

www.maritimetoday.com

www.marinelink

www.maritimejobs.com

- IPs :

December 2001

# MARITIME REPORTER AND ENGINEERING NEWS

# Great Ships of 2001



Wedded Bliss...Or a \$6B Shotgun Marriage

September 11: Analyzing the short, long-term impact • Legal Beat: *Ferries* • Investment in Design  
• Ferlship's New Contracts • The Demise of AMCV • Monitoring & Control: Intelligent Software



**SAME DAY SHIPMENT  
OF BORE SIZES  
1 7/16" THRU 10"  
- LARGER BORE SIZES  
UP TO 15"  
ALSO AVAILABLE.**

Craft split bearings are easy to install because they eliminate the need to remove shafts and drive components. In addition, to increase reliability and longevity we've added a host of other innovative features. Count on Craft for solid ideas and superior American technology.

- Strong ductile iron casting standard
- Non-stainless steel casting optional
- Split triple labyrinth seal eliminates shaft wear and has an extended life span
- Split integral locking roller cage with cylindrical pockets for positive roller retention
- Standard base-to-center height
- Metric, special applications and custom bearings also available
- Rapid response to all orders
- Complete technical support
- Made in America

617 Regional Drive,  
Hampton, Virginia 23661  
Tel (757) 838-2987 Fax (757) 838-3860  
www.craftbearing.com email: info@craftbearing.com



**Bearing Company<sup>^</sup> Inc.**

U.S. Patent No. 5,630,669, No. 5,743,659  
and other patents pending.

## International Operations

**CHARLES E. KEIL**, Vice President

215 NW Third Street

Boynton Beach, FL 33435

Tel: +561-732-0312; Fax: +561-732-8063

24-hr Tel/Fax: +561-998-0313;

Mobile Tel: +561-716-0338

e-mail: bkeil@marinelink.com

### AustralAsia, Austria, United Kingdom

**TONY STEIN**, International Sales Manager

12, Braehead, Bo'ness,

West Lothian EH51 0BZ, Scotland, U.K.

Tel: +44 (0) 1506 822240;

Fax: +44 (0) 1506 828085

### Benelux

**PAULA TAOQ**

Maritime Media NL

Otweg 18 2771 VX Boskoop, Netherlands

Te: +31 172 230707; Fax: +31 172 230708

### China

**TED GREEN**

Zhejiang International Advertising Corp.

596 Tiyuchang Road, Hangzhou, Zhejiang 31007

Tel: +86 571 5150937; Fax: +86 571 5150444

### Germany/Switzerland

**TONY STEIN**, International Sales Manager

12, Braehead, Bo'ness,

West Lothian EH51 0BZ, Scotland, U.K.

Tel: +44 (0) 1506 822240;

Fax: +44 (0) 1506 828085

### Italy

**VITTORIO NEGRONE**

Ediconsult Internazionale

Piazza Fontane Marose, 3-16123 Genoa, Italy

Tel: +390 10 583684; Fax: +390 10 566578

### Japan

**KATUHITOISHII**

Ace Media Service Inc., 12-6-4-chome, Nishiike

Adachi-ku, Tokyo 121, Japan

Tel: +81 3 5691 3335; Fax: +81 3 5691 3336

### Korea

**JO, YOUNG SANG**

Business Communications, Inc.

Kwangwhamun P.O. Box 1916, Seoul, Korea

Tel: +82 2 739 7840; Fax: +82 2 732 3662

### Scandinavia

**STEPHAN R.G. ORN/LEON SCHULZ**

AB Stephan R.G. Orn, Box 184

S-271 24 Ystad, Sweden

Tel: +46 411-184 00; Fax: +46 411 105 31

### Spain

**JOSE LUIS SEVA**

Via Excluiuas S.L., C/Viriato, 69 SC

28010, Madrid, Spain

Tel: +34 91 448 76 22; Fax: +34 91 4460214

## Coming in MR/EN

January 2002

BOATBUILDING YEARBOOK • **Electronic Systems** •

LNG Carriers • **Product Focus: Marine Propulsion** •

Market Quarterly: U.S. Navy & Shipbuilding Supplement

• **Country Focus: Australia**

February 2002

CRUISE SHIPPING YEARBOOK • **Sea Technology** •

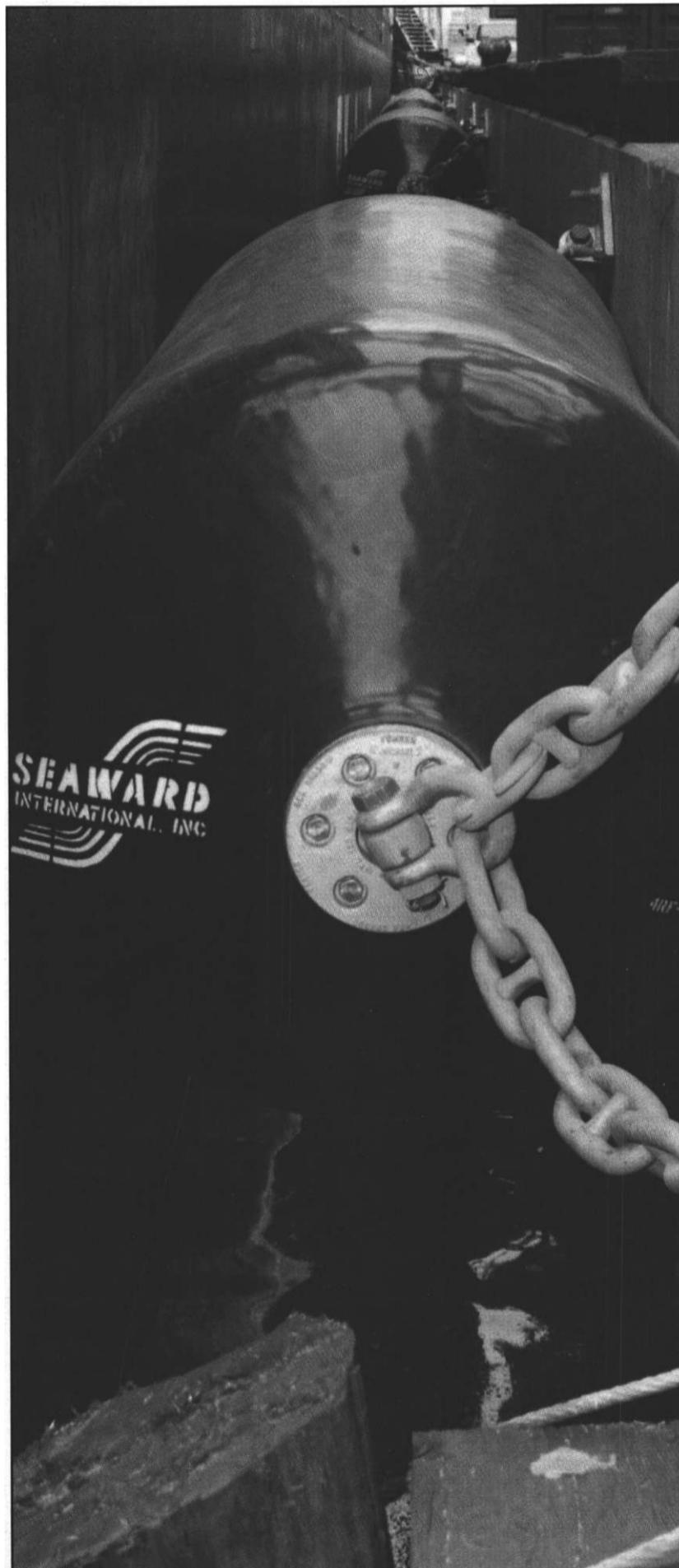
Get connected @ [www.marineink.com](http://www.marineink.com)

Training & Education • **Product Focus: Cruise & Passenger Vessel Interior Design** • Country Focus: Finland

March 2002

TANKER TECHNOLOGY • **Technology: Part 1: The Engine Room** • Market Report: CAD/CAM Report • **Product Focus: Coatings & Corrosion Control** •

Country Focus: Spain



# YouUBE Hani- Pressed To Find A Better Fender. Really Hard- Pressed.

Large or small, floating or fixed, Seaward SEA GUARD® fenders cover you from the tropics to the arctic. Seaward International brings to fender technology the same rigorous quality control and attention to detail we put into all our marine products. From the 2x4 to the tanker-scaled 12x24, all our fenders meet the most stringent quality and performance standards.

The SEA GUARD fender combines quality assurance standards with new elastomer technologies such as a reinforced skin, making it the answer to most fender system requirements.

The first of its kind 20 years ago, the Seaward foam-filled fender maintains its record of reliability. And we continue to develop and supply the protective marine technologies that keep you on course.

All our products tell the same story: Seaward is committed to safeguarding your peace of mind.

Structures, ships, environments, budgets. We protect it all.

**SEAWARD**  
INTERNATIONAL. INC.

3470 Martinsburg Pike, P.O. Box 98,  
Clearbrook, VA 22624-0098 USA  
1-800-828-5360 • 540-667-5191  
Fax: 540-667-7987 [www.seaward.com](http://www.seaward.com)

SEA GUARD® is a registered trademark of the Chem Ray/SEA GUARD Corporation. Used under license by SEAWARD International, Inc.

## Features

### 8 Wind Power

A slew of offshore wind power units has spurred marine innovation, via a unique new vessel recently designed and ordered to service the units. — by **David Tinsley**, technical editor

### 22 What's Billions Between Friends?

Royal Caribbean and Princess have announced plans to merger, effectively creating the world's largest cruise company. — by **Regina Ciardiello**, senior editor

### 26 Great Ships of 2001

Stena Vision/Stena Victory • Skandi Carla • Esperanza del Mar • CMA/CGM Balzac • Polar Endeavour • NYK Lodestar • Bertora • Sorolla • Mercury Glory • Berge Arctic • Nils Holgersson • Tycom Reliance

### 40 Down & Dirty

The World Trade Center attacks were unfathomable, as is the clean up task ahead. Don Sutherland reports on New York's maritime industry response.

### 47 Intelligent Software

Meet Dexter — Macsea's advanced machinery diagnostic system.



## News

### 4 Then There Was One

Northrop Grumman completed its acquisition of Newport News Shipbuilding.

### 10 Safe & Sound?

Port security will continue to tighten. By **James S.W. Drewry**, **Dyer Ellis** & **Joseph**

### 39 Rolling Along

Bollinger capped a prodigious year with many new contract announcements in New Orleans.

### 44 NASSCO Lays Keel for TOTE Ship • Chem Tanker Fleets to be Combined •

Gladding Hearn, Yantai Raffles, Manitowoc, Keppel Fels All Book New Orders.

### 49 Ferlship's New Contracts

### 51 Ship's Store

### 54 Buyer's Directory

### 55 Advertisers Index

### 57 Classified Ads

**Subscriptions:** One full year (12 issues) \$18.00 in U.S.; outside of U.S. \$96.00 including postage and handling. For subscription information, contact: Dale Barnett, fax: (212) 254-6271; e-mail: [barnett@marinelink.com](mailto:barnett@marinelink.com)

4 out of 5 Cruise Ships are optimizing their communications systems with Maritime Telecommunications Network...

The **mm** --10H, A

**in Maritime Communications**

MTN's technology is second to none. Always an innovator, MTN is dedicated to providing state-of-the-art global satellite communications integrating today's infrastructure with tomorrow's technology.

MTN currently offers a wide array of products and services to our Cruise and Oil Industry partners including ShipNet, MTN's private IP network; Cruiselink, our advanced billing system; Live On-Board Broadcasting Services, Television, Internet and Radio, and Enhanced Services, such as Internet Cafes, ATMs, Calling Cards, Ship-to-Shore Calling and more!

**The Experts in Offshore Communications & Broadcasting.**

**Q A f T M**

MARITIME UICDMMUNIEIONS NEIWORR

Toll Free: 877.464.4MTN (468) • 954.538.4000 • Fax 954.431.4077 • [mtn\\_info@mtnsat.com](mailto:mtn_info@mtnsat.com) • [www.mtnsat.com](http://www.mtnsat.com)

Circle 235 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## On the Cover

The **Polar Endeavour** from **Litton Avondale** was selected as a **Great Ship of 2001**, and is featured on page 33 of this edition.

The 141,740-dwt **Polar Endeavour** is significant in many respects, as it is built to operate effectively and efficiently for more than 25 years between Alaska and Puget Sound, Washington — two of the more environmentally sensitive areas in the world.

Classed by the American Bureau of Shipping, the 894-ft. (272.6 m) double hull tanker is the model of safety through redundancy. Spacing between its two hulls is 10 ft., or 50 percent greater than the mandatory minimum.

Two MAN B&W diesel engines — each with a nominal output of 15,015 bhp — drive the vessel, from separate and protected engine-rooms, to a speed of 16.55 knots

## MARITIME REPORTER

AND  
ENGINEERING NEWS

ISSN-0025-3448  
USPS-016-750

No. 12

Vol. 63

118 East 25th Street  
New York, NY 10010  
(212) 477-6700

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means mechanical, photocopying, recording or otherwise without the prior written permission of the publishers.

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

Maritime ReporterEngineering News is published monthly by Maritime Activity Reports, Inc. Mailed at Periodicals Postage Rates at Waterbury, CT 06701 and additional mailing offices.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime ReporterEngineering News, 118 East 25th Street, New York, NY 10010.

Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 0970700. Printed in U.S.A.

Publishers are not responsible for the safekeeping or return of editorial material.  
© 2001 Maritime Activity Reports, Inc.

Member



Business Publications  
Audit of Circulation, Inc.

# Introducing A Total Solution To GPS & AIS

## And This Is Really Something To Talk About!

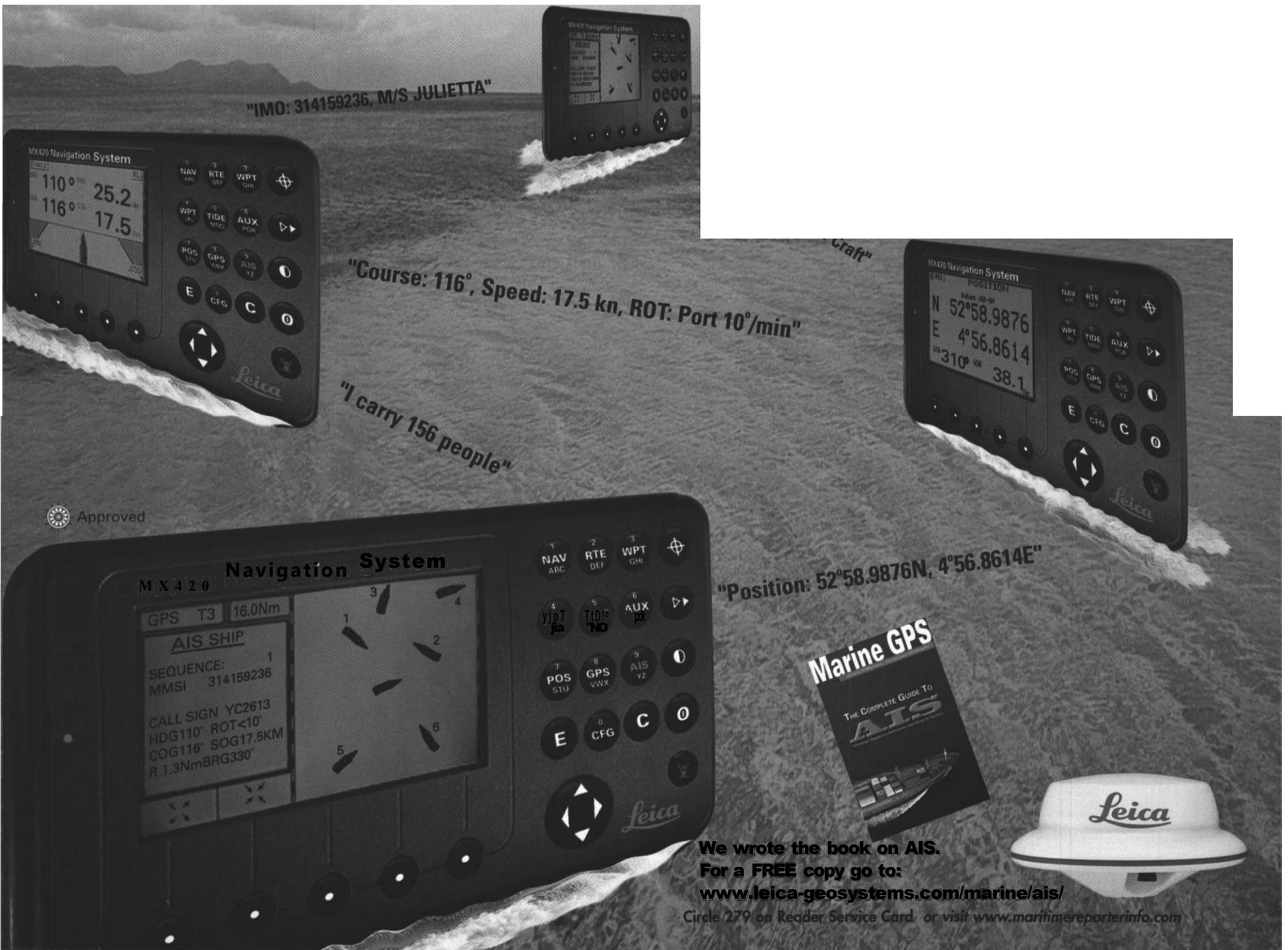
The introduction of the MX420 Navigation System provides a complete solution to GPS/DGPS and the new IMO requirements for Automatic Identification System (AIS). **Incorporating our latest GPS technology-jointly developed with IBM-and the now legendary 'World's Most Accurate' Leica precision, we created the new MX421 Smart Antenna, once more pushing the standards of accuracy to new heights. The MX420 is the one navigator that**

**takes care of it all... integrating the new AIS controls and displays with all your equipment... your gyro, speed log, charting system, ARPA, satellite communication, pilot's laptop PC and a brand new STDMA AIS Transponder, creating a complete navigation system that is entirely IMO compliant.**

**The MX420 Navigation System: we call it a giant leap forward for navigation; you'll call it "The Great Communicator".**

**Call us today. We'll steer you right!**

Contact Leica Geosystems: +1 310 7 91 5300 (USA - Canada), +45 4454 0300 (Denmark), +65 776 9318 (Singapore) or [www.leica-geosystems.com/marine](http://www.leica-geosystems.com/marine).



We wrote the book on AIS. For a FREE copy go to: [www.leica-geosystems.com/marine/ais/](http://www.leica-geosystems.com/marine/ais/)

Circle 279 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Northrop Grumman, NNS Agree To Merge

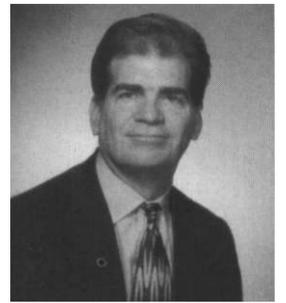


Northrop Grumman Corporation and Newport News Shipbuilding Inc. have signed a definitive agreement under which Northrop

Grumman will acquire Newport News Shipbuilding. The boards of directors of both companies approved the terms of the transaction in which Northrop Grumman will acquire all the outstanding shares of Newport News. In an

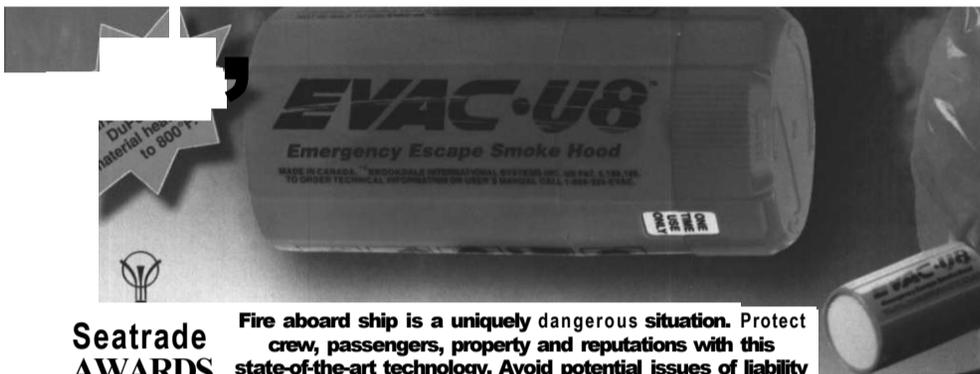
exchange offer, Newport News Shipbuilding's shareholders may elect to receive either \$67.50 per share in cash or a number of shares of Northrop Grumman common stock designed to provide a value of \$67.50, subject to cer-

tain limitations and pro-rata procedures. Northrop Grumman expects to promptly amend its existing offer documents in order to reflect the merger agreement.



William Fricks, NNS chairman and CEO will retire once the transaction has been finalized.

# The World's Most Advanced Smoke Hood



Seatrade AWARDS

Fire aboard ship is a uniquely dangerous situation. Protect crew, passengers, property and reputations with this state-of-the-art technology. Avoid potential issues of liability by joining the increasing number of marine operators who have equipped their vessels with EVAC-U8.

EHOCXD/JLE  
(a DuPont Canada company)

1-800-459-3822

www.evac-u8.com

Vancouver, Canada Tel: 604-324-3822 Fax: 604-324-3821 e-mail: info@evac-u8.com

Circle 206 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## DiAqNOSTic SOFTWARE AGENTS

ARTificial INTELLIGENCE for:

alarm monitoring  
automatic trend analysis  
fault detection  
failure prediction

Real-time operation

Animated screen characters

Windows NT

Network supported

Interface to existing systems

Monitor any Machinery

PUT YOUR

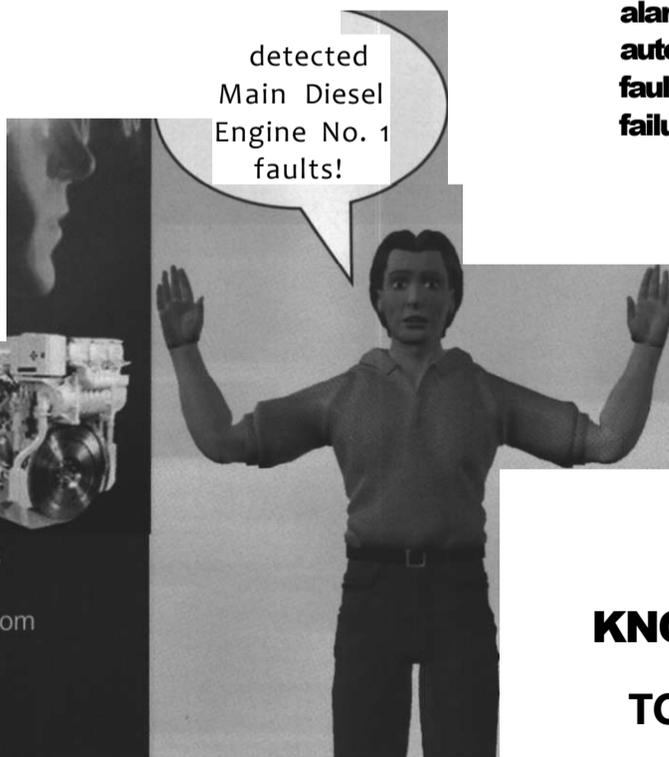
KNOWLEDGE ASSETS

TO WORK NOW!

MACHINE INTELLIGENCE IS HERE

NOW!

163 Water Street  
Stonington, CT 06378  
(860) 535-3885  
marketing@macsea.com  
www.macsea.com



detected  
Main Diesel  
Engine No. 1  
faults!

Circle 257 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

Following the completion of the exchange offer, Northrop Grumman Thomas Schivelbein, will consummate a second-step merger in which all of the remaining Newport News Shipbuilding shareholders will have the same right to elect to receive cash or shares of Northrop Grumman stock as described above.

"We are very pleased with our strategic acquisition of Newport News," said Kent Kresa, Northrop Grumman chairman and CEO. "With Newport News, we are creating a \$4 billion world-class, fully capable shipbuilding enterprise with expertise in every class of nuclear and non-nuclear naval vessel. Newport News' long and distinguished history and reputation for innovation and excellence in shipbuilding are highly regarded worldwide."

"Northrop Grumman is an outstanding corporation and this merger will enhance the future of Newport News Shipbuilding, its employees and our ability to serve our primary customer, the U.S. Navy," said William Fricks, Newport News chairman and CEO. Following the close of the transaction, Newport News will initially be operated as a Northrop Grumman sector. Longer term, Northrop Grumman plans to combine its two shipbuilding businesses into one operating sector. Thomas Schivelbein, currently Newport News' executive vice president and COO, will become president of the Newport News operating sector. He will also serve on Northrop Grumman's corporate policy council. Fricks has announced his intention to retire once the transaction has been finalized. The acquisition is valued at approximately \$2.6 billion, which includes the assumption of approximately \$500 million of NNS debt. The exchange offer, subject to the tendering of a majority of the outstanding NNS shares, was expected to close by the end of November.

# Daewoo Shipbuilding

ahead with its superb technology and quality products

Establishing world top-class standards and designs, DSME is always at a pivotal point to provide the newest types of high performing vessels.

We bring you these quality vessels through combination of advanced technology, highly skilled workforce, and full respect to our clients needs.

DAEWOO & MARINE SHIPBUILDING ENGINEERING



300,000 DWT Double Hull VLCC



6,750 TEU Containership



175,000 DWT Ore Carrier



18,440 DWT RoRo



Fast RoRo Passenger Vessel

Your standard "It was a good year/It was a bad year" round-up falls well short of summarizing the events of 2001, and their effects on the immediate and long-term future in our industry. Simply put, there are no words to describe the horrific events that transpired on September 11 in New York and Washington, D.C., but three months later, it is increasingly easy to see the fundamental and far-reaching impacts the events have had — and will continue to have — on the maritime industry.



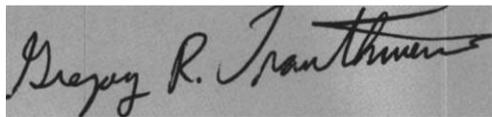
Safety and security, ever the mantra of the International Maritime Organization and quality ship and boat owners around the world, take on a more serious and urgent tone. The collective voice of experts inside and outside of the maritime industry grows continually louder in its warning of potentially perilous shortcomings in the maritime security net. The trick: ensuring that the ships and boats that serve to facilitate the free flow of business do not become the weapon of choice in the hands of international terrorists.

International, national, regional and local organizations are all busy making plans aimed at ensuring the security of the transportation of goods via the coastal and inland waterways. Striking a rational balance between security and cost will be a constant struggle, though the terrorist strikes are still too fresh for any owners to speak out about cost, at least publically.

Despite a dearth of answers to date, this much is sure: owning and operating vessels, from tugboats to tankers, has just gotten more expensive, and it is likely to increase even further.

Similarly, opportunities are abundant for the companies that design, build and outfit vessels, as budgets to build vessels to protect the massive U.S. coastline have been increased.

While the events of September 11 are surely a world event, it has hit home — *Maritime Reporter's* backyard — with incredible force. Through all of the destruction, pain and loss, however, innumerable positive stories have resulted, including the reaction of the New York maritime community in response to the rescue and clean up effort. Writer **Don Sutherland** takes *MR* readers on a photo essay through lower Manhattan, beginning on page 40.



[www.marinelink.com](http://www.marinelink.com)

[trauthwein@marinelink.com](mailto:trauthwein@marinelink.com)

## MARITIME REPORTER AND ENGINEERING NEWS

**NEW YORK**  
118 E. 25th St., New York, NY 10010  
Tel: (212) 477-6700; Fax: (212) 254-6271  
B-mail: [mren@marinelink.com](mailto:mren@marinelink.com) • Internet: [www.marinelink.com](http://www.marinelink.com)

**FLORIDA**  
215 NW 3rd St., Boynton Beach, FL 33435

**ASSOCIATE PUBLISHER**  
Gregory R. Trauthwein • [trauthwein@marinelink.com](mailto:trauthwein@marinelink.com)

### EDIT

**Senior Editor**  
Regino P. Ciardiello • [ciardiello@marinelink.com](mailto:ciardiello@marinelink.com)

**Assistant Editor**  
Jennifer Rabulan • [rabulan@marinelink.com](mailto:rabulan@marinelink.com)

**Technical Editor**  
David Tinsley

**Editorial Consultant**  
James R. McCaul, president,  
International Maritime Associates

### MARKETING

**Vice President of Marketing**  
Susan Cosme • [cosme@marinelink.com](mailto:cosme@marinelink.com)

**Marketing Manager**  
Richard Grable • [grable@marinelink.com](mailto:grable@marinelink.com)  
Tel: (561) 732-1659; Fax: (561) 732-6984

### PRODUCTION

**Production Manager**  
Sharon Griffin • [griffin@marinelink.com](mailto:griffin@marinelink.com)

**Asst. Production Manager**  
Oksana Mortemy • [mar1emy@marinelink.com](mailto:mar1emy@marinelink.com)

### CIRCULATION

**Circulation Manager**  
Dale L. Barnett • [barnett@marinelink.com](mailto:barnett@marinelink.com)

### ADVERTISING SALES

**Vice President of Sales**  
Lucia M. Annunziata • [annunziata@marinelink.com](mailto:annunziata@marinelink.com)  
**Regional Sales Manager**  
Jennifer Truman • [jtruman@marinelink.com](mailto:jtruman@marinelink.com)

**Regional Sales Manager U.S. & Canada**  
Brett W. Keil • [bkeil@marinelink.com](mailto:bkeil@marinelink.com)  
Tel: (561) 732-1185; Fax: (561) 732-6984

**Chief Financial Officer**  
Al Adinolfi

**Director, New Business Development**  
Jean Vertucci • [vertucci@marinelink.com](mailto:vertucci@marinelink.com)

**Electronic Product Sales**  
Joe Trubinsky • [trubinsky@marinelink.com](mailto:trubinsky@marinelink.com)  
Tel: (561) 732-4368; Fax: (208) 575-3217

**Assistant to the Vice President of Sales**  
Tina Angelino • [angelino@marinelink.com](mailto:angelino@marinelink.com)

**Accounting Manager**  
Angelica Rivera • [arivera@marinelink.com](mailto:arivera@marinelink.com)

**Classified Sales**  
Tel: (212) 477-6700

### PUBLISHER

John E. O'Malley  
John C. O'Malley • [jomalley@marinelink.com](mailto:jomalley@marinelink.com)

## Other Printed, Internet & Electronic Products

### Publications

#### MarineNews

#### Repair Report

#### MarineNews

Published 18 times per year, MarineNews is the leading provider of information and analysis for the North American inland/offshore shallow draft market.

### Electronic Products & Services

#### [www.maritimetoday.com](http://www.maritimetoday.com)

Customized e-mail news service delivered twice a day, including the latest contracts, casualties, people & company reports.

#### [www.maritimejobs.com](http://www.maritimejobs.com)

The marine industry's recruiting & employment resource.

#### [www.marinelink.com](http://www.marinelink.com)

The Internet's largest marine website, recording more than 270,000 "hits" per month. Daily news, data & statistics, industry directories.

Looking for *service* reliability, we deliver it.  
**ABB Turbochargers**

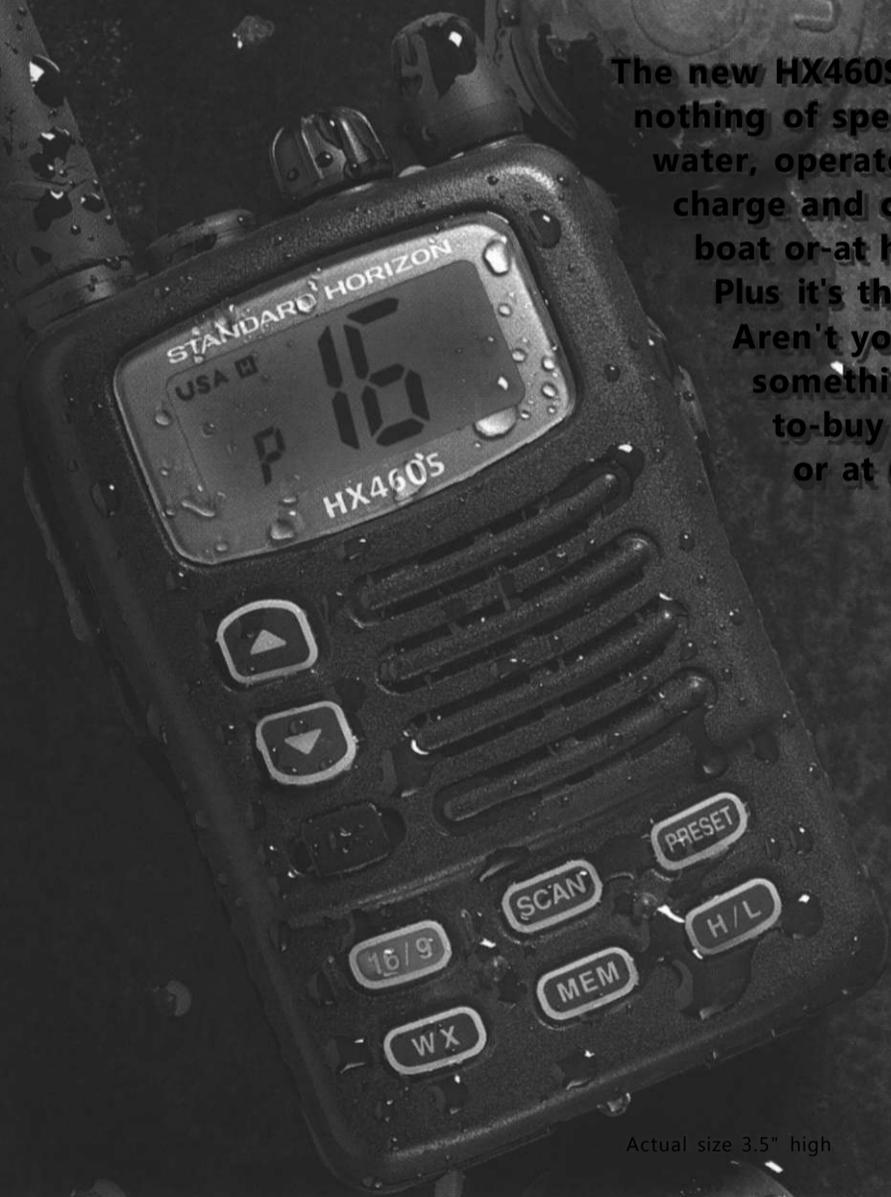
iv m i  
m i n i

New York/NJ, Miami, Houston, Seattle/Tacoma, Los Angeles - email: [turbochargers@us.abb.com](mailto:turbochargers@us.abb.com)

Circle 257 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

We've never made a VHF  
handheld this SMA1®,  
this SUBMERSIBLE,  
this RUGGED and  
this quick to recharge,  
And neither does anyone else.

The new HX460S is built like a tank, thinks nothing of spending half an hour under water, operates up to 19 hours on a single charge and completely recharges on the boat or at home in three hours or less. Plus it's the smallest portable ever made. Aren't you glad you didn't just buy something less? Full specs and where-to-buy at [www.standardhorizon.com](http://www.standardhorizon.com) or at (800) 366-8431.

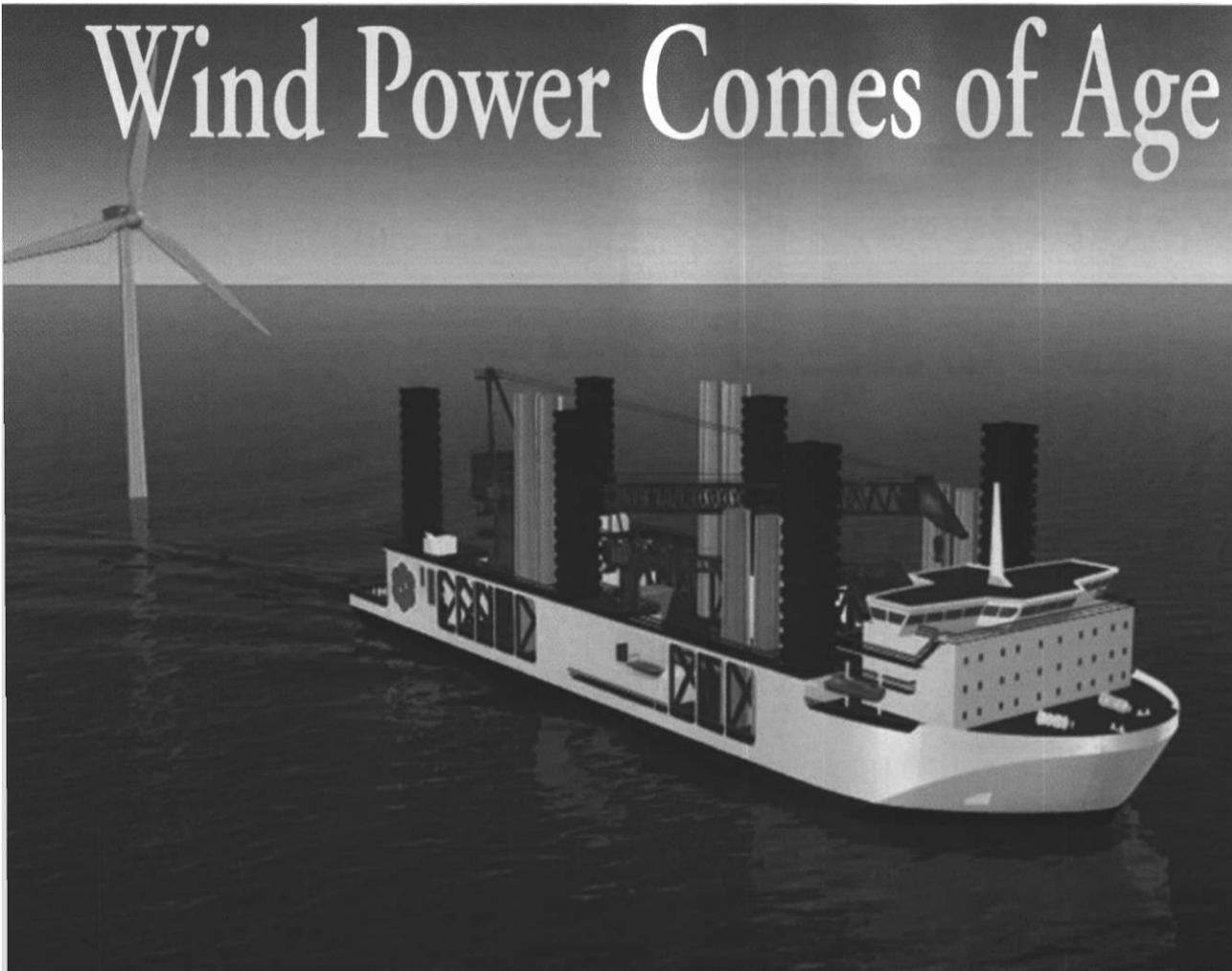


Actual size 3.5" high

**STANDARD HORIZON**  
Marine Division of Vertex Standard

Circle 274 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# Wind Power Comes of Age



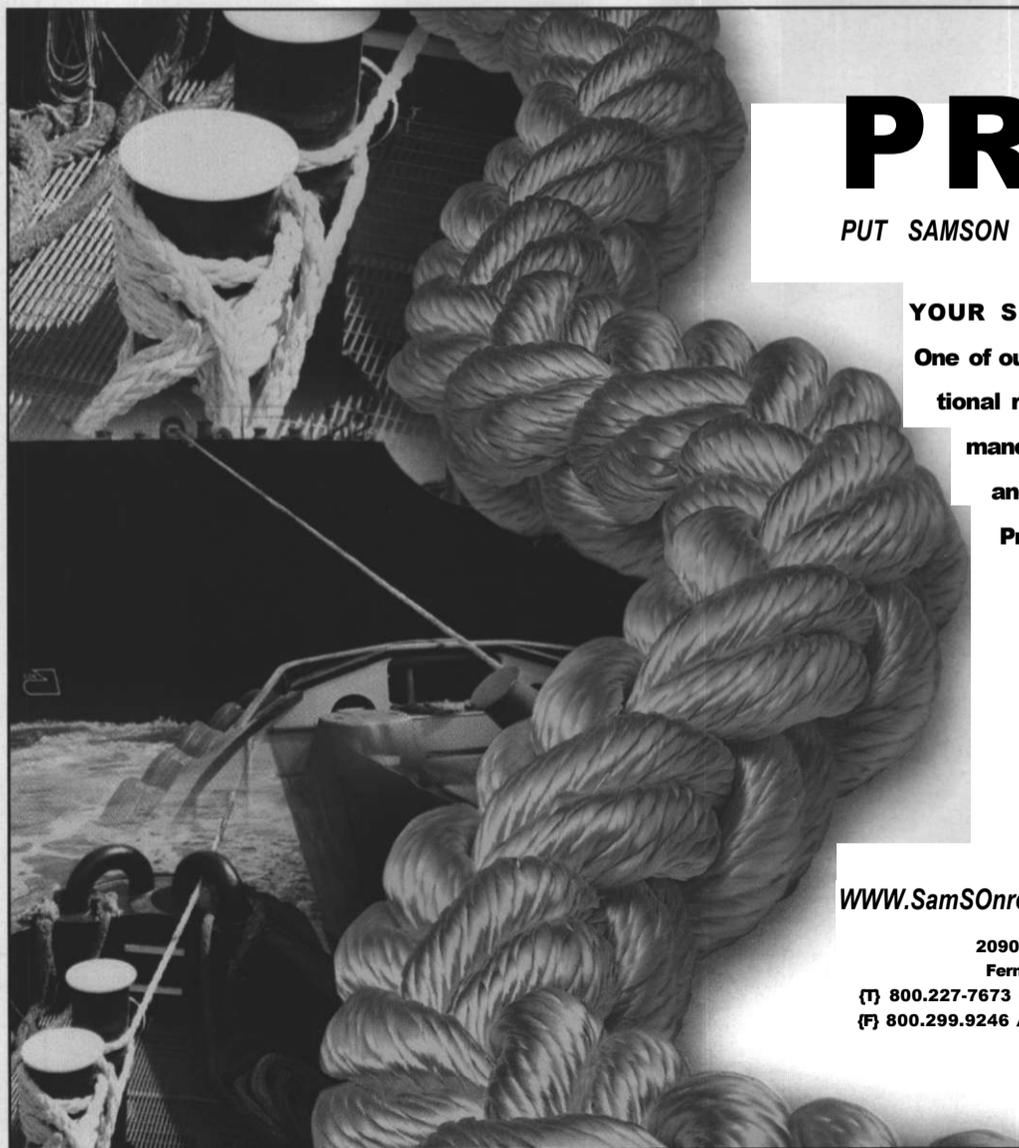
by David Tinsley,  
technical editor

Europe's fledgling offshore wind power industry has produced an order for an entirely new breed of vessel designed to transport and position wind turbines. U.K.-based engineering firm Mayflower Energy has contracted one such vessel from Shanhaiguan Shipyard in northern China on the strength of emerging demand for alternative, 'clean' energy sources.

U.K. government plans call for 1,300 new 2-MW offshore turbines to be brought on stream over the next 10 years, and other littoral European countries have formulated large-scale projects for wind power generation systems. The perceived environmental acceptability of harnessing wind power for electricity generation is a strong motivator for the evident political approbation.

Mayflower's early initiative in offering the sector a purpose-designed newbuild as from February 2003 can be expected to give the group a competitive edge. It has taken out an option on a second ship from Shanhaiguan, and industry sources indicate that as many as six vessels are tentatively envisioned.

The 426-ft. (130-m) design of wind power installation vessel developed by the respected Copenhagen



## PROTON 8

PUT SAMSON STRENGTH TO WORK FOR YOU

### YOUR SOURCE FOR SOLUTIONS

One of our strengths is the ability to provide solutions to your operational requirements. You wanted a product to maximize the performance of your "combi" tugs working off H-bitts. We responded and after a year of field testing we are proud to introduce Proton 8 offering the following performance characteristics:

- « **Lightweight, low stretch, and high strength associated with products made from Dyneema® fiber.**
- < **Low stretch for maximum control.**
- < **High resistance to heat.**
- < **Excellent grip on H-bitts.**
- < **Easy to re-splice.**

[WWW.SamSONrope.com](http://WWW.SamSONrope.com)

2090 Thornton Street  
Ferndale, WA 98248  
{T} 800.227-7673 / 360.384.4669  
{F} 800.299.9246 / 360.384.0572

Call us to find out how to put  
our strengths to work for you.

The Strongest Name In Roue.

Made with DSM's registered  
Trademark for High Performance Polyethylene fiber.

Circle 257 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

consultancy Knud E Hansen brings together proven technologies in what constitutes an as yet unique class of ship. For instance, it will accomplish offshore placement tasks using six jack-up legs, and 300-ton and 50-ton cranes, while propulsion and positioning will be affected with four 1.5-MW thrusters, giving a maximum speed of 10.5-knots. The vessel has been configured to transport and handle 10 turbines, and will accommodate a full engineering crew of up to 50 persons. Det Norske Veritas' expertise in the offshore vessel classification will be brought to bear on the project.

Mayflower has engaged the Cardiff-domiciled Graig Group, a shipping, shipmanagement and marine services company with strong connections in the Nordic and Chinese markets, to provide it with technical support for the scheme. Graig's input has already included advice on yard selection, introduction of Knud E Hansen and DNV, and assistance in contract negotiations and technical issues, and will also encompass newbuild supervision. The Welsh firm also hopes that the relationship will extend into the operational phase, by way of technical husbandry of the vessel.

Graig points out that the Shanhaiguan yard in China is no stranger to specialized vessels, having a track record in FPSOs (floating production, storage and offloading vessels).

A commitment in the mid 1990s to a major and ongoing program of multipurpose cargo vessels incorporating a heavy-lift capability opened a new chapter for Graig, such that the company ranks today as a significant player in global project cargo shipping and provider of technical shipmanagement services for 33 vessels. It has also emerged as a leading figure in technical supervision at Chinese yards, a role that has included a series of 19 ships from Zhonghua Hudong.

#### New Capacity for the Antarctic

Just as the vessels built for arduous and challenging offshore tasks testify to the maritime industry's capacity for innovation and propensity for working on new frontiers, that sector of the business involved in operations to the polar regions is characterized by a special verve.

Norwegian firm Polar Ship Management encapsulates that spirit, continually investing in its fleet and acting on new opportunities for its core skills and

resources while developing a broader business platform. Although a traditional, integrated shipping company, its disposition towards tailor-made service packages and vessels for polar expeditions and research, polar resupply, seismic survey, offshore support and cable-laying, sets it apart from conventional, mainstream players in the shipping market.

More power to its elbow has just been conferred by the delivery of the 294-ft. (89.7-m) Polarbjorn, which combines an Antarctic expeditionary and research capability with a suitability for a range of offshore and cable support tasks. The marriage of abilities is expressed in a robust construction and ice bow, large open working deck areas tended by heavy-duty craneage, extensive accommodation and laboratory facilities, and big foreship helicopter platform.

Built in western Norway by Havyard Leirvik, Polarbjorn entered service under the initial employ of energy group Statoil, and is the third new ship to have been commissioned by the company in as many years. Polar Prince, designed for inspection, maintenance, repair (IMR) and subsea inspection tasks, went on five-year charter to Subsea International on delivery from Flekkefjord Slip & Maskinfabrik in mid 1999. A second ship from Flekkefjord, Oceanic King, was adapted after delivery in 2000 for a dedicated cable laying and maintenance role.

Polarbjorn offers 2,900-dwt as a polar-going vessel on 24-ft. (7.2-m) draft, and 3,700-dwt in offshore mode on 25-ft. (7.8-m) draft. Within relatively compact overall dimensions of approximately 295 ft. (90 m) length by 59 ft. (18-m) breadth. Some 780-sq. m. of open deck area is afforded by the aft deck and shelterdeck, plumbed by a 60-ton main crane, with the added facility of 12.5-ton crane for remote-operated vehicle (ROV) deployment or other duties. There are three underdeck cargo hold compartments within the mid-ship parallel body.

The vessel's main propulsion system based on two Rolls-Royce Bergen engines of 4,605-bhp apiece driving a single, nozzled controllable-pitch propeller is complemented by an extensive thruster array for position-holding and precise maneuvering. The Brunvoll thruster outfit, amounting to an aggregate 6,725-bhp, comprises two tunnel units forward and two aft, plus a

retractable azimuth thruster in the foreship section. The integrated maneuvering and dynamic positioning system is of Kongsberg Simrad origin.

While Polarbjorn carries a standard marine crew of about 16-19, it has been fitted with a total of 100 berths so as to accommodate charterer's personnel.

One of the fleet's modern vessels, the 4,000 gt Ernest Shackleton (ex-Polar Queen), is the subject of a 15-year agreement with British Antarctic Survey (BAS). It had previously been engaged for Australian Antarctic resupply duties and other work, having a broader offshore survey and ROV support capability.

#### Redundancy at A Premium

At an estimated build cost some 25-percent higher than a standard Aframax tanker, classification society Bureau Veritas and French shipowner Services & Transport have come up with a new Ecomax tanker proposal, design-optimized for pollution prevention.

The Aframax-sized vessel would have two independent engine rooms, power supply systems and steering gear, increased hull scantlings, reduced high tensile steel content, and duplicated navigation equipment with off-track monitoring. In the event of failure of one power plant or propulsion line, the tanker would still be able to make 12.5-knots, compared with 16.5-knots from both main engines.

It is felt that perceptions of cost and value have changed since the Erika disaster, and it is contended that build costs would reduce in the face of any future demand resulting in serial or repeat production. Be that as it may, the shipowning sector at large will first register the price premium, notwithstanding the attributes over-and-above a standard Aframax, unless there is a particular business incentive in some shape or form, arising from specific trading or charterer conditions, that can be seen to justify the higher capital outlay.

#### Norwegian Navy Picks GE LM2500s

GE Marine Engines reported that its LM2500 aeroderivative gas turbine will power five new Royal Norwegian Navy F310-class frigates, which will be built by IZAR Construcciones Navales, S.A., at its naval shipyard in Ferrol, Spain.

This is the first naval CODAG configuration to be installed by IZAR. The Germany Navy uses an LM2500-based CODAG configuration on its new F124-class frigates. The CODAG configuration on each F310-class frigate will consist of one GE LM2500 gas turbine, rated at 21.5 MW/28,832 shaft hp, combined with the two diesel engines for a total propulsion system rating of 30.5 MW.

The gas turbines will be manufactured at GE's Evendale, Ohio facility, and delivered to IZAR starting in December 2002. The F310 frigates are scheduled for commissioning starting in September 2005 through September 2009.

Circle 24 on Reader Service Card  
www.maritimereporterinfo.com

#### Wartsila In Talks To Acquire

##### John Crane-Lips

Smiths Group and Wartsila Corporation announced that they were in exclusive discussions regarding a possible sale by Smiths Group of John Crane-Lips to Wartsila.

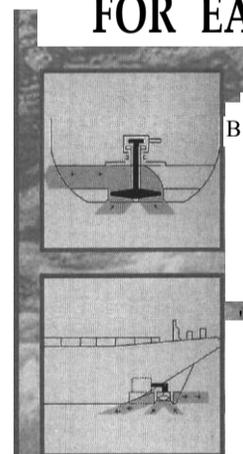
Wartsila and John Crane-Lips entered into a strategic alliance in October 2000 to provide total marine propulsion power systems through the Wartsila network.

The acquisition of John Crane Lips would enhance Wartsila's position as the leading global ship power supplier.

The acquisition would generate additional sales of more than EUR 200 million for the Marine & Licensing division of Wartsila. A definitive sale agreement would be subject to the approval of relevant authorities.

Circle 53 on Reader Service Card  
www.maritimereporterinfo.com

## OMEGA THRUSTERS FOR EASY MANOEUVRING



Ideal for river barges, seagoing vessels, inland vessels, supply vessels and drilling barges



Jan Verhaar builds reliable, long-life

Omega bow and stern thrusters.

With a thrust direction that's adjustable over 360°, Omega thrusters will keep

arty ship on the right course. They're the ideal complement to a DP system with a

Bollard Pull of 24.9LBF/KW.

The complete construction is placed inside the ship, so no vulnerable parts under the bottom plate.

The state-of-the-art Omega thrusters are available with power ratings ranging from 150 to 1500 kW.

### OMEGA THRUSTERS

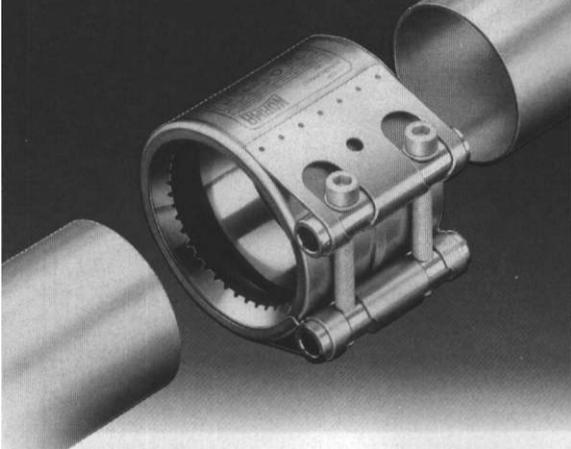
Jan Verhaar. P.O. Box 119  
2340 AC Oegstgeest - Holland  
Tel: + 31 71 5172631  
Fax: + 31 71 5171926  
E-mail: info@verhaar.com  
Website: http://www.verhaar.com

Circle 249 on Reader Service Card or visit www.maritimereporterinfo.com



## Legal Beat

# Why wait for a welder?



## Join and seal pipes in less than 15 minutes



With a NORMACONNECT® coupling and a torque wrench, anyone can connect high-pressure pipes in minutes — and they'll stay sealed.

Rugged NORMACONNECT® couplings are 70% lighter than

welded flange joints and take up 40% less space. They also:

- reduce noise and dampen vibration
- save time previously spent on welding and x-rays
- compensate for misalignment, angular deflection and variances in pipe O.D.
- eliminate the pipe grooving and end treatment necessary with other couplings
- feature a patented double-lip seal
- are available in all IPS nominal O.D.'s, from 3/4" to 48" (26.9mm to 1220mm)
- are rated at 16 bar to IPS 8.0" (219.1mm) by all major marine approval bodies.

For metal-to-metal, metal-to-plastic and plastic-to-plastic joints, you'll save time and money with NORMACONNECT® Pipe Couplings. They're used on everything from ocean-going passenger ships (e.g., the first ones built in the U.S. in 40 years) to semi-submersible oil rigs.

For more information, contact NORMA Products or our marine distribution partner, W&O Supply.

A

W&O Supply  
Engineered Products Division  
Phone: (334) 438-2810  
Fax: (334) 438-2817  
e-mail: epdivision@wosupply.com

Supply

NORMA®.

A WORLD OF INNOVATIVE SOLUTIONS.

NORMA PRODUCTS (U.S.), INC.  
Phone: (800) 406-6762  
Fax: (248) 668-9523  
Website: [www.norma.de](http://www.norma.de)  
e-mail: [npus@normatech.com](mailto:npus@normatech.com)



# Port Security Legislation Reinforces Security

By James S.W. Drewry

Like so many areas of our economy since the terrorist attacks of September 11, the port and maritime areas of the United States are being scrutinized for vulnerability to terrorism. Catastrophic scenarios are all too easy to imagine, and the threats can come from so many directions. To illustrate the complexity of the maritime law enforcement challenge, the Coast Guard Commandant, Admiral James M. Loy, posed the following hypothetical in an October 31 speech to the Propeller Club of the United States:

"Imagine for a moment the information requirements associated with a hypothetical 6,000 TEU flag-of-convenience container ship with a multi-national crew cobbled together by a hiring agent who works for an Algerian vessel operator who chartered the vessel from a Greek ship owner whose corporate offices are in the Cayman Islands.

"How would you begin to manage the information required to prosecute an inter-agency response to any of the various threats that might be aboard such a hypothetical ship — a report of a nuclear device being smuggled, chemical or biological agents, or any of hundreds of other possibilities?"

The purpose of this article is to report on activities within the U.S. Congress aimed at shoring up security in the Nation's ports and maritime areas. At present the main port security bill is S. 1214, the Port and Maritime Security Act of 2001, introduced by Senator Ernest F. Hollings, Chairman of the Senate Committee on Commerce, Science, and Transportation, which has jurisdiction over the Coast Guard and Maritime Transportation. Senator Hollings, whose hometown is the port city of Charleston, S.C., introduced an earlier version of the bill in July of last year in response to the 1999 report of the Commission on Seaport Crime and Security. S. 1214 was reported by the Senate Commerce Committee to the full Senate three days after the September 11 nightmare, and the changes to the bill since then have been considerable, with particular emphasis on dealing with the terrorist threat. As Congress left for its Thanksgiving recess, Senators and staff were still negotiating changes to the bill. However, it is expected to pass the Senate before the end of this year.

### Provisions in the Hollings Bill

The Hollings bill reinforces and expands upon the Coast Guard's Maritime Domain Awareness concept, which stresses constant vigilance and collaboration among affected public and private organizations. The bill has a number of provisions to enhance the security preparedness of federal, state, and local government agencies having responsibility for seaport security, as well as private entities with a stake in secure port operations. For coordination, it calls for establishing a national-level Port Security Task Force, whose members are to include representatives of the Maritime Administration and Coast Guard, port authorities, and labor and management organizations involved in maritime transportation, and requires port security committees for each port, with membership from governmen-

tal and private entities.

Another step in preparedness under the bill is a requirement for the Secretary of Transportation to identify the 50 most strategically important and economically important ports in the United States. The Secretary would then be required to complete port security vulnerability assessments for these 50 key ports. Vulnerability assessments would be carried out for the other 250-plus U.S. ports as well, but the greatest urgency is assigned to the top 50.

The Hollings legislation recognizes that terrorism and other threats require vigilance not only from law enforcement agencies. Under the bill the port authorities and private waterfront facility operators will have to develop their own maritime transportation security plans, which must be approved by the Secretary of Transportation. These non-law enforcement plans would include provisions to impose positive access controls to vessels and facilities, to develop procedures for processing passengers, cargo, and crewmembers, and to promote security awareness among all employees.

To round out the security readiness of individuals in the maritime community, the Hollings bill would: (1) establish a training and certification program for maritime security professionals and a Maritime Security Institute to train these professionals, (2) direct the creation of domestic and maritime safety and security teams for responding to terrorist or criminal activity, and (3) require regularly updated maritime counter-terrorism and incident contingency plans.

The Hollings bill recognizes that the information on port activities falls far short of what is needed for security from terrorism. One way to improve is to combine the information that is collected throughout the Federal government, but often not shared among agencies. Thus the bill would require a maritime domain awareness report by the Secretary of Transportation, aimed at improving the utilization of worldwide maritime transportation information systems and data bases to track cargo, passengers, and crew manifests, identify suspicious itineraries and shipments, and identify suspected terrorists - possibly through a linked or new general data base. Likewise, the bill requires the Attorney General to direct U.S. law enforcement agencies to modify their information databases to ensure collection and retrievability of port data.

Another way to improve information in the maritime domain is to collect more information through the use of technology. The bill provides for loan guarantees and grants for security-oriented infrastructure in U.S. ports, including the acquisition of equipment or facilities to be used for port security monitoring and recording, remote surveillance systems, and concealed video systems. Further, it authorizes \$35 million per year in funding for the Customs Service to acquire non-intrusive screening and detection equipment for use at U.S. ports.

In addition to these technological devices, the bill relies on new reporting requirements. One provision would require the Secretary of Transportation to prescribe regulations governing the conduct of criminal

# We speak your language

**Tankers, containers, bulkers, cruise, LNG—  
Miami, Singapore, Vancouver, Piraeus—**

**Whether you design, build, own or operate  
ships, we help achieve your goals.**

Understanding your business is our business.

For nearly 250 years, Lloyd's Register has led the world in maritime risk management solutions. Now, with account managers who really appreciate your concerns, we are better placed than ever to work with you to develop cost-effective solutions that help lower the technical and commercial risks to your business - today and tomorrow.

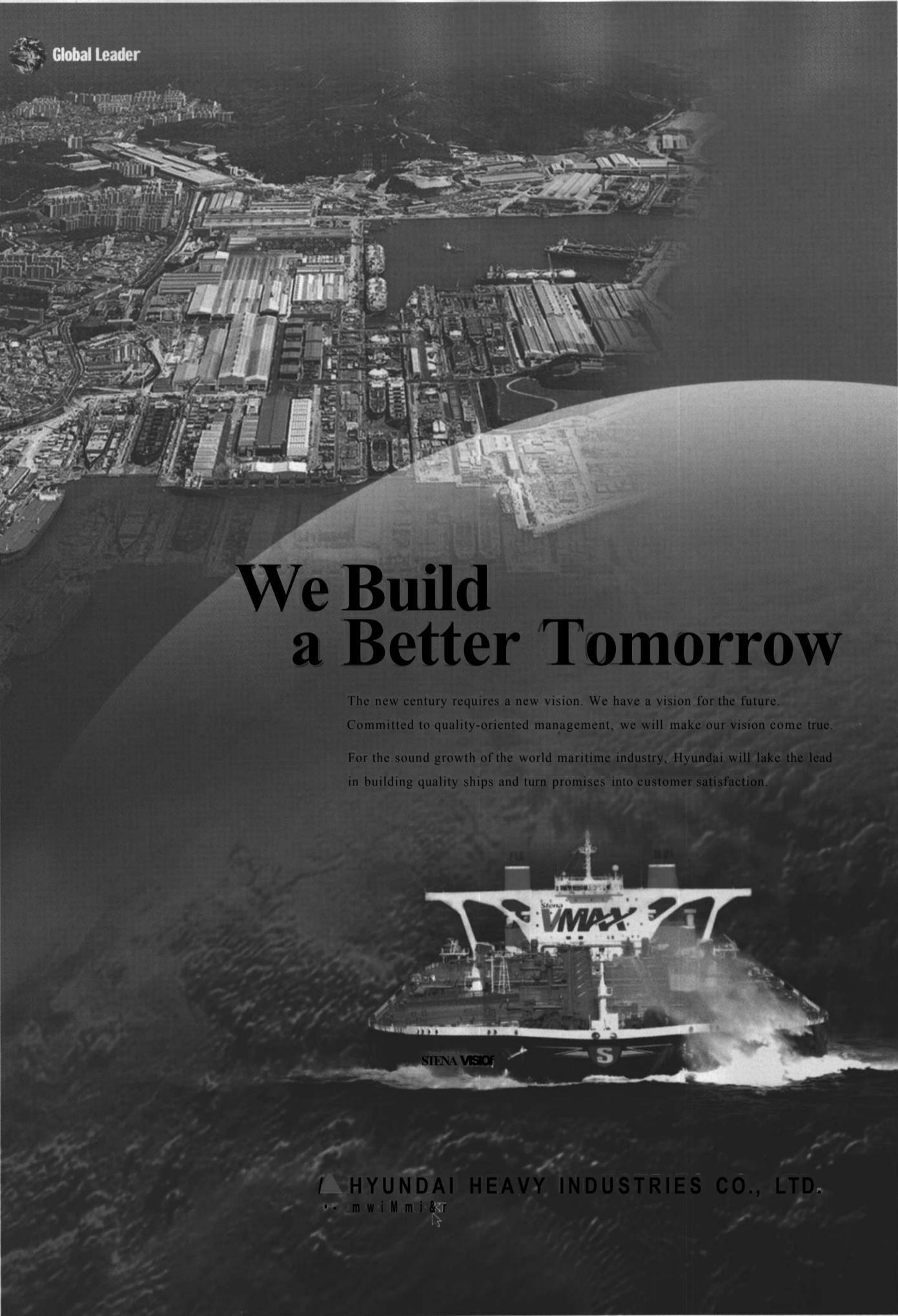
Lloyd's Register North America, Inc.  
15810 Park Ten Place, Suite 291  
Houston, Texas 77084, USA

Tel: +1 281 599 8450  
Fax: +1 281 599 8455  
Email: [jack.polderman@lr.org](mailto:jack.polderman@lr.org)

[www.lr.org/  
accountmanager](http://www.lr.org/accountmanager)

**Lloyd's  
Register**

**Building better business**



Global Leader

# We Build a Better Tomorrow

The new century requires a new vision. We have a vision for the future.  
Committed to quality-oriented management, we will make our vision come true.  
For the sound growth of the world maritime industry, Hyundai will take the lead  
in building quality ships and turn promises into customer satisfaction.

 HYUNDAI HEAVY INDUSTRIES CO., LTD.  
•• m w i M i & r

history record checks with respect to security-sensitive personnel to ensure that these personnel do not pose a threat to the security of maritime commerce. Another provision strengthens existing pre-arrival notification and vessel information requirements for ships bound for U.S. ports, allowing the Coast Guard to deny entry to vessels failing to provide electronic notifications and prescribed shipboard information in a timely manner. The bill also provides specific authority to the Customs Service to require detailed electronic information from shippers, marine terminal operators, and vessels for the purpose of tracking cargo, passengers, and crewmembers.

One of the main frustrations for those seeking to protect U.S. ports is the lack of information on cargo arriving from other countries in sealed containers. The Hollings bill addresses this by urging the U.S. Government to push international organizations like the International Maritime Organization to adopt international port security standards and a system of private sector accreditation of international ports that comply with these standards. In addition, the bill directs the Secretary of Transportation to establish a program to assist foreign port operators in the identification of port security risks, the conduct of vulnerability assessments, and implementation of security standards. And the bill requires the Secretary to work with the Attorney General and Secretary of Defense to identify the foreign ports whose inadequate security or port security vulnerability poses a strategic threat to U.S. defense interests or may contribute to criminal activity in the United States.

## Conclusion

If the Senate passes S. 1214, as now expected, it will signify the completion of one major phase in the development of port and maritime security legislation. The next phase for this legislation will be in the House of Representatives and probably will commence with the Transportation and Infrastructure Committee, which has jurisdiction over the Coast Guard and maritime transportation. The staff of that committee has been discussing a bill focused on the specific needs of the Coast Guard. That bill may be introduced before the end of this year, but most likely will surface early in 2001.

*Dyer Ellis & Joseph, P.C. is a Washington, DC-based law firm with a domestic and international practice involving transportation, shipping, finance, corporate, securities, legislative, environmental, and trade matters.*

Circle 220 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# CARHARTT EXTREMES®

## The Best Workwear For Extreme Conditions.

There's work wear... and then there's high-performance workwear. The kind that will

BI-SWING BACK AND PLEATED  
ELBOWS FOR EASE OF MOVEMENT

stand up to cold, wet, icy

NYLON OUTER SHELL  
FOR WIND, WATER AND  
TEAR RESISTANCE

conditions, and still allow a professional to get a job done in comfort. That's why Carhartt makes Extremes®. Extremes have 1000 denier Cordura® outer shells that resist abrasions, punctures and tears as well as provide superior wind and water resistance. Extremes also have arctic-weight linings for

1000 DENIER CORDURA®  
NYLON FOR DURABILITY

warmth and triple-stitched seams for durability. It's tough working in extreme conditions, but it's a whole lot easier when you wear the best, Carhartt Extremes.



We are a proud sponsor  
of the NBA and the NFL

(800) 833-3118 www.Carhartt.com

# Carhartt

Original Equipment for the American Worker.™



Circle 216 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## New & Notable

### Bollinger Delivers Seacor Eagle

Bollinger Shipyards, Inc., Lockport, La., delivered Seacor Eagle, the first of two 145 x 36 x 10-ft. (44.1 x 10.9 x 3 m) supply/utility vessels for Seacor Marine, Inc., Houston, Tex. Seacor Hawk, a

nearly identical sister ship, is scheduled for delivery in mid November 2001.

"Seacor Eagle is typical of the flexibility and versatility of our 145 ft. supply/utility boat to meet the needs of a variety of operators of large, medium and small fleets," said Walter Berry,

executive vice president and COO of Bollinger. "The fact that it meets and exceeds new regulatory requirements and is full ABS 100 gt and less than 500 gt makes this design more attractive and profitable for any operator."

Powered by two Cummins KTA-

• Contractors • Manufacturers • Engineers • Quality Interiors • Turnkey Deck Houses & Crew Modules • Steel Fabrication and Erection • HVAC • Electrical

## Quality • Integrity • Reliability

### Providing Marine Interiors Since 1962

/A

# JAMESTOWN X OOH

Contractors • Manufacturers • Engineers

Jamestown Metal Marine Sales, Inc.  
4710 N.W. 2nd Avenue, Suite 400, Boca Raton, Florida 33431  
Ph: (561) 994-3900 • Fax: (561) 994-3969  
www.jamestownmetal.com

• Sheathing • Doors • Dining Room Furnishings • Lounge & Bar Furnishings • Work Spaces • Laundry Equipment • Storeroom Shelving & Equipment

Circle 227 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# iverhaul

**Motor-Services Hugo Stamp, Inc.** has been providing factory-trained technicians and service for over a decade. We recently overhauled two MAK 6M551 engines. From off-loading, analyzing, repairing and testing, this successful component overhaul took less

than a week. We are available 24-hours a day to serve your engine needs. For more information, call **1-800-622-6747** or e-mail [info@mshs.com](mailto:info@mshs.com) or fax your request to **(954) 763-2872**.



## MOTOR-SERVICES HUGO STAMP, INC.

AUTHORIZED DISTRIBUTORS & SERVICE CENTER

3190 S.W. 4th Avenue, Ft. Lauderdale, FL 33315 • (954) 763-3660 • Fax (954) 763-2872 • <http://www.mshs.com>

Circle 234 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

**Bollinger-built MV Seacor Hawk during sea trials in central Gulf of Mexico.**

38MO diesel engines, which develop a total of 1,500 bhp at 1,600 rpm, the engines drive a pair of Bollinger 72 x 57-in. stainless steel propellers through Twin Disc MG5301 reverse/reduction gears. Steering is provided by a Jastram steering system and anchors are handled by a Coastal Marine Equipment system.

Two 99KW Cummins generators driven by two Cummins 6CTA8.3G diesels produce electrical power via Power Panels, Inc., switchgear with temporary paralleling capabilities. Two Quincy F-325-L-2 air compressors start the engines. A Schottel STT110 bowthruster driven by a Cummins N-14 engine provides additional maneuverability and a Stang fire monitoring system with a 2,500 gpm capacity is mounted atop the pilot house to fight fires.

Seacor Eagle offers its owner 2,800 sq. ft. of aft deck space with a maximum deck load of 390 tons. It has four mud tanks with a total capacity of 50,000 gallons of liquid drilling muds. Other capacities are over 60,000 gallons of fuel: 560 gallons of oil, and over 10,000 gallons of fresh water.

Nav/Com equipment includes two JRC 48 mile radars; a Furuno GP31 GPS; a Comnav 1001 autopilot; a Furuno HF150W radio; two Standard Horizon Intrepid VHF radios with two remotes, and a Raytheon 430 Loudhailer with horns in key locations that double as the boat's public address system.

### Boskalis Expands Fleet With The Coastway

Coastway, a new 4,900 cubic meter trailing suction hopper dredger for Westminster Dredging Company of Fareham, was launched in November 2001 at the Merwede Shipyard in Hardinxveld-Giessendam. Mrs. J.M. van Gelder-Wolff, wife of R. van Gelder, chairman of the board of Management of Royal Boskalis Westminster nv, will perform the inauguration and launch of the Coastway.

The Coastway, with its shallow draught and large loading capacity, has been designed to carry out on and fore-shore beach replenishment, dredging and maintenance work in shallow water,

which generally involves silt, sand, gravel and soft clay. Its jetwater installation allows for dredging of densely packed material. The Coastway is also prepared for the desalination of sand from sea. The adjustable dredge pump speed by a special type gearbox provides the control of the mixture speed and power.

Boskalis will deploy the Coastway primarily for dredging operations on short and medium-range distances.

The Coastway, ordered by Boskalis in December 2000, will be complete at the yard for commissioning and will be put to service by March 2002.

Circle 54 on Reader Service Card  
www.maritimereporterinfo.com

Main Particulars — Coastway	
Class	Bureau Veritas
Length	321 ft. (97.7m)
Breadth	75 ft. (23 m)
Draught	23 ft. (7 m)
Dredging draught	21 ft. (6.5 m)
Dredging depth (5m draught)	92 ft. (28 m)
Hopper capacity	4,900m
Load capacity	6,605tons
Speed	12 knots
Total installed power	6,365kW
Propulsion power	2 x 2,000kW
Bowthruster power	500kW
Dredging pump power	1,500kW
Pump power	2,760kW
Suction pipe diameter	900m
Complement	17pers.

### FGH Delivers Harbor Tug

Halter Marine, Inc., the vessel segment of Friede Goldman Halter, Inc., has delivered its newly designed 98-ft. (29.8-m) harbor tug, Lynn Marie. The 6,000-hp Azimuthing Stern Drive (ASD) is based on a design developed by Halter and Foss Marine. Primary tug operations of the Lynn Marie will include ship docking and towing.

Circle 49 on Reader Service Card  
www.maritimereporterinfo.com

### Almirante Brion Undergoes Sea Trials At Litton Ingalls

The LUPO Class frigate Almirante Brion (F-22), which is undergoing a modernization for the Venezuelan Armada by Northrop Grumman's Ingalls Operations, Pascagoula, Miss., sailed through the Gulf of Mexico during the ship's first sea trial, Oct. 17-18, 2001. During the sea trial, various systems were tested including propulsion, electronics and communications. The ship's combat systems was tested during a second sea trial in November. Ingalls is also performing similar work on a second LUPO Class ship, Mariscal Sucre (F-21), which has completed first trials and goes on combat systems trials later this month.

### Joint Venture Commissioned Into U.S. Military Service



The commissioning of the Incat-built 315-ft. (96-m) Wave Piercing Sealift Catamaran contracted to the United States military for a deployment of two years, has taken place at Norfolk, Va. The vessel will serve to enhance mission capability in a broad range of scenarios and this is expected to lead to the acquisition of more tonnage in the future.

The contract between the U.S. Army's TACOM (Tank-Automotive and Armament Command) and Bollinger / Incat USA, L.L.C. is the first major project undertaken by the strategic alliance formed last year between Bollinger Shipyards of Louisiana, U.S. and the Incat shipyard in Tasmania, Australia.

Joint Venture is the first high speed craft to go into service with the United States military forces. Undergoing a major refit in September 2001 the craft has been upgraded and fitted with military enhancements such as the helicopter deck, stern quarter ramp, RIB deployment gantry, troop facilities, crew accommodation and more. The craft

emerged from Incat's new Wilson's dry-dock, having been transformed and capable of carrying 363 persons, military vehicles and equipment over 1110 nautical miles at a speed greater than 35 knots.

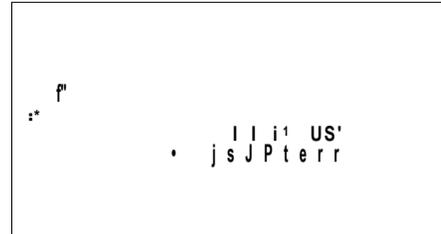
Circle 50 on Reader Service Card  
www.maritimereporterinfo.com

### Halter Receives Outstanding Rating From U.S. Navy

Friede Goldman Halter's marine segment received an outstanding rating for the completion of the USNS Mary Sears sea trials. Rear Adm. William Schmidt of Insurv and U.S. Navy captain Philip Johnson of Supships Pascagoula participated in the trials along with personnel from the U.S. Coast Guard, Navy Insurv Board, Naval Sea Systems command, Military Sea Lift Command, Pascagoula Supervisor of Shipbuilding and the Naval Oceanographic Office.

The sixth Pathfinder T-AGS 60 class built for the Navy by Halter Marine, USNS Mary Sears is a multi-mission oceanographic survey ship capable of surveying in either coastal or deep-ocean waters, and always forward deployed- having no stateside homeport.

The vessel is the first oceanographic ship officially christened with a woman's name; WW II wave, Mary Sears, who was known for her intelligence reports predicting the presence of thermoclines — areas of rapid water



temperature change — under which a submarine could hide to escape enemy detection.

The T-AGS 60 class is designed with a common bus diesel electric propulsion system consisting of twin screw propellers driven through Z-drives. The Z-drives, which have been installed on several new and converted oceanographic ships, include gear reduction and 360 degree thrust direction control in a compact unit.

The elimination of conventional reduction gears and long propeller shafts, frees up space for other oceanographic uses. Dynamic positioning controls thrust direction and provide unparalleled ship control and maneuverability to permit precise position keeping and track line following. Continuous variable control of the vessel's speed can be maintained from three knots up to maximum speed.

Circle 29 on Reader Service Card  
www.maritimereporterinfo.com

## "Extra Heavy Duty"<sup>9 5</sup>

Jeamar Sheaves and Blocks are available in a wide variety of sizes, from large 'monster' size to small enough to fit in the palm of your hand. They all have one thing in common, however - *Quality controlled manufacturing.*

All our sheaves & Blocks are cold formed from the highest quality fine grain steel and are precision engineered for long lasting performance.

- Rope grooves are work hardened during cold forming to ensure longer sheave and rope life.
- Deep-groove double ball bearings are sealed and lifetime lubricated for longer life, reduced maintenance costs.
- Jeamar steel blocks are stronger and lighter and easier to install.
- Available from stock.

Most sizes are also available in Stainless Steel!  
Send for our catalogue for full details!

## i Jeamar Winches

1051 Clinton Street, Buffalo, New York, U.S.A. 14206  
Toll Free: Tel: 1-877-884-8118 • Fax: 1-877-569-9909  
web site: www.jeamar.com • Email: sales@jeamar.com

Circle 230 on Reader Service Card or visit www.maritimereporterinfo.com

## News

### MAAG Gear Wins Large Order For Five CODAG Gear Units In Spain

MAAG Gear Ag, a Swiss based company of FLS Industries, Denmark, has been awarded the contract by the Spanish shipyard IZAR, one of the biggest shipyards world-wide for naval ships. The contract covers the supply of five gearbox systems for new F-310 type frigates of the Norwegian Navy. The new frigates will be equipped with the most modern systems available today, including a combined Diesel and gasturbine (CODAG) propulsion system with high efficiency and low noise level gear units. The delivery of the first gearset will be end of 2002, followed by one gearset each year until 2006. The order is included in this years

sales budget for naval gears, and the total order intake by mid year for MAAG is considerably higher than budgeted. The gears will connect two Diesel engines type BAZAN Bravo 12 and one gasturbine type GE LM 2500 to two propellers. In CODAG mode, the total propulsion system power will be 30500 kW at a propeller speed of 190 rpm.

The gears are mounted on specially designed elastic mounts in the ship in order to minimise noise radiation to the sea water. The order has been awarded to MAAG because of their superiority in technical solutions for naval ship propulsion gear systems. The main issues are reliability, functional flexibility and low noise radiation into the sea water. According to MAAG's sales vice president, **Thomas Deeg**, this is the compa-

ny's first order from IZAR for a CODAG gear system. "It is a very important order for us, and we are very proud that we were chosen by IZAR. It will be the beginning of a continuous and fruitful co-operation for the future, and MAAG is one of the major suppliers for such gear systems world-wide"

Circle 55 on Reader Service Card  
www.maritimereporterinfo.com

### House-Senate Conference Agrees on \$33 Million For Title XI Loan Guarantees

The House and the Senate have agreed to include \$33 million for Title XI loan guarantees in Fiscal Year 2002 in the commerce, Justice, State and the Judiciary Appropriations conference report.

The conference report filed on November 9, which also includes some \$3.9 million for administering the program, is expected to be approved by the House and Senate this week.

In addition to Title XI, the appropriations conference report funds State and Justice department programs, including the immigrations and border controls, the Federal Bureau of Investigation, embassy security, and diplomatic and consular affairs.

The Title XI funds provided in the conference report, coupled with the \$7 million in carry-over funds still available from fiscal year 2001, will help to finance some \$800 million in vessel construction and shipyard modernization projects, creating thousands of American jobs and stimulating economic development throughout the United States.

### American Electric Power Completes Acquisition of Memco Barge

American Electric Power completed its purchase of Memco Barge Line, Inc., from the Electric Fuels Corporation Subsidiary of Progress energy. The acquisition was made through AEP Resources Inc., a wholly owned subsidiary of AEP.

The purchase, which was announced July 23, 2001, was completed following clearance from the Department of Justice under the Hart-Scott-Rodino Act.

The purchase price of \$270 million includes the early termination of lease financing related to certain assets of Memco.

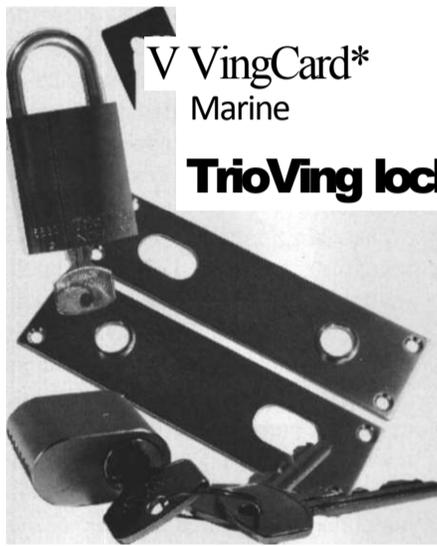
The purchase will be initially financed with short-term debt, and the acquisition is expected to be immediately accretive to AEP's earnings.

### Delta Towing, Signet Maritime Alliance Join Forces

Delta Towing LLC and Signet Maritime Corporation began work on a period contract to the Texas Department of Transportation with four tugboats and three barges, providing navigational support to the ferryboat system between Port Isabel and Padre Island.

The problems resulting from collision damage to the Queen Isabella Causeway on September 15 required a new ferry system be in place with tugboat and barge landing operations implemented providing for safety of ferry navigation to and from the two ports.

According to Delta Towing president, **Bucky Monteiro**, the primary objective of the partnership between these three entities will be Safety First. The main operations center will be under direction of Captain Scott Cowan, based in Signet's Brownsville office.



VingCard\*  
Marine

**TrioVing locks at factory prices**

Distributed thru:  
**VingCard Marine**  
Dania, FL-33004  
Phone: (954) 920 0772  
Fax: (954) 920 2446  
E-mail: marine.usa@vingcard.com

**Mobella, Inc.**  
Clearwater, FL-33762  
Phone: (727) 531 7779  
Fax: (727) 531 5585  
E-mail: info@mobella.com



Circle 251 on Reader Service Card or visit www.maritimereporterinfo.com

www.volmar.it **s a i**

Since 1973, Moletron Ultrasonic Eq. has dissolved asphaltene of low grade fuels enabling better burnability in Diesel Engines and Boilers (WITHOUT ADDITIVES)

**MOLETRON eliminates slag build-up, restrains maintenance costs, produces less pollutants and less CO<sub>2</sub> at stacks, and pays back investment within a few months while the life span of the asset investment is prolonged.**

from Italy

**VOLMAR-Brugherio Milan "S +39 039 883195 - Fax +39 039 878283 - e-mail: info@volmar.it**  
from U.S.A.

**COMCOR Tech (NJ) "S 908 9798193-Fax 908 9791815-e-mailBrM746@aol.com**

Circle 252 on Reader Service Card or visit www.maritimereporterinfo.com

## STRONGER REPAIRS FASTER, EASIER

Unique epoxy resin system bonds to almost anything—produces proven, long lasting repairs with outstanding impact strength, tensile strength, and abrasion resistance.

- Repairs everything from pinholes and ruptures to complete breaks in pipes, pumps, ducts, tanks, valves, flanges, joints, and machinery casings, including equipment carrying water, low-pressure steam, gases, gasoline, oil, alcohol, and caustics

- Bonds tenaciously to most surfaces including steel, plastic, fiberglass composites, ceramic and wood



ISO 9002

**STANDARD RESIN for small holescracks (large holescracks with reinforcement)**  
**RED PUTTY for medium to large holes, cracks and other defects**  
**STEEL PUTTY for steel like repairs on metal—can be drilled, tapped, machined**  
**SEALER for small holes and cracks**  
**LEVELING COMPOUND for corroded surfaces**  
**UNDERWATER PUTTY for repairs in dry, moist, or submerged conditions**

For detailed literature contact:  
**Ferro Corporation**  
Liquid Coatings and Dispersions Division  
1301 N. Flora St., Plymouth, IN 46563  
Tel: 219-935-5131 • Fax: 219-935-5278

® FERRO,

Circle 212 on Reader Service Card or visit www.maritimereporterinfo.com

## BP Signs \$380M Crazy Horse Hull Fabrication Contract

BP has signed a Letter of Intent with Daewoo Shipbuilding & Marine Engineering Company, Ltd. of South Korea for detailed design, fabrication and transport of a semi-submersible unit for the Crazy Horse project in the Gulf of Mexico.

The \$380 million contract calls for delivery in the first quarter of 2004, in time for module integration and production startup in early 2005. The scope of work includes the lower hull, deck box, some process and utilities equipment, a 188 person quarters, and a complete dual-hoist two million-lb. capacity fifth generation drilling system.

Measuring 350 x 350 ft. (106.6 x 106.6 m) the lower hull; and the upper hull, which will measure approximately 350 x 450 ft. (106.6 x 137.1 m) will be constructed at Daewoo's fabrication yard in Okpo, Korea.

The platform will be the largest semisubmersible production/drilling unit in the world, with GVA Consultants of Sweden currently in the process of completing the Front End Engineering Design (FEED) work. The design has been designated as the GVA 40,000 based on approximate deck load tonnage capability. Steel is to be ordered in March 2002, and physical work on the hull is expected to commence by July 2002.

Circle 39 on Reader Service Card  
www.marimereporterinfo.com

## Kvaerner Secures \$36.5 Million Contracts In Canada And Venezuela

Kvaerner has been awarded two contracts worth more than \$36.5 million - the larger of the two from Westcoast Energy of Vancouver, Canada, is valued \$34 million, calls for the engineering, design, fabrication, construction and commissioning of a gas processing facility.

In addition, Kvaerner Process Systems has been awarded a CO2 Membrane Gas Removal unit to be installed in Venezuela by the State Petroleum organization, PDVSA, for its Bitor field.

The facility, which is located in the northeastern part of the Province of British Columbia, Canada, is scheduled for completion and commissioning in June 2002.

Circle 38 on Reader Service Card  
www.maritimereporterinfo.com

Product Modeling - Structure - Outfitting - Piping - Automatic Nesting

# ShipConstructor

3D Product Modeling in AutoCAD easy as 2D Drafting  
Scales from a single user to a hundred users

Revision Tracking - Build Strategy - Profile Reports - Profile Plots - Pin Jigs - Inverse Profile Bending

Interference Checking - Smart Pipes - 3D Spool Drawings - Catalog Editor - 3D Assembly Drawings

**Piping**  
**Lofting**  
**Nesting**  
**Structure**  
**Outfitting**  
**NC-Processing**

**ARL**  
Ilhacove Research Ltd.

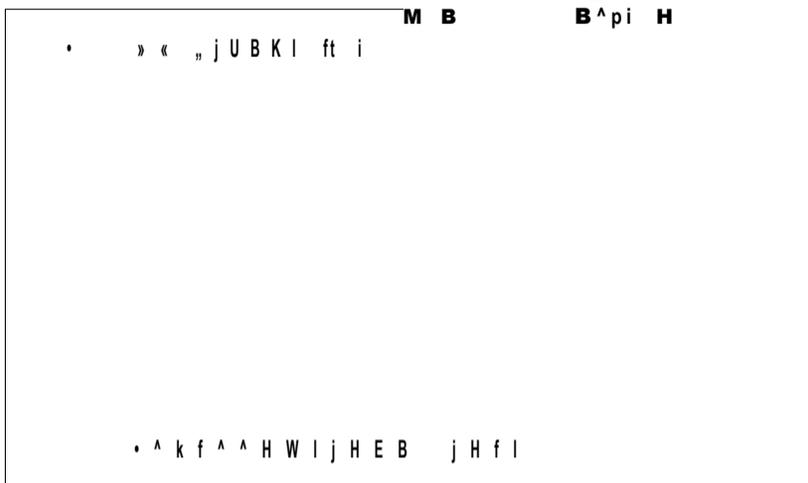
E-mail: info@ShipConstructor.com  
Web: www.ShipConstructor.com  
Tel: 1-250-479-3638  
Toll free: 1-888-210-7420  
Fax: 1-250-479-0868

Fairing - Lofting - Plate Expansion - Shell Expansion - NC Processing

Circle 201 on Reader Service Card  
or visit www.maritimereporterinfo.com

# CRANKSHAFT GRINDING

While Installed in Engine



• CRANKPIN AND MAIN JOURNAL REFURBISHING  
While crankshaft is in engine

LINE BORING OF MAIN BEARING POCKETS  
Laser and Optical Alignment

• ALL TYPES OF ON-BOARD MACHINING  
Cylinder boring, engine top decks, horizontal joints, couplings, journals



• METALSTITCH®  
Repair of cracked or broken cast iron engine blocks

## IN-PLACE MACHINING COMPANY

USA: 800-833-3575 International: 414-562-2000 FAX: 414-265-1000  
24 HOUR EMERGENCY SERVICE...day or night, 365 days a year  
email: help@inplace.com Website: www.inplace.com

Circle 221 on Reader Service Card or visit www.maritimereporterinfo.com

## The Future of ARPA is NOW

The Automatic Radar Plotting Aids system (ARPA) is quickly becoming standard shipboard equipment.

Houston Marine's USCC Approved course quickly and effectively covers all aspects of ARPA operation. Our combination of experienced instructors and real world simulators offers training like no other available.

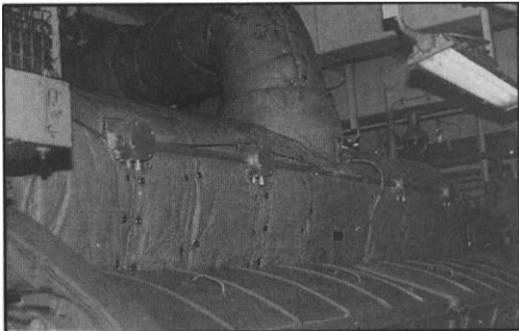
Go\* Today! 1500-947-7737

### HOUSTON MARINE TRAINING SERVICES

5728 Jefferson Highway  
New Orleans, Louisiana 70123  
Fax: 504-729-4450 • www.houstonmarine.com

Circle 217 on Reader Service Card or visit www.maritimereporterinfo.com

# EHJ SUPERIOR ENERGIES INC.



## TEMP-SET® INSULATION COVERS MANUFACTURING AND CONTRACTING

Removable Reusable TempSet Insulation Covers,  
Manifolds, Turbos, Silencers, and complete Exhaust Systems.

- Reduce engine room temperature
- Lower engine room noise
- Easy to assemble
- Coast Guard Compliant

### ACOUSTICAL INSULATION

### ASBESTOS ABATEMENT

### TURNKEY JOBS

Let us take care of all your  
insulation and abatement needs

We accept MasterCard, Visa and Amex

WANT SUPERIOR QUALITY

WANT SUPERIOR SERVICE

CALL SUPERIOR ENERGIES INC.

# 1-800-BUY-SEI-1

P.O. Drawer 386, Groves TX 77619  
Telephone: (409) 962-8549 Fax: (409) 962-4027  
Website: [www.insulationsei.com](http://www.insulationsei.com)

Circle 248 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## News

### Keppel FELS Clinches \$22 Million Contract From Atlantia Offshore

Keppel FELS has landed a \$22 million contract for the construction of the hull structure of Atlantia's Seastar TLP System, which supports a self-contained topside with full production, work over, utility and accommodation capabilities.

The 84-ft. (25.6 m) diameter column hull structure, to be built in KFELS' Pioneer Yard, consists of a central moon-pool and a Y-shape base pontoon for attachment of the mooring tendons.

The project is expected to be completed by end December 2002 and the platform will operate in the Matterhorn Field located in the Gulf of Mexico.

Circle 4 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### U.S. Navy Awards \$60 Million to DD 21 Alliance and Bath Iron Works

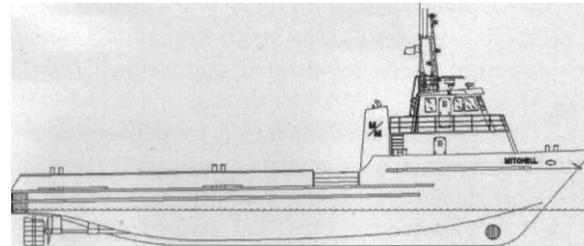
The U.S. Navy has awarded the DD 21 Alliance a \$60.1 million contract modification for the extension of the DD 21 Phase II Period of Performance.

Work will be performed in Bath, Maine (32.5 percent); Pascagoula, Miss. (32.5 percent); Minneapolis, Minn. (30 percent); and Woodland, Calif. (5 percent), and is expected to be completed in December 2001.

Circle 6 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### A&B Signs OSV Contract With Mitchell Offshore

A&B Industries of Morgan City has signed a contract with Mitchell Offshore Marine of Grapevine, Texas for a new construction 130 x 32 x 12-ft. (39.6 x 9.7 x 3.6



m) Offshore Supply Vessel (OSV) under Subchapter L.

With a fuel oil capacity of approximately 43,000 gallons and a water capacity of approximately 60,000 gallons, the vessel will have a deck area of 80 x 28 ft. (2,240 sq. ft.) with a 170 long ton deck load. Louisiana Machinery will furnish the Main Engines and gears consisting of two diesel engines and two 65 kW Generator sets.

Circle 9 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Smedvig Opts To Purchase Keppel's Rig Interest

Smedvig Asia exercised its option to purchase Keppel Hitachi Zosen's (KHZ) interest in the semi-submersible tender rig, West Alliance, for \$61.5 million on November 2, 2001. In mid-August this year, Smedvig Asia had announced its intention to purchase KHZ's stake in the rig once the vessel commences operations.

With the exercise of its option, Smedvig Asia now owns 100 percent of West Alliance, which is now deployed in East Malaysia under a contract with Esso Malaysia, and was successfully built and delivered by Keppel Shipyard in October 2001.

### Farstad Shipping, Stolt

### Offshore Sign Charter

### Agreement With Norsk Hydro

Farstad Shipping ASA, in co-operation with Stolt Offshore AS, has received a Letter of Intent from Norsk Hydro worth more than \$42.4 million for a five-year charter, plus three yearly options, for the newbuilding Far Saga, which was delivered from Simek AS on October 31. The vessel, a large platform supply vessel (PSV) of design UT 745 L, will be a part of Stolt Offshore's contract with Norsk Hydro for underwater services.

Far Saga will operate in a PSV role for Norsk Hydro until necessary outfitting and mobilization for underwater services is carried out. Farstad Shipping will then have five of its vessels on long-term contracts with Norsk Hydro.

In addition, Farstad Shipping ASA has reached charter agreements for Far Sovereign from the beginning of November this year until the end of year 2002 for work outside the North Sea.

Circle 40 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## AGE TION OF RELIABLE COMMUNICATIONS AT SEA

Nera has led maritime communications since 1919 and is the world's leading satellite equipment manufacturer. Nera WorldPhone Marine and Nera Saturn Bm provide secure satellite communications at sea.

### Nera WorldPhone Marine

- Cost effective telephone service
- Telephony, fax and data (2400 bps)
- Easily installed below deck unit
- Small Gyrostabilized antenna to secure stability in all weather conditions
- Flexible and self-explanatory menu

### Nera Saturn Bm

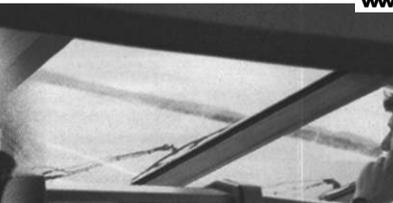
- Bi-directional fixed global communications system
- Telephony, fax, telex and data (9.6 and 64 kbps)
- Auto-polling for real-time information
- Navigational, safety and meteorological features

The sea does not accept compromise and neither should you.

Just one call to Nera N that's all you need.  
Tel: +47 67 24 47 00 Fax: +47 67 24 46 21  
e-mail: [product@satcom.nera.no](mailto:product@satcom.nera.no)  
[www.satcom.nera.no](http://www.satcom.nera.no)

Nera WorldPhone  
Marine antenna

Nera Saturn Bm  
antenna



i \ W <

Circle 257 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Cruise News

### Royal Caribbean's Adventure of the Seas Arrives In N.Y. Harbor

A **clear, sunny** Saturday afternoon of November 10, set the stage for the arrival of the first passenger ship into New York Harbor following the September 11 terrorist attacks. The vessel,



Sea, Stacey Moran, Joanne Reinauer III, Empire State, Matthew Tibbetts, Austin Reinauer, Marie J. Turecamo, Miriam Moran, Juniper and New Jersey - with

Justine McAllister stationed at rear guard. Fireboats John D. McKean and John J. Harvey were positioned off Liberty Island to give Adventure of the Seas

a welcome spray of red, white and blue. Tugs McAllister Sisters and Mary L. McAllister were also part of the procession, but left Adventure of the Seas to escort an ACL containership.

What is dubbed as the vessel's most striking feature, however is its breadth

**New York City Mayor Rudy Giuliani, and Royal Caribbean CEO Richard Fain welcomed Adventure of the Seas to the Port of New York.**

Royal Caribbean's Adventure of the Seas, sailed into New York for a two-day tribute cruise for the families of the fallen firemen and police officers who were victim to the devastation at the World Trade Center. Royal Caribbean also plans to donate \$50,000 to the Twin Towers Relief Fund.

The 142,000-ton Adventure of the Seas - sister ship to Voyager and Explorer of the Seas - was christened at Pier 88 and named by representatives of the New York Police Department and New York Fire Department. The vessel's godparents were Maggie McDonnell, widow of police officer Brian McDonnell; Tara Stackpole, widow of firefighter Captain Timothy Stackpole; fireman Kevin Hannafin, who lost his brother, fireman Tom Hannafin; and Sgt. Richard Lucas of the NYPD Harbor Unit, which assisted rescuers, were joined by approximately 2,000 police and firemen's family members, as well as New York City Mayor Rudy Giuliani and Royal Caribbean's CEO Richard Fain.

Measuring 1,020 ft. (311.1 m), the vessel, which debuted into N.Y. Harbor adorned with a large American flag was led by a procession of vessels - namely NYPD patrol boat P.O. Anthony Sanchez. Also participating in the group were tugboats Margaret Moran, Java

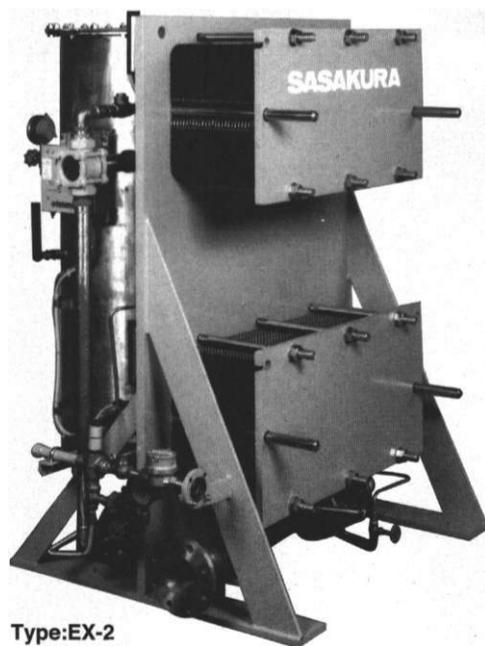
**Electric Shaft Systems**

**STDRK-KUJANT**

Voltastraat 3, RO. Box 23  
8600 AA Sneek Holland  
Phone: +31 (0)515 413745  
Fax: +31(0)515 422478  
Email: kwant@stork-kwant.nl Website: www.stork-kwant.com

*Quality in Command*

Circle 247 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)



Sasakura developed new generation of Plate Type Fresh Water Generator.

# AQUARIO

Capacity range: 3-40t/day

No Front Cover!!

The deletion of front cover provides:-

- \* **Easier disassembly and reassembly of Plate Heat Exchanger.**
- \* **No corrosion of Frame, Guide bar, End cover and Bolts & Nuts because they do not contact with seawater.**
- **Minimal installation and maintenance.**

Sasakura provides Water Makers of the Submerged Tube Type, Multiple Effect Type, Two Stage & Multi Stage Flash Type, Reverse Osmosis Type and Vacuum Vapor Compression Type for various applications.

ENGINEERING CO., LTD.

7-32, Takejima 4-chome, Nishiyodogawa-ku, Osaka 555-0011, Japan Tel:+81-6-6473-2134 Fax:+81-6-6473-5540

E-mail : [webmaster@sasakura.co.jp](mailto:webmaster@sasakura.co.jp) website : <http://www.sasakura.co.jp>

HONG KONG : Sasakura International (H.K.) Co., Ltd. Tel:+852-2850-6139 Fax:+852-2850-5259

Circle 249 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# Cruise News

of 126 ft. (38.6 m) at waterline level (155 ft. (47.4 m) breadth at the bridge wings) and its height of 237 ft. (72.3 m) from keel to the top of the funnel.

This Post-Panamax size has allowed both unique designs and interior solu-

tions to be implemented onboard Adventure of the Seas. The vessel features a four deck high horizontal promenade — the Royal Promenade — a premiere design on this ship series. Measuring approximately 394 ft. (120 m),

the promenade has an 11 deck-high atrium at each end.

Scheduled to perform its first seven-day cruise on November 18 to the Southern Caribbean, Adventure of the Seas was constructed to Det Norsk Veri-

tas classification, and was designed by a variety of architects, namely Nijal R. Eide, Tillberg Design, Wilson Butler Lodge and Tom Graboski & Associates.

**Circle 46 on Reader Service Card**  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

Main Particulars - Adventure of the Seas	
Classification	Det Norske Veritas
Length, (o.a.)	1,020 ft. (311.1 m)
Breadth, (max.)	157 ft. (48 m)
Breadth, (waterline)	127 ft. (38.6 m)
Draft	28 ft. (8.6 m)
GT	137,300
Speed, service	22 knots
Main engines	6x Wartsila
Total power	75,600 kW
Total propulsion power	42,000 kW
Propulsion machinery 3x 14MW Azipod propulsion, two azimuthing, one fixed	
Bowthrusters	4x 3MW

## Carnival Pride Completes

### Sea Trials

Sea trials on Carnival Pride at Kvaerner Masa-Yards' Helsinki shipyard took place during the end of October - proving to be rather successful. After detailed testing, it was concluded that the vessel fulfilled or superseded all specified requirements. The vessel also demonstrated its ability to produce excellent sea-going characteristics. Pride is currently undergoing final outfitting work at Kvaerner's Helsinki yard in time for its delivery to Carnival Cruise Lines this December.

## Celebrity's Summit Garners

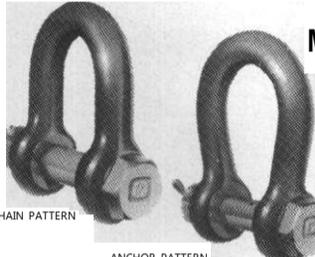
### Perfect Score From USPH

Celebrity Cruises' newest ship, Summit, has become the fourth Celebrity ship to be awarded a perfect score on the intensive Centers for Disease Control (CDC) and U.S. Public Health (USPH) vessel sanitation ship inspection program. The inspection covers all areas of the ship, including food preparation and handling. A passing score on the inspection is 86; Celebrity ships have consistently scored in the mid-90s in 99 percent of its vessels' inspections.

## Royal Olympic Cruises Delivers Olympic Explorer

Royal Olympic Cruise Lines' Olympic Explorer, sister ship to Royal Olympic's Olympic Voyager is expected to reach the port of Piraeus early 2002, enabling the vessel to perform new itineraries from Venice to Piraeus, Istanbul and the Greek Islands next summer, with Piraeus as an alternative port of embarkation. With a cruising speed of 28 knots, Olympia Explorer is the only ship, other than its sister ship, Olympic Voyager, able to perform this itinerary that entails eight ports in just seven days.

**ON YOUR  
 • TOUGH! JOB.**



**MARQUIP marine towing shackles can handle it.**

**SWL  
 32-185 TONS**

- B** Maxium load capacities and safety
- B** High-strength alloy steel construction
- B** Easy installation

**Towing plates, too, plus many more products from one of the largest inventories of marine equipment in the USA.**

**C** CUSTOMER SERVICE 24 HOURS A DAY, 7 DAYS A WEEK



**1-800-851-3429**  
**WASHINGTON CHAIN AND SUPPLY, INC.**  
 P.O. Box 3645 • 2901 Utah Avenue South • Seattle, Washington 98124  
 FAX (206) 621-9634 • E-mail: [info@wachain.com](mailto:info@wachain.com)  
 VISIT OUR WEB SITE FOR MORE INFORMATION: [www.wachain.com](http://www.wachain.com)

Circle 254 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## GIBBS & COX m

TEL: 212-366-3900 50 W 23 St. NY, NY 10011 FAX: 212-366-7999

## sm

**Engineering and Design Support To Shipbuilders Around the World Since 1929**



Arlington, VA Hampton, VA Philadelphia, PA Brunswick, ME

Visit our web site [www.gibbscox.com](http://www.gibbscox.com)

Circle 214 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Marine Deck Hardware and Equipment

**ANCHORS:**  
 50 to 60,000 Lbs. - New and Used  
 Stockless - Dartforth • L.W.T. - Halls • Snug Stowing  
 • CHAIN •  
 3/4" to 5"m - New and Used  
 Stud Link • Cast Steel - Grades 2 and 3 - Oil Rig Quality for Moorings, Towing, Barge Handling, Ship's Replacement

**WINCHES - WINDLASSES CAPSTANS •**  
 Vertical or Horizontal Hand, Electric, Diesel, Hydraulic or Repowered to your specs

**HATCHES WATERTIGHT DOORS**  
**MANHOLE COVERS - SCCITLES PORTHOLES •**  
 All Sizes - New or Reconditioned

**PANAMA CHOCKS - DOUBLE BITTS SINGLE BITTS - CAST STEEL CLEATS AND KEVELS •**  
 All Sizes Available, New & Used

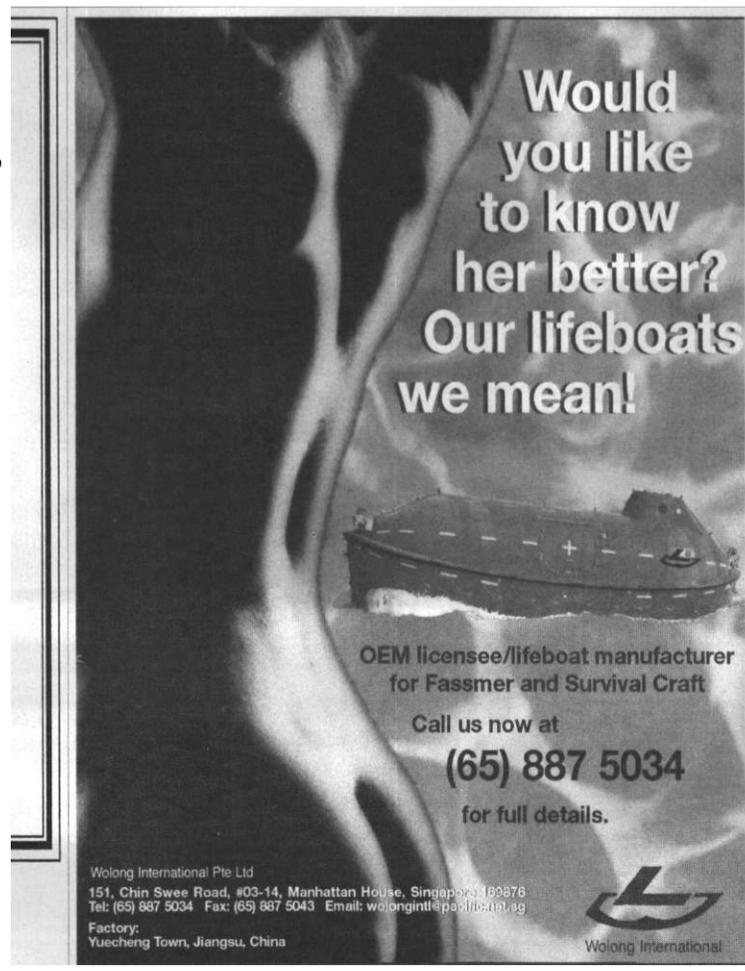
**TM DERS FOAM FILLED and PNEUMATIC •**  
 For Rent or Sale  
 All Sizes, New & Used

**SERVING THE MARINE & OIL INDUSTRIES FOR OVER 50 YEARS**  
**WE ARE DIRECT FACTORY DISTRIBUTORS & IMPORTERS**

**GIGANTIC INVENTORY NEW & USED**  
**IN STOCK NOW**  
 Call Toll-Free (800) 322-3131  
 in the West Coast East Coast and The Gulf

**WATERMAN SUPPLY CO., INC.**  
 P.O. BOX 586  
**WILMINGTON, CA 90748**  
**PH: (310) 522-9698**  
**FAX: (310) 522-1043**

Circle 255 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)



**Would you like to know her better? Our lifeboats we mean!**

OEM licensee/lifeboat manufacturer for Fassmer and Survival Craft

Call us now at  
**(65) 887 5034**  
 for full details.

Wolong International Pte Ltd  
 151, Chin Swee Road, #03-14, Manhattan House, Singapore 199876  
 Tel: (65) 887 5034 Fax: (65) 887 5043 Email: [wolongintl@pacific.net.sg](mailto:wolongintl@pacific.net.sg)  
 Factory: Yuecheng Town, Jiangsu, China

Circle 257 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Meyer Werft Delivers First of Two to Norwegian Cruise Lines

Norwegian Star, the first of two cruise liners constructed by Meyer Werft for Norwegian Cruise Line (a subsidiary of Star Cruises) was delivered on October 31, 2001. The 92,000-gt liner, which incorporates the new "freestyle cruising concept," links luxurious outfitting and design with state-of-the-art technical demands.



Norwegian Star

In addition to these new innovations, the vessel offers passengers more than 70 percent of outside cabins, serviced by more than 1,100 crew members. Star's diesel electric podded drive and an interactive communication systems, provide passengers with the utmost in cruising technology.

Subsequent to its delivery, Star departed the Dutch port of Eemshaven for its homeport of Miami, Fla. The vessel will then depart on its maiden voyage from Miami to Los Angeles, Calif., followed by its first standard voyage from Hawaii on December 16. The vessel will service off Hawaii operating seven-day cruises in the Pacific isles.

Built to Det Norske Veritas classification, Star was designed in close collaboration with its owners and optimized via computer calculations and model tests. The vessel's 15 decks as well as its podded drive ensure outstanding maneuvering and sea-keeping characteristics in addition to low sound and vibration levels.

Divided into seven main fire zones, Norwegian Star complies with the rules of a two-compartment vessel and is designed in accordance with the latest IMO regulations. The vessel holds six tenders and 14 lifeboats as well as two fast rescue boats. In addition, six so-called marine evacuation systems have been installed in case of emergency via fast evacuation chutes.

Four diesel generators with a 14,000 kW output each are provided for power generation. The MAN B&W type 14V48/60 diesel engines can be operated both with diesel oil and heavy fuel oil. The generators, which are supplied by ABB, provide a voltage of 11,000. The vessel is propelled via two azipods with an output of 20,000 kW each - providing exceptional maneuvering capabilities via a 360-degree efficiency. The new propulsion system also ensures sta-

ble and quiet seakeeping characteristics and an extremely low vibration level on board.

The vessel's integrated bridge system

type NACOS 65-4 is supplied by STN Marine Electronics. This system includes all components, ensuring safe navigation. Main components are two

multi pilots, which allow the radar screen, the electronic sea chart and important data of the ship to be displayed via one monitor.

Circle 45 on Reader Service Card  
www.maritimereporterinfo.com

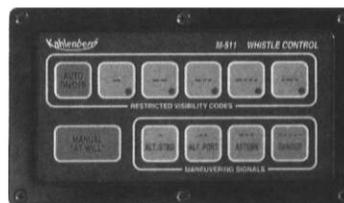
**^ V A o n b e r & U S C G / I M O C E R T I F I E D S O U N D S I G N A L S**  
SINCE 1895

**Kahlenberg Sound Signals have set the standard for quality and reliability for over 100 years.**

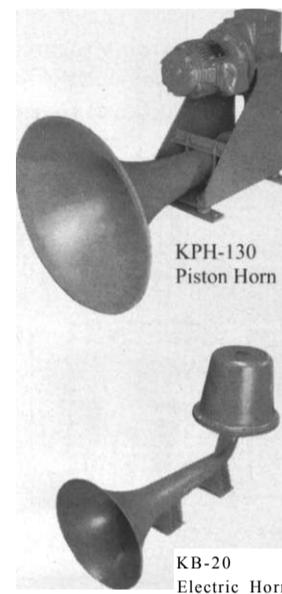
Air and Electric Horns  
Electric Piston Horns  
Air/Steam Whistles  
Signal Timers  
Controls and Accessories



T-3A "Chimetone" Air Horn



M-511 Signal Controller



KPH-130  
Piston Horn

KB-20  
Electric Horn

www.kahlenberg.com

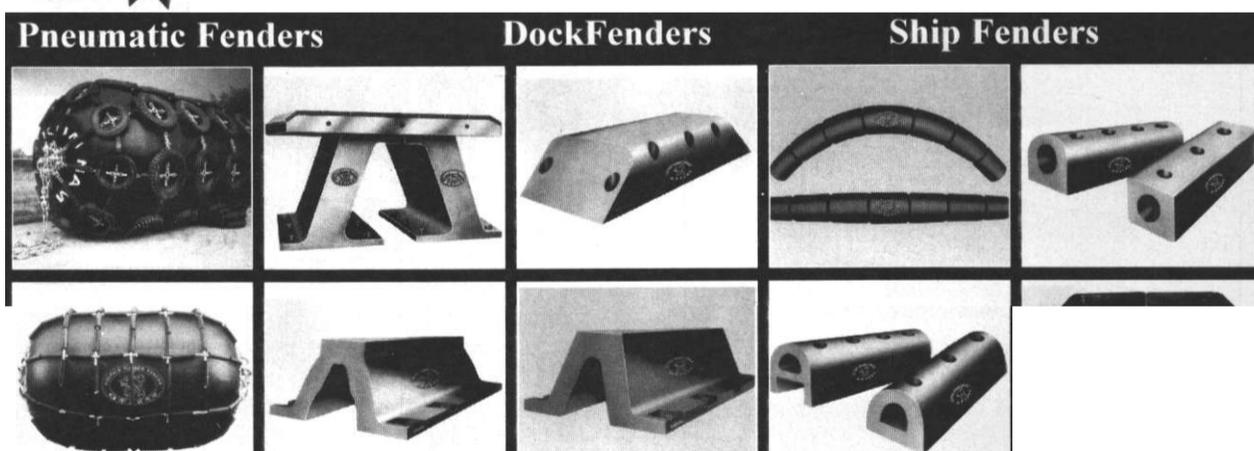
Kahlenberg Brothers Company, P.O. Box 358, Two Rivers, WI 54241 USA, 920-793-4507, Fax: 920-793-1346

Circle 231 on Reader Service Card or visit www.maritimereporterinfo.com



## DOLPHIN RUBBER FENDERS

ALL TYPES / ALL APPLICATIONS



Engineered & Manufactured by:

**KUMNAM CHEMICAL, INC.**  
348-3, Chung Chun-Ri, Chillye- Myun  
Kimhae, Kyungnam, Korea  
E-mail: kumnam@kumnamkorea.com  
Tel: 82 (55) 346-3131  
Fax: 82 (55) 346-3137

Distributed in the Americas by:

**DOLPHIN RUBBER USA**  
2241 Barraud Avenue  
Norfolk, Virginia 23504  
Tel: (757) 625-3200 Fax: (757) 625-3300  
E-mail: network@sybercom.net

www.kumnamkorea.com

Circle 249 on Reader Service Card or visit www.maritimereporterinfo.com

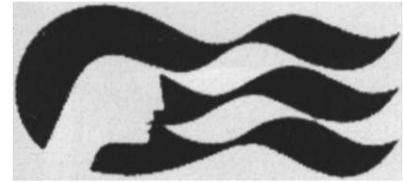
## Cruise Report

# \$6 Billion Dollar Merger Tightens Cruise Industry

On Tuesday, November 20, a major announcement shocked the cruise and financial industries when Richard Fain, chairman and CEO of Royal Caribbean Cruise Lines, and Peter Ratcliffe, CEO of P&O Princess held a press conference in London to report that their two respective lines would join forces to form the world's largest cruise line, in a deal worth more than \$6 billion. MR/EN had the opportunity to dial in to the conference, which occurred the morning of the merger at London's Lincoln Centre, to provide a first-hand account of this monumental transaction.

By Regina P. Ciardiello, senior editor

In an era filled with terrorism, turmoil, economic frustration, massive layoffs and steep cutbacks, two companies, with two distinct brands announced to the world on November 20 via a press conference from London's Lincoln Centre, that they would join forces to form a new corporation with an estimated worth of \$6 billion. Royal Caribbean Cruise Lines (RCCL), which has recently shed hundreds of employees, (not to mention the departure of Rick Sasso, president of its subsidiary Celebrity Cruise Lines), has entered into a "merger of equals," (according to chairman and CEO, Richard Fain), with P&O Princess Cruise Lines.



The new conglomerate, which has tentatively been dubbed RCP Cruise Lines, will control 41 vessels and approximately 75,000 berths, including the RCCL and Princess brands, as well as Celebrity, P&O Cruises, Swan Hellenic, AIDA and A'Rosa. In addition, four vessels are scheduled to be added in the next three years. The combination is also expected to provide a significant cost savings, estimated at approximately \$100 million on an annualized basis — 12 months subsequent to completion. With an average age of six years, the fleet will hold the world's largest ships, and will more than likely leave executives at Carnival Corp., which up until this merger held the distinction as the world's largest cruise line, with some re-evaluating of its financials and fleet capacity.

Operated as a combined entity, the new company will be, according to Fain, "a merger of equals using dualistic company structure." Fain added that the new entity provides "the benefits of the combination of a unified board, unified management and unified financial results, while still being able to keep independent listings on the exchange. (Royal Caribbean is currently listed on both the Oslo and New York Stock Exchanges, while P&O Princess is traded via the London Stock Exchange).

The newly equal company, of which RCCL holds a 49.3 percent share, with P&O checking in with 50.7 percent ownership, will be headquartered primarily in Miami, Fla., with one office in London as well. It will be headed by Fain as chairman and CEO and Ratcliffe and managing director and COO, as well as a 12-member board of directors and 10 non-executive directors; the transaction is expected to close (following regulatory clearances), by the second quarter of 2002.

According to *Nick Luff*, who currently serves as CFO of P&O, "regulatory approvals should be complete within the next six months, following competitive clearance from the U.K. and Germany." He added that operations will then be expected to commence by 2003, providing that "certain milestones are met by this time." If, however a mutually beneficial agreement cannot be agreed upon, Luff contended, "In theory, we (P&O Princess) could terminate the agreement."

### Concerned About Safety?

Jill 111 ±U>3 KJ 'J-ilUI d&i&i.

#### Now Available for Marine Applications

**Permanent Mount**  
**Vision Up to 3200 feet**  
**See in Complete Darkness**  
**No Illuminators Required**



Pan/Tilt Thermal Cameras  
Joy-Stick Operation

Visit Our Web Site for More Information  
[www.arion-international.com](http://www.arion-international.com)



(800) 365-7443    (407) 366-7443

Fax: 407-366-7444

Circle 203 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## The fish can't believe their eyes



Now it's your turn...  
 Insist upon  
 Barkemeyer  
 manoeuvring<sup>A</sup>  
 equipment "2Z"



**Barkemeyer**  
 SCHIFFSTECHNIK GMBH & CO KG  
 HIGH-TECH MANOEUVRING EQUIPMENT

**Barkemeyer Schiffstechnik GmbH & Co. KG, Birkenweg 11, D-21465 Reinbek**  
 Tel: +49 (0)40 7118020, Fax: +49 (0)40 7110086  
 Email: [info@barkemeyer.com](mailto:info@barkemeyer.com), Internet: [www.barkemeyer.com](http://www.barkemeyer.com)

Circle 205 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# Peel Strip Remove

An improved method for removing paint, rust, adhesives & coatings from concrete. Aurand tools literally "peel" any accumulation from any hard surface. Here is the power of sandblasting in a compact, hand-held tool that can be used wherever a hard surface needs to be prepped prior to painting, refinishing or coating.

Available in several widths, and in gasoline, pneumatic and electric models.

**TAKE IT OFF, TAKE IT ALL OFF**

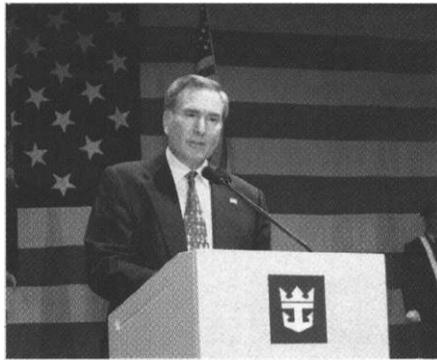
Since 1937

**JAJ MN)**

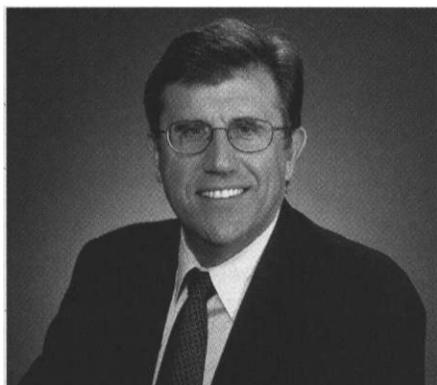
1210 Ellis Street  
 Cincinnati, Ohio 45223-1843  
 (513) 541-7200 • FAX (513) 541-3065

Email: [sales@aurand.net](mailto:sales@aurand.net) • web: [www.aurand.net](http://www.aurand.net) • (800)860-2872

Circle 204 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)



Royal Caribbean chairman and CEO, Richard Fain: "The combination of Royal Caribbean and P&O Princess will maximize our ability to take advantage of the long-term potential of our industry."



Peter Ratcliffe, CEO of P&O Princess Cruises will serve as managing director and COO of the new company.



Did he jump or was he shoved? PC Celebrity president Rick Sasso, announced his departure from the line prior to the merger announcement on November 20.

#### Targeting A Market Base

With a combined order book of 14 vessels, the new \$6 billion company will have an EBITDA of \$1.3 billion and an estimated net income of \$600 million, and plans to target customers in traditional strongholds such as the U.S. as well as southern Europe — specifically Spain, France and Italy. When operations begin in 2003, four new vessels (split evenly between the two lines) will be deployed in these demographics. The four vessels, which are scheduled for deliveries between 2003 and 2004, will provide an asset base for the new company in excess of \$2 billion.

"Southern Europe is the fastest growing market," Ratcliffe said. "Therefore there is a tremendous opportunity to

capitalize on that growth." He added: "This will be a global company that will take advantage of every cruise market that exists in the world today."

While Fain and Ratcliffe will head up the new corporation, an executive for this new brand that will target Southern

Europe is actively being sought. While both Fain and Ratcliffe would not elaborate on whom they would like to head up this new entity, Ratcliffe did mention at the press conference that an executive of European descent would more than likely be tapped for the position. "We

will be moving quickly to appoint a CEO and we intend to have him as a local of European nationality because it is important that he understand the product base," Ratcliffe said. "Our goal is to operate separate brands with good product differentiation and good brand dif-

OFFSHORE




As the result of the merger between the renowned Spanish builders Astilleros Espanoles and Bazán. IZAR is one of the largest shipbuilding groups in the world.

WHO ELSE  
BUT IZAR?

Our mission is to help offshore operators match the increasing demands of a highly competitive market. And we have a wealth of experience in doing so.

IZAR's offshore experience comes from the former ASTANO and Cadiz yards, where some of the most outstanding offshore projects took shape, both newbuildings and conversions.

Semi-submersible platforms, FSUs, FPSOs and the recent state-of-the-art dual drilling units for the Gulf of Mexico make IZAR one of the few true specialists in offshore unit construction.

Brain and brawn are ready to meet any demand from the international oil industry.

Who else?

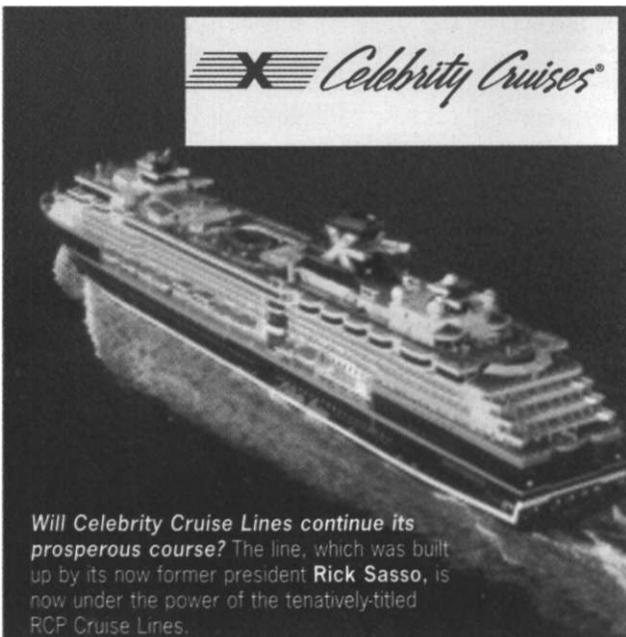
Let IZAR help build your Utopia.



Pº de la Castellana, 55 • 28046 MADRID. Spain • Tel. +34 91 335 84 00 • Fax +34 91 441 50 90 • www.izar.es

Circle 226 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Cruise Report



*Will Celebrity Cruise Lines continue its prosperous course? The line, which was built up by its now former president Rick Sasso, is now under the power of the tentatively-titled RCP Cruise Lines.*

ferentiation."

Fain **added**, "There has been a strong resurgence in demand for cruise vacations in North America as travelers recover from the events of September 11," Fain said. "We wanted to address the Southern European market and these four ships will be a thoroughly dramatic way of doing so."

The merger, which Fain has dubbed a "natural link of two companies," has been in the works since 1991. According to Fain, the

two companies began talking again, ironically on September 11, about how they could masterfully bring their brands together. Surprisingly, there were no plans of getting involved with Micky Arison's cruise powerhouse Carnival Corp., which in recent years has garnered the reputation of its reorganization of cruise lines, (namely Holland America and Cunard), which would have probably filed Chapter 11 had they not been "rescued" by Carnival. According to Ratcliffe, both RCCL and P&O Princess had their reasons for not getting involved with powerful cruise line. "We have not had any discussions with Carnival," Ratcliffe said. "A combination with Carnival for virtually anyone in the industry is problematic because of anti-trust issues."

### Williams Named President, COO Of Royal Caribbean And Celebrity Cruises

Royal Caribbean Cruises Ltd. named **Jack Williams** president and chief operating officer of Royal Caribbean International and Celebrity Cruises. In his new role, Williams, previously president of Royal Caribbean International, will manage the day-to-day operations of both cruise lines. The two lines will continue to operate independently under Williams.

Williams' appointment follows an earlier announcement today that respected-cruise veteran **Richard Sasso**, president of Celebrity Cruises, will resign from the company, effective January 1, 2002.

"My association with Celebrity has exceeded even my expectations," said Sasso. "The professionalism and dedication of the staff, officers and crew. The perfection of detail in the cruise product itself. And, the trajectory of growth that has doubled our fleet in two years. There are no internal departmental changes for either line under the new reporting structure.

Celebrity department heads will now report directly to Williams. Royal Caribbean departments will continue to report to Williams, who will still oversee Royal Celebrity Tours. Corporate Communications will now report to the chairman's office.

"Royal Caribbean and Celebrity have performed well for us, and we are committed to keeping the two operations separate," said Royal Caribbean chairman and CEO, **Richard Fain**. "I am confident that both lines will continue to capture market share and convert new prospects to cruising under Jack's very capable leadership." **Jack Williams** has served as president of Royal Caribbean International since 1997. Previously, he held various management positions at American Airlines, where, most recently, he was vice president and general sales manager. He began his career at American in 1972. Richard Sasso has been president of Celebrity Cruises since 1995. Previously, he was senior vice president of Sales and Guest Services. He had held senior positions with Costa Cruises and Chandris Cruises earlier in his career, which began at Costa in 1971.

Serving d **B J J J r J J J U J J J J f J U J D J M U W U m**

**Aqualiner**  
Low Wash Ferry  
130 passengers

**New Ferry V**  
Damen Fast Ferry 4010  
400 passengers

**Aremiti 4**  
Damen Fast Ferry 5012  
445 passengers / 20 cars

# SHIPYARDS

SHIPBUILDING AND SHIPBUILDING KITS FOR CONSTRUCTION IN THE USA  
Industrieterrein Avelingen West 20 P O Box 1 • 4200 AA Gorinchem/HOLLAND  
Telephone: 011 31 183 639528 • Telefax: 011 31 183 637762  
E-mail: americas@damen.nl • Internet: www.damen-shipyards.com

Circle 209 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# AMCV Demise Sinks U.S. Cruise Building Hopes For Now

In the fall of 1999, American Classic Voyages (AMCV) announced plans to almost singlehandedly revive the business of building cruise ships in the United States. Critics claimed it couldn't be done, but the ships steadily took shape on the building ways in Pascagoula, Mississippi. Two years, a sour economy and horrific terrorist attacks later, the dream of building cruise ships in the U.S. is seemingly dead, as AMCV filed for Chapter 11 and the Maritime Administration is unwilling, at press time, to fund the ships further.

By Regina P. Ciardiello, senior editor

While the cruise industry was hurting prior to the terrorist attacks of September 11, the industry has been put into a seemingly perpetual tailspin as economic woes and fear of travel have conspired to leave ships far from full capacity. In an attempt to circle the wagons, Royal Caribbean and P&O Princess announced that they would join together to form a \$6 billion company with 41 vessels and 75,000 berths — the world's largest cruise company. While the larger lines

are muddling through, some lines have not been able to hold on — specifically Renaissance Cruise Lines, which closed its doors the end of September, and American Classic Voyages (AMCV), which filed a voluntary petition for reorganization under Chapter 11 of the U.S. Bankruptcy Code. While this was a blow to the cruise/travel industry, it was also a setback for American shipbuilding, as Litton Ingalls in Pascagoula was leading a charge to re-energize the business of building large cruise ships in the United States.

The two 1,900 passenger vessels, which are awaiting completion at Litton Ingalls in Pascagoula, Miss., are 40 percent complete and 55 percent erected, according to the yard's parent company Northrop Grumman. In addition, the yard said that approximately 91 percent of the material had already been committed. Six days later, however on October 25, Northrop Grumman issued a news release stating their decision to suspend all work on the two vessels — affecting more than 1,250 shipyard employees and about 500 additional subcontractors. Northrop Grumman

cited that "ongoing work on the program was subject to Project America's ability to secure immediate financing for the balance of the contract" — a completion that was contingent upon U.S. Maritime Administration (MarAd) loan guarantees.

MarAd decided, however, to cease all funding for the vessels' construction, leaving Northrop no choice but to stop production. The company has announced that it will continue to work with MarAd to secure additional financing for the project, as well as report a charge to operation margin of approximately \$60 million if financing cannot be secured, which would force the termination of the contract between the yard and AMCV. "When it was evident that the financial status of AMCV wasn't changing, MarAd decided to not continue funding for construction of the vessels," said **Randy Belote**, Northrop Grumman's director of Corporate Public Affairs and International public relations. "We're looking at all of our options," Belote said. "There are several angles, but we're not making any immediate moves right now. While it's unfor-

tunate that MarAd dropped funding, we're (Northrop Grumman) working diligently to keep the project moving forward."

At press time, AMCV decided as part of the Chapter 11 filing, to trim down its Delta Queen fleet to just one ship — the Delta Queen, which will continue to operate out of New Orleans. The company's remaining subsidiaries — Delta Queen Coastal Voyages, American Hawaii Cruises and U.S. Lines — have closed, leaving more than 1,000 (450 shore-side, 1,500 ship-based) without jobs.

The company, however, according to spokesperson Fran Sevcik, who is based out of AMCV's headquarters in Miami, Fla., will keep approximately 30 employees shore-side in New Orleans and 80 aboard the company's only remaining vessel, Delta Queen.

"The evidence of the Taliban pushing back marks a turning point in sentiments toward travel," said Lazard Freres analyst **Jim Winchester**. "Stocks have begun to bounce back as much as 20 percent in the last week (of November 12)."

## 1 Damen Workboats



Stan Tug 1605



Azimuth Stern Drive Tug 3110



Multi Cat 2510



Stan Tug 2909



Azimuth Stern Drive Tug 3111

**DAMEN SHIPYARDS**

Industrieterrein Avelingen West 20 • P.O. Box 1 • 4200 AA Gorinchem/HOLLAND  
Telephone: +31 183 63 99 11 • Telefax: +31 183 63 21 89  
E-mail: info@damen.nl • Internet: http://www.damen.nl



Circle 249 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# GreatShips off 2001



Stena Vision (below) and Stena Victory rightfully claim honors as truly unique and outstanding vessels of 2001.

**Ship Name** *Stena Vision/Stena Victory*  
**Shipbuilder** *Hyundai Heavy Industries*  
**Ship Type** *VLCC*  
**Owner** *Concordia Maritime*

Stena Vision — built for Concordia Maritime AB, a public tanker company of the Swedish-based Stena organization — is a unique 315,000-dwt VLCC built by Korea's Hyundai Heavy Industries Co., Ltd. (HHI) in that it features twin-engines and twin-propellers. The 1,102 ft. (336 m) long Stena V-Max design VLCC differs from other large tankers built in the world to date.

The V-Max tankers have been conceived with a clear customer focus. The objective has been reduce oil companies' logistic costs, by offering a 30 percent higher loading capacity on a limited draft relative to more conventional designs of newbuilding VLCC, on an

equivalent bunker consumption. Stena Vision is claimed to be the first VLCC to satisfy Det Norske Veritas' requirements for the class notation RPS (redundant propulsion, separate). The premium entailed in a dual main engine installation, with two shaftlines and twin propellers, plus the associated special underwater form, is largely offset by the increased revenue-earning capacity and potential savings in unit transport costs.

Concordia's investment in the pioneering V-Max type was quickly vindicated by Sun Oil Company's three-year charter commitments to the newbuilding pair. As a consequence of the agreement, the twin-skeg Stena Vision, joined in

July by Stena Victory, will become a regular feature of the traffic to Sun's two refineries near Philadelphia.

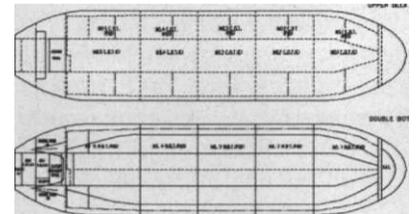
However, options on a further six such vessels appended to Concordia's contract with Hyundai Heavy Industries have not been exercised, in the absence of satisfactory agreements with other charterers. The reported 10-12 percent higher price commanded by each of the V-Max duo at the time of contracting, relative to more standard VLCC capacity, is a measure of the premium entailed in conferring such a high margin of safety. Although there would currently appear to be few charterers worldwide willing to pay significantly more for quality tonnage designed and engineered to confer very high safety factors, Concordia Maritime's managing director Lars Carlsson believes that the V-Max investment will pay-off in the long-term.

In addition to double hulls, the VLCC has double, completely separate engine rooms, double rudders and double propellers. This twin-engine configuration gives the VLCC substantial advantages since one main engine can be shut down for maintenance while the vessel continues its voyage with the other. But these double functions represent an extra safety feature, and provide the VLCC with maneuverability touted as far superior to that of other conventional VLCCs.

"This ship not only has unique double hull design features, but is also equipped with two separate engines in two completely separate engine rooms, two rudders and sets of steering gear, two pro-



## GENERAL ARRANGEMENT



### Stena Vision/Stena Victory Main Particulars

Length, (o.a.)	1,092 ft. (333 m)
Length PP	1,049 ft. (320 m)
Beam	230 ft. (70 m)
Depth (molded)	84 ft. (25.6 m)
Design Draft	55.1 ft. (16.8 m)
Scantling Draft	62.3 ft. (19 m)
Ballast Draft	28.2 ft. (8.6 m)

Deadweight at design draft	268,000 mt
Deadweight at Scantling draft	314,000 mt

Main engines (2 Sets)	MAN B&W 7S60 MC-C
Maximum output two engines	31,570 kW 42,900 bhp

### Speed at NCR

Design draft	16.9 knots
Scantling draft	16.3 knots
Ballast draft	17.7 knots

Generators	Hyundai
Emergency generator	Ssangyong - Cummins
Motor starters	Hyundai
Couplings	Vulkan
Engine controls	Valmaran
Steering gear	Porsgrunn
Deck machinery	Rolls-Royce
Shafting	HHI-EMD
Bearings	Blohm + Voss
VHF	radio
SSB radio	Sailor
Radar	Hitec Marine
Compass	C-Plath
GPS	Trimble
Autopilot	Litton
Collision Avoidance	Hitec Marine
Pumps	Shinko
Lifeboats	Harding
Liferafts	DSB
Davits	Schat-Harding
Firefighting	NK Co. Ltd.
Waste Management	Kangrim
Desalination	Alfa Laval
Cargo control	Valmarine
Ballast control	Valmarine
Computer	Meca

pellers and duplicate control systems. The V-MAX is thus designed to overcome any single type of system failure — a yet unrivalled active safety capability which we consider just as important as the passive safety of a double hull," said Lars Carlsson, Concordia's Managing Director. "Statistically more than 30 percent of serious tanker accidents are caused by vessels losing control due to machinery and system failures. This risk is all but eliminated in the V-MAX.

Using only one of its twin engines, the vessel can maneuver during a period of

(Continued on page 48)

**Millennium Voyage Frontier**

**Samsung**

**Ing.carrier.expert@in.the.world**

"SK Supreme" 138,000t LNG Carrier for SK Shipping,  
the largest as GTT Mark III membrane type,  
awarded as "The vessel of the year" in 1999.  
built by Samsung Heavy Industries Co., Ltd.



# Real Ships of 2001



ROV/Offshore Support ship Skandi Carla proves again the marine technology prowess of Norway's west coast.

<b>Ship Name</b>	<b>Skandi Carla</b>
<b>Shipbuilder</b>	<b>Aukra Industrier</b>
<b>Ship Type</b>	<b>ROV/Offshore Support Ship</b>
<b>Owner</b>	<b>District Offshore</b>

By David Tinsley

Norway's west coast maritime cluster has again demonstrated its technological skills and business verve through the delivery of a complex, diesel-electric offshore support vessel equipped to carry out deepwater subsea inspection and construction tasks. Ordered from Aukra Industrier by local operator District Offshore (DOF), the 275-ft. (84-m) Skandi Carla ranks among the world's most sophisticated ships designed for ROV (remote-operated vehicle) deployment. The powerful, dynamic-positioning vessel entered an immediate five-year charter assignment to Aberdeen-based survey specialist Fugro-UDI, to whose requirements she has been customized.

She is considered equally well suited to the harsh environment of the North Sea as to the so-called Golden Triangle development areas of West Africa, Brazil and the Gulf of Mexico, where

operations in extreme water depths are the norm. ROV-based work can be carried out by the new vessel at depths as great as 3,000 m.

Built to a design developed by the Norwegian consultancy Marin Teknisk (MT), the versatile Skandi Carla has integrated, protected moonpool for ROV operations, just forward of midships, complemented by an open deck area of 640-sq. m. The deck has been strengthened for a 5-t/sq. m. loading, with a total carrying capacity of 2,000-tons, and is plumbed by a 50-ton, heave-compensated Hydramarine crane stowed on the starboard side.

The main, work-class ROV is dispatched and retrieved through the moonpool using a custom-designed launch and recovery system (LARS). A moveable mezzanine deck arranged in the after part of the ship provides a platform that can be used for a second ROV - or for trenching equipment. The arrangements permit two ROVs to be deployed

simultaneously, with the second unit put overboard to starboard by way of the Hydramarine crane. Facilities are in place on deck to support clients' trenching, pipeline and cable deployment spreads.

Scope for undertaking unbroken, longer work assignments is enhanced by the foreship helideck, strengthened to receive a Super Puma-type aircraft, and enabling personnel to be changed out at sea. In terms of bunker capacity relative to the fuel consumption profile, the ship has an endurance of around 40 days.

Characteristic of such vessels, Skandi Carla has a large accommodation capacity for up to 80 persons in single-berth and two-berth cabins, so that charterers' own technical specialists can be carried in addition to the vessel's regular complement. Her power and propulsion plant is based on four eight-cylinder engines of the Caterpillar 3600-series, a popular marquee among Norwegian operators yield. The 'Big Cats' serve as the prime movers in the 2,475-kV main gensets.

Diesel-electric has become the mode of choice for many Norwegian supply and support vessel owners in the latest period of fleet investment, through the recognition of benefits with regard to overall operating performance in terms

Main Particulars - Skandi Carla	
Classification	DNV
Length, (o.a.)	275 ft. (83.8 m)
Length, (b.p.)	252 ft. (76.8 m)
Breadth	65 ft. (19.7 m)
Draft	20 ft. (6.1 m)
GT	4,200
Deck load	2,000-tons
Propulsion system	diesel-electric
Main engine power	10,000-kW
Maximum speed	14-knots
Service speed	11-knots
Endurance	40-days
Cabin berth	80

of flexibility and full-cycle economy. The location of the diesel-alternator aggregates only about one-third aft in Skandi Carla is also indicative of the increased ship design and layout possibilities conferred by a diesel-electric system. Furthermore, its adoption denotes a perception of environmental benefits, in terms not only of reduced exhaust emissions but also as concerns onboard noise and vibration levels. In fact, the vessel's environmental attributes as a whole have been recognized in the award of the Clean class notation by Det Norske Veritas.

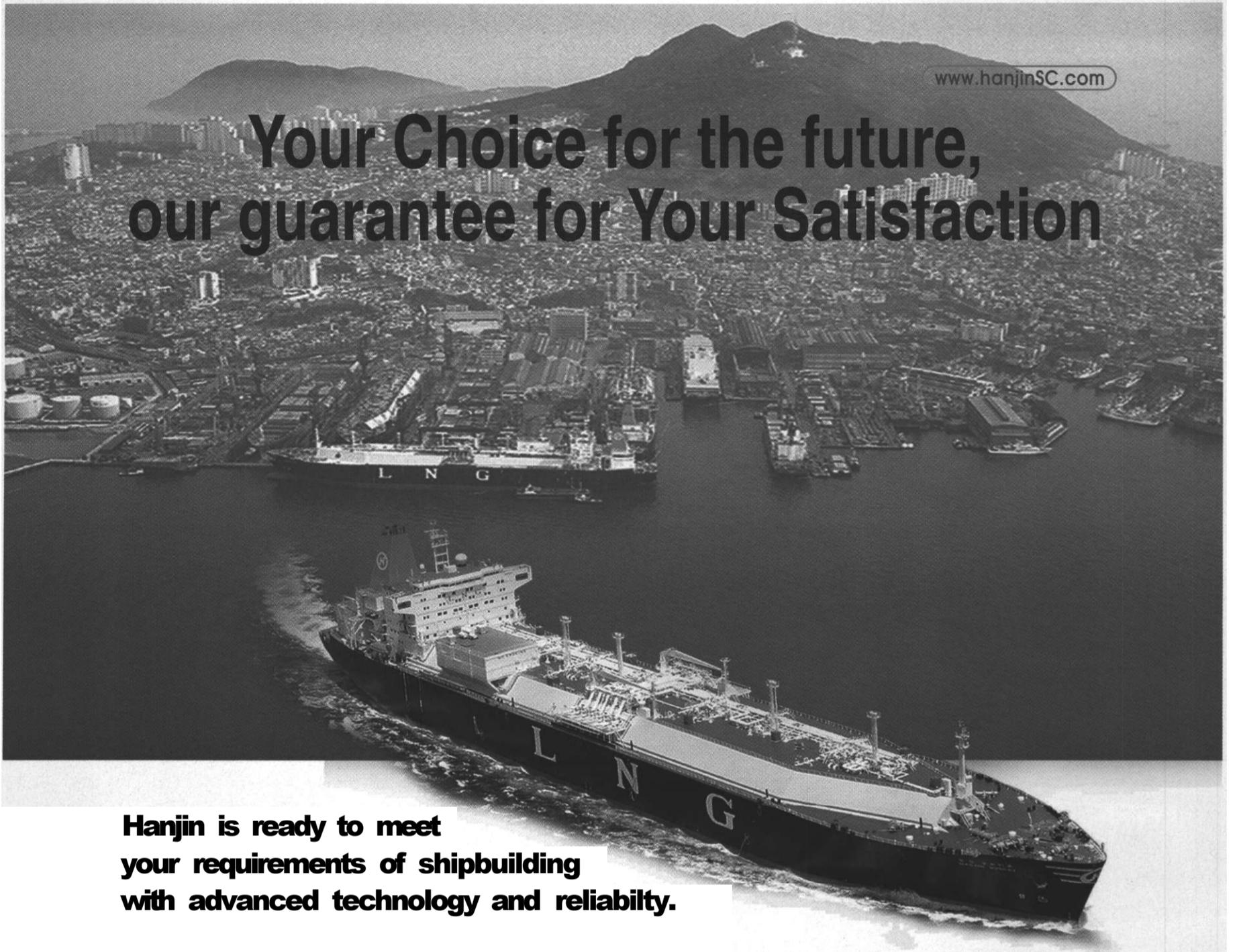
The propulsion, maneuvering and station-keeping devices which form the main electrical energy consumers are the two 2,200-kW main thrusters, of contra-rotating azimuth type, plus two 1,000-kW bow tunnel thrusters and adjacent, retractable unit of 1,000-kW. ABB had total responsibility for the ship's electrotechnical systems, engineering and installation.

A Simrad SDP21 system from Kongsberg ensures the precise dynamic positioning critical to the safe and efficient performance of subsea assignments, as well for operations alongside structures. The nature of the outfit is such that it meets the Norwegian Maritime Directorate's Class II requirements for DP. The propulsion arrangements give a free-running speed of 14 knots.

Aukra undertook the District Offshore build project on the basis of a delivery time of less than 10 months, demonstrating the depth of individual capability within the Aker Yards group. Production scheduling and work quality, key competitive factors in Aukra's target markets, benefit considerably from the full weather protection afforded by the yard's facilities near Molde. Skandi Carla has been taken under the wing of DOF Management, which was already familiar with the Aker build philosophy and delivery performance as a result of earlier projects at the group's other Norwegian yards, namely Aker Brattvaag, Langsten Slip and Soviknes Verft.

www.hanjinsc.com

# Your Choice for the future, our guarantee for Your Satisfaction



**Hanjin is ready to meet  
your requirements of shipbuilding  
with advanced technology and reliability.**



**Chemical Carrier**



**Container Carrier**

**Cable Layer**

## @ HANJIN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

**HEAD OFFICE & YEONGDO SHIPYARD**  
29, 5-GA, BONGNAE-DONG, YEONGDO-GU, BUSAN, KOREA  
•TEL:+82 51 410-3300/3310/3320 -FAX:+82 51 410-3339/3340

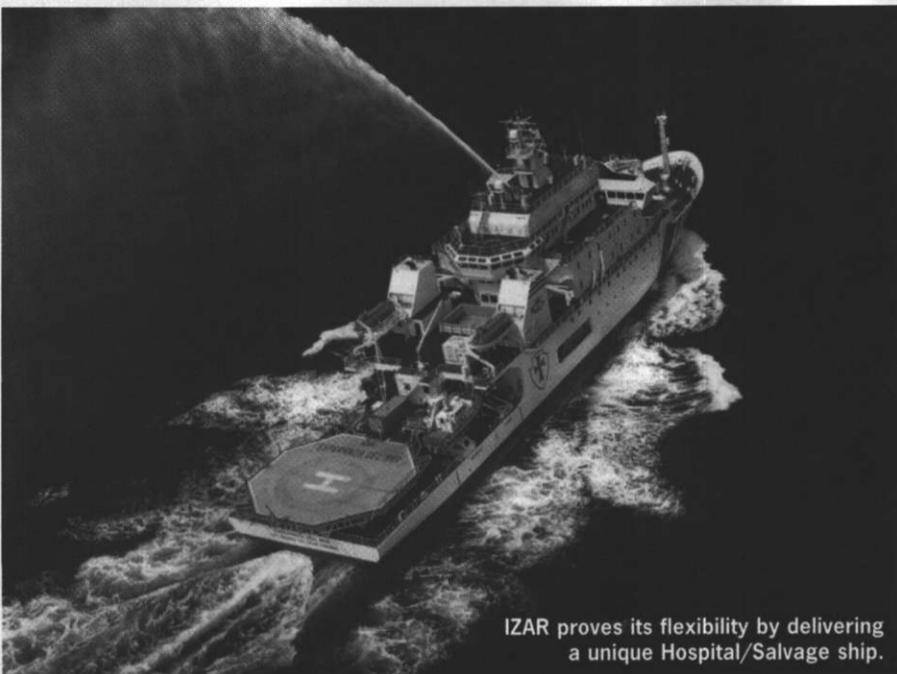
**ULSAN SHIPYARD**  
492, YONGJAM-DONG, NAM-GU, ULSAN, KOREA  
•TEL:+82 52 259-3114 -FAX:+82 52 259-3222

**MASAN SHIPYARD**  
974-15, YANGDEOG-DONG, HOEWON-GU, MASAN, GYEONGNAM, KOREA  
•TEL:+82 55 290-2900 -FAX:+82 55 290-2740

**SEOUL OFFICE**  
168-23, SAMSEONG-DONG, GANGNAM-GU, SEOUL, KOREA  
•TEL:+82 2 2006-7130 -FAX:+82 2 2006-7117

**LONDON OFFICE**  
ALHAMBRA HOUSE, 27/31 CHARING CROSS ROAD,  
LONDON WC2H 0AU, UNITED KINGDOM  
•TEL:+44 207 839-4700 -FAX:+44 207 839-5400  
•Internet e-mail:hhic.ldn@BTinternet.com

# Great Ships off 2001



IZAR proves its flexibility by delivering a unique Hospital/Salvage ship.

**Ship Name** *Esperanza del Mar*  
**Ship Type** *Hospital/Salvage Ship*  
**Shipbuilder** *IZAR, Gijon yard*

As of September, 2001, the Spanish fishing and merchant fleet can count on a truly exceptional seagoing salvage and medical care facility: the ship Esperanza del Mar, built by the Gijon yard of the Izar Group, for the Marine Welfare Institute, a division of the Spanish Labor Ministry.

There is no other ship in the world of this tonnage and characteristics built specifically for salvage and medical care at sea. This project is due principally to the initiative of the Marine Welfare Institute. When the time came to replace the old Esperanza del Mar, after more than 20 years of service, the Institute employed its long experience in the preparation of an exhaustive specification for the call for tenders for the building of the new ship, and financed its construction and commissioning.

Izar's Gijon yard produced an excellent design and built an extraordinary, highly innovative vessel capable of rendering complete service to those who require assistance at sea, with the contribution of ideas, technology and human resources from a broad range of Spanish companies and professionals.

The ship is also equipped with the means to carry out salvage operations and assistance to other ships in distress. Special attention was given to the safety of the ship itself, from the general arrangement and separation into compartments to the launching and recovery of rescue craft. Other design criteria were maneuverability and low noise levels. For the latter, the Lloyd's Register, aside from the normal ship classification tasks, took charge of an exhaustive series of measurements and checkings that have demonstrated that the noise level is below that required by IMO.

Based on the above-mentioned criteria, the following design criteria were defined.

- Comfortable and safe accommodations for 41 crewmembers, 17 patients and 30 victims recovered from accidents at sea. Provisions were made to allow for increasing the hospital bed capacity in the future.
- Reinforced hull for navigation in icy water.
- Capability to provide towage; fire-fighting; fuel, fresh water and electricity
- Logistics support for repair work
- Pollution control capacity
- Scientific research container shipping capacity. A weather forecasting container can also be accommodated.
- Hold for logistics support cargo in

special situations, such as natural disasters.

- Helideck (not a permanent installation) and helicopter refuelling facility.

The vessel design was carried out by the yard's technical department, in close co-operation with the technical and inspection personnel of the owner, the Marine Welfare Institute. Oliver Design participated in the first stages of the project in an area of maximum importance in a ship of this type: the architectural design and shapes of the superstructure and its decks. The ship, along with all its machinery and equipment was built according to the Rules and under the surveillance of the Lloyd's Register.

## Patient Care Spaces and Means

Esperanza del Mar was designed, as the Director General of the Institute of Marine Welfare, as "a hospital equipped with the capacity to navigate". This concept has materialised in the design of the Hospital Deck, and around it all the

### Main Particulars - Esperanza del Mar

Length, o.a.	319 ft. (97.3 m)
Length, b.p.	279 ft. (85 m)
Breadth, (molded)	58 ft. (17.7 m)
Depth, molded, to main deck	7.7 in
Deadweight, design	1,400 dwt
Draught, design	14 ft. (4.3 m)
Scantling	18 ft. (5.5 m)
Speed, trial at 90 percent MCR	17.3 knots
Speed, service at 80 percent MCR	16.9 knots
Cruise range	7,000n.m.
Classification	Lloyd's Register
Stabilization equipment	Fin stabilizers and bell tank
Main engines	2x four-stroke diesel engines
Output	2 x 2,700kW/750 rpm
Auxiliary engines	3 x 500kW/1,500 rpm
Emergency genset	1 x 500kW/1,500 rpm
Two reduction gears	750/219
Propellers	2 fpp
Boilers	1 x 1,000kg/h; 2 x 500kg/h
Mooring equipment	2 x mooring windlass
Accommodation	96
Patients	17
Rescued people	30
Crew	41
Apprentices	8

Hospital section	
Facilities: First aid room, Operating theater, Sterility room, X-ray room, Lab, Intensive care unit, Morgue	
Cargo section 950 cu. m. (6TEU in hold, 3TEU on deck)	
Cargo crane	SWL 10t/12-8m
Special rudders	2 x flap type
Thrusters	1 x 350 kW
Tow equipment	One towing hook
SWL	15 tons

Life-saving equipment	
2 x semi-close life-boat;	2 x semi-rigid rescue-boat;
	1 x main salvage-boat
Three special davits for fast rescue boat launching according to MSC/circular 809	

## SCHOTTEL for the Shipping World



Our product range embraces 360° steerable propulsion systems rated at up to 30 MW, manoeuvring devices, and also complete conventional propulsion packages. Through our worldwide sales and service network we offer economical and reliable solutions for every imaginable maritime application. So we can provide the right thrust for your vessel.

SCHOTTEL, Inc. • 500 Industrial Blvd. • Sugar Land, Tx 77478 - USA  
 Tel: 2 81 / 2 74 04 75 • Fax: 2 81 / 2 74 04 90 • e-Mail: info@schottel.com

*Innovators in steerable propulsion*

SCHOTTEL GmbH & Co. KG • Mainzer Strasse 99 • D-56322 Spay/Germany  
 Tel: + 49 (0) 26 28 / 6 10 • Fax: + 49 (0) 26 28 / 6 13 00 • e-Mail: info@schottel.de • www.schottel.de



Circle 241 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

spaces, equipment and systems that correspond to a modern ship, in accordance with the with the following design criteria: Hospital area located on a single deck, situated as low as possible for minimum accelerations in this area. Situated on the same level as the helideck and the rescue equipment for direct access from rescue operations and smooth passage of beds and cots to treatment area;

An accommodation deck is arranged between the engine room and the hospital zone to reduce noise. In addition, to reduce noise from the air conditioning system, its machinery is located in the engine room and the air conditioning in the hospital zone is separate from the rest of the ship. Air is not re-circulated. This system is described later on in this report; Natural lighting and ventilation are employed to the maximum. Corridors are designed to accommodate a flow of hospital beds with an accompanying person on the side. The doors of the patients' cabins are designed to accommodate hospital beds. The patients' cabins have access to beds on both sides.

#### Rescue Equipment

Esperanza del Mar is equipped with efficient means for rescuing victims from accidents at sea, towing operations and assistance in different types of emergencies such as fires, breakdowns, pollution or natural disasters. That equipment includes

FRDC (Fast Rescue Daughter Craft) or "ambulance boat", type MP-100, manufactured by Maritime Partner and supplied by Pasch, of a 9.95 m length and 3.50 m beam, with capacity for 3 crew and 17 victims. Her engines (2 x 170 bhp) enable her to reach 32 knots. High-tech navigation and communications equipment are installed on her bridge. Three pneumatic rescue craft, each fitted with two outboard motors.

- G67 davit for FRDC craft, of a 10 m reach and 6.7 t SWL, and two G15, 1.7 SWL davits for rescue craft, all produced by Hydramarine and supplied by Pasch.
- Tow hooks manufactured by Industrias Ferri
- Two Pesbo rescue boats
- Five D8B life rafts for 5x12 persons, with a launching platform, supplied by Llalco
- Service boat with outboard motor

Marine Aries pollution cleanup kit formed by:  
300 m oil spill contention barrier  
Oil skimmer  
Waste transfer pump

Also arranged on board is a Skum monitor to provide firefighting service to other ships

#### Propulsion and Maneuvering

Izar Manises participated actively in the construction of the hospital ship Esperanza del Mar. The company also supplied a deck crane, and the complete propulsion pack. The ship is arranged with two separate shaftlines for total engine redundancy, to ensure rescue operations at all times.

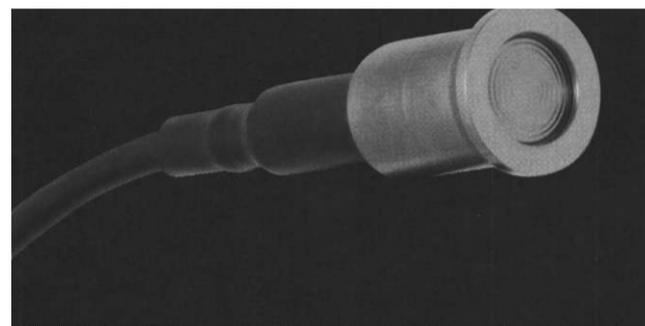
Each propulsion line consists of a Mak Model 9M25 four-stroke propulsion engine with a power output of 2,700 kW at 750 rpm in compliance with IMO NOx emission requirements. Each engine is coupled through a Vulkan resilient coupling to a Reintjes WAF 4545 reduction gear of a reduction ratio of 3.42. Shafting 18.5 m in length and four fixed pitchpropellers by Balino of a nominal speed of 219 rpm. The system is fitted with braking elements and the shafting has a clutch that confers the system broad operating flexibility. The electric power plant installed aboard the Esperanza del Mar, supplied by Pasch, is composed of three gensets and one emergency set, all designed and manufactured by Demp. Three MAN D 2842 LE301, 12 cylinder in V auxiliary engines and one 500 kWe Stamford electric power alternator. These sets are cooled by means of a water/water heat exchanger with a centralized on-board water circuit. An emergency genset with a MAN D 2842 LE201, 12 cylinders in V and a 500 kWe Stamford electric power alternator, cooled by means of an air/water radiator. Special care has been given to control noise emissions and vibrations, given the mission of this ship.

The weight/power/volume ratio of these gensets is excellent. The main and emergency switchboards, as well as the control stations of engines 1 and 2 and the control console installed in the engine control room were built and supplied by Isotron. Hispano Radio Marftima supplied the electronic navigation, external communications and telemedicine.

"Now with  
leak detection'

**THE**

**BALLAST**



### Smart Strain Gauge Level Sensor with Generic 4-20mA Output

Use one sensor for all shipboard  
liquid levels

**This technology has been designed specifically for surviving the rigors of ballast tank continuous monitoring. It weighs less than 2 oz. and is constructed from 100% pure titanium.**

- It's the size of your thumb
- Accuracy .25% of full scale
- 100% Titanium
- Weighs less than 2 oz.
- ABS/USCG/Lloyds approved
- FM Class 1, Div. 1 Intrinsically Safe
- Removal without tank entry
- No mercury or other contaminants
- Interfaces to your existing monitoring system
- One sensor for all shipboard liquids: fuel oil, lube oil, fresh water, black water, etc.
- Generic 4-20 mA output
- Used in 15,000 tanks worldwide

Many Options

Call today  
for more  
information!

**ELECTRONIC MARINE  
SYSTEMS, INC.**  
800 Femdale Place  
Rutherford, NJ 07065

732.382.4344  
732.388.5111 fax  
emsmarcon@aol.com e-mail  
http://www.emsmarcon.com

Circle 261 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# ANCHORS



# ANCHOR MARINE

**LARGEST INVENTORY  
OF NEW & USED  
IN THE U S A**

FAX: 713/644-1185  
WATTS: 800/233-8014  
PHONE: 713/644-1183

**C H A I N**

P.O. BOX 58645  
HOUSTON, TX 77258

**ALL TYPE  
ANCHORS & CHAIN  
ABS, LLOYDS  
GRADE 2, 3, K-4  
CHAIN & FITTINGS**

sales@anchormarinehouston.com  
www.anchormarinehouston.com

Circle 249 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# GreatShips off 2001

**Ship Name** *CMA-CGM Balzac*  
**Shipbuilder** *Hanjin Heavy Industries & Construction Co., Ltd.*  
**Ship Type** *Containership*  
**Owner** *Conti Reederei GmbH/NSB*



MR12 GS Hanjin Balzac

Shipbuilder: Hanjin Heavy Industries & Construction Co., Ltd.  
 Country of Builder: The Republic of Korea  
 Vessel Name: CMA-CGM Balzac  
 Owner/Operator: Conti Reederei GmbH/NSB  
 Country of Owner/Operator: Germany  
 Designer: Hanjin Heavy Industries & Construction Co., Ltd.  
 Flag: Liberia  
 Classification: GL  
 Contract Date: March 3, 1999  
 Float out Date: February 15, 2001  
 Delivery Date: April 30, 2001  
 Length o. a.: 985 ft. (300.25 m)  
 Length b. p.: 939.3 ft. (286.3 m)  
 Breadth, molded: 132.3 ft. (40.3 m)  
 Gross Tonnage: 73,172  
 DWT (design): 58,910 MT  
 Deadweight(Scantling): 77,940 MT  
 Draft(design): 39.4 ft. (12 m)  
 Draft(scantling): 45.9 ft. (14 m)  
 Speed, service: 26.12 knots 90% MCR (15% S.M.)  
 Complements: 29  
 Cargo Capacity: 6,447 TEU/500FEU  
 Reefers on deck/20,40,45ft: 29  
 Bunker: 7,440 cu. m. (HFO), 440 cu. m. (DO)  
 Water Ballast: 20,600 cu. m.  
 Fuel Consumption: 245.8 ton/day (M/E only)  
 % High Tensile Steel: 60%

Equipment Manufacturer  
 Main Engine MFTR: Hyundai Heavy Industries Co., Ltd.  
 Main Engine Type: MAN B&W 12K98MC-C  
 Total HP: 93,120 PS x 104 rpm (MCR)  
 PropellersMMG Fixed Pitch G-CU-AL10 NI (Material)  
 ThrustersLIPS B.V., Bowthruster 20 kW x 1,192 rpm  
 Generator Engines: Wartsila NSD Co./WNSD 8R32 LND 4,030PS x 720 rpm

Generators: Hyundai Heavy Industries Co., Ltd./2,800kW x 720 rpm  
 Anti-Heeling System: Interling / 900 cu. m./hr.  
 Engine controls: STN  
 Steering Controls: TongMyung, FE21-560 560 ton x m at 35 deg.  
 Deck Machinery: Brohl, 2 sets x Windlass, 10 sets x Mooring winch  
 Shafting: HANJUNG, DIA 0.965m  
 Coatings: Chokwang-Jotun  
 VHF Radio: STN Atlas DEBEG 6322  
 Radar: STN Atlas Multipilot 91D6S, Radiopilot 9800 ARPA  
 Compass: Raytheon Anschutz Reflecta Fiberline  
 GPS: STN Atlas Debeg 4.400B x 2 sets  
 Autopilot: Raytheon Anschutz NP2020  
 SATNAV: STN Atlas Debeg 3232/3220C  
 Air Conditioning: Hi-Press Korea Co., Ltd., R404A direct expansion  
 Lifeboats: Viking Life-Saving Equipment A/S, 169 x 4sets, 69 x 1set  
 Davits: Dongnam Enterprise  
 Fire Fighting System: UNITOR, High-Pressure CO2  
 Waste Management System(Incinerator): Hyundai Marine, MAX1150SL-1  
 Ballast Control System: Behrens, Electric Motor Driven, 950m3/hr x 2sets  
 Computers on the ship: Seacos HP Vectra VE x 1set for Loading Calculation  
 Hatch Covers: McGregor, Lift Away Type  
 Bridge Control Sys.: STN Atlas NACOS 45-3

## YOU'VE KNOWN US FOR QUALITY RIGGING PRODUCTS SINCE 1890



Now more than ever, Skookum signifies value in today's cost-conscious world. Our comprehensive block, fairlead, sheave and alloy forging lines have met the challenges of the most demanding applications around the world. And in the process, we've proudly taken part in the shaping of American history; from salvage operations at Pearl Harbor and construction of the Grand Coulee Dam to San Francisco's BART and the space shuttle.

Whatever your applications, we're committed to serving you with the finest in standard and custom engineered products.

For further information contact your nearest dealer or call us direct:  
**Skookum**  
 P.O. Box 280, Hubbard, Oregon 97032  
 Telephone 503/651-3175  
 1-800/547-8211 FAX 503/651-3409

**SK66KGM® jfa Blocks & Rigging**  
SINCE 1890 AN ULVEN COMPANY

Circle 244 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Flow Measurement Solutions



Hoffer Flow Controls offers over 30 years of experience in shipboard flow processes in the following applications:

- Fuel Flow Measurement for the Propulsion Plant
  - RIO Water System Flow Measurement
  - Flow Switches for Use in the Fire Control System
  - Trim and Drain/Ballast Systems
- and more

Hoffer also handles various flow applications on floating oil and gas production facilities either located subsea or on the surface.

Call us today or visit [www.hofferflow.com](http://www.hofferflow.com)

^H^Fto-ConM^tao. |so  
 The Turbin\* Flowmataf Company\* 9 0 0 1  
 107 KHtaHnkUm Certified  
 Hbabeth City, MC 27V09  
 IM1«NM2H1M 282-331-19\*7 Fajo 292-331-2M6

Circle 218 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

Maritime Reporter & Engineering News

**Ship Name**            *Polar Endeavour*  
**Shipbuilder**        *Litton Avondale*  
**Ship Type**            *DH Tanker*  
**Owner**                *Polar Tanker*

**By David Tinsley**

Representing an important milestone for U.S. commercial shipbuilding, the delivery of the 141,740-dwt Polar Endeavour signaled the unfolding of a major new chapter of investment in the fleet dedicated to coastwise transportation of Alaskan crude oil. Giving first form to the Millennium concept, the tanker has been purpose-designed for trade in the world's most environmentally-sensitive waters. While Polar Tankers' main requirement of the Millennium-class is to ship crude to Puget Sound from the Trans Alaska Pipeline terminal at Valdez, the series is also suited to the needs of the traffic to California and Hawaii. The program had been implemented in 1997, when former Avondale Industries was awarded the first vessel by California-based Arco Marine, the predecessor of Phillips Petroleum's Polar Tankers. Five vessels of the Polar Endeavour-type have been ordered to date from Litton Avondale for Polar Tankers, and options are outstanding on sixth and seventh tankers.

While ranking as the first, pure crude carrier of double-shell construction to have been ordered in the USA, she has the added distinction of a twin-engine, twin-screw configuration and a double-hull spacing of 10ft, 50-percent greater than the mandatory minimum. The landmark class, combining proven technologies and innovative features, is a response to rising expectations as to service dependability and environmental compatibility.

Two low-speed MAN B&W diesel engines, the discrete arrangement of machinery and fuel systems, and independent rudders and steering gear, confer an exceptional degree of redundancy in a crude oil tanker context. Polar Endeavour's total loading capacity of just over 1-million barrels of oil is encased in 12 cargo tanks, arranged in six pairs about the centerline longitudinal bulkhead. Polar takes the view that the double-shell should be treated as the last line of defense. Citing failure of major systems such as the engine or rudder as a significant cause of marine accidents, it has therefore championed the concept of redundancy throughout the new tanker. Each seven-cylinder MAN B&W S50MC-C prime mover has a nominal output of 15,015-bhp (11,060-kW), and the total propulsive effect ensured a speed of 16.55-knots at laden draft marks. The engines are installed in two completely independent machinery rooms, separated by a longitudinal, watertight bulkhead. Each main engine drives a Kamewa controllable pitch propeller through a Renk PTO (power take-off) tunnel gear, for electrical power generation, and through a Renk friction clutch and thrust bearing, to allow disengagement of the propeller shaft. A multi-plate clutch in the gear interfaces with an ABB shaft generator of 8,600-kW. The rationale for the system is to enhance overall operating economics by harnessing main engine rotational energy to cover the electrical load while under way, and to also step-up PTO generator power, with the propeller disengaged, to meet the heightened electrical power need for cargo working. The arrangements enable the plant to be

December, 2001



**Polar Endeavour from Litton Avondale provides the ultimate safety machine for carrying oil.**

Main Particulars Polar Endeavour	
Length, (o.a.)	894 ft. (272.6 m)
Length, (b.p.)	847 ft. (258.1 m)
	151 ft. (46.2 m)
Depth	86 ft. (26.3 m)
Scantling draft	57 ft. (17.5 m)
Corresponding dwt	141,740
Draft, Puget Sound	53 ft. (16.1m)
Cargo capacity	1.014m bbls
Main engine power, total	30,030-bhp (22,120-kW)
Loaded speed	16.5 knots

operated in three principal modes, covering open-sea navigation, maneuvering and cargo handling.

The strength and durability of the vessel structure has been bolstered in the light of over 20 years' operational experience of tanker structural performance in the harsh Alaskan environment. The ship has been built primarily with mild steel, employing above-regulatory margins in areas where high tensile steel has been used, as in the upper deck, sheer and deck strakes and high-stress structural details.

The owner claims that the design incorporates 8,000-tons more steel than a comparable-capacity tanker intended for a typical international trade route. Steel placement to best effect has been guided by state-of-the-art, computer-aided structural design techniques, with the goal of ensuring the requisite 30-year fatigue life. Polar's antecedent Arco Marine considered the latest generation of North Sea shuttle tankers, which have to maintain similarly demanding service patterns in arduous environments, when laying down a basis for the design. Accordingly, input on shuttle tanker design and construction from IZAR contributed to the U.S. company's investigations, as did assistance from Norwegian offshore tanker operator Knutsen OAS Shipping. The broad-based technical input to the project has also involved consultancies J J McMullen, MCA Engineers, Herbert Engineering, Glosten Associates and SSPA Sweden.

**mm**

• B g H

## Smart Pneumatic Level Sensor with Generic 4~20mA Output

**The Bubbler is an electro-pneumatic level transmitter that allows remote level measurement using a 4-20mA analog output. The lack of air pressure poses no operational problems, due to an automatic one-way valve which closes as soon as the pressure drops below 1 bar, this prevents back flow in the bubbling line towards the transmitter. Over pressure is also protected against by an automatic one-way valve.**

- It's the size of a grapefruit
- Explosion proof housing
- Accuracy .3% full scale
- Automatic over-pressure valve
- Automatic stop valve for air failure
- Automatic cleaning of bubbling line
- Connection for pressurized tanks
- 2 pair 24 VDC and 4-20mA cable
- Top or side mount

Many Options

**Call today for more Information!**

**S**  
**ELECTRONIC MARINE SYSTEMS, INC.**  
 800 Ferndale Place  
 Rahway, NJ 07065

732.382.4344  
 732.388.5111 fax  
 emsmarcon@aol.com e-mail  
 http://www.emsmarcon.com

Circle 262 on Reader Service Card  
 or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# GreatShips off 2001



**Ship Name** *NYK Lodestar*  
**Shipbuilder** *Samsung Heavy Industries Co., Ltd.*  
**Ship Type** *6,200 TEU Containership*

The design of the 6,200 TEU containership HN1367 for NYK features a maximum capacity of 6,422 TEU conforms to the now standard large container ship layout, with a short accommodation block and engine room approximately three-quarters aft, and seven holds forward and one aft of this position. The forward holds are dimensioned to accept 2 x 40 ft. containers (4 x TEU) in cell guides, and each is closed by two sets of lift-on/off pontoon covers comprising three transverse panels, while the aft holds with three sets of covers, can accept 3 x 40 ft. containers plus 1 x TEU, but otherwise restricted by the aft-body hull form. Containers are carried on the hatch covers over the full width of the vessel, and an additional FEU tier can be carried aft of No. 8 hold above the mooring deck. Lashing bridges are fitted on deck between the hatches. Refrigerated cargoes are catered for by the provision of 500 electric sockets. Maximum stowage on deck is 16 rows of 7 TEU tiers, and in the holds, 14 rows and 9 tiers. The hatch coamings are continuous and form the major longitudinal strength member, and a double hull structure surrounds the cargo space, forming part of a tank arrangement comprising side, bilge, and three transverse double-bottom compartments. Two sidetank port and starboard is utilized for automatic

#### Main Particulars - NYK Lodestar

Length, (o.a.)	983 ft. (299.8 m)
Length, (b.p.)	935 ft. (285 m)
Breadth, (molded)	131 ft. (40 m)
Depth, (molded)	80 ft. (24.3 m)
Draft, Design/Scantling	43/46 ft. (13/14 m)
Cargo Capacity (Max.)	6,422 TEU
Main Engine	HSD-Sulzer 12RTA96C
DMCR	85,160 bhp x 98.3 rpm
NCR	85% of DMCR
Torsional vibration damper	Geislinger
Fuel Oil Consumption	210.4 MT/day
Service speed	25 knots
Cruising range	18,000NM
Classification	LRS
Registration	Panama
Complement	30
Container Capacity	6,182/6,422 TEU
Ballast water	17,500 cu. m.
Heavy fuel oil	9,200 cu. m.
Diesel oil	350 cu. m.
Fresh water	600 cu. m.
Paint	International
Hold vent fan	Hi-Pres Korea
Bowthruster	Nakashima
Deck machinery	Samsung-Pusnes
Life raft	Viking
Joiner panel	Buil
Galley equipment	Metos
Stern tube seal	JMT
Air compressor	Tanabe
Radar/ARPA	STN Atlas
Radio plant	Tokimec

heel adjustment, with water transferred by means of water ballast & heeling pump.

HN1367 does successfully claim to use the largest main engine available for marine use. The ship's HSD-Sulzer 12RTA96C, unit is one of the most powerful commissioned for marine use. Built in Korea by Samsung, this has an MCR rating of 89,640 bhp (65,885 kW) at 100 rpm, and when operating at 85 percent full power with a 20 percent sea margin, produces a service speed of 25 knots. A Geislinger torsional vibration damper is included in the propulsion line, together with a monitoring system. In addition two bowthrusters of 1,650 kW each are fitted for efficient maneuvering. The shaft alternator develops 3,000 kW, whilst four diesel-powered sets each contribute 2,800 kW to an electrical operation controlled by a power management system. The ship is equipped with integrated navigation system (INS), including a console, which includes two radars, multi-function display for X band Radar/ARPA display and electronic chart display and information service (ECDIS), and electronic plotting table. An engine room monitoring station is also fitted on the bridge.

**Ship Name** *Bertora*  
**Shipbuilder** *Samsung Heavy Industries Co., Ltd.*  
**Ship Type** *Shuttle Tanker*

Since 1993, Samsung Heavy Industries (SHI) has built specialized and value-added shuttle tankers including a Heidrun shuttle tanker for Conoco, three multipurpose shuttle tankers for Statoil, a pair of Hibernia shuttle tankers for MCM/Ugland, and a TeraNova shuttle tanker for J.J.Ugland

The company has scored again, with a 100,000-dwt shuttle tanker dubbed Bertora for Bergshav.

The ship, classified by DNV, measures 784 x 137.8 x 68.4 ft. (239 x 42 x 21.3 m) with a 49.5 ft. (15.1 m) draft (design & scantling).

The vessel has been designed to utilize, as much as possible, existing conventional Aframax tanker design and added essential feature for shuttle tanker such as a tunnel bowthruster; a

retractable bowthruster, a tunnel stern thruster, a controllable pitch propeller, a schilling rudder, a dynamic positioning system (redundant), a bow loading system, an electric motor driven cargo pumps, a telemetry system (buyer supply and builder install.), and foot prints for VOC (volatile organic compound) plant and related power generating plant

The double-hull structure of the vessel is designed to fully comply with the requirements of OPP-F notation, and the structural analysis is performed by DNV and SHI jointly as per Nauticus (New-building) and CSA-1(25) notation. The combination of the DP system, satellite and seabed positioning systems enables station keeping and continuous loading in sea states up to 5.5 m significant wave height in the North Sea.

#### Bertora Main Particulars

Length	784 ft. (239 m)	Bow Loading System	HITEC
Breadth	137.8 ft. (42 m)	GRP Pipes	AMERON
Depth	68.4 ft. (21.3 m)	Steering Gear	ULSTEIN FRYDENBO
Draft	49.5 ft. (15.1 m)	Thrusters	BRUNVOLL
Deadweight	100,000 mt	Lifeboat	SCHAT-HARDING
Classification	DNV	Rescue boat	NORSAFE
		Lifeboat Davit	SCHAT-HARDING
		Foam Fire Extinguishing System	UNITOR-KOREA
		Galley/Pantry Equipment	ELECTROLUX
		Vacuum Toilet System	JETS
		Controllable Pitch Propeller	ROLLS-ROYCES
		Boilers	AALBORG
		Auxiliary Engine	DAIHATSU
		Stem Tube Seal	CEDERVALL
		Sewage treatment Plant	JETS
		Alarm & Monitoring System	SAMSUNG
		Dynamic Positioning System	SIMRAD
		Cargo Tank Level Gauge System (Radar Beam type)	KONGSBERG MARITIME (AUTRONICA)
		Gas Sampling and Detection System	CONSILIUM
		CCTV System	HERNIS
		Fire Detection System	CONSILIUM
		Electric Motors	HYUNDAI
		IBS	KONGSBERG MARITIME (NORCONTROL)
		Gyro Compass/Auto Pilot	RAYTHEON-ANSCHUTZ
		Telephone System	NORSE ELECTRONICS
		Public Address System	MRC
		Electric Cables	LG CABLE





**Main Particulars - Sorolla**

Classification	Bureau Veritas
Length, o.a.	564 ft. (172 m)
Length, bp	515 ft. (157 m)
Breadth	86 ft. (26.2 m)
Depth to main deck	30 ft. (9.2 m)
Design draft	20 ft. (6.2 m)
DWT	5,000
GT	28,275
Passenger capacity	1,000
Passenger cabins	748
RoRo capacity	98 trailers + 165 cars, or 80 trailers + 336 cars
Main engine output	28,960-kW
Service speed	23-knots

**Ship Name** Sorolla  
**Shipbuilder** Hijos de J. Barreras  
**Ship Type** RoRo Ferry  
**Owner** Trasmediterranea

**By David Tinsley**

Marking an important stage in the regeneration of the RoRo ferry route network maintained by Compania Trasmediterranea, last spring's delivery of the 28,275-gt RoPax Sorolla strengthened the state-owned firm's position in the Balearics trade.

Imbuing both a higher degree of service quality and operational flexibility in an increasingly competitive segment of the Mediterranean market, Sorolla was built at the Vigo yard of Hijos de J. Barreras. She underscored the emergence of the Galician shipbuilder as a growing force in RoRo construction. Privatized in 1998 through its sale by the erstwhile Astilleros Espanoles (now encapsulated in IZAR) to a group of Spanish maritime and industrial interests, Barreras also supplied blueprints for sistership Fortuny to IZAR's Puerto Real yard.

Completed in a build time of just 16 months, the 23-knot Sorolla melds a high grade of accommodation for 1,000 passengers with a RoRo intake of up to 98 trailers plus 165 cars. The garage areas can alternatively stow 80 trailers and 336 cars, or equivalent permutations of road freight, vans and cars.

She was assigned to the Barcelona-Palma di Mallorca connection, cutting two hours off the previous schedule. Second-of-class Fortuny was subsequently delivered from Puerto Real into the other principal link between the mainland and the islands, the Valencia/Palma route. The modest draft of 20 ft. (6.2 m) relative to a dwt of 5,000 tons reflects the owner's wish to ensure long-term operating versatility, including accessibility to the Menorcan port of Mahon.

Sorolla is a testament to Trasmediterranea's drive to raise vessel productivity, increase revenue generation, and meet the growing expectations of freight clients and passengers alike. The grade of accommodation and range of facilities is in keeping with the owner's decision to introduce a cruise ferry standard to its mainline routes. Cabins have been provided for nearly 75-percent of the total passenger complement, distributed throughout deck 7, while

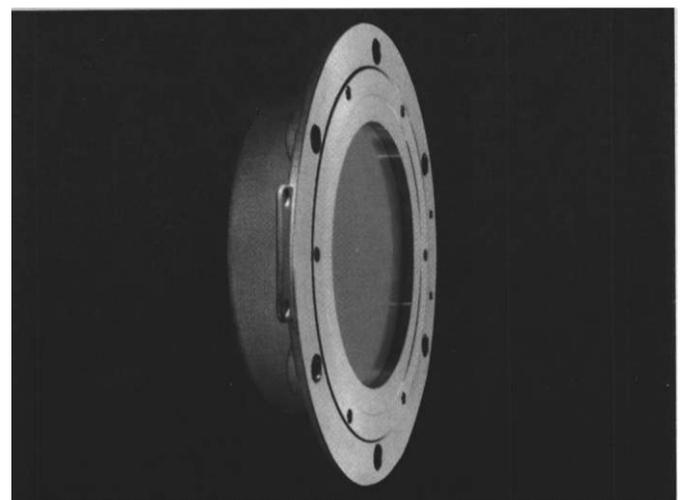
the two decks immediately above include a gymnasium with sauna, swimming pool, jacuzzi, solarium, open-air bar, and a saloon disco with bar, dance floor and stage.

All vehicle handling to and from Sorolla is concentrated through two stern ramp-doors of identical dimensions and capacities, with Trasmediterranea having decided to eschew a drive-through configuration. This has resulted in a finely-faired foreship section compatible with the requirement for a relatively high, sustainable speed.

Cargo access equipment specialist MacGregor accordingly sought to ensure efficient cargo working and expeditious turnarounds in the absence of a bow door. The axial stern ramps provide an entry point across the full width of the main trailer deck, and fold in the stowed, upright position so that passenger can enjoy an unimpeded view from the public deck spaces and accommodation in the aftship area.

A fixed ramp leads down to the lower hold, with the requisite headroom and strengthening for trailers and designation for hazardous items of freight, while the upper RoRo deck and associated, hoistable car deck, is also reached via two fixed ramps at the aft end of the main garage deck. One caters for cars and the other is dimensioned for trailers. Peaks in the car-accompanied passenger traffic during the summer season are also served by the arrangement of a fixed, intermediate car deck between the after parts of the upper RoRo deck level (deck 5) and deck 7. While the contractual requirement was for a speed of 23-knots, Sorolla achieved 25.2-knots on sea trials at the machinery's 100-percent maximum continuous rating on a draft of 20-ft. (6.2-m), and 24.5-knots at 85-percent mcr. One of the most popular designs of machinery among the RoRo, ferry and passengership communities, the Finnish-manufactured Wartsila 46, was nominated to power Sorolla. The plant consists of four eight-cylinder models, each delivering a 7,240-kW at 500-rpm, with propulsive effect delivered by two variable pitch propellers made by Navalips through Reintjes reduction gearboxes. Shaft generators driven off the gearsets enhance overall operating efficiency.

"Now with  
leak detection" **THE**  
**mum**



**Smart Radar Level  
Sensor with Generic  
RS485 Output**

*The first flat array antenna for liquid tank gauging. This software driven array allows for each sensor to remotely configure itself for the type of product as well as the structural characteristics within each tank. It is completely self-diagnostic and is factory calibrated using a laser interferometer to .1mm. It is designed for the harshest environments and can be provided in a high temperature version to 385°F. It is intrinsically safe with Class 1, Div. 1, Group D & C approvals. As a smart sensor, all processing calculations and software are resident in the device itself, only a high level generic data output, i.e., RS485 (or others on request) is sent to the cargo control area.*

**Options:**

- Multiple alarm set-points
- Temperature • PV Pressure • I.G. Pressure
- Tank Management Software
- Automated draft and trim

**Call today  
for more  
information!**

**S**  
ELECTRONIC MARINE  
SYSTEMS, INC.  
800 Femdale Place  
Rahway, NJ 07065

732.382.4344  
732.388.5111 fax  
emsmarcon@aol.com e-mail  
http://www.emsmarcon.com

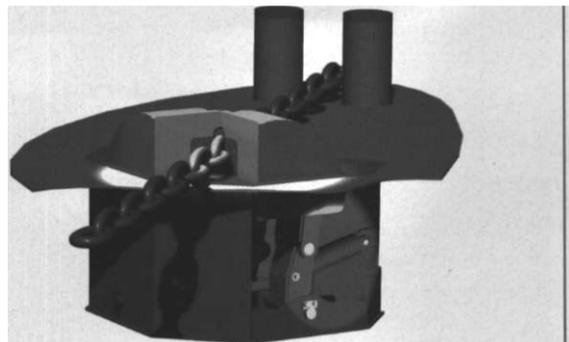
Circle 263 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# rent Ships of 2001

Smith

Smith Berger Marine, Inc.  
Now Offers A Complete Line Of

## SHARK JAWS



SAFE - RELIABLE - ECONOMICAL

Smith Berger Marine, Inc. is pleased to introduce the newest addition to our product line. Designed to demanding Smith Berger standards, our Shark Jaws are a natural extension of our capabilities and add to our long history of providing the maritime community with rugged, dependable mooring and towing equipment.

By coupling our new Shark Jaws with Smith Berger Towing Pins and Stem Rollers you can now take advantage of Smith Berger quality to outfit your next Anchor Hand/Bng/Tug Supply Vessel.

Smith Berger Marine, Inc. 791519<sup>th</sup> Ave. s., Seattle, WA 98106 USA  
Tel. 206.764.4650 - Toll Free 888.726.1688 - Fax 206.764.4653  
E-mail sales@smithtoerger.com

Circle 245 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

**Ship Name**  
**Shipbuilder**  
**Owner**

**Mercury Glory**  
**Daewoo Shipbuilding & Marine Engineering Co. Ltd.**  
**GULF Maritime Management SA**



### Main Particulars - Mercury Glory

Length, (o.a.)	1,089 ft. (332 m)
Length, (b.p.)	1,049.8 ft. (320 m)
Breadth molded	190.2 ft. (58 m)
Gross tonnage	157,831
Deadweight, design	278,577 ton
Deadweight, scantling	298,990 ton
Draft, design	68.2 ft. (20.8 m)
Draft, scantling	72.2 ft. (22 m)
Speed service	15.1 knots
Cargo, Liquid volume	347,593 cu. m.
Bunker Heavy oil	7585.3 cu. m.
Bunker Diesel oil	360.4 cu. m.
Water ballast	101,535.7 cu. m.
Fuel Consumption, main engine	92 tons
Classification	DNV
% of high-tensile steel used in construction	29 %
Main engine	Sulzer 7RTA84T-B
Alternator engine	Wartsila NSD/4-Stroke, TR-Piston
Alternator	8L20C
Mooring equipment	Aquamaster Rauma
Cargo Tanks	15
Make and type of coating	IPK/ Coal Tar Epoxy
Cargo Pumps	Shinko
Cargo control System (Valve)	Armi-seil
Ballast control systems (pump)	Shinko
Complement	35
Bridge control systems	Lyngso
Fire detection systems	Nittan
Fire extinguishing systems	Namyang Kidde, Naviwa
Radars	JRC

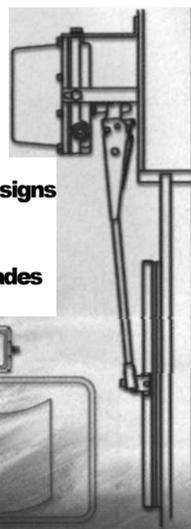
Mercury Glory, a 1,089 ft. (332 m) vessel that was designed and built to meet the standard of DNV rule, is a double hull crude oil tanker under Panama flag delivered in March 2001. To enhance environmental protection up to date International Rule & Regulation, including MARPOL Annex VI, have been applied and H.F.O. tanks arranged as double hull. Other requirements and industrial standards also have been considered such as OCIMF recommendations, USCG Requirement and criteria. The vessel is intended for the trade of crude oil having a flash point below 60 degrees C in cargo tanks and has been constructed as double side and bottom in way of cargo tanks and arranged with five center/side tanks and two slop tanks.

The cargo handling system consists of three cargo pumps with capacity of 5,000 cu. m. each driven by steam turbine and three cargo manifolds on deck for three segregation of cargo loading and discharging.

The main engine is Sulzer 7RTA84T-B with MCR output of 36,960 PS at 74 rpm driving a fixed pitch propeller. The hull structure design was based on the DNV Nauticus with enhanced scantling for safer and stronger structural integrity. The six-tier deckhouse located aft provides accommodation for 41 persons. The wheelhouse was arranged for the concept of the One Man Bridge Operation (WI-OC) equipped with integrated navigation system including electronic chart display and information system, interfaced with other equipment, which is also provided with a remote and automated control system.

## Wynn Marines Newest Pantograph Wiper

Both Interior & Exterior Motor Designs  
48 hour delivery  
2 year warranty  
Up to 800mm / 31.5" Arms & Blades  
: Voltages 24vdc, 115vac, 230vac  
Stocked in the USA



Wynn Marine Ltd, Wynn House, Lansdown Estate,  
Cheltenham, GL51 8PL, United Kingdom  
Tel: + 44 (0)1242 232266, Fax: + 44 (0)1242 231131,  
email: sales@wynn.co.uk, website www.wynn.co.uk

Circle 258 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

**Ship Name**  
**Shipbuilder**  
**Ship Type**

**Berge Arctic**  
**Daewoo Shipbuilding & Marine Engineering Co. Ltd.**  
**Ore Carrier**

Berge Arctic is an ore carrier built under NIS flag and delivered in November 2001 to comply with the requirements of Det Norske Veritas and classed +1A1, "Ore Carrier ESP", NAUTICUS (Newbuilding), HC, IB(+), EO, ICE-1C, LCS(SI), TMON. The vessel has a continuous upper deck with forecastle, a raked stem with bulbous bow, a transom stern with open water type stern frame, a semi-balanced rudder and a fixed pitch propeller directly driven by a slow speed diesel.

The vessel is ice strengthened, with the hull structure designed and strengthened to meet "ICE 1C" notation as required by the classification society. The design fatigue of the hull structure is minimum of 25 years based on operation in the North Atlantic between U.K. and Canada.

The cargo area is divided into center cargo holds and wing water ballast tanks by two longitudinal bulkheads. The double bottom structure is



(Continued on page 48)



*Ship Name* **Nils Holgersson**  
*Shipbuilder* **SSW Fahr-und Spezialschiffbau**  
*Ship Type* **RoPax Ferry**  
*Owner* **TT Line**

Diesel-electric RoPax ferry Nils Holgersson, (Photo Credit: Hero Lang)

By David Tinsley

Providing the first application for podded electric drives in the ferry market, July's arrival of the innovative RoPax vessel Nils Holgersson signaled a vibrant new phase of development of the busy Trave-muende/Trelleborg route between Germany and Sweden. The TT-Line project marries an advanced diesel-electric configuration with pragmatic requirements relating to operating efficiency, plant and power flexibility, cargo section design and environmental compatibility in the eco-sensitive Baltic trading regime. Completed by the Bremerhaven yard of SSW Fahr-und Spezialschiffbau, the 34,500-gt Nils Holgersson is also notable for the arrangement of its multiple, main diesel generator sets within the vessel's double-shell structure rather than in a conventional engine room location aft. Nils Holgersson and second-of-class

(Continued on page 48)

*Ship Name* **Tycom Reliance**  
*Shipbuilder* **Keppel Hitachi Zosen**  
*Ship Type* **Cablesip**

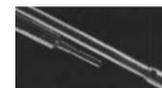
Keppel Hitachi Zosen Limited (KHZ) delivered its first cable laying and repair vessel to TyCom. Named TyCom Reliance, it was designed to be the most efficient cable laying and repair ship in TyCom's fleet. KHZ was awarded the first contract to build two cable laying and repair vessels for TyCom in April 2000. Subsequently, TyCom exercised its option to build an additional four sister vessels in November 2000.

"The effective execution of the construction of TyCom Reliance has been made possible through the application of new technology, creditable work put in by the design team, good project management skills and close partnership with suppliers, sub-contractors, classification and regulatory authorities and TyCom's project team," said Choo Chiau Beng, Chairman of KHZ. Fred Hamilton, TyCom's vice president of International Construction, Operations and Maintenance, said, "We are receiving an excellent ship at a competitive price. This vessel will play an important role in the deployment and maintenance of the TyCom Global Network in this region." At 12,130 gt, each cablesip is twin screw, diesel electric driven and dynamically positioned. Measuring 459 ft. (140 m) in length and 72 ft. (22 m) in breadth, the cablesips are purpose-built for installation and maintenance of undersea fiber optic systems and are equipped with the latest in cable, navigation and safety equipment.



TyCom Reliance, the first in the series of six cablesips Keppel Hitachi Zosen is building for TyCom, was named on August 1, 2001. This highly sophisticated purpose-built cablesip was designed to be the most efficient cable laying and repair ship in TyCom's fleet of cablesips in operation.

# Nnfl SWITCH mum



## Smart Electronic Level Switch with No Moving Parts

The Sea Switch Two was designed and patented for all tank applications. The Sea Switch Two offers a reliable solution for liquid level detection and control for cargo, ballast, and storage tanks, without any moving parts.

The Sea Switch Two uses a fully static system that is based on the propagation of an acoustic wave into a metallic rod. A piezo-electric sensing element produces a wave along the rod. As the liquid reaches the sensing element the oscillation stops and the alarm is activated.

The Sea Switch Two sensor detects high, high-high, or low level in any liquid with an alarm output given by a dry contact or current loop change 6-18 mA.

- Easy installation • Self-test built-in
- Fully static system - no moving parts

# S

ELECTRONIC MARINE  
SYSTEMS, INC.  
800 Ferndale Place  
Rahway, NJ 07065

Call today  
for more  
information!

732.382.4344  
732.388.5111 fax  
emsmarcon@aol.com e-mail  
<http://www.emsmarcon.com>

Circle 264 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# **2002 Global Marine Directory CD**

**The most comprehensive reference source available!**

**Over 20,000 Marine Companies!  
Including 15,000 contact names, complete  
address information, phone, fax, e-mail,  
and key personnel.**

**All fully indexed alphabetically/geographically.**

**agi  
20,000 Marine Companies...  
On orfejlisc...  
At youiiMngertips...  
Instantly...**

**All for only \$139.00 (plus S&H**



**Quantities are limited so order today!**

**Tel: 212-477-6700**

**Fax: 212-254-6271**

**E-mail: [mren@marinelink.com](mailto:mren@marinelink.com)**

\*System Requirements: Windows/PC Platform. 32 MB Ram. 30 MB of available hard disk space.

Circle 225 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

**Bollinger Announces New Contracts at Workboat Show**

Bollinger Shipyards, Lockport, La. has added a 220 class offshore supply vessel (OSV) to the company's continually growing series of OSV's that provide cargo capacities of much larger vessels while lowering operating costs. Scott Theriot, executive vice president, New Construction said, "Just as our 145 and 166-ft. class boats have capacities of larger OSV's, this new 220 class has the cargo and drilling muds capacities of vessels up to 240-ft.

MNM Boats of Golden Meadow, La., a subsidiary of C&G Boats, has signed a contract for the first of two new 220 designs and will take delivery of the first boat in October 2002 and the second vessel in January 2003.

Theriot said: "Our success with the first two advanced designs prompted customers to ask for similar space and operational advantages in a larger OSV. We have achieved this goal with this new design. Its liquid and mud tanks will be able to carry more than 6,000 barrels of drilling mud and its dry bulk tanks will be able to carry more than 6,000 cu. ft. of material. The MNM boats will each have three separate pump systems that can handle three different liquid mud products without danger of contamination."

Propulsion power for the MNM 207 x 53 x 19-ft. hull will be provided by two Caterpillar 3516D diesel engines developing 2,000 hp through Reintjes reduction gears with a ratio of 6.44:1. They will drive Bollinger 102 in. propellers and independent rudders. Electrical power will be produced by two Caterpillar 3408 diesels generating 370 kW each. The pilot house will be located further forward and will feature 360-degree visibility free from interference by stacks and will include touch screen computer displays for the boat's dynamic positioning and other control systems.

In a separate contract, Bollinger has agreed to construct two 6,000 hp tugs, and two double-hull, clean product ocean-going barges that meet the requirements of OPA '90. While terms of the contract were not disclosed, one vessel will have a 110,000-barrel capacity, the other will be able to carry 135,000 barrels.

The tugs will be built at Bollinger's Lockport, La. division, and the barges will be constructed at Bollinger-Gretna in Harvey, La. Delivery of the first ATB unit is scheduled for the second quarter of 2003 and the delivery of the second unit is planned for the second quarter of 2004. Guarino & Cox, naval architects, marine designers and consultants of Slidell, La., designed both ATB units.

Modules for the first two barges will

be fabricated at Bollinger's Lockport New Construction division and shipped to Gretna where they will be joined to other components produced there, where final assembly and installation of other piping systems will be completed.

The first new Bouchard barge, B. No.

225 will measure 430 ft. with a 79-ft. beam and a depth of 34 ft. The second barge, B. No.242 will be 487-ft. with an 80-ft. beam and a depth of 37 ft. Bollinger's Lockport, La., yard also plans to build a 100-ft., 4,000 hp Z-drive harbor tug for Crescent Towing, New

Orleans, La.

The tug, which was designed by Jensen Maritime Consultants, will utilize Ulstein Z-pellers and controls. The pilothouse will have 360-degree visibility; the deck will have a forward winch and bow-loop.

**Technological integration makes for a totally comprehensive bridge system**

**IBS INTEGRATED BRIDGE SYSTEM**

**Enhanced Safety and Operating Efficiency**

IBS is a comprehensive bridge system developed by JRC with three aims: energy conservation, reduced labor demands, and greater safety. A host of unique electronics technologies—in fields ranging from radar, ECDIS and navigation data display to IRCS and INMARSAT—contribute to enhanced safety at sea with significantly lighter demands on the steersman.

**OSJD-1206 IRCS Workstation**

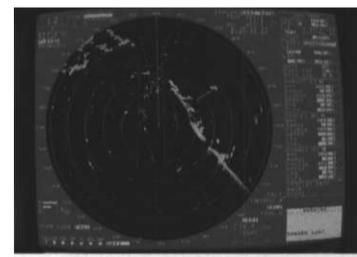
With this one workstation it is possible to operate a multitude of radio communication facilities. A user-friendly design ensures easy operation by all operators.

**©JMA-9800 Color ARPA Radar**

This futuristically designed radar unit features a large 29-inch high-definition color CRT display. It enables quick detection of small targets.

**©JAN-3598 ECDIS Total Navigator**

This advanced ECDIS system permits fully automatic navigation. It features a large color LCD and abundant functions unique to JRC, including radar video overlay, grounding prevention, NAVTEX data, route safety check, alarm displays and engine data display. The result is greater safety and economy.



**JRC | flapart Radio Co.,lid.**

Since 1915

Main Office:  
Maritime Sales Department  
1-1 Shimorenjaku 5-chrome,  
Mitaka-shi, Tokyo 181-8510, Japan  
Telephone: 8142245-9552  
Telefax: 8142245-9273  
<http://www.jrc.co.jp/>

Seattle Branch Office:  
1011 SW Klickitat Way Bldg. B,  
Suite 100 Seattle, WA 98134, USA  
Telephone: 1-206-654-5644  
Telefax: 1-206-654-7030

New York Sales Office:  
Suite 208,2125 Center Avenue  
Fort Lee, NJ 07024, USA  
Telephone: 1-201-242-1882  
Telefax: 1-201-242-1885

JRC Amsterdam Office:  
Cessnaaan 4042,1119NL,  
Schiphol-Rijk,  
The Netherlands  
Telephone: 31-20-658-0750  
Telefax: 31-20-658-0755

JRC do Brasil Empreendimentos  
Electronics Ltda.  
Av. Almirante Barroso, 63-S/309  
CEP20031-003 Rio de Janeiro, RJ, Brasil  
Telephone: 55-21-220-8121  
Telefax: 55-21-240-6324

Circle 229 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# WTC Clean-Up: Getting down and dirty

*The enormity of the September 11 terrorist attacks on the U.S. have effectively changed the world's collective attitude toward security, particularly in regards to the potential use of the maritime industry as an instrument of destruction. While the events of early September are global in scope, they are also an intimate local affair. As the New York area continues the gargantuan clean-up task, Don Sutherland reports on the maritime industry's role in helping out.*

— By Don Sutherland

It's not so easy to believe two opposites at once. "I try to treat it like an ordinary scrap-removal job," said **Capt. Bruce Horner** at the helm of the Weeks tug Virginia, "I try not to think about that being the World Trade Center down there."

Virginia has just left the basin at Pier 25, North River, with a load of debris, bound for the Port Authority Pier 6 in Brooklyn. This and Pier 7 are the exchange points for barges returning light to Manhattan, or continuing with their loads to points further from the City's heart.

"It's easier to do these days," continued Capt. Horner, who had already made 250 to 300 runs since joining the effort at the beginning of October. "Back then, sometimes you'd think there was an odor. It could have been Diesel fuel, but it would make you think."

Aboard the Kosnac tug Gotham, subcontracting to Weeks, **Capt. Mike Hazard** recalls the "red liquid" beneath the loads in some of the early barges. "We didn't know what it was," he says, "didn't want to." Hosing-down each truck-load is the final step before loading debris to barges, which accounts for liq-

uid. And many things account for color. Still, it makes you think.

How many runs, how many months, must pass before this operation is, in fact, ordinary? Estimates are it'll take a year for the cleanup to complete. After a year, isn't a job truly "ordinary?" Won't the day come when the people working the sites can shrug everything off?

Maybe. But the plain fact is, this job is not ordinary. Scrap girders are ordinary. Girders twisted like these, like pipecleaners, by immeasurable forces - no matter how often you've seen them, they can get you thinking all over again.

The gents handling the cranes, hauling the lines, steering the tows, haven't joined the army or navy. They've simply been asked to act like it, as the resources around New York Harbor rise to the task of fixing the city. And to hear tales told, the operation answers to the description of "military precision."

Land-poor Manhattan, forced to build upward to house its office populations, got a break from its topography. It's an island city with an outstanding port infrastructure to call upon. From the north end of the site the newspapers call "Ground Zero," caravans of trucks haul scrap and debris less than a mile to the Pier 25 site, just North of Chambers St.

Trucks from the southern end of the site head for Manhattan's Pier 6, East River. The congestion of streets and disturbance of residents is reduced to the minimum.

From there, it's all waterborne — first to Brooklyn, then to Fresh Kills, Staten Island, for debris, while scrap heads for recyclers at Port Newark; Jersey City, and Keasbey, N.J.

## "Truly Amazing"

Nobody went to bed the night of September 10 expecting this stupendous task. "It was truly amazing how quickly an overall strategy developed for orchestrating the cleanup," said **George Wittich**, senior VP of Marine Services for Weeks Marine. "There are plenty of experts in one phase or another, and the people in charge pretty much left it to them to develop strategies."

Weeks knew the new emergency site well, being already on a job at the adjacent Pier 40, for the Hudson River Park Trust. "A series of proposals was developed," recalls Wittich, "and run through the New York City Dept. of Design and Construction. Weeks developed the proposal for the barge loading ports, with

(continued on page 43)



The scene of destruction in early October. If it filled 500 barges by mid-November, the tally could reach 3,000 barges or more before the job is done. (Photo: Don Sutherland.)



Weeks senior V.P. of Marine Services, George Wittich, observes as Capt. Bruce Horner steers the Virginia past the Staten Island Ferry terminal, bound for Brooklyn. (Photo: Don Sutherland.)



The Kosnac tug Gotham on its way to a steel recycler in Port Newark with an unrecognizable load from the WTC site. (Photo: Don Sutherland.)



Weeks tug Elizabeth at the Brooklyn site, ready to transport barges to Fresh Kills or the steel recycles. At the time of publication, Weeks equipment for the cleanup included three loading crane barges with a fourth at ready, 35 barges, two full-time tugs, two part-time tugs, two crew boats, and ancillary equipment dedicated to the cleanup. An additional 19 DOS barges participate in the operation, and Weeks calls upon subcontractors for towing during peak demand. (Photo: Don Sutherland.)



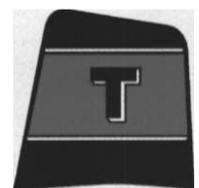
A crane, a tug, and barges at the emergency loading site created at Pier 25, N.R. Here, this and a second Weeks crane transfer WTC scrap and debris from trucks to the barges, for disposal elsewhere around the port of New York. (Photo: Don Sutherland.)

## Corpus Christi - Sept. 11<sup>th</sup> —

The Lift Boat GULF ISLAND V, a 3-legged jack-up, sank off Corpus Christi, Texas. The vessel sank in 100 feet of water on to her port side with half her deckhouse beneath the sea bed.

### Response & Results:

After unsuccessful recovery attempts by others, Titan's salvage team removed the wreck and placed it on shore using the 500-ton sheerlegs Southern Hercules.



# TITAN

*MARITIME INDUSTRIES, INC.*

DAMAGE STABILITY • FIREFIGHTING • LIGHTERING • SALVAGE

U S A • P.O. Box 350465 • Ft. Lauderdale, FL 33335  
Tel: 954-929-5200 • Fax: 954-929-0102

UK • New Road, Newhaven • East Sussex • BN90HE  
Tel: ++44 (0) 1273 515-555 • Fax: ++44 (0) 1273 515-456

BR • Rua Gen. Mena Barreto 708 • Sao Paulo, Brasil  
Tel: ++55 11 887 9217 • Fax: ++55 11 887 2687

Circle 249 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Story of the Year



Virginia turns into the North River, as new construction on the opposite shore reaffirms ongoing development of the port region. (Photo: Don Sutherland.)



Weeks 524, a Clyde Model 28 Gantry duty cycle crane, is one of two at the Pier 25 site. It was chosen for its rapid completion of repetitive tasks. (Photo: Don Sutherland.)

## Posidonia

where real shipping business is done

art of Ship<sub>pv</sub>

Congress 3 June 2002, Exhibition 4-7 June 2002  
PIRAEUS GREECE

Posidonia fsg? flooaScovici

**Organisers: Posidonia Exhibitions SA**  
4-6 Eplias Street, 185 37 Piraeus, Greece  
10 428 3608. Fax +30 10 428 3610, E-mail: posidonia@S

**International Selling Agents: Seatrade**  
Seatrade House, 42 North Station Road, Colchester C  
4 1206 545121. Fax +44 1206 545190. E-mail: sales@e  
ade-global.com

## Delta T Insulated Coating

### Why Paint & Insulate?

Delta T is a one-part coating system that provides the combination of both excellent thermal and anti-condensation in one easy, cost-effective spray method. Used on vessels of all sizes worldwide. Most shipyards see a 30% to 50% reduction in total costs if installed by yard personnel.

20-60 mil layer achieves an equivalency of R9-R14.

For immediate information, visit our website at: [www.deltacoat.com](http://www.deltacoat.com)

**Mascoat Products**  
10890 Alcott Drive, #102  
Houston, Texas 77043  
Phone: (713) 465-0304  
Fax: (713) 465-0320  
E-mail: [Sales@deltacoat.com](mailto:Sales@deltacoat.com)



### Delta Coating<sup>^</sup>

[www.deltacoat.com](http://www.deltacoat.com)

Delta T carries the following classifications:

United States Coast Guard  
Lloyd's Registered  
ABS Approval  
DNV Approval  
Underwriter's Lab

All classifications are to IMO/SOLAS guidelines

Circle 233 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

Circle 242 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

# Story of the Year

(continued from page 40)

benefits of water transport over land transport. We had multiple solutions, including our own fleet of tugs, barges, and cranes." Company literature tells us "by the mid 1930s, scrap iron became the main business of Weeks ... " so besides equipment, Weeks also knew who to talk to. "We proposed that Weeks put out the solicitations to the steel recyclers." But before barges could be loaded, the area around Pier 25 needed more depth. "The dredging permit was issued in 45 minutes," Wittich recalls, "and the first emergency dredging commenced on September 13th. Around the 21st, sufficient dredging was completed at Pier 25, and the site began developing into what you see today."

Today, two giant Weeks cranes dominate the bulkhead. A Clyde Model 28 Gantry crane was chosen for its ability to move & turn quickly, in repetitive actions required for transferring material from shore to barge. Also at the site, a smaller Diesel Clyde, able to work within the tight confines of the available area.

Another Weeks Clyde Model 28 and a Clyde Mod. 24 stevedoring crane work the East River site. The abrupt appearance of such a massive crisis also required the support of other contractors, including Great Lakes Dredge & Docks for dredging around the Pier 6 area in Manhattan, Donjon Marine as well as Kosnac for towing services, and Moran with its own contracts for the operation.

How many other marine contractors and subcontractors, how many truckers, how many guys with torches at the WTC site found themselves sucked into the operation without forewarning? Wittich reports that most crews work 12-hour shifts, and operations proceed 24/7. But an accurate final head-count probably escapes tabulation.

A sense of scale comes out of Weeks' own appraisal of work to-date. By November 20, the company had offloaded "in excess of" 26,000 trucks. In their own or Dept. of Sanitation barges, they'd transported nearly 100,000 tons of structural steel and 200,000 tons of debris. This had taken some 500 barge loads so far.

### Not Always Clockwork

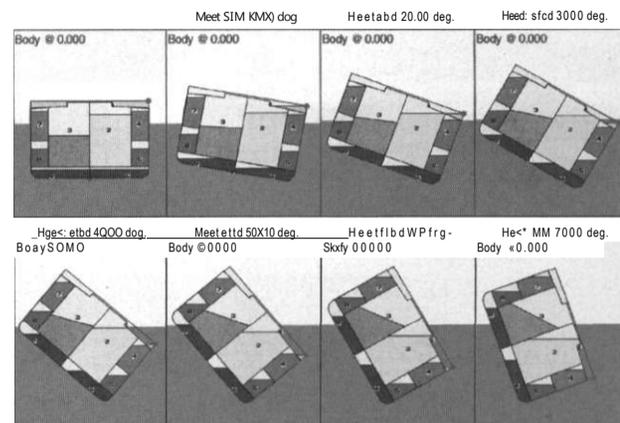
"It's on the inside again," said Capt. Hazard aboard the Gotham, finding his next load boxed-in by other barges at Brooklyn's Pier 6. What follows is like a 15-puzzle on a giant scale, as captain and crew decide which barges to move, in what order, to reach the designated load. These are cramped quarters, and East River currents are never much fun. But the path is carved smoothly, with hardly a bump.

You'd need a crystal ball, of course, to predict which barges, destined for where, reach Pier 6 when. Wittich cites 400 trucks offloaded on an average day at the Pier 25 site, twice that on heavy days. At times, one or two trucks may arrive, at other times they line-up for blocks. A steady stream can't be expected from the WTC site — it's tough work down there, and still plenty dangerous. It takes patience, flexibility, and a lot of cooperation to make the whole thing work. "It was phenomenal the way everyone came together," said Wittich. "The City, State, and Federal agencies, and a lot of contractors that are often fierce competitors — everyone worked together. Everyone understood it's a big job, a tough one, and at the base of it all, a tragic one. But everyone is united by the urgency to get it done."

That's something to think about, too. "If the terrorist agenda was to break us apart," said Wittich. "Make us scared, send us running in panic — then they failed miserably. We became united — more than we were before."



A mosaic of Sanitation barges awaits loading at the Pier 25 site, while the Weeks tug Virginia with scrap pulls away for Brooklyn's Pier 6. (Photo: Don Sutherland.)



Model Cntf a\*ui-  
Vcntaic^cn^ cUl\* K Ctuifr J  
offree' Surface-  
General Hydro Statics

### Ship Stability and Strength Software:

- GHS.....Full-featured naval architect's system
- GHS LOAD MONITOR.....Onboard system
- GHS/SALVAGE.....Salvor's system
- BHS.....Economy system
- BHS/YACHT.....Yacht designer's system

**CREATIVE SYSTEM S, INC.**  
CREATORS OF GHS

P.O. Box 1910 Port Townsend, WA 98368 USA  
TEL (360) 3856212 Fax (360) 3856213  
E-MAIL: sales@GHSport.com - Website: www.GHSport.com  
Producing Advanced Hydrostatics Software since 1972

Circle 207 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## ALUMINUM CATAMARANS AND UTILITY CRAFT

Boats Under Const.  
(3) 65' Catamarans  
(2) 65' Landing  
Craft

Combining Cajun  
know and modern  
CAD/CAM  
experience  
for quality  
aluminum boat  
construction.

## ISLAND BOATS, INC.

ALUMINUM BOATBUILDERS  
6806 HWY 90 EAST - NEW IBERIA, LA 70560  
PH. 337.560.4483 - FAX 337.560.4473  
email: [islandboats@catel.net](mailto:islandboats@catel.net)

Circle 223 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## People & Company News



International Maritime Training Inc.  
Presents

### U.S.C.G. COURSES

**Basic S.T.C.W. '95 Safety Training**  
**Bridge Resource Management**  
**G.M.D.S.S.**  
**Radar**  
**A.R.P.A.**  
**500 & 1600 Ton Prep.**

**Immediate Reservations Available**  
**At the Ft. Lauderdale Facility**

Call (954) 779-7764  
Or Email:  
info@imtfl.com

Circle 222 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### MARITIME PHOTOGRAPHY



Walter Garschagen specializes in maritime and industrial photography, and travels worldwide photographing vessels and operations for the maritime industry. For information on assignment work or stock images for your next advertisement, contact him at:

**Walter**  
**Garschagen**  
Photography

22 Division Street  
Cold Spring,  
New York 10516



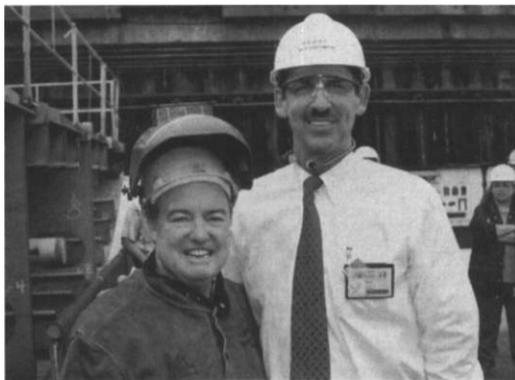
(800) 333 - 8385

[WWW.GARSCHAGEN.COM](http://WWW.GARSCHAGEN.COM)

Circle 253 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### NASSCO Lays Keel On First Of Two Trailerships For TOTE

**Robert R McGee** (at left), president and CEO of Totem Trailer Ocean Express (TOTE), and **Richard Vortmann**, president of NASSCO, at the keel laying ceremony for *Midnight Sun*, the first of two ORCA-class RoRo trailerships being built for TOTE's Tacoma to Anchorage service.



The vessels, which will feature the latest in environmental protection technology, are scheduled for delivery in October 2002 and April 2003.

Circle 19 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### V. Ships To Manage Seven

#### Primorsk Ships

Primorsk Shipping Corporation of Nakhodka, the Russian-based shipowner and operator has appointed V.Ships. Singapore as technical manager to seven crude/product and product/chemical carriers.

### Stolt-Nielsen, Vopak And John T. Essberger Combine European Chem Tanker Fleets

Stolt-Nielsen Transportation Group Ltd., a wholly-owned subsidiary of Stolt-Nielsen S.A.; Vopak Chemical Tankers B.V.; and John T. Essberger GmbH & Co, subject to regulatory approval by the European commission, intend to establish a joint venture to combine their respective European chemical tanker coastal fleets commencing December 1, 2001 under the name of Vopak Essberger Stolt ChemPool.

SNTG's European chemical tanker fleet has operated under the name of Stolt-Nielsen Inter European Service (SNIES) and comprises 11 chemical tankers totaling 56,000 dwt.

Since July 2000, Vopak Chemical Tankers B.V. and John T. Essberger GmbH & Co have operated under the name Vopak Essberger ChemPool, and consist of 24 chemical tankers totaling close to 96,000 dwt.

With the addition of the SNIES fleet, the Vopak Essberger Stolt ChemPool fleet will comprise 35 modern double hull chemical tankers with a total capacity of approximately 150,000 dwt.

The new combined fleet will be managed from ChemPool offices located in Hamburg, Germany and Dordrecht, the Netherlands. SNIES will transfer its marketing and operational personnel to Hamburg and Dordrecht.

### Ensolve Earns Type Approval

EnSolve Biosystems has received U.S. Coast Guard and International Maritime Organization (IMO) type approval for its new PetroLimiter® 100 Oil Water Separator. The PetroLimiter 100 uses a patented biotechnology process to remove oil and other hydrocarbon wastes from ships' bilge water, so it can be safely discharged overboard in environmentally sensitive waters. The system contains safe, non-pathogenic bacteria that actually "eat" the oil, grease, transmission fluid and other hydrocarbons in the bilge water.

The U.S. Coast Guard type approval certifies that the system meets U.S. and international clean-water regulatory standards for overboard discharge.

"The PetroLimiter 100 type approval tests revealed that the highest oil concentration in the effluent was 1.36 parts per million (ppm), well below the 15 ppm level required for legal discharge," said Dr. **Jason Caplan**, president of EnSolve Biosystems.

Circle 56 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Gladding-Hearn Gets Pilot Boat Orders

Gladding-Hearn Shipbuilding is building a new class of pilot boats. The Virginia, Maryland, and Tampa pilots will be the first to operate the shipyard's new Chesapeake class of 53-ft. (16.1-m) launches.

The first two boats will be delivered to the Virginia Pilot Boat Corporation and Association of Maryland Pilots next October. The Tampa Pilots' boat and a sister ship for the Maryland pilots will be delivered in 2003. The Chesapeake class represents some subtle changes to the hull of the shipyard's popular "St. Johns" class of pilot boats, said Winn Willard of C. Raymond Hunt Associates, the designer.

The new all-aluminum boat measures approximately 52.5 ft. (16 m), with a 17-ft. (5.1-m) beam and a 4.8-ft. (1.4 m) draft. It is six inches longer, and wider on deck than the St. Johns class.

Circle 57 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### ABS Announces

#### Executive Appointments

The ABS Board of Directors announces executive appointments. Effective January 1, 2002 the following staff will assume new leadership positions: **Robert J. Bauerle**, Senior Vice President & CFO; **Gary A. Latin**, Senior Vice President & Chief Information Officer; Dr. **Donald Liu**, Executive Vice President & Chief Technology Officer; and **Vincent F. Roth**, Senior Vice President & Chief of Staff; ABS promoted **James C. Card** to Senior Vice President, Technology. Card will assume the overall management responsibilities of ABS' global technology and research team.

The Board also approved the election of **William J. Sember** to a new corporate officer position of Vice President, Offshore Development. Sember is currently serving as Vice President Technology & Business Development, ABS Europe. He will relocate to ABS Worldwide Headquarters in Houston, Texas.

## Lloyds Certification For Helifusion

### Welding Process

A&P Southampton and its engineering division - Helifusion, has achieved Lloyds Register certification for a new weld process to supplement their existing class approved process Fleetfusion.

The Fleetfusion spiral welding process originated in 1979 as a result of demand from the M.o.D for a cost effective repair for Hydroplane shafts on submarines, this process has served Helifusion well for many years and will continue in certain applications. Utilizing the M.I.G. welding system however has its limitations in that the maximum deposition is 2.5 mm per run thus inter run machining is required for multiple layer buildups.

After Helifusion was acquired by A&P, thought was given to developing alternative welding methods to reduce consumable wastage and maximize machine utilization. After extensive research and development and a switch to the Tungsten Inert Gas system the process was submitted and subsequently accepted by Lloyds Register. The main advantages of this process are better control of the welding parameters, with superior bonding, less distortion on thin sections, less wastage of filler wire, weld can be applied to a greater thickness, and there is no machining requirement between runs if multiple layers are required.

Circle 34 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## Klyne Tugs Orders New AHTS Vessel

Yantai Raffles Shipyard won an order from Klyne Tugs (Lowestoft) Limited, U.K., for another UT719-T 220-ft. (67-m) Anchor Handling Towing Supply Vessel. The contract was signed on November 23, 2001 in Yantai by **Carl Beare**, Managing Director of Klyne Tugs and **Brian Chang**, Chairman/CEO of Yantai Raffles Shipyard.

Yantai Raffles Shipyard is currently building 20 vessels for various international owners. The vessels include some of the largest DP2 Anchor Handling Towing Supply Vessels for Tidewater Marine Inc, USA, UT 719-T Anchor Handling Towing Supply Vessels for Klyne Tugs (Lowestoft) Ltd., U.K., Maintenance Support Vessel for SMIT Salvor BV, a FSO (Floating Storage Offloading Vessel) for Total-Thailand/MODEC Japan Inc. USA and an External Turret for FMC/SOFEC Inc. USA.

# ANCHORS CHAINS

Also under construction are five yachts varying from a 105 ft. (32-m) aluminum sailing yacht, a 50-m pleasure yacht and a 105-ft. (88-m) MegaYacht. The shipyard employs a total of 1,600 people including 300 graduates, of which 70 of them are naval architects.

The yard will have a 10,000 work force within three years including subcontractors. The shipyard's 1,410 x 394 ft. (430 x 120-m) dry dock, a 1,213 ft. (370 m) gantry crane and the largest land based crane in the world is now operational.

Being installed now is a 20,000 mt hydraulic press and the second unit 370 mt gantry crane.

## Manitowoc to Build Additional USCG Buoy Tenders

Marinette Marine won a contract to build two additional seagoing buoy tenders for the U.S. Coast Guard. The options, valued at approximately \$60 million, are extensions to an existing series of contracts awarded by the Coast Guard in 1993 and 1998 to build up to 16 Juniper-class buoy tenders.

"These options mark nearly \$350 million in new shipbuilding contracts won this year alone, and they further enhance our position as the U.S. Coast Guard's largest supplier of shipbuilding and ship-repair work," said **Terry D. Growcock**, Manitowoc's president and chief executive officer.

## Transportation Industry Executive, Gerald P. Toomey, Dies at 73

Transportation industry veteran Gerald P. Toomey died on Monday, November 19, at the Riverview Medical Center in Red Bank, NJ. He was 73. During his long tenure in the transportation industry, Toomey was best known for his contributions at Sea-Land Service, Inc. where he worked from 1963 until 1974. There, he was instrumental in the development of the company's

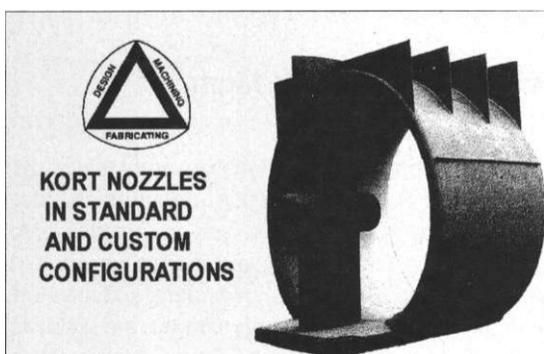


**WORTELBOER**  
Tel.: +31 (0)10 429 2222  
Fax: +31 (0)10 429 6459  
gjw@wortelboer.nl  
[www.wortelboer.nl](http://www.wortelboer.nl)

Puerto Rico, and Caribbean trades, and he ultimately served as Sea-Land's group vice president, Caribbean. In 1974, when Sea-Land spun off its Puerto Rico/Caribbean division, Toomey took the helm of Puerto Rico Marine Management, Inc. (PRMMI) as president of the management company that operated Navieras de Puerto Rico, the Puerto Ricanstate-owned steamship line. Toomey also worked with Trans Freight Lines, a U.S. subsidiary of Thomas Nationwide Transport Inc.; Consolidated Freightways in Akron, Ohio; and he served as president of the management company that operated Navieras de Puerto Rico. Most recently, Toomey was a consultant with Columbia Coastal Transport in Liberty Corner, N.J.

## Keppel FELS Signs \$77M Deal With Diamond Offshore

Keppel FELS Limited (KFELS) won contracts worth a total of \$77 million from Diamond Offshore Drilling Inc. for the upgrades of a semi-submersible, Ocean Rover and a jack-up rig, Ocean Tower. This follows a \$34 million contract from Diamond Offshore for the upgrading of four jack-up rigs in July this year.



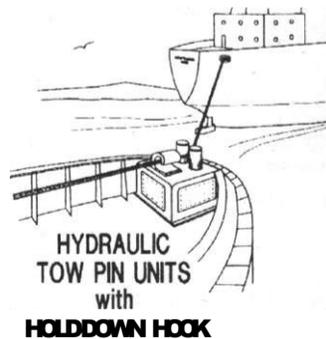
**KORT NOZZLES  
IN STANDARD  
AND CUSTOM  
CONFIGURATIONS**

## HARRINGTON MARINE

6720 124TH AVE., FENVILLE MI 49408  
PHONE 800-962-5000 FAX 616-543-4637  
VISIT OUR WEBSITE AT  
<http://www.harringtonmarine.com>

Circle 217 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

## TRACTOR PINS FOR TODAY'S TUGS



## WESTERN MACHINE WORKS

1870 Harbour Road - North Vancouver, B. C. - Canada - V7H 1A1  
Phone: (604) 929-7901 Fax: (604) 929-7951 or (604) 929-5329

Circle 256 on Reader Service Card  
or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

**E-OPPORTUNITIES  
@MARINELINK.COM**

Reach Your Customers Online  
With Marine News' Web site  
with More New Features  
and a New Look . . . COMING SOON!

[WWW.MARINELINK.COM](http://WWW.MARINELINK.COM)

## People & Company News

### Ocean Marine Leaves Morgan City

#### For Houma

Ocean Marine Brokerage Services has moved its main offices from Morgan City, La. to Houma, La. According to **Steve Kokinos**, president of Ocean Marine, the move will better position Ocean Marine in order to serve the industry more effectively.

The company, which has been active in the sales of all types of commercial vessels worldwide since 1978, specializing in fishing vessels and oilfield related marine equipment, will maintain a branch office in Morgan City, La. in addition to its other branch offices located throughout the U.S. Gulf.

Circle 13 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Heidenreich Marine Forms Venezuelan Subsidiary, Opens Branch Office

Heidenreich Marine Inc. has formed a Venezuelan subsidiary and the opening of a branch office in Caracas, Venezuela.

In addition to assisting with the marketing and chartering of vessels in Heidmar's panamax tanker pool, Star Tankers, and product tanker pool, Dorado Tankers, Heidenreich Marine Caracas, C.A. will be used to help with the development of business in Central and South America.

**Jesus R. Parra** has been appointed the Managing Director of HMC. He comes to HMC from Petroleos de Venezuela, S.A., where he was a Products Account Executive for various subsidiaries of this state owned oil company.

Assisting Parra will be **Jose Gregorio Peraza**, as manager of Chartering/Operations. Peraza also comes from Petroleos de Venezuela, where he served as a Fleet Commercial Supervisor and a Senior Advisor for new business development.

### Marine Fire Fighting Manual Is Now Available

#### MARINE Fire Fighting For Land-Based Firefighters

International Fire Service Training Association

The first edition of Marine Fire Fighting for Land-Based Firefighters is now available. This manual provides training, technical knowledge, reference materials, and skills development for those who respond to vessel fires. Shoreside firefighters need to understand their departments' policies and liabilities as they pertain to waterfront and marine incidents and

this textbook outlines the roles and responsibilities of responding agencies and the concept and implementation of a unified command structure.

The text describes shipboard hazards, common situations encountered in vessel fire situations, and characteristics of a shipboard fire incident plus vessel stability and ship/shore interface concerns.

It also addresses the requirements of maritime regulatory organizations such as the U.S. Coast Guard, Transport Canada, and International Maritime Organization.

Circle 11 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Wartsila Records Orders In China

Wartsila reports orders for Sulzer RT-flex diesel engines for two multi-purpose carriers to be built at Shanghai Shipyard in China for Chinese-Polish Joint Stock Shipping Co. (Chipolbrok).

The order consists of low-speed marine engines to have common-rail fuel injection — reducing emissions and they lack visible exhaust smoke at any operating speed. For each vessel, Wartsila will also supply three Wartsila 20 auxiliary engines. Sulzer RT-flex is the world's first low-speed marine engine to have common-rail fuel injection. This year, Wartsila has received orders for six Sulzer RT-flex engines.

Circle 26 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Industry Leaders Elected To ABS Membership

Sixty-Nine prominent shipping industry executives have been elected as new members of ABS. In addition, Rear Admiral **David L. Brewer III**, Commander, Military Sealift Command, U.S. Navy, was appointed as a member; bringing ABS worldwide membership to 803. The members, each eminent in their maritime field of endeavor, provide broad governance and oversight of ABS. Members are drawn from various sectors of the marine, offshore and related industries worldwide.

#### The new members are:

**M.A. Abraham**, Chairman & Managing Director, ABAN Group  
**Marcelo P. Arcos, Jr.**, General Manager, Transportes Navieros del Pacifico S.A.  
**Ghazi A. Al-Habrahim**, President, Mideast Shipmanagement Ltd. (MSML)  
**Giovanni Barbaro**, Owner, Pietro Barbara S.p.A.  
**Luca Bertani**, General Manager, Finbeta, S.p.A.,  
**Giovanni Battista Bollorino**, Owner, Marittima Fluviale Di Navigazione, S.p.A.  
**Giuseppe Bottiglieri**, Managing Director, Bottiglieri Di Navigazione, S.p.A.  
**Jae Cheol Byun**, President, JSM International Ltd.  
**Paolo Cagnoni**, General Manager, Mediterraneo Di Navigazione  
**Dr. Maura Fernando Orofino Campos**, President, Petroleo Brasileiro S.A.  
**Dr. Yih-Nan Chen**, Chairman & President, United Ship Design & Development Center  
**YuarChang Chiang**, President, China Shipbuilding Corp.  
**Dong-Hyun Cho**, President & CEO, Dooyang Line Co. Ltd.  
**SooHo Cho**, Vice Chairman, Hanjin Shipping Co. Ltd.  
**H.N. Chu**, Deputy Chief Engineer, Chinese Petroleum Corp.  
**Nicola Coccia**, President, Mediterranean Shipping Cruises  
**Yoram M. Cohen**, CEO, Liberian International Ship & Corporate Registry (LISCR)  
**Robert P. Curt**, General Manager, Marine Transportation, ExxonMobil  
**Nello D'Alesio**, President, Dalmare S.p.A.  
**Luigi D'Amato**, Owner, Fratelli D'Amato S.p.A. Armatori  
**Michele D'Amato**, Owner, D'Amato Di Navigazione S.p.A.  
**Cesare D'Amico**, Managing Director, Italia S.p.A. Di Navigazione  
**Giovanni Dellepiane**, Owner, Rimorchiatori Riuniti  
**Timothy Dool**, President, Algoma Central Corp  
**Heng Chiang Gnee**, Managing Director, Sembawang Shipyard Re. Ltd., Singapore  
**Rear Admiral N.P. Gupta**, Director General Naval Design, Indian Navy  
**Tong Chong Heong**, Managing Director, Keppel FELS Ltd.  
**S.K. Huang**, Executive Vice President, Evergreen Marine  
**W.H. Huang**, President, Yangming Marine Transport Corp.  
**Domenico Ievoli**, Owner, Mamavi S.p.A.  
**Hak So Jang**, President, Korea Line Corp.  
**Jeong Joon Jeon**, President, Keoyang Shipping Co. Ltd.  
**Timothy T. Jones**, Managing Director, Barry Salles  
**Sung-Leep Jung**, President & CEO, Daewoo Shipping & Marine Engineering Co. Ltd.  
**Jing-Wan Kim**, President & CEO, Samsung Heavy Industries Co. Ltd.  
**Koang In Kim**, President, INP Heavy Industries Co. Ltd.  
**Teo Joo Kim**, Chairman, Pacific Carriers Ltd.  
**Young Chi Kim**, President, Namsung Shipping Co. Ltd.  
**Ragnar M. Knutsen**, President, Sealift Inc.  
**Vijay Kumar**, Director, Bharati Shipyard Ltd.  
**Carlo Andrea Marsano**, Owner, Lloyd Sardegna Compagnia Di Navigazione S.R.L.,  
**Raymond I. Martino**, Vice President - Marine, Atlantic Mutual Companies  
**Reginald A. McNee**, Area Manager-South East Asia, Tidewater Marine International Pte. Ltd.  
**Sanjay Mehta**, Managing Director, Essar Shipping Ltd.  
**Giovanni Montanari**, Owner, Navigazione Montanari S.p.A.  
**Robert G. Morgan**, Vice President - Reinsurance, Atlantic Mutual Companies  
**Marco Novella**, General Manager, Carichi Liquidi Societa' Azionaria S.p.A.  
**Patrick O'Hern**, Vice President & General Manager, Bay Shipbuilding Corp.  
**C.K. Ong**, President, U-Ming Marine Transport Corp.  
**Alexander P. Panagopoulos**, President & Managing Director, Superfast Ferries S.A.  
**Rear Admiral Sampath Pillai**, Chairman & Managing Director, Goa Shipyard Ltd.  
**Sebastiano Portunato**, Director, Portunato Marine Consultants  
**Anthony Richardson**, Managing Director, ShipTech Re. Ltd.  
**Robert K. Rimlinger**, Senior Vice President-Marine, LeTourneau, Inc.  
**Dennis Rochford**, President, Maritime Exchange for Delaware River & Bay

**Steve T. Scalzo**, President & CEO, Foss Maritime Co.  
**Constantine Scarvelis**, Technical Consultant, Trident Maritime Agency  
**C.C. Shih**, Vice President, Taiwan Navigation Co. Ltd.  
**Jaka Aryadipa Singgih**, President Director, P.T. Bumi International Tankers  
**Oentoro Surya**, President Director, P.T. Arpeni Pratama Ocean Line  
**Dr. Ir. Adwin H. Suryohadiprojo**, Managing Director, PAL Indonesia  
**Tara Tiradnakorn**, Vice President-Operations, Unocal Thailand  
**ho Tommaso**, Owner, Marjan Shipping Services Ltd.  
**Edward J. Tregurtha**, President, Moran Towing Corp.  
**George Tsaviris**, Principal, Tsaviris Towing & Salvage  
**Ong Kok Wah**, Director, Chuan Hup Holdings Ltd.  
**Su-Eun Yoo**, President, Shina Shipbuilding Co. Ltd.  
**Yung Woo Yoon**, President, Pan Ocean Shipping Co. Ltd.  
**Gianni Zucchello**, General Manager, Studio Tecnico Navale Zucchello.

### nView Establishes Joint Agreement With Headhunter

nVIEW Corporation has signed a joint development agreement with Headhunter, Inc., to develop a customized tank monitoring system for the marine industry.

The tank monitoring system will integrate the unique capabilities of nVIEW's SiMON, Ship's Information Monitoring system, with a proprietary digital interface to Headhunter's tank and pump controller of which Headhunter will distribute this product as part of its line of integrated marine sanitation systems.

The Headhunter Sentry II tank monitoring system features full calibration of irregular shaped tanks, automatic or manual pump control via software, display of percent of volume and gallons remaining, four levels of user-configurable alarms and a programmable software display. The system can support up to 32 tanks for potable, gray and black water, as well as fuel, oil and sludge tanks.

Data from the Headhunter system can be viewed on multiple displays strategically located throughout the vessel, giving the captain instant access to all tank information on a single integrated display. The data can be rebroadcast to additional PCs in the network via an Ethernet connection, and can also be transmitted via RF to a laptop or to mobile PCs.

Circle 27 on Reader Service Card  
[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)

### Stewart Joins Board at Hornbeck-Leevac

Hornbeck-Leevac Marine Services, Inc., announced that the board of directors has unanimously appointed **Bernie W. Stewart** to fill the recently created board vacancy. Stewart served in a variety of senior management positions with R&B Falcon until its merger in January 2001 with Transocean Sedco Forex, Inc., most recently as Senior Vice President, Operations of R&B Falcon Corporation and President of R&B Falcon Drilling U.S., its operating subsidiary.

### Crowley Reorganizes its Marine Services Subsidiary

Crowley Maritime Corporation has reorganized its Crowley Marine Services subsidiary into three distinct operating groups — ship assist and escort services; petroleum services; and energy and marine services.

**Steve Peterson**, senior vice president and general manager, is now managing energy and marine services and will relocate from Jacksonville to Seattle. **Rob Grune**, vice president and general manager, is managing ship assist and escort services; and **Bruce Barto**, vice president and general manager, is directing Petroleum Services, also from Seattle. Each of these individuals reports directly to chairman, president and CEO, **Tom Crowley Jr.** and has profit and loss responsibilities for their groups.

# Intelligent Software Agents for Machinery Diagnostics

Machinery plant maintenance represents a major expense for ship operators. In addition to normal maintenance expenditures, unexpected breakdowns have a significant cost impact. Recognizing the importance of preventing equipment failures, companies continue to adopt automation for machinery monitoring at a rapid pace. Continual improvements in the price/performance ratio of automation systems have also fueled their increased use in shipboard machinery plant monitoring.

As a result, more ships with automated machinery plants exist today than ever before. However, just as a typical Internet search can easily create "information overload", so too can process automation create a "data overload" situation for the engineering crews responsible for equipment operation and maintenance. Modern shipboard automation systems typically monitor upwards of over 5,000 real-time process variables, allowing engineers to view massive amounts of data. This is one example of how automation systems can create too much data. Who is responsible for or has the time to monitor the 5,000 data points? How many people will this take and how much will it cost?

The trends toward more automation, too much data, and too few people make it difficult for companies to assimilate data into information useful for optimal maintenance management. Machinery performance monitoring and maintenance management is an area where immediate exploitation of software agent technology can yield substantial benefits. Software agents can serve as expert assistants in monitoring, controlling, and troubleshooting complex machinery processes. Agents can perform tedious, repetitive, and analytically complex tasks without being constantly controlled by people. They can also provide valuable assistance in maintenance management decision-making.

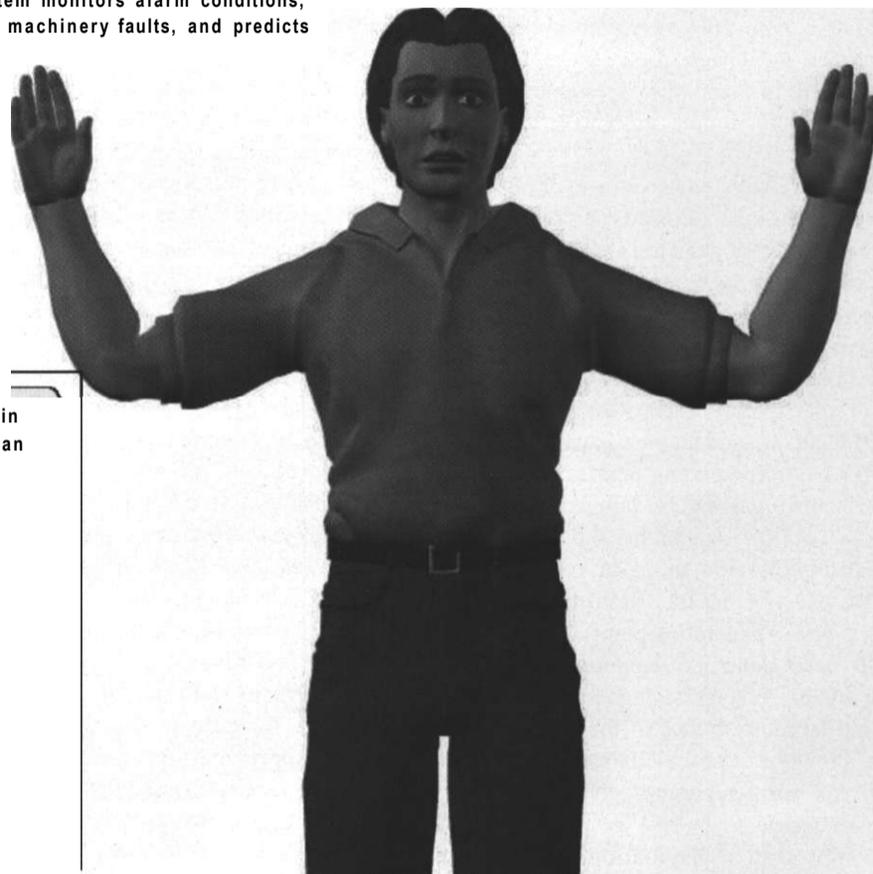
### Meet Dexter

MACSEA has offered its DEXTER machinery diagnostic system since 1991. This system monitors alarm conditions, detects trends, diagnoses machinery faults, and predicts impending problems. DEXTER's artificial intelligence is based on neural network technology that diagnoses machinery faults and ranks them by their probability. The company has recently adapted its diagnostic technology into a team of cooperating, real-time agents, allowing users to create as many agent assistants as needed for their particular condition monitoring requirements. The agents "plug-and-play" with most process control software and automation systems in use throughout industry. Tools are provided to build diagnostic knowledgebases that cause neural networks to be created automatically. The neural networks are then attached to different agents, which gives them the artificial intelligence to carry out their monitoring and diagnostic tasks.

DEXTER's agents run continuously in the background under Windows NT. Users can deploy multiple agents simultaneously, with each monitoring a different piece of equipment. Human-like animated characters provide a simple user-agent interface employing the latest speech synthesis and recognition technologies. Agent characters issue alerts only when they have diagnosed or predicted problems in the machinery

MACSEA has offered its DEXTER machinery diagnostic system since 1991. This system monitors alarm conditions, detects trends, diagnoses machinery faults, and predicts impending problems.

I am detecting current Main Diesel Engine 1 faults. I can open the faults list.



plant. They appear on a computer screen, no matter what other software you may be running at the time. At other times, the agent characters remain hidden, working silently in the background. Since the agents are designed to run in a Windows NT environment, distributed operation over local area networks is supported. With machinery plant maintenance often accounting for up to 40 percent of total costs in a company, clearly knowledge assets in the maintenance area can be valuable. DEXTER is a tool that allows an organization to capture, organize, manage, and distribute machinery diagnostic knowledge assets within your organization. Even the newest maintenance worker can immediately benefit from your diagnostic knowledge assets that are embedded into DEXTER's neural networks. This knowledge can be distributed and exploited across your entire maintenance operation, be it contained in a single factory or in several locations around the globe. The bottom line will be improved profitability through avoiding, reducing, or eliminating the consequences of machinery failures. Downtime due to equipment failure impacts both profitability and productivity by reducing output, increasing operating costs, and interfering with customer service. Maintenance plays a critical role in preserving the physical, financial, and competitive health of your company. Smart companies need to equip themselves now with smart tools for condition-based maintenance; smart tools like DEXTER.

### Cloning Human Intelligence

A knowledgebase encapsulates valuable engineering knowledge about a machinery plant and its equipment. A knowledgebase is typically developed through an expert-level assessment of machinery failure modes. In

maintenance circles, this is called a Failure Mode and Effects Analysis (FMEA) of the machinery plant. The FMEA involves enumerating all likely machinery faults based on information gathered from historical experience, manufacturers' troubleshooting information, and assessments of industry experts. Each fault is then characterized by its measurable symptoms in the plant, as monitored by the available sensor instrumentation and plant automation. A symptom is defined as an alarm condition, such as a particular temperature measuring HIGH, with respect to a set point limit.

The FMEA forms the basis of diagnostic knowledge about the plant. A comprehensive FMEA of a machinery plant typically involves a substantial amount of time and effort. Because of this, any knowledgebase created from the FMEA becomes a valuable corporate intellectual asset, particularly when it is used with DEXTER as part of a condition-based, reliability-centered maintenance program. A knowledgebase is a collection of information relating machinery faults and symptoms derived from the FMEA.

The BRAINS tool allows a user to create and manage diagnostic knowledgebases that are used by DEXTER's agents. DEXTER's diagnostic neural networks automatically learn the fault-symptom relationships you enter into each knowledgebase. Its software agents are then able to perform real-time diagnostics and prognostics of machinery plant problems.

Besides entering a fault name and description, a user can also indicate any corrective actions or special instructions that the maintenance engineer should follow if the fault is detected. The information entered on this form will be displayed when this fault is detected

(Continued on page 53)

# re cat Ships off 2001

## Berge Arctic

(Continued from page 36)

arranged throughout center cargo holds, and center cargo holds are divided by corrugated type transverse bulkheads with upper and lower stools. Inner bottom plating in way of ore cargoes is strengthened for empty grab weight of 35 tons

The hatch covers are electro-hydraulically operated side rolling type consisting of one panel of peak top type to operate satisfactorily in temperature ranging between -30 degrees C to +45 degrees C. The vessel is configured with seven cargo holds, 16 ballast tanks including peak tanks. Total cargo capacity is 101,014 cu. m. and ballast capacity of 102,817 cu. m., including peak tanks.

Two centrifugal ballast pumps of the capacity of 3,000 cu. m./hr. and one of the capacity of 1,500 cu. m./hr. each driven by electric motor, are provided. Electric power generating plant is consist of two diesel generators, one turbo-generator and one emergency generator. One oil fired auxiliary boiler of the capacity of 11,500 kg/hr. is provided to supply the steam for turbo-generator, general service and heating.

The Integrated navigation system (INS) and ECDIS are provided. Fire indication and failure of detector are of analog addressable on the central panel and interfaced with IAS to display mimic diagram. Instruments, alarms and control equipment for safe operation of main engine and auxiliaries are arranged for a part of integrated automation system (IAS).

Main Particulars - Berge Arctic	
Length, (o.a.)	958 ft. (292 m)
Length, (b.p.)	922 ft. (281 m)
Breadth, molded	157 ft. (48 m)
Depth, molded to main deck	78 ft. (23.7 m)
GT	91,563
Displacement	201,746 tons
Lightweight	27,461 tons
Deadweight, design	169,717 tons
Deadweight, scantling	174,285 tons
Draft, design	(17 m)
Speed, service	15.97 knots
Water ballast	102,817 tons
Classification	DNV
% High-tensile steel	63%
Main engines	B&W 7S70MC
MCR	. .26,740 ps @ 91 rpm
Propeller	. .Nakashima Propeller
Boilers	Kanglim
Cranes	Hydralift
Mooring equipment	Rolls-Royce
Hatch covers	Marcor Neptun
Cargo tanks	7
Ballast control	Scana
Bridge control system	. . . . .Kongsberg Maritime
type	Auto Chief 4
Fire detection	Autronica
Fire extinguishing	Unitor
Radars	

## Nils Holgersson

(Continued from page 37)

Peter Pan embody a very much increased freight intake and reduced passenger capacity relative to two ships of the same name (subsequently converted, enlarged, renamed and redeployed), which the newbuilds replaced on the southern Baltic crossing. The new breed provides for 2,640 lane-m of vehicles and 740-passengers, compared with the previous sailing capacity of 1,480 lane-m and 1,044-passengers. In a freight carrying context, Nils Holgersson is a three-deck vessel characterized by a high degree of freight carrying and loading flexibility. The drive-through capability, including two-tier stern access, is complemented by side doors for vehicles in the forebody, while a system of fixed, hoistable and tilting ramps expedites inter-deck transfers and turnaround flows. A key feature of the MacGregor RoRo equipment package is a huge, tiltable ramp serving as the conduit for vehicles between the main and upper deck levels. The bow ramp/door accessing the main garage deck is designed in such a way that the section forming the watertight door at the collision bulkhead is physically apart from the other ramp sections, as prescribed by class rules. The stern-handling arrangements comprise a wide ramp/door serving movements on and off the main deck threshold, plus a narrower ramp to convey vehicles direct between the shore and the upper deck level.

Direct access into and from the uppermost level is also achieved through the apertures in the foreship side shell structure served by two ramp/doors port and starboard. The

## Stena Vision/Stena Victory

(Continued from page 26)

minimum 72 hours at a speed of at least six knots in a head sea and gale force winds of Beaufort force 8. This reserve of power makes it the first VLCC tanker to satisfy Det Norske Veritas' Redundant Propulsion Separate (RPS) requirements."

In terms of maneuverability the V-MAX performs considerably better than a conventional modern tanker. At a maneuvering speed of 8 knots her turning circle is tighter than that of a Suezmax of half her size.

The new VLCC - with a service speed of 16.9 knots - also employs an exceptionally beamy, shallow-draft hull form. The vessel has a beam of 229.6 ft. (70 m), compared to the normal 190-

tank top lower hold is reached from the main deck by a fixed ramp aft and a hoistable ramp forward. TT-Line's previous generation of ferries, the so-called 'Green Ships' Nils Dacke and Robin Hood commissioned from Aker Finnyards in 1995-96, had marked a milestone in ferry technology by embracing diesel-electric power and propulsion plant. The Nils Holgersson and consort Peter Pan have taken the concept a bold stage further through the adoption of a system where the propulsive effect is conveyed by steerable pods. The exacting level of maneuverability needed for the new ships, the savings in fuel associated with more efficient maneuvering, along with weight, space, and propulsive efficiency factors, favored the selection of azimuthing pods in preference to a more standard diesel-electric layout based on inboard propulsion motors driving fixed-pitch propellers.

Although convinced of the efficiency as well as maneuverability attributes of the electric pod concept, TT-Line sought a system, which would suit the special installation criteria imposed by a stern-ramped RoRo vessel, while delivering the requisite power and thrust. Practical requirements relating to the comparatively low threshold height of the main garage deck and the need to ensure unobstructed stern access and a flush deck for RoRo operations colored its choice of system.

In the event, the company settled on the Siemens-Schottel Propulsor (SSP) solution, opting for two SSP10 pods of 11-MW apiece, giving a speed of 22-knots on a power output of 9.8-MW from each unit. One of the distinguishing features of the SSP system is its permanent-field synchronous motor,

197 ft. (58-60 m) one for VLCCs. These features make it possible for the VLCC to offer a 30 percent higher loading capacity on a limited draught than more conventional VLCCs.

A large emphasis has been placed on the arrangement, equipment and layout of the navigation bridge, as well as on the training of deck officers. For instance, the bridge provides a 360 degree window view from a centralized co-pilot conning station where all control and monitoring can be performed through the state-of-the-art Integrated Bridge Control System (IBCS). Training has been conducted in cooperation with local pilots using a full scale bridge simulation model featuring the vessels' primary trading environment, the Delaware River. The V-MAX has slow-speed main engines, which satisfy the new IMO requirements for Nitro-

Main Particulars - Nils Holgersson	
Classification	Germanischer Lloyd
Length, (o.a.)	623 ft. (190 m)
Breadth	97 ft. (29.5 m)
Depth, to upper deck . . .	48 ft. (14.6 m)
Draft, design	20 ft. (6.2 m)
DWT	7,200
GRT	34,500
RoRo capacity	2,640 lane m
Freight units	c.160
Passenger capacity	744
Passenger cabins	220
Propulsion system	Diesel-electric
Main genset power	29,880 kW
Speed	22 knots

incorporating double-wound stators, and another is its use of two propellers, one at each end of the nacelle, both rotating in the same direction.

The combination of optimized aft lines and the nature of the pod system are claimed to achieve a 14-percent saving in power for a given speed relative to a conventional, twin-propeller layout.

The diesel-electric plant caters for all shipboard consumers besides the propulsion system. Electrical power for the podded motors is drawn from the bus fed by a total of five generators based on MaK medium-speed diesel engines manufactured in Germany by Caterpillar Motoren.

The main gensets are positioned in the side compartments between the B/5 longitudinal bulkheads and outer shell, as was the case in the previous generation of ships. One 7M43 and one 8M43 engine and associated alternators are arranged in line in the portside machinery compartment, while 7M43, 8M43 and 6M32C-based gensets are laid out in the starboard-side machinery room. Total plant output is 29,880 kW, of which a maximum 22,000 kW is available for propulsion purposes.

gen Oxide emissions and also have separate tanks for more environmentally friendly fuel for operation in sensitive areas calling for reduced emissions. The vessel is prepared to be the first large tanker equipped with 'intelligent' engines with enhanced combustion control, enabling fuel consumption or NOx emissions to be minimized in each speed range. Also lubrication oil consumption is significantly reduced. In the interests of long term corrosion resistance, the ballast tanks are double coated with epoxy totaling 300um, and the cargo tanks are coated from the tank bottom and 1 meter up and from the under deck and 2 meters down; including complete coating of the transverse web frame. Particular efforts have been made in meticulous preparation of the steel surfaces and climate control for ultimate paint adhesion.

# Ferlship's New Ship Contracts • October/November 2001 • by Type

Ferlship is a strategic consultancy highly specialized in market researches guided to the shipping industry. For additional information, please contact Ferlship @: Pza. Sta. M<sup>a</sup> Soledad Torres Acosta, 2. 2<sup>o</sup> C, 28004 Madrid, Spain, Tel. : +34 91 531 01 78 , 689 01 45 66; Fax: +34 91 531 01 78' e-mail: ferlship@iies.es (Prices are in U.S. Dollars)

OWNER OPERATOR	COUNTRY SO	SHIPYARD	COUNTRY SB	TYPE	No	TEU	DWT	DEUV	PRICE MS
BRITOL OFFSHORE SERVICES	SINGAPORE	WUXI	CHINA	AHT	2	0	0	1	0
TRICO MARINE	US	HAVYARD LERVIK	NORWAY	AHTS	2	0	0	2	0
BRITOL OFFSHORE SERVICES	SINGAPORE	WUXI	CHINA	AHTS	1	0	0	2	0
BRITOL OFFSHORE SERVICES	SINGAPORE	WUXI	CHINA	AHTS	2	0	0	1	0
SWIRE PACIFIC OFFSHORE	SINGAPORE	PAN-UNITED SHIPYARD	SINGAPORE	AHTS	1	0	0	2	0
HYUNDAI ENGINEERING AND CONSTR.	KOREA	HYUNDAI-VINASHIN	VIETNAM	BULK CARRIER	1		50,000		30
EGON OLDENDORFF	GERMANY	SAIKI	JAPAN	BULK CARRIER	1		31,600	03	
JAPANESE INTERESTS	JAPAN	SHIKOKU DOCKYARD	JAPAN	BULK CARRIER	1		18,200	02	
KUNE	JAPAN	NKK CORP.	JAPAN	BULK CARRIER	1	0	200000	4	0
BOCIMAR	BELGIUM	SHANGHAI WAIGAOQIAO	CHINA	BULK CARRIER	2	0	176000	4	72
SAFETY MANAGEMENT OVERSEAS	GREECE	TSUNESHI	JAPAN	BULK CARRIER	2	0	76000	4	44
CHUGOKU SOGYO	JAPAN	MINAMI NIPPON	JAPAN	BULK CARRIER	1	0	47000	2	0
YAMAMOTO KAIUN	JAPAN	MINAMI NIPPON	JAPAN	BULK CARRIER	1	0	47000	2	0
JAPANESE INTERESTS	JAPAN	KANASASHI CO.	JAPAN	BULK CARRIER	1	0	46600	3	0
HARREN & PARTNERS SCHIFFS	GERMANY	SHANGHAI SHIPYARD	CHINA	BULK CARRIER	3	0	35200	3-Feb	0
PACIFIC BASIN BULK SHIPPING	HONG KONG	KANDA SHIPBUILDING CO.	JAPAN	BULK CARRIER	2	0	32600	3	0
SINGAPORE INTERESTS	SINGAPORE	MINAMI NIPPON	JAPAN	BULK CARRIER	1	0	28100	2	0
FIRST MARINE SERVICE	JAPAN	SHIN KOCHIYUKO	JAPAN	BULK CARRIER	1	0	16600	2	0
VOSCO	VIETNAM	BACH DANG-VINASHIN	VIETNAM	BULK CARRIER	1	0	6500	2	0
DAIICHI CHUO KISEN	JAPAN	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER COAL CARRIER	2		90,000	04	60
NIPPON STEEL CORP.	JAPAN	MTSUI	JAPAN	BULK CARRIER ORE STRENGTHENED	1		185,000	03	40
K LINE	JAPAN	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER ORE STRENGTHENED	1		76,400	03	
DIA MARINE CORP.	JAPAN	TSUNESHI	JAPAN	BULK CARRIER ORE STRENGTHENED	1		76,300	03	
FIRST SS	TAIWAN	TSUNESHI	JAPAN	BULK CARRIER ORE STRENGTHENED	1		76,300	02	
MTSUBISHI ORE TRANSPORT	JAPAN	TSUNESHI	JAPAN	BULK CARRIER ORE STRENGTHENED	1		76,300	03	
MTSUBISHI CORP.	JAPAN	TSUNESHI	JAPAN	BULK CARRIER ORE STRENGTHENED	1		52,260	02	
CIDO SHIPPING	JAPAN	KANASASHI CO.	JAPAN	BULK CARRIER ORE STRENGTHENED	1		52,000	03	
DOMESTIC	JAPAN	OSHIMA SHIPBUILDING	JAPAN	BULK CARRIER ORE STRENGTHENED	1		46,200	03	
SUMISE KAIUN KK	JAPAN	SHIKOKU DOCKYARD	JAPAN	BULK CARRIER	1	0	29000	2	0
INTERORIENT NAVIGATION CO.	CYPRUS	HYUNDAI MIPO	KOREA	CHEMICAL TANKER	1		37,000	04	26
FINBETA	ITALY	XINGANG SHIPYARD	CHINA	CHEMICAL TANKER	2		25,000	03	52
UNKNOWN	GERMANY	HUDONG SHIPYARD	CHINA	CHEMICAL TANKER	2		21,500	03	
REDERI GUY SOMER	BELGIUM	QINGSHAN SHIPYARD	CHINA	CHEMICAL TANKER	2		18,500	03	50
UNKNOWN	UNKNOWN	SASAKI	JAPAN	CHEMICAL TANKER	1		3,800	02	
INTERSHIP NAVIGATION	CYPRUS	SAIKI	JAPAN	CHEMICAL TANKER	6	0	40000	4-Mar	150
GERMAN TANKER CO	GERMANY	LINDENAU	GERMANY	CHEMICAL TANKER	2	0	32300	5-Apr	0
SEYCHELLES PETROLEUM	SEYCHELLES	LINDENAU	GERMANY	CHEMICAL TANKER	1	0	32300	4	0
MARNAVI	ITALY	CANTIERE NAVALITERMOLI	ITALY	CHEMICAL TANKER	1	0	26500	3	0
EMILIANA MARITIMA	ITALY	CHENGXI SHIPYARD	CHINA	CHEMICAL TANKER	2	0	25000	2	0
SANPO UNYU	JAPAN	FUKUOKA SHIPBUILDING	JAPAN	CHEMICAL TANKER	1	0	8200	2	0
JAPANESE INTERESTS	JAPAN	IWAGI	JAPAN	CONTAINER	1		18,000	02	
HMM	KOREA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	2	4,700		03	
CMA-CGM	FRANCE	CHINA SHIPBUILDING CORP.	TAIWAN	CONTAINER	4	2,200		03	
ORIENT MARINE CO	JAPAN	KANASASHI CO.	JAPAN	CONTAINER	2	2600	28000	3-Feb	0
MEDITERRANEAN SHIPPING CO.	SWITZERLAND	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	CONTAINER	1	6700	0	3	0
KIEN HUNG SHIPPING	TAIWAN	SHIN KURUSHIMA	JAPAN	CONTAINER	2	1100	0	3	0
KYOKUYO KAIUN	JAPAN	SHANDONG	CHINA	CONTAINER	2	850	0	3-Feb	0
QATAR NAVIGATION	QATAR	DAE SUN	KOREA	CONTAINER	2	500	0	3	22
MAYFLOWER CORP.	UK	SHANHAIGUAN	CHINA	CRANE VESSEL	1		7,000		
ISLAND QUEEN CRUISES	US	AUSTAL SHIPS	AUSTRALIA	FERRY	1				
NEW WORLD FIRST FERRY	HONG KONG	AUSTAL SHIPS	AUSTRALIA	FERRY	3			02	
TROMS FYLKES DAMPSKIBSSEL-SKAP	NORWAY	FISKERSTRAND VERFT	NORWAY	FERRY	2			02	22.6
CONOCO	US	DALIAN NEW	CHINA	FPSO	1		210,000		
ARPENI PRATAMA OCEAN LINE		VOLHARDING	NETHERLANDS	GENERAL CARGO	1		8,700	03	
PETER SCHEEPSWERF	NETHERLANDS	UNKNOWN	NETHERLANDS	GENERAL CARGO	2		4,500		12
UNKNOWN	UNKNOWN	PETERS SCHEEPSWERF	NETHERLANDS	GENERAL CARGO	4		4,500	03/03	
FATOGLU GIDA	TURKEY	GISAN	TURKEY	GENERAL CARGO	2	0	5500	2	0
DAITO KAIUN SANGYO	JAPAN	SASAKI	JAPAN	GENERAL CARGO	1	0	3800	1	0
GERMAN INTERESTS	GERMANY	DAMEN SHIPYARDS	NETHERLANDS	GENERAL CARGO	2	675	0	3-Feb	0
US COAST GUARD	US	MARINETTE MARINE CORP.	US	ICEBREAKER	1			05	82.5
NAVIERA F. TAPIAS	SPAIN	IZAR	SPAIN	LNG	1	0	0	5	160
MALAYSIAN INT.SHPG. CORP. (MISC)	MALAYSIA	MTSUBISHI H.I.	JAPAN	LNG	1	0	0		165
VENEZUELAN GOVERT.	VENEZUELA	HYUNDAI MIPO	KOREA	LOGISTICS VESSEL	1	0	0	2	0
NAFTOMAR	GREECE	NAMURAZOSENSHO	JAPAN	LPG	1		18,000	03	34
UNKNOWN	UNKNOWN	SASAKI	JAPAN	LPG	1		7,800	02	
GOLDEN SHIELD LINES	PANAMA	KYOKUYO ZOSEN	JAPAN	LPG	1		7,500	02	
NAVIERA DEL ODIEL	SPAIN	BARRERAS	SPAIN	LPG	1			03	
SHINWA CHEMICAL TANKER	JAPAN	KAWASAKI H.I.	JAPAN	LPG	1			03	
CARBOFIN	ITALY	FINCANTIERI	ITALY	LPG	1	0	37700	3	0
ORANGE MARITIME	SINGAPORE	SHIN KURUSHIMA	JAPAN	LPG	1	0	6550	2	0
JAPANESE INTERESTS	JAPAN	SHITANOE ZOSEN	JAPAN	LPG	1	0	3844	1	0
STARGAS	ITALY	CANTIERI NAVALE DE POLI	ITALY	LPG	2	0	3500	3	31.8
HALLU OFFSHORE		ABG SHIPYARD	INDIA	MAINTENANCE/UTILITY	1			02	
CARISBROOKE SHIPPING	UK	DAMEN SHIPYARDS	NETHERLANDS	MULTIPURPOSE	1	0	10500	1	0
UNKNOWN	DENMARK	MOEN SLP AS	NORWAY	PASSFERRY	1				6
UNKNOWN	UNKNOWN	AFAI PANYU	CHINA	PASSFERRY	2			01/02	
EL SALAM MARITIME	EGYPT	AUSTAL SHIPS	AUSTRALIA	PASSFERRY	1	0	0	2	0
BUILDERS ACCOUNT	NORWAY	FJELLSTRAND AS	NORWAY	PASSFERRY	1	0	0	2	0
FOSEN TRAFIKKLAG	NORWAY	FJELLSTRAND AS	NORWAY	PASSFERRY	2	0	0	2	0
BERLIAN FERRIES	INDONESIA	WAVEMASTER	AUSTRALIA	PASSENGER	4			02	
POLYNESIENNE COMP. DE TM		SANTIERUI NAVAL BRAILA	ROMANIA	PASSENGER / CARGO	1	0	0	2	0
TRANSPORTES MARITIMOS DE ALCUDIA	SPAIN	BARRERAS	SPAIN	PASSENGER / RO-RO	1		5,600	403	22
NEW YORK CITY TRANSPORT	US	MARINETTE MARINE CORP.	US	PASSENGER / VEHICLEFERRY	3			03	119.1
VALFAJRE SHIPPING	IRAN	ARVANDAN	IRAN	PASSENGER / VEHICLEFERRY	2			02	

# Ferlship's New Ship Contracts • October/November 2001 • by Type

Ferlship is a strategic consultancy highly specialized in market researches guided to the shipping industry. For additional information, please contact Ferlship @: Pza. Sta. M<sup>a</sup> Soledad Torres Acosta, 2. 2<sup>o</sup> C, 28004 Madrid, Spain, Tel. : +34 91 531 01 78 , 689 01 45 66; Fax: +34 91 531 01 78' e-mail: ferlship@iies.es (Prices are in U.S. Dollars)

OWNER OPERATOR	COUNTRY SO	SHIPYARD	COUNTRY SB	TYPE	No	TEU	DWT	DEUV	PRICE M \$
ENTMV	ALGERIA	IZAR	SPAIN	PASSENGER / VEHICLE/FERRY	2	0	0	3	117
TOMASOS BROS	GREECE	ATSALAKIS		PASSENGER / VEHICLE/FERRY	1	0	0	2	0
CONSOUDADA DE FERRY	VENEZUELA	AUSTAL SHIPS	AUSTRALIA	PASSENGER / VEHICLE/FERRY	1	0	0	2	0
RAVNSBORG KOMMUNE	DENMARK	SOBY MOTORFABRIK	DENMARK	PASSENGER / VEHICLE/FERRY	1	0	0	2	0
WILSON & SONSAGENCIA	BRAZIL	WILSON & SONS	BRAZIL	PLATFORM SUPPLY VESSEL	1	0	0	3	0
TIDEWATER	UK	PROMAR	BRAZIL	PLATFORM SUPPLY VESSEL	1	0	0	2	0
HANJIN SHIPPING CO.	KOREA	IWAGI	JAPAN	PRODUCTS TANKER	2		48,400	04	
CIDO SHIPPING	JAPAN	IWAGI	JAPAN	PRODUCTS TANKER	2		48,000	04	
CIDO SHIPPING	JAPAN	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	3		45,800	03	88.5
CIDO SHIPPING	JAPAN	IMABARI SHIPBUILDING	JAPAN	PRODUCTS TANKER	2		45,800	03	59
FINAVAL	ITALY	DAEDONG SHIPBUILDING	KOREA	PRODUCTS TANKER	2		45,800	03	
NORDEN AS	DENMARK	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	1		45,800	03	
SEARLAND SHIPPING	AUSTRIA	DAEDONG SHIPBUILDING	KOREA	PRODUCTS TANKER	1		36,000	03	25.5
MOTIA	ITALY	DAEDONG SHIPBUILDING	KOREA	PRODUCTS TANKER	1		35,000	03	
SCHOELLER HOLDINGS	GERMANY	HYUNDAI MIPO	KOREA	PRODUCTS TANKER	1		35,000	03	25
UGLAND NORDIC SHIPPING	NORWAY	MAWEI	CHINA	PRODUCTS TANKER	2		35,000	03	
VIETNAM SOVIET CORP	VIETNAM	BACH DANG-VINASHIN	VIETNAM	PRODUCTS TANKER	2		25,000	03	
BUTTNER, CARL	GERMANY	3 MAJ	CROATIA	PRODUCTS TANKER	1		23,400	04	25
NEXTAGE	SINGAPORE	KYOKUYOZOSEN	JAPAN	PRODUCTS TANKER	1		16,500	03	
UNKNOWN	UNKNOWN	CEUKTEKNE SANAYII	TURKEY	PRODUCTS TANKER	1		5,500	02	
UNKNOWN	UNKNOWN	SASAKI	JAPAN	PRODUCTS TANKER	1		5,000	02	
HOZAN KISEN	JAPAN	MIURA	JAPAN	PRODUCTS TANKER	1		2,000	02	
HONG KONG INTERESTS	HONG KONG	SUMITOMO	JAPAN	PRODUCTS TANKER	1	0	105000	3	0
RESTS	GREECE	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	PRODUCTS TANKER	2	0	72000	3	73
PLEIADES	GREECE	IMABARI SHIPBUILDING	JAPAN	PRODUCTS TANKER	2	0	70000	4	68
FUKUNAGA KAIUN	JAPAN	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	1	0	48500	4	0
NETSU O.S.K. LINES (MOL)	JAPAN	IWAGI	JAPAN	PRODUCTS TANKER	1	0	48000	4	28
SOVCOMFLOT	RUSSIA	ADMIRALTESKIY	RUSSIA	PRODUCTS TANKER	2	0	47000	4-Mar	50
NOVOSHIP	RUSSIA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	PRODUCTS TANKER	2	0	47000	3	0
NISSHIN KAIUN	JAPAN	ONOMICHI	JAPAN	PRODUCTS TANKER	2	0	47000	4-Mar	56
VANGUARD	JAPAN	ONOMICHI	JAPAN	PRODUCTS TANKER	1	0	47000	3	0
D'AMICO	ITALY	JIANGDU SHIPYARD	CHINA	PRODUCTS TANKER	2	0	46500	4	52
SK SHIPPING	KOREA	HYUNDAI MIPO	KOREA	PRODUCTS TANKER	2	0	46000	4-Mar	58
ANDROMEDA SHIPPING	GERMANY	JIANGDU SHIPYARD	CHINA	PRODUCTS TANKER	1	0	46000	4	26
SK SHIPPING	KOREA	SHIN KURUSHIMA	JAPAN	PRODUCTS TANKER	1	0	45800	3	29
GREAT EASTERN SHIPPING CO. GESCO	INDIA	HANJIN	KOREA	PRODUCTS TANKER	2	0	45000	4	60
ITOCHU CORP.	JAPAN	MINAMI NIPPON	JAPAN	PRODUCTS TANKER	2	0	45000	2	0
NOVOSHIP	RUSSIA	UJANIK	CROATIA	PRODUCTS TANKER	2	0	45000	4	58
GEDEN LINE	TURKEY	HYUNDAI MIPO	KOREA	PRODUCTS TANKER	2	0	37000	3	52
SCHOELLER HOLDINGS	GERMANY	HYUNDAI MIPO	KOREA	PRODUCTS TANKER	2	0	35000	3	0
FAR EASTERN SHIPPING CO.	RUSSIA	ADMIRALTESKIY	RUSSIA	PRODUCTS TANKER	1	0	20000	3	27
ASAHI TANKER	JAPAN	NISHI	JAPAN	PRODUCTS TANKER	1	0	5565	1	0
SWEDIA REDERIAB	SWEDEN	CEUKTEKNE SANAYII	TURKEY	PRODUCTS TANKER	1	0	4320	2	0
JAPANESE INTERESTS	JAPAN	SAIKI	JAPAN	RO-RO	1		5,800	02	
CHINA NAT OFFSHORE	CHINA	WUHU SHIPYARD	CHINA	SAFETY STAND-BY VESSEL	4	0	0	3	0
UGELSTAD REDERI	NORWAY	SIMEX FLEKKEFJORD	NORWAY	SUPPORT VESSEL	1	0	0	2	0
NORTH STAR SHIPPING	UK	AKER BRATTVAAG	NORWAY	SUPPORT VESSEL	1	0	0	3	11
NIPPON YUSEN KAISA (NYK)	JAPAN	ISHIKAWAJIMA HARIMA H.I. (IHI)	JAPAN	TANKER	1		300,000	703	
SEARLAND SHIPPING	AUSTRIA	SANOYASCORP.	JAPAN	TANKER	2		113,000	04	80
VALLES STEAMSHIP CO	CANADA	IMABARI SHIPBUILDING	JAPAN	TANKER	1		107,000	03	39
D'AMICO	ITALY	NETSU	JAPAN	TANKER	3		105,000	03	120
SANKO KISEN	JAPAN	SASEBO	JAPAN	TANKER	1		85,000	02	42.5
DEJLEMAR	ITALY	JIANG JIANG	KOREA	TANKER	2		73,000	04	60
STENA BULK	SWEDEN	DAUANNEW	CHINA	TANKER	2		72,000	03/04	64.52
BEHAI MARINE	CHINA	BOHAI SHIPYARD	CHINA	TANKER	1		46,000	03	
BUNKER		UNION NAVAL DE VALENCIA	SPAIN	TANKER	1		3,000	02	
SK SHIPPING	KOREA	SAMSUNG	KOREA	TANKER	3	0	317000	4-Mar	231
WORLD-WIDE SHIPPING	BERMUDA	DAEWOO	KOREA	TANKER	2	0	300000	4	146
IDEMITSU TANKER	JAPAN	ISHIKAWAJIMA HARIMA H.I. (IHI)	JAPAN	TANKER	1	0	300000	4	0
BP SHIPPING	UK	NASSCO	US	TANKER	1	0	185000	6	0
KRISTEN NAVIGATION	GREECE	DAEWOO	KOREA	TANKER	2	0	159000	4-Mar	100
EUROPEAN INTERESTS		NIKK CORP.	JAPAN	TANKER	2	0	155000	4	106
IBERNOR SL	SPAIN	NIKK CORP.	JAPAN	TANKER	1	0	155000	4	0
NOVOSHIP	RUSSIA	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	2	0	115000	3	0
NOVOSHIP	RUSSIA	SAMHO NEW SHIPYARD	KOREA	TANKER	2	0	115000	3	82
SCINICARIELLO AUGUSTEA	ITALY	SANOYAS CORP.	JAPAN	TANKER	2	0	114000	3	79
SUARDIAZ	SPAIN	SAMHO NEW SHIPYARD	KOREA	TANKER	2	0	110000	4-Mar	79
BP SHIPPING	UK	SAMSUNG	KOREA	TANKER	4	0	106000	4-Mar	176
ENTERPRISE SHIPPING & TRADING	GREECE	HYUNDAI HEAVY INDUSTRIES (HHI)	KOREA	TANKER	2	0	105000	3	80
DYNACOM	GREECE	SUMITOMO	JAPAN	TANKER	2	0	105000	3	79
STEALTH MARITIME	GREECE	SUMITOMO	JAPAN	TANKER	1	0	105000	3	0
PREMUDA	ITALY	SAMSUNG	KOREA	TANKER	2	0	71000	3	66
INTERORIENT NAVIGATION CO.	CYPRUS	HYUNDAI MIPO	KOREA	TANKER	4	0	37000		104
TURKISH INTERESTS	TURKEY	MARMARA SHIPYARD	TURKEY	TANKER	1	0	13000	3	0
UNKNOWN	UNKNOWN	IMABARI SHIPBUILDING	JAPAN	TANKER	1	0	6000	3	0
BRITOL OFFSHORE SERVICES	SINGAPORE	WUXI	CHINA	TANKER	1	0	2000	1	0
DYNACOM	GREECE	SUMITOMO	JAPAN	TANKER	1	0	105	4-Mar	0
IBAZABAL	SPAIN	ASTILLEROS ZAMAONA	SPAIN	TUG	1			02	
SERTOSA	SPAIN	BALNCIAGA	SPAIN	TUG	1			02	
IRANIAN GOVER.	IRAN	ZHEJIANG	CHINA	TUG	1	0	146	2	0
ATLANTIC TOWING	CANADA	EAST ISLE	CANADA	TUG	1	0	145	2	0
REMOLQUES GUONESES	SPAIN	ARMON	SPAIN	TUG	1	0	0	2	0
REMOLCADORES DE CARTAGENA	SPAIN	UNION NAVAL DE VALENCIA	SPAIN	TUG	1	0	0	2	0

## Ship's Store • Marine Electronics Buyer's Guide

### ComNav Marine

ComNav has included a specialized "work mode" function in its new 1201 autopilot system designed for fast and accurate course corrections at slow speeds. The autopilot disables the automatic course trim — useful during paired, trawling operations. It can also be manually toggled between "work" and regular piloting operations. The unit receives speed input from any GPS, Ioran or other electronic source that provides continuous speed information in NMEA 0183 format. The 1201 also provides heading output in NMEA 0183 or Furuno AD-10S format.



Circle No. 110  
www.maritimereporterinfo.com

### Sea View

Silicon Valley-based Digital View, Inc. has launched the new SeaView MM-1500, a marine color LCD monitor that will change the way cruisers, fisherman and professional mariners see the world around them. The SeaView MM-1500 will be an integral component of new "black-box" marine electronics systems, providing a brilliant, high-detail 15-inch color display of radar, chart plotter, sonar or other vital navigation data. SeaView is the first monitor engineered and built specifically for shipboard use and the harsh marine environment."



Circle No. 115  
www.maritimereporterinfo.com

### Northstar 957 Navigator

Northstar Technologies introduced its new 957 WAAS DGPS Navigator, which features a bright 10.25-in. display and uses Navionics cartography. The 957 is designed to provide quick chart redraw, panning and zooming with both the existing microchart cartridges and the new, higher-density cartridges that will be available soon. Standard elements of the 957 include course-up, night palette, waypoint sharing and an optional remote control.



Circle No. 198  
www.maritimereporterinfo.com

### Prisma Teknik AB

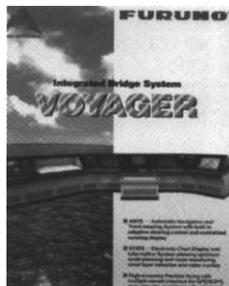
All marine engineers are familiar with the importance of regular checks on diesel engine crankshafts. Formerly, dial-gauge alignment checks were time-consuming, unpleasant and dirty and the results were of uncertain accuracy. The latest model, the DI-4C, is controlled by a micro-processor and is equipped for printing and transferring measurements to a PC. The supplied software allows the engineer to compare and evaluate readings in the office.



Circle No. 134  
www.maritimereporterinfo.com

### Furuno

The Voyager incorporates an adaptive steering control in the automatic track control system, which automatically steers the ship from point to point along a planned route in narrow waters or across the ocean in the most economical way. The centralized system represents on the conning display, the ship's heading, course-made-good, speed, rate-of-turn, planned route and waypoint data, wind, drift, depth, etc.



Circle No. 117  
www.maritimereporterinfo.com

### Raytheon

From its early days as a maker of radio tubes, to its breakthrough in the mass production of radar magnetrons during WW II, to the invention of microwave cooking, to the development of missile defense, Raytheon has consistently built upon a tradition of global technology leadership. Raytheon today is focused on defense, government and commercial electronics, and business aviation and special mission aircraft.

Circle No. 127  
www.maritimereporterinfo.com

### Americ Corporation

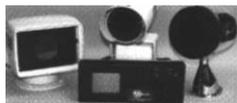
Americ's ventilators are designed for most confined space applications. From man cooling to hazardous space atmospheres, Americ can provide the proper ventilator for the job. Manufactured of durable, high density-polyethylene plastic, Americ's VAF-Series is extremely portable and lightweight. From the centrally located handles that allow for balanced maneuverability, to the anti-skid rubber feet for steadfast operation, Americ covers all the practical details for you.

Circle No. 113  
www.maritimereporterinfo.com

### Arion International

Thermal Imaging Cameras for Ships and Ports

Arion International, Inc., has introduced three Marine Thermal Imaging

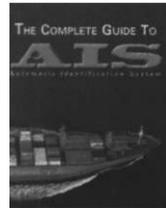


Cameras for nighttime use, collision avoidance, and search/rescue. Unlike image intensifiers that require low levels of light to operate, thermal cameras require no visible light to operate. The cameras see in total darkness, smoke and some fogs. Three models are available with varying range and performance.

Circle No. 109  
www.maritimereporterinfo.com

### Leica's Guide To AIS

AIS is a shipboard broadcast transponder system in which ships continually transmit their ID, position, course, speed and other data to all other nearby ships and shoreside authorities on a common VHF radio channel. AIS is designed to operate in one of the following modes: In a ship-to-ship mode for collision avoidance, as a means for coastal states to obtain information about a ship and its cargo and as a traffic management tool when integrated with a Vessel Traffic System (VTS).



Circle No. 123  
www.maritimereporterinfo.com

### SKANTI

SKANTI introduces the SKANTI TRP 1150, which is a new 150 Watt MF/HF and DSC radio specially designed to meet the requirements for a reliable radio in the harsh environment on board small vessels. The new highly integrated marine radio system complies with the GMDSS safety requirements and is extremely suitable for installation on board fishing vessels.



Circle No. 126  
www.maritimereporterinfo.com

### ITT Standard

ITT Standard offers two different types of ammonia condensers for efficient cooling in corrosive marine environments. Shell-and-tube models offer a secure design featuring no gasket contact with the ammonia and offers the greatest resistance to salt water corrosion.



Circle No. 136  
www.maritimereporterinfo.com

### Liferaft Systems

Liferaft Systems Australia Marine Evacuation Systems (LSA MES) are the safest, lightest, most compact and efficient evacuation systems in the world. Renowned for ease of operation and reliability, the LSA MES has the capability to rapidly and safely evacuate or retrieve passengers in any emergency situation. LSA has also maintained its customer base in Australia, Italy, Spain and France while establishing new markets with sales to shipyards in northern Europe and Scandinavia.



Circle No. 101  
www.maritimereporterinfo.com

### Olsun Electric Corporation

The OLSUN Electric Corporation was established in 1950 in Richmond, Ill. to serve the electronics industry then proliferating in the greater Chicago area. Since the 1960's OLSUN has been emerging as an independent manufacturer of high quality power and distribution dry type transformers. We have the unique ability to produce not only standard units but also to design and build highly customized transformers to the customers exact requirements. All transformers are tested not once, but several times during the manufacturing process.



Circle No. 131  
www.maritimereporterinfo.com

### Ruggedized Radio Unit Introduced

Sailor introduced the new System 4000 150W MF/HF SSB radio, a communication tool designed for the harsh environment at sea. The new 150W MF/HF transceiver with integrated Digital Selective Calling was developed according to the requirements for GMDSS compliance for all types of vessels. It is particularly suitable onboard fishing vessels, which require ruggedized communications equipment. The System 4000 150W includes a control unit, transceiver and antenna.



Circle No. 199  
www.maritimereporterinfo.com

### WichiTech Industries

WichiTech Industries, Inc. designs and manufactures simple, safe, reliable and value-packed composite repair systems. WichiTech accessories include heating blankets, HB-1 printer, vacuum pump, student training kit, mobile repair station and more.'



Circle No. 106  
www.maritimereporterinfo.com

### PBM, Inc.

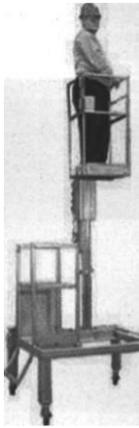
PBM offers a comprehensive line of PSMS Transmitter Isolation Valve, Rotor Valves, and Actuators for controlling and automating process lines. Many of these valves are offered with industrial, sanitary, steam, and temperature swing options.

Circle No. 116  
www.maritimereporterinfo.com

## Ship's Store

### LPI Lift Systems

LPI Lift Systems has been providing personnel lifting solutions for finishing, fabricating and maintenance for nearly 20 years and is looking forward to more challenges in the future.



Circle No. 103

www.maritimereporterinfo.com

### MATTHEWS-IMMEL

#### Matthews-Daniel

Matthews-Daniel provides technical expertise for energy insurers and the oil and gas industry throughout the world. Matthews-Daniel provides survey, appraisal and lost adjustment services on an international basis through unique staffing, which includes both marine and oilfield surveyors and adjusters. In addition, Matthews-Daniel Company has developed a set of procedures and guidelines that assist the Drilling Contractor and Operator at the most critical phases of moving independent leg jack-up drilling units onto their locations sitting on location. Circle No. 118

www.maritimereporterinfo.com

### William E. Williams Valve Corporation

Since 1918 William E. Williams Valve Corporation has been manufacturing high quality valves. All Williams valves are designed, engineered, manufactured and tested to meet or exceed all applicable industry standards including ASTM, ANSI and API.



Circle No. 119

www.maritimereporterinfo.com

### Precision Urethane

Precision Urethane was founded by Bill Flanagan in 1970 to provide urethane products and services for the local oil industry. Today, our company operates a 30,000-square-foot facility where a wide range of products are manufactured for companies worldwide. You can also depend upon Precision Urethane & Machine for polyurethane fabrications and machine services that surpass the most exciting standards.



Circle No. 120

www.maritimereporterinfo.com

### Smart-Hose Technologies Incorporated

Smart-Hose Technologies Incorporated, licenses the use of certain applications of its intellectual property and develops new safety applications for fluid transfer systems and Smart-Hose Fluid

Systems, the assembly division, that assembles a patented hose assembly and other fluid transfer systems.

Circle No. 121

www.maritimereporterinfo.com



### Pittsburgh Corning Foamglas Insulation

FOAMGLAS insulation is a lightweight, rigid insulating material composed of millions of completely sealed glass cells, each an insulating space. This all-glass, closed-cell structure provides an unmatched combination of physical properties ideal for building and mechanical applications above ground, as well as underground, indoors or outdoors, at operating temperatures from -450°F to +900°F.

Circle No. 133

www.maritimereporterinfo.com

### Wolong Fassmer

Fassmer Shipyard offers various service works in the field of development, construction and manufacturing of ships, maintenance and repairing of lifeboats, delivery of spare parts. Fassmer-Shipyard has, over the years, turned more and more to new materials such as seawater resistant and/or high quality precipitation-hardened aluminum and aluminum semifinished products as well as high-tech fiber composites.



Circle No. 104

www.maritimereporterinfo.com

### Clearstream

The Clearstream Wastewater Treatment System is a highly efficient "extended aeration" sewage treatment plant. This system, through aeration and clarification, provides a proper environment for aerobic bacteria and other micro-organisms that convert the incoming sewage into clear, odorless, and organically stable water. Because of the high quality of effluent discharged from the Clearstream System, many alternative methods of disposal are made possible.



Circle No. 124

www.maritimereporterinfo.com

### Nelson Fire Stop Products

Firestopping has been the sole focus at Nelson for nearly four decades. Nelson Firestop Products offer the right class of protection for virtually any penetration, in any building, anywhere in the world.

If you want to specify the best firestop solution for any given application, in the U.S. or overseas, Nelson is the company for a quick, accurate response. With products you can depend on. From people you can depend on. Nelson makes it easy.

Circle No. 125

www.maritimereporterinfo.com

## Quantic

Engineering and LogMca Corporation

### Quantic Engineering

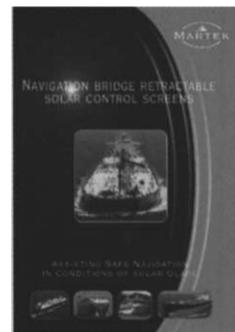
ShipMan is a powerful computerized database program for tracking ship configuration, spare parts, preventive maintenance, ship technical documentation, and a shore-based warehouse. The software is user friendly and can be used on a LAN by multiple users. Quantic can easily modify the software to accommodate your specific operating requirements.

Circle No. 102

www.maritimereporterinfo.com

### Martek

Martek manufactures retractable anti-glare solar screens for wheelhouse windows, which reject glare, heat and UV radiation. The product boasts a seven-year warranty and Lloyds Register Type Approval, and delivers a clear view in conditions of solar glare, no reflections on displays and heat reduction.

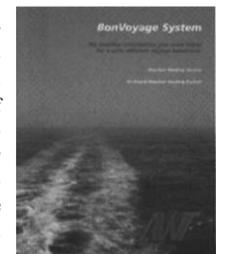


Circle No. 108

www.maritimereporterinfo.com

### Applied Weather Technology

Applied Weather Technology is a weather company specializing in providing a very high quality ship weather routing service based on the best, most reliable current and projected weather information available. AWT has developed a suite of programs specifically designed for marine applications. The BonVoyage System has three major versions for ship, office, and web site use.



Circle No. 128

www.maritimereporterinfo.com

### Reintjes

REINTJES has increased the power transmission capability of its gears for work boats to 20,000 kW and for the fast ferry sector to 13,200 kW in its standard program. REINTJES has also developed a variety of innovative customized drive solutions for newbuildings with highly specialized and very comprehensive requirements.

Circle No. 129

www.maritimereporterinfo.com

State-of-the-art  
New grinding centre inaugurated

### GasTech Engineering Corporation

GasTech Engineering designs and manufactures oil and gas processing equipment, as well as process heaters. Equipment includes glycol dehydrators, water bath heaters, direct fired heaters, gas fired convective heaters, gas and oil filters and separators, as well as gas sweetening equipment and processing plants.

Circle No. 130

www.maritimereporterinfo.com



### NLB

NLB 40201 pump produces up to 40,000 psi of (waterjet) power to quickly remove coatings, rust and more from ship surfaces.

Features rugged, reliable performance and low operating cost.

Circle No. 107

www.maritimereporterinfo.com

### ULTKA-CLEAN W

Model No. 402010

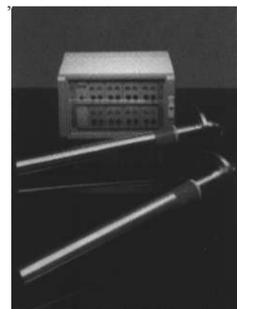


### Cathelco, Ltd.

Cathelco Ltd. are providing marine pipework anti-fouling systems for three LNG tankers to be built by Astilleros Espanoles. They will also be supplying C-Shield ICCP systems to protect the hulls against corrosion.

Circle No. 132

www.maritimereporterinfo.com



## Ship's Store

### Lemag Premet

The Lehmann & Michels permanently mounted LEMAG PREMETS Online measures the cylinder pressure continuously, from each cylinder at the same time. Once installed, you receive continually indicated power, max, cylinder pressure, main trend etc. on your PC.

Circle No. 122  
www.maritimereporterinfo.com



### Sure Seal

Sure Seal connectors are rugged, low-cost and environmentally sealed. The free guide is a complete design resource providing applications overview, technical specifications, detailed test data, dimensions, and assembly instructions. If you need an inexpensive sealed connector Sure Seal is your solution.

Circle No. 111  
www.maritimereporterinfo.com



### Dickow Pump Company-ARI Valve Corporation

Dickow Pump Company has manufactured centrifugal pumps for more than 75 years, always with an emphasis on precision, longevity in service, and hydraulic efficiency. Today we offer the broadest and most technologically advanced range of magnet drive pumps, and have solid in-plant experience. Dickow Pumps are engineered products for optimum performance in your specific application.

Circle No. 112  
www.maritimereporterinfo.com



### Maritime Associates

Maritime Associates is your marine and offshore signage expert, manufacturing a complete range of IMO/SOLAS safety signs, posters and LLL pathway systems. Our vast capabilities extend beyond conventional safety sign requests. We can create and manufacture any sign and sign system required, utilizing an array of materials including our New product lines and unique base materials, mounting and installation methods all cost effectively manufactured in the USA.

Circle No. 105  
www.maritimereporterinfo.com

Your Marine / Offshore Signage Experts. ;

### 3M Air-Mate

3M Occupational Health & Environmental Safety Division introduced the Air-Mate Combination Escape Self-Contained Breathing Apparatus (ESCBA)/Supplied Air Respirator (SAR). The NIOSH-approved system features a lightweight design and interchangeable five- and 15-minute cylinders that allow for flexibility in different applications. An airline connection enables users to remain in hazardous environments for extended periods of time.



Circle No. 197  
www.maritimereporterinfo.com

### Lafarge

The product is a flowable, water-retentive substance consisting of inorganic, non-toxic, granular and ground fines blended with water and appears as a flowable mortar during installation. However, the comparison with Portland cement based products is limited to the common usage of mixing plants, delivery vehicles and pumping equipment. Once installed it firms up to a semi-solid mass which although stiff it has little (0.5 mpa) to no compressive strength. This feature means that the material can be removed for repair or modification. Circle No. 114  
www.maritimereporterinfo.com

### POUND FOF

PrtlinH ^ H ^ . Q ^ g  
15 BOTIOi

### Airmar

Airmar Technology Corp. introduced a line of American-made bronze through-hull transducers/sensors with a long-stem design appropriate for cored fiberglass hulls, thick-hulled wooden boats, steep deadrise hulls and other vessels. Airmar's new B124 transducer features a low-profile design that extends only 3/16 in. outside the hull, minimizing drag and providing a smooth surface for water to flow across the acoustic element, improving both boat and sounder performance at speed.

Circle No. 196  
www.maritimereporterinfo.com



### Sigma Coatings

SigmaPrime is a high quality epoxy primer specifically designed to fit shipyard building practices while offering excellent long-term corrosion protection. SigmaPrime is the latest in a series of ground-breaking products from Sigma Coatings Marine who are continuously developing and improving the way coating systems build-in effective vessel protection. Circle No. 135  
www.maritimereporterinfo.com



(Continued from page 47)

by one of DEXTER's diagnostic agents.

When specifying symptoms in BRAINS, a list of available tag names and their descriptions are obtained directly through the interface between DEXTER and a user's automation system. For example, if the automation software defines a Process Database containing all measured sensor inputs in the plant, DEXTER interrogates the automation software for this list. A user can then simply pick from a drop-down list of data points when building a diagnostic. This makes it very easy for a user to integrate DEXTER into plant automation.

The various software agents within DEXTER are "knowledgebase-centric". This means that each agent is linked to a specific knowledgebase. The knowledgebase defines both the data source and the specific data points that an agent will monitor. Because DEXTER agents are knowledgebase-centric, the amount of setup information that you must specify to configure an agent is kept to a minimum. A user simply select a knowledgebase to be used by your agent and it then knows exactly which set of data points to monitor.

Before a user builds any knowledgebases, a user must first configure DEXTER to work with a specific a real-time data source. DEXTER is designed for interoperability with most of the major process control software packages on the market, such as Intellution FIX, Wonderware, Rockwell Automation, National Instruments, etc. All of these software packages have a mechanism for storing real-time sensor data in a database. BRAINS will automatically extract a list of all data points defined in the process control software database. The user will then be able to select data points from this list when the faults and symptoms for a knowledgebase are entered.

A user can create multiple knowledgebases using BRAINS, storing each one under a different name. Each knowledgebase can pertain to a separate machinery plant, specific system within a plant, or even an individual piece of equipment. A

user has complete flexibility in how knowledgebases are defined and used. A user should consider what types and how many agents are desired when creating knowledgebases.

### Transforming Knowledge into Artificial Intelligence

A major concern in deploying software agents for diagnostics and prognostics is the robustness of their artificial reasoning with respect to correctly identifying real problems when they occur. Missing, noisy, or corrupted sensor data, which are all common real-world occurrences, must be tolerated and not mistaken as equipment faults. Faulty sensor data introduces uncertainty into the diagnostic inferencing process. The reasoning technique should handle such uncertainties in some statistically valid way. The diagnostic agent's robustness can directly impact maintenance and repair costs. Robustness can be quantified by the accuracy of the diagnostic call. An incorrect diagnosis is declaring a fault different from the one actually present. A missed diagnosis is declaring that nothing is wrong, when, in fact, one or more faults exist. A false alarm involves declaring a fault when there is none. Each of these diagnostic conditions can lead to unnecessary expenditures of maintenance resources and/or reductions in plant reliability, not to mention loss of faith in the diagnostic system. DEXTER's goal is to minimize the probability of each of these cases and to maximize the probability of a correct diagnosis.

DEXTER uses probabilistic neural networks for its diagnostic and prognostic reasoning about machinery faults. DEXTER's neural networks automatically learn to associate patterns of alarm conditions with the machinery faults you enter into your knowledgebases. DEXTER's neural network learning occurs instantaneously, as compared to other neural network techniques, allowing you to rapidly build, modify, and deploy diagnostic agents on the factory floor. This allows you to immediately put agents to work, without any programming. DEXTER agent characters are driven by Microsoft Agent software.

### The four main types of intelligent software agents available in DEXTER are:

**Alarm Detection Agent** - These agents simply perform an alarm monitoring function for all data points associated with a knowledgebase. Alarms are detected when a monitored data value exceeds its alarm thresholds. The agent character will appear on your screen to alert you and provide you with a list of alarms.

**Trend Detection Agent** - These agents perform an automatic trending analysis of historical data pertaining to all data points in a knowledgebase. A regression analysis is performed to detect any statistically significant trends developing in your machinery plant performance. Developing equipment problems can often be uncovered by degrading performance trends shown in the measured data. This can help avert unexpected failures. The agent character will appear on your computer screen when it detects any significant trends. It will give you a list of trends and allow you to view a trend graph of the data histories.

**Diagnostic Agent** - These agents perform an alarm detection function similar to the Alarm Detection Agent, but take the analysis a step further by diagnosing possible machinery faults based on the detected alarms. Diagnostic reasoning is based on a neural network that has been trained from the knowledgebase to which the agent is attached. Once trained, the neural network is able to recognize alarm patterns and their associated machinery faults. The agent compares the alarms it detects from the plant automation to those it has been trained to recognize and produces a set of diagnostics.

**Prognostic Agent** - These agents perform a trend detection function similar to the Trend Detection Agent, but take the analysis a step further by predicting future machinery faults. The trending analysis performed by this agent will identify any statistically significant trends in machinery performance. These valid trends are extrapolated into the future to predict future alarm conditions. If the performance trends continue, i.e. no corrective maintenance actions are taken to alter degrading performance trends, then the agent will generate a set of predicted alarm conditions. The agent will then use these predicted alarms as input to its prognostic reasoning. Prognostics are also based on the neural network associated with the knowledgebase to which the agent is attached. The agent character will appear on your screen if it predicts any future machinery faults above a given probability level, which you specify when you configure the agent.

# 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 Susan Cosme at (212) 477-6700.

ABS/USCG APPROVED VALVES  
Norisead PO Box 40525 Houston, TX 77240

ACTUATORS - VALVE  
J.A. Moody Equipment Specialist, Inc., 3223 Phoenixville Pike, Malvern, Pa 19355, (800) 355-3910 (Northeast); 809 Pecan Forest Court, Chesapeake, VA 23322, (757) 641-0080 (Southeast); 2130 7th Ave. W, Seattle, WA 98119, (206) 691-1000 (West); www.jamesl.com

AIR CONDITIONING AND REFRIGERATION  
Adrick Marine, 81 Mahan St. W. Babylon NY 11758  
Repair & Installation, Equipment & Services  
Flagship Marine 2427 SE Dixie Highway, Stuart, FL 349%  
Stok Canada, 47 boul. Marie Victoria Cardiac Quebec, Canada. JSR 186  
Taylor Made Environmental PO Box 15299 Richmond, VA 23227

AIRHORNS/SIGNALING EQUIPMENT  
Kahlerberg Marine, P.O. Box 358, Two Rivers, WI 54241

ALARMS - FACTORY MUTUAL-APPROVED  
NREC 1701 Engineers Rd Belle Chase, LA 70037  
SELCO 353 A Ashby Commons Dr., Atlanta, GA 30338

ALUMINUM BOATS  
Island Boats 6806 Highway 90 East New Iberia LA 70560  
Sea Ark Marine PO Box 210 Monticello AR 71655-0210  
William E Munson Co., 18130 Sunset Way, Edmonds WA 98026

ANCHORS AND CHAINS  
Crandall Dry Dock Engineers Inc., P.O. B. 505804, MA 02150  
GJ Wortelboer Jr. B.V. PO Box 6003 3008 AA Rotterdam, Netherlands  
Washington Chain Inc., Box 3645, Seattle, WA 98124

AUTOMATED SELF UNLOADING  
Seabulk Systems Inc., Suite 100, 3751 Shell Road, Richmond, British Columbia, CANADA V6X2W2

AUTOPILLOT SYSTEMS  
Beler Radio1990 Industrial Ave Harvey, LA 70058  
CornNav Marine, 1915 Stainesway Ave., Vancouver, B.C. CANADA  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

BALIST TECHNOLOGIES -4620 S. Coach Dr., 85714 , Tucson, AZ  
Redland Genstar Inc., Executive Plaza IV, Hunt Valley, MD 10912-1031

BEARING--Rubber, Metallic, Non-Metallic  
American Babbitt Bearing PO Box 3069 Rt 2 Huntington, WV 25702  
Craft Bearing 2506 58th St Hampton, VA 23661  
Kahlerberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Oikot Composites, 2535 Prairie Rd., Unit D, Eugene, OR 97402  
Sohre Turbomachinery 132 Gilbertville rd PO Box 889 Ware, Mass 01082  
Tordan Bearings Inc., 3225 Mainway, Burlington, Ont. CANADA L7M 1A6  
Vesco Plastics, P.O. B. 40647, Cleveland 2022 SOUTH AFRICA

BILGE SYSTEMS  
Fast Systems 14040 Santa Fe Trail Dr. Lenexa, Kansas 86215-1284

BLOCKS A RIGGING  
Skookum, P.O. Box 280, Hubbard, OR 97032

BOILERS (HEAT RECOVERY)  
Deltak LLC 2905 Northwest Blvd Ste 150 Plymouth MN 55441 USA

BOATBUILDER  
Allen Marine PO Box 1049 Sitka, AK 99835  
Hike Metal, Box 698, Wheatley, ON Canada N0P 2P0  
Sea Ark Marine PO Box 210 Monticello AR 716550210  
Washburn Doughty, P.O. Box 296, E Boothbay ME 04544

BROKERS  
Maroon International, Inc., P.O. Box 1170, Coupeville, WA 8239-1170  
Mowbray's Tug & Barge Sales Corp., 35 De Had St. Montvton NJ 07960

BUSHES  
Sohre Turbomachinery Inc 132 Gilbertville Rd PO Box 889 Ware, MA 01082-0889

BULKHEAD SEALS/PANELS  
CSD North America. 860 Candia Rd., Unit 10, Manchester, NH 03109  
Thetmax, 15006 Shaw Rd., Tampa, FL 33625-6500  
Thetmax 3115 Range Rd Temple, TX 76501

BUOYS  
Detrox, P.O. Box 1150, Kinder, LA 70646  
Urethane Products 9076 Rosecrans Ave Bellflower, CA 90706

BUTTERFLY VALVES  
Norisead PO Box 40525 Houston, TX 77240

CABLE TRANSIT SYSTEMS  
CSD North America, 860 Candia Rd., Unit 10, Manchester, NH 03109

CALIBRATIONS  
Standard Calibrations Inc., 908 A Ventures Way, Chesapeake VA 23320

CAD/CAM SYSTEMS  
Albacore Research, 4196 Keshaan Place, Victoria, B.C. Canada V8K4L7  
Autoship Systems Corp., #403, 611 Alexander St., Vancouver, BC, Canada V6A1E1  
Creative Systems, Inc., P.O. B. 1910, Port Townsend, WA 98368  
Kockum Computer Systems AB, PO Box 50555, S-202 15 Malmo SWEDEN  
Scientific Marine Services, Inc., 101 State Pl, Suite F, Escondido, CA 92029  
Ship Motion Associates, 10 Danforth St., Portland, ME 04101-4567

CAP TRENDS  
Washington Aluminum, 1330 Knecht Ave., Baltimore, MD 21229

CAPSTANS  
G.J. Wortelboer Jr. BV, P.O.B. 5003, 3008 AA Rotterdam, Netherlands  
Superior Lidgetwood Mundy, 1101 John Ave., Superior, WI 54880

CARGO MONITORING A CONTROL SYSTEM  
Hematic Inc., 4522 Center St., Deeppark, TX 77536

CAST IRON REPAIR  
Metal Surgery, 2901 W Mill Road, Milwaukee, WI 53209  
In-Place Machining 1929 N. Buttern St, Milwaukee, WI 53212

CHAINS  
Crandall Drydock Engineers PO Box 505804 Chelsea, MA 02150  
Washington Chain, P.O. Box 3645, Seattle, WA. 98124

CHEMICALS  
Uniservice Americas 57174 Hardin Rd, Slidell, LA 70461

CLASSIFICATION SOCIETY  
Uoyds Register 71 Fenchurch St London EC3M 4BS

CNC PLATE CUTTING  
Advanced Fabricating Inc PO Box 3721 Galveston, TX 77552

COATINGS I CORROSION CONTROL / PAINT  
American Safety Technologies 565 Engle Rock Ave Roland NJ 07068  
Arker Marine Paints, 21 Charles Street, Westport, CT 06880  
Aqua-Dyne, 3620 W. 11th St., Houston, TX 77008  
Chesapeake Specialties Products, 5055 North Points Blvd. Baltimore Md 21219  
Chugoku Marine Paints PO Box 73 47932H Finsart The Netherlands  
Esgard, Inc., P.O. Drawer 2598, Lafayette, LA 70502  
Fenc Corp., 1301 North Flora St, Plymouth, IN 46563  
Row International Corp., 23500 64th Ave. South Kent, WA 98032  
Jamestown Distrib., P.O. Box 348, Jamestown, RI 02835  
John Paints Inc., 1401 Severn St., Baltimore, MD 21230  
Mascoat Products, 10890 Alcott Unit 102 Houston, TX 77043  
Nace Infil, 1440 South Creek Dr., Houston, TX 77043  
Resto Motive Laboratories PO Box 1335 Morristown, NJ 07962-1235  
Wasser High Tech Coatings, 8041 South 228th St, Kent, WA 98032

COMMUNICATIONS SERVICE  
Comsat Maritime Services, 6560 Rock Spring Drive, Bethesda, MD 20817-1446  
Maritel Marine Communications, 16 E. 41st St, NY, NY 10017  
Maritime Telecommunications Networks, Inc., 3044 N Commerce Pkwy Miramar FL 33025

COMPOSITE PILINGS  
Hardcore Composites 618 Lambsons Lane New Castle DE 19720

COMPOSITE FENDERING SYSTEM  
Hardcore Composites 618 Lambsons Lane New Castle DE 19720

COMPOUNDS  
TIV Philadelphia Resins, 130 Commerce Dr, Montgomeryville, PA 18936

COMPRESSORS  
Halspa Uetensener Maschinenfabrik Tonescher WEG 5-7 D-25436 Uetensener, Germany

COMPRESSOR PARTS  
CMP Corporation, P.O. Box 15199, Oklahoma City, OK 73155

COMPUTER / COMPUTER SOFTWARE  
Autoship Systems Corp., #403, 611 Alexander St., Vancouver, BC, CANADA

V6A1E  
Creative Systems, Inc., P.O. B. 1910, Port Townsend, WA 98368  
Fleet Technology, 311 Leggett Dr., Kanata, Ontario, Canada K2K 1Z8  
Lloyd's Register, 100 Leadenhall St., London, England EC3A 3BP  
ML Systems, 200-1150 Marston Drive, Ottawa, Ontario K2H 8S9  
Ship Motion Associates, 10 Danforth St., Portland, ME 04101

COMMUNICATIONS  
Beler Radio1990 Industrial Ave Harvey, LA 70058  
Mackay Comm Inc 2721 Discovery Dr Raleigh NC 27816-18  
COMPUTER SOFTWARE SYSTEMS  
Autoship Systems Suite 312-611 Alexander St Vancouver BC V6A1E1

Spec Tec Professor Kott's Vey 1366 Lysaker Norway  
CONSOLE - GMDSS  
Funuro USA, Inc., 4400 NW Pacific Rim Blvd., Camas, WA 96607  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

CONSULTANTS  
Eliot Bay Design Group 5301 Shishole Ave NW SK 200 Seattle WA 98107  
Hambloer Marine PO Box 112476 Campbell CA 95001

CONTROL SYSTEM - Monitoring/Steering  
Beler Radio1990 Industrial Ave Harvey, LA 70058  
Electronic Marine Systems, 800 Fendale Pl., Rahway, NJ. 07065  
Governor Control Systems, 3190 S.W. 4th Ave., Ft. Lauderdale, FL 33315  
G.R. Bowler 2261 Lake Rd, Ontario, NY 14519  
Kobak Manufacturing Co., Ltd., 8238-129 street, Surrey, B.C. V3W0A6  
Kockum Sonics, Inc., 933 Industry Rd., Ste105, Kenner, LA 70062  
MMC International, 60 Inp Dr, Inwood NY 11096  
Motor Services Hugo Stamp, 3190 S.W. Lauderdale, FL 33315  
Prime Mover Controls 3600 Gilmore Way Burnaby CANADA V5G 4R8  
Scientific Marine Services, Inc., 101 State Pl., Suite N, Escondido, CA 92029  
Stok Kwant, P.O. Box 23, 8600 AA Sneek, Netherlands

CORROSION CONTROL  
Spectrum Trading 106-B Oak St Aljhaetha GA 30004  
Gardner Denver Water Jetting Systems 8807 Emmett Rd. Suite 100 Houston, TX 77040  
Lisa Strip 3515 SE Lionel Terrace Stuart a 34996

COUPLERS- Tug A Barge  
Intercontinental Engineering, P.O. Box 9055, Kansas City, MO 64168

COUPLINGS  
American Vulkan, 2525 Dundee Rd., Winter Haven . FL 33884  
American Vulkan, P.O. Drawer 673, Winter Haven, FL 33582  
Centa Corp., 815 Black Hawk Dr., Westmont, IL 60559  
GeislingerAligner Strlebe 30 A-2026 Salzburg  
Lo-Rez Vibration Control, Ltd., 186 West 8th Ave., Vancouver, B.C. V5Y1N2  
Mapeco Products, 91 Willenbrock Rd. Unit B. Oxford, CT 06478  
MMC WI, 60 Inp Drive, Inwood, NY 11096

CRANE--HOIST--DERRICK--WHIR LEYS  
Besso Marine Co. P.O. Box 4113, New Orleans, LA 70178  
E. Crane 241 Executive Dr. #3 Marion OH 43302  
Edgewater Machine & Fabricators, P.O. Box 358, Edgewater, FL 32132-0358  
Holly Holst Corp., P.O. Box 86, St. Clair Shores, MI 48060-0066  
Lubrite-Wok Hensing GmbH PO Box 10 46710, Nelwig Austria  
Westmont Industries, 10805 Painter Ave., Santa Fe Springs, CA 90670

CRANKSHAFT DEFLECTION ANALYZER  
Prisma Teknik AB Sweden, www.primateknik.com

CRANKSHAFT GRINDING  
Goltens - New York Corp., 180 Van Brunt St, Brooklyn, NY 11231

CRANKSHAFT REPAIR  
Goltens > New York Corp., 180 Van Brunt St, Brooklyn, NY 11231  
In-Place Machining 1929 N. Buttern St Milwaukee, WI 53212

CUSTOM CLOSURES  
Waltz i Krenzer, 91 Willenbrock Rd., Oxford, CT 06478

CUTTING AND WELDING MACHINES  
BugO-Systems, Inc., 3001 W. Carson St., Pittsburgh, PA 15204

DATA RECORDERS  
L3 Communications PO Box 3041 Sarasota a 34230-3041

DECKING A FLOORING  
E.H. O'Neill, 1405 Chippendale Rd., Lutherville, MD 21093

DECK MACHINERY - Cargo Handling Equipment  
Edgewater Machine & Fabricators, P.O. Box 358, Edgewater, FL 32132-0358  
Halspa Uetensener Maschinenfabrik Tonescher WEG 5-7 D-25436 Uetensener, Germany

Intercontinental Engineering, P.O. Box 9055, Kansas City, MO 64168  
New England Tractor Equipment Co., 291 Eastern Avenue, Chelsea, MA 02150  
Rapp Hydema. 4433 27th Avenue West Seattle WA 98199  
Seabulk Sytems 3851 Shea Rd Ste 200 Richmond, BC Canada V6X2W2  
Skookum, Inc., P.O. Box 280, Hubbard, OR 97032  
Smith Berger Marine Inc., 7915 10th Ave. S, Seattle, WA 98108  
Superior LidgetwoodHurdy, 1101 John Ave., Superior, WI 54880  
W.W. Patterson 3 Riverside Rd Pittsburg PA 15233

DESALINATION - REVERSE OSMOSIS  
G.E.T., Inc., 3135 Golden Avenue, Long Beach, CA 90606  
Pal Rochem, 5775 Rio Vista Drive, Clearwater, FL33760-3114  
Reverse Osmosis of South Florida, 12301 SW. 133 Court, Miami, a 33186

DESIGN CONSULTING  
Fleet Technologies, 311 Leggett Dr. Kanata, Ont, K2K 1Z8 Canada  
DIESEL ENGINE ANALYZER  
FCS, Inc., 22 Main Street, Centerville, CT 06409

DIESEL ENGINE - Spare Partes A Repair  
Caterpillar, Inc., Engine Div., P.O. Box 610, Mossville, IL 61552-0610  
Deutz Canada Inc., 4620 Gairard St, Montreal, Que. H8R 2A3  
GE Marine Engines 1 Neuman Way Cincinnati, OH 45215  
Goltens - New York Corp., 180 Van Brunt St, Brooklyn, NY 11231  
H Pharmaceutical, Inc., 3812 W. Unidaugh Ave., Tampa, Fl 33624  
Industrial Estate, New Territories, HONG KONG

MAN BAW Diesel AG, Stadtbachstrasse 1, D-86153 Augsburg 1, GERMANY  
MAN BSW Diesel MS Tegelholsgrasle 41, DK-2450 Copenhagen SV, DENMARK  
MAN B1W Diesel, 177 State St., New York, NY 10034  
Marine Turbo I Diesel Inc 1090 7th St Richmond CA 94801  
Marisco USA, Inc., 100 Davidson Ave., Sommerset, NJ 08873  
Motor-Service AB, Box 2115, S-144 04 Rominge, SWEDEN  
Motor Services Hugo Stamp, 3190 S.W. 4th Ave., Ft. Lauderdale, a 33315  
NREC 1701 Engineers Rd Bell Chase LA 70037  
Rons-Royce Commercial Manne Houston 10255 Richmond Ave  
Scardana Americas Bkg, 502 Empire St., Greenfield Park, J4V1V7 Canada  
Wartsila Diesel, 201 Defense Highway, Annapolis, MD 21401

DIESEL ENGINE OVERHAUL  
Goltens - NY Corp., 180 Van Brunt St, Brooklyn, NY 11231  
Governor Controls Systems 3190 W. 4th Ave Ft Lauderdale FL 33315  
Marine Turbo & Diesel Inc 1090 7th St Richmond CA 94801

DIESEL FUEL DECONTAMINATION  
II (www.bunferbuyer.com)  
Algae X Infil PO Box 4011 Ft Myers Beach, a 33932  
PRI 3750 Hacienda Blvd., Suite A Davis, a 33314

DIGITAL TORQUE METER SYSTEMS  
Instruments, Computers & Controls 78 Londonderry Tyle Hookset NH 03106

DISTRESS SIGNALS  
Detrox, Inc., P.O. Box 1150, Kinder, LA 70648

DIVING A SALVAGE  
Besso Marine Co. P.O. Box 4113, New Orleans, LA 70178  
H.J. Menihue, P.O. Box 23123, New Orleans LA 70183

DOCK FENDERING SYSTEMS  
Plastic Pilings Inc., 1485 South Willow Ave., Rialto, CA 92376

DOORS - MARINE & INDUSTRIAL  
Juniper HI, 72-15 Metropolitan Ave., Middle Village, NY 11379  
Manly Marine, PO Box 86788, N, Vancouver B.C. Canada V7L 4L3  
Mapeco , Inc., 90 Forest Ave., Locust Valley, NY 11560  
Waltz & Krenzer, 91 Willenbrock Rd., Unit B4, Oxford CT 06478

DRIVES  
Allied Systems 2300 Oregon St Sherwood OR 97140

DRY DOCKS-Design  
Crandall Dry Dock Engineers Inc., P.O. Box 505804, Chelsea, MA 02150

Heger Dry Dock Engineers, Inc., 13 Water St, Hildston, MA 01746

DYNAMIC POSITIONING A AUTOMATION  
Alstom Power Conversion 3 Ave. Des Trois Chenes 90018  
Belfort Cedex France

ELECTRICAL EQUIPMENT  
Calenberg Equipment 2010 N. Miami Ave. Miami, a 33127  
MMC International, 60 Inp Dr. Inwood NY 11096

ELECTRONIC INFORMATION SUPPORT  
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolboten, NORWAY  
Scientific Marine Svcs., 101 State Pl., Ste. P, Escondido, CA 92029

ELECTRICAL INSTRUMENTS  
Setco USA, 2508 Lake Brook Ct., Atlanta, GA 30360  
Standard Horizon, 17210 Edwards Rd., Carritos, CA 90703

ELECTRONIC CHARTS  
C-Map Commercial 133 Falmouth Rd., Mashpee, MA 02649Marine Electronics  
Edgewater Machine / Fabricators, P.O. Box 358, Edgewater, a 32132-0358  
Solutions, 1522 Crabapple Cove, Jacksonville, a 32225

ELECTRONICS  
C-MAP, P. O. Box 212, 4371 Egersund Norway  
Funuro USA, Inc., 4400 NW Pacific Rim Blvd., Camas, WA 96607  
Sure Seal Connections, 3951 South Plaza Dr. Suite 240, Santa Ana, CA 92704  
Standard Horizon 17210 Edwards Rd Carritos CA 90703

ELEVATORS  
C-Map Commercial, 133 Falmouth Rd., Mashpee, MA 02649

E M P L O Y M E N T  
Al American Marine P O Drawer 191237 Timan's Corner, AL 33619  
Military Sealift Command PO Box 120 Code APM-124 Virginia Beach,VA 23458-0120  
Peter D. Juan ESQ. 14 Lafayette Court, Greenwich Ct 06830

ENGINEERING SERVICES / MARINE ENGS  
Calenberg Equipment 2010 N. Miami Ave, Miami, FL 33127  
Scientific Marine Services, Inc., 101 State Pl., Suite F, Escondido, CA 92029  
U.S.M.M.A, 300 Steamboat Rd., Kings Point, NY 11024  
Vitech, Inc., Box 435, N. Kingston, RI 02852

ENGINE ROOM LIGHTING/MONITORING A CONTROL  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

ENGINE ROOM REPLACEMENT PARTS  
Marisco USA Inc., 100 Davidson Ave., Sommerset, NJ 08873

ENGINES  
GE Marine Engines, 1 Neuman Way Cincinnati, OH 45215  
BF Goodrich 701 White Ave., Beloit, WI 53111  
WARTSILA NSD CORPORATION, Box 252 Vasa Finland Fov65101

ENVIRONMENTAL MANAGEMENT CONSULTANTS  
Modern Maritime 67 Bow St Ste. 3, Portsmouth NH 03801

EVACUATION SYSTEMS  
DBC, 12351 Bldgport Rd., Richmond, BC Canada  
Fleet Technology 311 Leggett Dr Kanata Ontario K2K 1Z8

Alfa-Laval Separation, Inc., 955 Meams Rd., Warrminster, PA 18974  
Sasakura Engineering, 7-32 Takeshima, 4-chrome, Nishiyodogawa, KY, Osaka555, Japan

EQUIPMENT DISTRIBUTOR  
Total Marine Solutions 4350 Oaks Rd. Ste 501, R Lauderdale a 33314

EXPANSION JOINTS  
Eliot Valve Rubber Products 1691 Pioneer Rd Sudbury ONTARIO Canada P3G 162

Silox Inc 6659 Ordan Dr Mississauga, ON CANADA L5T 1K6

EXTRUDED RUBBER PRODUCTS  
Clean Seal Inc., P.O. Box 2919, South Bend, IN 46880

FAIRING COMPOUND  
Philadelphia Resins, P.O.B. 309, Montgomeryville, PA 18936

FANS - VENTILATORS - BLOWERS  
Jon M. LBS Associates, Inc, 411 Borel Ave., San Mateo, CA 94402

FASTENERS  
Jamestown Distributors, P.O. Box 348, Jamestown, RI 02835  
Superbol, P.O.B. 683, Carnegie, PA 15106

FENDERING SYSTEMS/BUOYS - Dock t Vessel  
Dofchin USA 2241 Barraud Ave Nodok, VA 23040  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Kahlerberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Plastic Pilings Inc., 1485 South Willow Ave, Rialto, CA 92376  
Ultra Poly, Inc., 2926 South Steele St, Tacoma, WA 96409  
Urethane Products 9076 Rosecrans Ave Bellflower, CA 90706  
Schuyler Rubber Co., 16901 Wooded Rd., Woodinville, WA 98072  
Seaward WIP..Co. Box 96, Clearbrook , VA 22624  
Wing Fender Co., 1160 State St, Perth Amboy, NJ 08861

FILTERS/FILTER SYSTEMS  
V (www.bunkerbuyer.com)  
Algae X Infil, PO Box 4011, Ft. Myers Beach, FL 33932  
G.E.T., Inc., 3135 Golden Avenue, Long Beach, CA 90606  
Holan Strainer 3249 East 80th St Cleveland, OH 44104

FIRE A SAFETY PRODUCTS  
Brookdale International, 1-8755 Ash St. Vancouver BC, V6P6T3  
Fr-Fassmer 4Co D-27804 Bernaltdorzen, Germany, IndustriestraBe2  
Port Canaveral Marine Fire Fighter Academy, Canaveral Port Authority, P.O. Box 267, Cape Canaveral, a 32920  
Zero International 415 Concord Ave Bronx, NY 10455

FLANGES  
Jesse Engineering, 5225 7th St E, Tacoma, WA 98424

FLOW CONTROLS  
Hoffer Flow Controls 107 Killy Hawk Lane, Elizabeth City, NC 27906

FUEL ADDITIVES  
Power Research Inc 3750 Hacienda Blvd Ste A Davis, a 33314

FUEL DECONTAMINATION  
Power Research Inc 3750 Hacienda Blvd Ste A Davis, FL 33314

FULL SERVICE SHIPYARD A REPAIR  
Marisco, Ltd. 91-807 Makole Rd Kapolei, HI 96707-1831

GALLEY EQUIPMENT  
CospakJL Refrigerator Co,PO Box 1206 Destrehan LA 70047  
Dutchess Baker's Machinery Co, 1101 John Ave Superior WI 54880  
Jamestown Metal Marine Sales, Inc, 4710 Northwest Second Ave. Boca Raton, a 33431

Lang Manufacturing Co, 6500 Men+ Creek Pkwy, Everett, WA 98023

GANGING A SAMPLING  
Hematic Inc., 4522 Center St, Deeppark, tx 77536

GAS TURBINES  
GE Marine Engines 1 Neuman Way Cincinnati, OH 45215

GANGWAYS  
Washington Aluminum 1330 Knecht Ave Baltimore, MD 21229

GASKETS A TRENDS  
Zero International 415 Concord Ave Bronx, NY 10455

GEARS A GEAR REPAIR  
Cincinnati Gear Co, 5657 Wooster Pike, Cincinnati, OH 45227  
Goltens - New York Corp., 180 Van Brunt St, Brooklyn, NY 11231  
The Falk Corp, PO Box 492, Milwaukee, WI 53201-0492

GENERATOR CONTROLS  
ConSelect Inc PO Box 8745 Mandville, LA 70471

GOVERNORS  
GmDSS - GEAR BOXES A BEARINGS  
Beler Radio, 1990 Industrial Ave Harvey, LA 70058  
Funuro USA, Inc, 4400 NW Pacific Rim Blvd., Camas, WA 96607  
Rank AG, Goeinggier Street 73, 86159 Augsburg, Germany

GOVERNORS  
Motor Services Hugo Stamp, 3190 S.W. 4th Ave, Ft, Lauderdale, FL 33315

GPS  
Leica Navigation 22668 Edwards Blvd Torrance CA 90505-6908  
Standard Horizon, 17210 Edwards Rd, Carritos, CA 90703

GROUNDDING  
Sohre Turbomachinery 132 Gilbertville Rd PO Box 889 Ware, Mass 01082-0889

HATCHES AND DOORS  
Byrne Rice & Turner 1172 Camp St, New Orleans, LA 70130  
Juniper Intl, 72-15 Metropolitan Ave., Middle Village, NY 11379  
Manly Marine, P.O. Box 86788, N, Vancouver, BC V7L 4L3 Canada

HEAT EXCHANGERS  
Alfa-Laval Separation Inc, 955 Meams Rd, Warrminster, PA 18974  
Tranter, Inc., P.O. Box 2288, Wichita Falls, TX 76307

HEAVY FUEL TREATMENT  
Algae X Infil, PO Box 4011, Ft. Myers Beach, FL 33932

HOISTS  
Holly Holst Corp, P.O. Box 86, St. Clair Shores, MI 48080-0066

HORNS/WHISTLES  
Alchimie Mfg. Co. Ltd, 5478 267th Street, Gloucester Industrial Estate, Langley, B.C. Canada V4W 3S8  
Kahlerberg Bros Co, P.O. Box 358, Two Rivers, WI 54241  
Kockum Sonics, Inc, 933 Industry Rd, Ste105, Kenner, LA 70062

HYDRAULIC SYSTEMS  
Allied Systems 2300 Oregon St, Sherwood OR 97140  
Offshore Inland 3521 Brookdale Dr.S. Mobile AL 36618

IMMERSION SUITS  
Imperial International 810 NW 45th St Seattle, WA 98107

INDUSTRIAL SAFETY  
Stearns Manufacturing PO Box 1498 St Cloud, MN 56302-1498

IMO PUBLISHING  
4 Albeit Embankment London SE1 7SR, UK

INCINERATORS  
Therm-Tec Inc, PO Box 1105, Tualatin, OR 97062

INFLATABLES  
Willard Marine 1250 Grove St Anaheim, CA 92826

INSTRUMENTATION  
Hoffer Flow Controls 107 Killy Hawk Lane Elizabeth City NC 27906

INSULATION  
Claremont 174 State St Meriden, CT 06450  
E H O'Neill 1405 Chippendale Rd Lutherville MD 21093  
Muscoat Products, 10890 Alcott, Unit 102, Houston, TX 77043  
Pacor, Inc., P.O. Box 107, West + NJ 08093  
Shannon Enterprises of WNY Inc 162 Swaney St North Tonawanda  
Superior Energies Inc, P.O. Drawer 386, Groves TX 77619

INTERIORS  
Custom Ship Interiors, Inc, P.O. Box 882, Solomons, MD 20688  
Hopeman Brothers, P.O. Box 820, 435 Essex Ave, Waynesboro, VA 22980  
Insulations, Inc, Rt. 5, 12360 Leisure Rd, Baton Rouge, LA 70807  
Jamestown Metal Marine 4710 NW 2nd Ave, Boca Raton, Fla. 33431-4870  
Maritime Services Corp, 3457 Guiguard Drive, Hood River, OR 97031

ISOLATORS  
Lo-Rez Vibration Control, Ltd, 186 West 8th Ave, Vancouver B.C. V5Y 1N2  
JOINER--Watertight Door-Paneling--Ceiling System-Decking  
Custom Ship Interiors, Inc. P.O. Box 882, Solomons MD 20688  
Hopeman Brothers, Inc, P.O. Box 820, Waynesboro, VA 22980  
Maritime Services Corp, 3457 Guiguard Drive, Hood River, OR 97031  
Panel Specialists, Inc/Thermax, 3115 Range Rd, Temple, TX 76501  
Waltz & Krenzer, 91 Willenbrock Rd., Unit B4, Oxford CT 06478

KEEL COOLERS  
Kahlerberg Bros. Co, P.O. Box 358, Two Rivers, WI 54241  
R.W. Fenstunm & Co, 1716 Eleventh Ave, Monroeville, MI 48658  
The Walter Machine Co, Inc., 84-98 Cantrbridge Avenue, Jersey City, NJ 07307

LASER ALIGNMENT  
Bolend Industrial I, Consulting Services, P.O.B. 91360, Mobile, AL 36691  
LUDECA 1425 NW 89th Ave Miami FL 33172

LAUNDRY EQUIPMENT  
Richard Galley Supply, PO Drawer 4035, Houma, LA 70361

LEAK REPAIR  
Indusur Products Inc 2500 Tanglewilde Suite 260 Houston TX 77063

LIFEBOATS/RAFTS  
DBC Marine Safety Systems. 12351 Bridgeport Rd, Richmond, B.C. CANADA V6V1J4  
Edgewater Machine S Fabricators, P.O. Box 358, Edgewater, FL 32132-0356  
Fassmer & Co.D-27804 Bernaltdorzen, Germany, IndustriestraBe v  
Notsale AS, P.O. Box 115, N-4816 Faerrik, Norway  
Viking Life Saving Equipment, 1625 N. Miami Ave, Miami, FL 33136  
Willard Marine Co, Inc., 1250 N. Grove St, Anaheim, CA 92806  
Wolong International 51 Shippard Rd Singapore 628139

LIFESAIVING EQUIPMENT  
Viking Life Saving Equipment, 1625 N. Miami Ave, Miami, FL 33136

LIFT EQUIPMENT TESTING  
Water Weights Inc, 5139 Brook St, Sulo E, Montclair, CA 91763

LIGHTING SYSTEMS / EQUIPMENT  
ACR Electronics, Inc, 5757 Ravenswood Rd, Ft. Lauderdale, FL 33310-5247  
Achway Marine, 4501 Swan Ave, St. Louis, MO 63110  
Goltens Marine, Inc, 180 Van Brunt St., Brooklyn, NY 11231  
Kockum Sonics, Inc, 933 Industry Rd., Ste105, Kenner, LA 70062  
L.C. Doane, P.O.Box 975, Essex CT 06426  
Pashlan Electric Mfg. Co., Inc. P.O. Box 53, Pearland, TX 77588

LIQUID OVERFILL PROTECTION SYSTEMS  
King Engineering Corp, P.O. Box 1228, Ann Arbor, MI 48106

LOAD MEASURING EQUIPMENT  
Water Weights Inc, 5139 Brook St Ste E Mont Claire, CA 91763

LOAD TESTING  
Water Weights Inc, 5139 Brook St Ste E Mont Claire, CA 91763

LUBRICANTS  
Essex Metal Marine Lubricants, 3225 Gollows Rd Fairfax, VA 22037

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING  
Goltens - New York Corp., 180 Van Brunt St, Brooklyn, NY 11231  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27604-1851

MANAGEMENT SYSTEMS A SERVICE  
Insulations, Inc, Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807  
PCS Marine, 174 Colmansde Road S, Napaan, Ontario K2E715

MARINE CONSULTANTS  
Bolend Industrial & Consulting Services, P.O.B. 91360, Mobile, AL 36691  
Hall Associates of Washington, Inc, P.O. Box 1554, Mukleto, WA 96275  
PCS Marine, 174 Colmansde Road S, Napaan, Ontario K2E715

MARINE DECKING A FLOORING  
E.H. O'Neill, 1405 Chippendale Rd, Lutherville, MD 21093  
Flexible Decking, 2706 N. Australian Ave. Ste. 9, West Palm Beach, a 33407  
Hopeman Brothers, Inc., P.O. Box 820, Waynesboro, VA 22980  
Insulations, Inc, Rt. 5, 12360 Leisure Road, Baton Rouge, LA 70807  
Sipnot Safety Roofing WS Mohr Co, 2545 Beavitt St, Detroit, MI48207

MARINE ELECTRONICS  
ACR Electronics, Inc, 5757 Ravenswood Rd, P.O. Box 5247, Ft. Lauderdale, FL 33310-5247  
Beler Radio, 1990 Industrial Ave Harvey, LA 70058  
Calenberg Engineering 2010 N. Miami Ave, Miami, FL 33127  
Funuro USA, Inc, 4400 NW Pacific Rim Blvd., Camas, WA 96607  
JRC. 1011 SW Kikkilawey Bldg B, Suite 100, Seattle WA 98134  
Kockum Sonics, Inc, 933 Industry Rd., Ste105, Kenner, LA 70062  
Leica Navigation, 22668 Hawthorne Blvd Torrance CA 90505-6908  
Marine Electronic Solutions, 1522 Crabapple Cove Jacksonville FL 32225  
Raytheon Marine GmbH, High Seas Products, Postfach 1166 D-24100 Kiel, Germany  
(Distributor for Raytheon) Klein Navigation, 11 Klein Drive, Salem NH 03079  
Saab Marine Electronics AB, Box 13045, 402 5Goteborg, SWEDEN  
Scandinavian Micro Systems, P.O. Box 155, N-1411, Kolboten, NORWAY  
Scientific Marine Services, Inc, 101 State Pl, Suite F, Escondido, CA 92029

MARINE ENGINEERING  
Eliot Bay Design Group, 5301 Shishole Ave NW Ste 200 Seattle, WA 98107

MARINE EQUIPMENT  
Ballie Spare Services Ltd 8 Astronomow St, 80-299 Gdansk, Poland  
Byrne Rice & Turner 1172 Camp St New Orleans, LA 70130  
Commercial & Marina Products, 3524 Forest Dr, #11, Columbia, SC 29204  
Plastic Pilings Inc., 1485 South Willow Ave, Rialto, CA 92376  
Scardana Americas Bkg, 502 Empire St, Montreal, Greenfield

Park, JAV1V7  
Superior Lidgerwood-Mundy, 1101 John Ave., Superior, WI 54880  
Wetman Supply, P.O.Box 596, Wilmington, CA 90748

#### MARINE MANAGEMENT

Hornblower Marine, PO Box 112476, Campbell, CA 95001  
MARINE RADIOS  
Standard Horizon, 17210 Edwards Rd., Carlsbad, CA 92023  
MARINE SHAFITING  
Kohlenberg Bros, P.O. Box 358, Two Rivers, WI 54241  
MARINE THERMAL IMAGER  
Airon International 720 Glen Eagle Drive #100 Winter Springs, FL 32708

MARITIME TRAINING A SCHOOLS  
Marine Safety Intl., Marine Terminal Laguardia Airport NY 11371  
North Vancouver, BC V7N6J4  
METAL ALLOY DISTRIBUTORS  
Diversified Metals 49 Main St Monson, MA 01057  
METERS  
Setco USA, 2506 Lakeside a., Atlanta, GA 30360  
MONITORING SYSTEMS  
GR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MOTOR PROTECTION  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242  
MOUNTING SYSTEMS  
Lo-Rez Vibration Control, Ltd., 186 w 8th Ave., Vancouver B.C. Canada V5Y 1N2  
OR Bowler 2261 Lake Rd Ontario, NY 14819  
Mackay Communications, 2721 Discovery Dr., Raleigh, N.C. 27616-1851

MOORING LINES  
Bayer Faser Building F18 DV Marking Monoff 41538 Damagen Germany  
Samson Rope Technologies 2090 Thornton St Fernalda, WA 98248  
MOORAGE FACILITY  
Sea Air Marine PO Box 210 Monticello AR 71655-0210  
Washington North Tongue Point 1300 Dexter Ave., N. Ste 205 Seattle, WA 98110

MWC International, 60 Inip Dr, Inwood NY 11096  
Sasakura Engineering, 7-32 Takeshima, 4-chom Nishiyodogawa, KY, Osaka555, Japan  
PAINTS/ANTI-FOUL ANTS  
Jolan Paints Inc. 1401 Severn St., Baltimore MD 21230  
Wasser High Tech Coatings, 8041 South 228th St., Kent, WA 98032

PAINT REMOVAL  
Ultra Strip Systems 3515 SE Usonal Terrace Stuart, FL 34996  
PARTS LOCATOR SERVICE  
Inventory Locator Service 3965 Mendenhall Rd, Memphis TN 38115  
PF D's (Personal Flotation Devices)  
Steam's Mfg Co. PO Box 1498 St Cloud, MN 56302-1498  
PHOTOLUMINESCENT PRODUCTS  
Datrac, P.O. Box 1150, Kinder, LA 1064

PIPE FITTINGS/CUTTINGS/CONNECTING/ SYSTEMS  
Jesse Engineering, 5225 7th St. East, Tacoma, WA 98424  
Neytane Research, 1685 Latham Rd., West Palm Beach, FL 33409  
Norma Products (U.S.) Inc. 31132 Century Drive, Whomon, MI 48393  
PIPE LEAK REPAIR  
Induram Products Inc 2500 Tanglewilde Suite 250 Houston TX 77063  
PIPE LEAK REPAIR  
CSD North America 860 Canada Rd, Manchester, NH 03109  
POLLUTION CONTROL PRODUCTS  
Enecon Corporation, 125 Baylis Rd., Melville, NY 11747-3800  
PORTABLE VENTILATORS  
Amelec Corp 1910 E. Devon Ave Elk Grove Village, IL 60007

PORT DEVELOPMENT  
RTM Star Center, 2 W.Diole Hwy., Danie, FL 33004  
Sasakura Engineering, 7-32 Takeshima, 4-chome, Nishiyodogawa, KY, Osaka555, Japan  
PRECISION FLAME CUTTING/SAWING  
Romon Technical, 2146 B Flintstone Dr., Tucker, GA 30085  
PRESSURE INDICATORS  
Lehman & Michaels GmbH & Co. kg, Marlow Ring 4, D-22525 Hamburg Germany  
PREVENTATIVE MAINTENANCE  
Marine Safe Electronics 37 Staffem Dr Concord Ontario L4K 242

PROPELLERS-Repairs  
Kohlenberg Bros, P.O. Box 358, Two Rivers, WI 54241  
Rice Propeller, Av Rios Esplanza No. 88, Col. Barilo Juarez, Mazatlan, Sin, Mexico 82160  
PROPULSION EQUIPMENT  
ABB Drives Inc., P.O. Box 372, Milwaukee, WI 53201-0372, ABB Industry Oy, P.O. Box 185, 00381 Helsinki, FINLAND  
ABB TURBOCHARGER, INC., 1460 Livingston Avenue, N. Brunswick, NJ 08902  
Avron Mfg. 7900 E Pleasant Valley Rd Independence OH 44131  
Bunvoll AS, P.O. Box 370, N-6401, Molde, Norway  
Caterpillar, 100 NE Adams Street, Peoria, IL 61629-2320  
Centa Corp., 8185 Cass Ave., Darien, IL 60551  
Fincantieri, Diesel Engines Div-GMT, Bagnoli della Rosandra 3334, Trieste, ITALY  
Goltens Worldwide, 160 Van Brunt St., Brooklyn, NY 11231  
Harbormaster Marine Inc., 31777 Industrial Rd., Livonia, MI 48150  
Harrington Metal, 6720 124th Ave. Lennoxville, MI 49408  
Jan Verhaar Omega Thrusters 2340 AC Oegstgeest Holland  
Jan Verhaar Omega Thrusters, P.O. Box 119, 2340 AC Oegstgeest, NETHERLANDS  
Kohlenberg Bros. Co., P.O. Box 358, Two Rivers, WI 54241  
Kopel and Association, 30808 Crest Forest, Farmington MI 48331  
Karl Serner Inc., 25 W Third, Kenner LA 70062  
Konrad 1421 Harley Rd Hudson WI 54016-9376  
Lo-Rez Vibration Control, 186 West 8th Ave., Vancouver, BC CANADA, V5Y 1N2  
MAN B&W Diesel, 17 State St., New York, NY 10004  
MAN B&W Diesel A/S, Ostervej 2, DK-4960 Høleby, DENMARK  
MAN B&W Diesel AS, Alpha Diesel, Nels Jule Vej 15, DK-6900 Frederikshavn, DENMARK  
MAN B&W Diesel GmbH, Stadtbachstrasse 1, D-86153 Augsburg 1 GERMANY  
Mapeco, Inc., 91 Willenbrock Rd., Unit 84, Oxford CT 06478  
Markisches Werk, P.O. Box 1442, D-5884 Halver GERMANY  
Omnitriple Inc., 30555 Solon Ind. Pkwy., Cleveland, OH, 44139  
Orion Corp., 1111 Cedar Creek Rd., Grafton, WI 53024  
Propulsion Systems Inc 601 NE 26th Court, Pompano Beach, FL 33064  
Rolls-Royce Commercial Marine Houston 10255 Richmond Ave Ste 101 Houston TX 77042  
Schottel Inc., 500 Industrial Blvd., Sugar Land, TX 77478  
Schottel GmbH & Co, KG-Mainzer Strasse 99-D-56322-Spay GERMANY  
Schottel-Werft, Mainzer Strasse 99, D-56322 Spay/Rhein, GERMANY  
Siemens Electric Ltd. 1180 Courtney Park Rd. Mississauga, Ontario Canada  
The Falk Corp. PO Box 492, Milwaukee, WI 53201-0492  
The Cincinnati Gear Company, 5657 Wooster Pike, Cincinnati, OH 45227  
Volth Schneider America Inc., 121 Susquehanna Ave., Great Neck, NY 11021  
ZF Marine Group 3131 SW 42nd St., Ft. Lauderdale, FL 33312

PUMP-Repair-Drives  
Advanced Environmental Systems, 2 Sutton Rd., Webster, MA 01570  
Byrne Rice & Turner 1172 Camp St, New Orleans, LA 70130  
Scardana Americas Bldg., 502 Empire St., Greefield Park, JAV1V7 Canada  
RADARS - ARPAS  
Beler Radio 1990 Industrial Ave Harvey, LA 70056  
Funuro USA, Inc., 4400 NW Pacific Rim Blvd., Camas, WA 98607  
Kelvin Hughes Ltd New North Rd Rainait, Wford Essex 1G6 2UR  
REFER COMPRESSORS  
CMP Corporation, P.O. Box 15199, Oklahoma City, OK 73155  
REFRIGERATION  
RTF Manufacturing 793 Route 66 Hudson NY 12534  
REPLACEMENT PARTS  
CMP Corporation, P.O. Box 15199, Oklahoma City, OK 73155  
REPLACEMENT TREADS  
Washington Aluminum, 1330 Knecht Ave., Baltimore, MD 21229  
REVERSE OSMOSIS  
GET Inc 3135 Golden Ave Long Beach CA  
RH - PROPULSION  
Goltens, 160 Van Brunt St. Brooklyn, NY 11231  
RIGID INFLATABLE BOATS  
Willard Marine, Inc. 1250 N. Grove St., Anaheim, CA 92806  
ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS, Inc., 22 Main Street, Centerbrook, CT 06409  
RUDDER BEARINGS & BUSHES  
Duramax Marine, 16025 Johnson St, P.O. Box 67, Middlefield, OH 44062-0067  
Konrad 1421 Harley Rd Hudson, WI 45016-9376

ROF-Manila-Nylon-Hawsers-Fibers  
Cortland Cable Co., 44 River St.(PSR), Cortland, NY 13045-0330  
Pelican Rope Works, 4001 W.Carriage Way,Santa Ana,CA 92704  
Puget Sound Rope, 4012 Second St, Anacortes, WA 98221  
Samson RopeTech 2090 Thornton St Fernalda,WA 98248  
ROTATING EQUIPMENT  
FCS

# INFORMATION

S H O W

**Get Free Information Fast**

Circle the appropriate Reader Service Number  
on the opposite page or visit

[www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)



**GET FREE INFORMATION ONLINE at: [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)**

Page	Advertiser	Product	R/S#	Page	Advertiser	Product	R/S#
6	ABB Turbo Systems AG	turbochargers	200	15	Jeamar Winches	winches	230
17	Albacore Research	cad-cam	201	21	Kahlenberg	airhorns	231
31	Anchor Marine	marine equipment	202	C4	Karl Senner Inc.	propulsion systems	246
22	Arion International	marine thermal imager	203	3	Leica Navigation	marine navigation	279
22	Aurand Manufacturing	surface prep tools	204	11	Lloyds Register	classification society	259
22	Barkemeyer Schiffstechnik	maneuvering equipment	205	4	Macsea Ltd.	machinery diagnostics	232
4	Brookdale International	survival equipment	206	42	Mascoat Products	marine insulation	233
13	Carhartt Inc.	marine workwear	216	14	Motor Services Hugo Stamp	diesel engine parts	234
C2	Craft Bearing	bearings	225	2	MTN	satellite communication	235
43	Creative Systems	software	207	18	Nera Satcom AS	communications	236
5	Daewoo	shipbuilding	208	10	Norma Products Inc.	pipe fittings & cuttings	237
24	Damen Shipbuilding	shipbuilding	209	8	Samson Rope	mooring	238
25	Damen Shipbuilding	shipbuilding	210	27	Samsung	shipbuilding	239
21	Dolphin USA	ship fenders	211	19	Sasakura Engineering Co.	fresh water generator	240
31	Electronic Marine Systems	sensors	261	30	Schottel	propulsion	241
33	Electronic Marine Systems	sensors	262	42	Seatrade	exhibition	242
35	Electronic Marine Systems	sensors	263	1	Seaward International	fenders	243
37	Electronic Marine Systems	sensors	264	32	Skookum	deck machinery	244
16	Ferro Corporation	epoxy repair system	212	36	Smith Berger Marine	deck hardware	245
45	G.J. Wortelboer Jr. BV	chains	213	7	Standard Horizon	marine electronics	274
20	Gibbs & Cox	naval architects	214	19	Stork-Kwant	universal telegraphs	247
29	Hanjin Heavy Industries	shipbuilding	215	18	Superior Energies, Inc.	insulation manufacturer	248
45	Harrington Marine	kort nozzles	217	41	Titan Maritime	salvage & wreck removal	249
32	Hoffer Flow Controls	flow controls	218	C3	USMMA	maritime training	250
17	Houston Marine	marine training	219	16	VingCard	locks	251
12	Hyundai Heavy Industries	shipbuilding	220	16	Volmar	ultrasonic homogenizers	252
17	In-Place Machining	crankshaft repair	221	44	Walter Garschagen	maritime photography	253
44	International Maritime Training	education & training	222	20	Washington Chain	chains	254
43	Island Boats	boatbuilders	223	20	Waterman Supply	marine equipment	255
23	IZAR	shipyard	226	45	Western Machine Works	tractor pins	256
14	Jamestown Metal Marine	interiors	227	20	Wolong International	lifeboat manufacturer	257
9	Jan Verhaar Omega Thrusters	thrusters	228	36	Wynn Marine Ltd.	wind screen & wipers	258
39	Japan Radio	communications	229				

The listings above are an editorial service provided for the convenience of our readers.

# THE MARINE MART and The Classified Employment Section

## PRODUCTS & SERVICES

Single source vendor:  
Spare Parts + Equipment  
for foreign built ships

### SCARDANA

FAX: (1) - 450 - 671 - 3898

TEL: (1) - 450 - 465 - 6556

TOLL FREE FAX:

1-877-228-9879

E-mail: [service@scardana.ca](mailto:service@scardana.ca)

Web Site: [www.scardana.ca](http://www.scardana.ca)

Procurement Contractors  
+ Spare Parts Agents  
Since 1974

### Custom Fuel Cell Bladder

Diesel or Gas, *g f f f l TUIICS*

- Impact Resistant
- Non-Expanding
- Vibration Proof
- > Lightweight
- Fully Baffled



J S C E TOLL FREE 800-526-5330  
AERO TEC LABORATORIES, INC.  
Spear Road Industrial Park, Ramsey, NJ 07446-1251 U S A ^ ^ ^ ^  
Phone: 201-825-1400 Fax: 201-825-1962 S + K

180 Division Avenue, West Sayville NY 11796  
Tel: (631) 589-2510 Fax: (631) 589-2925  
WebSite: [www.peckhale.com](http://www.peckhale.com)  
e-mail: [sales@peckhale.com](mailto:sales@peckhale.com)

### Release-A-Matic H44 R.A.M. Hook

#### Features:

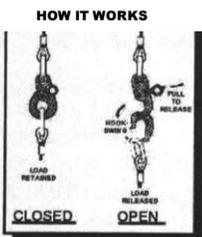
- Quick disconnect
- Remote release or disengagement
- Place loads where access is restricted
- Saves Manpower
- Wide range of angles of release

101 Applications!!

- Towing • Fishing
- Maritime • Boating
- Construction • Lifeboats
- Material Handling • Laboratory

#### Specifications:

Material: Heat Treated Forged Steel		
Finish: Zinc or Cres.		
Strength:	S.W.I.	M.B.S.
H44-3L	2,000 lbs.	8,000 lbs.
H44-3	4,500 lbs.	18,000 lbs.
H44-9	18,000 lbs.	71,700 lbs.



Peck & Hale Is your Full Service Cargo Securing Systems and Equipment Supplier!  
Military Maritime Railroad Aircraft Applications  
Sockets • Hi-shock Chain • Wire 4 Web Lashing Tiedowns

### Tired of nautical reproductions



Maritifacts has only authentic marine collectibles rescued from scrapped ships: navigation lamps, sextants, clocks, bells, barometers, flags, binnacles, telegraphs, portholes & more. Current Brochure-\$1.00.

[www.maritifacts.com](http://www.maritifacts.com) / [maritifacts@aol.com](mailto:maritifacts@aol.com)

MARTIFACTS, INC

P.O. Box 350190 Jacksonville, FL 32235-0190

Phone/Fax: (904)645-0150

### Marine Video Systems

Security • Surveillance • Convenience

Waterproof cameras - \$189.00

Monitors-\$189.00

Time lapse recorders

800-316-6426 [www.flagshipvideo.com](http://www.flagshipvideo.com)

Let us design a system for you!



*flagship* *Marine*

Commercial  
Military - Pleasurecraft

### REPLACEMENT PARTS FOR:

SKL/DMR • Paxman • Sulzer

Fairbanks • MTU

Fuel Injection Parts • Superior • GMT

Alco • Cooper • Delaval Enterprise

PHONE: 719-227-1821

FAX: 719-227-7498

APPLIED ELECTRIC COOP

EMAIL: [Applied@JTP.com](mailto:Applied@JTP.com)  
WEBSITE: [www.JTP.com/AppYied](http://www.JTP.com/AppYied)

2442 CUNNINGHAM ST. • COUADRO SPRINGS, CO 80909

**Slash your HVAC budget!**  
**Slash long term maintenance!**  
**Eliminate engineering expense?**



1 Ton - 20 Tons  
Self-Contained  
High-Pressure  
Split & Chiller

Chosen over all  
others by the US  
and Canadian Coast  
Guard since 1996



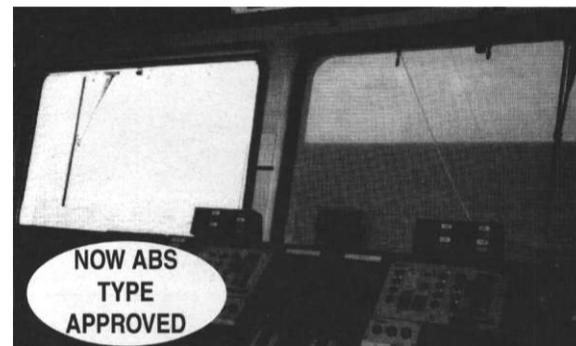
Let us design a fresh water cooled  
self-contained HVAC system for you!  
Femstrum™ keel coolers & Sen-Dure® heat exchangers

800-316-6426 [www.flagshipmarine.com](http://www.flagshipmarine.com)

*flagship* *Marine* Commercial-Military  
*IX* *SF* *IVJ.nST* Pleasurecraft



### ANTI GLARE SOLAR SHADES FOR SHIPS NAVIGATION BRIDGE WINDOWS



SOLAR SOLVE MARINE

South Shields, UK, NE331RA

Tel: +44 191 454 8595 Fax: +44 191 454 8692

E-mail: [sales@solasolv.com](mailto:sales@solasolv.com)

[www.solasolv.com](http://www.solasolv.com)



UNDERWATER TECHNOLOGY

UNDERWATER TECHNOLOGY

UNDERWATER TECHNOLOGY

UNDERWATER TECHNOLOGY

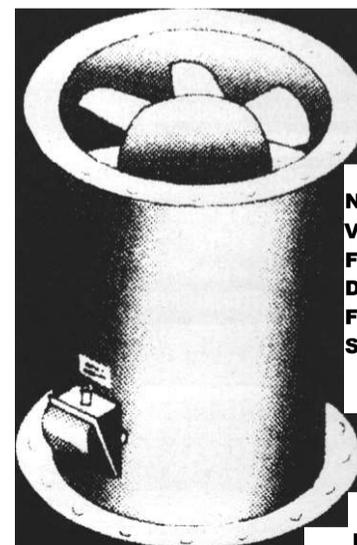
Mobdock repairs  
Underwater welding repairs  
Propeller bending and cropping

Haven 29 - Noorderlaan 9 1220 Turner Street  
B-2030 Antwerp - Belgium Clearwater, FL 33756 - USA

[www.hydrex.be](http://www.hydrex.be)

### JON M. LISS ASSOCIATES, INC.

63 BOVET ROAD NO. 503 • San Mateo California 94402



NAVY STANDARD  
VANEAXIAL  
FANS  
Delivery  
From  
Stock

(650) 573-9191

Fax (650) 572-8458

[jon411@pacbell.net](mailto:jon411@pacbell.net)

# PRODUCTS & SERVICES

**KCCAMAR International Corp**  
186 Prescott St. Worcester MA 01605

## FMS REPAIR PARTS

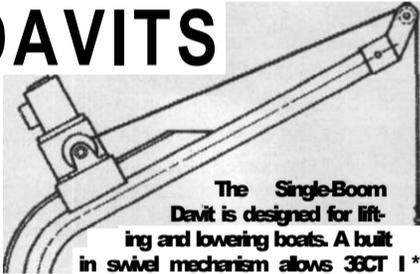
For Ex-USN Ships in Foreign Navies

The most complete stock of MILSPEC replacement parts and components for:

Blowers & Compressors  
Steam Turbines  
Pumps  
Steam Valves  
Steam Boilers

For Sales, Service and Support Call  
**Equipment Specialists** (BOO) 352-7629  
or fax to (508) 752-5687

## DAVITS



The Single-Boom Davit is designed for lifting and lowering boats. A built in swivel mechanism allows 360° rotation. It's engineered in steel using the highest strength to weight ratio sections for ultimate lightness. Its slender profile and light weight, make it suitable for shipboard use where deck space and weight are a premium. All models include powerup and power down capabilities. Power by air and hydraulics are also available including control packages that allow operation at hazardous locations. Capacities range from 500 to 5,000 lbs.

**Holtg Hoist CORPORATION!**  
(810) 777-2060 • Fax (810) 777 7747  
Post Office Box 86  
Si-Chm Shores, Michigan -18080-0086, USA  
© Holtg Hoist Corporation 1998

### SPARE PARTS FOR:

- ABB/VTR • ALFA LAVAL • ATLAS COPCO
- CATERPILLAR • CARRIER • CUMMINS
- DAIHATSU • DETROIT • DEUTZ
- DONALDSON FILTERS • HAMWORTHY
- INGERSOLL RAND • MAN • MITSUBISHI • PAKMAN
- SULZER • YANMAR • QUINCY ... AND MORE

### HP INTERNATIONAL, INC.

5506 56th Commerce Park Blvd.  
Tampa, FL 33610

Telephone: (813) 740-9333 • Fax (813) 740-9334  
E-Mail: Parts@HPINTERNATIONAL.COM

### MARINE INCINERATORS

Burn shipboard waste and sludge in rugged and efficient THERM-TEC Marine incinerators. The first and only US built, IMO, USCG, ABS approved equipment. We also supply leased containerized incineration plants for open deck use.

THERM-TEC Inc. www.thermtecmarine.com  
e-mail: carolina@teleport.com Phone: 503-978-0863

Global Marine Distress  
& Safety Systems  
**IN MOBILE**

STCW Compliant and USCG

Approved 70 Hour Course

To Register Call:

1-800-247-3080

Limited to 12 students

\$950.00

**SEASCHOOL**  
Since 1977



**EDEN MARINE W  
SATELLITE COMMUNICATIONS**

+ 1 561 278 6299 I info@edenmarine.com

**MARITECH**  
Marine Service, Inc.

Specialized in technical services of  
**BERG CP PROPELLERS**

worldwide since 1981.

200 Leslie Dr. Suite #1114, Hallandale, FL 33009 U.S.A.

Phone: (954) 454-7990 Fax: (954) 454-7702

E-Mail: maritech@attglobal.net

Dehumidifiers, air movers, and  
carpet drying fans for every situation

- Prevent rust and corrosion
- Stop dampness from condensation
- Reduce ventilation, heating, and maintenance costs

Eliminate mold and mildew

**Ebac**  
www.ebacusa.com

Ebac Industrial Products, Inc.  
704 Middle Ground Blvd.  
Newport News, VA 23606  
Telephone: 800-433-9011  
Fax: 757-873-3632

**A.R. LARSEN  
COMPANY INC.**

www.marinegalley.com

Excellence in Food Service Equipment & Services  
to the MARINE INDUSTRY...around the globe

MARINE GALLEY DESIGN  
EQUIPMENT & APPLIANCES  
CUSTOM FABRICATION • INSTALLATION  
JOINER SYSTEMS  
FIXTURES & FURNISHINGS

1-800-735-7286

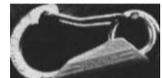
(425) 861-8868 • Fax: (425) 861-8668  
arlarsencow@yahoo.com • Redmond, WA 98073-0088

^ ' l b f j ^

www.suncorstainless.com  
(781) 629-8899 FAX: (781) 829-9220

**SUNCOR**  
y&cimess

y?



**Parataria Hotting Company, 3nc.**

"Professional Lofting Services"

Phone/Fax: (504) 340-5859

1616 Barataria, Blvd. suite 4  
Marrero, LA 70072

### SCALE MODELS

SCALE REPRODUCTIONS, INC.

9121 PRECISION PLACE FAIRHOPE, AL 36532

DISPLAY, ENGINEERING, TANK TEST

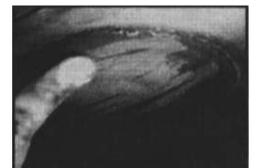
SINCE 1976

WWW.2SCALE.COM  
2SCALE@2SCALE.COM

(334) 928-3829  
(334) 928-1859 Fax

**CUT COSTS  
IMPROVE OPERATIONS**

**PRI-R**



HFO Treatment  
This Vasa 32 exhaust valve  
is carbon free after  
12,000 hours on PRI-R!

1 Improve Your Fuel

Reduce Charter Hire Loss

Extend Engine Component Life & Reliability

Enhance Vessel Safety & Emissions Control

Actual Results From PRI-R Users:

- 82 exhaust valve replacements eliminated annually. Saved more than \$73,000 in parts and labor alone!
- 8 days of downtime at sea eliminated. Charter hire losses avoided, which saved \$120,000 in annual cost.
- Fuel sludge reduced 50%. Savings in fuel valve and disposal cost totaled more than \$ 74,000.

Call PRI Today!  
888-776-9373

www.priproducts.com



## SHIP MODELS

"MODELMAKERS TO THE MARITIME INDUSTRY"

UNCOMPROMISED DETAIL COMPETITIVE COST

For ship owners, shipyards, architects, collectors.

Individually handcrafted from brass-custom & service most

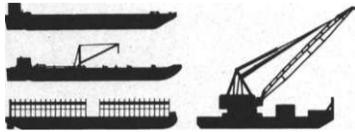
MARITIME MARITIMH REPLICAS AMERICA INC:

11EPUCAJ 10355 S.W. 132<sup>nd</sup> ST. MIAMI, FL. USA 33176

Ph: 305-238 7700 Fax: 305-238-1006

website: www.maritimereplicas.com

## VESSELS FOR SALE OR CHARTER



### Specializing In Barges



**ZIDELL**  
MARINE  
CORPORATION

- Single or Double Hull, Inland or Ocean-Going
- Design, Construction & Modification
- Chartering, Sales & Brokerage

Ask for Bill Gobel or Jack Breshears

503-228-8691 1-800-547-9259

3121 SW Moody Avenue, Portland, Oregon 97201

### BOUY TENDER "BASSWOOD"

- 180'L x 37'W x 12' Draft
- 2 engines @ 1050 HP each, EMD model #R8-645E6 and L8-645E6
- 11 knot cruise, 13.7 knot max
- 28,000 gallon fuel capacity
- (1) 100 KW generator, (2) 180 KW generators
- 25 ton crane
- Housing quarters for crew of 58
- Deluxe galley
- A/C and heat
- Fresh water maker with a 30,000 gallon fresh water capacity

Asking: \$364,000 All offers considered

A&C Shipping, Inc.  
1052 South Florida Avenue  
Lakeland, Florida 33803

Phone: 863-682-0931 • Fax: 863-682-3351

## CENTRAL BOAT RENTALS, INC.



Morgan City, LA

TUGS & BARGES  
INLAND & OFFSHORE  
OIL BARGES  
WATER BARGES  
SPUD BARGES  
LIQUID MUD BARGES  
DECK BARGES  
VESSEL DOCKAGE  
KEYWAY BARGE  
QUARTER BOATS

Phone: (504) 384-8200 Fax: (504) 384-8455  
website: [www.centralboat.com](http://www.centralboat.com)

## EMPLOYMENT/RECRUITMENT

### I JOBS AVAILABLE

- Captains
- Mates
- Chief or DDE Engineers
- QMED's
- A/B's
- O/S's

Spots available on towing, oil industry and other vessels.

**CALL PASSPORT MARINE**  
**1-800-238-9667**  
[WWW.PASSPORTMARINE.COM](http://WWW.PASSPORTMARINE.COM)

Parsons Brinckerhoff, a world leader in the planning, design, engineering, program and construction management of major transportation and infrastructure projects has immediate openings in our New York City Headquarters for the following individuals in our Ports & Marine Engineering Center:

MARINE FACILITIES PROJECT MANAGERS  
MARINE FACILITIES DESIGN ENGINEERS  
(STRUCTURAL)

Candidates will manage, plan and execute the engineering and design of ports, marine terminals and waterfront facilities.

#### Requires:

- Minimum of 5-10 years of experience
- Experience in management, planning, feasibility studies engineering and design of ports, marine terminals and waterfront facilities
- MS in Structural Engineering. PE preferred.
- Marketing ability a plus.

Salary will be commensurate with experience, supplemented by an excellent benefits package. For consideration, please send resume, indicating position of interest and salary history, to: Parsons Brinckerhoff, Dept. MTR1101, G.P.O. 2166, New York, NY 10116. Attn: Joe Alberti. Fax: (212) 631-3739. E-mail: [alberti@pbworld.com](mailto:alberti@pbworld.com). Equal Opportunity Employer, M/F/D/V.

For more information,  
visit our website at:  
<http://www.pbworld.com>

OB PARSONS  
BRINCKERHOFF  
m.

**mime**  
**flCtruITDrS**

Administration - Construction  
Crewing - Engineering  
Finance - M & R  
Operations - Sales

(Established 1969) P O Box 260 • Mercer Island, WA 98040 • 206-232-6041

BOAT JOB LISTINGS UPDATING  
DAILY  
CALL 24 HOUR  
MARINE JOB HOTLINE  
5Q4-889-JOBS (5627)



# BENDER\*\*

### NOW HIRING!

A/B's & O/S's  
OVER 50 POSITIONS AVAILABLE  
**100 TON MASTERS**  
IMMEDIATE JOB OPENINGS

**1600 TON MASTERS**  
CALL TODAY FOR JOB OFFERS

**LICENSED ENGINEERS**  
\$3000 SIGNING BONUS

**QMED's & OILERS**  
EAST COAST, GULF, CARRIBEAN

CALL TOLL FREE 1-888-824-1626

APPLY ONLINE

[www.bendermarine.com](http://www.bendermarine.com)

[www.maritimejobsonline.com](http://www.maritimejobsonline.com)



### John Crane-Lips

Marine Propulsion Systems

JC-L a global supplier of Marine Propulsion Systems is currently accepting resumes for USA field service engineers to accomplish on-site technical services for propulsion equipment overhaul, repair, and installation. Candidates should have strong marine/mechanical/electrical engineering background and experience with shipboard control systems.

Send qualifications to:

[jclservice@johncrane.com](mailto:jclservice@johncrane.com)

Fax: 757-558-3627

EOE

Accepting applications for:  
Experiences Diesel Mechanic

Must have extensive knowledge of Detroit 71 & 92 series and Caterpillar 3400 & 3500 Series. Must be able to repair & rebuild diesel engines and effect repairs on all mechanical problems on sea going & harbor tugs. Fleet based in the Jersey city area.

Send resume & salary history to:

Sea Wolf Marine Towing, Inc.

497 Broadway, Suite 4

Bayonne, NJ 07002

201-339-0177 fax

# EMPLOYMENT/RECRUITMENT



## LICENSED ENGINEERS

### Fishermen and Seamen

NOAA is seeking marine personnel for ships operating from East, Gulf, and West Coast home ports. If you desire a dynamic work environment that offers opportunity, then NOAA maybe the place for you. NOAA has openings for licensed engineers, fishermen, and seamen onboard our fleet of research and survey vessels.

For information, visit our website at <http://ivwww.moc.noaa.gov> and apply online at <http://www.jobs.doc.gov>.

## NAVAL ARCHITECT/ MARINE ENGINEER

Commercial vessel design - small RI design office. BS in Naval Architecture or other engineering discipline required. AutoCad experience required, other software experience a plus. Good communication skills required. Varied and practical experience a plus.

Contact: [BayMarineInc@aol.com](mailto:BayMarineInc@aol.com)  
or fax: 401-245-9630  
for more information

## ATTENTION MARINERS!!!

The deadline for STCW certification is February 1, 2002. Louisiana Human Resource Development Institute has a contract with Gulf Coast Mariners Association Education Fund to enroll mariners for FREE STCW Courses:

- Basic Safety Training
- Bridge Resource Management
- Advanced Firefighting
- Automatic Radar Plotting Aids
- Proficiency in Survival Craft
- Global Maritime Distress and Safety Systems

Contact us at toll free 1-877-935-7829  
or visit our web site at [www.gcmaef.com](http://www.gcmaef.com)  
for more information.

## PORT ENGINEER

American Management Systems, Inc, has immediate opening for experienced Port Engineers to support US Navy fleet maintenance. Applicants must have US citizenship, BS degree in Marine Engineering or Naval Architecture, USCG Engineers license, and prior commercial Port Engineer, shipyard, and/or shipboard experience. Competitive salary & benefits. E.O.E. Send resume to:

AMS, Inc.  
Personnel Director (J-4)  
1455 Frazee Road, Suite 315  
San Diego, CA 92108  
or FAX: (619)683-5699

## ASSISTANT PORT ENGINEER

Immediate opening for assistant port engineer for tugboat company in Norfolk. One to two years experience on tugs preferred. Experience with EMD and Detroit Diesel engines a plus. Computer literacy a must. Responsibilities will include day-to-day maintenance and repair of small fleet of harbor tugs, offshore tugs and push boats including documentation of all repairs.

Send resume to:

Assistant Port Engineer  
P.O. Box 38400  
Baltimore, MD 21231-8400  
Or Fax: (410)732-9623

## Technical Marine Superintendent

Established Marine and Offshore vessel management company in West Houston seeks energetic, motivated, experienced Technical Superintendent to work with Operations team providing quality marine support services to varied fleet of vessels. Emphasis is on FPSO vessels located in West Africa and candidates should have steam engineer's license and experience plus international ship repair and vessel operations experience with basic shipboard service to Chief Engineer rank. More information from our website at [www.alliancemarine.com](http://www.alliancemarine.com). Attractive package for the right candidate.

Send resume to:

Alliance Marine Services, L.P.  
10497 Town & Country Way, Suite 310  
Houston Tx. 77024  
Or by fax to: 713-464-8381  
Or by email to: [ams@alliancemarine.com](mailto:ams@alliancemarine.com).

GULF COAST TRANSIT COMPANY has the largest U.S.-flag oceangoing fleet specializing in dry bulk cargo. We boast a fleet of conventional tug-barge units, ITBs and ships.

As a Gulfcoast team member, you'll enjoy the following benefits

- 0 Pay for training
- 0 Medical/dental benefits
- 0 Paid holidays
- 0 Tuition reimbursement program for approved courses
- 0 401k Savings Plan with a company match
- 0 Performance-based incentive compensation program
- 0 Retirement plan
- 0 Paid travel

Experienced mariners, both deck and engine, are encouraged to apply.

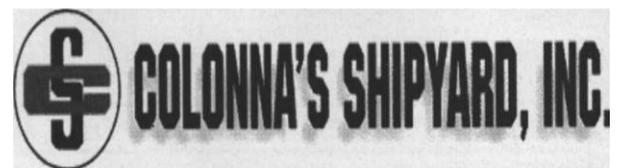
Contact: Gulfcoast Transit - Marine Human Resources  
2101 GATX Drive, Second Floor  
Tampa, FL 33605  
Phone: 813-2094261  
Fax: 813-677-5514  
E-mail: [cramstrong@tecoenergy.com](mailto:cramstrong@tecoenergy.com)  
EOE



Marine Terminals Corporation is a 67 year old, privately held company which provides stevedoring and terminal services on the West Coast of the U.S. We are a rapidly growing company and currently have Superintendent and Superintendent Trainee positions to fill at our Long Beach I San Pedro facilities.

Qualifications are: 4 year college degree (preferably in Logistics, Transportation, Business, Maritime Admin or Marine Transportation) or comparable industry experience. We offer a comprehensive benefit plan including medical, dental, vision, 401 (k), educational assistance.

Please e-mail resumes to [alisonk@mtcorp.com](mailto:alisonk@mtcorp.com) or fax to 310-732-5501.



## SHIPYARD OPERATIONS MANAGER

Colonna's Shipyard, a medium sized, full facility ship repair company is seeking an Executive Operations Manager. This position reports directly to the President and encompasses all deliverable production activities. The Operations Manager controls an organization of approximately 300 employees performing a wide range of ship repair, modification and vessel maintenance services. The qualified candidate will have experience performing both commercial and government ship repair contracts. The candidate must hold a relevant college degree and marine engineering qualifications. Additional education in the area of business management is required. Specific experience will include: managing large complex vessel overhauls, managing drydocking operations, managing a large multi-trade workforce, managing sub-contractors, managing trade foremen and supervisors, managing ship superintendents and project managers, managing customer service requirements. Specific technical expertise required in the area of hull repair, machinery repair and various shipboard systems. Must effectively deal with vessel owners, regulatory bodies and third party officials. Demonstrated individual track record in performing large projects on schedule and on budget. Strong skills in planning and scheduling. Proven leadership skills in organization and teamwork a must. Successful in all aspects of strategy and decision-making. Efficiency and profit improvement experience critical to this position. Career development must include 20 years plus of progressive shipyard management responsibility. Please submit resume, references and salary requirements to President, Colonna's Shipyard, Inc. 400 East Indian River Road, Norfolk VA 23523.

E-mail: [jcox@colonnaship.com](mailto:jcox@colonnaship.com)  
EOE



The New Generation  
Energy Services >

Join the CDI Team  
Always on the move  
Always looking for qualified professionals  
Excellent Pay/Excellent Benefits  
Visit our website at:  
[www.caldive.com](http://www.caldive.com)  
Fax: 985-330-0396

# EMPLOYMENT/RECRUITMENT

## Director, Government Sales WE WANT YOU!!

One of the top sales management positions in the USA is now available. We offer a truly outstanding opportunity to the right person.

Our company, established over 117 years ago, is constantly focused on growing our business in our target markets around the world. We are an International Industrial Manufacturer with a global sales and distribution network currently seeking an executive caliber, professional salesperson with the ability to lead and support the activities of our Sales teams focusing on business opportunities with U.S. Government agencies.

If you are currently in a sales/sales management position selling to the U.S. Navy (a definite plus), U.S. Coast Guard and/or other agencies of the U.S. Government, this position may be that career move you have been searching for. If you are ready for increased responsibility and recognition, higher personal compensation potential and a career path to top management then this could be your opportunity of a lifetime!

Candidates must be aggressive self-starters and possess the ability to lead, motivate and direct others. Extensive experience and proven success in sales to U.S. Government agencies and a willingness to travel extensively is a must.

Our dynamic company environment will provide maximum professional development, an above average compensation and benefits package, and the opportunity for a successful and secure future for the right person.

Interested applicants should contact:  
C. McDermottroe via e-mail  
"mcdermc@chesterton.com",  
fax @ (781) 481-2530, or mail to:

A.W. Chesterton Company  
225 Fallon Road  
Middlesex Industrial Park  
Stoneham, MA 02180-2999 USA

## GENERAL FOREMAN, MACHINERY

Bay Shipbuilding Co., Sturgeon Bay, WI, a Division of the Manitowoc Marine Group, has an immediate opening for a General Foreman, Machinery. This individual will supervise and coordinate personnel and material in machinery applications for new construction, conversion and repair.

Applicants must have technical knowledge of various shipboard systems including propulsion, steering, unloading, drive and hydraulics. Experience in alignments, ship machining and tooling is required. Knowledge of rigging techniques and procedures is mandatory. Applicant must be familiar with gasoline, diesel and steam engines. A minimum of 5-10 years experience is required.

Bay Shipbuilding Co. offers a very competitive wage and benefit program. Applicants may send their resume to:

Sandie Paul, HR Representative  
Bay Shipbuilding Co.  
" P.O. Box 830  
Sturgeon Bay, WI 54235

An Equal Opportunity/Affirmative Action Employer

## 1ST, 2ND, 3RD ASSISTANT ENGINEERS

Job Summary: 12 hour shift work, 28 day on 28 day off schedule. Provide comprehensive maintenance, watch keeping and supervision duties for self-propelled marine construction vessel.

Qualifications: U.S.C.G. License - Unlimited Tonnage, Maritime or Vocational Graduate preferred. 1-2 years at current license level preferred.

Apply for Job: JRay McDermott, Inc.  
Attn: Donnie Clause  
P.O. Box 188  
Morgan City, LA 70381  
Fax: (985) 631-8408  
Email: djclause@mcdermott.com

J. Ray McDermott, a subsidiary of McDermott International, Inc. (NYSE:MDR), is a leading worldwide marine construction company. Its EPCI and project management services include design, fabrication and installation of spar platforms; design and installation of sub-sea facilities; design, fabrication, transportation and installation of new and refurbished bottom-founded offshore platforms; and, installation of offshore pipelines for the oil and gas industry.

## Freeport Shipbuilding Seeks To Hire:

### YARD SUPERINTENDENT

**Job:** Supervise and coordinate facility activities, Prepare budgets, Motivate personnel

**Skills:** Experience in new construction (steel & aluminum), Experience in USCG and ABS regulations, General AutoCad experience (preferred.)

Please send resume to: Freeport Shipbuilding II, Inc., P.O. Box 49, Freeport, FL 32439 or fax to: (850) 835-4873. Experienced need only apply.



Seaward Services, Inc.

255 E. Dania Beach Blvd., Suite 220  
Dania Beach, FL 33004

Seaward Services, the federal government's first choice for operation and maintenance of its research vessels, range craft, and service craft under 1600 GRT, has immediate openings for licensed & unlicensed mariners aboard several of its 50 contract operated vessels. Bring your professional experience to a company who understands how success is achieved.

At Seaward, it is the employees who make the difference! In return, Seaward will provide you with family based schedule, competitive pay and one of the most comprehensive benefits package in the industry, including:

•Five day work week •Home 300 nights/year '401K Plan  
•Free Uniforms •Health Care Insurance • Paid Vacation Days •Paid Holidays •Jury Duty Pay •Bereavement Pay •STCW, License Upgraded Tuition Assistance •Military Leave of Absence Pay  
Differential Service Awards • Direct Deposit  
•Open Door Policy...

To learn more, contact the Human Resources Department at:  
Phone: 954-922-1688; Fax: 954-922-2688;  
Email: [quarterdeck@seawardservices.com](mailto:quarterdeck@seawardservices.com)  
[www.seawardservices.com](http://www.seawardservices.com)  
EOE

## MARKETING MANAGER

Location: Ft. Lauderdale, FL  
Education: Bachelor of Arts (4-year degree)

Industry Segment:

Languages: English

Computer Skills:

Java, Microsoft Access, Windows  
Programming, Microsoft Excel, Microsoft

## JOB QUALIFICATIONS:

Candidate must be computer literate with all marketing tools, i.e. desktop publishing, etc. Must have owner and management contacts for presentation of cutter system for ship installation. Maritime college graduate preferred. Travel necessary.

## JOB DESCRIPTION:

Marketing and merchandising of line and net cutter systems to the shipping industry. All vessels from cruise ships to oil tankers of any size or age, including U.S. Navy vessels.

Spurs Marine Manufacturing Inc.  
E-mail: [spurs@spursmarine.com](mailto:spurs@spursmarine.com)  
Tel: 800-824-5372 (954) 463-2707  
Fax: (954)525-0239

# EMPLOYMENT/RECRUITMENT.



## WANTED MATERIALS ENGINEER COATINGS SPECIALIST

Join the top notch marine engineering team that oversees the maintenance, repair and design of more than 70 government owned ships operated by the U.S. Navy. Discover the engineering shoreside opportunities we offer at our San Diego, California office. Salary range from \$53,677 - \$69,776.

Excellent government benefits provided.

### BACKGROUND NEEDED:

- Knowledge of chemical principles, theories, practices and methodology relating to marine coatings.
- Knowledge of marine coatings application methodology, techniques, standards, etc..
- Knowledge of corrosion engineering as it pertains to corrosion impact on steel hull structures, piping systems, tanks, etc..
- B.S. degree required. Prefer B.S. degree in Materials Engineering, Chemical Engineering, or Mechanical Engineering.
- NACE Certified Coatings Inspector certification is desirable.
- U.S. Citizenship required.
- Copies of college transcript required. Applications submitted without transcripts will be returned.

For more information, consult Office of Personnel Management Web Site @ [www.usajobs.opm.gov](http://www.usajobs.opm.gov) - Mr. Paul Jurkowski, Military Sealift Command: (619) 524-9671, or Ms. Linda Maddux, Human Resource Office: (619) 532-2841

Please send resume & College transcripts to:

Human Resources  
Service Center  
Southwest

Attn: CODE 521 (DEU-529-01-NR)  
525 B STREET, SUITE 600  
SAN DIEGO, CA 92101

U.S.  
NAVY'S  
MILITARY  
SEALIFT  
COMMAND



BISSO MARINE,

- HEAVY LIFT SPECIALIST
- MARINE SALVAGE
- WRECK REMOVAL
- SONAR SURVEY - DIVING

P.O. BOX 4113

NEW ORLEANS, LOUISIANA 70178

Phone: (504) 866-6341

Fax: (504) 865-8132

[www.bissomarine.com](http://www.bissomarine.com)



## BMT DESIGNERS & PLANNERS

NAVAL ARCHITECTURE  
MARINE ENGINEERING  
ENVIRONMENT & SAFETY  
OFFSHORE ENGINEERING SERVICES

2120 Washington Blvd,

Suite 200

Arlington, VA 22204-5717

Phone: (703) 920-7070

Fax: (703) 920-7177

Email: [dandp@dandp.com](mailto:dandp@dandp.com)

Website: [www.dandp.com](http://www.dandp.com)

## SffIS t BMT SCIENTIFIC MARINE SERVICES

MARINE INSTRUMENTATION  
HULL MONITORING  
TRIALS & TESTING  
OCEAN ENGINEERING

9835B Whithorn Drive

Houston, Texas 77095

Phone: (281)858-8090

Fax: (281)858-8898

Email: [sms@scimar.com](mailto:sms@scimar.com)

101 State Place, Suite N

Escondido, CA 92029

Phone: (760)737-3505

Fax: (760)737-0232

Website: [www.scimar.com](http://www.scimar.com)

## f'l FLEET TECHNOLOGY

NAVAL ARCHITECTURE  
TESTING & TRIALS  
STRUCTURAL INTEGRITY ASSESSMENT  
ICEBREAKERS & ARCTIC ENGINEERING

311 Legget Drive,

Kanata Ontario

Canada K2K 1Z8

Phone: (613) 592-2830 Fax:

(613)592-4950

Email: [fleet@fleettech.com](mailto:fleet@fleettech.com)

Website: [www.fleettech.com](http://www.fleettech.com)

## PROFESSIONAL

#

A Subsidiary of The ESAB Group, Inc.

AlcoTec Wire Corporation

Traverse City, Michigan 49686 / USA

- Premium Aluminum Weld Wire
- World Market leader
- Fully Integrated Manufacturing
- Welding Technology Leaders
- Design Consultation
- Trouble Shooting
- Customized Weld Schools

Phone (231) 941-4111

Fax (231) 941 9154

E-mail: [sales@alcotec.com](mailto:sales@alcotec.com)

[www.alcotec.com](http://www.alcotec.com)



TELEPHONE (604) 736-9466

FACSIMILE (604)736-9483

E-MAIL [ral@ral.bc.ca](mailto:ral@ral.bc.ca)

WEB [www.ral.bc.ca](http://www.ral.bc.ca)

## ROBERT ALLAN LTD.

NAVAL ARCHITECTS AND MARINE ENGINEERS

SUITE 230 - 1639 WEST 2nd AVENUE

VANCOUVER, B.C. CANADA V6J 1H3



STOCKS IN MAJOR U.S. PORTS  
ASSOCIATED COMPANIES IN MEXICO,  
EUROPE AND THE FAR EAST

21 CHARLES ST., WESTPORT, CT 06880  
Ph: 203-226-5200 Fx: 203-226-5246  
[ANKERPAINT@aol.com](mailto:ANKERPAINT@aol.com)

COI. **Rand, Lavis & Associates, Inc.**  
A CDI Marine Group Company

Naval Architects & Marine Engineers

900 Ritchie Highway

Severna Park, Maryland 21146

Tel: (410) 544-2800; Fax: (410) 647-3411;

E-Mail: [bla@cdicorp.com](mailto:bla@cdicorp.com)

Web Site: [www.cdicorp.com/bla](http://www.cdicorp.com/bla)

## DU HARINE CO., INC.

### COMPLETE TOPSIDE REPAIRS

- Full Machine and Electrical Shops
- Daihatsu Diesel Authorized Service & Parts
- Shipfitting, Pipefitting, Certified Welding, Diesel Repairs
- Motor and Generator Rewinding, Dynamic Balancing
- Pump Repairs and Custom Fabrications
- Experienced Riding Crews for all Trades

75 Huntington St., Brooklyn, NY 11231

Telephone: (718) 875 6700 • Fax: (718) 858-0029

Website: [www.bamarine.com](http://www.bamarine.com) E-mail: [serviced@bamarine.com](mailto:serviced@bamarine.com)

QUALITY... SERVICE... VALUE

## BAYFRONT MARINE, INC.

EXPERT WORLDWIDE VESSEL DELIVERY SERVICE  
EXPERIENCED PROFESSIONALS  
Licensed

Masters, Engineers and Crews

Call Mel or Diane Longo (904) 824-8970



## CDI.

COI Marine Group

CDI Marine Company

904-805-0700

Band, Lavis & Associates, Inc.

410-544-2800

Naval Architects

Marine Engineers

Naval Aviation Support

JACKSONVILLE, FL • BREMERTON, WA

ISLANDIA, NY • POTTSTOWN, PA

LAKEHURST, NJ • PATUXENT RIVER, MD

PASCAGOULA, MS • PORTSMOUTH, VA

SEVERNA PARK, MD

Email: [marine@cdicorp.com](mailto:marine@cdicorp.com)

Visit us at our web site at:

<http://www.ctfmarinegroup.com>

# PROFESSIONAL

## CHILDS ENGINEERING CORPORATION

WATERFRONT ENGINEERING-DIVING INSPECTION  
 CHILDS ENGINEERING CORPORATION • BOX 333 MEDFIELD MA 02055 (BOB13SB BB4S)

Serving the marine industry for over 140 years



**CRANDALL**  
 DRY DOCK ENGINEERS, INC.  
 •Consulting •Design •Inspection  
 Railway and Floating Dry Docks  
 Dry Dock Hardware and Equipment

Box 505804, Chelsea, MA 02150 (617) 884-8420 Fax: (617) 884-8466  
 www.crandalldrydock.com

## GHS

General HydroStatics

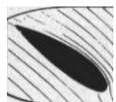


### Computer software for Naval Architects

hydrostatics, stability, strength, modeling  
 salvage simulations  
 onboard trim/stability/strength

**CREATIVE SYSTEMS inc.**

CREATORS of am Phone: 360 385-6212  
 P.O. Box 1910 Port Townsend, WA 98368 USA Fax: 360 385-6213



## CT MARINE

NAVAL ARCHITECTS' MARINE ENGINEERS

» VAPOR RECOVERY Tel: 203-831-0403 Fu: Z03431-0407  
 • TUGS  
 • TOWBOATS 56 CROOKED TRAIL, ROWAYTON CT. 06853  
 • BARGES ctmarine@optonline.net

## CUNNINGHAM & WALKI



NAVAL ARCHITECTURE & MARINE ENGINEERING  
 MARINE MARINE HVAC ELECTRICAL ENGINEERING ENGINEERING

DYER  
 ELLIS &  
 JOSEPH

COUNSELORS AT LAW  
 Watergate, Eleventh Floor  
 600 New Hampshire Ave., NW  
 Washington, DC 20037  
 202-944-3000  
 FAX 202-944-3068  
 A PROFESSIONAL CORPORATION

www.dyerellis-maritime.com  
 E-mail: nav@dejlaw.com

311 Legget Drive  
 Kanata, Ontario, Canada  
 Phone: (613) 592 2830  
 Fax: (613) 592 4950

**FTL FLEET TECHNOLOGY**

Trials and Instrumentation  
 Structural Assessment  
 Fatigue/ Fracture Experts  
 Shafting/Vibration Analysis  
 Performance Prediction  
 Model Testing

# r

## GEORGE G. SHARP, INC.

100 CHURCH SIKKEET, NEWYDRK, NY 10007  
 TEL (212) 732-28CTK... ^ A X (212) 732-2809

WASHINGTON (703)548-4400  
 VIRGINIA BEACH (757)499-4125  
 PHILADELPHIA (215)465-9573  
 SAN DIEGO (619) 425-4211

MARINE SYSTEMS • ANALYSIS & DESIGN

## GIBBS & COX m

Naval Architects & Marine Engineers

50 West 23rd Street  
 New York, NY 10010  
 212-366-3900

Brunswick, ME  
 207-721-8200

Hampton, VA  
 757-896-0200

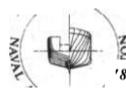
Arlington, VA  
 703-416-1240

Philadelphia, PA  
 215-952-0172

## JOHN W. GILBERT ASSOCIATES, INC.

Naval Architects Marine Engineers

(781)740-8193  
 FAX (781) 740-8197



75 Terry Drive, Suite 200  
 Hingham, MA 02043

# 5

## GLOSTEN

The Glosten Associates, Incorporated

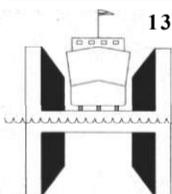
Naval Architecture Oc-tan Engineering Transportation An

605 First Avenue, No. 600  
 Seattle, WA 98104-2224

Phone: (206) 624-7850  
 Fax: (206) 682-9117

CONSULTING ENGINEERS SERVING THE MARINE COMMUNITY

## HEGER DRY DOCK, INC.



13 Water Street, Holliston, MA 01746

Engineering for all types of dry docks

- Design
- Docking Calculations
- Certifications
- Engineer/Diver
- Inspections
- U.S. Navy 1625C FCR's
- Dockmaster Training Classes

Phone: (508) 429-1800 Fax: (508) 429-1811  
 www.hegerdrydock.com

# HEC

HERBERT ENGINEERING CORP.  
 2417 Mariner Square Loop, Suite 125  
 Alameda, CA 94501

Naval Architects • Marine Engineers • Marine Software Specialists

Tel: (510) 814-9700  
 Fax: (510) 814-9763

E-mail: info@herbert.com  
 http://www.herbert.com

CERTIFIED  
 ISO 9002

# JMS

JMS NAVAL ARCHITECTS  
 SALVAGE ENGINEERS  
 The sea-going naval architects.  
 860-448-4850 • jmsnet.com

John J. McMullen Associates, Inc.  
 An Employee Owned Company



## Naval Architects Marine Engineers Program Support Specialists

Alexandria, VA » Arlington, VA o New York, NY  
 Newport News, VA » Pascagoula, MS o Pittsburgh, PA  
 Bath, ME 9 Port Hueneme, CA o Bremerton, WA  
 Philadelphia, PA a San Diego, CA a Tacoma, WA  
 Charleston, SC » Quantico, VA ® New Orleans, LA

Corporate Headquarters:

4300 King Street Suite 4011 Alexandria, VA 22302  
 Business Development: (703)933-6A90 Fax: (703)933-6777  
 Web Site: am JJMA.com Email: Marketin@JJMA.com



Michael R. Keough, CPC  
 KEOUGH ASSOCIATES

124 Garretson Avenue  
 Staten Island, NY 10304-2830

PH: (718) 979-8698 Fax: (718) 667-8347

Our 25th Year, Providing Executive Search & Technical  
 Recruitment Services to the Maritime Community  
 and Supporting Industries.



MARINE SYSTEMS CORPORATION  
 MARINE ENGINEERS / NAVAL ARCHITECTS

HM&E Design Drawings Logistic Support  
 Inspection Vibration Testing Programs  
 68 FARGO STREET, BOSTON, MA 02210 INFO <a MSCORP.NET  
 TEL (617) 542-3345 FAX (617) 542-2461 WWW.MSCORP.NET

## 'US/GLOBAL... WE DELIVERA



- Delivery of vessels from 50 feet, to 5000 gross tons.
- An Experienced Team of Expert Licensed Masters,
- Engineers, Certified Marine Surveyors/Consultants.
- 55+ years of No Accidents/No Incidents Operations.

MARNAV  
 800-217-5059

INTERNATIONAL  
 mniSmar-nal.com

Ltd.  
 Fax 360-697-9450

## MCA ENGINEERS, INC. ©

- \* Marine Structural Engineering (FEA, Fatigue,...)
- \* Hull Monitoring System (Motions, Stress,...)
- \* Ship Repair Analyses & New Designs
- \* Mooring Master (Analyses / Monitoring)
- \* Vessel Information Archive System (Multimedia)
- \* FracTrac Relational DataBase
- \* Ultrasonic Leak Detection

e-mail: info@mcaengineers.com  
 web-site: www.mcaengineers.com

Phone: (714) 662-0500 Fax: (714) 668-0300  
 2960 Airway Ave., A-103, Costa Mesa, CA 92626

### Coast Guard/State Pilotage License Insurance

Worried about deferring your license or yourself in a hearing conducted by the Coast Guard, National Transportation Safety Board or a State Pilotage Authority, which could result in license revocation, suspension or assessment of a fine/money damages against you personally?

Stop worrying. Insure yourself and your license with a Marine License Insurance Policy. For more information, contact R.J. Mellius & Co., 71 Hudson Street, New York, N.Y. 10013, Tel.(212) 962-1590 Fax: (212) 385-0920, E-mail: rmellius@tdt.net

# PROFESSIONAL



**Alan C. McClure Associates, Inc.**

**NAVAL ARCHITECTS • ENGINEERS**

2600 South Gessner • Suite 504 • Houston, Texas 77063  
(713) 789-1840 • (713) 789-1347 Fax

## CRUISE SHIP SPECIALISTS

*/ n . x*

**Nautical Designs Inc. X**

NAVAL ARCHITECTS / MARINE ENGINEERS  
2101 S. ANDREWS AVE. FT. LAUDERDALE, FL. 33316 PH. (954) 463-2033

## SARGENT & HERKES, INC

**NAVAL ARCHITECTS • MARINE ENGINEERS**

225 BARONNE ST., SUITE 1405

NEW ORLEANS, LA 70112

504-524-1612 • 504-523-2576 (Fax)

E-mail: [sahinc@bellsouth.net](mailto:sahinc@bellsouth.net)

## MIL | I | Systems

Naval Architects &  
Marine System Engineers



1150 Morrison Drive, Tel.: (613) 726-0500  
Ottawa, Ontario K2H8S9 Fax: (613) 726-0252

www.milijsystems.com

## OCEAN ENERGY SYSTEMS

Naval Architects & Marine Engineers

505 N. Sam Houston Pkwy, Suite 320  
Houston, TX 77060

Phone: 281-820-4200 Fax: 281-820-2440

Web Site: <http://www.oceaneng.com>

## Schrider

Naval Architects

& Associates, Inc.  
Marine Engineers

P.O. Box 2546

Daphne, AL 36526

E-mail: [info@schrider.com](mailto:info@schrider.com)

Office: (251) 621-1813

Fax: (251) 626-1814

Technical and Managerial Solutions for Shipyards & Vessel Owners

## MOSS MARINE USA, Inc.

Naval Architects, Marine Engineers, Surveying & Repair

S 410-542-8775 fax 410-542-8115

Baltimore, MD 21209

[www.mossmarineusa.com](http://www.mossmarineusa.com)

PHONES:  
(973) 984-2295  
1-800-762-9383

NIGHT:  
(973) 538-1789

FAX:  
(973) 984-5181



**MOWBRAY  
MARINE SALES INC.**  
2 BROOKFIELD WAY  
MORRISTOWN, N.J. 07960

YOUR MARINE CONSULTANTS

**SPECIALISTS IN  
BUYING, SELLING  
AND RENTING  
TUGBOATS  
• BARGES  
• CONTRACTORS  
FLOATING  
EQUIPMENT**

**OCEANIC CONSULTING CORPORATION**

- 200m Towing Tank
- 60m Towing Tank
- 75m x 32m Offshore Engineering Basin
- 90m Ice Tank
- Flume Tank
- Cavitation Tunnel
- Bridge Simulator
- Numerical Simulation

P.O. Box 28009 St. John's Canada A1B 4J8 <http://www.oceaniccorp.com>  
Email: [oceanic@oceaniccorp.com](mailto:oceanic@oceaniccorp.com) Tel: (709) 722 9060 Fax: (709) 722 9064

**Seaworthy Systems, Inc.**

ISO 9001  
MARINE ENGINEERS AND NAVAL ARCHITECTS  
Essex, CT 06426  
(860) 767-9061; Fax: (860) 767-1263; [www.seaworthysys.com](http://www.seaworthysys.com)  
SAN FRANCISCO • PHILADELPHIA • WASHINGTON, DC

**NAVAL ARCHITECTS & MARINE ENGINEERS**

## Modern Maritime, Inc.

Modern Solutions for the Traditions of the Sea

**Safety, Quality  
and Environmental  
Management  
Systems**

- Consulting
- Implementation
- Administration
- Document Control



1-800-876-8969  
or  
[www.modernmaritime.com](http://www.modernmaritime.com)



## PRO-DIVE INC.

Complete and Professional Diving Services

501 Illinois Avenue, P.O. Box 663, Ottawa, IL 61350  
Phone: (815) 433-5228 Fax: (815) 434-2433

Randy Jacobs  
President

24-HR. SERVICE  
e-mail: [prodiver@theramp.net](mailto:prodiver@theramp.net)

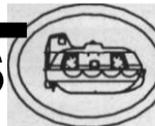
## IAN—

[WWW.RADIANINC.COM](http://WWW.RADIANINC.COM)

- Marine Engineering
- Vessel Operations
- Marine Electrical Systems
- Marine Safety
- International Marine Services
- Life-Cycle Management

Radian Inc.  
5845 Richmond Hwy. - Alexandria, VA 22303  
Phone: (703) 329-9300 - or - (800) 595-5593

## SURMA SYSTEMS INTERNATIONAL



931  
Industry  
Road  
Kenner  
LA, 70062

LIFEBOAT INSPECTION, REPAIRS, PARTS.  
PHONE: (504) 469-4545, FAX: (504) 466-1884.  
E-mail: [lifboatserv@earthlink.net](mailto:lifboatserv@earthlink.net)

## VIBRANALYSIS ENGINEERING CORP

- PREDICTIVE MAINTENANCE PROGRAMS
- VIBRATION ANALYSIS
- FIELD & SHOP BALANCE
- ACOUSTICAL CONSULTANTS
- COMPUTERIZED DATA COLLECTION
- MARINE APPLICATIONS—IR THERMAL IMAGING

VIBRANALYSIS ENGINEERING CORP 800-553-1614  
9300 Gamebird 713-944-3633  
Houston, TX 77034 Fax: 713-944-8797



**NATIONAL  
ASSOCIATION OF  
MARINE  
SURVEYORS, INC**  
established / 062

INTERNATIONAL MARINE SURVEYORS ORGANIZATION  
for CARGO, HULL, & MACHINERY and YACHT SURVEY.

Fort A.I.V. surveyor in your area, mil

**1-800-822-6267**

fax: (757) 488-0584 e-mail: [office@Nams.cms.org](mailto:office@Nams.cms.org)  
[www.nams-cms.org](http://www.nams-cms.org)

## BRS

**Barry Rogliano Salles USA LLC**

Shipbrokers and Consultants

Provides brokerage and consulting services for the sale,  
purchase, finance and chartering of ships or new build  
projects in the maritime and offshore industry.

5177 Richmond Avenue, Suite 1142 Houston, TX 77056  
Tel: 713-871-8900 Fax: 713-871-9688 [www.brs-houston.com](http://www.brs-houston.com)

## VIBTECH, INC.

Box 435 North Kingstown  
Rhode Island 02852  
TEL: 401-294-1590  
FAX: 401-295-2592

**NAVAL ARCHITECTURE**

**MARINE ENGINEERING**

**STRUCTURES**

**VIBRATION**

**SHOCK**

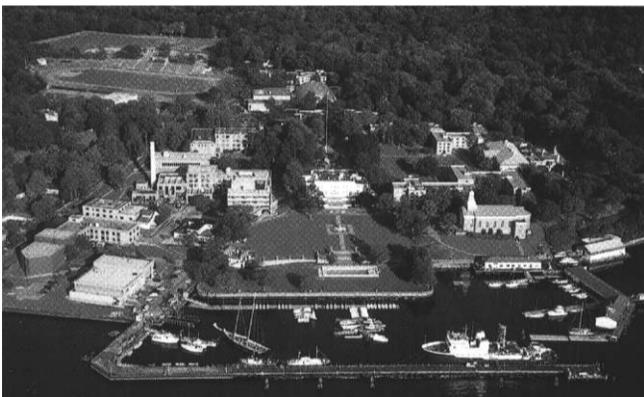
## FAST SHIP DESIGN

MAIN OFFICE: 125 STEAMBOAT AVENUE,  
NORTH KINGSTOWN, RI 02852  
E-mail: [Vibtech@ids.net](mailto:Vibtech@ids.net)

# MARINE ENGINEERING TRAINING

The United States Merchant Marine Academy (USMMA) at Kings Point, New York is one of the five federal service academies and the America's premier maritime institution. Along with the undergraduate program, USMMA offers the most extensive maritime and transportation continuing education program in the United States. Most courses are one to two-weeks in duration.

We teach over 35 Marine Engineering courses and over 100 other courses in Nautical Science, Maritime Business, and Intermodal Transportation. Our instructor staff includes outstanding USMMA faculty, guest lecturers, and industrial experts. "Hands-on" lab exercises complement classroom lecture where we use the Academy's 22 magnificent engineering laboratories and waterfront vessels. In addition to regularly scheduled courses, we can also tailor programs to meet specific company or organization needs.



FOR MORE INFORMATION, PLEASE  
CONTACT:

USMMA Global Maritime and  
Transportation School  
Samuels Hall  
300 Steamboat Road  
Kings Point NY 11024-1699

Phone: 516.773.5149

Fax: 516-773.5353

E-mail: [frangoss@usmma.edu](mailto:frangoss@usmma.edu)

Internet:

[www.usmma.edu/gmats](http://www.usmma.edu/gmats)



## Marine Engineering Training

(Over 35 Engineering Programs such as:)

### 5 Week Diesel Propulsion Systems

\*\*\*USCG Approved Crossover Course, good for 75 sea days\*\*\*

### Repair Techniques for Slow/Medium Speed Diesels

### Shipboard Electronic Control Systems

### Basic and Advanced Welding/Pipefitting

### Basic and Advanced Machine Shop

### Auxiliary Systems for Marine Engineers

### Sulzer Control Systems

### Fundamentals of Diesel Engines

### Pump Operation, Maintenance and Troubleshooting

### Marine Diesel Surveyor

### Marine Refrigeration

\*\*\*Certified under the new Environmental Protection Agency\*\*\*

### Marine Engineering Economics

### Ship Maintenance and Repair

### Basic and Advanced Alignment Solutions

### AutoCad 2000

### Vessel Activation for Strategic Sealift

### Programmable Logic Controllers

\*\*\*CUSTOMIZED TRAINING PROGRAMS  
ALSO AVAILABLE!!!

**Vision:** *To be a world leader in providing professional maritime education and training*

# KARL SENNER, INC...WHEN ONLY THE BEST WILL DO



## M/V J.P. Laborde

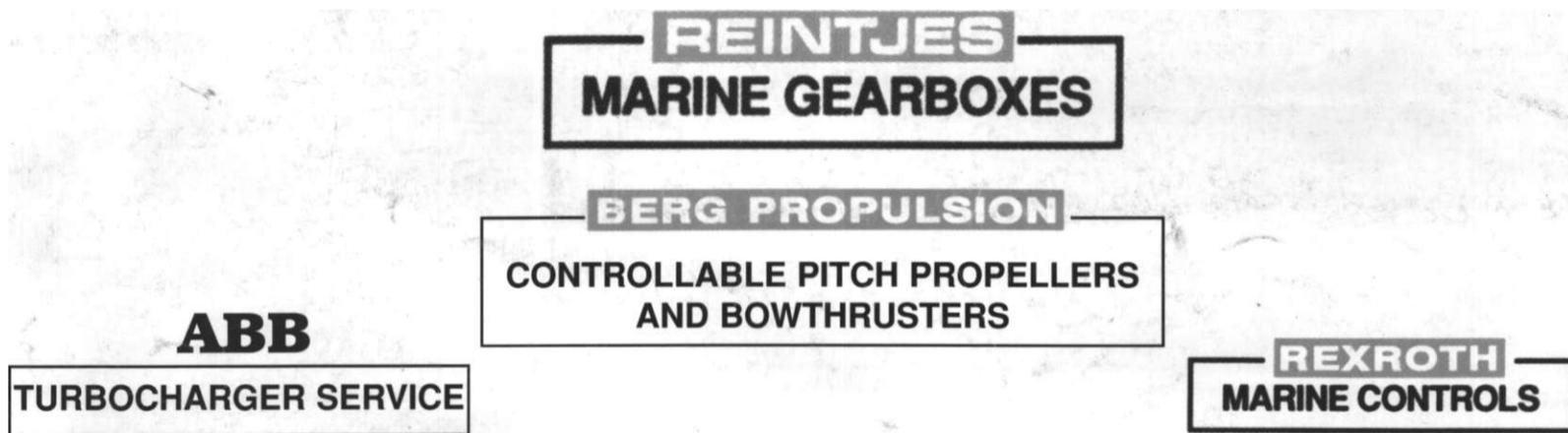
Karl Senner, Inc. has been awarded the contract to supply the marine gears for Tidewater, Inc/s Anchor Handling Tug Supply Vessel, M/V J.P. Laborde, which is currently under construction at Yantai Raffles Shipyard Company, Ltd. in China.

Karl Senner, Inc/s scope of supply includes:

Two (2) Reintjes DLG 4447U, Twin Input, Single Output, Horizontal Offset Reduction Gears, with a Reduction Ratio of 5.96:1

Owner: Tidewater, Inc., Mew Orleans, Louisiana

Shipyard: Yantai Raffles Shipyard Company, Ltd. People's Republic of China



**SALES, PARTS, SERVICE • 500 H.P. TO 20,000 H.P.**

website: <http://wvm.karlsenner.com>

[sales@karlsenner.com](mailto:sales@karlsenner.com)

[service@karlsenner.com](mailto:service@karlsenner.com)

[parts@karlsenner.com](mailto:parts@karlsenner.com)



# Karl SENNER, Inc.

WEST COAST  
Karl Senner, Inc.  
12302 42nd Drive S.E.  
Everett, WA 98208  
Mr. Whitney Ducker  
(425) 338-3344

NEW ORLEANS  
Karl Senner, Inc.  
25 W. Third St.  
Kenner, LA 70062  
(504) 469-4000  
Telefax: (504) 464-7528

EAST COAST  
Olof Wadehn Enterprises  
30 Sheppard Lane  
Huntington, Long Island  
New York 11743  
Mr. Olof Wadehn  
(631) 692-4548

Visit our website at <http://www.karlsenner.com>

Circle 225 on Reader Service Card or visit [www.maritimereporterinfo.com](http://www.maritimereporterinfo.com)