The World's Largest Circulation Marine Industry Publication • The Information Authority for the Global Marine Industry since 1939

MARITIME REPORTER AND ENGINEERING NEWS

MARINELINK.COM

October 2014

Design

The "Crewless" Ship & other Design (R)evolutions

CBM

Save Money with Condition Based Monitoring

Electric Propulsion

Start-Stop Function could be the Key

Tillberg

Tomas Tillberg, Tillberg Design Intl.

Offshore Energy

Floating Production Systems Market

Software Solutions + Pipes, Pumps & Valves

SSI®

Autodesk® based Shipbuilding & Offshore Solutions

Makers of

SHIPCONSTRUCTOR®

SSI develops ShipConstructor®, an AutoCAD based CAD/CAM software suite that leverages the world's most popular CAD platform. SSI applies information technology expertise to address industry specific challenges including sharing engineering data with other business processes and applications such as MRP, ERP and PLM tools.

ShipConstructor's AutoCAD foundation provides a user environment that is a globally recognized CAD/CAM standard. This results in an existing labor pool of expertise, a common DWG format for sharing information with other applications, and a portfolio of complementary Autodesk products.

www.**SSI**-corporate.com

An Extensive Selection of Process Measurement Products to Meet Your Needs

Economical Strain Indicators
With Built-In Sensor Excitation

DP25B-S Series
Starts at
$250

- **NEMA 4 (IP65) Front Panel**
- **4-Digit Display, -1999 to 9999 counts**
- **Excitation Supply, Front Panel Tare, and Peak Hold Standard**
- **Accepts Voltage, Current, or Millivolt Inputs**
- **Easily Scaled to Display Readings in Engineering Units**

Visit omega.com/dp25b_s

High Performance Pressure Transducer in Rugged All Stainless Steel

PX309 Series
Starts at
$175

Visit omega.com/px309

Subminiature Industrial Compression Load Cell
Standard and Metric Models

LCKD Series
Starts at
$570

Visit omega.com/lckd

General Purpose Digital Pressure Gauge
With 0.25% Terminal Point Accuracy

DPG8001 Series
Starts at
$370

Visit omega.com/dpg8001

General Purpose Pressure Switches
In NEMA 4X (IP66) Enclosures

PSW-100 Series
Starts at
$140

Visit omega.com/psw-100

1-888-826-6342

OMEGA®

omega.com

Prices listed are those in effect at the time of publication and are subject to change without notice. Please contact OMEGA's sales department for current prices.

Photo: E-MS

Photo: Tillberg Design International

Photo: Kvaerner

Photo: Sener

IN THIS EDITION

KVH® INDUSTRIES

MINI-VSAT BROADBAND

WORLD'S No. 1 MARITIME VSAT SERVICE

The No. 1 maritime VSAT network brings a new dimension to broadband at sea.

Introducing KVH IP-MobileCast™

A unique content delivery service providing affordable news, sports, entertainment, electronic charts, training, and weather *on top* of your mini-VSAT Broadband connection.

IP-MobileCast

Entertainment

- MOVIElink™ Movies
- TVlink™ TV Shows and Series
- SPORTSlink™ Sports
- NEWSlink™ Print & TV News
- MUSIClink™ Music by Genre

Operations

- TRAININGlink™ e-Learning
- CREWlink™ Crew Connections
- FORECASTlink™ Weather Delivery
- CHARTlink™ Chart Delivery

New VIP-series features powerful Integrated CommBox Modem (ICM) – the hub for IP-MobileCast services.

KVH's end-to-end solution empowers you to deliver the bandwidth your operations demand, keep your crew happy, and manage your budget... *all at the same time.*

Get the details:

www.ipmobilecast.com

KVH®

Contents

THE COVER

The advent of advanced design and condition based monitoring systems, plus a robust and cheaper broadband availability has maritime vessel and system design on the fast track. Notions of the "crewless" ship are not so far-fetched anymore.
Read more starting on page 32 & 38.

Cover Image: Courtesy DNV GL

Image: APL

38

Condition Based Monitoring &

SAVING CA$H

Properly conceived and implemented, Condition Based Monitoring can yield significant savings. Doing it wrong can sink your company.

By Patricia Keefe

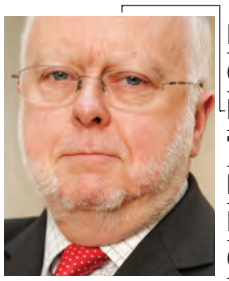


Photo: MAN Diesel & Turbo

50

HVAC: The Stealthy Drain on Power

HVAC systems, if not installed, set and monitored, can be a heavy drain on power and the bottom line.

By Patricia Keefe

58

The POWER Play

SMM is a traditional launching point for a host of new marine power products and sytems, and 2014 did not disappoint. MAN Diesel & Turbo launched a new High Speed engine, and CAT introduced two products to its power line up.

64

Pump it Up

The very core of a vessel or offshore structure's viability lies in the integrity and performance of its pipe, pump and valve systems.

MARITIME REPORTER AND ENGINEERING NEWS

MARINELINK.COM

HQ
118 E. 25th St., 2nd Floor
New York, NY 10010 USA
Tel +1 212 477 6700
Fax +1 212 254 6271
www.marinelink.com

FL Office
215 NW 3rd St
Boynton Beach, FL 33435-4009
Tel +1 561 732 4368
Fax +1 561 732 6984

Publishers
John E. O'Malley
John C. O'Malley
jomalley@marinelink.com

Associate Publisher/Editorial Director
Greg Trauthwein trauthwein@marinelink.com

Vice President, Sales
Rob Howard howard@marinelink.com

Web Editor
Eric Haun *haun@marinelink.com*

Web Contributor
Michelle Howard *howard@marinelink.com*

Editorial
George Backwell - *Thailand;*
Joseph Fonseca - *India*
Claudio Paschoa - *Brazil*
Peter Pospiech - *Germany*

Production
Irina Tabakina *tabakina@marinelink.com*
Nicole Ventimiglia *nicole@marinelink.com*

Corporate Staff
Mark O'Malley, Public Relations
Esther Rothenberger, Accounting
Gabby DelGatto, Office Manager

Information Technology
Vladimir Bibik
Emin Tule
Christopher Lee

Subscription
Kathleen Hickey *khickey@marinelink.com*

Sales
Lucia Annunziata *annunziata@marinelink.com* +1 212 477 6700
Terry Breese *breese@marinelink.com* +1 561 732 1185
Frank Covella *covella@marinelink.com* +1 561 732 1659
Mitch Engel *engel@marinelink.com* +1 561 732 0312
Mike Kozlowski *kozlowski@marinelink.com* +1 561 733 2477
Dawn Trauthwein *dtrauthwein@marinelink.com* +1 631 472 2715
Jean Vertucci *vertucci@marinelink.com* +1 212 477 6700

International Sales

Scandinavia
Roland Persson roland@orn.nu
Orn Marketing AB, Box 184 , S-271 24
Ystad, Sweden
t: +46 411-184 00 f: +46 411 105 31

Western Europe
Uwe Riemeyer riemeyer@intermediapartners.de
t: +49 202 27169 0 f: +49 202 27169 20

United Kingdom
Paul Barrett ieaco@aol.com
Hallmark House, 25 Downham Road, Ramsden Health, Essex CM11 1PU UK
t: +44 1268 711560 m: +44 7778 357722
f: +44 1268 711567

Japan
Katsuhiro Ishii amskatsu@dream.com
Ace Media Service Inc., 12-6, 4-chome, Nishiike, Adachi-ku, Tokyo 121, Japan
t: +81 3 5691 3335 f: +81 3 5691 3336

Korea
Jo, Young Sang biscom@biscom.co.kr
Business Communications Inc., Rm 1232, Gwanghwamoon Officia Bldg., 163, 1-Ga, Shinmoon-Ro, Jongro-Gu, Seoul, Korea 110-999
t: +82 2 739 7840 f: +82 2 732 3662

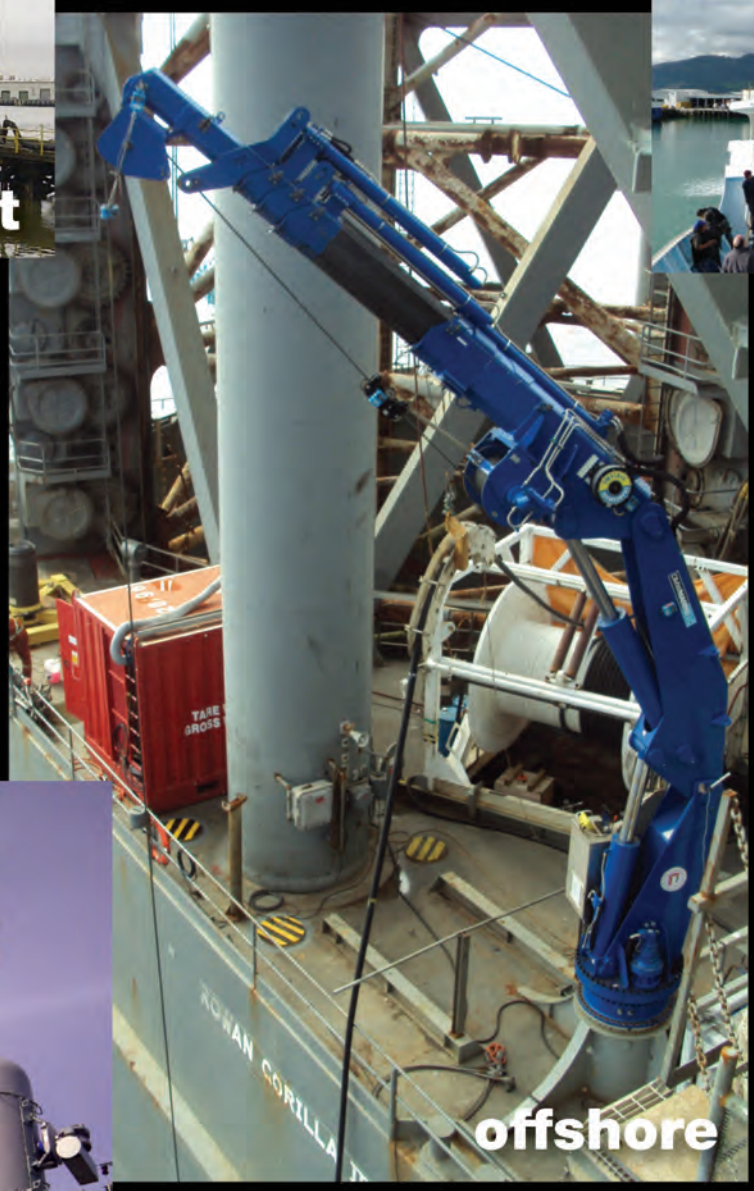
Classified Sales t: (212) 477-6700

Member BPA WORLDWIDE BRAND REPORT

Business Publications Audit of Circulation, Inc.

DMWMARINEGROUP

marine cranes



www.dmwmarinegroup.com
610.827.2032

Transport Logistics
Good, Bad & Ugly

GREG TRAUTHWEIN, EDITOR & ASSOCIATE PUBLISHER

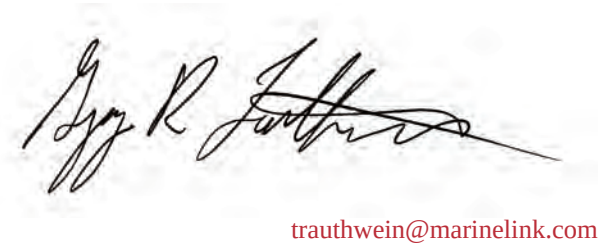
I have no patience. This was never more apparent to me than on a recent return trip from West Palm Beach to New York, a mixed business and pleasure trip to South Florida to visit a few key companies and to attend the wedding of my colleague Mike Kozlowski to his beautiful bride Susie in early October. As far as frequent fliers go I travel a lot, so delayed flights, missed connections and luggage sent astray are not a new to me. But regardless of my experience, when it comes to eight hour delays on a Sunday night, I have no patience.

To the credit of Southwest Airlines, the reason for my most recent travel disruption was perfectly reasonable: a "hydraulics problem" on Flight 519 from West Palm. Rest assured that I would much prefer to hear of a "hydraulics problem" while safely seated on the ground rather than at 37,000 ft. But on the heels of travel which had me out of my home for three of the past four weeks, any delay, reasonable or not, tested my limits.

The experience put me to thinking of the maritime model of transport, which generally is considered light years behind the airline industry in technology and logistics. Simply put, the maritime model is dated in the way in which information is exchanged ship-to-shore, despite the fact that the advent of maritime broadband is here and now, with level and speed of service rising while costs are falling. This month Patricia Keefe concludes her trilogy on advances in software solutions with a look at software designed to monitor, control and optimize onboard operations. With pressure from legislation to run cleaner ships and pressure from within shipping companies to maximize energy efficiency, never before has the need been greater for advanced software solutions. "When the industry goes to 0.1% sulfur content in fuel in 2015, the price of fuel is going to go up dramatically," summarized Fred Finger, VP of Vessel Operations, American Roll on Roll off Carier. "A 1% savings this year could be a 2 to 2.5% savings next year." Keefe's story starts on page 38.

Keefe's story is a perfect fit to our marine design annual, coverage which includes interviews with a pair of influential designers in the form of Tomas Tillberg of Tillberg Design International and Per Egil Vedlog, Design Manager at Rolls-Royce Marine.

Finally, the *Maritime Reporter* team is freshly returned from the SMM 2014 exhibition in Hamburg, Germany, which is the world's largest and most influential shipbuilding and maritime trade fair, with more than 2,000 exhibitors and 50,000 visitors. Per usual there was a long line of companies debuting new designs and technologies in Hamburg, innovations in design and marine equipment technology which are found in the pages of this edition and next. The pace of four days in Hamburg is the equivalent of 10 days at any other exhibition, as Joe Keefe summarizes in his article "Summing up SMM" starting on page 8. But with a staff of 10 on hand to cover, I must admit it was one of the most seamless and efficient SMM's of the dozen that I have attended. That efficiency ended with on my Air France flight back to JFK, which landed early but subsequently sat on the tarmac in New York for two hours as we waited for a gate to open for our Airbus 380. I have no patience.



trauthwein@marinelink.com

ISSN-0025-3448
USPS-016-750
No. 10 Vol. 76

118 East 25th Street, New York, NY 10010
tel: (212) 477-6700; fax: (212) 254-6271

Founder: *John J. O'Malley 1905 - 1980*
Charles P. O'Malley 1928 - 2000

Maritime Reporter/Engineering News (ISSN # 0025-3448) is published monthly by Maritime Activity Reports, Inc.
118 East 25th Street, New York, NY 10010. Mailed at Periodicals Postage Rates at New York, NY 10199 and additional mailing offices.
Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter & Engineering News, 850 Montauk Hwy., #867, Bayport, NY 11705.
Publishers are not responsible for the safekeeping or return of editorial material.

SUBSCRIPTION INFORMATION
Subscription Information
• in U.S.: One full year (12 issues) $84.00; two years (24 issues) $125.00
• Rest of the World: One full year (12 issues) $110.00; two years $190.00 including postage and handling.
Email: mrcirc@marinelink.com • www.marinelink.com t: (212) 477-6700 • f: (212) 254-6271

POSTMASTER: Send address changes to: Maritime Reporter & Engineering News, 850 Montauk Hwy., #867, Bayport, NY 11705.
Maritime Reporter is published monthly by Maritime Activity Reports Inc.
Periodicals Postage paid at New York, NY and additional mailing offices.

Regulations change. Your deadlines don't.

Introducing Mobil SHC Aware™— the marine lubricant that's better for ships.
A shipping company's major concern is protecting equipment; now EPA regulations require this is done while minimizing impact to the environment. Mobil SHC Aware™ offers the protection of a synthetic while meeting new EPA requirements for biodegradability. Which is good for the environment. And good for business.

Go to exxonmobil.com/marine to find out how to avoid the costs of noncompliance.

Mobil SHC™

Summing Up SMM

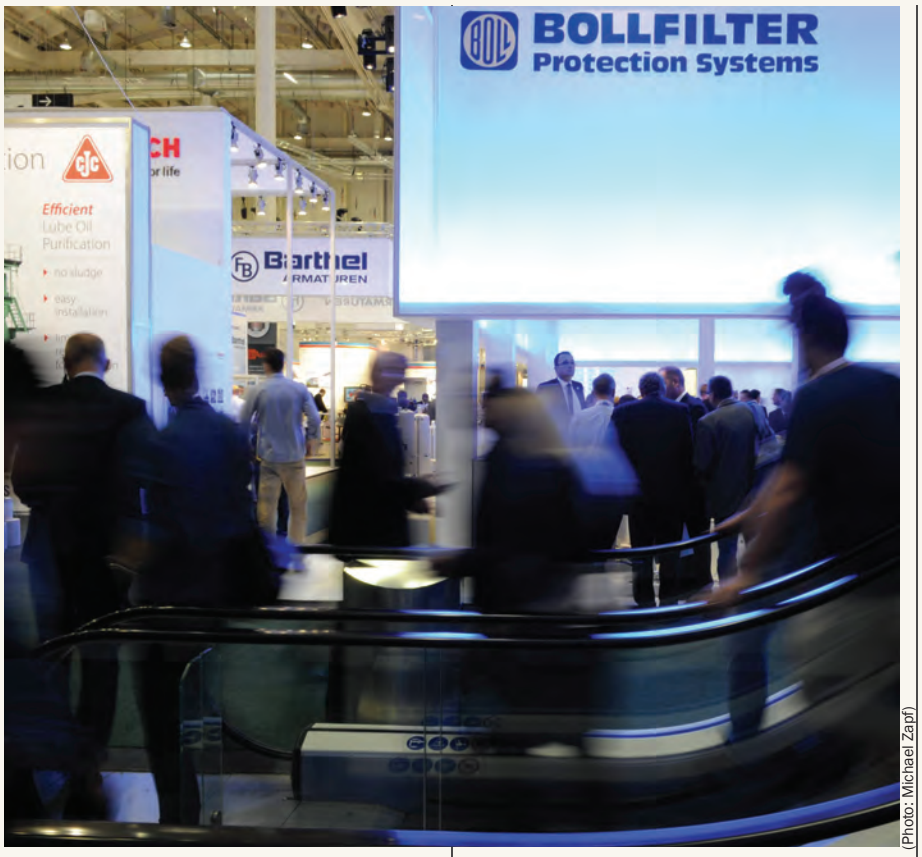
Savvy partnerships represent a resurgent maritime industry at the world's largest maritime trade show in Hamburg, Germany. **SMM's record turnout is ample proof that global shipping is alive and well.**

Joseph Keefe is the lead commentator of MaritimeProfessional.com, and is Editor of both *Maritime Professional* and *MarineNews* print magazines. He can be reached at Keefe@marinelink.com

MaritimeProfessional.com is the largest business networking site devoted to the marine industry.

According to the SMM website, 2014 marked the 26th version of this iconic trade show. This year, the show attracted more than 2,100 exhibitors from all around the world, notably including 150 first-time companies, and 50,000+ industry visitors. I know people who have been making this pilgrimage every two years since the 1990s. That makes me a newbie in relative terms, having only been here, I think, four times. Many times over, however, I trudged the approximate 90,000 square meters of exhibition space this month, and I can attest that the show is not just getting older; it is also getting better. SMM has demonstrated once again what it means to be, if not the leading international trade fair of the maritime industry, certainly one of its best venues for doing business. By the numbers; the show was equally impressive: spread out over 26 national pavilions with exhibitors from 67 different countries plied their wares and services to an eager international audience. Many are already planning their return to SMM in 2016.

You don't have to be a 10 time veteran to size up any trade show, but all of them have a certain flavor and year-to-year, they all have a certain theme. On the trade show floor itself, there is always a mood that is imported by those who make the trade show possible – businesses and professionals hoping to make and renew relationships that translate into a more robust business climate in the years to come. This year, and in a transport mode that can often be nothing short of "dog-eat-dog" on a 24/7/365 basis, I saw something a little bit different.



(Photo: Michael Zapf)

As the maritime world claws its way back from the depths of the global recession that saw historic lows in 2008 and 2009, stakeholders are approaching the task – at least in my estimation – in a slightly different manner. This year, cooperation seems to be the key. Strategic alliances abound. And, a broad brush, sweeping trend seemed to take over the show. The word "partnership" seemed to be very much in vogue. That said, the reasons for this are quite simple, and at least to me, quite transparent: they also make for good business.

Nowhere was the partnership angle more apparent than in the ballast water treatment game. With EPA deadlines looming for 2015 in the United States (what will they do when everyone checks the VGP box "NO"?), manufacturers can finally see the light at the end of the regulatory tunnel. Or, maybe, as in the immortal words of Winston Churchill, at least "the end of the beginning." Various viable technologies abound, most – on the surface – able to meet the IMO and/or U.S. phase 1 standard. What they don't necessarily have is a good window on how to fully penetrate the shipping markets. Enter the partnership.

Ballast water partnerships – and at least four were announced during the week of SMM – took the form of manufacturers teaming with shipyards, in some cases distributors, engineering and planning consultants, and, in some cases, all three. It makes a lot of sense. This is one aspect of the waterfront where access isn't easy and the smart players are realizing they do need help to get the contracts. Also emerging at the show was the general feeling that BWT manufacturers (a.) just weren't interested in installing equipment and (b.) they've realized there are others better positioned to do so. Instead, they want to concentrate on building the best possible hardware.

Every trade show, so it seems, is a venue for deals to be announced, acquisitions trumpeted and partnerships explored. And, at the 2014 SMM, ballast water was just one example of the "partnership" model in play. Over the course of a five day visit to Hamburg, I saw myriad other examples of this trend. The recovering maritime sector has come to realize that it is going to have to "work and play well with others" if it hopes to come all the way back. SMM was an apt setting to make that happen.

It all adds up to a recovering global maritime marketplace. Sure, freight rates could be a lot better and overcapacity still dogs the shipping markets in key sectors. Separately, the regulatory hammer, specifically in terms of ballast water, engine emissions and the new MLC (2006) code for seafarers all collectively add to the challenge of doing business in an increasingly perplexing global arena. Any venue that brings all the players under one roof for a solid week of interaction makes the task of navigating those issues just a little easier and also increases opportunities for collaboration. Arguably, no one else does it better – or on a grander scale – than SMM. Maybe that's the real definition of the word "partnership."

V250 Series
Diesel Engine

With GE Marine,

No After-Treatment Required.

Breakthrough non-SCR diesel technology meets EPA Tier 4i and IMO Tier III compliance

As a global leader in emissions-reducing solutions, GE Marine again is at the forefront with its innovative non-SCR diesel technology that requires no urea-based after-treatment. This advanced technology reduces key emissions by more than 70% and enables in-engine compliance with EPA Tier 4i and IMO Tier III emissions standards.

The result of an eight-year investment, this breakthrough non-SCR diesel engine technology:

- Available on GE Marine's L250 and V250 Series Diesel Engines
- Eliminates SCR and urea use and storage to preserve cargo, accommodation and tank space
- Requires no supplemental equipment or fluids, reducing capital and operating expenditures
- Reducing ship design complexity and shipyard installation time and cost

Imagination at work.

www.getransportation.com
ge.marine@ge.com

EMISSIONS

Peter Hinchliffe, ICS Secretary General

ICS: Global Ship Emissions

20% Lower

The total Green House Gas emissions from global maritime transport are estimated to have been more than 20% lower in 2012 than in 2007, according to the International Chamber of Shipping (ICS). The global shipping industry is thought to have produced about 2.2% of the world's total GHG emissions during 2012 compared to 2.8% in 2007. The estimates are contained in the latest study of the shipping industry's Green House Gas emissions prepared by the International Maritime Organization (IMO), which will be considered by its Marine Environment Protection Committee.

Speaking at the United Nations Climate Summit in New York, ICS Secretary General, Peter Hinchliffe said, "The latest IMO study, which uses satellite tracking, suggests there's been a significant reduction in absolute CO2 emissions from ships due to the introduction of operational efficiency measures across the whole fleet. This includes operating at slower speeds, combined with more fuel efficient designs on board the large number of new build vessels that have recently entered the market."

"The reduction in CO2 per metric ton of cargo carried per kilometer by ships is even more impressive than the headline IMO figure for absolute GHG reduction because cargo moved by sea has continued to grow since 2009."

Shipping is already the only industrial sector to have mandatory global regulations in place to reduce it CO2 emissions, which entered into force worldwide in 2013.

Nevertheless, according to Hinchliffe, "The shipping industry fully recognizes that governments expect even greater CO2 efficiency improvements in the future. Given the very high cost of fuel which is soon set to increase by around 50% due to separate new rules on sulfur the industry already has every incentive to deliver this."

STEEL CUT ON INNOVATIVE ARCTIC

'Yamalmax' LNG Carriers

Last month steel was cut on what is arguably the most significant shipbuilding project to support Arctic route operations. With a ceremony to mark the first cutting of steel, construction has begun on the first of sixteen 300m long, 170,000 cu. m. Arctic LNG Carriers being built in South Korea by DSME for operation on the Northern Passage, with the first scheduled to come online in 2016 for regular transport between the Yamal LNG project based in the estuary of the Ob River and Asia.

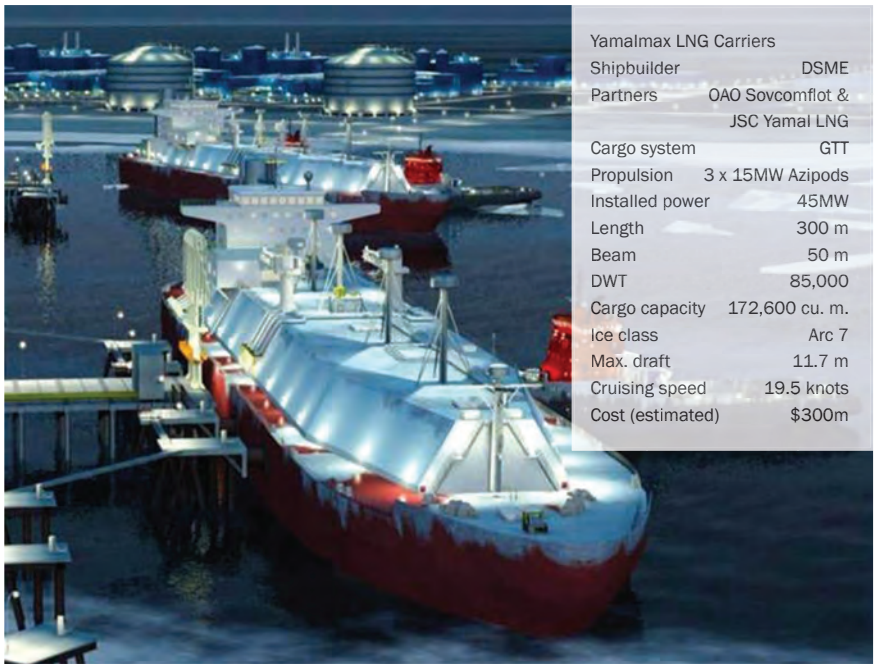
The prototype vessel will be operated under a long-term time charter between OAO Sovcomflot and JSC Yamal LNG.

The ships are custom designed "Double Acting" vessels powered by three 15MW Azipods for a total power of 45MW. "This is a real breakthrough in the Arctic commercial transportation traffic, as this is the first project on a regular commercial traffic basis," said Mikko Niini, senior advisor today and for the past 10 years CEO of Aker Arctic, in an interview earlier this year with *Maritime Reporter & Engineering News*.

The Yamal LNG project is ice-bound nine months of the year and the project is to ensure production and marketing of the Russian Arctic's natural gas reserves. It is one of the largest industrial undertakings in the Arctic, and eventually will involve the drilling of more than 200 wells and construction of the aforementioned 16 icebreaking tankers, making up three 'LNG trains.'

While the final costs of the ships have not been publicly released, professional estimates suggest that each ship will cost in the region of $300 million, or an approximate 50% premium versus the cost of a similarly sized LNG carrier not built for Arctic operations. The main cost drivers for these ships are added steel and power, but several key ship systems must be winterized, adding to the cost and including:

- Protection of deck equipment
- Ballast tank heating
- Insulation in housing
- Pre-heating of the equipment



Yamalmax LNG Carriers	
Shipbuilder	DSME
Partners	OAO Sovcomflot & JSC Yamal LNG
Cargo system	GTT
Propulsion	3 x 15MW Azipods
Installed power	45MW
Length	300 m
Beam	50 m
DWT	85,000
Cargo capacity	172,600 cu. m.
Ice class	Arc 7
Max. draft	11.7 m
Cruising speed	19.5 knots
Cost (estimated)	$300m

And they're off …

The steel-cutting ceremony took place at the Daewoo Shipbuilding & Marine Engineering Co., Ltd. (South Korea) shipyard in the presence of representatives from OAO Sovcomflot, the Russian Maritime Register of Shipping (RS), and Bureau Veritas (BV).

OAO Sovcomflot provided JSC Yamal LNG with advisory services for gas tanker design and the minimization of costs for the project's logistic support, based on the company's experience in the Arctic seas and with the operation of its own LNG carriers.

Eventually, the partners developed a unique design for the new ship code-named 'Yamalmax.'

The tanker will be of Arc7 ice class (on RS classification) which will ensure icebreaking capability in a 2.1-m thick ice field.

The ship's propulsion unit includes three azipods delivering a total power of 45 MW, which is comparable to a Rossija-class nuclear-powered icebreaker (55 MW). Reinforced membrane-type tanks ensure safe LNG transportation along the Northern Sea Route, which has been confirmed by classification society surveys and test-bed trials held by GTT, the cargo system designer.

It is planned to use the Russian-flagged prototype vessel for training the crews of Arctic LNG tankers and practicing navigation in the severe ice conditions of high-latitude Arctic seas.

By Greg Trauthwein

They said it ...

"In a large part driven by our country's energy boom, the domestic shipbuilding industry is seeing robust activity, the most over three decades. Billions of dollars are being invested to meet the demands of oil production, and nearly 30 large, self-propelled, oceangoing Jones Act-eligible tankers and containerships are under construction or are on-order at U.S. Shipyards. Although times are good, throughout history, shipbuilding has followed a very cyclical pattern. Right now we are experiencing a big upswing in smaller vessels, offshore supply vessels, and large commercial ships. **However, if we don't reinforce a stable shipbuilding base, we're going to face a similar crisis during the next downturn.** It is essential that we keep our eye on the ball and go after what will sustain this industry in the long run."

Paul N. Jaenichen, Maritime Administrator, U.S. Maritime Administration, giving his overview of the U.S. maritime industry as interviewed in the October 2014 edition of *MarineNews*

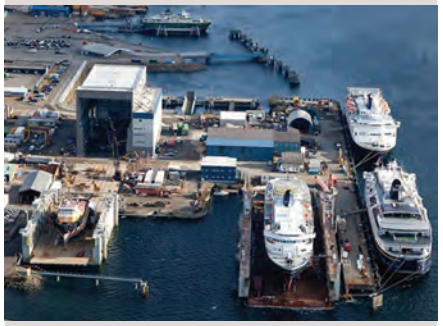
"While shipping is already the most environmentally friendly mode of transport, the new regulations help to further reduce the impact on the environment and our health. **But low sulphur fuels are more expensive** and growing demand is widely expected to further increase the costs of these fuels."

Ulrich Ulrichs, CEO, Rickmers-Linie, in pledging his support for the introduction of stricter sulphur regulations.

"You may optimize fuel consumption but find you've done it at the **cost of creating a more frequent failure rate** for your equipment."

Fred Finger, VP of Vessel Operations, American Roll on Roll off Carrier, talking about "unintended consequences" of fleet automation tools. (See story page 38)

VESSELS



(Photo courtesy Vigor)

Ketchikan Shipyard, Vigor Alaska

Deal to Build in Ketchikan

Alaska Ferries

The State of Alaska and Vigor Industrial reached a final agreement to construct two Alaska Class Ferries at Vigor Alaska in Ketchikan. The vessels will be the first Alaska Marine Highway System ferries to be built in Alaska.

Employing the Construction Manager General Contractor (CMGC) process, the State worked with Vigor Industrial to negotiate a guaranteed maximum price to construct both vessels, which is scheduled to begin in October this year and finish in 2018. The construction contract and costs to build both ferries in Ketchikan will be at the $120 million budgeted amount.

The design and estimating process was a collaboration between Vigor Alaska, Alaska Department of Transportation and, Alaska Marine Highway System and Elliot Bay Design Group.

The ferries will be 280 feet long, seat up to 300 passengers and carry 53 standard vehicles. Each ferry will feature bow and stern doors for quicker loading and unloading, fully enclosed car decks, and controllable pitch propellers to maximize maneuverability and efficiency. A modified hull design will improve traveler comfort during rough weather.

According to information provided by Vigor Alaska, the two day ferries will cost $101 million to construct, which is a reduction in the original price. Because of the importance of keeping Alaskan dollars in the state, Vigor Alaska said it made significant cuts to the initial estimates for the project and, in fact, delivered a price that was below the independent government price estimate available in the lower 48 states.

The Ketchikan yard features a 130,000 square foot ship production facility designed from the ground up to build ships upwards of 500 feet in length. It includes an adjacent five story production center to minimize material flow and maximize efficiency.

AIRBUS DEFENSE & SPACE DIVESTS ITSELF OF

Commercial Satcom Business

Transformation in the maritime communication sector continues, as Airbus Defense and Space announces plans to sell its commercial satellite communications business. *MR* spoke with **Erik Ceuppens,** SVP, Satellite Communications, Airbus Defense & Space Communications, Intelligence & Security (CIS), to help put the development in perspective.

The maritime communications sector has been in near continual flux for nearly two decades, with merger and acquisition activity a constant. In tandem with development of innovative software solutions, the connection between ship and shore – particularly the advent of maritime broadband – provides the vital link to help make shipboard operations more efficient and provide enhanced amenities for crew.

Immediately following the SMM 2014 in Hamburg, the latest sector news broke when Airbus Defense and Space – as a part of its Group Strategy Review in 2013 – announced in mid-September that it would divest itself of its commercial and para-public communication business (including Professional Mobile Radio and commercial satellite communications services activities). To put it concisely for those in the commercial maritime sector, this essentially is the Vizada business (except for the government portion) that was bought by Airbus in 2011 including the strong Marlink brand. To help put things in perspective there is no one better than Erik Ceuppens, an industry veteran who has served as the Executive Director Business Communications for Astrium Services (2012/2014); the CEO Vizada EMEA & Asia (2007-2012); the CEO of France Telecom Mobile Satellite Communications (2004-2007) and previously Vice President Marketing & Customer Operations (2001-2004).

"We really are focused as a management team to continue the continuity to our customers, with the same high quality network of advanced VSAT," said Ceuppens, who said that although there have been changes in overall ownership over the past years, there has been a consistent management team and mission. "We will continue to accelerate our innovations; we will not slow down."

Ceuppens stressed the continuity of management and mission, particularly since when the announcement was made Airbus did not identify new ownership for the company, and in fact at press time there were no negotiations underway.

"We will not slow down." Erik Ceuppens

"Airbus, as a public company, decided to communicate (the decision to divest) as soon as a decision was taken," said Ceuppens. "We are in the early stages, as the sales process will have to be started. The process will hopefully find a conclusion by mid-2015, but today there is no clarity on who the new owner will be, there are no talks going on today," though he did admit that there was strong interest from prospective industrial and financial owners.

While Ceuppens could not comment on the total value of the business to be sold, of the business communications activities to be sold, maritime accounts for about 66%, while land-based "enterprise activities" make up the remaining portion.

And according to Ceuppens the maritime sector is strong and growing, saying that it expects to sell 800 VSAT units this year alone, and that the maritime VSAT business for the company has quadrupled in the last 18 months. "The commercial maritime market is dynamic, and you must have agility, speed and entrepreneurship to keep ahead of the market," he said. "Today we are living the migration from narrow band to broadband. The demand for VSAT services is very strong, as broadband communications have become more affordable. This is being driven first by crew demands, but increasingly by the business unit of the ship, as owners increasingly view ships and boats as remote offices with the need for connection.

By Greg Trauthwein

BUILT IN AUSTRALIA AT INCAT TASMANIA FOR AZERBAIJAN

70m Fast Crew Boat Christened

The 70m Fast Crew Boat (FCB) was christened Muslim Magomayev at a ceremony at the Incat shipyard last month. This is the first vessel that Australian Shipbuilder Incat Tasmania has purpose built for the oil and gas industry, and when sea trials are completed the boat will depart to Baku, Azerbaijan. During construction over the past year the fast crew boat has been referred to simply as Incat hull 074 but is now bearing the name Muslim Magomayev in honor of Azerbaijan's famous opera and popular music singer Muslim Magomayev who died in 2008. Magomayev was a renowned entertainer not just in Azerbaijan but all the former Soviet states, often dubbed as their answer to Sinatra.

This first of type DP2 class 70m vessel is being delivered to Caspian Marine Services to operate fast crew transfers for 150 offshore workers to multiple installations in the Caspian Sea. The high speed of the 70m FCB will allow operational efficiency over helicopter transfer for both passengers and cargo, while the semi-SWATH hull design, along with active ride control, will reduce stress on passengers. Muslim Magomayev has approximately 200 metric tons deadweight and is capable of carrying 150 passengers and 14 crew, along with 130 metric tons of deck cargo, in up to 40 knot wind and seas of 3 meters significant wave height. The 275-sq.-m. cargo deck will allow the vessel to complete cargo hot shots over a range of 400 nautical miles at speeds of up to 35 knots.

The vessel's 16m beam is narrower than is usual for an Incat catamaran but determined by the width of the Volga-Don Canal that it must transit on its delivery from Hobart, Tasmania to Baku in Azerbaijan. The power for Incat hull 074 is supplied by four 2,880kW MTU engines each turning Hamilton HT 900 waterjets. Anticipated design speed was 36 knots with an efficient service speed of 30 knots at full load and 90% MCR, sea trials have not yet been completed, but on her first day on the water the vessel comfortably achieved 38.7 knots lightship. Thrustmaster said four of its Retractable Thrusters Model TH300MLRN are installed on this vessel with a total of 1,200 hp. The ship has been constructed of lightweight marine grade aluminum over the past year at Incat Tasmania's Derwent Park Hobart shipyard, with concept design by Incat Crowther of Sydney and production engineering by Revolution Design Pty Ltd (Incat Tasmania's design team). It is the first craft Incat has built to the DNV Clean Design notation, giving it a "Green Passport".

(USACE photo: NY/NJ Harbor dredging action.)

Digging In

Dredging & Infrastructure Maintenance More Critical Than Ever

There is an obvious disconnect between U.S. dredging need and funding, a disconnect highlighted by the fact that U.S. dredging in this decade, measured in cubic yards, is only half as active as it was in the early 1960s according to the U.S. Army Corps of Engineers (USACE). At the same time, the U.S. spend on dredging (in unadjusted dollars) increased 10x in the same period. (see table 1, page 16).

At the same time ships grow ever larger, particularly containerships, which means that to be competitive, U.S. ports of entry will require more, regular maintenance dredging to ensure that some of the world's largest ships are capable of calling. There remain many challenges and easy answers are nowhere to be found. The FY 2015 civil works budget at USACE is smaller than in 2014, all the while the U.S. is clearly lagging a number of nations in port modernization to fully participate in global trade. While the focus traditionally is on the deep draft oceangoing fleet, the situation is similarly critical on the nation's inland waterway systems, systems which are critical national economic drivers in the moving of raw materials and grain to the export markets, not to mention the burgeoning demand coming from the fast growing shale oil and gas sector.

Globally, port and harbor expansions, new ports, enlarged navigation channels and maintenance work account for nearly three-fifths of dredging activity.

China, the world's largest dredge market, and the United States are both "closed" or inaccessible to foreign competitors, Netherlands-based Rabobank noted in its dredging outlook in September. European dredge markets are mostly open; non-Chinese Asian markets are mixed; and Latin America, the Middle East and Australia are open.

China accounted for 29 percent of world dredging work in 2011, followed by Europe with 13 percent. Since then, China's CCCC, the parent company of dredgers CHEC, has signaled plans to become more active in global dredging.

Drivers for Dredging

Storm damage and protecting against climate change have raised demand for dredging, according to Rabobank. In terms of property and infrastructure value, Miami, Fla., followed by Guangzhou, China and New York are the cities most exposed to sea level rise and storms, Rabobank said. For example in 2012, Hurricane Sandy caused an estimated $50 billion worth of damage, but Rabobank noted that the cost of installing a good defense system before Sandy hit was an estimated $6.5 billion.

In addition to climate change, changes in seaborne commerce, and specifically the growing size of individual ships for the sake of economy and efficiency, is a major driver for dredging. Between 1977 and 2011, global GDP rose by 3.2 percent annually and seaborne trade grew 3.1 percent while the number of containers on ships surged 9.7 percent yearly, according to Rabobank. Growth in seaborne trade and containerization have together spurred investment in deepening, expanding and building ports and enlarging channels.

Of the millions of tons of goods shipped globally each year, crude oil accounts for over 20 percent and containers for more

WOODWARD

GCS GOVERNOR CONTROL SYSTEMS, INC.
Woodward Authorized Service and Repair

GCS Service and Repair facilities in the Southeast, Gulf Coast, Mid-Atlantic, Pacific Northwest, and Bahamas offer local WOODWARD repairs and maintenance.

Emergency On-site Services & Troubleshooting

- Local WOODWARD governor repairs & maintenance
- Engineered control system integration
- Fuel measurement systems
- Air starting systems
- Oil mist detection & cleaning systems
- Instrumentation, sensors & monitors
- Voltage regulators

ISO 9001

SOUTHEAST/BAHAMAS	GULF COAST	MID-ATLANTIC	PACIFIC NORTHWEST
954-462-7404	985-626-8707	757-852-5808	206-297-0300

email: **service@govconsys.com**
www.govconsys.com

To schedule service, call your local GCS office or visit www.govconsys.com

The Innovators in Fire Suppression since World War I.

Our time-tested fire suppression systems protect a wide range of vessels and spaces including: **Engine Rooms • Cargo Spaces • Galleys • Control Rooms • Lube Oil Rooms • Paint Lockers • Thruster Rooms • Switchgear Spaces • Machinery Rooms**

Visit our website at www.kiddemarine.com to find an authorized distributor in your area.

Kidde Marine

KIDDE MARINE FIRE SUPPRESSION SYSTEMS

FIRE PROTECTION FOR PEOPLE AND PROPERTY

Table 1

Fiscal Year	Dollars			Cubic Yards		
	Maint	New Work	Total	Maint	New Work	Total
1963	$59	$107	$166	217	263	480
1968	$70	$42	$112	249	89	338
1973	$112	$45	$157	276	36	312
1978	$214	$93	$307	210	71	281
1983	$355	$89	$444	254	33	287
1988	$295.40	$178.00	$473.40	212.8	72.6	285.4
1993	$410.20	$104.70	$514.90	235.5	33.5	269
1998	$532.50	$178.00	$710.50	211.3	27.3	238.6
2003	$597.20	$290.10	$887.30	191	42.8	233.8
2008 *+	$749.40	$262.30	$1,011.70	190.4	26.1	216.5
2012 +~*	$857.40	$362.70	$1,220.10	216	21.9	237.9

*Includes PL 84-99 and FY 05 Hurricane Katrina Supplemental (PL 109-062) amounts / +Includes Hurricane Supplemental work (HSW) amounts / ~ Includes AARA amounts. Dollars and Yards (in millions)

than 15 percent, followed by iron ore, coal and LNG. Very large crude carriers or VLCCs and ultra-large crude carriers or ULCCs, both introduced in the 1970s, have sparked port expansion and dredging. And ever-larger vessels for containers have greatly boosted dredging demand. To maximize economies of scale, dry goods are increasingly shipped via containers. As container vessels grow, customers benefit from lower costs, raising demand for goods and prompting investment in even bigger boats.

In 1980, the world's largest vessels shipped 4,100 TEUs or twenty foot containers, and by 2012 that had ballooned to15,000 TEUs. As of 2014, seven of Denmark-based Maersk "Triple E" containerships, with a capacity of 18,000 TEUs and a draft of 14.5 m (48 ft.), were in service globally, with more about to be delivered by the company or under construction. They're too big for the Panama Canal's new dimensions and most American ports, but can transit the Suez Canal for trips between Europe and Asia. After the Panama Canal's expansion is finished in 2015, container vessels of up to 13,000 TEUs with a maximum draft of 15 m, a length up to 366 m and a width of 49 m can be accommodated.

Most of the world's busiest ports, including Long Beach and Los Angeles in California, can handle huge container vessels with a draft of 14.5 meters. Rotterdam's heavily dredged Maasvlakte II port is 20 m deep. U.S. ports, including New York City, Norfolk and Baltimore, have increased depths to at least 15 m or (50 ft.).

The biggest U.S. dredging projects now are maintenance work, port deepening and activity following Sandy in October 2012,with the two biggest projects (in terms of dollars) being the deepening of Miami Harbor, expected to culminate in mid-2015, and the deepening the Arthur Kill in New York/New Jersey Harbor, expected to finish later this year.

The Hurricane Sandy Emergency Supplemental Appropriations bill or H.R. 152, signed into law in Feb. 2013, included about $600 million for maintenance dredging projects in 2013/14 and more than $1 billion for beach replenishment. Deepening the Arthur Kill is part of a project, dating back to 1986, between the Port Authority of New York and New Jersey and USACE, to accommodate big container ships. Estimated project costs for NY/NJ Harbor Deepening, including non-federal shares, total $2,675,256,800 since 2002, according to USACE. Another major dredge project is deepening of the Delaware River shipping channel from 40 to 45 ft., a project scheduled for conclusion in 2017, if fully funded.

Eastern Shipbuilding and Great Lakes Dredge & Dock Company cut steel starting the construction of a new 433-ft. Trailing Suction Hopper Dredge ATB. To be named Ellis Island (ESG Hull 253), the detailed engineering is being performed by Bay Engineering, Inc., and is based upon an Ocean Tug & Barge Engineering, Inc. ATB design. Delivery is expected in 2016.

Great Lakes Dredge & Dock Corporation in Oak Brook, Ill., was the lone U.S. firm among the world's top ten dredging companies ranked by sales in 2012, according to Rabobank. The largest dredger was CHEC in China, followed by Jan De Nul in Belgium.

When GLDD reported annual earnings in February for the year ended in December, CEO Jonathan Berger said: "Our continuing business, led by our dredging division, delivered a strong year, generating $98.9 million in adjusted earnings before interest, taxes, depreciation and amortization from continuing operations. Record coastal protection work and an increase in foreign capital work, along with a strong first year from our Terra Contracting business, helped make 2013 our second best year ever for earnings." Terra, acquired by GLDD in early 2013, remediates and removes contaminated sediment and cleans up Superfund sites. Berger said GLDD won $692 million, or 54 percent, of the domestic dredging bid market in 2013. Coastal protection work accounted for $245 million of those awards. Much of that work was funded by the Hurricane Sandy appropriations bill. "Our win rate was also driven by the award of the first two phases of the PortMiami project for $174.1 million," he said. "A remaining option of $31.6 million was awarded on Jan. 31, 2014, bringing the contract's total value to $205.7 million."

ENVIRONMENTAL SAFETY FACT:

209,000 BOATS AND SHIPS ARE AFFECTED BY THE NEW VESSEL GENERAL PERMIT.

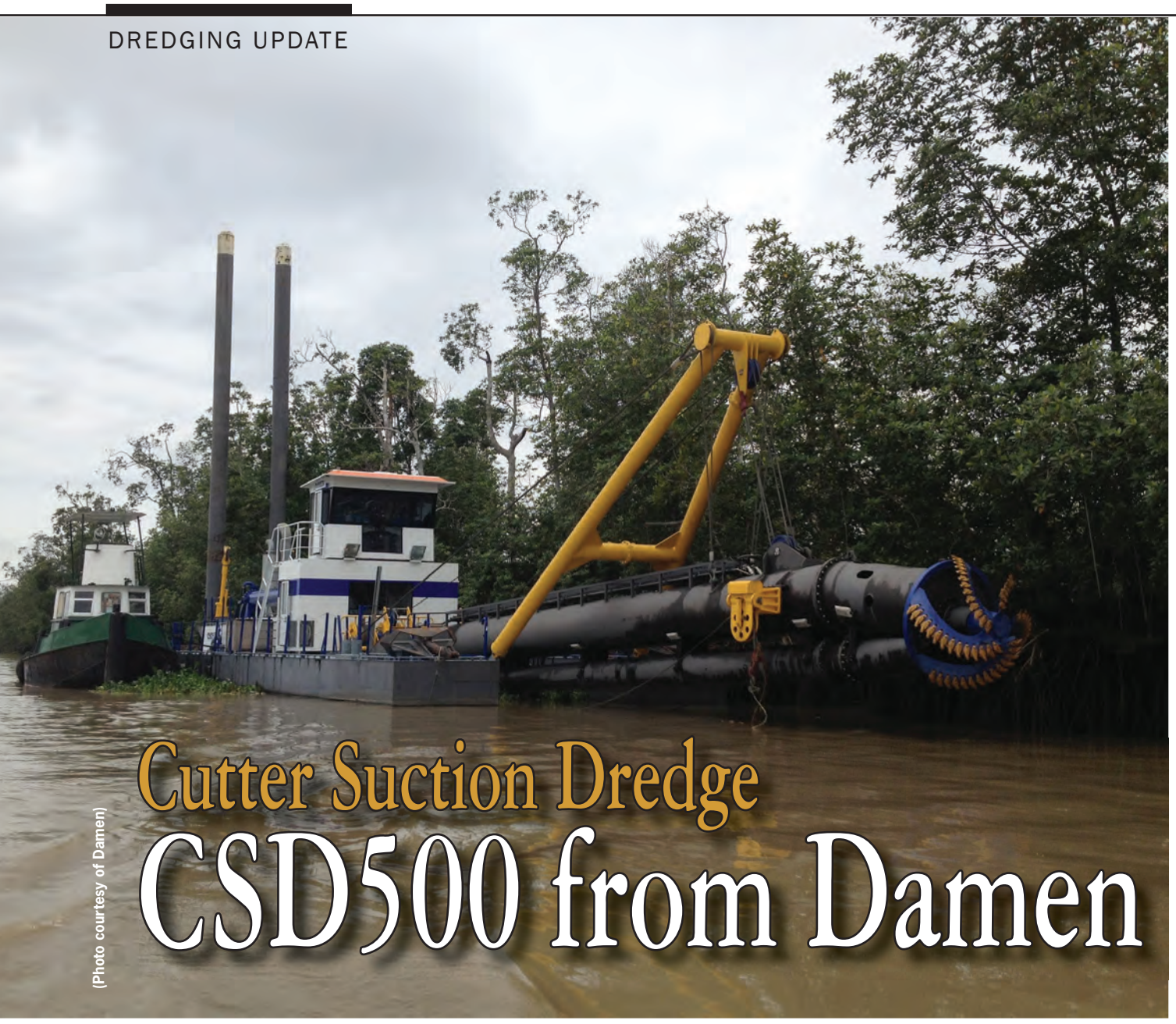
ENOUGH TO STRETCH FROM
SAN FRANCISCO TO WASHINGTON D.C.

ENVIRONMENTAL SAFETY SOLUTIONS.

Responsibility for enforcing the 2013 VGP falls to the U.S. Coast Guard and the hundreds of vessels in its fleet. Clarion® Lubricants is committed to helping you comply with environmental regulations. Clarion Green BIO and Clarion Green Synthetic products meet defined requirements for Environmentally Acceptable Lubricants and provide confident protection for your operation. And our waters.

To find a lubricant solution for your marine operation, visit **ClarionEnviroSafety.com.**

clarion LUBRICANTS



(Photo courtesy of Damen)

Cutter Suction Dredge CSD500 from Damen

CSD500 assembled and ready for its first job.

A Nigerian customer added its ninth Damen dredger to its fleet. The Cutter Suction Dredger type CSD500 was chosen due to the availability of Damen Field Services in Nigeria, the builder said, adding that the local presence was even more practical in view of the challenging assembly conditions. For Damen's Service Hub Nigeria this job is one of the first successes.

Damen Shipyards Group usually has a spares-stock available in Nigeria for standard dredgers such as the CSD500. In addition, Damen field service engineers are continuously available locally. For cutter suction dredgers, Damen offers maintenance contracts to keep the vessels in shape. This results in maximum uptime of the (modular) dredger and a satisfied contractor who can do exactly that for which his dredger has been designed: making money by continuous dredging.

The most challenging side of this job was the assembly. It was planned at a scrapyard on the swampy sidebranch of a river (see photo below). Local conditions were worsened by the rainy season. The locally sourced cranes of 250t and 500t got stuck in the mud more than once. When the cranes arrived at the assembly site, the ground had to be strengthened. Moreover, the dredger had to be hoisted no less than 25 m from the river bank as conditions were too swampy right next to the shoreline.

The Damen Cutter Suction Dredger 500 dredges at maximum of 14m and pumps some 4,000 cu. m. of mixture per hour. The standard dredger has been outfitted with an accommodation unit. The unit includes a kitchen, a sitting area and sanitary facilities. The dredger currently works on a land reclamation job near Warri.

www.damendredging.com

(Photo courtesy of Damen)

Assembly was done in challenging conditions

FOR TRUE RISK REDUCTION, YOU HAVE TO LOOK DEEPER

Noble Denton Marine Assurance and Advisory

Our Noble Denton Marine Assurance and Advisory services have been setting the standard in marine warranty for over 50 years. Much of the industry follows our guidelines, standards and rules, and we have contributed significantly to developing global best practice in marine operations. But, with the oil and gas sector working on more complex projects in increasingly challenging environments, we believe that the benchmark can always be higher.

Every year, we invest 5% of our revenue back into research and development to keep us at the forefront of our customers' challenges. That results in more robust standards and, when you combine those with the deep technical expertise we bring to the complete asset lifecycle, you get true risk reduction.

Discover more at www.dnvgl.com

SAFER, SMARTER, GREENER

DNV·GL

Quantitative Risk Analysis for LNG Terminals

LNG Terminals

Widescale Development of LNG Bunkering is Expected

WIM LAFEBER

Lloyd's Register recently conducted a survey that indicated that the majority of major ports around the world are either planning for, or are anticipating, the widescale development of LNG bunkering. One of the locations is the Port of Rotterdam, which is a busy port with dense traffic on the various waterways consisting of both maritime and inland vessels.

During the analysis, the probability of ship collisions was assessed and then the consequences were identified. The first phase of the study investigated the probability of a collision using the Safety Assessment Models for Shipping and Offshore in the North Sea (SAMSON), which was developed by MARIN. Input for this model included ship movements, ship characteristics and the layout of the terminal.

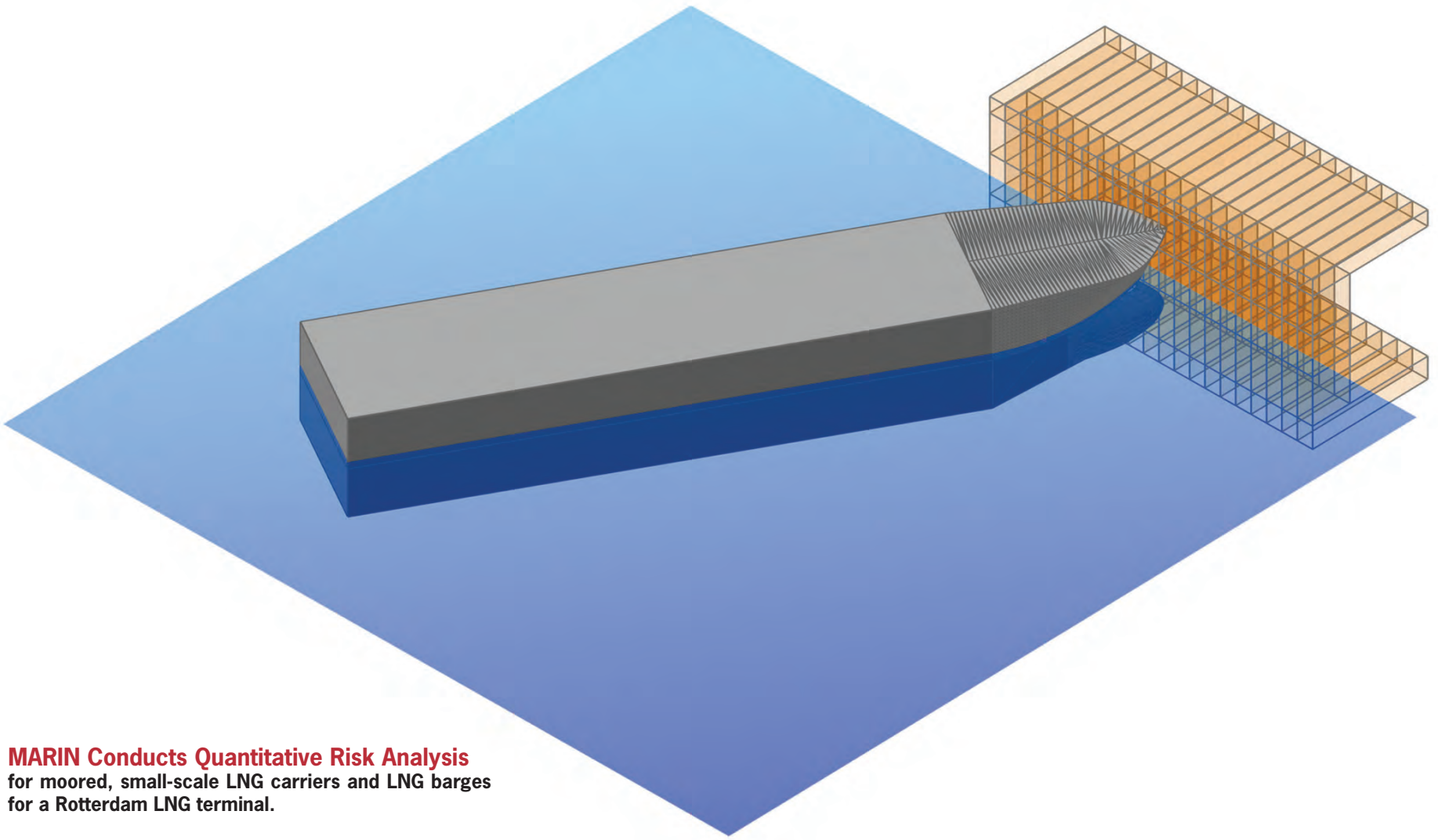
For the second phase of the study, the Maritime Collision Model (MARCOL) was used. A Quantitative Risk Analysis calls for a damage calculation tool such as MARCOL because it only requires a handful of parameters of the many ships involved in collision events. The MARCOL tool automatically models the collision events and rapidly calculates the penetration area in the cargo tank of the stricken vessel. For this study, more than 100,000 collision events were calculated by MARIN's high throughput computing grid.

Results of the study clearly showed the added value of combining SAMSON and MARCOL, over simplified models. For instance, the results demonstrated that the relationship between the kinetic energy of the striking vessels and the probability of penetration of the cargo tanks was actually low. Geometrical properties of the striking vessel, such as the freeboard and the bow shape, determine the outcome of a collision event to a much larger extent. The results of the Quantitative Risk Analysis are therefore helpful when considering risk-mitigating measures such as speed reduction for a specific marine group.

The Author

Wim Lafeber is Researcher Hydro-structural Services at the Trials & Monitoring Department of MARIN, the Maritime Research Institute Netherlands.

e: w.lafeber@marin.nl



MARIN Conducts Quantitative Risk Analysis
for moored, small-scale LNG carriers and LNG barges for a Rotterdam LNG terminal.

Photo: Becker Marine Systems

Meet the LNG Hybrid Barge

Becker Marine Systems launched its new LNG Hybrid Barge, a unit that acts like a floating power plant, supplying low-emission energy to cruise ships. The LNG Hybrid Barge measures 76.7 x 11.4m with a draft of 1.7m. In early September it made the 1,500 km journey up the Danube, Main and Rhine rivers towards Hamburg for technical testing and commissioning. Following a naming ceremony in mid-October, the LNG Hybrid Barge will for the first time be delivering energy to a cruise ship as part of a joint project with AIDA Cruises. The LNG Hybrid Barge is equipped with five generators with an overall output of 7.5 MW (50/60 Hz). These generators will be the first marine classified LNG Caterpillar engines to be delivered to customers.

www.becker-marine-systems.com

Image courtesy of Ferus Smit

LNG Powered Cement Carrier

The first LNG powered ship that Ferus Smit has on order for Erik Thun A.B. will be built and equipped as a dedicated cement carrier. It will be delivered to the joint venture JT cement, in which Erik Thun AB cooperates with KG Jebsen Cement from Norway. There is an option for a second vessel. The vessels cargo system will consist of a fully automated cement loading and unloading system, based on fluidization of cement by means of compressed air. The cargo system is designed and delivered by KGJ cement. The cargo handling equipment will be able to discharge up to 500 cu. m. per hour. Cargo capacity will be around 7,200 DWT, and the ship will measure 109.7 x 15m. Characteristics of year round Baltic service with iceclass 1A and a Wärtsilä dual fuel engine fed by a pressurized type C LNG tank inside the hull remain unchanged.

www.ferus-smit.nl

Image courtesy VT Halter

Second ConRo for Pasha

VT Halter Marine launched MV Marjorie C, a container and RoRo car truck carrier (ConRo) at its Pascagoula facilities. MV Marjorie C is the second vessel built for Pasha Hawaii. MV Marjorie C has the ability to carry 1,500 TEUs, above and under deck, as well as vehicles and over-high and over-wide cargoes on 10 workable decks. The 692-ft. long vessel, with a vehicle shipping capacity of 2,750 units, is the largest vessel ever built by VT Halter Marine. The stern quarter ramp measures 39.4 ft. wide and 20.7 ft. high, with a rated capacity at up to 250 metric tons.

www.vthaltermarine.com

Offshore Supply Vessels

After all, the industry was created in America ... it is only appropriate that the United States dominate it again.

BY DENNIS BRYANT

Offshore supply vessels (OSVs), also known as platform supply vessels (PSVs), have been a distinct vessel type since 1956, when the MV Ebb Tide was placed into service in the Gulf of Mexico. Ebb Tide was designed by Alden J. "Doc" Laborde to meet the growing demand for vessels to service the increasing number of offshore oil drilling rigs in those waters. Previously, this new industry had been served, albeit inadequately, by existing vessels, particularly surplus amphibious assault barges. Ebb Tide was designed with the pilot house at the bow and with an open deck from there aft to the stern. It was an immediate hit with customers and formed the foundation of the Tidewater Company, now a leader in the industry.

The problem, if it can be considered from that perspective, was that the existing statutory and regulatory scheme had not envisioned such a vessel. Although relatively small, it could carry a significant amount of cargo, including bulk liquid cargo. In a different configuration, it could carry a significant number of persons in addition to crew. The U.S. Coast Guard was at a loss regarding how these vessels should be regulated. Likewise, the classification societies, including the American Bureau of Shipping (ABS), had no succinct rules for their classification. The Coast Guard and ABS did the same thing that Mr. Laborde had done – they improvised, initially developing one-off, ad hoc approaches intended to allow the innovative vessels to continue working while ensuring that the crews, cargoes, and vessels were safe.

The Coast Guard soon developed the practice of inspecting OSVs as cargo and miscellaneous vessels if of more than 15 gross tons and of less than 500 gross tons and carrying freight for hire (referred to as "supply boats"). Those OSVs of less than 100 gross tons and carrying more than six passengers for hire were referred to as "crew boats" and were inspected as small passenger vessels.

On October 6, 1980, Public Law 96-378 was signed into law. It established the offshore supply vessel as a separate category of vessel subject to inspection by the Coast Guard. It also redefined the term "passenger" as regards OSVs to exclude a person employed in some phase of exploration, exploitation, or production of offshore mineral or energy resources served by the vessel. This provision exempted OSV crew boats from coverage under the small passenger vessel regulations. The statute also established minimum manning levels for OSVs and provided for licensing and certification of officers and crew. Finally, the new law made all OSVs subject to inspection, including those operating under bareboat charters.

The process of drafting and promulgating regulations implementing the new statute turned out to be excruciatingly long. In the meantime, though, the Coast Guard issued guidance to its field personnel and to the industry in the form of a Navigation and Vessel Inspection Circular (NVIC). As its name implies, NVIC 8-81 "Initial and Subsequent Inspection of Uncertified Existing Offshore Supply Vessels under Public Law 96-378" provided guidance for applying standards to OSVs (and later, liftboats) that were already in operation when the statute was enacted. This guidance was updated and expanded by means of NVIC 8-91, entitled "Initial and Subsequent Inspection of Existing, Uncertified Offshore Supply Vessels, Including Liftboats", which superseded NVIC 8-81.

After two Advance Notices of Proposed Rulemaking (ANPRMs) in 1983 and 1987 and one Notice of Proposed Rulemaking (NPRM) in 1989, the Interim Rule for Offshore Supply Vessels was finally promulgated on November 16, 1995. For the first time, it provided a complete set of regulations (new Subchapter L of Title 46, Code of Federal Regulations) applicable to new OSVs, including liftboats. For purposes of the regulation, a new OSV was any such vessel that was certificated on or after March 15, 1996. OSVs that were certificated prior to that date were considered existing OSVs. Existing OSVs could either comply in their entirety with the new regulations or comply with the previous regulations and policy, including the NVIC. The OSV final rule, largely adopting the interim rule, was promulgated on September 19, 1997. Various amendments have been promulgated over the years.

It gradually became apparent, though, that the designers of the OSV program had imposed unforeseen constraints. Few envisioned in the early days of the industry that OSVs would exceed the 500 gross ton upper limit provided for in the 1980 statute. The oil and gas industry, though, kept building larger and larger rigs, drilling further and further offshore, and operating in harsher conditions than the Gulf of Mexico. The support vessels, particularly the OSVs, had to become larger and more robust in order to keep up with the demand. This was not a problem in other countries, where there was no artificial limit on OSV size, but it put an unexpected constraint on the OSV industry in the United States.

Included within the Coast Guard Authorization Act of 2010 (Pub.L. 111-281) was section 617. This section eliminated the upper tonnage limit of 500 GRT or 6,000 GT ITC for OSVs and set certain manning and construction requirements for larger OSVs. The section also provided for the direct promulgation by the Coast Guard of regulations implementing the statutory amendments. The impetus for these amendments was the drastic change in the industry, particularly internationally. While the U.S. offshore industry was bound by the 500 GRT limit, foreign competitors were building and operating larger OSVs, capable of carrying more freight further offshore. The United States, where the OSV had been born, was forced to play catch-up. The 2010 statutory amendment was intended to put the U.S. OSV industry back on a level playing field.

As specifically allowed by the 2010 statute, the US Coast Guard skipped over the usual notice of proposed rulemaking (NPRM). The agency issued, instead, an interim rule (IR) on August 18, 2014 entitled "Offshore Supply Vessels of at Least 6,000 GT ITC". While its provisions entered into effect upon publication, the Coast Guard requested comments from the public on potential improvements. The IR is intended to be consistent with international standards for the design, engineering, construction, operations and manning, inspections, and certification of OSVs. In one particular aspect, the new regulations may exceed international standards. The regulations require that tanks on these larger OSVs intended for carriage of cargo oil, including drilling fluids containing oil, comply with double hull requirements developed for tank vessels. Similar protection is required for fuel oil tank protection on these larger OSVs. These steps have been taken so as to reduce the risk of pollution in the event of a casualty, a measure that has proven effective on tank vessels and has since been expanded to many cargo vessels.

The ball is now back in the court of the United States offshore supply vessel industry – the naval architects, shipyards, owners, operators and crew members – to demonstrate that they can truly compete in this dynamic global sector. After all, the industry was created in America. It is only appropriate that the United States dominate it again.

The Author

Dennis L. Bryant is with Maritime Regulatory Consulting, and a regular contributor to Maritime Reporter & Engineering News as well as online at MaritimeProfessional.com.

t: 1 352 692 5493
e: dennis.l.bryant@gmail.com

AVEVA Marine
Building Reputations

Ship production and offshore projects involve complex workflows, hundreds of participants, mountains of materials and volumes of data.

AVEVA is helping you take control of these challenges with our integrated suite of AVEVA Marine™ software applications. Created to meet the unique design, engineering and production requirements of the shipyard, AVEVA Marine delivers best-in-class solutions for your global operations. Based on a common database model that integrated multiple disciples, you can create, develop, manage and concurrently share engineering and design data in the most productive and risk-free way.

The leader in design, engineering, and information management software for the process plant, power and marine industries, AVEVA invests in our customers' success through a global sales and support network in more than 40 countries.

AVEVA – building solid reputations for over 45 years

www.aveva.com/marine

AVEVA™

The green chimney when starting a generator set

New Solutions for Electric Ship Propulsion

Start-stop function combined with variable generator speed

BY HANS-JUERGEN REUSS

For many years the start-stop function has become a common feature on automotive engines to reduce both fuel consumption and emissions. But the saving potential is much larger with onboard electrical power supply and propulsion systems.

Long-term measurements onboard passenger vessels with diesel-electric propulsion systems have shown interesting insights into the load balance. The operational time with 30 to 40% load, for instance, is much longer than that of 70 to 80% load.

Depending on the size and the number of generating sets on board a given vessel, one of the gensets could be switched off and the remaining set or sets could take on more load, creating far better efficiency.

The common practice of keeping all gensets running to be prepared for when full power is needed again is neither economical or environmentally sound policy.

Managing the Load

The first question now is how this can be managed onboard the ship? There is no chance to make use of the standard starting equipment of the internal combustion engines, as its electric or pneumatic starting equipment is designed for only a relatively low number of starts. Thus it is impossible to use it for frequent starts of the engines to save fuel.

The second question concerns the time needed from the signal to start the next genset to the point of taking over load by the generator. If the generators must be synchronized, the chances to switch off generating sets would be reduced.

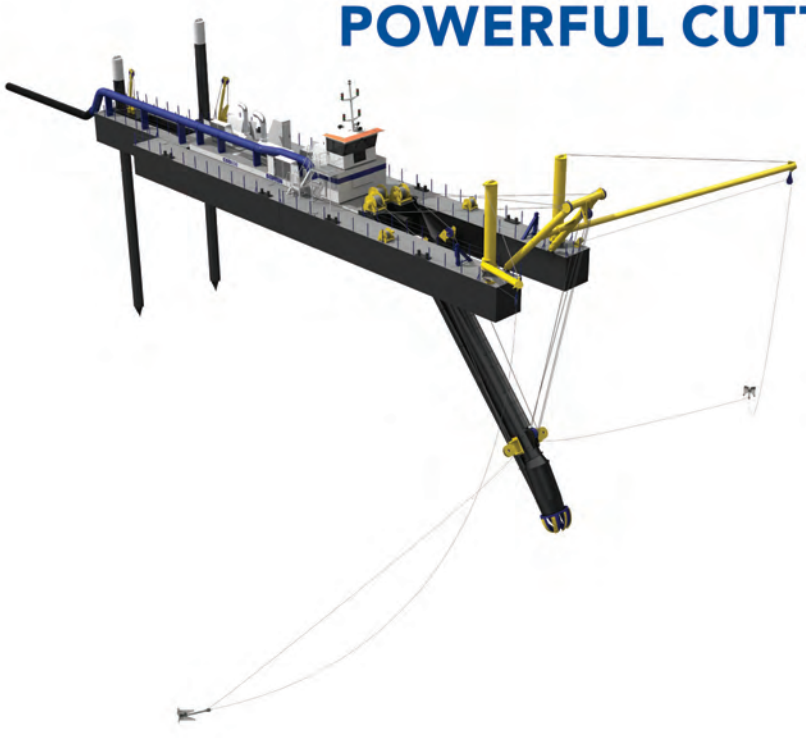
However, a proven technical solution offers the E-PP – the electrical power pack – introduced several years ago by the German specialist E-MS e-powered marine solutions GmbH & Co., in Hamburg. With this system, synchronization of generators is no longer necessary. Thus, the E-PP together with the start-stop function, as well developed by E-MS, is a combination with a potential fuel-saving of up to 12%.

How it Works

At first, let's take a look to the structure and the operation of E-PP: The onboard installations consist of asynchronous generators, low-voltage inverters and a common DC bus. The generators are excited load depending by assistance of inverters, providing constant voltage at individual frequency. Keeping in

DAMEN DREDGING

POWERFUL CUTTER SUCTION DREDGERS

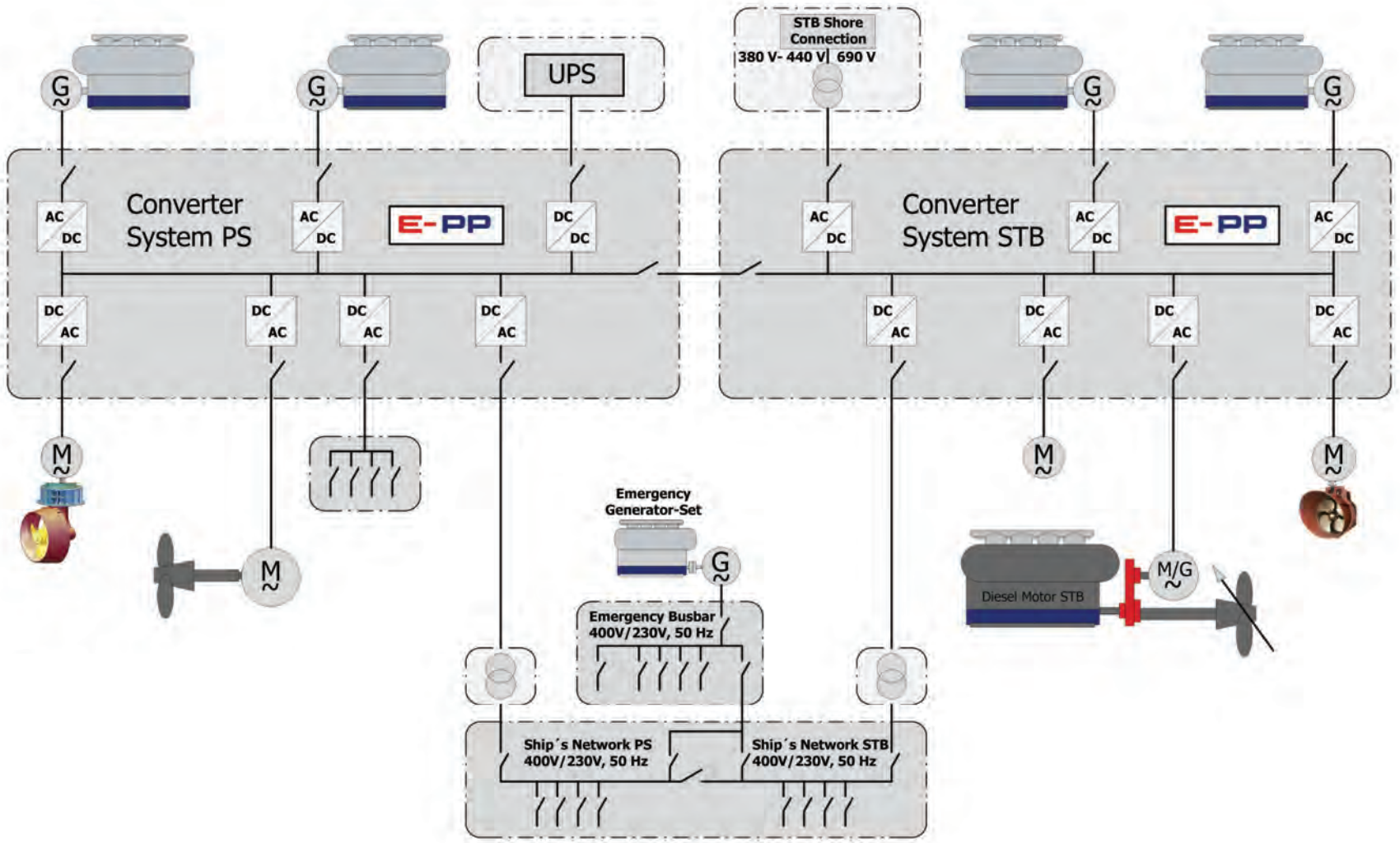


FACTS

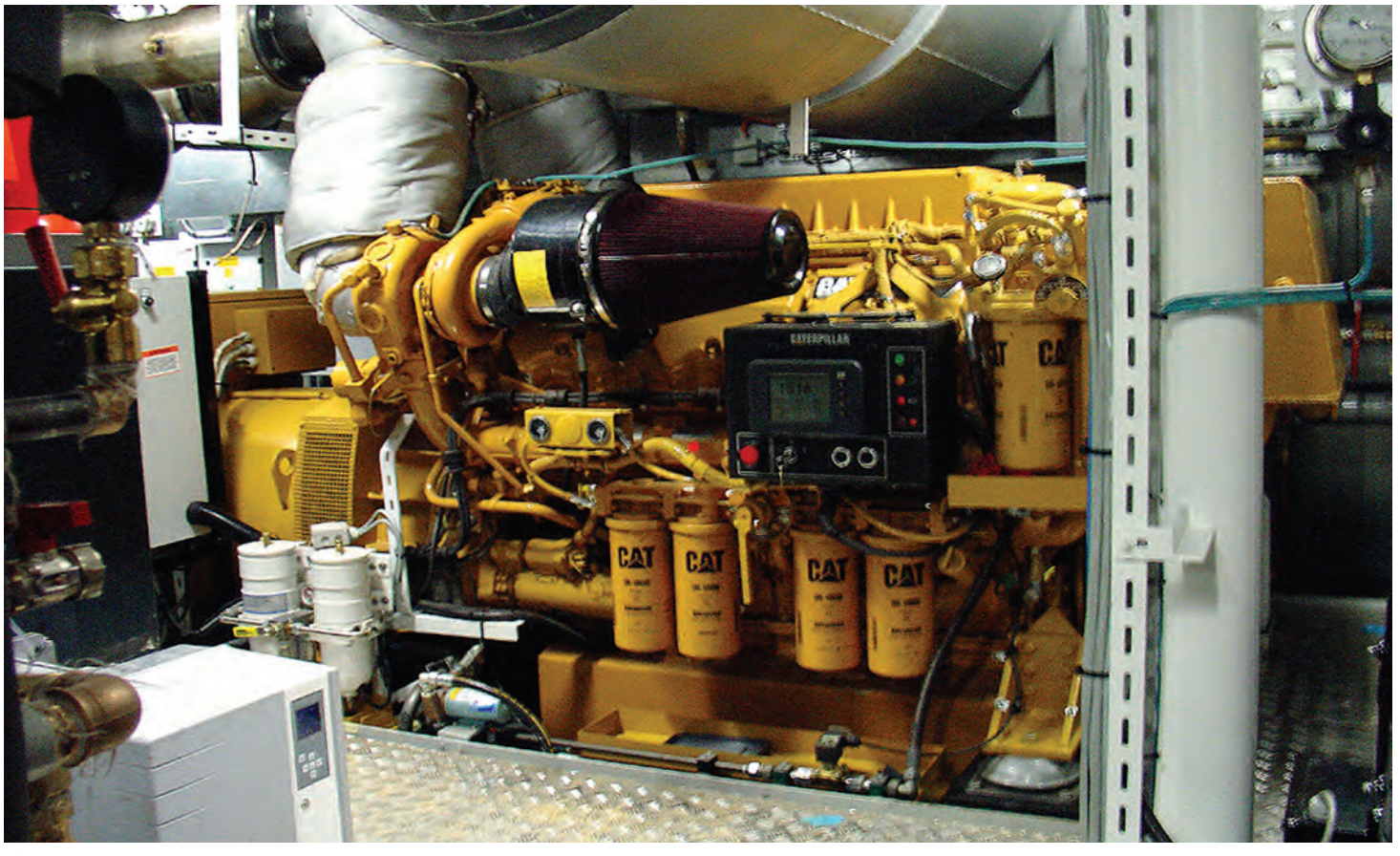
- a complete range of CSD's
- available from stock worldwide (COTS)
- 250 mm – 650 mm pipe diameters
- highly efficient Damen dredge pump
- effective dredging due to large swing width

DAMEN

DAMENDREDGING.COM | CONTACT@DAMENDREDGING.COM | +31 (0)33 247 40 40 | PRODUCTS.DAMEN.COM/RANGES/CUTTER-SUCTION-DREDGER



Electrical Power Pack (E-PP) variations.



Generator in the engine room.

mind the characteristics of prime movers, they may be used at the speed of best efficiency or according to demand of electrical energy on board with the respective speed, whichever best corresponds to the energy needs. This might be a speed below or even above synchronuous speed.

The common DC bus provides all services as well as the electrical ship propulsion via inverters with the required AC voltage and frequency. Since just the development of low-voltage inverters has led to equipment in the power range up to 5000 kW, there are now interesting perspectives for this development of E-MS. The system may be applied for all types of ships with large and strongly fluctuating electrical power demands. The best result will be achieved in combination with the start-stop function.

Now the questions above can be answered considering an onboard power supply system working with asynchronous generators. To answer the first question one has only to look at the generators used. These powerful electric machines can be used not only as generators but also as motors to start the engines. And there are no restrictions as far as the number of starts is concerned. Contrary to usual starting equipment the motors guarantee reliable start procedures anytime within a very short time. Their torque is by far larger in comparison with conventional starters, independent of their operating mode. The combustion engines may not only be speeded up to the ignition speed but even to their rated speed. And the answer to question two: Using the generators as starter motor the starting procedure is shortened to a fraction of the time.

Making use of the start-stop function proposed by EMS, reliable and fast starting procedures are important since a rapidly increasing electrical power demand may otherwise lead to a black out. But with the technology described here, the start-up times can be reduced considerably.

For instance, with diesel engines in the power range between 100 and 4000 kW the time between the starting signal and power take over can be reduced from 30 or 40 seconds to only ten seconds. Since the combustion engines are always warmed up and pre-lubricated there are no difficulties on the side of the IC engines.

The technical improvements for diesel- and otto-electric on-board power supply systems – even of largest output – are feasible today. One can therefore be eager when the first installation of this technology comes to an application. After more than a hundred years of diesel-electric ship propulsion systems, these developments promise a considerable saving potential.

Inland river transport is a major beneficiary.

Classic Design with Tomas Tillberg

Cruise ship and passenger vessel design are unique in the maritime world, evolving with time and style, demanding efficient power and safety for these cities at sea. Tomas Tillberg of Tillberg Design International is a renowned "go to" source for perspective and insight in this regard.

By Greg Trauthwein

For those not familiar, can you kindly give an overview of how you found your way in to cruise and passenger vessel design?

I grew up with design being discussed at home and helped in the office very early on, visiting clients together with my father and helping in other ways. I went to the Royal Academy of Fine Arts in Stockholm and while a student there I did an early job on a vessel that later became one of the "Love Boats" for Princess Cruises. I joined my father some time later and we started working together. We expanded the office with my work in the U.S. which lead to the establishment of our office in Fort Lauderdale.

How would you best describe your overall design style and tastes?

Every project has to do with the clients branding. It's not so much a question of our firm's style as one might think at first, but it's always about the clients expectations, their branding, rebranding, which direction they would like to go and so on. We are very attentive to those aspects so that we can give them their proper expression and thus materialize the client's intentions as they relate to each project. Our attitude is that a professional in the field of arts can create any number of different styles which gives a lot of freedom to us as designers as well as the client. In this way any dreams can be realized.

While you obviously have your own design style and tastes, your job is difficult in that you must rectify your thoughts with those of your client's as well as what is physically possible on a ship. What is your advice to get this done as efficiently as possible?

Having associates with years of experience in the field and the best resources available is a key factor and, as I mentioned above, understanding the client's needs and the guests' expectations is paramount and often even the ship's itinerary is to be considered. There are always financial considerations to have in mind as well, and we strive to maximize the designs within that framework.

Design obviously evolves: what do you see as the most significant evolution in cruise ship design, and why?

The most obvious evolution is the many choices a guest has today. We see this for example in the dining venues, where it used to be that you had to decide on early or late dining in the one dining room, as the only choice. Now there are perhaps six or more options to choose from, at least. Another evolution in design, that started some

time ago, but that we see clearly now, is the boutique hotel look which is a more intimate design style reflecting what one would find on land. Also the sophistication and diversity in entertainment onboard and the great variety in attractions are continuously evolving.

When you look at the cruise and passenger vessel market, what do you see as the most significant evolution in cruise ship design, and why?

The current focus is toward cleaner, more contemporary, timeless designs as can be seen in the hospitality trends today.

Ships in general – cruise ships in particular – continue to grow bigger with ever complex amenities and entertainment. I have heard suggestions that ships are getting too big, outgrowing safety systems and the ability to evacuate safely in an emergency. What are your thoughts on the subject.

Despite the size the ships are safer than ever. As past experience is implemented the regulatory requirements become stricter. Safety is always at the forefront of cruise ship designs, from the owner, the shipyards and also from us as designers. The evolution of new technology and materials is creating not only a vast array of possibilities for designs, but also has increased the safety onboard. It's just amazing how stable and comfortable the larger ships are.

What is the one project that you have completed that you are most proud of?

It's hard to single out any one project as we take pride in all our endeavours. Every project for us is special whether large or small. The client's satisfaction with our work is "the proof of the pudding" and we are happy to say that we collaborate with many wonderful clients in the cruise industry.

What, or who, do you count as the biggest influence on your design, and why?

Robert Tillberg, my father, and his style of being careful to listen and not only having certainty as a designer but also being practical and considerate of everyone he associated with. He was very secure in his knowledge of design which allowed him to encourage others to develop their creativity.

When your career is done and you look back on your body of work, how would you like to be remembered?

Well, Robert retired when he was 85, so I probably still have a few years to contemplate the answer to that question!

However, when I look at the list of stellar clients and the amazing body of work that our firm has created and all the talented and dedicated designers that I have been privileged to work with, I realize that I have been very fortunate. My wish would be that through their creativity and dedication the Tillberg name will be respected long into the future.

... And the Winner is ...

Earlier this year Rolls-Royce was bestowed the Heyerdahl Award for its Enviroship concept. Maritime Reporter & Engineering News recently caught up with Per Egil Vedlog, Design Manager, Rolls-Royce Marine AS, for his insights on the honor as well as the challenge in designing for the maritime future.

By Greg Trauthwein

Anyone that has spent much time in Norway must realize that the Norwegian maritime cluster is a special one, bound by generations of designing, building and operating in, around and under the sea. Unlike many 'clusters' that are formed out of financial expediency, all matters maritime are seemingly interwoven into the Norwegian DNA. And while the country is relatively small on population, logging in just shy of five million inhabitants, it is a global giant on maritime thought and innovation.

So Per Egil Vedlog, Design Manager of Rolls-Royce Marine AS, was a natural choice for insight on innovative maritime design, fresh off receiving the Heyerdahl Award for its Enviroship concept, the award presented by His Majesty King Harald at the Norwegian Shipowners' Associations Annual Conference in Oslo earlier this year.

The Enviroship Concept?

The Environship concept is an innovative ship design which integrates a highly efficient gas-based power and propulsion system with an innovative hull design to provide significant reductions in emissions. In bestowing the Heyerdahl Award, the committee, chaired by Secretary General of the International Chamber of Shipping (ICS) Peter Hincliffe, noted that Rolls-Royce had taken a holistic approach to vessel design, combining a number of innovative solutions that increased energy efficiency and contributed to significant reductions in emissions.

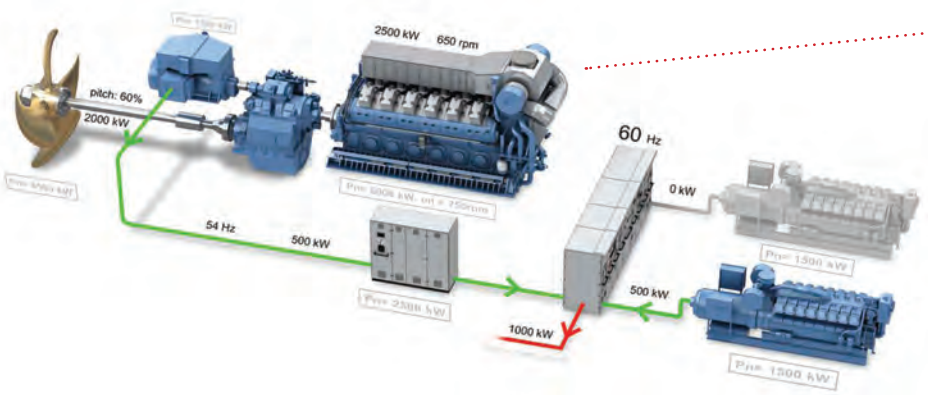
"The Enviroship concept is built on five main technology pillars: PROMAS, hybrid shaft generator, gas fuel engines, wave piercing technology and the system engineering and integration," said Vedog. "The systems integration and overall systems integration is critical."

"For us it is very important to be recognized by these awards because they recognize our extensive R&D and innovation work," said Vedlog, a 30 year veteran in ship design. And while Rolls-Royce is the name on the award, Vedlog attributes some of the success to the Northwest coast Norwegian Maritime Cluster, which provides he and his colleagues ready access to the design and equipment manufacture expertise of colleagues both in and outside of the company, an accrued knowledge base that that spans generations. "We have easy access to high maritime technology and innovation competence," said Vedlog.

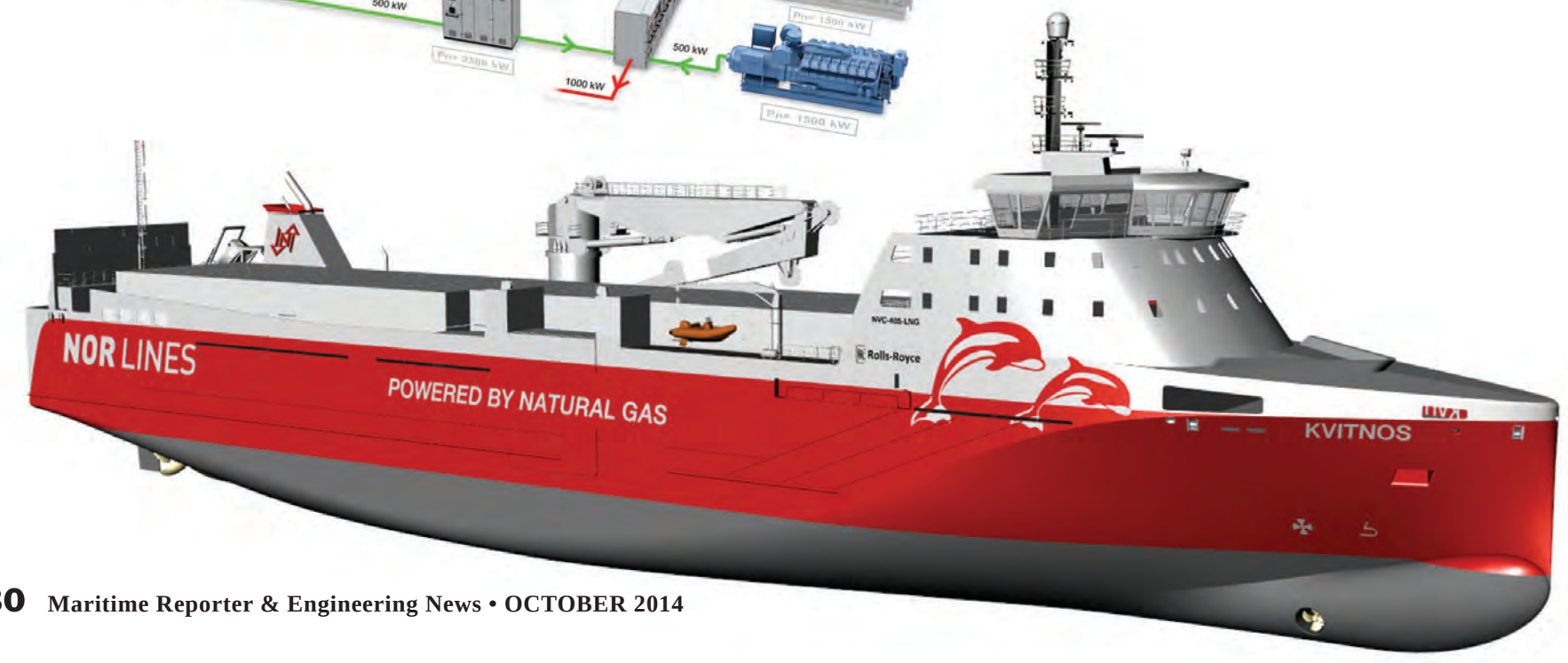
Innovation by Design

While the Norwegian maritime cluster receives partial credit, the legendary innovative spirit of the country is deeply rooted in something relatively simple: need. "Norway is a high cost country, and we have very high labor costs. So we need to compete on technology," said Vedlog. "We excel on the high technology projects, and we have found that when you combine technology as we have done on the Enviroship concept, you are able to get very good performance." But make no mistake, the Enviroship concept is not simply innovation for the sake of innovation, and Vedlog stressed that showing owners rapidity of investment payback is central to every project. "An important part of our work is doing cost benefit analysis for the owners, to estimate payback time. So we have seen time and again when you combine technologies, the buy in cost may be a bit higher but the payback time can be quite short."

Until the last few years, it could be argued that "being green" was more statement than action. But a proliferation of increasingly stringent maritime



The Hybrid Shaft Generator (HSG) (left) is one of the five pillars of the Enviroship Concept (below): The HSG system is a drive system that control the frequency from the shaft generator to the switchboard even when engine rpm varies. The system allows you to run the shaft generator in parallel with the auxiliary engines and the shaft generator can be functioning either as a generator or as an electric motor.



rules in regards to ship performance and emissions has forced all ship owners to adopt cleaner and greener practices. That, combined with a large and strong supply of cheap energy, particularly LNG in the United States, is a compelling driver for designers and owners today. “The environmental footprint focus is growing in importance, as owners are very much more focused today on their environmental footprint,” said Vedlog. “So in turn it is up to us to develop projects and solutions that have a favorable environmental footprint as opposed to off-the-shelf designs, which in many cases are very old technology. For us it is very important to demonstrate that if you have a little bit extra investment cost, the payback time can be very short.”

Vedlog said that while the Enviroship concept has five main technology pillars, it is the gas fuel system that is a cost driver in this design. “It is a little bit more expensive, and it takes a bit more space, so you have to be clever with the design to not eat into cargo space.” The gas fuel system is the central contributor to an estimated 22% CO2 reduction, and the wave piercing hull form is a major contributor too, with an estimated 10% less resistance in the various wave conditions of the demanding North Sea.

According to Vedlog the Enviroship concept is perhaps best suited to two or three optimal ship types, including LNG Bunker, Tankers and General Cargo/Containerships, but it is not ship type specific: “There’s no reason this concept cannot be adapted to most commercial vessel types.” While it is dubbed the Enviroship Concept, market realities mean that in the real world, perhaps an owner will adopt only one or a few of the design concepts in a given vessel.

“It’s important for Rolls-Royce to demonstrate how we efficiently and effectively combine in-house technology and how we offer a lot of competence in-house, and how we are able to put together in-house technology in an optimal way with complete systems,” said Vedlog. “There will be cases where we are able to implement only part of the Enviroship concept, when the owner specifies, for example, another powerplant. We are not 100% locked to our system, we can offer a part of it as well.”

The 5 Technology Pillars

- PROMAS: The PROMAS system is a integrated sub system based on a optimized combination of propeller, a hub cap, a rudder bulb and the rudder.
- Rolls-Royce Gas Engines already meet IMO Tier 3 requirements that come into force from 2016.
- HSG – Hybrid Shaft Generator: The HSG system is described in detail to the left
- Rolls-Royce Wave Piercing Technology: A wave piercer is a ship equipped with a unique bow which is designed to “pierce” through the waves rather then riding on the top.
- Conceptual,Basic & Detail Design: Part of the “Environship Concept” is a systematic design approach based on Life Cycle Cost Analysis & Cost Benefit Analysis with owners defined operational profile.

Per Egil Vedlog
Design Manager, Rolls-Royce Marine AS

Design (R)Evolutions

While the maritime industry is widely labeled 'conservative' in its adoption of new technologies to make operations more efficient and cost effective, recent years have seen a decided uptick in the level and sophistication of design, external and internal, across the maritime spectrum. Following are some recent revelations that could work their ways onto a waterway close to you in the near future.

ReVolt

While investment in short-sea shipping generates plenty of debate and little action, particularly in the U.S., there are a plethora of innovative solutions globally that are geared to take traffic from congested roads and move it to the more efficient and environmentally benign waterways.

Researchers at DNV GL have developed ReVolt, a vessel that it touts as greener, smarter and safer than conventionally fuelled and operated vessels. Autonomous, fully battery powered and efficient, ReVolt is a new shipping concept that offers a possible solution to the growing need for transport capacity.

ReVolt is powered by a 3,000 kWh battery, reducing operating costs by minimizing the number of high maintenance parts such as rotational components. The vessel has a range of 100 nautical miles before the battery needs to be charged. If the energy required for that is harnessed from renewable sources, this would eliminate carbon dioxide emissions.

Perhaps even more striking than its innovative power system is the fact that ReVolt does not require a crew.

With no crew there is no need for crew facilities, resulting in increased

ReVolt

The unmanned, battery powered vessel ReVolt is envisioned by DNV GL to revolutionize short-sea shipping.
(Image: DNV GL)

Unmanned Platform

An illustration of Kvaerner's Subsea on a stick concept. (Image: Kvaerner)

loading capacity as well as low operating and maintenance costs. DNV GL estimates that compared to a diesel-run ship, ReVolt could save up to $34m during its estimated 30-year-life-time.

The vessel has an average speed of six knots and is designed to face less water resistance than other ships, which usually travel at about 8.7 knots. The slight loss of speed allowed the engineers to fit a straight vertical bow, further reducing water resistance along the ship's entire profile and ultimately saving energy.

The concept-ship announced at SMM 2014 in Hamburg is still being tested. "Building and operating this vessel would be possible with today's technology. ReVolt is intended to serve as inspiration for equipment makers, shipyards and shipowners to develop new solutions on the path to a safe and sustainable future," said Hans Anton Tvete, Senior Researcher at DNV GL.

Unmanned Platform

Statoil awarded Kvaerner a concept study related to a standardized, unmanned dry tree wellhead platform for the Oseberg Future Development project. The concept is focused on minimization

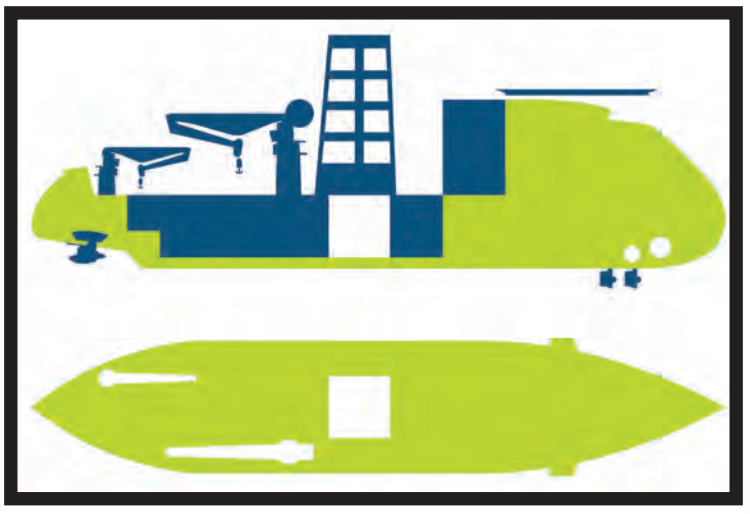
X-Stern

Ulstein's new "X-Stern" concept. Images, starting left and moving down:

An offshore vessel with the X-STERN has increased operability in harsh conditions. (Credit: Fire Grader)

Subsea X-STERN: A subsea vessel with the X-STERN

PSV: A PSV with the X-STERN



of facilities, equipment and costs down to water depths of 150m and may be a cost effective solution compared to a conventional subsea tie-back solution. Kvaerner has already worked on developing a cost-efficient, standardized wellhead platform concept called "Subsea on a stick." The new wellhead platforms could both increase recovery and utilize the new generations of jack-up drilling rigs, as well as reducing development costs. The project is expected to be the first in a series of new projects from Statoil where unmanned wellhead platforms could replace a traditional subsea project solution within the applicable water depths. The work will be carried out by Kvaerner's front end team in Oslo, Norway, supported by the Jackets Technology engineering team. The project has already started and will be completed in November 2014, with expected concept selection by year end.

X-Stern

Ulstein Group introduced the X-STERN, a design feature increasing vessel operability through positive effects on station keeping, wave response, comfort and safety in harsh conditions. An X-STERN vessel is designed to stay on position in harsh weather with the stern towards waves, wind and current. For vessels where the best possible motion characteristics are vital, positioning the X-STERN towards the weather instead of the bow will be the captain's natural choice. The X-STERN leads to reduced pitch and wave drift forces, as well as eliminating slamming. Positive effects are reduced power and fuel consumption while on DP, or the possibility of operating in a wider sector with the same power consumption.

The X-STERN has several of the same characteristics as the X-BOW, and additional ice operation capabilities. Its gentle displacement is designed to reduce acceleration, pitch and heave, and it purports to improve comfort and safety. In addition, the operational window is increased.

There will be no sea on deck, and reduced ice build up in cold climates, due to the stern shape and enclosed nature of the aft deck.

LNG Barge

Bristol Harbor Group was awarded an Approval in Principle (AIP) by the American Bureau of Shipping (ABS) for the design of the 3,000 cu. m. Liquefied Natural Gas (LNG) Transport Barge design on behalf of Conrad Shipyard of Morgan City, La. BHGI has relationship with Conrad spanning more than a decade, a relationship that has traditionally focused on coastal liquid cargo barges from 26,000 BBL to 80,000 BBL. It is the 300-ft. version of these double hull oil barges that serves as the basis for this LNG Transport Barge.

This new design will serve the purpose of primarily transporting LNG in blue water along the U.S. coastline. Storage containment consists of four Type C pressure tanks, all equally sized at 750 cu. m. The tank design offers suitable hold times for cargo transport without the need for reliquefaction. The design is focused on constructability and ensuring cargo safety.

BHGI has been actively involved in a number of marine related natural gas projects for a variety of clients. Recently, BHGI has been awarded a contract to perform design conversion work for the United States Army Corps of Engineers on one of their vessels from diesel to dual fuel.

Ethane Carrier

Hartmann Schiffahrts Gmbh & Co. KG, Jaccar Holdings, HB Hunte Engineering and DNV GL signed a letter of intent for the classification of five ECO STAR 85k very large ethane carriers. Jean Labescat from Jaccar Holdings, Ulrich Adami, Technical Director of Hartmann Schiffahrts GmbH & Co. KG, Frerk Brand, Managing Director of HB Hunte Engineering, and Torsten Schramm, DNV GL Maritime's COO for Division Germany, Middle East & Asia, signed the agreement at the SMM trade fair. "This new series of ECO STAR 85K vessels will be the largest ethane carriers yet constructed, but it is not only

Ethane Carrier

ECO Star 85k Very Large Ethane Carrier (Image: DNV GL)

the size, but the technical innovations present in this design that will make these ships a real breakthrough for the industry," said Schramm. "Such highly specialized vessels require a very strong technical partnership and we are looking forward to working together with Jaccar, Hartmann and HB Hunte."

The five ECO STAR 85K ethane-fuelled VLEC-carriers will have a capacity of 85,000 cbm each. The cargo tanks of these five new vessels include another world first – the use of the innovative Star-Tri-Lobe tanks. These consist of three cylinders combined into one. Due to better utilization of the space in the cargo holds, this results in higher efficiency and allows an increase in cargo capacity of nearly 30% over similarly sized vessels with conventional tanks, reducing shipping costs through greater economies of scale.

Electric Ferry

The first full-electrical passenger ferry in composite is delivered to Ballerina AB in Stockholm, Sweden.

Faaborg Vaerft A/S delivered the first full-electrical passenger vessel, Sjövägen, built in composite materials to the shipping company Ballerina AB in Stockholm, Sweden. The vessel will operate in the archipelago of Stockholm where it will transport passengers between the different stops silently and environmentally with its correct propulsion.

The 24.5-m vessel sailed from Faaborg to Stockholm on its own keel and by its own power where it will start to operate shortly after arrival. Faaborg Vaerft A/S, Principia North A/S, Wilhelmsen Technical Solution and Saft have jointly developed, designed and produced this modern vessel.

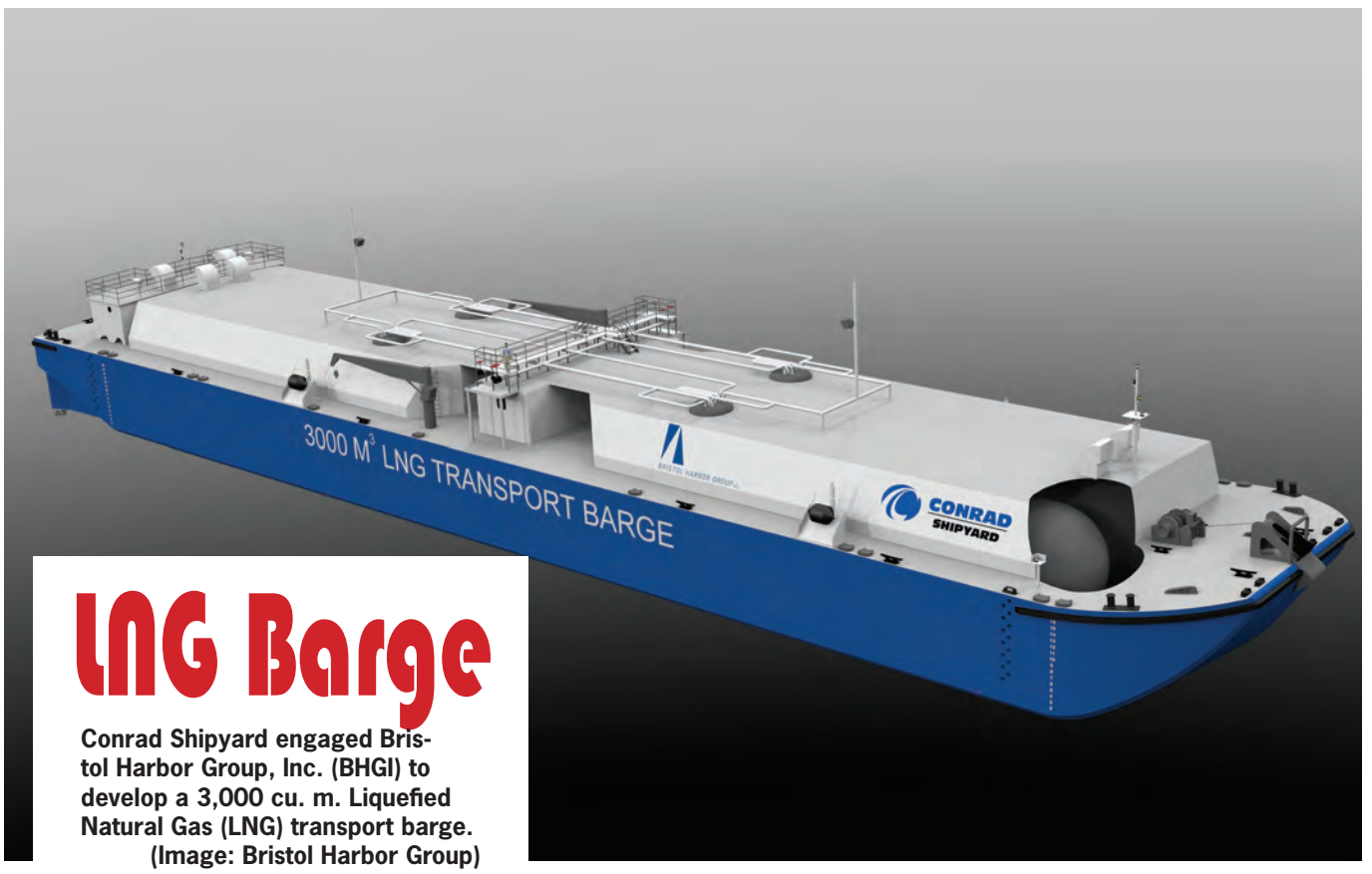
Sjövägen is designed and approved for 150 passengers. It is ice reinforced, equipped with a double propeller system, 2 x 160 kW electrical engines for propulsion, 500 kWh battery bank, electro hydraulic steering system, electrical bow thruster and communication and navigation equipment.

Sjövägen is designed so that the passengers board the ship from the bow and from here access to the passenger area is through two automatic glass sliding doors. Access to the ship and the passenger area is especially designed for wheelchairs etc. The vessel is designed for two-men operation which will mainly be from the high placed wheelhouse.

Wilhelmsen Technical Solutions have under the brand name Callenberg delivered the ship's Electrical Main/Propulsion Engines, Propulsion Drives, Main Switchboards 400Vac and 650Vdc, Battery Chargers and Inverters, Main Automation System, Shore Connection, Propulsion Control, Total System Integration for Power Distribution and Propulsion, Detailed Engineering and Software Development, and Commissioning on site

Saft delivered Sjövägen's Li-Ion cells with the Saft patented electrochemistry technology Saft Super Phosphat; Battery modules, totally 500 kWh at 650V; Battery management modules with CAN-Bus communication to the main automation system; and Sheet metal cabinets where battery modules are installed.

Main particulars	
Shipyard	Faaborg Vaerft A/S, Denmark.
Design and constr.	Principia North A/S & Valling Ship Survey ApS.
Propulsion and steering	Wilhelmsen Technical Solution
Battery System	Saft
Length, o.a.	24.5m
Beam	7m
Depth	1.8m
Draft	0.65m
Speed	8-10 knots
Passengers	150



LNG Barge

Conrad Shipyard engaged Bristol Harbor Group, Inc. (BHGI) to develop a 3,000 cu. m. Liquefied Natural Gas (LNG) transport barge. (Image: Bristol Harbor Group)

Fuel Optimization

Fleet Management Tools Cut Fuel Consumption, Boost Reliabilty

By Patricia Keefe

Profitability in shipping goes up and down in waves. 2012 wasn't too bad, with annual operating costs shrinking by 1.8% on average versus 2011, when average costs rose 2.1%, but 2013 weighed anchor in the losses column for many. And 2014? So far the waters are choppy, with the overall mood up in May but dipping down in the quarter that ended in August, according to Moore Stephen's quarterly *Shipping Confidence Survey*.

Much of what worries the industry concerns issues over which it has little to no control – oversupply, global political instability, private equity investments, environmental regulations, mob-backed piracy on the high seas and the perennial winner, rising fuel costs, all of which conspire to drive up operating costs and push down profits. It's a surefire recipe for pessimism and uncertainty.

"The slight decrease in confidence ... coincides with deterioration in the political situation in areas of the Middle East and Ukraine. Shipping operates on a global stage, and must inevitably be affected by international events," said Moore Stephen partner Richard Greiner at the release of his August report. He added that operations costs and regulatory compliance are also a continuing cause for concern among owners and operators.

All that gloom and doom could be paralyzing, leading ship owners to circle the fleet and drop anchors until the iffy market blows over. But that's not how you win at this game, and it's certainly not a strategy for making money, or for that

"The one thing you have to remember is that the software is only one third of the actual price in the end. There's attaching the interfaces [the installation] and the need to do training."

Jörgen Mansnerus
VP, Marine Management, Bore Ltd.

"I like one-stop shopping so most of the data ends up in one spot and is query ready. I do not use management software that is not willing to expand or talk to other vendors."

Christopher Rodenhurst,
USCG (ret), Fleet Manager for APL Maritime

matter, keeping your budget on an even keel.

The smart, and ultimately successful marine operation looks for what can be controlled, and then takes aggressive action to manage those variables no matter how small a savings it may appear to reap.

Get In The Game

"At the end of the year, a lot of half percentages saved [end up] equaling a lot of percentages in total," says Jörgen Mansnerus, vice president, marine management, for Bore, Ltd. With six ships already running NAPA fleet management software, he estimates that Bore is seeing an ROI "in the region of 5%," more or less, on each ship. "ROI is a year, a year and a half max." Over at American Roll-On Roll-Off Carrier (ARC), Fred Finger, vice president of operations, is seeing small tweaks, such as a nominal change in arrival departure time across 35 voyages a year making "huge changes in fuel costs, saving hundreds of thousands of dollars."

And then there are the big numbers. In another case, optimization efforts during a trial on one ship uncovered sensor data showing an unusually worn piece of equipment. Focusing on that one piece, ARC looked out across its fleet and took careful measurements to see if the same problem existed elsewhere. It did – on five out of six ships. Addressing the issue resulted in a cool half a million dollar savings in fuel optimization, according to Finger. In fact, even on a trial basis, he estimates the fuel savings the company has achieved so far "significantly outstrip the cost of what we've put into place."

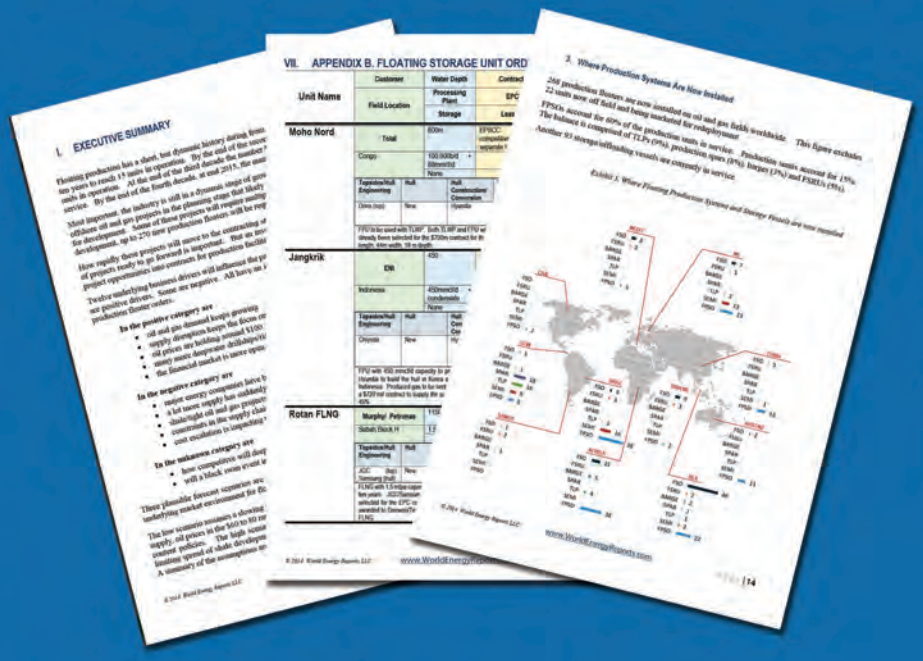
These examples are just the tip of the iceberg. There is lot on board ship that can be monitored and actively controlled to varying degrees to achieve savings: fuel and lubricant consumption, energy efficiency, equipment maintenance, data gathering for regulatory compliance and port paperwork, administrative and crew workloads, cargo loading and weight, trim optimiza-

NEW FROM INTERNATIONAL

FLOATING PRODU

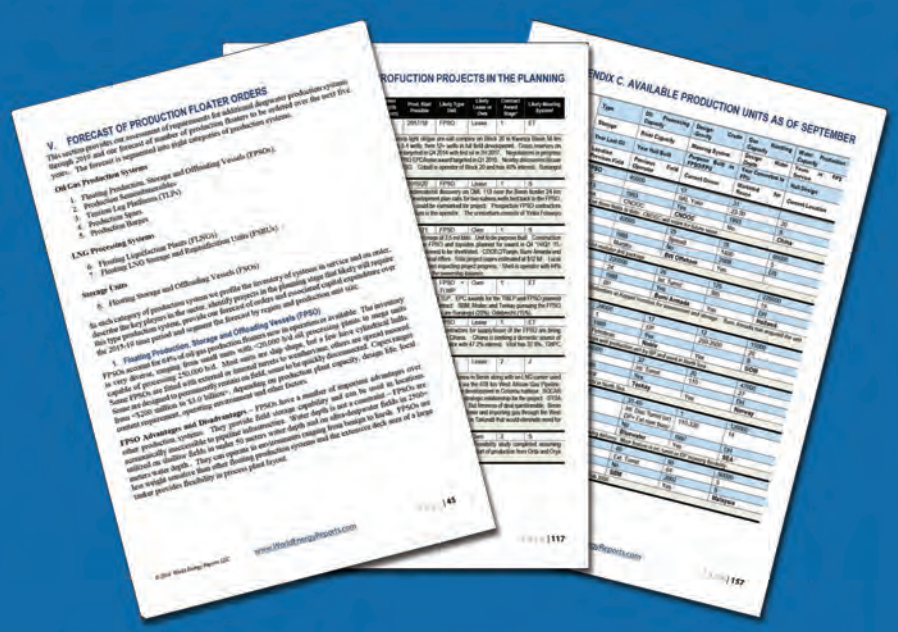
ANALYSIS OF FUTURE BUSINESS DRIVE

Order Your Floating Production System Report Today!



No other single source provides to you the depth and breadth of information found in the Floating Production Systems Report.

The highly anticipated production forecast will give you insider access to the multi-billion dollar market.



About IMA

Jim McCaul, Managing Director and founder of International Maritime Associates (IMA) has produced 50 multi-client industry reports on the floating production sector over the past 18 years. IMA's "floater reports" have been a widely cited reference source in the offshore industry, and our annual forecast of equipment orders has been widely referenced in investment presentations, industry publications and other consulting firm reports.

Order your report at
www.worldenergyreports.com
tel: +1-212 -477-6700 fax: +1-212-254-6271
reports@worldenergyreports.com

MARITIME ASSOCIATES

UCTION SYSTEMS

RS & FORECAST OF ORDERS 2015 - 2019

THE REPORT INCLUDES:

Annual Report

120 pages of Analysis, Data, Charts and Information, all geared to provide you with the biggest, best and most comprehensive resource so that you can long-range plan to capture your fair share of the burgeoning Floating Production System market.

Insightful Updates

Monthly "What's New" report which refreshes the data and analysis. Six months after the Annual Report World Energy Reports will recalculate, factoring in the world economy, market conditions and future prospects for growth.

Database

Every day – 24/7/365 – the World Energy Reports team updates critical data and statistics; Yours for the taking.

Contacts

An industry exclusive, here you receive all of the critical project contacts in one tidy format. Invaluable information.

- Complete Floating Production Report with 24/7/365 access to data online as it is updated
- Monthly "What's New" Report
- Full Project Contact Details
- IMA's 30+ years expertise in this market

Order your report at
www.worldenergyreports.com
tel: +1-212 -477-6700 fax: +1-212-254-6271
reports@worldenergyreports.com

To celebrate Maritime Reporter & Engineering News' 75th Anniversary, each edition in 2014 will offer a specially commissioned feature article which examines a historical topic.

The "75th Celebration" continues in earnest in the November 2014 "Workboat" edition, with a comprehensive review and report on McAllister Towing, one of the iconic companies serving the maritime market for 150 years.

The captains need to buy in this. If they don't, it's a fail.

"When the industry goes to 0.1% sulfur content in fuel in 2015, the price of fuel is going to go up dramatically. A 1% savings this year could be a 2% or 2.5% savings next year."

Fred Finger,
VP of Vessel Ops, American Roll on Roll off Carrier,
on his push for a paperless wheelhouse.

tion, and emissions, ballast and other environmental issues ad nauseum.

"The amount of data that is processed nowadays was impossible just a few years ago," observes Hendrik Bruhns, CEO, Herbert-ABS Software Solutions, a provider of operations management applications.

Smart operators also realize that while they can't control the weather or the waterway, any more than they can control the river of regulation, they can control and plan their response to those variables.

It's all about scrabbling for savings wherever you can find them. Profit margins are what keep shipping lines afloat, and that is best secured by running a lot of tight ships. And If you're going to run a tight, compliant ship, it helps to monitor and track every turn of every piston, crank and wheel; every drop of fuel, ballast and waste; every change in the wind, current and speed, and a million things in between. And if you want to do all that, you can't rely on the observations and record-keeping of an ever shrinking, ever busier, fat-fingered crew. No, you're going to need help, primarily in the form of fleet and operations management applications fed by automated data sensor feeds.

The goal here is not just to track and modify where needed, but, as Helm, a maker of vessel enterprise management and operations software, likes to say, your solution needs to be "the information bridge between your departments, your vessels and your customer." Not to mention, a direct line to the savings column.

Automating the data stream is a no brainer. No human can possibly track and count every little sensor blip or degree of change (and do it accurately every time). As Bore's Mansnerus remind us, "If wrong input, wrong output." Fortunately, there is no shortage of products that can handle those chores efficiently and accurately.

Classes of Management Tools

Rob Bradenham, General Manager of ESRG, developers of OstiaEdge, a data analytics platform that helps users to make decisions about fuel, energy, operation and maintenance, divides the industry into two broad categories:

* Traditional fleet management applications, which act like "marine-focused ERP systems" with a strong focus on managing maintenance. He said they'll handle parts orders, maintenance crew scheduling, payroll, and track noon reports etc., often based on manually input data. "They are like a marine version of SAP."

* Data analytics, which are software platforms that connect to a variety of on board and on shore sensors and various ship systems and analyze automated data feeds in a variety of different ways using different techniques.

Bruhns would probably re-label what Bradenham calls traditional fleet management, as operations management. In his view, the latter looks at daily operations, such as trim, stability and load management, crew workload and safety issues. He characterizes fleet management in general as being more concerned with what drives fuel consumption and the overall position of the entire fleet.

Both executives concede there is a lot of overlap between the two areas. Muddying the waters more, says Bradenham, is that applications in both categories vary in terms of their depth. For example, in the data analytics camp, some applications provide data transparency, enabling users to use the data and pipe some ashore, but don't do much beyond showing the available data. At the other end of the scale are products that use a variety of analytics, from simple trending to complex

algorithms and different predictive and prognostic technologies, to show users different outcomes based on changes they could make.

Needless to say, the application packaging options are many, ranging from suites offering "complete" coverage to independent tools and modules that can be purchased separately to monitor specific equipment and issues. Figuring out which way to go can be daunting.

The trick of it all, says ESRG's Bradenham, is realizing that the starting point for a fleet's data management and optimization strategy, isn't the project launch. It's not even the installation or the selection of the package or modules. It's talking about what it is you want to do, and figuring out what you have already in place, by doing what he likes to call a "Gap Analysis." It also involves laying out a technology investment strategy that will meet the needs of all stakeholders. "We often see ship owners making an investment for one stakeholder, what we call 'buying in silos.'"

Bore's Mansnerus points out, however, that it's hard to know you really want, and how you want it presented, until you've played with the application for a bit. That means ship operators need to keep future growth and customizability in mind when selecting packages, so changes can be made as painlessly, and as cheaply as possible, down the road. Because the one thing everyone can agree on is that there will always be more changes coming down the road.

What Ship Operators Really, Really Want

Containing, lowering and optimizing fuel consumption is job number one at many companies, particularly within the cargo-carrying global fleet of tankers, containers, RoRos and bulk carriers. "Owned by one, often operated by another, fuel consumption is the overriding concern," says Bradenham. As is monitoring for fuel theft in some areas of the world.

Another driver, he said, for these owners is growing pressure from customers like the oil and gas companies, which are starting to demand transparency into fuel consumption rates, and how vessels are being operated.

Reliability and driving down the cost of down time rules the day for another industry sector – offshore support vessels such as tugs, defense vessels and even cruise ships. "The cost of downtime for a lot of these segments is huge," said Bradenham. Take platform support vessels, which have fairly high daily charter rates. If they can't deliver the vessel every day under the terms the contract states, they could lose all or part of that daily rate, which Bradenham says could be $20,000 to $40,000 a day. "If the vessel is down, that revenue is not coming back to the owner." This means heading off maintenance issues is key. These clients are seeking a state of what the Navy calls "maximum readiness." Even so, fuel prices affect everyone.

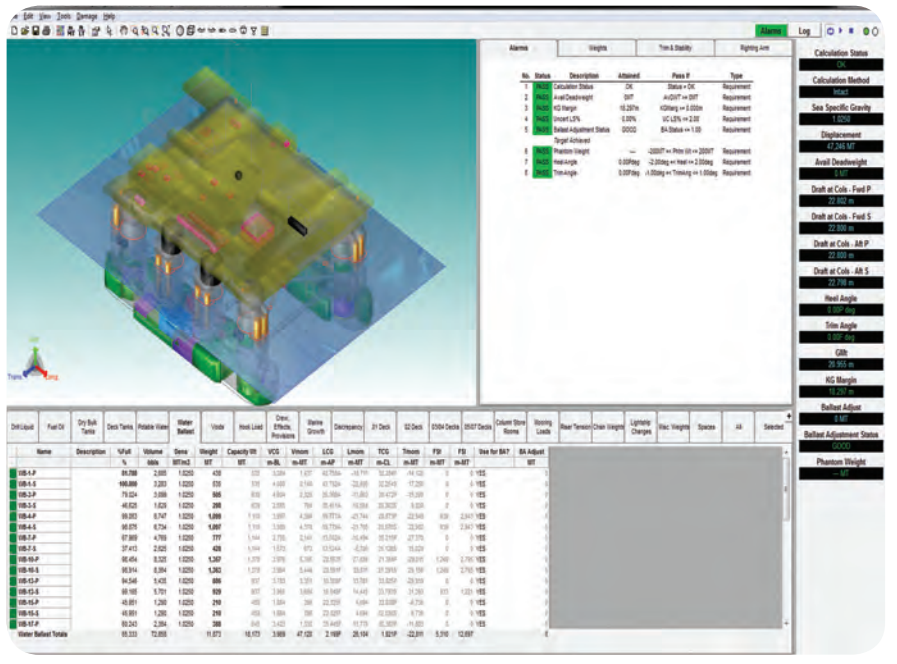
When the industry goes to 0.1% sulfur content in fuel in 2015, the price of fuel is going to go up dramatically, says Finger, so everyone is going to want to operate their vessels as efficiently as possible. "A 1% savings this year could be a 2% or 2.5% savings next year."

It's relatively easy to measure the ROI on an investment in fuel consumption tracking, but maintenance is trickier, because the avoidance of a failure isn't something that was in the budget, and it's not going to boost a bottom line. And yet, it's not hard to calculate the fallout from a system or equipment failure, were it to happen.

Bruhns estimates there is something like 80,000 ships in service that were built for a different fuel price then they are operating in today. "These ships were designed with a higher focus on increasing the amount of cargo they could carry, and a lesser focus than you need nowadays on fuel consumption." They might use 20% more fuel than a vessel designed after fuel prices skyrocketed, he estimates, adding that fuel can come to a third of total operating expenses. "[For them] the only way to keep profitable and be able to operate in a competitive environment is to continue retroactive methods

"The amount of data that is processed nowadays was impossible just a few years ago."

Hendrik Bruhns,
CEO , Herbert-ABS
Software Solutions



for minimizing fuel consumption," like, for example, trim and draft optimization. Otherwise, he said, "Ships use so much fuel that if it becomes too expensive, and you can't compete, it'll put you into bankruptcy."

There are many ways in which to tackle this beast. From fine-tuning HVAC systems (See related story, page 50), to cargo load optimization, breaking routes into definable legs and tinkering with speed and course per each leg, to knowing when to clean the hull and maintain the engines, and on and on. The options are legion. "American Presidents Line used our software for its whole U.S. container fleet to optimize loading vessels for fuel savings," says Bruhns. "They reported significant fuel savings" as a result. Optimizing the loading and unloading sequence of a vessel also helps to minimize time in port, which has a large cost implication of its own, while also making sure the vessel is not stressed and design limits are met so that the vessel stays safe. And optimizing the distribution of cargo enables the back office to know whether an offered load can be carried. "What-if scenarios are a big part of the software, letting companies plan the next load while carrying one," he said.

"What-ifs" are a big part of voyage optimization systems, too. Mansnerus' NAPA installation not only lets him see arrival and departure times tracked against fuel consumption, but built-in voyage optimization allows the company to see what a slight change in scheduling might mean in euros or dollars' worth of consumption.

Slight changes in schedule or RPMs, for example slow steaming, can also have "unintended consequences" that could wipe out any gains. "You may optimize fuel consumption but find you've done it at the cost of creating a more frequent failure rate for your equipment," cautions Finger.

There's a third issue for owners and operators, and that's compliance with a boatload of environmental regulations, such as SEEMP requirements and emissions tracking. There are lots of applications coming to market to address those needs, but the big issue for many ship owners is what investment should they make, and what will they be required to do.

Separate from the issues driving fleet management and operation software purchases, is what users are looking for from those vendors.

Keep Your Hands Off That Data

For some users, like Christopher Rodenhurst, USCG (ret), Fleet Manager for APL Maritime, Ltd., one-stop shopping and minimal human intervention is key. "We use a suite provided by different vendors, and as much as possible the designs are meant to be integrated, and we are shooting for non-human interaction."

In APL's case, he explained, the company's mixed of applications has optimal trim software talking to the loading program; while optimal routing (weather), ship reporting (e.g. noon reports) are fed into a web-based Fleet Manager application that tracks the vessels, including fuel consumption, current and predicted weather, and also can provide MARPOL VI (Air Quality) documentation for SEEMP. Purchasing software for the vessels talks to APL's financial software, and tracks maintenance crewing and payroll.

"The bottom line: I like one-stop shopping so most of the data ends up in one spot and is query ready. I do not use management software that is not willing to expand or talk to other vendors that have a piece that will make a viable product if they combined their efforts," he adds.

It's not hard to understand Rodenhurst's position when you hear the voice of experience from Mansnerus. "The one thing you have to remember is that the software is only one third of the actual price in the end. There's attaching the interfaces [the installation] and the need to do training." Bore uses a suite of products from NAPA, and spent most of 2012 in a nine-month trial that proved to be "very extensive." So the more integration issues that crop up between applications with proprietary code, from different suppliers, the more costly a project could become.

And this is on top of a certain level of customization that is already on the table, given that no two ships are alike – even if they are the same model made by the same ship yard – and given that the management software must interface with an array of systems and sensors that can vary from ship to ship. Since its 2012 trial, Bore has rolled out its fleet management system across five vessels, with plans to extend it to three more. "Each ship is individual," with different ages, brands of systems and levels of automation, Mansnerus says. "You need to do the project and planning for each ship, it's almost like a different installation each time," he added.

For obvious reasons, one of his criterions is configurability. ESRG"s Bradenham cautions, however, that users want to take care that whatever they do, it doesn't require the services of a software developer. "It would be prohibitively expensive."

One of Bore's other primary requests to NAPA was for a less than a 1% data error rate, with no hiccups when going through data transfer or sensors, and it has achieved that goal.

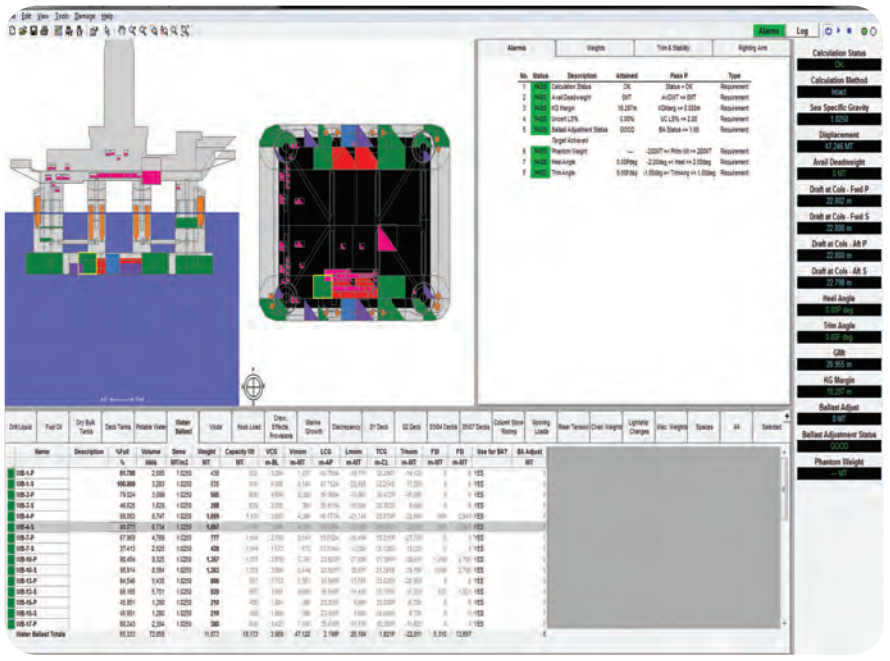
ARC is almost at the end of its initial one-ship evaluation phase for a package from ESRG, where a major goal involved replacing manual inputs with automatic data feeds.

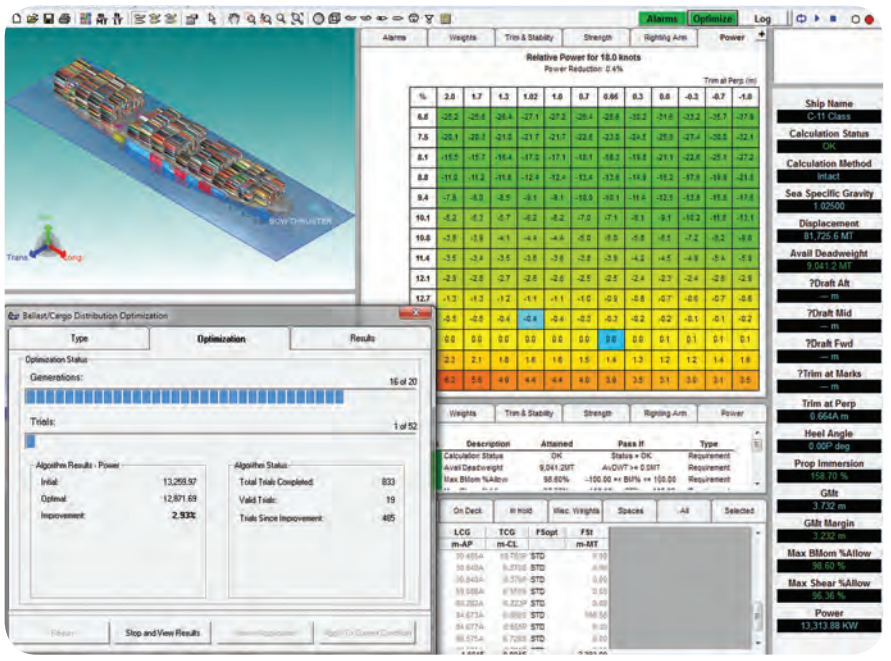
Retrofitting Middle-Aged Ships

Eliminating manual data entry and the shadow of human error is a major issue, particularly where it involves the need to retrofit what Finger calls "middle-aged tonnage" with the sensors needed to enable automated data collection. The cost to do this can range from a few hundred to tens of thousands of dollars.

"The challenge for us is that there isn't a lot of digital information already built into our vessels. Anything we do, we're probably going to have to change at least the interface and likely sensor as well, to get the digital output we need to put into the system to analyze performance. It's why we're doing this on one ship first," says Finger.

It's also why Finger will only go so far with his existing fleet. It's a delicate balance. "I have to take into account that we're retrofitting to optimize the back





third of lifespan for these ships, more or less." Amortizing over 10 years is a relatively short window, he noted, adding that it probably isn't worth it to spend a huge amount of money on his aging fleet. "We're looking at this differently than someone with a new build coming out."

ESRG tells clients to do a quick survey of what they'd got onboard, noting that often owners have no idea what they have installed and to what extent. "There are creative ways to think about data, you don't always need the brand new, shiniest sensor; sometimes another sensor on board can be used as a proxy," says Bradenham. He tells companies they don't need do everything at once, to start uploading data from the sensors they have in place into the new applications and to then grow their automated data collection efforts from there.

The automated part is critical, not just for the sake of "pure" data collection, and the ability to feed the collected information into customized reports that will better enable decisions designed to optimize operations, but also from a personnel perspective.

Crews today are stretched in multiple directions beyond just ordinary seafaring duties.

Add in the growing demand to collect data for input into compliance reports, and a major goal of many ship owner/operators has become lessening the administrative burden on the crew, most especially ship officers.

Bore is hoping to reduce the administrative workload for its officers by 50% by moving to automated logs and report generation as much as possible.

ARC moved to install ECDIS on its entire fleet early, in great part because it is working toward creating a paperless system. "Ship officers spend an inordinate amount of time updating and maintaining charts. We want to free them up to do a lot of other things," says Finger. It's the same reason he wants to automate the Noon Report, which at minimum requires the involvement every day of the captain, chief engineer and the third mate on watch, and eliminate as much of the "white noise" from regulatory requirements as possible.

"The more time that can be spent on work that has to be done, the less waste from that perspective. We don't want the crew doing things that don't add value, so more we can automate, the better," he added.

This in turn indirectly contributes to the objective behind SEEMP: freeing up crew to do other tasks, lessening the likelihood of their either having to work extra hours, or of tasks not getting done on time, leading to a more rested, refreshed crew, and a better atmosphere on board, says Bruhns.

In his view, this also leads to better safety at sea. "You can see by collision and other incidents that the accident rates have come down."

Another personnel issue concerns ship management and long-standing "culture" norms.

If The Captain Isn't Happy, No One is Happy

"The biggest expectation we see from clients is that, 'We'll be able to make better, more data-driven decisions,' as

MARITIME REPORTER AND ENGINEERING NEWS

2015 EDITORIAL CALENDAR

ISSUE	EDITORIAL	BONUS DISTRIBUTION
JANUARY **Ad Close:** Dec 19	**Ship Repair & Conversion Edition** **Market:** Maritime Propulsion: Gears, Thrusters, Waterjets & Propellers **Technical:** Marine Salvage & Recovery **Product:** Marine Electronics Equipment & Supplier Guide **Country Report:** France & Poland	**PVA MariTrends 2015** January 31 - February 3 Long Beach, CA **EuroMaritime** February 3 - 5 Paris , France
FEBRUARY **Ad Close:** Jan 21	**Cruise Shipping Edition** **Market:** Ships of War: Evolution and Future of U.S. Navy Technology **Technical:** Marine Telematics: Data, Tracking and Communications **Product:** Marine Coatings & Corrosion Control **Country Report:** Denmark, Finland & Sweden	**Cruise Shipping Miami** - Mar 16-19, Miami, FL **ASNE DAY** - March 4 - 5, Crystal City, VA **NACE Corrosion** - March 15 - 19, Dallas, TX **Arctic Technology Conference** - March 23-25 Copenhagen, Denmark
MARCH **Ad Close:** Feb 20	**U.S. Coast Guard Annual** **Market:** Training & Education: From Simulation to Distance Learning **Technical:** Oil Spill Response & Recovery **Product:** Marine Propulsion: Green Marine Fuels & lubricants and Emission Technologies **Country Report:** Greece & Turkey	**CMA Shipping 2014** March 23-25, Stamford, CT **Sea-Air-Space** April 13-15, National Harbor, MD
APRIL **Ad Close:** Mar 20	**Offshore Edition** **Market:** Modern OSV Design & Technology **Technical:** Workboat Fleet Maintenance & Repair **Product:** Deck Machinery, Winches and Ropes **Country Report:** The German Maritime Cluster	**Offshore Technology Conference (OTC)** May 4-7, Houston, TX **Workboat Maintenance & Repair** April 14 - 16, New Orleans, LA **Marine Money Houston** Houston, TX
MAY **Ad Close:** Apr 21	**The Marine Propulsion Edition** **Market:** RIB & Patrol Boat Report **Technical:** Workboat Design & Construction **Product:** Satellite Communication Technologies **Country Report:** The Norwegian Maritime Cluster	**Norshipping** - June 2 - 5, Oslo, Norway **Inland Marine Expo** - June 15 - 17, St. Louis, MO **MACC 2015** - May/June, USA **Seawork** - June 16-18, Southampton, UK
JUNE **Ad Close:** May 22	**Annual World Yearbook** **Market:** Maritime Simulation & Training Centers **Technical:** Dredging: Deepening the Channels of Trade **Product:** Pumps, Valves, Pipes & Insulation **Country Report:** U.K. & Ireland	**Marine Money Week** June 16-18, New York, NY
JULY **Ad Close:** Jun 21	**Marine Communications Edition** **Market:** Classification & Ship Registry **Technical:** ECDIS System Review & Report **Product:** Maritime Tools: Welding & Cutting **Country Report:** Italy	
AUGUST **Ad Close:** Jul 21	**Shipyard Edition** **Market:** Offshore Deepwater: Structures and Systems **Technical:** Heavy Lifting Solutions: Maritime Cranes **Product:** Ballast Water Technology **Country Report:** Russia, Lithuania, Latvia & Estonia	**Offshore Europe** September 8 -11, Aberdeen, UK **NEVA** September 22 - 25, St. Petersburg, Russia
SEPTEMBER **Ad Close:** Aug 21	**Offshore Energy Technologies** **Market:** Maritime Security Technology & Technique **Technical:** Maritime Propulsion: Efficient Drivers **Product:** Clean Water Technologies **Country Report:** Spain, Portugal & Brazil	**OTC Brazil** October 26 -29, Rio de Janeiro **GasTech** October 27 - 30, Singapore
OCTOBER **Ad Close:** Sep 21	**Marine Design Annual** **Market:** Ship Classification Societies **Technical:** Marine Firefighting, Safety & Salvage **Product:** CAD/CAM **Country Report:** The Netherlands & Belgium	**SNAME** November 4-6, Providence, RI **Europort** November 3-6, Rotterdam, Holland **Clean Gulf** November 10-12, New Orleans, LA
NOVEMBER **Ad Close:** Oct 20	**Workboat Edition** **Market:** LNG Handling and Transportation **Technical:** Deck Machinery, Winches & Ropes **Product:** Fuels, Lubricants & Additives **Special Report:** Gulf of Mexico Builder & Supplier Guide	**International Workboat Show** December 2-4, New Orleans, LA **Marintec China** December 1-4 Shanghai, China
DECEMBER **Ad Close:** Nov 20	**Great Ships of 2015** **Market:** The Automated Ship: Command & Control **Technical:** Shipyard Automation **Product:** Marine Engine Guide **Special Report:** Korea/Singapore/Vietnam	**Surface Navy Association 2016** January, Crystal City, VA

opposed to, 'well, this is the way we've always done it.' There is definitely a culture change issue here; the technology is the easier part of this," claimed Bradenham.

"In the old days, the Captain was next to God on board. But now it is easier to convince people that they have to operate in a different manner to find the ship energy savings," says Mansnerus . "It was hard without facts to talk to them. They'd say, 'I know – I've been here for 20 years.' But now we have a system with proven facts that it pays to handle the ship a little bit differently," he added.

"The captains need to buy in this. If they don't, it's a fail," agreed Finger.

Also standing in the way of efficient data collection are parallel systems making multiple entries of the same data, just in different forms or formats, often in programs that are not connected to each other, says Herbert's Bruhns. This is redundancy that has to be ferreted out as part of the planning for a successful data management scheme.

Customers also don't realize that better information won't necessarily naturally fit into its business processes, such as the maintenance planning process or route scheduling.

According to ESRG, companies need the right data at the right time, but they also need the right person who can incorporate the improved data into the company's back office programs.

There are many next steps in the evolution of fleet and operations management software – more openness, more plug-and-play, easier automation of basic reports to cut administrative workloads, more connections to non-industry communication standards, greater transparency – even development of a common system into which all data can be fed and then utilized by a variety of systems.

One possibility that particularly stands out has the potential to change the game entirely by bringing everything back to the drawing board – for ship design that is.

Ships are often built to the lowest cost possible, and they are built in traditional shipyards for very conservative clients. The biggest cost drivers today are the steel plating, type of engine and other heavy equipment.

What vendors, and some fleet owners and operators would like to see is a new build process that puts a greater emphasis on defining the technical framework up front, and mandating certain requirements. "If you do it up front, the vendor will provide it as part of the response to the RFP, often at no added cost," claims Bradenham.

Herbert's Bruhns says it is already happening.

The software is bought by the ship yard, which gives the vendor the data they need to set the up the package, which is then installed and ready to go once the ship goes into service.

From a user perspective, the potential of this approach to eliminate a great deal of the initial setup stages they now have to slog through, and the ability to skip right over retrofitting issues and cost, means that next generation of ships will likely be the one to move fleet and operations management efforts from the purview of bigger fleets into the main stream, where the hunt for ever greater performance optimization and cost-cutting will become as second nature to the crew as electronic navigation is today.

HVAC Systems

The Stealthy Drain on Energy Efficiency

By Patricia Keefe

"Set it and forget it" may work well for rotisserie cookers, but that approach can be disastrous for shipboard HVAC systems.

It's not uncommon to find that the last time an HVAC system's settings were checked on board is when it is was first set – upon installation. Typically, claims energy advisory firm utiliVisor, the ships' engineers set the parameters and then go on their merry way. "A lot of marine companies mostly look at engine and generator performance, but no one is taking a look at chilled water, at the HVAC plant in any coordinated fashion," says Marc Graziano, a business development analyst at utiliVisor.

Over time, that unchecked, deteriorating system can start leaking a few dollars here and there, eventually working its way up to a flood of money running invisibly down the drain.

And that's a big mistake when you consider that a ship going for the U.S. to the Caribbean, HVAC constitutes 20% of the ship's energy costs, according to Graziano. He suggests as a "conservative estimate," that when you count pumps, fans and compressor motors, you can be looking at 30% of your total energy bill.

"If you are spending 20% of your energy on the comfort systems and you can save 10% that is worth a 2% reduction on a ship's fuel bill. In the cruise industry, that turns out to be a tremendous sum of money. "If you are spending $20 million a year on fuel, that's a $400,000 savings," Graziano explains, adding that operators could see a quick pay back on service–between one to two years.

Sensing a huge opportunity, utiliVisor, which is known for its shore-based business in tracking energy use at plants and other commercial buildings, entered the market a little more than a year ago, offering a service to analyze vessel performance and recommend energy cost saving solutions to improve the efficiency of the vessel.

Its initial target sector is the cruise industry, where it has so far has signed one client. By comparison, the 35-year-old firm has 575 land-based clients, 75 on the plant side, with the rest of its business coming from major real estate companies and commercial offices.

UtiliVisor installs, reads and invoices utility submeters and offers recommendations to clients on how to improve the efficiency of their HVAC systems, based on its analysis of real-time intelligence. Of particular focus is the optimization of chilled water generation environments, boiler/heating plants and co-generation (CHP) systems.

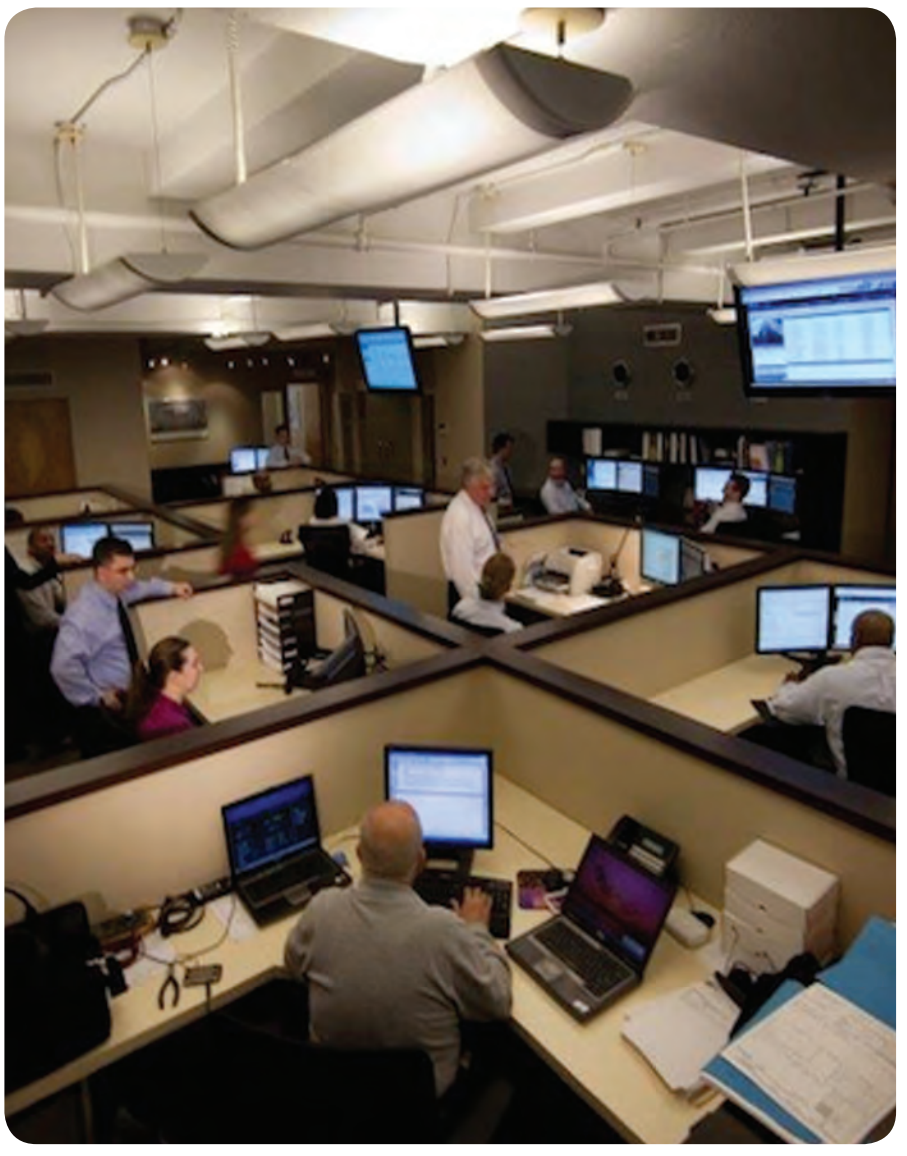
"We can help users with large heating and cooling requirements, like cruise ships, improve performance and save money. Most of these plants do not have metering on those machines, which means they have no viewpoint into the performance of these plants,'' Graziano says. "In most instances, ship owners will be able to realize a significant reduction in fuel costs in a relatively short period of time. We are confident that owners will realize as much as 10% annual savings for most vessels, with a payback on capital investment in as little as a year," claimed Tim Angerame, a Director at utiliVisor, at the launch of the company's marine service program last year.

The company is hoping to become a component of mandatory Ship Energy Efficiency Management Plans (SEEMP), which provide a framework for developing best practices for energy efficient operations. "We think our program of thorough monitoring, analysis and metering can validate that these [SEEP] programs are useful and how much fuel or money is being saved," said Graziano.

The company services marine clients from its Global Monitoring Center staffed with licensed marine engineers, who remotely monitor the vessel's operations, identify problems affecting performance and offer energy savings solutions based

"If you are spending 20% of your energy on the comfort systems and you can save 10% ... that is worth a 2% reduction on a ship's fuel bill."

Marc Graziano, utiliVisor



The utiliVisor control center.

"A lot of marine companies mostly look at engine and generator performance ...
... but no one is taking a look at chilled water, at the HVAC plant in any coordinated fashion."

Marc Graziano, utiliVisor

on predictive analysis and modeling of different operations scenarios.

"When the crew implements our recommendations, changes set points and sequence of operations, they will see an increase in energy performance and cost. We can ID that cost to the owner within 24 hours."

The center is tied into the onboard automation system. Operators pay a fee to connect to the software that tracks the energy data, and then a monthly analysis or monitoring fee to cover continuous review of data, according to Graziano

That buys services such as: daily fuel usage and voyage reports, data reports to help validate emission regulation compliance, fuel consumption predictions based on history and forecast operations designed to inform fuel purchase decisions, ability to integrate weather conditions into one platform, a base line analysis of a ship's energy operating costs, by ship system, and an analysis of energy savings solutions for each vessel. It can also produce environmental reports showing how many tons of fuel consumed, how many tons of carbon dioxide went into the air and how many tons of particulate matter, etc.

Data is transferred via a satellite uplink, and clients generally submit data to the monitoring center several times a day, getting back auto-generated emails with daily or hourly reports in return, covering fuel usage, bunkering – whatever they are looking for. "The goal is to make sure the fuel bought and consumed matches what they pay at the dock. Some crews are worries certain ports overcharge for fuel. We can tell pretty quickly."

Or the operator might get a recommendation to change the temperature on the condenser on the chilled waterside, resulting in "changes you can make in five minutes, that will provide energy savings pretty quickly," or a way to make the compressor motors work a little less hard to achieve the desired result.

Boilers are another area that could stand a closer look. Engineers look at the boilers, but not usually at the individual diagnostics on them. "Most of the boilers on these ships are glorified heating systems."

Over time, if an operator adds more ships to the program, utiliVisor can compare vessel performance across a class of ships, even across similar or same equipment.

Floating Production

What's New in October 2014

BY JIM MCCAUL, IMA

Today 324 oil/gas floating production units are now in service, on order or available for reuse on another field. FPSOs account for 65% of the existing systems, 78% of systems on order. Production semis, barges, spars and TLPs comprise the balance. The oil/gas production floater inventory is the same as last month. There were no orders for additional production systems in September. Another 30 floating LNG processing systems are in service or on order. Liquefaction floaters account for 17%, regasification floaters 83%.

No liquefaction floaters are yet in service – all 5 are on order. Total LNG inventory has increased by one unit since last month, the result of an order for an FSRU to be positioned in Dubai. DUSUP in September awarded Excelerate a ten year charter to provide/operate an FSRU in Jebal Ali. This will be a second FSRU in the port -- the Golar Freeze is already operating as a regas terminal in Jebal Ali. An existing Explorer-class regas carrier will be modified to be able to produce 800 mmcf/d. Operation is to start in 2016. In addition, 102 floating storage units are in service, on order or available.

Floater Projects in the Planning Stage

233 floating production projects are in various stages of planning as of beginning September. Of these, 58% involve an FPSO, 13% another type oil/gas production floater, 23% liquefaction or regasification floater and 6% storage/offloading floater.

Brazil, Africa and SE Asia continue to be the major locations of floating production projects in the visible planning stage. We are tracking 43 projects in Brazil, 49 in Africa and 40 projects in SEA – 57% of the visible planned floating production projects worldwide. Several large projects in Brazil and (less so) Africa will require multiple production units. Overall, up to 275 production floaters of various types will be required for the 233 projects we are tracking.

Around 15% of the 233 visible planned projects are likely to advance to the EPC contracting stage within the next 18 months.

These projects typically have either entered the FEED phase, pre-qualification of floater contractors has been initiated or bidding/negotiation is in progress.

Another 48% of the visible projects are at a stage of development where the EPC contract for the production unit is likely within the next 18 to 48 months. The remaining 37% of projects are less advanced in planning, with the EPC contract likely 4 to 10 years out.

New Forecast of Production Floater Orders

We have just completed a detailed analysis of the outlook for production and storage floater orders over the next five years.

Utilizing our database of planned projects, we use a bottom up approach to establish the likely number of floating production projects to reach the investment stage between 2015 and 2019.

Then we analyze the underlying business drivers likely to exist during this period – and assess how these drivers will likely impact the pace of investment decisions in project development starts.

Having a large number of projects at the investment stage is certainly important. But ultimately, the field operator has to feel comfortable making the investment.

The investment environment will de-

Chart 1

Number of Floating Production and Storage Units In Service, On Order or Available for Reuse

(As of October 1, 2014)

	Total	Active	On Order	Available
Oil/Gas Production				
FPSO	216	163	37	17
Production Barge	10	8	2	0
Production Semi	48	41	2	5
Production Spar	22	20	2	0
TLP	28	24	4	0
Total	324	256	47	22
LNG Production				
FLNG	5	0	5	0
FSRU	25	13	12	0
Storage Systems				
FSO	102	93	8	1

Chart 2

Breakdown of Planned Projects by Type of Production System

(As of October 1, 2014)

Type System	# of Projects
FPSO	135
Other FPS	30
FLNG	34
FSRU	20
FSO	14
Total	233

Chart 3

Breakdown of Planned Projects by Location of Field

(As of October 1, 2014)

Project Location	# of Projects
Africa	49
Brazil	43
SE Asia	40
GOM	24
No. Europe	24
Aust/NZ	16
Medit	10
SW Asia	10
Other	17
Total	233

termine whether projects go forward, get delayed or be considered non-starters.

In our report we examine twelve underlying business drivers that will influence the pace of investment in floating production project starts. Some of these are positive drivers. Some are negative. All have an impact on the number and timing of future production floater orders.

In the positive category are:

- oil and gas demand keeps growing as world output and population grows
- supply disruption keeps the focus on finding new sources of supply
- oil prices are holding around $100 – though prices have been weakening lately
- many more deepwater drillships/ rigs are entering service
- the financial market is more open than several years back – capital cost is low

In the negative category are

- major energy companies are cutting back on capital expenditures
- a lot more supply has suddenly come into the oil and gas market
- shale/tight oil and gas projects are competing for investment funds
- constraints in the supply chain are creating delays and overruns
- cost escalation is impacting the viability of deepwater projects

In the unknown category are

- how competitive will deepwater be with shale oil supply
- will a black swan event impact the sector

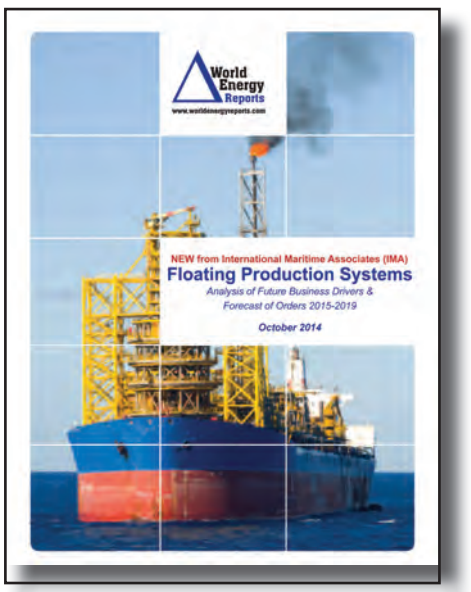
The result is a forecast of orders that reflects the growing number of projects in the planning pipeline and a future pace of ordering that reflects the uncertainty about underlying business conditions in which investment decisions are made. Details about our new October 2014 forecast report and the new online floating production database are available at:

www.worldenergyreports.com

IMA provides market analysis and strategic planning advice in the marine and offshore sectors. Over 40 years we have performed more than 350 business consulting assignments for 170+ clients in 40+ countries.

t: 1 202 333 8501
e: imaassoc@msn.com

Buy the Report; Subscribe to the Service.



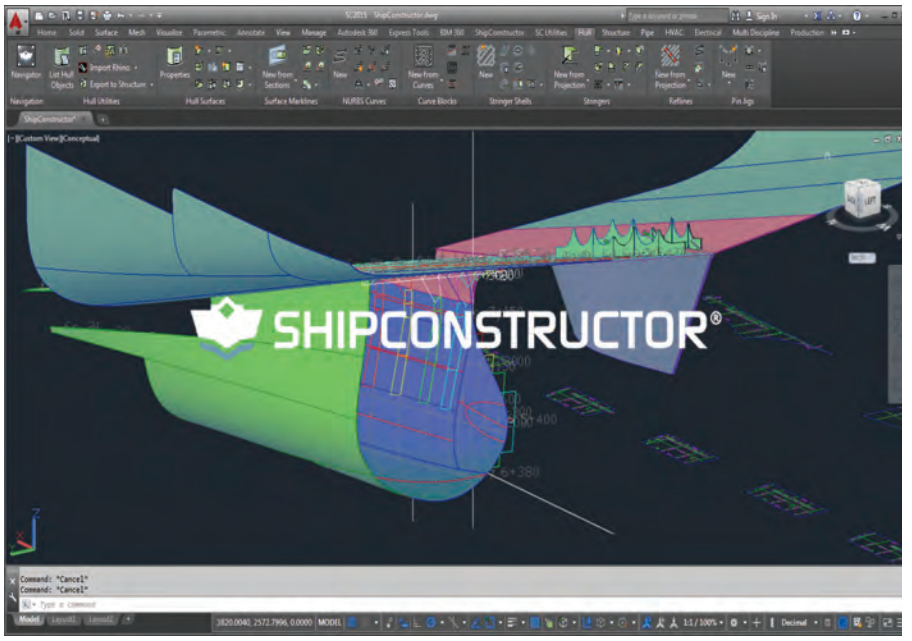
Details about our new October 2014 forecast report and the new online floating production database are available at
www.worldenergyreports.com

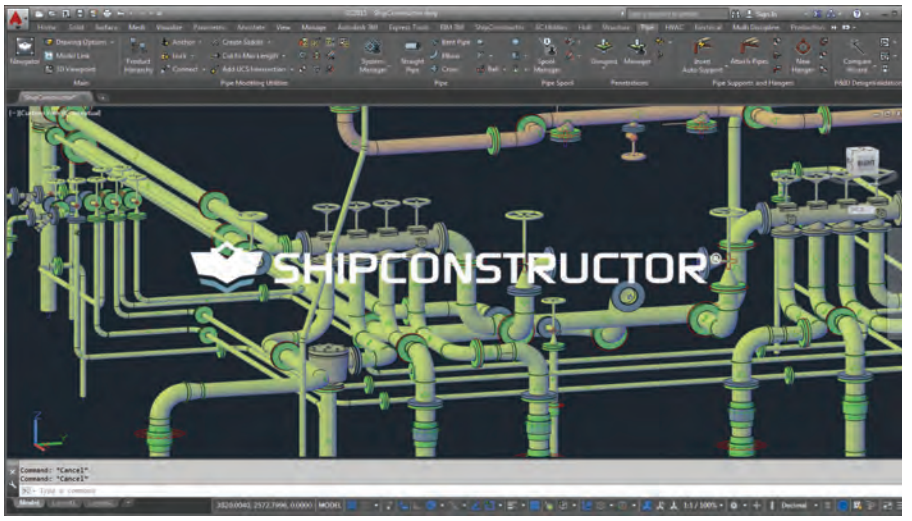
SSI Releases ShipConstructor 2015

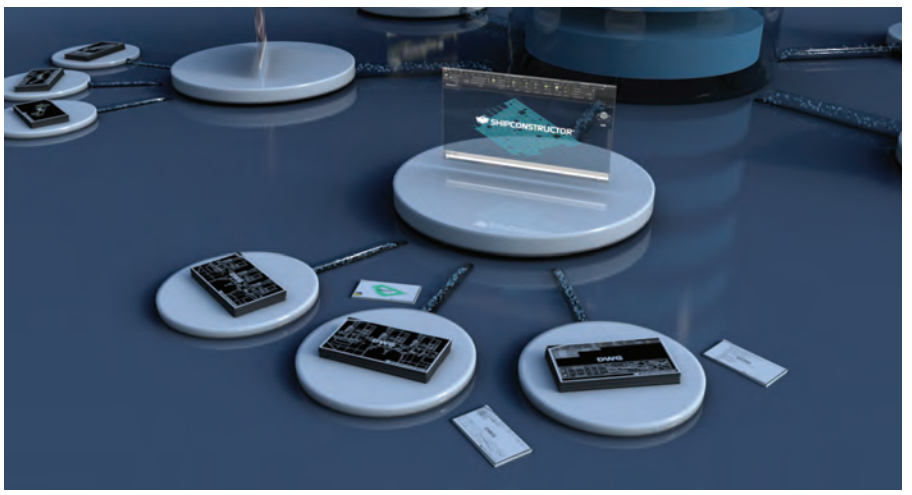
Simultaneously Launches PublisherLT for the EnterprisePlatform

The release of ShipConstructor 2015 CAD/CAM software is a key part of SSI's new plan to increase flexibility, security, convenience and simplicity for its clients in the shipbuilding and offshore markets, the company said. According to SSI, ShipConstructor 2015 contains several new catalogs, an augmentation SSI claims is of immediate benefit, as they will help users quickly and accurately model components to correct specifications. These catalog additions and changes include the following XML standard templates: PipeCatalog-ASME-CarbonSteel.XML, ImperialWeldStandards.XML and MetricWeldStandards.XML. According to SSI, of particular note are the details related to the addition of the catalog for ASME Carbon Steel Pipe. It covers the standardization of dimensions of welded and seamless wrought steel pipe for high and low temperatures and pressures. The catalog contains a wide range of schedule 40/80 carbon steel pipes, elbows, tees, caps, connectors, crosses and reducers from the ASME B 16.11, 16.5, 16.9 and 36.10 standards. It also includes a set of end treatments (flanges, butt welds, saddles, socket welds, sockolets and plain), including flanges and couplings from Class 150 and 300.

A new capability of ShipConstructor 2015 is its integration with SSI's new EnterprisePlatform line of products. SSI EnterprisePlatform is designed to enable the wealth of engineering information available in a product data model such as the ShipConstructor Marine Information Model (MIM), to be shared with and easily accessed by multiple individuals, software applications and production equipment utilized in the shipbuilding process, including people, programs and processes outside of the Engineering Department. PublisherLT is the first in the SSI EnterprisePlatform line of products and it is being released at the same time as ShipConstructor 2015.







EnterprisePlatform-PublisherLT-Interface.

EnterprisePlatform PublisherLT

PublisherLT is designed to free naval architects, marine engineers and draftsmen from tasks unrelated to their main focus, which is bringing to bear their energies and expertise to optimize maritime designs. Spending large amounts of time finding, formatting and exporting information for use in engineering or for other departments is not an efficient use of this highly skilled group. To solve this problem, SSI introduced PublisherLT, the first application in its new line of EnterprisePlatform software products.

PublisherLT eliminates much of the error prone, repetitive, time consuming, and manual process that keeps highly skilled individuals away from doing their true jobs.

PublisherLT lets users gather, convert and manipulate information directly from the product data model (for ShipConstructor clients this is the ShipConstructor Marine Information Model or MIM) and save it to another location. And it does this in a centralized fashion (from one user interface) that is independent of the CAD/CAM application - ShipConstructor.

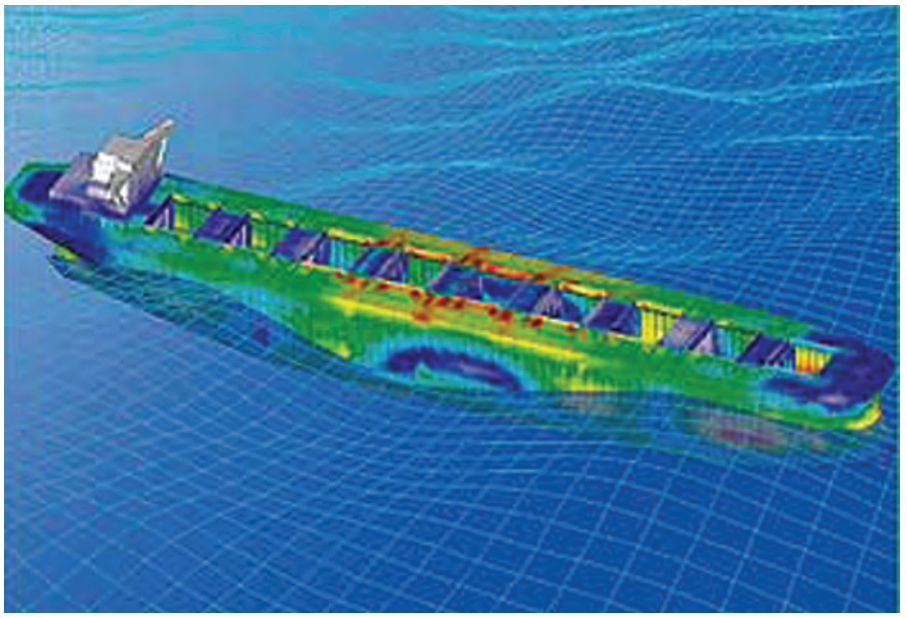
SSI said PublisherLT increases efficiency in two key ways.

- First, it quickly and easily finds information. This is important because normally, it can take quite valuable time for a user to locate the required information in the product model.
- Secondly, it automates repetitive work. As with any data rich shipbuilding CAD program, there are many repetitive tasks involved with gathering information in ShipConstructor and AutoCAD such as opening a drawing and exporting an AutoCAD table, or exporting to plain DWG, or plotting to PNG, or PDF (and many, many, more). In these cases, the user would normally open the drawing and run the appropriate command with the correct options and then continue for all of the other drawings that require processing. PublisherLT locates the required information or drawing, accesses it, and runs the required commands with specified options, and then carries on to the next task with no input from the user.

www.ssi-corporate.com

EEDI

Design Support Tool for Verification



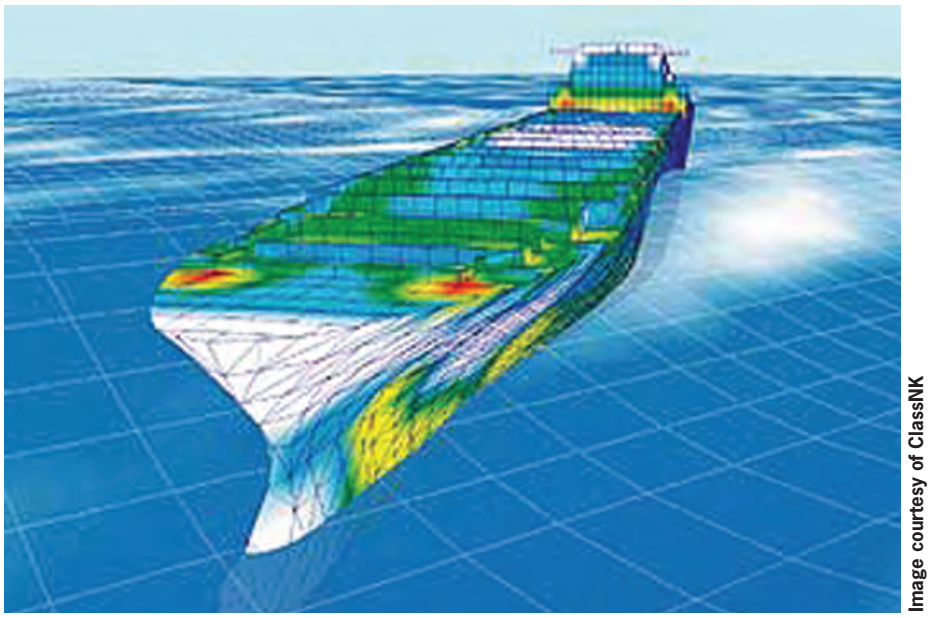


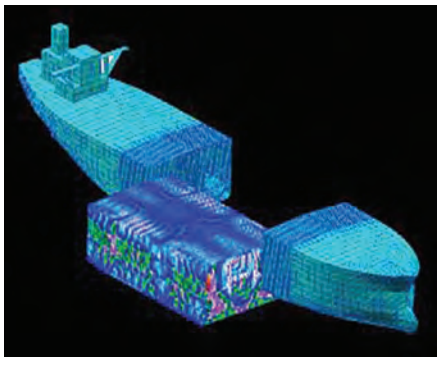
Image courtesy of ClassNK

ClassNK released the latest version of its PrimeShip-GREEN/MinPower software, a software program originally developed by ClassNK and released in April 2014 to help shipyards comply with amendments to MARPOL Annex VI, specifically EEDI requirements, by calculating minimum propulsion power requirements in compliance with the IMO 2013 INTERIM GUIDELINES FOR DETERMINING MINIMUM PROPULSION POWER TO MAINTAIN THE MANOEUVRABILITY OF SHIPS IN ADVERSE CONDITIONS.

The updated software allows users to calculate the added resistance in irregular waves, allowing for minimum propulsion power requirements to be determined to an even greater accuracy.

To evaluate the minimum propulsion power requirement, added resistance in irregular waves must be calculated with ship's lines. ClassNK incorporated a new calculation module into the software to calculate the added resistance in irregular waves accurately developed by National Maritime Research Institute of Japan in addition to simplified formula for calculating added resistance in waves using only basic information.

The PrimeShip-GREEN/MinPower software is provided to shipyards free of charge. Application forms can be downloaded from below website: PrimeShip: **http://www.classnk.or.jp/hp/en/activities/primeship/index.html**



SENER Releases FORAN V70R3.0

Earlier this year SENER released the new FORAN V70R3.0, a new version which leans on the company's 45+ years serving the market. The process starts with the forms generation in FORAN or the importation of forms from a third party solution. The module FGA for the generation of the general arrangement allows a quick definition of compartments and spaces in 3D. This module incorporates new functionality for the early positioning of equipment in the 3D model that can be linked intrinsically to the spaces of the ship and will be integrated with the rest of outfitting solutions in further design stages.

A new module, FABSIC, groups all the former applications related with the naval architecture calculations, storing the information in the FORAN database and allowing the organization of the concepts in a hierarchical tree. New enhancements are the interactive definition of loading conditions and a user-defined stability criteria, all integrated with the spaces and volumes defined in FGA module of FORAN. FBASIC will be finished in December 2014, with the incorporation of the deterministic stability module (FLOOD), probabilistic method (FSUBD) and the module for the launching (LAUNCH).

The hull structure definition in FORAN follows automated and intelligent-oriented tasks taking advantage of the topological model. The new release improves the structure model definition with fast generation of fabrication outputs.

Finally, as FORAN is not only devoted to ship design but also to offshore units, some options are oriented to this, such as the possibility to handle transversal symmetries. The recently re-developed solution FSYSD for the diagrams definition adds functionality, such as new instrumentation lines according with ANSI/ISA-S5-1-1984/1992 regulation. The communications with other systems has been improved and now it is possible to export multiple diagrams in PDF format. Other options are the automatic labeling and improvements to check the diagram integrity. The solution for the standards definition, equipment layout, piping, auxiliary structures, HVAC and interference checking is totally integrated with the rest of FORAN disciplines. Regarding FPIPE, some remarkable aspects are a new entity for equipment assembly, the replacement tool for straight fittings in pipelines and other functionality in auxiliary structures and supports.

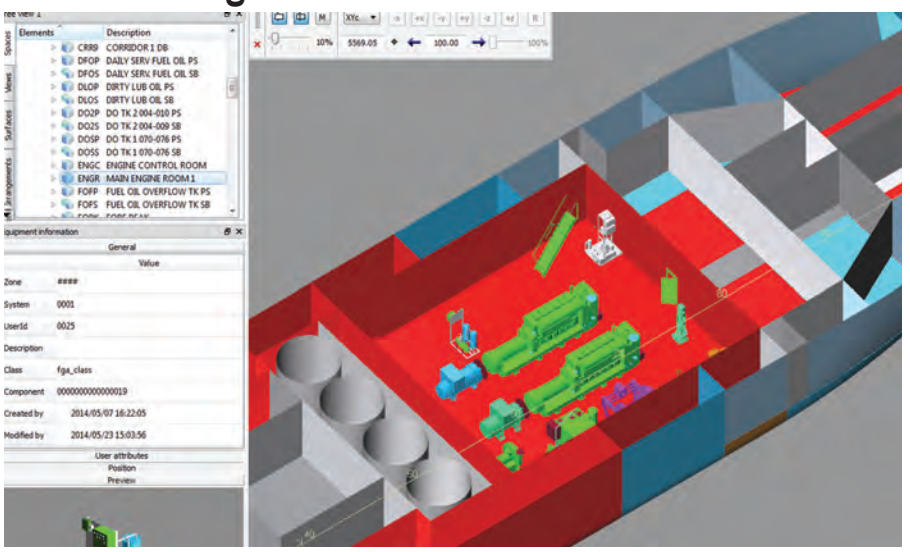
Within the electrical design in FORAN, FCABLE reduces the wasted gaps in the cable filling and allows to export cable transits to Hawke´s HDS. On the other hand, the module FREPG for the reports generation allows to define labels including a QR code.

FDESIGN is the solution for the automatic drawing generation in all FORAN disciplines. In this regard, some remarkable upgrades are improvements to optimize the labeling, the possibility of having drawings of sections defined in different planes and more properties for distributors containing different heights referred to decks. Finally, SENER offers a set of solutions for the visualization of the ship 3D model already generated in FORAN in a virtual reality environment.

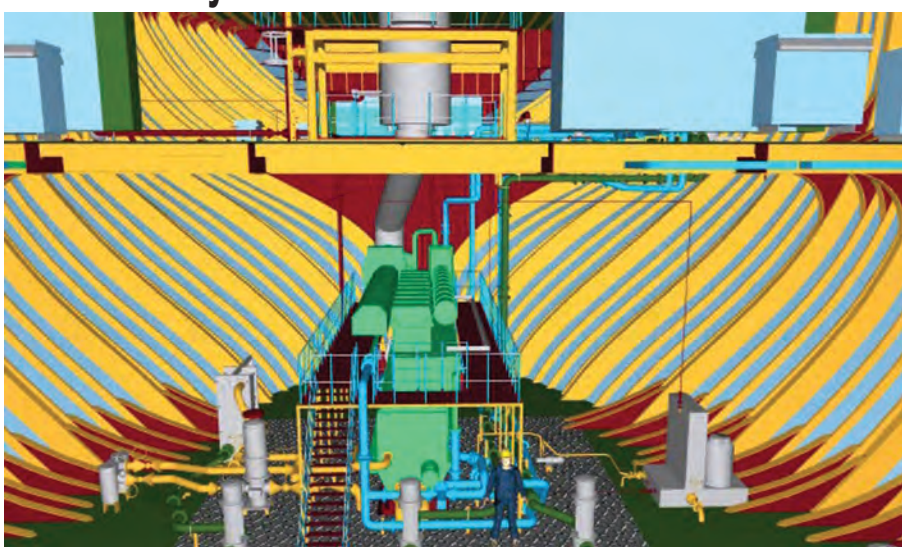
www.sener.es

Photomontage of a patrol vessel and its FORAN 3D model.

General arrangement in FORAN.



Virtual Reality view in FORAN.



New Performance Management Portal

DNV GL introduced ECO Insight, a performance management portal at SMM. Combined with the new Navigator Insight data collection and logging software, ECO is designed to give Insight to shipping companies as a fast track to an effective performance management system. The performance management portal ECO Insight provides a comprehen-

Albrecht Grell, head of the Maritime Advisory division at DNV GL

sive way to manage the performance of a fleet, including voyage, hull and propeller, engine and systems performance. It enriches customers' own fleet reports with industry data, such as Automatic Identification System (AIS), weather, or fuel, and provides unique benchmarking capabilities. Advanced engineering systems, for example hull fouling prediction, are also packaged into the portal. Navigator Insight, due to a lot of smart plausibility checks against specific vessel particulars, is designed to ensure high quality data collection onboard.

www.dnvgl.com

Upgrade to ProNest CAD/CAM nesting software

Hypertherm announced a major version upgrade to its ProNest advanced CAD/CAM nesting software for automated cutting. ProNest 2015 contains a number of improvements designed to make the software more efficient and easier to use. Some notable features include:

- An automatic nesting process called IntelliChoice that makes advanced level nesting decisions based on the available parts in the part list.
- Simplified and intuitive user interface that more closely aligns with the look and operation found with commonly used business applications.
- Tabs to quickly navigate between nests, insert new nests, or reorder nests by clicking and dragging tabs to the desired location.
- The ability to export nests directly to a DXF file without installing a special DXF Polyline setup or changing machines.
- Expanded keyboard shortcuts throughout the software navigation.
- More standard features such as OneClick, a production module that automates various job tasks, and Custom Remnants, a tool that allows users to enter the dimensions of an irregular plate or remnant and then complete a nest. Formerly, those two modules were sold separately.

MAN Diesel & Turbo Debuts
New High-Speed Engine

MAN Diesel & Turbo created a stir at SMM on the high-speed market with its service concept for the MAN 175D high speed engine. With the MAN 12V175D, MAN Diesel & Turbo is presenting the first cylinder version of its new high-speed engine family. The twelve-cylinder model, developed especially for use in the shipping industry, is part of a product initiative aimed at providing MAN customers with a product portfolio that covers every power requirement, from high to low speed.

"With the MAN 175D, we are supplementing and completing MAN Diesel & Turbo's and MAN Truck & Bus's product portfolio in the maritime sector," said Dr. Hans-Otto Jeske, CTO and acting CEO for MAN Diesel & Turbo. The new engine will be offered with an output spectrum from 1,500 to 2,200 kW and will be available to the first pilot customers from as early as 2015.

The MAN 175D was designed from a clean sheet incorporating the latest in engine technology, and as a natural consequence eco-friendliness was high on the agenda. The engine sports a compact and modular exhaust gas after-treatment system using the selective catalytic reduction (SCR) method, and the engine will satisfy the strict environmental standards of the IMO Tier III.

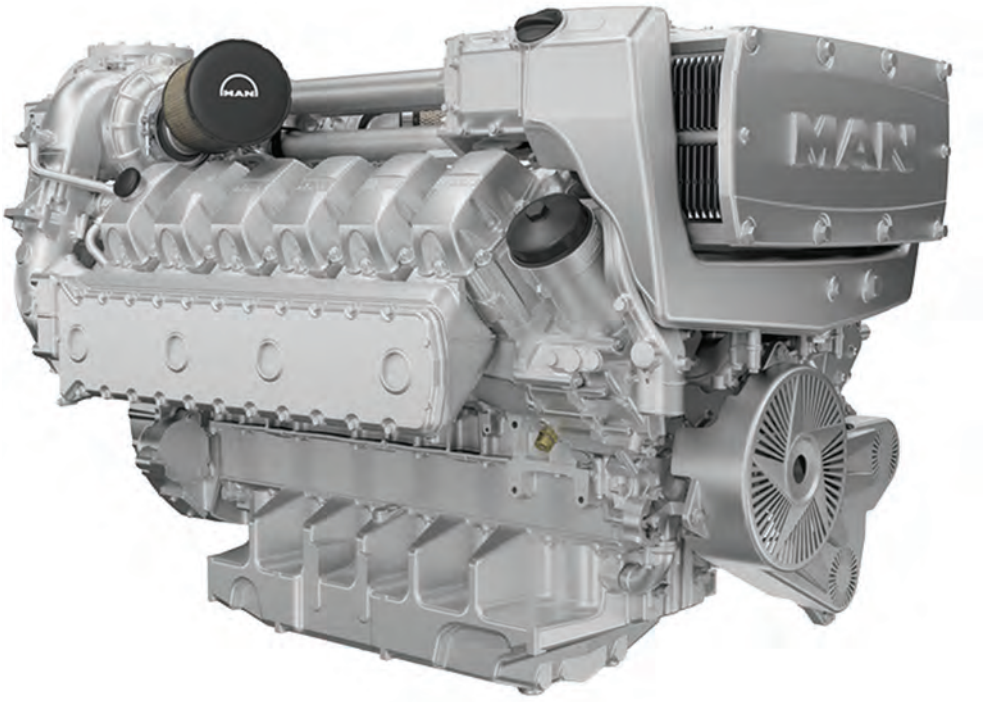
"The decision was taken (about 5 years ago) to introduce this new line of engines," said Klaus Deleroi, senior vice president, head of the MAN Diesel & Turbo Medium Speed business unit, interviewed at the MAN booth at SMM 2014. "There were two reasons for that: first, this fills a gap in our power range portfolio; second, many customers came to us and requested another competitive player in this range. They were asking: 'why is MAN, as one of the inventors of the diesel engine, not present in this engine range."

According to Deleroi, two engines are currently running on the MAN test bench, with a cumulative of 500 to 700 hours under their belt.

"We had the advantage to start from a clean sheet, and we were able to integrate all of the recent technologies and advantages. So the key points are this is more powerful, per cylinder (than a popular competitive brand) and it is more fuel efficient."

"If you compare it power to power, this engine is smaller. Where you might have to install a 20V, you can install a 16V of this engine. This engine will be available in a 12, 16 and 20V."

While the new engine will be sold into a variety of applications, starting with the patrol boat and yacht sector, it is clear that the company is targeting the demanding workboat market where owners clock upwards of 4,000 hours annually.



Technical Details

Mechanical Propulsion

Length	**2645 mm**			
Width	**1485 mm**			
Height	**2135 mm**			
Weight	**8200 kg**			
Type	**Rating**	**Power – kW (bhp)**	**Speed (rpm)**	**Avg. Load**
MAN 12V175D MH	**Heavy Duty**	**1740 (2333)**	**1800**	**<85%**
MAN 12V175D MM	**Medium Duty**	**2220 (2977)**	**1900**	**<65%**

VULKAN Couplings

At the SMM 2014 in Hamburg, Vulkan Couplings presented two new products: the TDS Plafrix, a shifting clutch and flexible coupling combination, tailored to the use of harbor tugs in particular, and The Vulkardan GBF, a coupling for generator applications featuring a solution for the so-called “blind fitting” applications.

ECA’s Drive TDS Plafrix Development

The TDS Plafrix clutch is specially designed for use in harbor tugs. To develop and market the new TDS Plafrix clutch, Vulkan Couplings and DESCH Antriebstechnik, Arnsberg, entered into close cooperation. DESCH Antriebstechnik GmbH & Co. KG is a worldwide active manufacturer of products for drivelines for the complete machine building industry.

TDS stands for Tug Drive Solution and Plafrix is the well-known market name of the DESCH Planox clutch, which is already marketed by Vulkan Coupling. The background for the development of the TDS Plafrix includes the increasingly strict laws and regulations for watercraft operation in coastal waters, together with the increasing number of Emission Control Areas (ECA), which make alternative drive concepts necessary. Tugs are particularly affected by ECAs, as by their very nature they perform their work almost always close to the coast, and thus in ECAs. Tugs usually share a certain load profile, so that the market regards hybrid drives in particular as a future-proof solution for this application. Moreover, in the version currently favored by engine manufacturers and designers, an electric motor between diesel and gearbox is switched onto the drive shaft. The TDS Plafrix clutch combination, designed and optimized for this application is designed to be a cost-effective and weight-optimized solution.

Vulkardan GBF

Vulkardan GBF is an extension of the Vulkardan-G product family for generator applications in the medium torque range with the addition of this coupling in the plug-in execution. The Vulkardan GBF series covers a power range up to 63 kilonewton meters. The elastic Vulkardan G range has been developed for modern auxiliary engines and fixed mounted generator applications. The 54-62 sizes so far introduced to the market feature a nominal torque of up to 25 kilonewton meters, and are already used in engines with SAE flywheel connection. The coupling series was originally developed for free-standing systems. In order to also meet the special requirements for bellhousing Installations, Vulkan developed an axial plug-in version, in addition to the above-mentioned free-standing version.

Pluggability was obtained thanks to a new solution in which rolling elements made of a high performance composite material are embedded in precision-crafted pockets. Thus the new Vulkardan GBF is almost backlash free, tooth slipping is excluded and, at the same time, wear has been significantly reduced.

www.vulkan.com

Cat Unveils MaK M 25 E Platform

Caterpillar Marine launched the MaK M 25 E engine platform at SMM, an engine platform developed for state-of-the-art vessel designs with an emphasis on fuel savings. Key product features include optimized engine performance as well as an efficient part load range, which the manufacturer boasts can help to save up to 40 tons of fuel a year when operating vessels at variable engine speeds. Vessels typically operating at lower loads can save up to 60 tons of fuel per year by changing the operating mode from constant to variable engine speed. The M 25 E will be available to order in fourth quarter 2014 and is targeted to the offshore and coastal cargo vessels segments. The M 25 E will be available in 6, 8 and 9 cylinder configurations offering ratings between 2,100 kW and 3,150 kW at 720 and 750 rpm.

By combining a set of technologies such as Flexible Camshaft, Waste Gate Technology and Cylinder Bypass Valve, Caterpillar Marine engineers designed engine ratings to support varied operational profiles of vessels at the lowest smoke emissions while supporting the installation of Selective Catalytic Reduction (SCR) systems for the lowest NOx emissions at the same time.

The engine is suited for vessels where the hull and propeller have been optimized for the lowest operational costs at cruising speeds as well as for vessels where customers have elected to lower operational fuel costs by utilizing selected load profiles in combination with the most efficient engine speed. Equipped with the new Modular Alarm and Control System (MACS) the M 25 E also supports remote condition monitoring and diagnostic maintenance programs.

Caterpillar Marine also introduced optional part load kits for the MaK M 32 E platform. Developed for offshore vessels, the M 32 E part load kits are available for both constant speed and variable speed operations. Both kits combine lowest possible fuel consumption in part load range with highest possible power output at full load.

Offshore vessel applications typically encounter a significant period during their lifetime where they have limited power demand from the engines. Operating in stand-by or dynamic positioning mode often requires the use of multiple engines in combination with low power consumption, resulting in low load operation of two or three engines at the same time. The part load kits enables all vessels operating M 32 E engines primarily in the part load range improved fuel efficiency, load acceptance and reduced smoke.

The constant speed part load kit for M 32 E offers fuel savings up to 10 g/kWh with a 3x33% load step capability. The kit includes the proven Flexible Camshaft Technology and an intelligent control software integrated into the new Modular Alarm Control and Safety (MACS) System.

The variable speed part load kit for M 32 E is based on the constant speed part load kit with the same improvements but with increased fuel savings up to 24 g/kWh. The variable speed kit is able to achieve reduced fuel consumption as a result of the reduced engine speed at lower loads. Key components in the variable speed part load kit include a modified turbocharger, a cylinder bypass valve and waste gate.

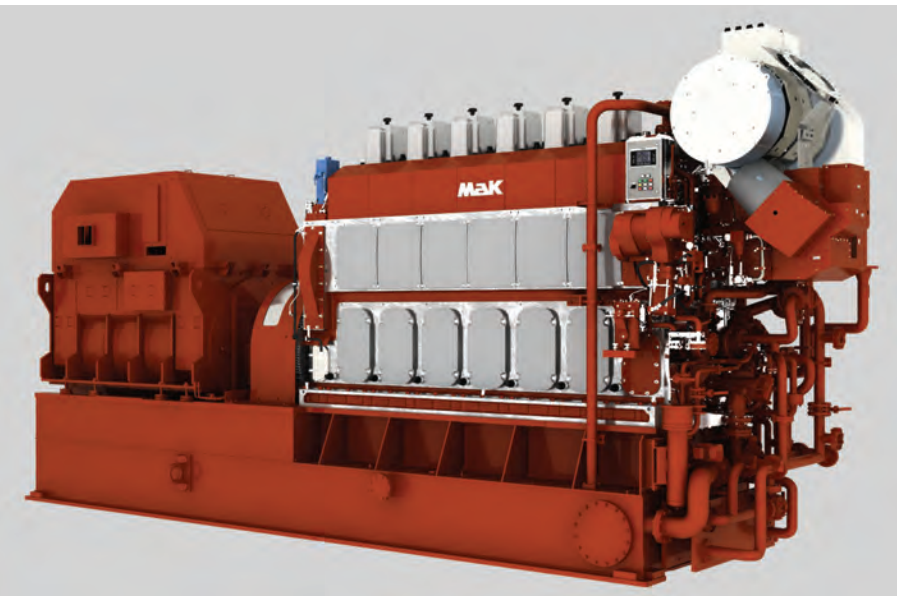
New Power Ratings for C175 Platform

Caterpillar Marine also unveiled new power ratings for the Cat C175 propulsion engine for commercial vessels at SMM. Designed specifically as a high speed power solution for commercial applications including ocean going and harbor tugs, the C175-16 propulsion engine is now available with ratings of 2,239-2,550 bkW at 1,800 rpm. The new ratings extend Caterpillar Marine's high-speed engine power range beyond the company's already industry-leading 3516C-HD engine. Cat C175 engine platforms with the new ratings are available to order now from the global Cat dealer network.

Suited for large, high speed commercial vessels, the C175 engine uses ACERT to optimize turbocharging and aftercooling. The engine also features the Cat common rail fuel system enabling low emissions at all levels and requires no after treatment to comply with regulations. With a bore of 175 mm (6.9 in) and a stroke of 220 mm (8.66 in), Caterpillar said the C175-16 is highly efficient while providing increased propulsion output in a high speed engine platform.

www.marine.cat.com

MaK M25 E



Cat C175

ZF Marine Launches ZF W10000 Transmission

ZF Marine Propulsion kicked off day 1 of SMM 2014 in Hamburg by introducing the new workboat transmission family – ZF W 10000 – enhancing the range of ToughGear series transmissions. The new family is designed specifically for the commercial craft segment. "We spent a lot of time talking to the market, but more importantly, listening to the market," said ZF Marine's André Körner, Head of Product Line, Commercial and Fast Craft. "The W10000 is the direct result of market feedback."

The W10000 is rated to 2,610kW (3,500hp) at 2,100rpm, and its compact design increases power density compared to the current offerings. Just as importantly, the W10000 represents a transmission family of a new generation based on our standardized platform for component sharing, with the aim of reducing complexity and increase service parts availability across various product families.

The new transmission is available at launch with ratios from 2.0:1 up to 7.9:1. "Here also we responded to market demand," Körner said. "Our customers are requesting deeper ratios and the W10000 delivers."

The transmission can be ordered in reversing, non-reversing and hybrid-ready (PTI) versions. W10000 transmissions also incorporate an integrated shaft brake, a 1,000kW (1,340hp) Top PTO, and has many accessories including ZF Autotroll available for various applications and vessels with dynamic positioning requirements.

ZF Extends Hybrid-ready Transmission Range

ZF Marine also introduced the ZF 3300 PTI transmission at SMM, which expands its product offering in it hybrid-ready product portfolio. Designed to be powered through standard diesel engine input, or via alternate power source through a Power Take In (PTI), this new transmission is designed as a hybrid-ready solution. The ZF 3300 PTI is designed with the flexibility in mind, ready to be integrated into a variety of hybrid vessel propulsion solutions. It is rated up to 1,940 kW (2,600 hp) at 2,450 rpm, with a wide range of basic ratios from 3.00 to 5.00 (incl. PTI ratio with spur gear up to 16.25). The transmission is available with a host of optional accessories, including Top, Live, and Pump PTO compatibility, as well as the optional trailing pumps.

www.zf.com

Above:
ZF W 10000 pictured behind ZF Marine's André Körner, during its introduction at SMM 2014.

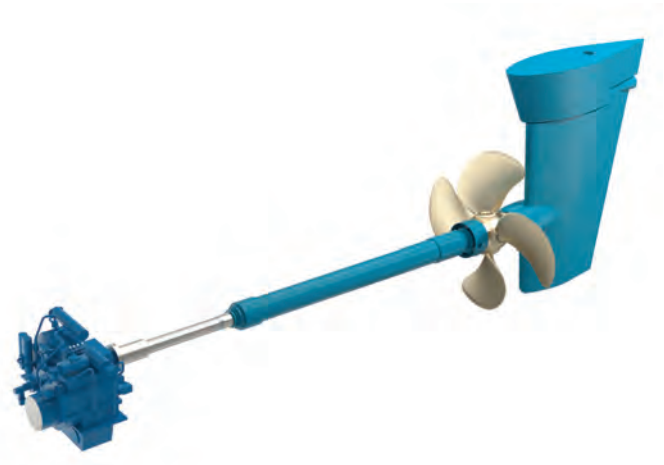
Inset: ZF 3300 PTI

Wärtsilä's New CPP System

At SMM Wärtsilä introduced its latest development of large Controllable Pitch (CP) Propellers, based on the previously known E-hub type. The new Wärtsilä CP propeller system addresses the demands of medium and large size vessel owners, and is particularly applicable for special vessels that are equipped with dynamic positioning capabilities, as well as vessels having ice notation, the manufacturer said. Among the benefits cited are an increased load capability, the high propulsive efficiency, the reduced fuel consumption that this efficiency brings to the vessel, excellent reliability, and a reduced environmental footprint.

The design follows the systems engineering approach with integration of the propeller and the hub with modern hydraulics and propulsion controls. Computational Fluid Dynamic (CFD) calculations are used to analyze, not only the propeller performance but most importantly also, the interaction between the propeller and hull. This provides extremely accurate information, based on detailed 3-d geometry, for achieving design and parametric optimization. The innovative hub design features forced lubrication and allows the use of environmentally acceptable lubricants (EAL), as required for propulsors operating in US inland and coastal waters. The propeller system is prepared so as to meet the US EPA's VGP 2013 regulatory requirements. The new design allows for compatible hydraulics and the flushing of lubrication oil.

www.wartsila.com

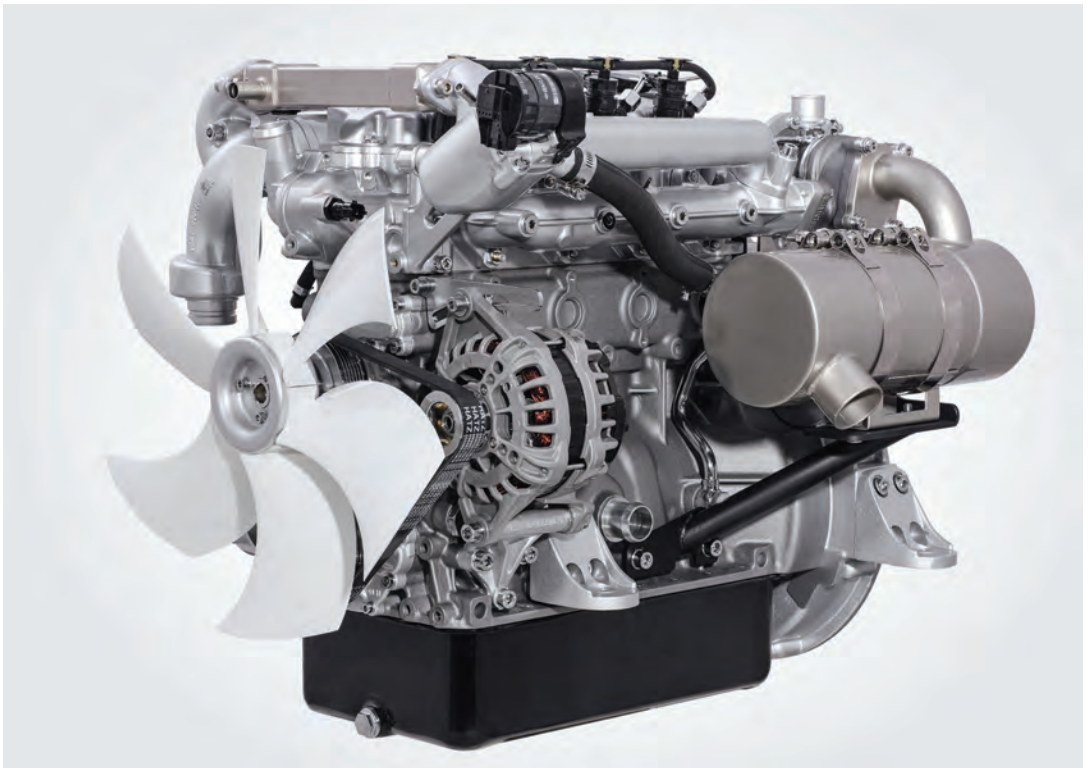


Hatz Presents New Engine Concept Study

Hatz Diesel presented the concept study of the new 4H50TIC as a marine version at SMM.

The engine has been manufactured in series production since the beginning of 2014 and is designed primarily for use in construction machinery, as well as for stationary and mobile applications. The engine has been converted for use as a marine propulsion engine, with keel cooling adopted for the required engine cooling and to reduce heat radiation and insulation was installed for the exhaust silencer. Besides this, the 4H50TIC marine includes the same characteristics as the base engine. The two-liter, four-cylinder turbo engine is equipped with a BOSCH common rail system with 1,800 bar rail pressure. Hatz said the engine sets new standards in its class in terms of power to weight ratio, size and fuel efficiency.

www.hatz-diesel.com



Schottel Shifts Focus Offshore at SMM 2014

Schottel presented new solutions focusing on offshore applications and hybrid concepts. The new underwater mountable azimuth thruster SRP 9000 LSU (4,800 – 5,500 kW) takes into account the tough conditions offshore and helps reduce docking times. The SRP 9000 LSU is an utmost robust and reliable drive allowing easy and cost-efficient mounting and dismantling offshore. Cost efficiency is also an asset of the SRP 3000 and 4000 PTI. The thruster is a mechanical drive with a PM motor as PTI (power take in) mounted on the upper gearbox of the SRP opposite the input power train. The system allows for simple switching between the diesel engine and PTI during operation. The power of the PTI can easily be added to that of the diesel engine in the boost mode for maximum bollard pull or high torque requirements at partial loads. The electric mode is ideal for transit and idling.

www.schottel.de

Wärtsilä's LNGPac: AIP from DNV GL

The new Wärtsilä LNGPac, the upgraded version of the company's LNG fuel handling system, was granted an AIP (Approval in Principle) Certificate from DNV GL. The AIP Certificate covers Wärtsilä's improvements to the original LNGPac.

The new solution has removed the heating media skid and its pumps, and includes an improvement to the Wärtsilä Cold Recovery solution. The certificate is based on technical material and safety analyses, and includes documentation concerning normal operation of the system and a presentation of risk scenarios. In effect it means that the system is judged to be safe and reliable and that it will be approved by classes in actual projects.

The heating media skid, a complete circuit of heat exchangers, pumps and piping, was earlier used to evaporate LNG for pressurizing the storage tank and to provide the engine with the correct gas temperature. In looking beyond the fuel gas system, Wärtsilä has demonstrated its ability to integrate multiple interfaces within the LNGPac. Instead of the heating media skid, the new LNGPac system directly uses the engine's cooling water, which results in fewer interfaces and less installation work for the shipyard. By eliminating electrical consumers, Wärtsilä enables the vessel to become even more environmentally friendly.

www.wartsila.com

GreenSteam Optimizer

GreenSteam, a developer of marine fuel efficiency and optimization systems, showcased its fuel saving GreenSteam Optimizer, an onboard adaptive, data-driven decision support system. Consisting of two small radars installed in the bridge wings and a touch screen console which connects to wind and flow meter sensors, trim and the radars, the system continually optimizing the trim and draft of the vessel based on conditions such as load, waves, wind, water depth for maximum fuel efficiency.

www.greensteam.dk

Leistritz: Three New Pumps at SMM

The offshore oil and gas industry uses Floating Production, Storage and Off-loading (FPSO) vessels in order to process and store gas or oil until it can be unloaded onto tankers or forwarded through a pipeline. Leistritz Screw Pumps are responsible for boosting the produced water into a hydro cyclone where the remaining oil and sand will be extracted.

Since 1924 Leistritz Pumpen GmbH has been manufacturing screw pumps for almost any application in the shipbuilding industry and has established itself as a leader worldwide. At this year's SMM the company presented its latest pump developments for various tasks: unloading bitumen and asphalt tanks, compensating undesired heeling and emptying tanks in the event of an accident.

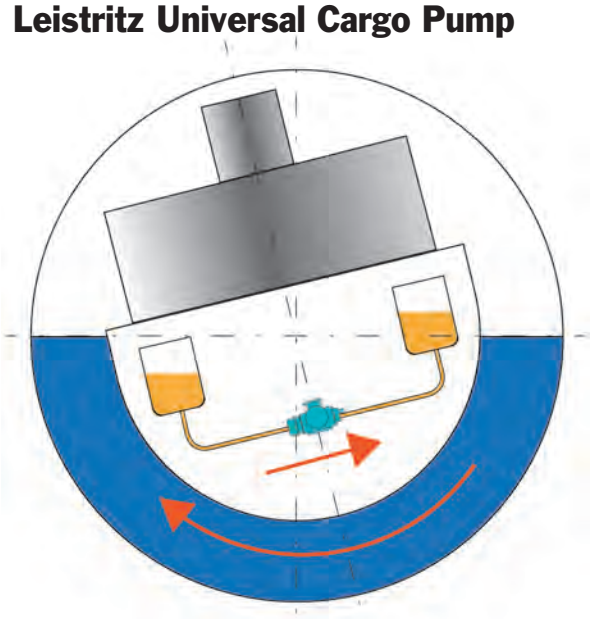
Universal Cargo Pump

"Great demands are postulated from cargo screw pumps, which have to properly unload the full range of high to low viscous products," said Heinz-Dieter Roß, Managing Director, Leistritz Pumpen GmbH. "With tank depths of more than seven or eight meters things become quite difficult." The reasons for this are: Standard deck installations of pumps are subject to cavitation problems. Furthermore, proper stripping and draining of the tank is not provided. The Universal Cargo Pump is a pump system comprising pumps from the series L2 and L5 which are installed in a separate barrel, normally hanging from the deck in the aft cargo tank. The installation inside the barrel omits the need of an otherwise required pump room. The barrel works as a large suction chamber providing the pump with additional suction ability. The tank can almost be completely emptied of all product quantities (even high viscous fluids like bitumen or asphalt) which are handled by the pump. With at least two pumps installed in a barge, each pump can work with full unloading capacity.

Leistritz Universal Cargo Pump

Anti-Heeling Pump

Another issue Leistritz focused on is the further development of anti-heeling systems. Johannes Döring explains: "Such systems correct undesired tilts by pumping ballast water back and forth between the heeling tanks. Reversible propeller pumps are the most common pumps used on anti-heeling systems for ballast water flow rates of more than 300 cu. m./hr. Systems with flow rates less than 300 cu. m./hr. usually work with a non-reversible centrifugal pump which needs a complex four-valve system for the reverse mode." Leistritz does it differently: With the Leistritz Pump L2NG the company introduces a 2-spindle positive replacement pump granting a speed-controlled and reversible operation. It is suitable for pressures of up to 3 bar and flow rates of 10 to 400 cu. m./hr. "This is an important advantage which also facilitates the installation in smaller ships," says Döring. Another benefit is the direct correlation of pump flow and pump speed as well as the rather low impact of varying operating pressures, allowing a very smooth and accurate flow control.



Anti-Heeling Pump

Oil Recovery Pump

"When an accident at sea happens, not only the ship's cargo but also the ship's fuel supply is at risk," said Heinz-Dieter Roß in describing the initial idea behind the third novelty introduced at the SMM: the Leistritz Oil Recovery Pump. It is a 3-spindle pump which is not only used in a Fast Oil Recovery System (FOR), which is a pre-installed, passive system on ships to empty leaking tanks in case of damage. It can also be used as an independent system. "The challenge in designing such a pump was the fact that it had to be small enough to fit into a pipe to be compatible with the FOR system," said Roß. The previous oil recovery system involves injecting seawater into the tank using a pre-installed auxiliary pipe. The oil which is lighter and relatively insoluble in water is pushed upwards through a disposal pump. The oil is pumped out there and the contaminated water remains. But in a leaky tank this principle is useless.

Oil Recovery Pump

Van Heck Sea Trophy

Van Heck started in 1964 as a one man operation to build and develop pumps and services to the dredging industry. Driven by innovation and its reputation, the company expanded into the offshore industry boom of the 1980's and its expertise grew as it helped tackle the challenges set by this specialists market.

The innovation hasn't stopped today, and Van Heck continues to grow, offering its customers specialized, tailor-made engineering and advice. Van Heck provides pumps and ballast systems, siphon systems and pipe work with fittings as a complete package. Anything from engineering and calculations to manufacture and construction.

The company works within its domestic market of the Netherlands, Belgium and North Germany. However as much as 50 percent of its business is acquired from around the globe and is continuously expanding into the countries, wherever the market takes it. Van Heck is also focused on investing in the new offshore wind farm projects that are beginning to take shape in the North Sea and its surrounding seas. The company enjoys a strong relationship with some of the major players in the market including the larger dredging firms such as Jan de Nul, Boskalis, Van Oord and DEME Group as well as renowned salvors Svitzer and SMIT.

With its latest innovation, Van Heck has created the potential to eliminate one of the largest and most damaging risks to both the economy and the environment; all wrapped up in a tiny 150mm by 630mm package.

The Sea Trophy is purported by the company to be the first and only pump of its kind in the world, capable of quickly and cleanly removing oil at a rate of 70m3/hr at 100cS. It's small size allows it to enter through the systems in a ship's existing piping, requiring little preparation, thus eliminating the need to begin welding and cutting before pumping. This fast oil recovery system has the capacity to eradicate risk to the environment from oil spills.

The Sea Trophy is also a potential answer to new, upcoming shipping regulations such as the Polar Code and Green Shipping policies. The pump is available for rental and development continues to widen its usability and increase its effectiveness in different applications.

Georg Fischer Piping DWV Fittings

W&O announced new fittings for the Georg Fischer SeaCor marine thermoplastic piping system. The addition of Schedule 80 drain waste and vent (DWV) fittings will complete the current product offering for SeaCor Schedule 80 thermoplastic pipe. Customers will now have access to a complete thermoplastic piping system solution, with one material and one installation process, for use in all nonessential grey, black and freshwater applications.

As a Georg Fischer's distributor in North America, W&O saw a need and worked alongside the OEM to expand the product line to include unions; plugs; ball, check and butterfly valves, as well as special pipe supports and other installation accessories. Georg Fischer designed the fittings and is manufacturing the new, one-of-a-kind molds in its USCG-approved U.S. manufacturing facility in Little Rock, Ark.

The addition of the DWV fittings allows W&O to offer the SeaCor system for all shipboard sanitary and technical water management requirements. SeaCor can be installed from the water supply tank, through the pumps and into all onboard locations for water supply. The same system can be used to collect grey and black water, and bring it back for treatment and eventual discharge.

The SeaCor system is the only commercially available thermoplastic plastic piping systems that meets the IMO/SOLAS USCG requirements for flame spread, low smoke and toxicity. In addition to USCG approval #164.141/36/0, SeaCor has been approved for shipboard use through the ABS Type Approval program (Certificate #08=HS24293B-6-PDA) and is approved for marine use by Transport Canada.

wosupply.com & georgfischer.com

Bestobell

Bestobell Extends Valve Range

Bestobell Marine, part of the President Engineering Group Ltd. now offers both butt weld and flanged connections for all its Globe and Check valves. These valves range from small (DN15) to large (DN350). Valves with flanged connections are particularly in demand with the Japanese and Korean shipbuilding companies, as they are designed for ease of installation premised by less welding.

To make the product development process quicker and more efficient, Bestobell Marine used a 3D modeling program, which it shared with its foundries, to gather feedback on designs and allow the technical team to make changes where they thought improvements could be made. This partnership was central to ensure that the valves were designed quickly and to a high standard.

"We are seeing increasing demand for our valves in the marine sector and expect to secure major new opportunities for expansion into the Japanese market for new build vessels," said Duncan Gaskin, Sales Director, Bestobell Marine. Bestobell Valves has been a leader in the manufacture of cryogenic valves for industrial gas applications for more than 50 years and has 15 years' experience in supplying to the LNG marine markets. Bestobell's Valves are used on LNG Carriers, FLNG (Floating Production & Storage Units) and FSRUs (Floating, Storage & Re-gasification Units). Bestobell's Marine division designs and produces valves to meet specific requirements in the marine sector and has supplied cryogenic valves to a majority of the major shipyards building LNG Carriers.

www.bestobellvalves.com

Teekay

Teekay Couplings
Plastlock Pipe Coupling

Teekay Couplings launched its new Teekay Plastlock Pipe Coupling at SMM in Hamburg, Germany. Designed to enable simple, rapid and permanent joining of plain-ended plastic pipes, the product is designed to greatly increase the ability of the marine industry to specify plastic pipes in builds and therefore realize the cost, time, space, weight and simplification benefits of the material.

Key to the new product's capability is its patented dynamic axial restraint system, which locks plastic pipes together without the need for gluing, heat fusing, flanging or pipe inserts. The system has two pipe wall gripping rings that adapt to higher levels of load as pressure in coupled pipes increases. These rings rotate on the pipe surface under higher loads, increasing the area gripping the pipe and reinforcing the seal.

This design concept follows through into the pipe anchoring mechanism, which includes three anchor rings at staggered heights. A chamber between each ring allows the pipe wall to migrate around the area where each anchor ring engages with it. These features allow for a dynamic lock on the pipe, ensuring all rings are continuously in contact with the pipe wall, resulting in a hold that permanently locks the two pipes together.

According to the company, Plastlock could serve to enable design innovations. For example, it will allow tighter and neater pipework layouts that maximize space, particularly important on passenger ships. Pre-fabricated spool pieces, produced in factory conditions and joined together on site, can now be used to simplify builds. Very low or maintenance free pipe systems will also be more cost-effective to install. Plastlock is designed to work with a wide range of plastics used in piping, including Polyethylene, Polybutylene, Polypropylene, PVC-C, PVC-U and ABS. The range includes 15 different sized couplings, fitting pipes with outside diameters from 25mm to 315mm. Couplings to fit plastic pipes outside of the standard range can be manufactured to order. Plastlock is engineered to conform to WIS-4-24-01 and BS 851: 2103 standards. Minimum burst is four times working pressure.

www.teekaycouplings.com

W&O Actuated Valve Solution for Vigorous

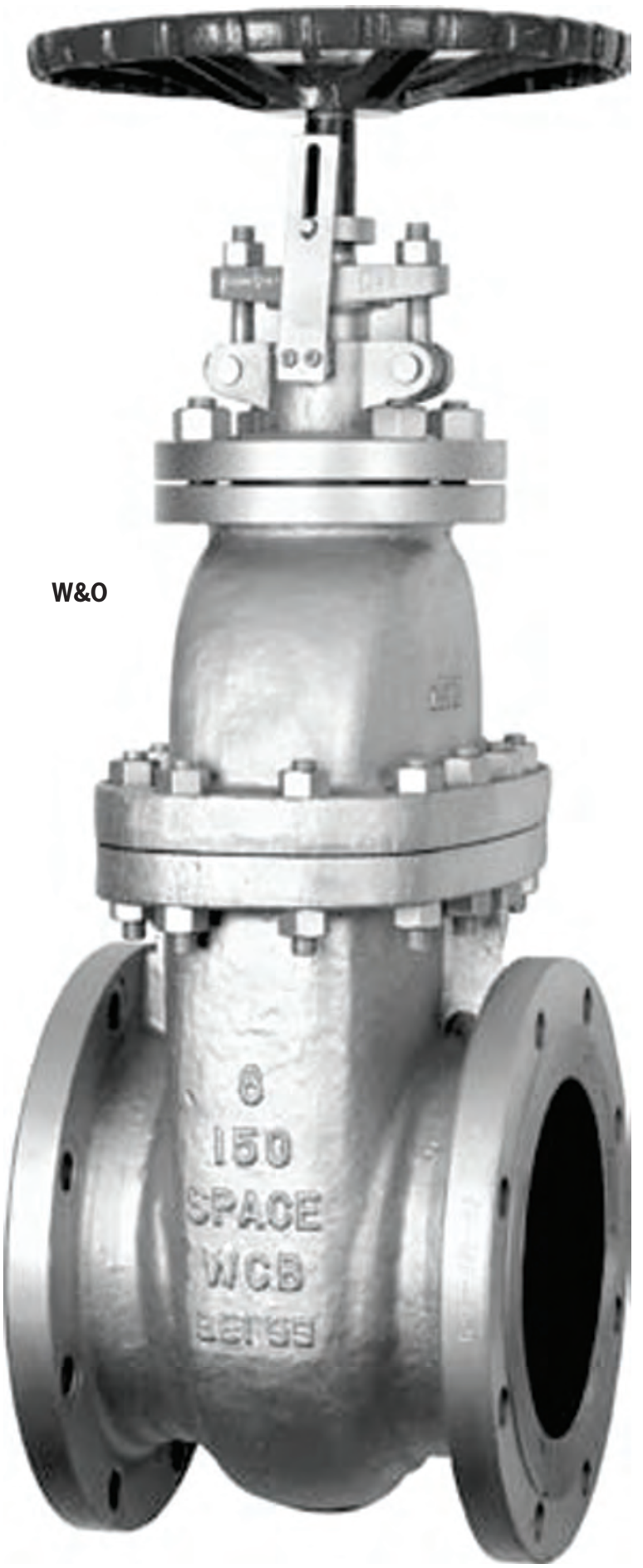
W&O is one of the partners that supported Vigor in the $40m project to build and deliver the largest floating drydock in the U.S. – Vigor Industrial's Vigorous – which was delivered recently to its new home in Portland on the Willamette River. W&O provided an actuated valve solution for the ballast system of the drydock, and from design specification through initial commissioning, the W&O team provided technical and product support for the Vigorous ballast system, a system that uses SPACE Gate Valves, EIM Electric Actuators, reach rods and deck stands. David Lamphier, W&O product manager, traveled to Shanghai Zhenhua Heavy Industries Qidong Marine Engineering in Jiangsu, China numerous times to provide on-site technical assistance to the drydock builder, including pre-installation technical support and initial commissioning.

"The Vigorous is an exciting project for the U.S. marine industry as a whole, and for W&O as a partner and supplier on the project," said Michael Hume, president and CEO of W&O. "The presence of this new, large-scale drydock will be an asset to the industry on the Pacific Coast."

SPACE valves have been manufactured by W&O since the early 1990s and are ABS and USCG approved. On-site factory inspectors check all stages of manufacturing, stem tolerances, Rockwell hardness of washers and material composition. SPACE valves feature internal stem modifications to eliminate galling with dry cargo, CR13 trim for fuel and cargo applications, and higher grade aluminum bronze materials, as recommended by ABS, for salt-water applications. SPACE valves are used throughout the world on barges, container ships, tankers, offshore rigs, ferries and fishing boats.

SPACE valves are available from stock as OS&Y and NRS Gates, Swing Checks, Globes, Angles and Stop Checks in sizes 2-inch through 24-inch. They can also be produced in sizes up to 54-inch.

www.wosupply.com



W&O

Alfa Laval's *PureSOx 2.0*

Alfa Laval's PureSOx is an emissions scrubber, an alternative for complying with the sulfur limits imposed by MARPOL Annex VI and its guideline MEPC 184(59). With January 2015 and the enforcement of Emission Control Areas (ECAs) rapidly approaching, Alfa Laval has launched a new generation of the scrubber with a wide range of enhancements and options: PureSOx 2.0.

From its debut in 2009 to date, 50 PureSOx systems have been ordered for 45 vessels. The new PureSOx 2.0 is being positioned by the company as smaller and more flexible, better suiting an even wider range of vessels. According to the manufacturer, benefits of the 2.0 system include new placement possibilities and lower installation costs, as well as the option of powder dosing in closed-loop mode.

"Every PureSOx system ever installed is in use and operating within ECA limits," said René Diks, Alfa Laval Manager Marketing & Sales, Exhaust Gas Cleaning. "PureSOx 2.0 is more of an evolution than a revolution."

Smaller Footprint, Larger Performance

Perhaps the most evident difference in PureSOx 2.0 is the diameter of the absorber, which forms the bulk of the scrubber body. This has been reduced by around 15%, which lessens the likelihood that cargo or passenger space will be affected by the scrubber installation. Further reduced is the size of the control system, which is a full 50% smaller than the previous version. Even the water cleaning unit used in closed-loop mode is easier to get on board. The unit is more modular in PureSOx 2.0, with equipment now distributed across three skids that can be loaded onto the vessel separately and placed indepently for maximum flexibility in design.

According to the company, PureSOx 2.0 is designed to open a range of design opportunities, allowing it to be even more effectively integrated. For example, it is designed to handle boiler exhaust, which removes the need for an additional exhaust gas cleaning system when the boiler is fired with HFO. Also, the scrubber itself attenuates noise in PureSOx 2.0. This means it can now be positioned before the silencer, rather than after as previously required. Especially in a newbuild, this means it can be placed lower in the vessel. Not only does this improve vessel stability, it also has the benefit of reducing back pressure. When it comes to operation, the most notable difference in PureSOx 2.0 is the option of powder dosing, which applies to both closed-loop and hybrid configurations. When running in closed-loop mode, the circulation water must be dosed with an alkaline additive. Up to now this has always been the liquid additive caustic soda, but in PureSOx 2.0 a powder like sodium bicarbonate can be used instead. Taken aboard dry and loaded into a silo, the powder is mixed with desalinated water before entering the closed-loop circuit. According to Diks, powder dosing reduces risk to the crew.

www.alfalaval.com

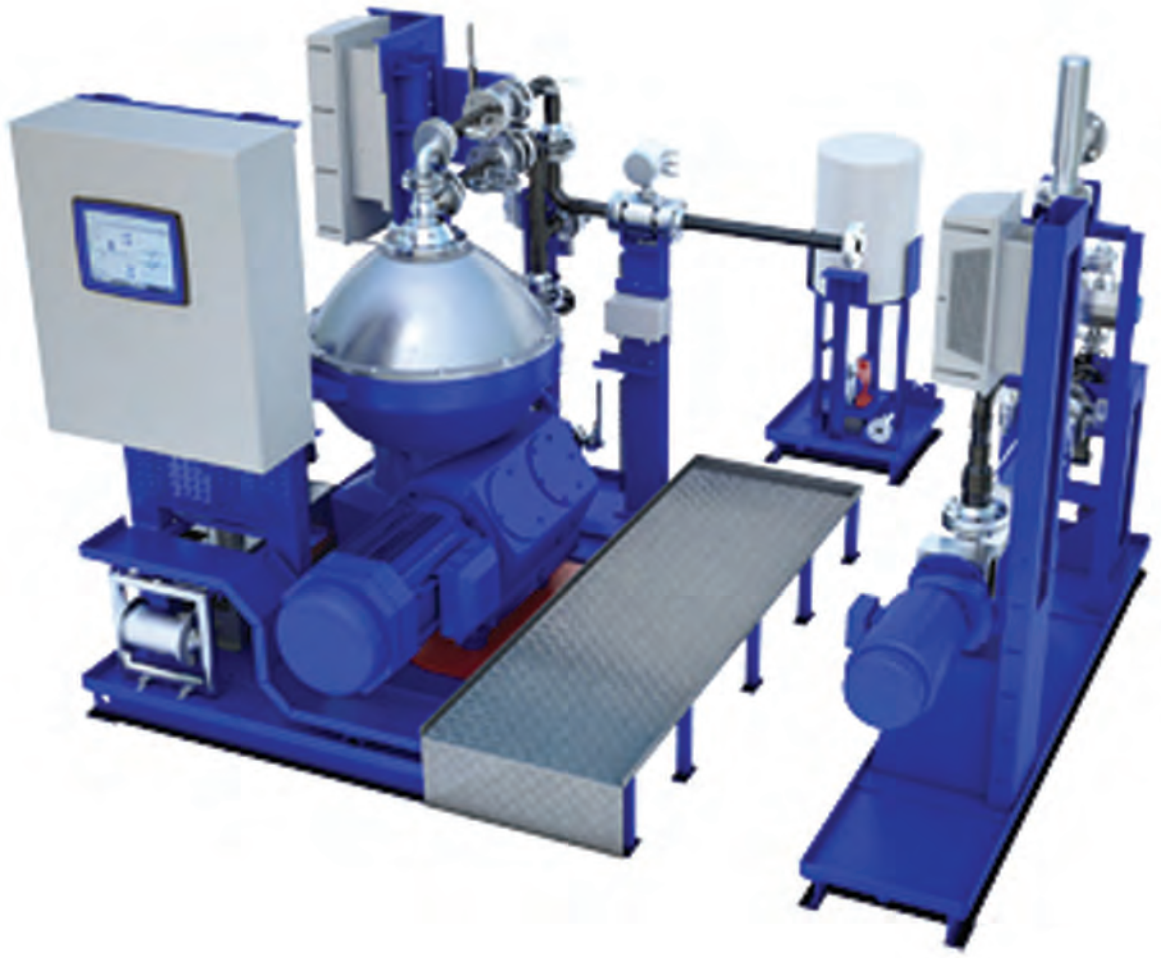


Image: Transas

Meet the Transas T-Bridge

Transas Marine expanded its product portfolio with the launch of the T-Bridge, an integrated navigation system that meets professional bridge equipment with aviation, automation and tablet technology. The T-bridge is designed to bring together diverse systems into a single bridge environment, where data sources are combined to provide a full and clear picture to support efficient decision-making. According to Transas, in limited visibility, congested or shallow waters, at night or in poor chart coverage areas, Transas Augmented Reality technology provides the ultimate picture: sensor input from the forward looking sonar, chart data or position and route data are integrated with live video of the surroundings. As the navigator sees a picture of the real surroundings combined with all relevant information on one screen, it becomes easier than ever before to make the most informed and optimal decisions.

Bringing aviation technology on board, Transas has integrated a searchlight with camera and thermal imager into the bridge system allowing detection and identification of objects in virtually any visibility conditions.

A new level of wheelhouse automation based on the Transas Touch Interface will give the crew intuitive and consistent access to all automated information, and allow for the control of an interactive Transas Navi-Conning system, which can be custom configured to suit any bridge configuration. **Transas also developed an iPad application which is directly linked to the navigation system** and gives access to the highly accurate navigational information related to the vessel, including, for example, position data, AIS targets, speed, course, water depth and a host of other information.

www.transas.com

Calnetix Waste Energy Converter

Calnetix Technologies highlighted a new system developed with Mitsubishi Heavy Industries Marine Machinery and Engine company (MHI-MME) that captures heat from marine engine jacket water and converts it to electricity for shipboard consumption. The Hydrocurrent system produces up to 125 kW of power for the ship's electrical load, while still leaving sufficient heat in the jacket water for the fresh water maker. According to the manufacturer, the system pays for itself in a very short time by reducing the load on the ship's bunker-fueled generators, resulting in fuel savings of up to 200 tons per year.

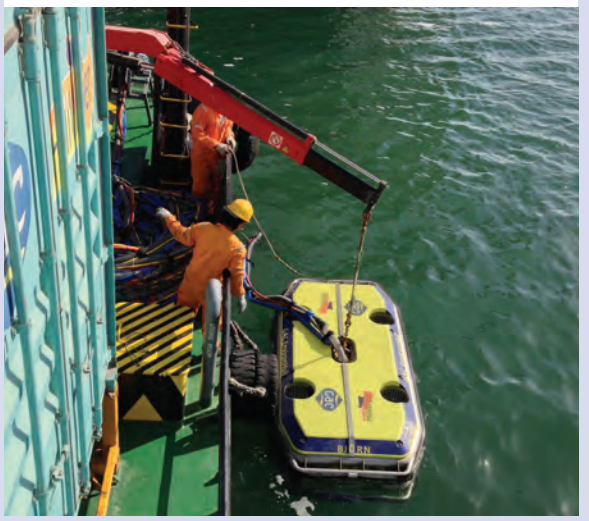
The Hydrocurrent system uses an Organic Rankine Cycle (ORC) heat recovery process with Calnetix's patented Thermapower and Carefree Integrated Power Module technology, which efficiently converts thermal energy into mechanical power. The Calnetix system is unique in that it can pull usable heat from a source with temperatures as low as 80°C (176°F) unlike other heat recovery systems that require much higher temperatures.

www.calnetix.com

GAC's EnvironHull HullWiper

GAC EnvironHull's eco-friendly brushless hull cleaning solution, HullWiper, took center stage at the GAC stand at SMM in Hamburg. According to the company the ROV (Remotely Operated Vehicle) system removes marine fouling from ship hulls up to five times faster than traditional methods employing divers with brushes, and protects the marine environment from contamination by collecting residues and pollutants for environmentally-sound disposal. HullWiper also incorporates a unique cleaning control system which allows the operator to easily control water pressure and monitor the cleaning process through forward and aft facing CCTV cameras. The need to employ divers for the cleaning job is therefore eliminated, cutting operational costs and also the risk to human life.

www.gac.com



BMT Showcases Monitoring Portfolio

BMT SMART Ltd. showcased its performance monitoring portfolio at this year's SMM. The SMART suite of solutions works by continually collecting vessel performance data and presenting key information to the crew via the ship's computer displays, and BMT SMART's new web interface offers easy to use dashboards.

Key Performance Indicators (KPIs) help enable optimum vessel performance decisions. The performance data is automatically transmitted ashore, where it is stored on secure servers, modeled, filtered and merged with Metocean data, while a web platform allows for management and analysis by onshore personnel. The combination of continuous measurement and reporting, Metocean expertise, powerful algorithms and intelligence makes the BMT SMART suite a solution for the marine industry. The SMART suite offers customers the benefit to have access to the global maritime expertise that lies within the companies of BMT Group.

www.bmtsmart.com

CRUISE SHIPPING MIAMI

The Cruise Industry's Premier Global Event

March 16–19, 2015 | Miami Beach Convention Center | Miami Beach, Florida

For over 30 years, Cruise Shipping Miami has been the cruise industry's premier conference and exhibition, bringing together buyers and suppliers for a week of networking, sourcing, innovation and education.

Continue with tradition while enhancing the future and showcase your products to the ever expanding cruise market. **Contact sales@cruiseshippingmiami.com or call +1 212-600-3260 today!**

cruiseshippingmiami.com

Exclusively supported by

CLIA

FCCA

GEA's CatFineMaster Debuts at SMM

A solution for separating dangerous catalyst fines (cat fines) from fuel with one touch of the button, the new product CatFineMaster from GEA Westfalia Separator Group was presented for the first time at the SMM 2014. The new CatFineMaster system consists of a separator as the core element and a feed pump that can be regulated in the process for ensuring that the flow of heavy fuel oil is adjusted optimally to take account of the respective process requirements. This ensures an additional boost to efficiency and also results in energy savings. The system is completed by the new GEA Westfalia Separator IO control system and optional measuring and analysis equipment.

www.gea.com

Engine Supervision and Management Software

CMR Group introduced a new Integrated Alarm Monitoring and Control System (IAMCS) for marine and naval engine applications which it said provides technologically-advanced capabilities for improved marine vessel supervision, safety and management and delivers a cost-effective IAMCS solution that creates long-term operational savings for marine customers.

This fully integrated capability offers advanced monitoring and control of critical ship functions such as engines, pumps and valves. The Integrated Alarm and Control System provides visual and audible signals in the event of abnormal running conditions. This ensures fully automatic, semiautomatic and manual remote control of the whole installation, including machinery and cargo.

www.cmr-group.com

GPS-controlled Food Waste Discharge

Through cooperation with Marine Position AB, Uson Marine AB offers functionality from the Environmental Navigator for its new GPS Discharge Control system for food waste. Together, the systems provide control and monitoring of food waste discharge, stopping automatic discharge where not permitted and emptying the tank automatically prior to entering a prohibited area.

The Uson food waste vacuum system (OWMS) is designed for hygienic collection and treatment of food waste in compliance with IMO Marpol 73/78 Annex V, U.S. Coast Guard and other relevant regulations and standards. The Uson GPS Discharge Control system is an embedded feature in Uson Marine's Food Waste control system that utilizes the Environmental Navigator's unique database of rules related to food waste (Annex V, etc.).

www.usonmarine.se

New Raytheon Anschütz Navigation Radar

At SMM Raytheon Anschütz launched the newly developed NautoScan NX network radar transceivers, the centerpiece of its next generation Synapsis Radar system. The new NautoScan NX transceivers generate raw radar video, which is distributed via Gigabit LAN. Raw video distribution without any analogue losses enables optimized performance with high-fidelity radar data processing through the individual end-user applications on the bridge. An unlimited number of workstations and applications can be linked to the LAN to receive the radar video. A star-based network approach offers highest scalability and flexibility for a wide range of applications and requirements without need for special cabling or conversion hardware. As part of the complete system redesign, critical parts such as the drive unit have been optimized to provide customers with maintenance-free operation and an extended life. Features such as automatic performance monitoring or a Magnetron sleep mode for longer maintenance intervals are now integrated in the system. The Synapsis Radar is built on the new Synapsis NX system architecture. The Synapsis Radar task is part of the Synapsis NX multifunctional workstations, which integrates all navigational data, tasks and services to enable users full data control with a single action only. The workstations are based on a new standardized, ultra-compact Small Marine Computer with fan-less design and solid-state disk, and feature streamlined sensor collection and distribution to combine high reliability and smooth operation.

www.raytheon-anschuetz.com

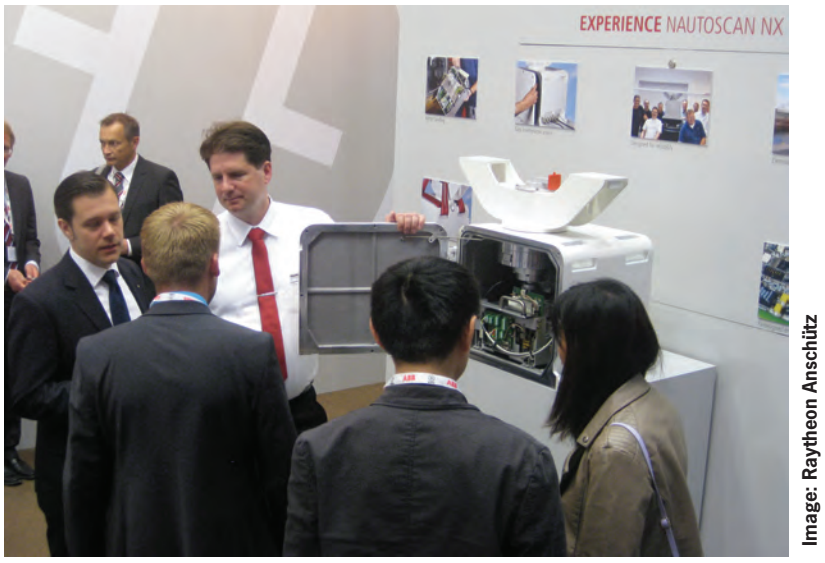


Image: Raytheon Anschütz

Raytheon Anschütz ShipGuard

In view of an increasing demand for security of merchant ships and maritime trade, Raytheon Anschütz, a German-based manufacturer of Integrated Bridge Systems, developed shipborne security solution ShipGuard. ShipGuard integrates the vessels existing navigation systems such as AIS and radar with a suite of commercial surveillance cameras. ShipGuard offers the crew early detection and identification of approaching contacts, intuitive classification and efficient alarm zone monitoring as well as easy monitoring of own and friendly units such as support vessels or tender boats. ShipGuard is available as a standalone system to upgrade existing or bridge system installations or as a functional task on Raytheon Anschütz' Synapsis multifunctional workstations.

www.raytheon-anschuetz.com

WR On-stack Scrubber Emission Monitor

WR Systems (WR) debuted a new variant of its laser-based-emissions monitor called the Emsys-iS. The new system is designed specifically for scrubber applications and is targeted at both scrubber manufacturers and shipowners. WR plans to start delivering the new product on January 1, 2015 to coincide with the introduction of the IMO Emissions Control Area regulations regarding sulphur.

wrsystems.com

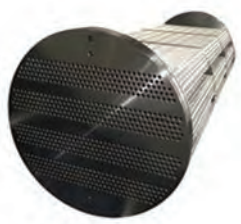
Improved Controller for Rexroth AHC

New DS2R electrohydraulic controller with proportional valve is now available for the Rexroth hydraulic axial piston units that function as secondary control devices in offshore winch applications. Bosch Rexroth has introduced an upgrade to the electrohydraulic controller used on the company's A4VSO and A4VSG hydraulic axial piston components, which function as secondary control units in the Rexroth Active Heave Compensation (AHC) system for offshore winching applications. Replacing the previous DS1 model, the new Rexroth DS2R electrohydraulic controller features proportional valve technology for more reliability, easier maintenance and lower cost. The controller is fitted directly to the secondary control unit – axial piston equipment that can serve as both a pump or motor to effectively manage variations in torque on winch drives in rotary AHC systems.

www.boschrexroth.com

GEA Heat Exchangers

GEA Heat Exchangers presented its latest developments at SMM 2014, including reduced NOx emissions from GEA exhaust gas recirculation coolers now for two-stroke engines, and GEA Bloksma oil coolers in various versions and sizes. In addition to its exhaust gas recirculation coolers (EGR) for four-stroke diesel engines, GEA Heat Exchangers offers a new model for two-stroke diesel engines in medium and high output ranges. The GEA Bloksma oil coolers are effective for a range of applications, among others for onboard refrigeration and environmental-protection systems. The GEA Bloksma P48, shown for the first time at SMM, is shell-and-tube heat exchanger that aims to extend the performance spectrum of the PF series.

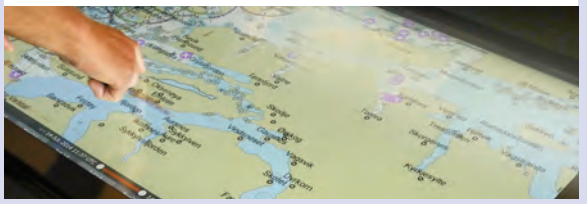


www.gea-hx.com

NavStation Launched at SMM

SMM saw the launch of the NAVTOR NavStation, the world's first 'Digital Chart Table' and a breakthrough in bridge-based decision making tools. NavStation combines software with an optional 46-in. 'gigapad' touch device, giving navigators an intuitive and user-friendly interface to plan optimal vessel routes. The software gathers and overlays all the data navigators require – including ENCs, weather data, tidal information, digital publications, and other services like piracy updates – on a single screen. Users can then grab, swipe and maneuver the layers on the giant touch pad to unlock a new e-navigation reality.

www.navtor.com



GNS Launches First VMS

Global Navigation Solutions (GNS) introduced its Vessel Management Service (VMS), the first integrated management system for total navigation compliance, designed to give shore-based ship managers more control of navigation compliance, save them money on charts and save time on navigation related administration. This new service is offered free of charge to GNS customers.

www.globalnavigationsolutions.com

Kelvin Hughes Product Range Expands

Kelvin Hughes launched a host of new products and services at SMM 2014, including a port security radar system, specialist mission radome radar and displays, Voyage Data Recorders and the latest version of ChartCo PassageManager software. The Port Security system (SMS) incorporates the new lightweight version of the SharpEye X-Band Pulse Doppler radar, SharpEye SxV, and is intended for multiple applications in areas of ports and harbors that would benefit from autonomous 360 degree surveillance, day or night and in all weather conditions. Integrated with day/night and thermal cameras, the system is mast-mounted and quickly deployable and works with Kelvin Hughes' control software, CxEye.

www.kelvinhughes.com

Wild Well's Subsea Capping Stack

Wild Well Control, Inc., a Superior Energy Services company and a global leader in firefighting and well control, has unveiled its new subsea capping stack for response to a global deepwater well control incident. The subsea capping stack, located in Singapore, is a part of Wild Well's emergency response system, WellCONTAINED. The Singapore capping stack is Wild Well's second unit; the first capping stack unit is located in Aberdeen. The full intervention system at each location includes a capping stack, debris removal shears, hardware kits for the subsea application of dispersant and inhibition fluids at a wellhead and ancillary equipment.

www.wildwell.com

Revamped XChange

Airbus Defense and Space has added new features to its XChange communications management platform with the release of version 3.1 at SMM (Note: On September 16, 2014 Airbus Defence and Space announced its intention to sell its commercial satellite communication services activities. At press time a buyer had yet to step forward). Headlining the new version is a unique system that provides Universal Remote Access to any device connected to on board networks or the IT network itself and new functionality that builds on the recently released BYOD (Bring Your Own Device) solution for XChange. Universal Remote Access as a new option for XChange provides secure remote access to computers on board a vessel from anywhere. It is designed to meet the growing need to easily access IT networks on board from shore for maintenance and troubleshooting.

www.airbusdefenceandspace.com


Engelstoft


Härter


Fuller


Thomsen


Gallagher


Kelton


Fogal


Goris


Ingram


Castiba


Cook


Foxx

Morten Engelstoft, CEO of Services and Other Shipping, Maersk, said CO2 issues will be on his agenda as a newly appointed member of a UN High-level Advisory Group for Sustainable Transport. The cause to champion CO2 reduction in shipping has been given a boost from a Maersk Group perspective. Morten Engelstoft, CEO of Services and Other Shipping, has recently been appointed by United Nations Secretary-General Ban Ki-moon as a member of a High-Level Advisory Group on Sustainable Transport. The 12-member group, which is established for a period of three years, will provide recommendations at all global, national, local and sector levels, to promote sustainable transport systems, including climate action.

Daniel Härter assumed the responsibility as CEO of ZF Marine Propulsion Systems. Härter will be based out of ZF Marine's headquarters in Padova, Italy. Benz has been promoted to the Head of Corporate Key Account Management at the global ZF Group level. Härter comes to ZF Marine from ZF's Industrial Technology Division in Passau, Germany where he previously held the position of Vice President Materials Management.

Nick Fuller was named Director, Business Development, at Offshore Inland Marine & Oilfield Services, Inc. (OIMO), a company in Topside and Riding Crew repair services. Fuller will lead the sales and marketing teams to create growth and sustainability to OIMO and reporting to Jack Berglund, Sr. VP Commercial. He will also hold a contributing role on the senior management team. Fuller brings a decade of experience across all functions in the areas of business development and marketing in his former role at Gulf Copper.

Kurt E. Thomsen was chosen to lead the global sales team at CWind, a provider of integrated services to the offshore wind industry. He was a major influence in the development of the crane ship concept, was one of the founders of A2SEA and more recently CEO of SeaRenergy Offshore. He brings more than 15 years of experience in the offshore wind industry to the role and will be responsible for leading the global sales development, ensuring customers' needs remain CWind's top priority.

Paul Gallagher will be rejoining the Foss Maritime team to work in the commercial services group on major transportation project opportunities. He brings more than 25 years of experience within the maritime industry, and during his career he has been involved in all aspects of maritime operations and cargo transportation. Paul began at Foss in 1991 and served in a variety of roles including Director of Sales for Marine Transportation, PNW Regional Operations Manager and Director of Oilfield Services. He managed business development and service delivery in support of project logistics for heavy lift cargo transportation for upstream oil and gas projects. During the past few years, Paul has been the Director of Project Services at TOTE Logistics and has worked collaboratively with Carlile, Totem Ocean Trailer Express, Delta Western, Northern Air Cargo and Foss Maritime on a wide variety of projects in Alaska, Canada and the lower 48 states. For the past year Paul has been on assignment with a key oil and gas client in Anchorage as a marine logistics resource and consultant.

Jeff Kelton joined Elliott Bay Design Group (EBDG) as its Field Liaison Engineer in Ketchikan, Alaska.
Kelton is a naval architect with more than 38 years of industry experience. His background encompasses hands-on expertise in shipyards and ship design offices on the West Coast, Gulf Coast and in Japan. His vast experience includes project management, shipyard liaison engineering, structural engineering, high speed aluminum vessel design, structural designing to ABS-USCG-Det Norske Veritas-Japan JG Regulatory Standards, environmental engineering and waterborne transportation planning. Throughout his career, Kelton has participated in numerous projects involving naval and commercial ship design requirements and their associated regulatory bodies.

Robert "Bob" "Sonny" Fogal, Jr., one of the icons in the offshore oil and gas industry, has decided to retire from front-line work as Zentech's Director of Business Development. Fogal has spent his entire career in the rig building business, starting with Levingston Shipyard and subsequent work with major designers and builders in the U.S. as well as Singapore, Japan, China, Brazil, India, South Africa and the Middle East. His official full-time employment began in 1957, although Bob admits that he was actually working part-time in the shipyard even before then.

Jos Goris, ASRY's new Operations General Manager, brings 20 years of experience with top firms including Damen, Maersk, and Shell, with more than 12 years of that being in ship repair yards across Asia and the Americas. He will lead the newly restructured Operations division of ASRY which is the backbone of the yard's repair capabilities. Goris, a Dutch national, spent the previous four years as Managing Director in the Shiprepair & Conversion division of Damen Shiprepair in Europe. Prior to that Goris was Fleet Manager at AP Moller-Maersk & Maersk line for five years, having already completed fifteen years in a variety of senior positions at P&O Nedlloyd BV in the Netherlands, Unithai Shipyard in Thailand, and Shell Tankers.

Ingram Barge Company will build 20 tank barges in 2015 to meet growing demand for chemical shipments. While most of the company's recent tank barges have come through acquisitions, this continued expansion in their barge fleet coincides with a 10-year plan that began in 2007 to build barges with Trinity Industries. With this building strategy, Ingram has been able to maintain its fleet size as barges reach retirement age.
The proliferation of inexpensive natural gas has increased domestic chemical production and demand for new tank barges. "The petrochemical industry remains strong and is one of our strategic areas for investment," said **Orrin**

Ingram, Ingram Barge's CEO,. "We're building to replace retiring barges and to grow with our customers."

Alex Imperial has taken over as DNV GL Oil & Gas's regional manager for South America just as the company is creating a dedicated research unit in Brazil. Imperial recently left Singapore, where he was Director for DNV GL's Deepwater Technology Center, to take over DNV GL's Oil & Gas Division in South America. Experience from his last position will benefit his new role as the new dedicated Research unit means that research will be one of the DNV GL's focus areas in Brazil.

Greatland Laser CEO, **Kim Erickson**, announced that **Andy Little** has joined the company as its new President. Little brings more than 20 years of technology and business consulting experience, most recently with Acquity Group (now part of Accenture), where he led business transformation, organizational change and digital strategy projects for a range of industries. Prior to consulting, Little began his career as an engineer with Bell Laboratories.

Fay Catsiba has joined the Liberian International Ship & Corporate Registry (LISCR) as Business Development Manager based in Dubai, U.A.E. Greece-born she holds a Master of Law from University College London, began her career in shipping 22 years ago as a lecturer in Maritime Law, Transport Law and International Trade Law at the Southampton Institute of Maritime Studies, England. Thereafter, she has held a number of senior positions as claims and insurance manager as well as legal and general counsel for several leading shipping companies in Greece, Switzerland and the Philippines. In 2008, she founded an international consultancy company, and in 2010 established her own shipping company.

Mickey Cook joined Horizon Shipbuilding, Inc. as the Vice President of Operations for the Bayou La Batre shipyard. Cook, one of the founders of C&G Boatworks, where he served as General Manager, brings 38 years of experience in the shipbuilding industry to his current position at Horizon. His many years of experience and relationships with others in the industry are an asset that will allow Horizon to better serve our customers and the marine industry as well as aid in the growth of Horizon Shipbuilding, Inc. Travis Short, owner of Horizon and Cook have had a long standing friendship and working relationship that goes back for decades.

U.S. Transportation Secretary Anthony Foxx announced the approval of a $324.6 million Title XI loan guarantee to TOTE Shipholdings, Inc., to finance the construction of two container ships that will utilize liquefied natural gas (LNG) as propulsion fuel.

Naval architecture and engineering firm **Alan C. McClure Associates** (ACMA) announced that Registered Professional Engineer **Nicholas Barczakhas** joined the ACMA team as a Naval Architect.

DNV GL and **Marorka** signed a cooperation agreement at SMM The companies will join forces to integrate DNV GL ECO Insight performance management portal with Marorka onboard data collection platform, providing the customer with a unique and holistic approach to managing and improving the performance of their vessels.

BUYER'S DIRECTORY

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR assumes no responsibility for errors. If you are interested in having your company listed in this Buyer's Directory Section, contact Mark O'Malley at momalley@marinelink.com

ALUMINUM BOATS

Brunswick Commercial and Government Products, 420 Megan Z Avenue, Edgwater, FL 70518, USA , tel:(386) 423-2914, BCGPINFO@WHALER.COM

ANCHORS & CHAINS

Anchor Marine & Supply, INC., 6545 Lindbergh, Houston, TX , tel:(800) 233-8014, fax:(713) 644-1185, sales@anchormarinehouston.com

ATTORNEYS

Blank Rome - Admiralty & Maritime Law, 600 New Hampshire Avenue, NW, Washington, DC , USA , tel:(202) 944-3568, fax:(202) 772-5858, PBroadbent@BlankRome.com

AUTOMATIC IDENTIFICATION SYSTEM

Saab TransponderTech AB, SE-589 41 Linkoping , tel:46 13 180000, fax:46 13 180011, Info.transpondertech@saabgroup.com

BARGE FABRICATION

McDonough Marine Services, 1750 Clearview Pkwy. Suite 201, Metarie, LA 78634, USA , tel:800-227-4348, fax:(504) 780-8200, pstant@marmac.net

BATTERY CHARGERS

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

BOAT BUILDING AND DESIGN

Moose Boats, 274 Sears Point Road Port Sonoma Marina, Petaluma, CA , USA , tel:(707) 778-9828, fax:(707) 778-9827, abbie@mooseboats.com contact: Abbie Walther, www.mooseboats.com

Rigidized Metals Corporation, 658 Ohio Street, Buffalo, NY , USA

BOATBUILDING AND DESIGN

Brunswick Commercial and Government Products, 420 Megan Z Avenue, Edgwater, FL 70518, USA , tel:(386) 423-2914, BCGPINFO@WHALER.COM

Tampa Yacht Manufacturing, LLC, 4350 62nd Avenue North, Pinellas Park, FL , USA , tel:813-792-2114, fax:727-954-3436, robert.stevens@tampa-yacht.com contact: Robert Stevens, www.tampa-yacht.com

BOW AND STERN THRUSTERS

Omnithruster, 2201 Pinnacle Parkway Twinsburg,Ohio 44087 , tel:330 963-6310, fax:330 963-6325, widmer@omnithruster.com

COATINGS/ CORROSION CONTROL/ PAINT

Hempel A/S, Lundtoftegårdsvej 91 2800 Kgs. Lyngby , tel:45 4593 3800, fax:45 4588 5518, marine@hempel.com , www.hempel.com

Tri-State Coating and Machine Co. Inc., 5610 McComas Road, PO Box 296, Salt Rock, WV V4W 3S8, USA , tel:1-800-477-4460, fax:304-736-7773, brichmond@tscminc.com contact: Beverly Richmond, www.tscminc.com

COMMUNICATIONS

David Clark Company (Wireless Headset Communication Systems), 360 Franklin Street, Worcester, MA 77060, USA , tel:(800) 298-6235 , www.davidclarkcompany.com/marine

CORDAGE

Helkama Bica Oy, Lakimiehenkatu 4, KAARINA FI-20780, Finland , tel:+358-2-410 8700, sales@helkamabica.fi

CORROSION CONTROL

Rustibus, 2901 West Sam Houston Pkwy, North SUITE E-325, Houston, TX 77041, USA , tel:(832) 203- 170, fax:(832) 203-7171, houston@rustibus.com

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

COUPLINGS

Centa Corporation, 2570 Beverly Drive #128, Aurora, IL 48331, USA , tel:(630) 236-3500, fax:(630) 236-3565, bobl@centacorp.com

CRANE - HOIST - DERRICK - WHIRLEYS

F&M MAFCO, Inc., 9149 Dry Fork Road, Harrison, OH , USA , tel:(800) 333-2151, fax:(513) 367-0363, websales@fmmafco.com contact: Jen Gardner, www.fmmafco.com

DECK MACHINERY- CARGO HANDLING EQUIPMENT

F&M MAFCO, Inc., 9149 Dry Fork Road, Harrison, OH , USA , tel:(800) 333-2151, fax:(513) 367-0363, websales@fmmafco.com

DIVING & SALVAGE

Hydrex Headquarters, Haven 29 – Noorderlaan 9 Antwerp 2030, Belgium , tel:32-3-213-5300 (24/7), fax:32-3-213-5321, hydrex@hydrex.be contact: Dave Bleyenberg, www.hydrex.be

Hydrex US, 604 Druid Rd E; Clearwater, FL, USA , tel:727-443-3900 (24/7), fax:727-443-3990, info@hydrex.us contact: Matthew Brooks, www.hydrex.us

DRILLS

Hougen Inc., 3001 Hougen Drive Swartz Creek, MI 48473

DRIVESHAFTS

Centa Corporation, 2570 Beverly Drive #128, Aurora, IL 48331, USA , tel:(630) 236-3500, fax:(630) 236-3565, bobl@centacorp.com

EDUCATION

Sea School (U.S. Coast Guard Approved Courses), 8440 4th Street North, St. Petersburg, FL 70002, USA , tel:(800) 237-8663, cathybancroft@seaschool.com

ELECTRIC MOTORS AND CONTROLS

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

ELECTRICAL EQUIPMENT

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

ELECTRICAL SERVICES

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

ENVIRONMENTAL SOLUTIONS

Environmental Solution, Inc., P.O. Box 788, Wake Forest, NC 99835, USA , tel:(919) 740-0546, john@totalbiosolution.com contact: John Paparone, www.totalbiosolution.com

FANS

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

FASTNERS

Nord-Lock / Superbolt, Inc., 1000 Gregg St., Carnegie, PA 92138, USA , tel:(412) 279-1149, fax:(412) 279-1185, Jason.Milburn@nord-lock.com

FILTERS/FILTER SYSTEMS

UT 99 AG Oil Mist Separators, Schaubenstrasse 5 CH-8450 Andelfingen , Switzerland , tel:+41 52 397 11 99, fax:+41 52 397 11 90, info@ut99.ch , www.ut99.ch/en

FUEL ADDITIVES

Nano Fossil Fuels Technology, LLC, 550 South 16th Street, Sparks, NV 60504, USA , tel:775-356-0280, fax:775-356-0283, nanofuels@sbcglobal.net contact: Ernie Gisler, www.combustion-catalyst.com

GALLEY EQUIPMENT

LOIPART AB, P.O.Box 694/Metallgatan 2-4, ALINGSAS , tel:+46 322 668 360, fax:+46 322 637 747, loipart@loipart.se

GROUNDING & EARTHING BRUSHES

Sohre Turbomachinery, Inc., 128 Main Street, Monson, MA , USA , tel:413-267-0590, fax:413-267-0592, tsohre@sohreturbo.com contact: Tom Sohre, www.sohreturbo.com

INSURANCE SERVICES

WQIS (Water Quality Insurance Syndicate), 60 Broad Street 33rd Floor, New York, NY 18974, USA , tel:1-800-736-5750, fax:212-292-8716

INTERIORS

Rigidized Metals Corporation, 658 Ohio Street, Buffalo, NY , USA

LAUNDRY EQUIPMENT

LOIPART AB, P.O.Box 694/Metallgatan 2-4, ALINGSAS , tel:+46 322 668 360, fax:+46 322 637 747, loipart@loipart.se

LIFESAVING EQUIPMENT

CM HAMMAR AB, CM Hammar AB August Barks Gata 15 421 32 Västra, Frölunda, Sweden , tel:+46 31 70965 50, fax:+46 31 497023, info@cmhammar.com , www.cmhammar.com

HANSEN PROTECTION AS, P.O. Box 218, Tykkemyr 27 1597 Moss, Norway , tel:tel: +47 6900 1300, fax:fax: +47 6900 1301, hpro@hansenprotection.no , www.hansenprotection.no

LIGHTING SYSTEMS/ EQUIPMENT

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

MARINE TRANSPORTATION

Central Boat Rentals, Inc., P.O. Box 2545, Morgan City, LA , USA , tel:985-384-8200, fax:985-384-8455, earl@centralboat.com or gary@centralboat.com

NAVAL ARCHITECTS, MARINE ENGINEERS

Aveva Solutions Ltd, High Cross, Madingley Rd, Cambridge CB3 0HB, UK , tel:Tel +44 1223 556655 , www.aveva.com

JMS Naval Architects, 34 Water Street, Mystic, CT 22203, USA , tel:(860) 536-0009 EXT 16, fax:(860) 536-9117, RickF@JMSnet.com contact: Rick Fernandes, www.jmsnet.com

OFFSHORE SERVICES

Hydrex US, 604 Druid Rd E; Clearwater, FL, USA , tel:727-443-3900 (24/7), fax:727-443-3990, info@hydrex.us contact: Matthew Brooks, www.hydrex.us

PIPE FITTINGS/CUTTINGS/CONNECTING/ SYSTEMS

Tube-Mac Piping Technologies Ltd., 853 Arvin Avenue, Stoney Creek 32168, Canada , tel:(905) 643-8823 , x119, fax:(905) 643-0643, chris.peitchinis@tube-mac.com

PROPULSION CONTROL SYSTEMS

Centa Corporation, 2570 Beverly Drive #128, Aurora, IL 48331, USA , tel:(630) 236-3500, fax:(630) 236-3565, bobl@centacorp.com

PROPULSION EQUIPMENT

VOLVO PENTA OF THE AMERICAS INC, 1300 Volvo Penta Drive, Chesapeake, VA , tel:+1 757 3824010, lindsy.shrewsberry@volvo.com contact: Customer Relations Support, www.volvopenta.com

PUMPS

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

RIBS & INFLATABLE BOATS

Wing Inflatables, 1220 5th Street, Arcata, CA , USA , tel:(707) 826-2887, ewing@wing.com , www.wing.com

ROTATING EQUIPMENT

Sohre Turbomachinery, Inc., 128 Main Street, Monson, MA , USA , tel:413-267-0590, fax:413-267-0592, tsohre@sohreturbo.com

RUST AND PAINT REMOVAL

Rustibus, 2901 West Sam Houston Pkwy, North SUITE E-325, Houston, TX 77041, USA , tel:(832) 203- 170, fax:(832) 203-7171, houston@rustibus.com

SALT REMOVING PRODUCTS

Holdtight Solutions, PO Box 27907 Houston, TX 77227-7507 , tel:713 266- 9339, sales@holdtight.com

SEALS

Seco Seals, Inc., 1370 Logan Ave. Unit K, Costa Mesa, CA 63110, USA , tel:(714) 546-3478, secoseals@aol.com

SHIP REPAIR

Advanced Mechanical Enterprises, 217 SW 28th Street, Fort Lauderdale, FL 98052, USA , tel:(866) 377-0770, fax:(954) 527 – 0338, Christine@amesolutions.com

STEEL, PIPE, ALUMINUM & ALLOY SURPLUS - PURCHASING

Texas Iron & Metal, 865 Lockwood Drive, Houston, TX 36652, USA , tel:713-672-7595, fax:713-672-0653, maxr@texasironandmetal.com contact: Max Reichenthal, www.texasironandmetal.com

STEEL, PIPE, ALUMINUM & ALLOYS

Texas Iron & Metal, 865 Lockwood Drive, Houston, TX 36652, USA , tel:713-672-7595, fax:713-672-0653, maxr@texasironandmetal.com contact: Max Reichenthal, www.texasironandmetal.com

STEERING GEARS/ STEERING SYSTEMS

Jastram Engineering, 135 Riverside Drive, North Vancouver, BC,, North Vancouver , Canada , tel:(604) 988-1111, fax:(604) 986-0334, dholme@jastram.com

SURFACE PREP TOOLS

Rustibus, 2901 West Sam Houston Pkwy, North SUITE E-325, Houston, TX 77041, USA , tel:(832) 203- 170, fax:(832) 203-7171, houston@rustibus.com

TRAINING

Freelance Software, 39 Peckham Place Bristol, RI 02809, Bristol, RI , USA , tel:(401) 556-1955, fax:(401) 396-9717, chris@hawsepipe.com contact: Christopher Dady, www.hawsepipe.com

TRANSMISSIONS

Centa Corporation, 2570 Beverly Drive #128, Aurora, IL 48331, USA , tel:(630) 236-3500, fax:(630) 236-3565, bobl@centacorp.com

VACUUM TOILET SYSTEM

Jets Vacuum AS, Myravegen 1 6060 Hareid , tel:47 700 39 100, fax:47 700 39 101, post@jets.no

VIBRATION ANALYSIS

Advanced Mechanical Enterprises, 217 SW 28th Street, Fort Lauderdale, FL 98052, USA , tel:(866) 377-0770, fax:(954) 527 – 0338, Christine@amesolutions.com

WATER JET SYSTEMS

MJP Marine Jet Power AB, 1110A Claycraft Rd, Columbus, OH , USA , tel:(614) 759-9000 , www.marinejetpower.com

WINCH MANUFACTURER

Patterson Company, 870 Riversea Road, Pittsburgh, PA 30004, USA , tel:(412) 322-2012, fax:(412) 322-2785, russ.mayhew@pattersonmfg.com

WIRES & CABLE

Ward's Marine Electric, 617 SW 3rd Avenue, Fort Lauderdale, FL 77258, USA , tel:(954) 523-2815, fax:(954) 523-1967, monica.avendano@wardsmarine.com

Bouchard Transportation Co., Inc.

Vessel Cook
Qualifications:
MMD endorsement Ordinary Seamen, TWIC, and Passport
Cooking Experience 2 + years, preferably on Tugs

Asst Engineer
Qualifications:
- Degree from Merchant Marine Academy or 3 year's experience working on tugs of at least 2,000 HP
- MMD DDE 1,000 to 4,000 HP
- STCW
- TWIC

Tankerman AB/Cargo Mate
Qualifications:
- Minimum of a AB Tankerman PIC (BARGE)
- STCW
- TWIC

Tug Mate
Qualifications:
- Minimum of a 200ton Mate Near Coastal with Radar Observer, TOAR, STCW and VSO endorsements
- TWIC
- GMDSS operator/maintainer a plus

Apply online at
www.Bouchardtransport.com
Click on the employment link and submit through the Vessel Employment Opportunity link.

MASSACHUSETTS MARITIME ACADEMY

Founded in 1891, the Massachusetts Maritime Academy is the nation's oldest and finest co-ed maritime college. The Academy prepares young women and men for exciting and rewarding careers on land and sea. Our graduates have been at the very top of seagoing, engineering, environmental, and international business professions.

POSITIONS AVAILABLE

Tenure-track Engineering Faculty (2 positions available)
Tenure-track Marine Transportation Faculty (2 positions available)
Engineering Lab Tech

The Academy is located in Buzzards Bay at the mouth of the scenic Cape Cod Canal and is a special mission college within the Massachusetts university college system.

For information about this positions and how to apply, visit the employment quick link on our web page at **www.maritime.edu.**

Massachusetts Maritime Academy is an AA/EEO employer. Under-represented groups are encouraged to apply.

maritime recruiters

(206) 232-6041
www.maritimerecruiters.com
June@maritimerecruiters.com
Established 1969

Sandblasting & Painting Foreman
Job Location: USA, Tampa

Foreman to lead a group of leaderman, skilled and apprentice workers for the Sandblasting, waterjetting and Painting of ship ballast tanks, cargo tanks, decks and hulls. Foreman will work directly between owners reps, shipyard contract administrator and workforce to complete tasks. Must have a minimum of 10 years marine experience and be completely knowledgeable with operation, , preventive maintenance and repair of Graco airless spray equipment, Flow Hydroblasting equipment, Sandblasting pots and equipment , Dust Collectors, and Vacuums. Must be able to read blueprints and estimate all costs to complete projects. Must be in top physical shape and able to crawl through tight areas of ship to inspect work. 6 Day Work week is typical.
Only apply by e-mail. Send Resume, experience and salary requirements to: AnchorSandblasting@verizon.net
NO PHONE CALLS. WE WILL ONLY RESPOND TO EMAILS.
Looking for only the best and most committed the industry has to offer.

Bob Latta
Anchor Sandblasting & Painting Inc
4101 Causeway Blvd
Tampa FL USA
Email: Latta2@msn.com

Mercury Marine and Mercruiser Mechanic
Job Location: Bermuda, Hamilton

The successful candidate must be fully qualified on all aspects of Mercury engines including 2 stroke, 4 stroke, optimax and Verado. In addition, experience on Mercruiser will be an asset. This is a full time position and further details available upon submission of a resume.

William Cox
PW Marine
96 Pitts Bay Road
Hamilton hm08 Bermuda
Email: wcox@thewaterfront.bm

Vessel Manager/Planner
Job Location: USA, Austin

Responsible for formation of a vessel operating plan for container handling and securing cargo to ensure for proper stowage and vessel stability. Must be available to work day and evenings shifts, including weekends. Terminal operations experience or maritime academy training required.

Elena C. Salvatore
TraPac, LLC
920 W. Harry Bridges Blvd.
Wilmington CA 90744 USA
Phone: 310-513-7416
Fax: 310-513-7439
Email: elena.salvatore@trapac.com
Web: http://www.trapac.com

Operations Superintendent
Job Location: USA, Wilmington

Responsible for forecasting and directing terminal handling activities, manpower and equipment allocation, supervision of labor and customer relations. Must be available to work day and evening shifts, and weekends. Terminal operations experience or maritime academy training required.

Elena C. Salvatore
TraPac, LLC
920 W. Harry Bridges Blvd.
Wilmington CA 90744 USA
Phone: 310-513-7416
Fax: 310-513-7439
Email: elena.salvatore@trapac.com
Web: http://www.trapac.com

Trawler Deckhand
Job Location: USA, Seattle

Trident Seafoods operates catcher/trawl vessels off the West Coast and the Gulf of Alaska and Bering Sea.
We are currently seeking to interview candidates on the East Coast who: can splice rope and cable; experienced setting, hauling back and mending nets; capable of standing a navigational watch; have a basic understanding of vessel engineering systems; have worked as deck/engineers in an unlicensed capac-

ity; have welding skills. E-mail a current resume and contact information to vesselstaffing@tridentseafoods.com.
Trident Seafoods is an Equal Opportunity Employer: Affirmative Action – Minority, Female, Disability, Veteran

Vessel Staffing
Trident Seafoods
5303 Shilshole Ave NW
Seattle WA 98107 USA
Email: vesselstaffing@tridentseafoods.com

Marine Hydraulic Mechanic/Technician
Job Location: USA, Dutch Harbor, AK

Hydraulic Mechanics and Technician needed for busy Hydraulic repair and sales shop in Dutch Harbor, Alaska. We repair all manner of fluid power issues aboard fishing vessels. Crane, winches, cylinders pumps and motors etc. Experience in the industry a must. Technician position must be able to diagnose and repair hydraulic systems, 10 years experience needed in marine application. Great Benefits and housing available.

Allana Gustafson
Hydra-Pro Dutch Harbor, Inc.
PO Box 920686
2315 Airport Beach Road
Dutch Harbor AK 99692 USA
Phone: 907-581-3878
Fax: 907-581-3879
Email: HPDH@arctic.net
Web: http://HPDH.net

A/B, ENGINEER, MATE, CAPTAIN
Job Location: USA, GULF OF MEXICO

A/B- work on tugboats operating in the oil field, marine construction, and dredging.
ENGINEER - Engineers needed for 3000 - 4000 hp tugs. Caterpillar, EMD, John Deere, Detroit, and ALCO engines. DDE endorsements preferred.
MATE - Mates needed for 3000 - 4000 hp tugs, twin screw. Dredging support, line-haul towing, and anchor handling operations. Near-Coastal or Oceans licenses with towing endorsement.
CAPTAIN - Captains needed for 3000 - 4000 hp tugs, twin screw. Dredging support, line-haul towing, and anchor handling operations. Near-Coastal or Oceans licenses with towing endorsement.
All applicants must hold valid TWIC, Passport, and MMC.

Jim Bobbitt
American Marine Corporation
1500 S Barracuda St
Terminal Island CA 90731 USA
Phone: 310-547-9615
Fax: 310-547-0031
Email: Jim.bobbitt@amarinecorp.com
Web: http://www.amarinecorp.com

Marine Cargo Surveyor
Job Location: USA, Various

National Cargo Bureau, Inc., is presently seeking applicants for full-time Staff Surveyor positions in our New Orleans and Norfolk offices and a part-time (Daily) position in our new Corpus Christi office.
National Cargo Bureau, Inc., is a non-profit organization, established in 1952, dedicated to the safe loading, stowage and carriage of maritime cargoes, with 17 offices covering all coasts of the United States. See our website at www.natcargo.org.
Full-time or part-time (Daily) positions at other locations become available on a periodic basis.
Candidates with a Master or Chief Mates License and sailing experience are preferred, but applicants with other grades of Unlimited sea-going licenses are welcome to apply. Graduation from a recognized Maritime Academy (e.g. Kings Point, SUNY, etc or International equivalent) is required.
Bulk carrier/draft survey experience and/or Container Ship/Hazmat Cargo experience is desirable, but not essential as full training will be provided to the right candidate.
Good verbal and written communication skills are essential as well as good theoretical knowledge and practical experience in Ship Stability.
Residence in the USA is required, as well as a valid US Drivers License and valid TWIC (Transportation Workers Identity Credential) Card.
Annual compensation (base salary, COLA, weekend comp and bonus) is generally $75,000+ for the first full year of employment.
Excellent benefits, including company vehicle, medical/insurance, defined pension plan and 401K plan.
Please forward your resume for consideration. For more information or application form, please contact Capt. Davies at (212) 785-8300 Ext 19 or email davies@natcargo.org or ncbnyc@natcargo.org

Capt. Geoff Davies
National Cargo Bureau, Inc
17 Battery Place - Suite 1232
New York NY 10004 USA
Phone: (212) 785-8300 Ext 19
Fax: (212) 785-8333
Email: davies@natcargo.org
Web: http://www.natcargo.org

MR
Vessels for Sale/Barges for Rent

ADVERTISER INDEX

GET FREE INFORMATION ONLINE at: www.maritimeequipment.com/mr

Page#	Advertiser	Website	Phone #
59	ABS	www.eagle.org	(281) 877-5861
51	Advanced Mechanical Enterprises	www.amesolutions.com	(954) 764-2678
37	AER Supply	www.aersupply.com	(800) 767-7606
44	Air Products AS	www.airproducts.no	Please visit our website
39,45	Alfa Laval Tumba AB	www.alfalaval.com/marine	Please visit us online
53	Allied Systems Company	cranes@alliedsystems.com	(503) 625-2560
44	American Vulkan	www.vulkan.com	(863) 324-2424
62	Anchor Maine & Supply, Inc	www.anchormarinehouston.com	(713) 644-1183
65	ATC King Engineering	www.king-gage.com	(304) 387-1200
29	Austal USA	www.austaljobs.com	Please visit our website
63	Aventics Corporation	www.aventics.com/us	Please visit us online
23	AVEVA SOLUTION	www.aveva.com/marine	Please visit us online
55	Brunvoll A/S	www.brunvoll.no	47 712 19600
44	C.M. Hammar AB	www.cmhammar.com	Please visit us online
17	Citgo Petroleum-Clarion	www.clarionenvirosafety.com	1-855-MY-CLARION
21	Click Bond Inc	www.clickbond.com	(775) 885-8000
57	Creative Systems	www.ghsport.com	(360) 385-6212
69	Cruise Shipping Miami	www.cruiseshippingmiami.com	(212) 600-3260
25,41	Damen Shipyards Group	www.damendredging.com	31 (0) 33 247 40 40
57	DCL Mooring and Rigging	www.dcl-usa.com	(800) 228-7660
5	DMW Marine Group	www.dmwmarinegroup.com	(610) 827-2032
19	DNV GL	www.dnvgl.com	Please visit us online
7	ExxonMobil	www.exxonmobil.com/marine	Please visit our website
C3	FARO Technologies Inc	www.faro.com/shipbuilding	Please visit us online
49	Floscan	www.floscan.com	(206) 524-6625
9	GE Transportation	www.getransportation.com	(814) 875-5710
15	Governor Control Systems, Inc.	www.govconsys.com	(954) 462-7404
33	Great American Insurance	www.gaic.com	(212) 510-0135
61	H.O. Bostrom	www.hobostrom.com	(262) 542-0222
41	Hempel	www.hempaguard.hempel.com	46 45 88 3800/45273676
51	Jastram Engineering	www.jastram.com	(604) 988-1111
C4	Karl Senner, Inc.	www.karlsenner.com	(504) 469-4000
15,41	Kidde-Fenwal, Inc	www.kiddemarine.com	(508) 881-2001
3	KVH	www.ipmobilecast.com	(401) 847-3327
13	Louisiana Cat	www.louisianacat.com	(866) 843-7440
53	Malin International	www.malinshiprepair.com	(409) 682-0232
45	Man Diesel & Turbo	www.mandieselturbo.com	Please visit our website
41	Marine Learning Systems	www.MarineLS.com	(855) E-MARINE (362-7463)
62	Maritime Associates	www.marinesigns.com	775-832-2422
15	Motor Services Hugo Stamp, Inc.	www.mshs.com	(954) 763-3660
11	Murray & Associates LLC	www.murrayna.com	(954) 527-5505
63	NABRICO Marine Products	www.nabrico-marine.com	(615) 442-1300
18	Niedax Inc.	www.niedaxusa.com	(800) 544-2105
1	Omega Engineering Inc.	www.omega.com	(888) 826-6342
41	R.W. Fernstrum	www.fernstrum.com	(906) 863-5553
35	Rolls-Royce	www.rolls-royce.com	Please visit our website
37	RSC Bio Solutions	www.rscbio.com	(800) 661-3558
65	Rustibus, Inc. / Safe Edge	www.rustibus.com	(832) 203-7170
45	Seaspan ULC	www.seaspan.com/careers	Please visit our website
47	Sernamaz/Servicios Navales Mazatlan	www.senav.com.mx	52 (669) 180 2000
57	SGF Süddeutsche	www.sgf.de	+49 8638 605-0
73	SNAME	www.sname.org	Please visit our website
59	Sohre Turbomachinery, Inc.	www.sohreturbo.com	(413) 267-0590
C2	SSI	www.ssi-corporate.com	(888) 210-7420
31	Tillberg Design & Associates	www.tillbergdesignint.com	(954) 761-1097
44	Transas Technologies Ltd	www.transas.com	46 31 769 5600
45	Vard AS	www.vard.com	Please visit us online
27	Vigor Industrial	www.vigorindustrial.com	(855) Vigor99
49	Walter Stauffenberg GmbH & Co. KG	www.stauff.com/act	49 23 92/9 16-0
16	Weeks Marine	www.weeksmarine.com	(985) 875-2500
42-43	World Energy Reports	www.worldenergyreports.com	(212) 477-6700

The listings above are an editorial service provided for the convenience of our readers. If you are an advertiser and would like to update or modify any of the above information, please contact: **productionmanager@marinelink.com**

FOCUS^{3D} X SERIES LASER SCANNER

The Focus^{3D} is the perfect tool for safe, fast and accurate 3D documentation for ship checks and shipyard maintenance. Digitally capture measurements for various marine applications such as:

- Hull modification/repair
- Ship piping upgrades
- Shipyard management
- Interior 3D modeling
- Engine room documentation

FOCUS^{3D} X 330

FOCUS^{3D} X 130

Visit faro.com/shipbuilding for more information or to schedule a free demonstration

PROPELLING EXCELLENCE

KARL SENNER LLC

Photo credit : Tim Burdick

Karl Senner, LLC equipped each of these vessels with:

(2) REINTJES LAF 5666 Reduction Gearboxes, with a 6.875:1 ratio and a 850 kW PTO

(2) BERG BCP 950 Controllable Pitch Propellers

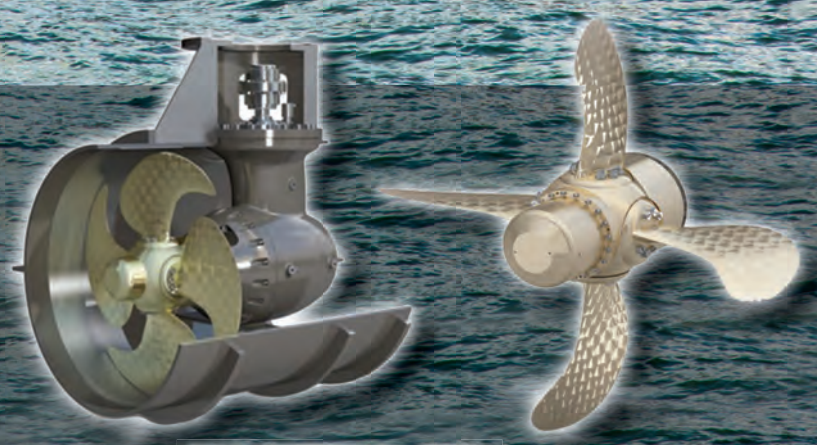
(1) BERG BFTT 316-S Tunnel Thruster

BERG Control System to interface with yard supplied DP system

Owner: Crowley

Shipyard: Bollinger Shipyards

REINTJES
POWER TRAIN SOLUTIONS



BERG PROPULSION

Steerprop

WEST COAST
Karl Senner, LLC
Seattle, WA
(425) 338-3344

GULF COAST
Karl Senner, LLC
25 W. Third St., Kenner, LA
(504) 469-4000

PADUCAH SERVICE FACILITY
Karl Senner, LLC
2401 Powell Street
Paducah, KY

WWW.KARLSENNER.COM