THE CROW'S NEST

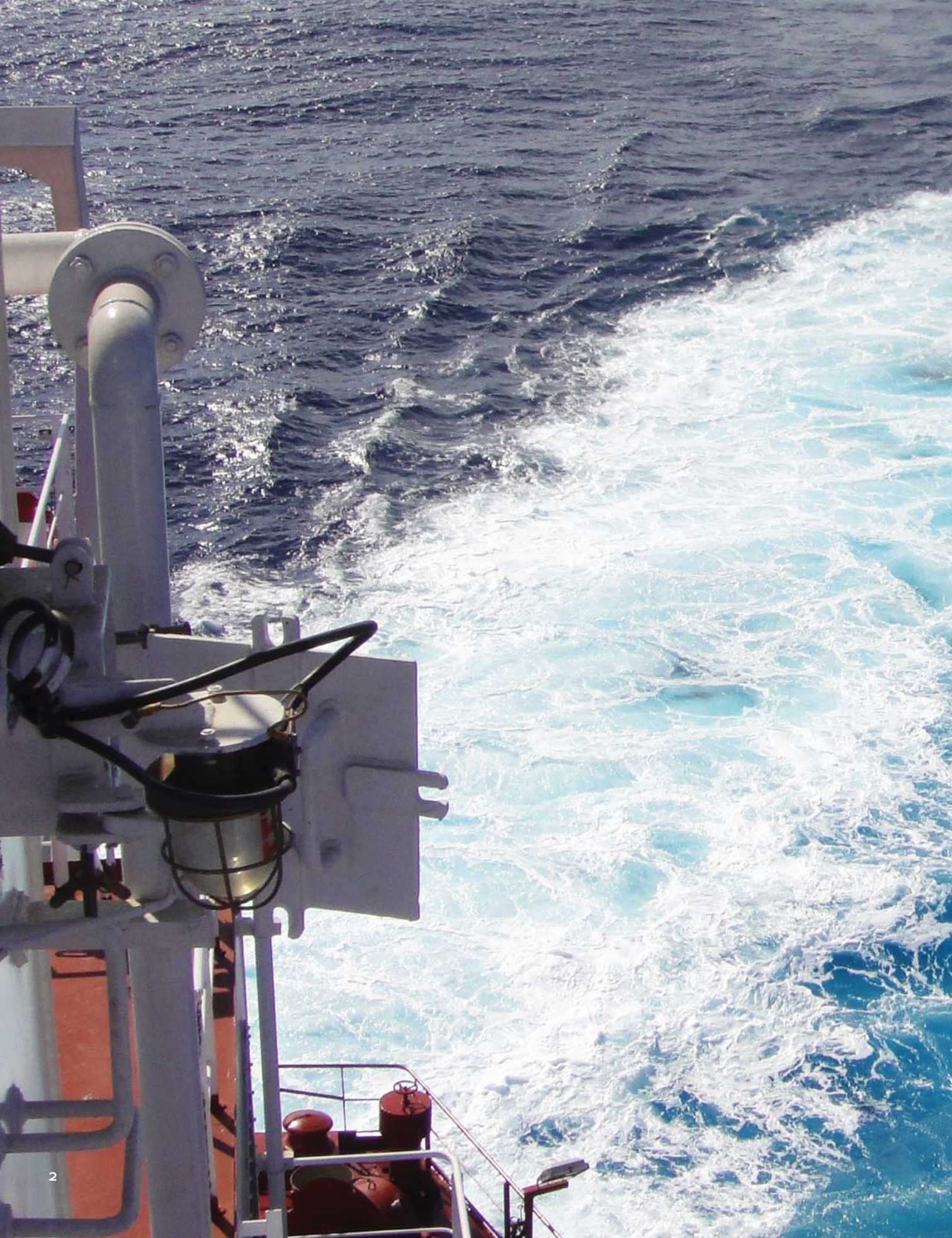
THOMAS SCHULTE GROUP NEWS

DECEMBER 2013 ISSUE

_ Excellent Results of Operations

_ Energy Saving Simple and Effective

_ Offshore Sierra Leone



Welcome to another winter edition of the Crow's Nest.

It's the festive season and it is of some comfort to notice that the downward trend of the industry has seemingly come to an end. The bulk markets have shown remarkable signs of recovery and the container markets are moving sideways for the time being, with prices for second hand tonnage and new builds already on the rise.

Whilst this is nothing (not yet ...) to write home about, the year 2013 has been a very active one for the Thomas Schulte Group. Most noteworthy are the results of an Independent Business Review carried out this year. It confirms that the Thomas Schulte Group is a highly efficient manager that has outperformed its peer group with substantial savings on the Opex cost, whilst operating under an elaborate quality management system. Considering the fact that the peer group disposes over substantially larger fleets it also puts an end to the myth the efficiency is merely a result of scale.

It is a result of a business philosophy carried out by a highly proficient team of professionals.
Concurrently we have continued to put into place measures that aim to increase the competitive edge of the fleet under management. The percentage of employment coverage of the fleet seems to indicate that our efforts are paying off.
I would like to express my sincere dedication to the entire crew on board the fleet as well as our staff ashore, for their continuous support and valued input and wish all a Merry Christmas time and a happy and prosperous new year.

Alexander Schulte

CONTENTS

INDEPENDENT BUSINESS REVIEW – EXCELLENT RESULTS OF OPERATIONS

Boston Consulting Group analysis of global shipping companies highlights the outstanding performance of Reederei Thomas Schulte.

Boston Consulting Group conducted an independent research study in summer 2013, in order to enable potential customers to make an objective comparison of the maritime services provided. Benchmarking, based on data for 2012, shows the costs of container and dry bulk ships, managed by various large German shipping companies and some of the large international shipping liners, such as A.P. Moeller Maersk, CMA CGM and NOL.

We have been working for many years as a ship manager for its own vessels as well as for the fleet in third-party management. As a service provider in the maritime sector, the Reederei Thomas Schulte has always endeavoured to offer a broad range of services and to provide the best possible service to its clients.

With much effort and over a longer period of time Boston Consulting Group investigated specific data of all the vessels managed by the Reederei Thomas Schulte, such as service life, range, structure of the crew, wages costs, specific insurances and the relevant premiums. Boston Consulting Group also looked in detail at the costs of ship maintenance, lubrication oil consumption, engine operating hours and many other parameters.

Individual data was obtained by the technical department and the accounts department and aggregated in accordance with international standards. To do this, Boston Consulting Group teams of up to five people were on-site temporarily.
The data was evaluated and analysed in relation to the service range, in order to establish a precise performance comparison as well as a cost and quality check, and to identify potential savings and areas for improvement.

The analysis showed outstanding results. In almost all of the segments Reederei Thomas Schulte was below the average costs of other shipping companies by up to 30 %, in particular for the 2,500 TEU to 4,250 TEU container ships, forming the backbone of the fleet.

Furthermore the study shows very clearly that the cost conscious management is not done at the sacrifice of quality. Reports of independent surveyors, who visited a large number of the vessels and certified a good condition, reinforce the positive result.

The Opex review revealed substantiated savings of the fleet under management by the Reederei Thomas Schulte. We are therefore in a position to outperform other shipping companies respectively managers. The study also clearly reveals that synergy effects arising from only a large fleet are limited.

The pursued philosophy of keeping vessel operating costs below the market average over the long term, yielded savings of approximately EUR 14 million in total in 2012 in overall terms of the managed fleet. The Thomas Schulte Group ensures an optimised relation between low costs and consistent quality management.

Apart from the vessel operating costs, Boston Consulting Group also conducted a detailed analysis of the time charter contracts. It revealed that the time charter employment ratio of the fleet under management exceeds the international average by up to seven percent. Ships managed by Reederei Thomas Schulte not only operate at a lower cost per day but are also enjoy a higher ratio of employment, and are hence more profitable than ships of many other international shipping operators.

Reederei Thomas Schulte achieved its own ambitious objective of consistently providing excellent and cost-effective services in ship management.


LAND SIDE
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STOWAGE AND LASHING OPTIMISED

Reederei Thomas Schulte has set up a pilot project with the aim of creating optimal stowage and lashing rules for containers on board the fleet vessels. The subject is part of an ongoing process of continuous, comprehensive product development in order to optimise the ships in terms of management, technology and equipment.

The new project will enhance the flexibility of cargo loading operations and stowage, allowing the vessels to carry a greater amount of heavy cargo and leveraging the economy of scale, so that the ships will be more attractive to customers from all sectors of worldwide industries and trade. In a first step, three sister vessels are currently being analysed in terms of their potential for alignment with the most efficient stowage and lashing rules. The focus is on creating flexibility for deck container stowage with more tiers and higher stack loads in the cargo hold below deck for 20-foot containers, boosting the capacity utilisation of the vessel.

Stowage means the placement of containers on deck or in the hold, ensuring safety for ship, crew and cargo. Among other parameters, the total permitted weight per square metre on the deck and per stack in the hold has to be considered carefully, as this determinates the actual maximum weight of a container. Lightweight containers are positioned in the upper zone of the container stacks, while heavy ones are placed in the lower tiers in order to keep the centre of gravity low.

The Container Terminal Altenwerder in Hamburg, Germany is one of the most modern worldwide container handling facilities

Lashing refers to all activities with the goal of minimizing shifting of containers and the equipment used to fix and secure the units. Twistlocks, turnbuckles or lashing bars prevent the containers from unintentional movement on deck which, in a worst-case scenario of heavy weather conditions may lead to them being lost overboard. Both stowage and lashing depend on acceleration forces acting on the units. These acceleration forces can be generated by the movement of the ship or by external forces such as wind and waves.

These are exactly the starting points where new stowage and lashing rules can act on. The shipping industry has traditionally set up rules and layouts for vessel lashing systems based on the requirements of the stormy North Atlantic. Therefore, the resultant stowage potential for other routes less affected by high wave and wind loads is not fully utilised. By combining long-term, statistical wave data with advanced computations and by considering current market developments, the class society Germanischer Lloyd SE has implemented Route Specific Container Stowage rules for sea lanes that have weather conditions that are more favourable.

Long-term studies show that the weather and wave conditions in other areas can place up to 18 % less stress on the container stacks than is usual in the North Atlantic. The finding has led to a reduction of the necessary safety margin in ten selected and highly frequented routes, ranging from Asia-Europe via the Suez Canal and the Pacific-Atlantic via the Panama Canal. According to the safety-first principle on every vessel, a containership applying for the new, more flexible rules will be scrutinised in detail in order to determine the specific needs and capabilities of the ship. A specific lashing computer would be installed. The crew continuously rechecks and compares the presumed forces acting on the containers to the real-time data while underway. Taken together, all these measures can contribute substantially to enhancing the safety of the vessel; thus, the new approach has gained acceptance among the insurers.

Immediate Benefits

* Greater flexibility to stow heavier containers in higher positions
* Significant increase of in-hold stack weight of 20-foot stowage
* Larger nominal capacity at the outer stacks and in a further tier on top
* More efficient planning – i.e. better consideration of short notice requests
* More efficient loading – i.e. fewer movements of the gantry crane
* Boost in profits due to the option to load more laden containers per voyage

In a challenging market with new, highly efficient vessels, priority is given to enhancing the performance of the existing fleet. By selecting the new stowage and lashing rules, Reederei Thomas Schulte opts for maximum space use on the ships and for overall high utilisation rates, meeting the competitive challenge of the latest transport technology developments in the market.

ENERGY SAVING SIMPLE AND EFFECTIVE

A funnel cover reduces boiler fuel consumption in port by cutting the airflow in the exhaust funnel. Covering the exhaust funnel outlet while in port has proven to be a further rewarding step towards enhancing efficiency.


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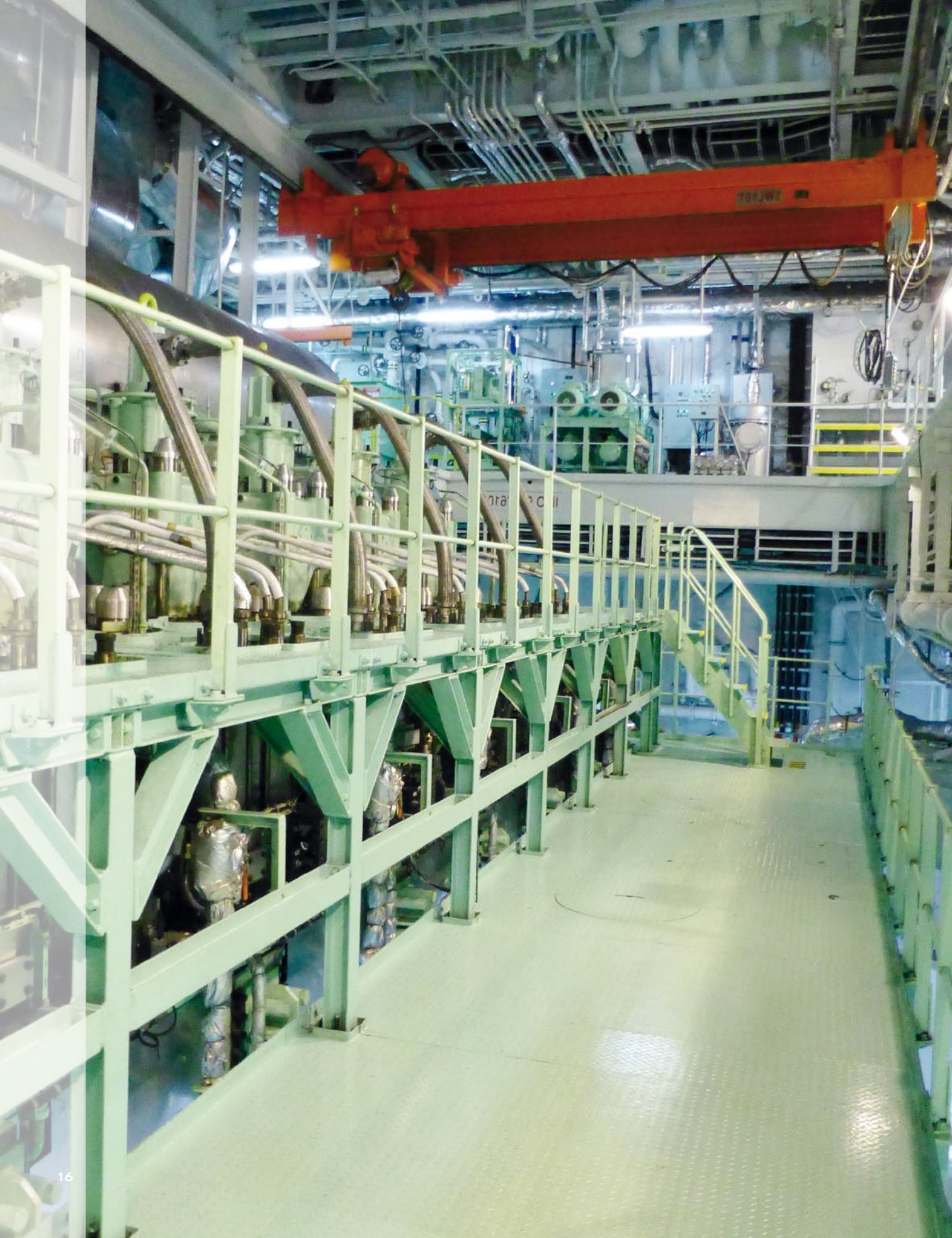
In port or at anchorage, the main machine is switched off and now steam is produced by means of an oil burner instead of the exhaust heat from the main engine. However, part of the steam energy escapes from the boiler via the heat exchanger by convection into the funnel, accelerated by airflow inside. A tight cover for the funnel is needed to stop the flow.

Recent calculations and trials reveal the potential to save 0.5 to 1.0 tons of fuel per day for boiler operation, or possibly even more, if the energy is not being wasted into the air during the vessel's port or anchor times. Assuming the main engine is stopped for an average of about one third of the operational time of a ship this may add up to 100 tons of fuel per year. Overpressure in the engine and continuous air exchanges cause air to flow through the exhaust funnel at approximately three meters per second while the main engine is turned off. The result is an elevated heat exchange via convection from the boiler water to the ambient air. Consequently, energy is lost, leading to an undesirable quick cooling process. Covering the upper end of the funnel stops the airflow and reduces convection significantly. Assuming no steam consumption, maintaining an average boiler at operating pressure with an appropriate temperature, would require about 0.8 tons of diesel oil per day. When the airflow in the exhaust funnel is eliminated, losses can be reduced to save this quantity of costly fuel almost entirely.

The funnel cover consists of a heat resistant, strong material, tightened to a steel skeleton. It weighs about 10 to 15 kg and can be easily hoisted up to the funnel top, placed in position and secured. Installation takes about 30 minutes, while removal takes only 15 minutes. The Thomas Schulte Group is in the progress of introducing this simple and efficient method of energy saving across its fleet. Consumption figures for ships using the device clearly prove the benefits of the practice.



TURNING ECO TRENDS INTO EFFICIENCY GAINS – PART 2

Increasingly restrictive international rules and regulations are strong catalysts for new ideas about energy saving on board. The Thomas Schulte Group continuously analyses markets and forecasts, the fleet and potential opportunities to obtain efficiency gains arising from eco-friendly upgrades and outfits.

The Crow's Nest Summer Edition 2013 displayed a summary of the most important factors and promising trends regarding basic ship design and hydrodynamics. This edition covers cutting-edge cost and emissions saving engine technology.

SHIP DESIGN

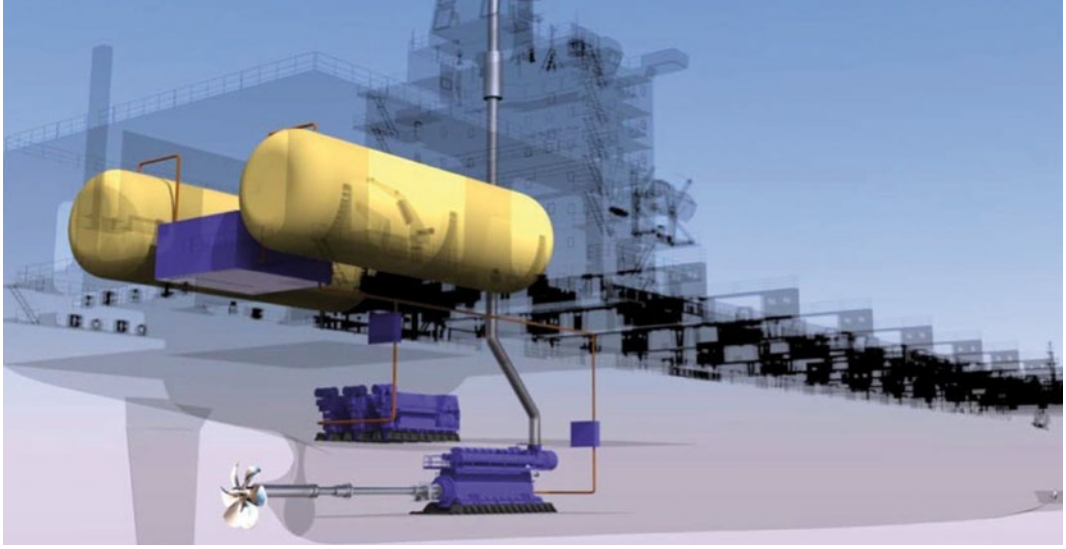
Green Propulsion

Equal in importance to hull and propeller design, the main machinery equipment selection and tuning must be based on the vessel's operational profile. Many design aspects have to be taken into consideration. For example, the latest G-type main engines by MAN feature very low specific fuel oil consumption due to long strokes and low revolutions. In order to benefit from this, the propeller diameter has to be increased and the stern draft and design need to be adapted accordingly.

Electronically controlled main engines (ME or RT flex) have become standard for newly built vessels and yield many benefits, especially for slow steaming. Most importantly, their fuel oil consumption at low loads can be slightly reduced compared to conventional camshaft controlled engines. A lower amount of soot is emitted while slow steaming and the engine can be operated at lower revolutions per minute (rpm) than older types. Electronic main engines can be optimized for different loads. During slow steaming, the engines are tuned to lower speeds, so that they run about 2 %–4 % more efficient at loads below 75–80 %, with the drawback, of course, of slightly higher fuel consumption. Nevertheless, low load tuning is a good option for retrofitting if electronically controlled main engines are in use. Conventional engines do not yield the same benefit if adapted by modifying the camshaft. The procedure is far more difficult and costly compared to an electronic engine.

A more drastic adaptation to slow steaming is Turbocharger (TC) cut out on the main engine. Up to now, TC cutout has been tested for short periods of time on test engines only; no long-term experience is available. As a clear forerunner in the industry, Reederei Thomas Schulte will install TC cutout on board the shortly to be delivered newbuilding NOBEL MATAR in order to investigate all potential advantages of the technology.

The TC cut out lowers main-engine fuel-oil consumption and improves performance during low-load operation. Most test engines were equipped with at least two and sometimes three TCs to provide combustion air to the engine. At low loads, TCs and the main engine operate inefficiently. Below 40–50 % engine load, auxiliary (aux) blowers must be run so that sufficient air is supplied to the engine. If one TC is blind flanged, the remaining one and the main engine simultaneously operate far more efficiently at low loads so that the aux blowers are required less frequently, consuming less fuel generated power. The modification further reduces the overall fuel consumption of the vessel.



LNG tanks and equipment on a 3,100-TEU-Container vessel

MAN Diesel & Turbo systems for NOx Tier III compliance

NO reduction with Selective
Catalyst Reduction and Urea Supply System

NO prevention with Exhaust Gas Recirculation and
Water Treatment system

A significant drawback, however, comes from load limits. With two TCs the main engine can be run up to about 60% only and with three TCs up to about 75 %. After performing a TC cut out by fixed blind flanging, which is the cheapest solution, the reconnection would take several hours during calm weather conditions and can only be performed by a very experienced crew.

Sudden heavy weather and all possible cases of emergency must be precluded because power for fast reaction is limited. Please see Weather Routing below. A more sophisiticated, but also much more expensive solution is the use of an automatic flap in the exhaust gas line. The approach of Reederei Thomas Schulte will benefit from all available results and will help to further develop this promising technology.

Cut Down Emissions

The International Maritime Organization (IMO) is heading towards further reductions in sulfur emissions in 2015 in sulphur oxide (SOx) Emission Control Areas or SECAs. The use of fuel with more than 0,1 % of sulphur will be prohibited in European SECAs, including the Baltic and the North Sea and the English Channel. Globally, ships will

have to cut the sulphur content of fuel to a maximum of 3.5 % in 2012 and to 0.5 % in 2020. Nitrogen oxide (NOx) emissions have to comply with the current IMO Tier II limits and will have to fall below the Tier III limits by 2016 or 2021, depending on adoption by the 66th Session of the Marine Environment Protection Committee in 2014. All vessels of the Thomas Schulte Fleet are equipped to run on low sulfur heavy fuel or, as currently required in Californian waters and in European ports, on Marine Gas Oil (MGO) with almost no sulfur content. More stringent rules will require more frequent use of MGO at a price of 30–60 % above Heavy-Fuel-Oil (HFO). The role of cost-saving and energy efficiency measures is becoming increasingly important. Several options are conceivable.

Scrubbers are implemented to clean or filter sulfur from the exhaust gas. However, scrubbers entail a number of disadvantages. Depending on the type of scrubber, residue such as contaminated water or scrubber sludge lead to disposal problems. Together with other assumptions like investment costs these factors mean that the use of scrubbers is reduced to selected applications only.

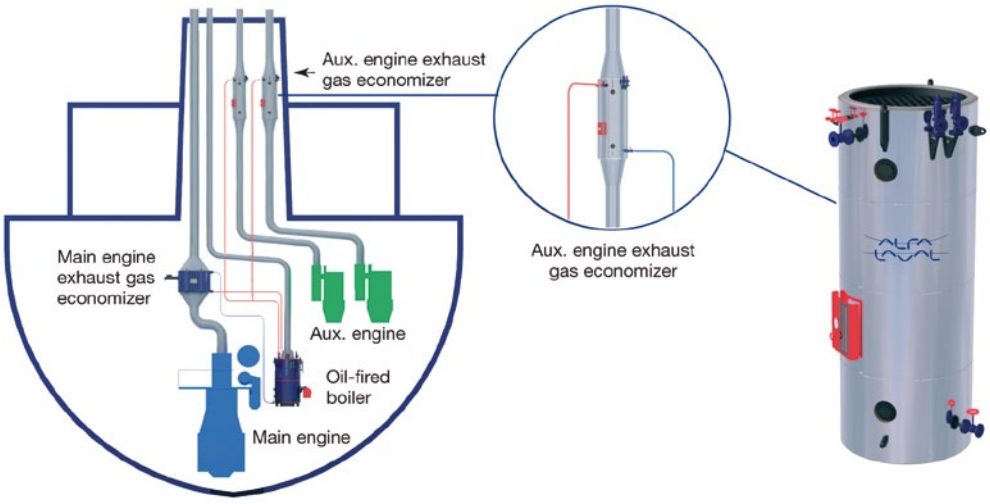
Liquefied Natural Gas (LNG) propulsion is the best option for SOx and NOx removal but still is technology's future in commercial shipping. Presently, LNG serves for power-generation on board several LNG tankers. The boil off gas that is generated during the regular process of warming of the LNG during transport is the perfect prerequisite for LNG propulsion. For non LNG-vessels there is the option of a Dual Fuel Engine, e.g. the ME-GI type, which is available from all major engine makers already, but the concept has so far only been introduced in a few cases. The first dual fuel container vessel will be delivered by the end of 2015. Existing main engines are suitable to be retrofitted for use of gas and diesel oil use, however, there are two strong arguments against this. First, the installation of the appropriate tanks for the transportation of pressurized and at -162 °C (-260 °F) extremely cold LNG requires considerable efforts regarding investments.

The double walled tanks and further auxiliary systems for gas handling are space demanding and lead to a significant loss of cargo capacity. For the time being, the biggest drawback is the lack of filling stations providing LNG. Gas propulsion is therefore limited to short sea traffic, e.g. in the Baltic and Scandinavia, where small and large-scale LNG terminals are either existent or under consideration. Special global trades with dedicated infrastructure or available LNG tankers will take years to establish.

Exhaust Gas Recirculation (EGR) is the most promising technology for reducing NOx emissions. Part of the main engine exhaust gas is not led through the turbocharger but cleaned and fed back into the combustion air of the engine.

Technology reducing NOx emissions always yields the unfortunate side-effect of increasing fuel consumption. EGR increments fuel usage of the engine by 1–3 %. The system enlarges the size of the main engine by 20–30 %

Supervising the construction on-site Guangzhou Wenchong Shipyard



System diagram of economizer installation

and requires further peripheral equipment for handling the water used to wash the exhaust gas. Despite the huge investment and slightly higher fuel consumption costs, the EGR appears to be the most suitable way to comply with Tier III regulations.

Selective Catalyst Reduction (SCR) as an exhaust after-treatment system uses a reducing agent to split the pollutant NOx into nitrogen and water vapour, neither of which are harmful to the environment. A urea-water solution is sprayed into the engine exhaust gas upstream of the SCR catalytic converter. SCR is capable of eliminating up to 90 % of NOx produced during diesel engine combustion as a secondary NOx reduction measure. It nevertheless requires even more space and more consumables.

Waste Heat Recovery (WHR) recovers heat from hot exhaust gas in the main and auxiliary engines and transforms the energy to power the entire heat supply system for the ship. Reederei Thomas Schulte is Pioneering Waste Heat Recovery; please see page 26 of this edition.

Ship Operations

Operational systems such as Trim Optimization or Shaft Power Meters have been used successfully on board the Thomas Schulte fleet vessels for quite a long time. Fuel consumption has reduced significantly, while non-stop monitoring of ships' performance continues. Weather Routing is another valuable tool for reducing fuel consumption. Many weather-consulting companies offer different services featuring many tools on the market. The success of the tool is largely dependent on the quality of the weather data in terms of reliability, but both the quantity of data points available in the area and the quantity of data sets available per day play also a significant role.

Weather routing needs close cooperation with the charterer, which we take for granted in order to achieve the best operational results. In many cases, it is much more efficient to sail a slightly longer track to avoid strong, fuel consuming headwinds. Together with the charterer the most beneficial course can be agreed.

Ocean Shipmanagement and North Star Marine Consultants closely monitor the latest trends to keep the fleet at the forefront of the ecological and economical development. There are many more ideas for improving propulsion efficiency, such as silicone paint, sharkskin coating, lotus leaf effect or air lubrication bubbles under the hull to reduce friction. Many have been tested on the high seas in individual cases, some in model scale only. Once a promising option appears, the Thomas Schulte Group is ready to retrofit and to upgrade the sailing fleet in order to further improve productivity and competitiveness.

MEDICAL EMERGENCY ON THE HIGH SEAS

It was Saturday night when container ship CMA CGM ROSE ex Clara Schulte triggered an emergency call. The vessel was en route from Melbourne, Australia, to Ensenada, Mexico, in the vast expanses of the Pacific Ocean, when the Master made a request for urgent medical assistance.

He called the Telemedical Maritime Assistance Service Medico (TMAS Germany), Cuxhaven, a worldwide medical hotline for direct and immediate radio emergency medical advice. TMAS specialists are experienced in diagnosing cases using symptom descriptions by crew-members.

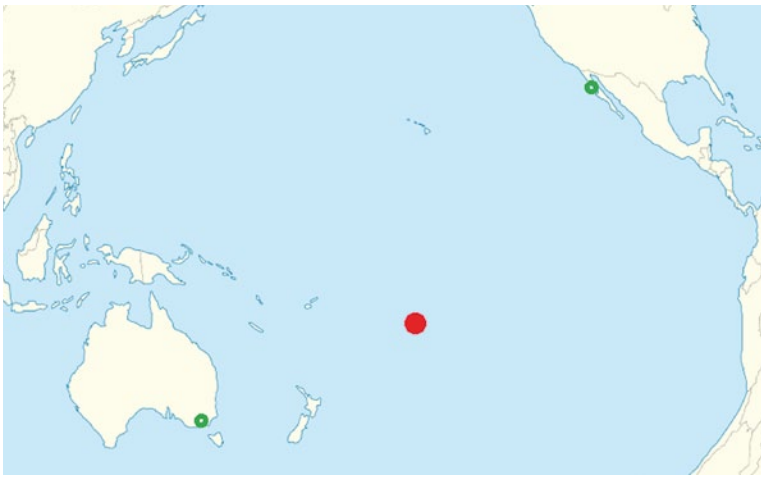
The ship's Master is responsible for medical treatment at sea and provided TMAS with the most important facts and information immediately: the Chief Officer of CMA CGM ROSE was suffering from spasmodic pain in the abdominal area, nausea and vomiting. The Master specified all information about the physical condition of the patient such as control of pulse rate, blood pressure and body temperature. The TMAS specialists need to know numerous details for a sound telediagnosis, such as whether the patient has been taking other remedies and what they are, whether he smokes or consumes alcohol, his family history and previous surgeries or injuries. Fortunately, apart from the acute symptoms, the patient showed a good health status. The Master recommended a first diagnosis: Acute Appendicitis or Cholecystitis. The TMAS Germany physician took the quick decision that the

sick Chief Officer should see a doctor as soon as possible. Exceeding the STCW regulations requiring one crewmember per ship, all Masters and Chief Officers on board of all Reederei Thomas Schulte vessels are well trained in medical care. In accordance with the medical emergency requirements of the group technical manager Ocean Shipmanagement, the Master immediately sent all necessary information to each responsible division of the group.

The urgent question was how to arrange for a physician immediately somewhere in the Pacific Ocean, seven days and 12 hours away from the destination port of Ensenada. To turn the ship round and sail all the way back to Australia or New Zealand would have taken too much time as well. There was only one option: in order to save the Chief Officer's life and to relieve his pain as quickly as possible, CMA CGM ROSE had to call at the small Pacific island of Tahiti, one day and 6 hours away. Papeete is the only international port in French Polynesia and is equipped with three berthing positions with a maximum quay length of 450 meters for cargo liners and container ships. Most importantly, the port provides medical facilities.

With the prospect of imminent medical help for the sick Chief Officer, the crew breathed a sigh of relief. However, due to this solution the ship had a new problem in terms of safe manning. An Appendicitis would force the Chief Officer to travel home from Papeete, provided he was able to fly. A commercial ship is not allowed to sail without a Chief Officer on board, as per the Minimum Safe Manning Regulations of the STCW Convention. It was almost impossible to find a relieving Chief Officer on vacation, who would be ready to join CMA CGM ROSE during a short stop over for the sick Chief Officer to leave. Health comes first: the decision was clear. The only option was to request an exemption from the vessel's flag State. Less than 24 hours after the emergency call was made, the Liberian Flag State Administration granted a certificate of exemption, which was forwarded to CMA CGM ROSE promptly, allowing her to sail without a Chief Officer to the next port of Ensenada, Mexico.

The crew managers of Reederei Thomas Schulte reacted quickly, appointing an agent in Tahiti who would arrange for the sick Chief Officer to be picked up directly after arrival and to be taken to a doctor.

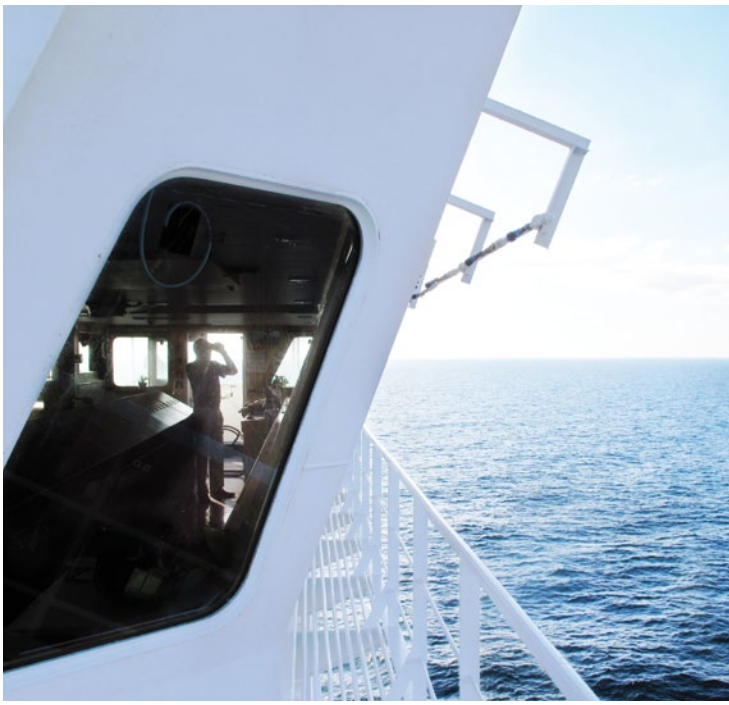


CMA CGM ROSE ex Clara Schulte en route from Melbourne, Australia to Ensenada, Mexico

At the same time, the flight for the relieving officer had to be booked, all documents and certificates for his journey to be arranged within only seven days until the ship would depart from Ensenada. Finally, a port agent in Mexico was appointed. No sooner said than done: CMA CGM ROSE deviated her course to the island of Tahiti. Upon the arrival of CMA CGM ROSE in Papeete, the local agent was already waiting on the pier. The Chief Officer disembarked, accompanied by the ship's medical crew, and was immediately taken to the next doctor.

As soon as the medical crew was back onboard, the ship set sail again. CMA CGM ROSE arrived in Ensenada with a delay of less than two days. In port, the replacement Chief Officer was already waiting. The crewing department had arranged for a Mexican agent to pick him up at Tijuana airport, take him to a hotel in Ensenada and then transport him directly to the ship upon arrival.

After regular loading and discharging operations in Ensenada, CMA CGM ROSE continued her circuit with a full crew on board and called all her next ports on time. Perfect cooperation between crew management, all involved Reederei Thomas Schulte departments and all responsible external authorities, such as the Liberian Flag State Administration and P&I insurance, allowed for fast and effective action. In the meantime, the surgery had been successful and the Chief Officer was on the mend. Today he is sailing again onboard a ship in the Thomas Schulte fleet.



Deviating the ship from its intended voyage to Tahiti

The Port of Papeete is the main port of French Polynesia, situated on the Island of Tahiti

WASTE HEAT RECOVERY PIONEERED

Reederei Thomas Schulte will install the Exhaust Gas Economizer state-of-the-art technology on board the shortly to be delivered 3,421-TEU-newbuilding NOBLE MATAR at the Guangzhou Wenchong Shipyard.

The group is introducing another green instrument putting both pollution control and efficiency first. Improvement of the Energy Efficiency Design Index, EEDI, for new ships and efficiency enhancement of the sailing fleet is indispensable in order to stay competitive on the market.

Major boiler-manufacturers have developed a small Exhaust Gas Economizer, designed for waste heat recovery from auxiliary engines, which significantly reduces the oil consumption of the oil-fired boiler. The kit is installed in the process flow of the auxiliary exhaust system, generating a steam-water mixture from the heat of the exhaust gas. The mixture is fed into the boiler system, increasing the temperature of the entire system.

How does it work today?

Ship engines are powered by heavy fuel oil (HFO), which is a high viscosity matter. At a temperature of 20 °Celsius, HFO is viscous or solid, like asphalt, and obviously suited to be pumped through the fuel system when liquefied only. However, liquefaction needs heating up to a flow temperature of 70 °Celsius, while the injection temperature is even significantly higher. To keep the HFO liquid, hot steam passes though the pipes in the ship's tank and maintains the fuel at the required temperature. The necessary steam is produced in the exhaust gas boiler of the main engine, which usually is a composite boiler, combining an exhaust gas chamber and a fuel fired burner chamber. It is possible to split the system with one ex-

haust gas boiler and an independent oil fired boiler.
Like a household device providing a hot-water supply powered by electricity or natural gas, ships use the hot exhaust gas from the main engine to produce hot steam, or by using the burner fired by fuel oil at anchor or in harbour.Current market conditions require slow steaming or super slow steaming down to 10 %, generating a lower heat energy output when underway. It stands to reason that the amount and the temperature of the main engine exhaust gas is much lower than at design speed, where the engine is on 75–85 % load.

The energy gap must be filled by the burner, which needs to be used more frequently to heat up the system. In harbour where the main engine is switched off, the burner is responsible for the steam production with fuel consumption of up to five tons per day.

Reducing fuel consumption of the burner

Boilers have been in use for decades in the way of the main engine exhaust line; however, they were never implemented into the auxiliary engines exhaust gas system.

Auxiliary engines run a generator to provide the ship with sufficient electric energy for the entire equipment and especially to power the reefer containers on board container ships. As a result of slow steaming, generators are frequently running during sailing, at anchor or in harbour at a certain load producing electric energy and exhaust gas. Wasting hot exhaust gas by losing it to the ambient surroundings, however, is the same as throwing money away. Why not use the energy of the auxiliary engine exhaust gas as a renewable resource as well? The newly developed efficient Exhaust Gas Economizer technology utilizes the waste heat from the auxiliary engines and is suitable to fill the energy gap on board originating from slow and super slow steaming.

Exhaust Gas Economizer technology

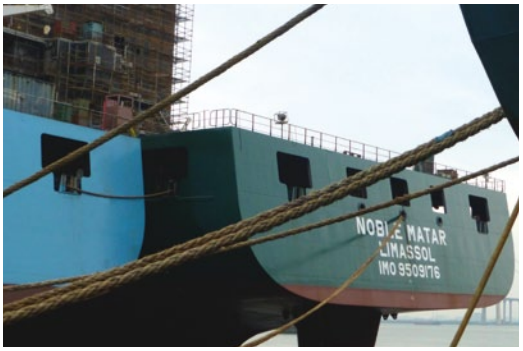
Reederei Thomas Schulte will install economizers into the exhaust gas system of two out of four auxiliary engines on board the newly built NOBLE MATAR, to be interconnected to the steam system, providing a steam-water mixture for the system. This will lead to a significant reduction of burner usage during slow steaming and in harbour or at anchor.

How can this be achieved? Imagine bringing cold water to the boil. This will take much longer and consume much more energy than starting with hot water, which would boil faster. Less energy would be necessary to reach the needed temperature. Exploiting exhaust heat energy from the auxiliary engines increases the temperature in the steam system and reduces the working hours of the burner. Currently, one of the most overriding concerns is to reduce the fuel consumption of the fleet. Using an energy resource that was wasted up to now improves the operational profile of any vessel. Exhaust Gas Economizer technology helps to decrease overall fuel consumption significantly.

Installing an Exhaust Gas Economizer

The technology is tried and tested, but installing it on existing vessels can be problematic and expensive. Even on new vessels, the investment, together with the considerable maintenance costs, is a very expensive option. Considering possible savings of up to five tons fuel per day, however, it will pay off.

An Exhaust Gas Economizer is a heavy, space-consuming piece of equipment weighing up to seven tons. Prior to installation, design, data and calculations have to be considered and processed. Engineers have to find sufficient space in the funnel area, calculate the installation of the foundations, provide for additional piping for water and steam and adjust the drawings.



NOBLE MATAR at Guangzhou Wenchong Shipyard

Constructing and putting the economizer in the right place and position is a challenging job. On board NOBLE MATAR, two economizers will be implemented, using the exhaust gas of the no. 1 and the no. 3 auxiliary engines. This cutting edge technology will reduce the vessel's fuel consumption and emissions. Reederei Thomas Schulte is bringing a new efficient, green and attractive cellular vessel to a highly competitive container ship market.

NEWSTICKER

*** 10TH COMPANY ANNIVERSARY We are very proud to announce the 10th company anniversary of Mrs. Beate Seidenkranz of TWS Chartering and Mr. Mathias Fehrmann of the Fond Department. Both of them started their career in the former company office in Hamburg, Parkstrasse. We wish to thank them for their commitment to the Thomas Schulte Group. Congratulations! *** MLC – MISSION ACCOMPLISHED Reederei Thomas Schulte has certified all vessels as per the new Maritime Labour Convention (MLC), matching the legal deadline exactly. The International Labour Organisation Convention defines minimum labour standards for seafarers onboard of seagoing vessels. Reederei Thomas Schulte started the certification process of the fleet well in time after a documentary review. All vessels passed the required on board inspection smoothly, confirming the continuous compliance with high standards.

*** NEW CREWING SOFTWARE Schulte Crew Management is a new subsidiary to further broaden the Thomas Schulte Group scope of competencies. The entrepreneurial company assumes combined and comprehensive crew management activities for the fleet under management vessels. *** 13TH SENIOR FLEET OFFICER MEETING From 12th to 14th November 2013 thirty top-4-officers accepted the invitation of Reederei Thomas Schulte and attended the annual company meeting in Hamburg. New issues regarding quality, safety, environmental, technical and crewing matters, among others, were discussed extensively. Various workshops, such as ECDIS training, were offered and many opportunities for information exchanges provided. The meeting was successfully completed, encouraging all participants to further optimise the management system and strengthen communications comprehensively.

The Maritime Labour Convention entered into force on August 20th, 2013

Top-4-officers addressed further improvement measures

OFFSHORE SIERRA LEONE

Exports of Iron Ore Soar

In 2012, Sierra Leone once again became a major exporter of iron ore after a period of more than 30 years. Exports originated in Marampa, a mine in central Sierra Leone. Marampa is operated by the London Mining Company Ltd., one of a few large mining companies pushing the industry and the Gross Domestic Product of the country.

The Marampa mine is located in the interior, 120 km from Freetown on the African west coast

London Mining acquired domestic haul roads and doubled its export volumes in the first half of 2013. After the 1970s, outdated processing technology and years of civil war prevented the redevelopment of iron ore mining. Now, modern conveyor techniques and strong global demand have brought about a change. As Marampa is located 120 km from Freetown on the African west coast, the commodity has to travel quite a long distance before being exported and shipped to various destinations.

Multi Modal Haulage to the Coast

The extracted iron ore is transported to seagoing vessels in two steps. The mine is connected to the Thofeyim River Terminal, which has an open-air storage place via a 40 km road. Thofeyim is a distribution centre from where the goods can be shipped by means of inland water vessels, as well as by other forms of transport. In the second step, the iron ore has to travel to Pepel at the estuary of the river, where cargo is moved from inland watercrafts onto the big barges, which have an immense capacity for the final transfer to large oceangoing vessels. There are two offshore export terminals close to Freeport. Seagoing vessels do not need to enter the port of Pepel. The transhipment installations are located here, one within the inner anchorage and the other further outside. A big floating offshore transhipment platform is geared to discharge cargo from the large river barges. The barges come alongside the offshore terminal, which is capable to load huge quantities per day into the oceangoing vessels using closed conveyor belt loading devices. Loading operations are powerful and are extremely flexible. The barges exceed the usual dimensions of common inland waterway vessel capacities and are not self-propelled. They are specifically designed for the sole purpose of shifting bulk cargo from the river port facilities of sheltered coastal waters onto large vessels at anchor.

Control of Moisture Content

Iron ore sinter feed grade A tends to liquefy if a specific moisture content is exceeded, turning the cargo into a flowing slurry. In order to prevent this potentially dangerous process during transit, all consignments are carefully covered by tarpaulins. While being stored on the barges, moisture is constantly measured and is certified before loading operations onto the ocean vessel. During the rainy season, additional, detailed control of the cargo's condition is required. Cargo on Reederei Thomas Schulte vessels is continually checked to ensure that international moisture limits for safe transport are not exceeded.

DORIAN SCHULTE taking over cargo at sea

Cargo inside the barge is prepared for transfer into DORIAN SCHULTE

SMALL MISTAKE, BIG IMPACT

The emergency response team was called after a crane driver attempted to shift a tank-container filled with olefin sulphide onto a truck and failed. During discharging operations of LISA SCHULTE at the port of Houston, Texas the container collided with the trailer causing a tank valve rupture.

Olefin sulphide is toxic if inhaled. The dangerous cargo leaked out on the pier next to the ship. The stevedores alerted the port emergency response brigades immediately, arriving on scene quickly within 10 minutes. Dangerous cargoes for many industrial purposes are continuously shipped by container ships around the globe. The harm potential for health is often significantly high, so that uncontrollable reactions have to be prevented by all means along the transport chain.

Packing and stowage of the cargoes is strictly regulated to ensure appropriate isolation according to the hazardous chemical, physical or biological character of the substance. However, handling dangerous goods containers during loading and discharging from the ship is a particularly delicate task. The protective packaging must not be damaged. The area on the pier near LISA SCHULTE was cordoned off. All persons were evacuated. The ship's crew found safe shelter inside the accommodation, shutting down the external ventilation.

A shore emergency response team with chemical protection suits and breathing protection absorbed the spilt cargo later on and filled it into another tank. The whole area was cleaned up. Only after a careful check of the atmosphere, was the place confirmed to be safe. Regular operations continued. Thanks to the quick and efficient intervention of the crew and shore personnel, exposure to poisonous fumes was avoided and fortunately no one was injured.

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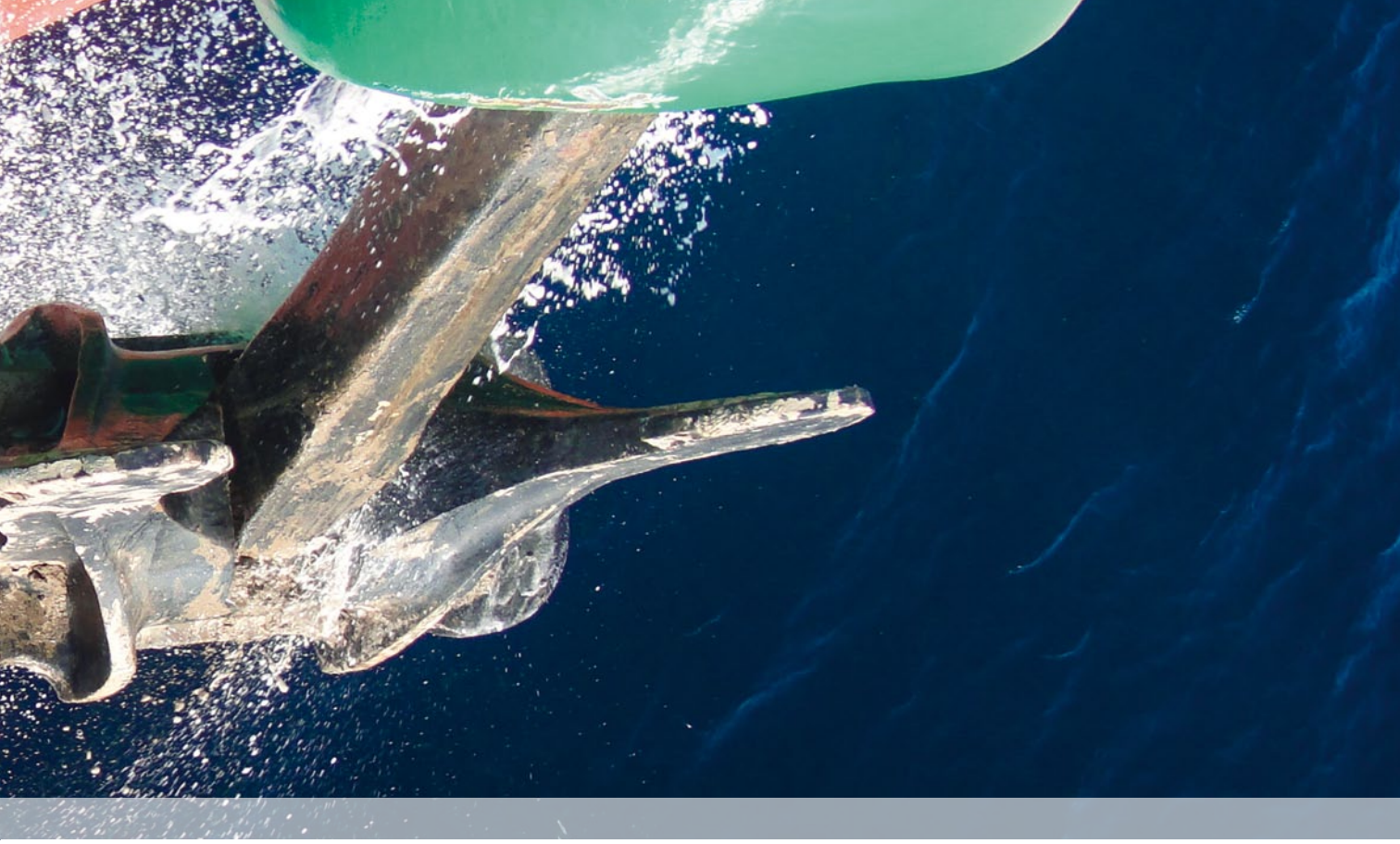

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