618 provides recommendations on LNG bunkering, focusing on the framework to be established with port authorities and bunkering organizations before any commercial operation, conditions to be observed before, during and after each bunkering operation, management of emergency situations and the training of staff involved in bunkering operations.

Bureau Veritas has done a lot of work on risk analysis for LNG bunkering, helping owners such as Brittany Ferries make the decision to switch to LNG as a fuel. BV’s risk management expertise combined with its deep LNG experience means it can help everyone involved to be more confident of a safe and standard approach to LNG bunkering.

jean-francois.segretain@bureauveritas.com

FOCUSING ON FEEDERS

Family-led companies with deep roots can take a long-term perspective. And they can also act quickly when the markets call for it. Mr Arend Brügge is a managing partner in Hamburg-based Vega Reederei, working with his brother and his son to operate a fleet of forty ships. They operate a large fleet of fast feeders, two small tankers and a substantial handy and handymax bulk fleet. “We are growing our bulk fleet,” he says, “but a lot of our attention at present is focused on the feeder fleet and on seeing the company through the current crisis in that sector.” In the case of Vega Reederei that means taking the opportunity to buy distressed assets and keep the ships operating. Mr Brügge says recent purchases of geared feeder ships are both a challenge and an opportunity in the current low market.

Mr Brügge did his naval service in the engine room, learning marine engineering from the bottom upwards – “we were a coaster company in those days,” he laughs. Then he did the classic Hanseatic shipowner training as a shipbroker and joined the family company. “Today we are a market leader in several areas in feeders,” he says. “What we see is that charterers want speed, more than economy, and they don’t want to pay for fuel saving. So we cannot do a lot with our current feeder fleet for energy saving. But we can look to the future and I think that will certainly be for LNG-fuelled ships.”

Vega is a partner with Marine Service and Bureau Veritas in a project to develop an LNG-fuelled 1,000 teu feeder for service in SECAs. “We know the ship design is good, and we know the technology will work,” says Mr Brügge. “We have talked with yards and we are ready, but we have not been able to do a deal as yet. The charterers are still not willing to pay. But it will come and we will be ready.”

Looking at what shipowners need from class Mr Brügge again points to the tight markets, distressed vessels under pressure and the challenge of huge amounts of new regulations and increasing Port State Control pressure. “Today you need to get a class surveyor on the ship ten times more often than you did ten years ago,” he says. “So you need a class which can react quickly, and you need a class which can make decisions quickly and locally. You also need a class which is global, so they can support you everywhere quickly. We have a long relationship with Bureau Veritas and class most of our fleet with them. Having a marine centre here in Hamburg means they can make quick and sure decisions locally, and we can build a relationship with them, while also having the global outreach we need.”

www.vega-reederei.de

Mr Arend Brügge
Managing Partner
Vega Reederei
**PATROL BOAT BOOST**

Policing exclusive economic zones is creating a need for new Offshore Patrol Vessels and Littoral Combat Ships. These have to be small, capable and cost-effective. Navies realise the value of class in delivering cost-effective ships, which is why forty patrol vessels of different types were ordered to BV class in 2013. Bureau Veritas is bringing out two complete new sets of rules for OPVs. One is for civilian coastguard and customs style vessels and the other is aimed at navies wanting more heavily armed OPVs. A new set of notations for amphibious vessels has also been developed. Although navies see the value of class while building new vessels they have been slow to continue to class in-service vessels. That is changing with the French Navy has also put the FREMM frigate first two force projection vessels of the Mistral class and put the third unit into class. The French Navy has also put the FREMM frigate Aquitaine into classification in service. That is the first full combat unit into class. The French Navy has just renewed classification in service on the Mistral class. That is changing and the French Navy has just renewed classification in service on the first two force projection vessels of the Mistral class and put the third unit into class. The French Navy has also put the FREMM frigate Aquitaine into classification in service. That is the first full combat unit anywhere to be built and then maintained in class. yves.legal@bureauveritas.com

**ICESTAR BREAKS NEW GROUND**

Bureau Veritas has updated its IceSTAR tool, developed in cooperation with State Marine Technical University of Saint Petersburg. The new version of the software allows estimation of ice loads acting on ice-going vessels as well as ships’ kinematics due to impact with heavy ice features such as multi-year ice and icebergs, and assessment of safe navigation speed in ice. The safe transportation of liquid cargo in ice is the highest priority task. LNG containment systems can be damaged not only by direct ice impact but also by sloshing effects caused by iceberg collision or impact with multi-year ice. The assessment of ships’ kinematics in ice plays a sensitive role in investigation of sloshing risks.

**ICESTAR BREAKS NEW GROUND**

Another important challenge in ice is the selection of a safe navigation speed in ice, which is closely connected with hull load-carrying capability. IceSTAR’s integrated algorithm for assessment of ship hull response to ice loads allows estimation of safe navigation speed based on elastic, elastic-plastic or ultimate strength criteria accounting for the scantlings of the ship hull elements, its arrangement and environmental conditions. The IceSTAR tool is intended to assist in basic design appraisal of ice-going vessels to ensure the strengthening of hull, containment systems and the ability to maintain the expected speed in ice-infested waters. alexey.dudal@bureauveritas.com

**BV - HYDROCEAN CFD OPTIMISATION IN DEMAND**

The partnership between Bureau Veritas and HydrOcean formed to provide owners and yards with quick access to CFD studies for form optimisation is in high demand. It has already performed numerous successful projects for the marine and offshore industries. “This is a very efficient cooperation, highly satisfying for Bureau Veritas clients. We already have lots of projects on the go and many opportunities to come. We are now working on international development with local offices abroad in strategic countries to get closer to clients,” says Erwan Jacquin, CEO of HydrOcean. Showcase examples include up to 10% fuel saving delivered for container ship retrofits and many energy efficiency studies for shipowners and shipyards from Brazil, Greece, China, Singapore and Korea. The main objectives of these studies are to reduce fuel consumption and harmful gas emissions by using Computational Fluid Dynamics to quickly examine a large number of potential optimised hull forms or appendages. However CFD expertise is also in demand for all hydrodynamic fields. The current contracts are either for newbuilds or retrofits of existing ships or offshore units. They mainly consist of hull form, appendage and propulsive device evaluation or optimisation and trim optimisation studies. luke.berry@hydrocean.fr - philippe.corrignan@bureauveritas.com

**NEWS IN BRIEF...**

- BV has published NI 617 Safety guidelines for design, construction and operation of tugs (July 2014). This Guidance Note has been developed on the basis of cooperative research and development work performed within the scope of the SafeTug Joint Industry Project and through bilateral cooperation with industry stakeholders.

- The world’s first dedicated LNG bunkering vessel will be classed by Bureau Veritas. It is built by Hanjin Heavy Industries & Construction Co. Ltd. for a consortium recently created by GDF SUEZ, NYK and Mitsubishi Corporation. With a total capacity of 5,000 cu m in two type C tanks, the ship will enable distribution of LNG bunker fuel to gas fuelled ships in the European ECA.

- Korea’s major shipbuilder DSME has delivered KITA LNG, a new high environmentally-friendly LNG carrier to TMS Cardiff Gas Ltd. The BV-class vessel has a capacity of 160,000 cu m in four NO96 membrane tanks suitable for maximum gauge pressures up to 0.7 bar and is equipped with Dual Fuel Diesel Electric propulsion plant (DFDE) which normally gives higher charter rates than steam-turbine vessels.
OMAN APPOINTS BUREAU VERITAS

Bureau Veritas has been delegated by the government of the Sultanate of Oman to carry out periodic surveys and issue statutory certificates on behalf of the Omani flag. The agreement governing the delegation of surveys and statutory certification services for Oman-flag vessels was signed by Minister of Transport and Communications H.E. Dr. Ahmed Bin Mohammed Al Futaisi on 8 June 2014 in Muscat.

pascal.poilliot@ae.bureauveritas.com

ENTERPRISE SHIPPING FIRST FOR CSR

Greece-based shipowning group Enterprises Shipping & Trading S.A. has been assessed by Bureau Veritas against ISO 26000, the first global voluntary standard on Corporate Social Responsibility. It is the first company in Greece to be awarded this standard. The key benefits of ISO 26000 evaluation are to provide a strategic advantage within each company’s competitive industry, streamline internal processes and assure the implementation of commitment to social responsibility and sustainability. This protects the brand image and increases customer and employee satisfaction and attracts investors and sponsors concerned with social responsibility and sustainable development.

Bureau Veritas Hellas S.A. is the first independent organization to perform such Social Responsibility evaluation in Greece. BV auditors have extensive knowledge of specific industry sectors and local regulations, which enables them to provide solutions adapted to various needs.
lambros.chahalis@gr.bureauveritas.com

BELGIAN NAVY PATROL VESSELS

The first of two new patrol vessels built to BV class for the Belgian Navy, P901 Castor, has been delivered by French Socarenam. The naming ceremony took place at Zeebrugge naval base in the presence of her godmother the Queen Mathilde of Belgium. Castor is an important milestone in the modernization of the Belgian monitoring and intervention capacity in the North Sea. Its ultra-modern engines ensure high speed and are more efficient than the engines in the current patrol vessels. The 53.5 m vessels are built in steel with an aluminium superstructure and carry a crew of fifteen.

The second BV-class patrol ship, the P902 Pollux, is expected to commence service in early 2015.
yves.legal@bureauveritas.com

FRENCH NAVY FRIGATE LAUNCHED

French military shipbuilder DCNS has launched the BV-class FREMM multi-mission frigate Languedoc in Lorient, France. It is the fifth unit of the FREMM program, and the fourth vessel for the French Navy. The Aquitaine, built for the French Navy, was delivered in November 2012, the FREMM Mohammed VI was delivered to the Royal Moroccan Navy in 2014, the FREMM Normandie will be delivered to the French Navy at the end of 2014, and the FREMM Provence was launched in September 2013 and will perform its first sea trial in the third quarter of 2014. After FREMM Languedoc two more FREMMs are currently under construction at DCNS yards in Lorient.

The entire series of 142 m vessels are being built to BV class to provide a European multi-role vessel capable of executing anti-aircraft, anti-surface and anti-submarine warfare missions. The frigates carry a crew of 108 and have a maximum speed of 27 knots.
yves.legal@bureauveritas.com

VERIFRIBER NEWS MARINE