

Innovative answers to your questions

**“COMPETITIVE POSITION AND FUTURE OPPORTUNITIES  
OF THE EUROPEAN MARINE SUPPLIES INDUSTRY”**

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**Final Report**

**Annex 3**

**European Marine Supplies Industry –  
Identification of Major Players,  
Examples for Market Consolidation,  
System Suppliers, M&A and Globalisation**

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## 0 Introduction

This annex provides more detailed information on European leading companies in the marine supplies business. The selection of companies represents major players in the industry, not necessarily saying that all relevant stakeholders in the market have been identified. In this sense these are only exemplary, but representative companies.

Note: "As a rule, the displayed data in the company profiles below and descriptive text have been extracted from the official company information (e.g. company websites), maritime branch magazines and partly databases. A naming of the single sources was renounced."

The following matrix gives an overview on leading global acting companies, country of headquarters and the sectors of maritime supplies they are active.

Company		Country	Steel	Paintings/ Coatings	Ship Operation	Cargo Handling Equipment	Special Cargo Plants incl. Offshore Systems	Accommodation	Propulsion/ Power Generation	Auxiliary Systems, Apparatus & Accessories	Electric/ Electronics/ Nautical Equipment/ Communication
ABB Marine		Finland, Norway					X		X	X	X
AkzoNobel Corp.		Netherlands		X							
Aker Solutions		Norway					X			X	
Alfa Laval		Sweden			X		X			X	
Bosch Rexroth		Germany			X	X	X		X	X	
Cargotec		Finland			X	X					
Caterpillar Marine Power Systems		Germany							X	X	
Central Industry Group		Netherlands	X		X	X					
Consilium		Sweden									X
GE Power Conversion	Marine	France							X	X	X
	Oil & Gas	France					X		X		
Hamworthy (Wärtsilä)		UK			X		X			X	
Hempel		Denmark		X							
Huisman		Netherlands				X	X				
Imtech Marine		Netherlands			X	X	X		X	X	X
Inmarsat		UK									X
Jotun Group		Norway		X							
Kongsberg Maritime		Norway			X		X			X	X
Liebherr		Germany				X	X				
MAN Diesel & Turbo		Germany							X	X	
Muehlhan		Germany		X							
Rolls-Royce Marine		UK			X	X			X	X	
Saipem SpA		Italy					X				
SAM Electronics		Germany			X				X	X	X
Scana Industrier		Norway	X			X	X		X		
Schneider Electric		France							X		X

Company		Country	Steel	Paintings/ Coatings	Ship Operation	Cargo Handling Equipment	Special Cargo Plants incl. Offshore Systems	Accommodation	Propulsion/ Power Generation	Auxiliary Systems, Apparatus & Accessories	Electric/ Electronics/ Nautical Equipment/ Communication
Siemens	Marine Solutions	Germany							X	X	X
	Oil & Gas	Germany				X	X				
Schottel		Germany							X		
Technip		France					X				
TTS Group		Norway			X	X	X				
UMOE Schat-Harding		Norway			X						
Viking Life-Saving Equipment		Denmark			X						
Wärtsilä		Finland			X		X		X	X	

The second chapter in this annex gives examples of European Marine Suppliers for Globalisation and internationalisation of production

# 1 European Shipbuilding Suppliers – Global Players / Mergers & Acquisitions

## 1.1 ABB Marine, Finland/Norway

### Headquarters

- Helsinki, Finland: Center of Excellence (CoE) Cruise & Ferries
- Billingstad, Norway: Center of Excellence (CoE) Oil & Gas Related Vessels

### Majority Shareholders

- ABB Ltd, Switzerland

### Number of employees

- About 28.400 (2011, total division process automation)
- About 28.000 (2012, total division process automation)

### Annual revenues

- 8.300 million EUR (2012, total division process automation)
- 8.156 million EUR (2011, total division process automation)

The share of marine business is about 10% and of oil & gas about 25% of the annual turnover of the division process automation.

### Main marine fields of activities

ABB Marine is the leading manufacturer of electric power and propulsion systems. ABB Marine belongs to the division process automation. Organized and coordinated by two Centers of Excellence (CoE) Cruise & Ferries (Finland) and Oil & Gas Related Vessels (Norway) ABB is the world's largest producer of electric motors and variable speed drive systems and regardless of the application we will ensure the most optimal drive systems and configurations. Main products are:

- Electric Propulsion
- Advisory Systems
- Automation and DP
- Azipod Propulsion  
Azipod is a podded electric propulsion unit where the variable speed electric motor driving the fixed pitch propeller is in a submerged pod outside the ship hull, and the pod can be rotated around its vertical axis to give the propulsion thrust freely to any direction. Azipod propulsion system was introduced some 20 years ago and the system has gained a position of a major propulsion system for luxury cruise liners and ice going tonnage.
- Power Generation and Distribution
- Drilling Drives
- Onboard Drives.

### Selected joint ventures

- Seastema/Italy: Seastema SpA is a joint venture between ABB and Fincantieri, involved in the design, development and achievement of integrated automation systems for the naval (Integrated Platform Management System or IPMS), cruise, ferry and mega yacht (Integrated Automation System or IAS).

## 1.2 AkzoNobel Corp., Netherlands

### Headquarters

- Amsterdam, Netherlands

### Majority shareholders

- AkzoNobel, which has a 100 percent free float, has a broad base of international shareholders. At 45 percent, the US and Canada make up the largest regional group of investors. Investors from the UK and Ireland held 13 percent. Shareholders from the Netherlands hold 15 percent of AkzoNobel shares, while a further 15 percent are held by investors from the rest of Europe. Around 9 percent of the company's share capital is held by private investors, most of whom are resident in the Netherlands (January 2011).

### Number of employees

- Around 55.000 (2011, total AkzoNobel)
- Altogether about 57.200 (2012, total AkzoNobel)

### Annual revenues

- About 15.7 billion EUR (2012)
  - 34% Business Area (BA) Speciality Chemicals
  - 33% BA Performance Coatings
  - 33% BA Decorative Paints
  - 3% Others
- As world leader in the market field of performance coatings Akzo Nobel realized a revenue performance of about 5.700 million EUR in coatings, 1.577 million EUR (2012) from it with marine and protective Coatings (2011: 1.398 million EUR).

### Maritime subsidiaries

- 17 manufacturing locations (including eight R&D Centres) belong to the Business Unit Marine & Protective Coatings

### Main marine fields of activities

- AkzoNobel Performance Coatings is working from about 60 countries with about 22.000 employees. (2011) Performance Coatings is divided into the following businesses:
  - Automotive & Aerospace Coatings
  - International Paint - Marine & Protective Coatings
  - Powder Coatings
  - Industrial Coatings
  - Wood Finishes & Adhesives
- AkzoNobel is the largest global paints and coatings company and a major producer of specialty chemicals.
- The core business of AkzoNobel Marine & Protective Coatings is to produce paints and antifouling materials for ships and yachts and beside it AN also supply protective coatings and fire protection for steel structures in a wide range of industries, including offshore projects.  
International Paint maintains its historically arisen responsibility for the Marine, Protective, Yacht and Aerospace markets as one of five Business Units within AkzoNobel's Performance Coatings division. International Paint is the world's leading marine coatings supplier.

### Selected mergers & acquisitions

- 1994: Merger of AKZO and Nobel Industries, forming Akzo Nobel
- 1998: AkzoNobel acquires UK company Courtaulds.

- 2008: Akzo Nobel acquires British Imperial Chemical Industries plc (ICI) and rebrands the company to AkzoNobel
- 2012: AkzoNobel agrees to sell its North American Architectural Coatings business to PPG Industries.

### **Selected joint ventures and production facilities in Asia/Brazil**

- 2013: International Paint opened its new global Marine Coatings headquarters in Singapore. The move recognises the increasing importance to the company of Asia-Pacific markets, where a significant proportion of global maritime activity takes place. International Paint selected Singapore as the location for its global Marine Coatings headquarters due to its strategic importance to customers and the wider shipping industry, as well as its central location within Asia.

### **Strategic objectives/investment projects**

- Focus on both: New construction and maintenance opportunities
- Focus on global and local customers
- Drive sustainable innovation
- 2013: AkzoNobel has announced its intention to invest a further 65 million EUR in China. The investment will be used to boost capacity and significantly improve operational excellence at AkzoNobel's Surface Chemistry manufacturing sites in Boxing and Ningbo.



## 1.3 Aker Solutions, Norway

### Headquarters

- Fornebu, Norway

### Majority Shareholders

- Aker Kværner Holding AS (40.27%)

### Number of employees

- About 20.861 (2012)

### Annual revenues

- About 36,5 billion NOK (2011)
- About 44,9 billion NOK (2012)

### Main marine fields of activities

Aker Solutions provides oilfield products, systems and services for customers in the oil and gas industry world-wide. Aker Solutions is organized in three main segments:

- Product Solutions with about 25.3 billion NOK revenue in 2012 (Subsea, umbilicals, drilling technologies, process systems and mooring and loading systems).  
Subsea and drilling technologies are two of the largest operating entities within Aker Solutions. In 2012 they represented 27 and 19 per cent of group revenues respectively. Aker Solution manufacturers integrated drilling equipment with risers, drilling modules and topside drilling equipment for floaters (drillships and semi-submersibles), fixe platforms and jack-ups for the offshore oil & gas industry.
- Field-Life Solutions with about 14.3 billion NOK revenue in 2012 (Maintenance, modifications and operations, well intervention services and oilfield services and marine assets).
- Engineering Solutions with about 4.5 billion NOK revenue in 2012 (Aker Solutions provides concept and frontend studies to oil companies around the world. These concepts are particularly relevant for complex oil and gas field developments in harsh environments and for deep waters).

### Selected mergers & acquisitions

- 2008: 3D drilling simulation and visualization company First Interactive AS.
- 2009: WIRTH Maschinen- und Bohrgeräte-Fabrik GmbH, Erkelenz/Germany.  
Wirth is one of the leading manufacturers of heavy drilling equipment and machinery and has been developing cutting-edge technologies for a large number of markets. Wirth covers oilfield systems and equipment for the offshore as well as the onshore industry with the main products Drawworks, mud pumps, rotary tables and rotary swivels and top drives
- 2012: Sandnessjøen Engineering
- 2012: Norwegian companies Subsea House and SSH Engineering
- 2012: Thrum Energy
- 2013: Enovate Systems Limited
- 2013: Managed Pressure Operations (MPO)
- 2013: Aker Solutions sold its mooring and loading systems business to Cargotec for an enterprise value of 1.4 billion EUR. The division employs about 370 people and has its main office in Arendal, Norway. The company generated revenue of 1.1 billion NOK. The transaction is set to be completed in the first quarter of 2014, pending approval from competition authorities.

### **Selected joint ventures and production facilities in Asia/Brazil**

- May 2013: The new plant in Paraná/Brazil that will double the company's subsea production capacity in Brazil. This new plant will strengthen Aker's subsea offering and will have about 1.200 employees and generate work for an additional 5.000 people at suppliers. The plant will be built on a plot of land totaling 168.220 square meters. Aker Solutions is expanding its manufacturing capacity after winning a contract in April to deliver subsea equipment to the Brazilian oil company Petrobras.

### **Strategic Objectives/Investment projects**

- Aker Solutions has an ambition to grow revenues between 9 and 15% per year in the period up to 2015
- Positive market outlook for all drilling segments
- Concentration on four main market focus areas (floaters, fixed installations, shallow water and onshore, drilling lifecycle services).

## 1.4 Alfa Laval, Sweden

### Headquarters

- Lund, Sweden (Head office)
- Aalborg, Denmark (Alfa Laval A/S, former Aalborg Industries)

### Majority shareholders

- Alfa Laval had 34.629 shareholders on December 31, 2012. The largest owner is Tetra Laval B.V., the Netherlands, who owns 26,1%. Next to the largest owner there are nine institutional investors with ownership in the range of 6,7 to 0,7%. These ten largest shareholders own 51,4 % of the shares.
- Alfa Laval Aalborg is an 100% subsidiary of the Alfa Laval Group

### Number of employees

- About 12.600 (2010, total Alfa Laval Group)
- About 16.000 (2011, total Alfa Laval Group)
- About 16.400 (2012, total Alfa Laval Group)

### Annual revenues

- About 24,7 billion SEK (2010, total Alfa Laval Group)
  - Aalborg Industries: About 3,1 billion SEK (2010)
- About 28,7 billion SEK (2011, total Alfa Laval Group)
- About 29,8 billion SEK (2012, total Alfa Laval Group)

### Maritime subsidiaries

- Alfa Laval Group runs 32 major production units and 102 service centres
- Alfa Laval Aalborg in Denmark is leading equipment and service supplier in the marine sector and a supplier of industrial products to selected key markets. It is the world's leading marine boiler engineering company and manufacturer and a major supplier of inert gas systems, thermal fluid systems, and shell & tube heat exchangers. In the past decade, additional resources have been invested in strengthening the company's expertise in service and equipment supply for Offshore Floating Production Systems.
- Alfa Laval Aalborg operates engineering centres in Aalborg, Nijmegen, Rotterdam, Kobe, Rauma, Singapore, Sydney and Petrópolis while the major factories are located in China, Denmark, Brazil and Vietnam.
- The company has some 16.000 employees, the majority of whom are located in Sweden, Denmark, India, China, the US and France.

### Main marine fields of activities

- Heat transfer, separation and fluid handling technologies-Alfa Laval's products and solutions are used in a wide range of areas, for example food and water supply, energy, environmental protection and pharmaceuticals.
- In the marine field Alfa Laval offers among others solutions for
  - Water and wastewater treatment
  - Oil treatment
  - Cooling and heating
  - Environmental protection
  - Tank cleaning
  - Desalination
- Marine and Diesel Division is part of Alfa Laval's own sales organization and has a wide and varied range of products in the energy, environmental and safety areas for customers in the marine industry, manufacturers of diesel engines and offshore customers. 15 different main product groups are sold, comprises components, modules

and adapted systems, such as boilers, separators, heat exchangers, inert gas systems, freshwater generators, exhaust gas cleaning systems, heat recycling systems and ballast water treatment systems.

### **Selected mergers & acquisitions**

- 2000: The investment company Industri Kapital buys the Alfa Laval Group
- 2005: Packinox S.A. in France, a world leader in large, welded plate heat exchangers for oil and gas and refinery applications, is acquired
- 2007: Acquisition of Netherlands-based Helpman and Finnish Fincoil, both leading European suppliers of air heat exchangers
- 2011: Alfa Laval acquires Aalborg Industries from Denmark and strengthens its market position in the marine and offshore industry markedly. Aalborg Industries is the biggest acquisition so far for Alfa Laval
- 2008-2012: Alfa Laval acquired 23 companies with combined sales of SEK 7.565 million

### **Selected joint ventures and production facilities in Asia/Brazil**

- Major factories of Alfa Laval Aalborg are located in China, Denmark, Brazil and Vietnam:
  - Aalborg Industries Ltd., Qingdao, China (Manufacturing of marine boilers, heat exchangers, and inert gas systems since 1974)
  - Alfa Laval Hai Phong Co. Ltd., Hai Phong, Vietnam (Manufacturing of marine boilers since 2006)  
Aalborg Industries Vietnam Co. Ltd. was established in 2004 as a joint venture between VINASHIN (Vietnam Shipbuilding Industry Corp.) and Aalborg Industries A/S. In 2009, after mutual agreement the Aalborg Industries Group became the sole owner of Aalborg Industries Co. Ltd., Vietnam
  - Aalborg Industries S.A., Petrópolis, Brazil (Manufacturing of marine and industrial boilers since 2000)

### **Strategic objectives/Investment projects**

- Alfa Laval's target is to have an average annual growth rate of at least 8 percent measured over a business cycle through a combination of organic growth and complementary acquisitions. Acquisitions are expected to account for 3-4 percentage points. Growth must be profitable and the target should therefore be viewed in combination with the profitability target of an operating margin of 15 %.

## 1.5 Bosch Rexroth, Germany

### Headquarters

- Lohr, Germany

### Majority Shareholders

- Robert Bosch GmbH, Germany

### Number of employees

- About 37.500 (2012, total Bosch Rexroth)

### Annual revenues

- About 6,5 billion EUR (2012, total Bosch Rexroth)

### Main marine fields of activities:

Bosch Rexroth is one of the world's leading specialists in the field of drive and control technologies. Bosch Rexroth represents the drive and control technology business within the Bosch business sector industrial technology.

Main marine and offshore products and solutions are:

- Hydraulic systems and components  
(winches, steering systems, pump drives, stabilizers, ship diesel, transverse thrusters, drives for propulsion systems, remote control for controllable pitch propeller, crane drives, davits, hatch covers, bow and side doors, ramps, elevators, flaps, shell doors, underwater and deep sea applications, other hydraulic drives and control systems)
- Gear technologies  
(highly elastic couplings, highly elastic clutches, rigid clutches, planetary gears for ship-, offshore- and harbour cranes)
- Pneumatic and electronic systems and components  
(pneumatic and electronic remote controls for ship propulsion systems, e.g. reversing gears, controllable pitch propellers, Voith systems, bow thrusters; electronic control heads with lever follow-up system, hand-held remote controls; pneumatic and electro-pneumatic systems for the remote control of anchor, mooring, trawl and other winches; pneumatic remote controls of valves, flaps, doors etc.)

## 1.6 Cargotec, Finland

### Headquarters

- Helsinki, Finland

### Majority shareholders (May 2013)

- More than 68% family Herlin
  - Ilkka Herlin
  - Mariatorp Oy (controlled by Niklas Herlin)
  - D-sijoitus Oy (controlled by Ilona Herlin)

### Number of employees

- About 10.700 (2011, total Cargotec)
- About 10.500 (2012, total Cargotec)

### Annual revenues

- 3.139 million EUR (2011, total Cargotec)
- 3.327 million EUR (2012, total Cargotec)

### Maritime subsidiaries

- Cargotec operates more than 750 different locations in more than 120 countries.
- Cargotec production facilities are located in China, Finland, India, Ireland, Malaysia, Poland, South Korea, Spain, Sweden and the United States. Part of the manufacturing has been outsourced to partner plants located mainly in Asia.

### Main marine fields of activities

- Cargotec is a cargo handling solutions provider and acts as global player. With its brands MacGregor, Kalmar and Hiab Cargotec offers cargo handling equipment, solutions and products.
- MacGregor offers integrated cargo flow solutions for maritime transportation and offshore industries, Kalmar a wide range of cargo handling solutions and services to ports, terminals, distribution centres and to heavy industry and Hiab on-road load handling solutions.

### Selected mergers & acquisitions

- Cargotec is the result of a series of mergers and acquisitions between cargo and load handling business companies before 2002:
- 2002: Kone Cargotec was established
- 2005: Kone acquired Mac Gregor International Ab
- 2005: Kone demerged Kone Corporation's businesses MacGregor, Kalmar and Hiab formed Cargotec.
- 2006: Kalmar made an agreement to acquire its Belgian distributor Catracom
- 2007: Cargotec acquired Plimsoll and Hydramarine
  - Plimsoll is based in Singapore and is a leading company in deck machinery for the offshore oil and gas, and marine industry in the Asia-Pacific region)
  - Hydramarine is based in Norway and is the leading company in high-end area of offshore and subsea load handling systems for the offshore vessel industry
- 2008: Cargotec bought Platform Crane Services International Inc (PCS), which specialises in the service, repair and maintenance of marine and offshore cranes with an emphasis on installations in the Gulf of Mexico.
- 2008: Hiab, the business area providing load handling solutions within Cargotec, has signed an agreement to acquire UK based DEL Equipment (UK) Limited and US based Ultron Lift Corp.

- 2011: Cargotec acquired Navis, an US-based terminal operating systems provider, from Zebra Technologies Corporation
- 2013: Acquisition of Hatlapa, a leading marine equipment manufacturer of air and water cooled compressors, steering gears (ram type, rotary vane and others) and a wide range of deck machinery (anchor and mooring winches, stern rollers, capstans, shark jaws and towing pins).

### **Hatlapa, Germany**

#### **Number of employees**

- About 315 (2012)

#### **Annual revenues**

- 136 million EUR (2008)
- 153 million EUR (2009)
- 120 million EUR (2010)
- 118 million EUR (2011)

#### **Selected mergers & acquisitions of Hatlapa**

- 1998: Hatlapa became a shareholder in Becker Marine/Germany (in the meantime this majority stake was sold to the management of Becker Marine)
- 2003: Takeover of the air compressor business of Hamworthy, UK
- 2007: Official opening of the Factory of Hatlapa Korea
- 2008: Hatlapa sold the KGW-crane business to the Chinese supplier of crane equipment CSSC Nanjing Luzhou Machine Co. Ltd.
- 2011: Purchase of a majority shareholding in the Norwegian deck machinery company Triplex AS
- 2012: Hatlapa and Loewe establish premium partnership (in order to offer cost-effective repair and maintenance services for all makes and models of steering gear and rudder systems worldwide)
- 2013: Cargotec has bought the Aker mooring and loading systems business. Aker Solutions sold this business unit to Cargotec for an enterprise value of 1.4 billion EUR.

#### **Selected joint ventures and production facilities in Asia/Brazil**

- 2003: Kalmar's new Shanghai/China assembly plant for terminal tractors begins operations
- 2012: Partnership agreement with Dongnam Marine Crane Co Ltd (DMC) in South Korea  
The signing of a partnership agreement between with Dongnam Marine Crane Co Ltd (DMC) has now been expanded to cover the manufacture of MacGregor offshore cranes. The partnership agreement of 2011 originally covered the manufacture of MacGregor cargo handling cranes for South Korean customers.
- 2012: Joint venture with Jiangsu Rainbow Heavy Industries in China  
Rainbow-Cargotec Industries Co. Ltd. (RCI) has a registered capital of 65 million EUR, with Cargotec holding a 49% share of the joint venture and RHI a 51% share. As one of Cargotec's key long-term suppliers, RHI has been supplying steel components for ship-to-shore cranes, rubber-tyred gantry cranes, rail mounted cranes and marine specialty cranes to Cargotec for many years.  
The joint venture focuses on the design, R&D and manufacturing of large-scale port equipment including ship-to-shore cranes, rubber-tyred gantry cranes, rail mounted gantry cranes and marine specialty cranes. The majority of initial production is targeted at the global market.

#### **Strategic objectives/Investment projects**

- Cargotec's strategic target is to be the global market leader in cargo handling and we aim to grow faster than the industry on average
- For Cargotec, emerging markets mean the BRIC countries, Brazil, Russia, India and China, and the African continent, in particular. The key issue is to tap into local resources

and succeed in local competition. To generate growth, we are investing in the dissemination of knowledge and competence from established markets into new market areas. For Cargotec, a changing market environment represents an opportunity as well as a challenge.

- Cargotec reinforces the offshore presence in Asia.
- China is currently pivotal to the growth, while enhancing a strong presence in Asia is at the heart of our strategy. MacGregor's planned listing on an Asian stock exchange is an important milestone along this path. We have invested a great deal of time and resources in the Asian market and are making good progress. Our joint venture, Rainbow-Cargotec Industries Co Ltd (RCI), and the planned joint venture with Sinotruk represent a stepping stone on our path towards achieving our aspirations. This will enable Cargotec to expand its presence in the Chinese load handling market. Cargotec would have 50 percent ownership in the joint venture. Over a planning horizon of several years, total investment costs of the joint venture would be around EUR 100 million. Cargotec's estimated equity investment during the first year is approximately EUR 10 million.
- Cargotec intends to further expand its offshore business in Brazil by offering its customers integrated MacGregor offshore load handling systems and service solutions through a local team of competent new sales and service personnel at our expanded branch in Rio de Janeiro and Sao Paolo. Cargotec will leverage a position in this region as a distinct provider of value to its offshore customers.



## 1.7 Caterpillar, Germany

### A. Caterpillar Marine Power Systems, Germany

#### Headquarters

- Hamburg, Germany

#### Majority Shareholders

Subsidiary of Caterpillar Inc, USA

#### Number of employees

- 104.490 (Dec. 2010, total Caterpillar)
- 125.099 (Dec. 2011, total Caterpillar)
- 125.341 (Dec. 2012, total Caterpillar)

#### Annual revenues

- About 15.537 million USD (2010, total sales Caterpillar Energy & Power Systems segment)
- About 20.114 million USD (2011, total sales Caterpillar Energy & Power Systems segment)

#### Maritime subsidiaries

Caterpillar Marine Power Systems was established and headquartered in Hamburg/Germany as part of a strategic realignment of Caterpillar's marine activities. This organization carries the responsibility for all sales and service operations involving the Cat and MaK brand marine products of Caterpillar.

#### Main marine fields of activities

Caterpillar Energy & Power Systems segment designs, manufactures and markets products including generator sets, integrated systems and solutions for marine and petroleum industries and reciprocating engines supplied to global Original Equipment Manufacturers (OEMs) for a variety of diverse applications as well as Cat® machinery.

The MaK product line offers main propulsion engines in the power range from 1.020 to 16.000 kW and generator sets from 970 kWe to 7.680 kWe.

The Cat product line offers main propulsion engines from 93 to 5.420 kW and generator sets from 10 to 5.200 kWe.

#### Selected mergers & acquisitions (of Caterpillar Inc., USA)

- 1997: Takeover of Krupp Maschinenbau GmbH in Kiel (>Caterpillar Motoren GmbH, MaK brand)
- 1997: Acquisition of Perkins, UK
- 2000: Acquisition of Sabre Engines, UK (>Caterpillar Marine Power UK)
- 2011: Acquisition of German MWM, which enables Caterpillar to significantly expand customer options for sustainable power generation solutions

#### Selected joint ventures and production facilities in Asia/Brazil (of Caterpillar Inc., USA)

- 2011: New Progress Rail locomotive manufacturing and assembling facility in Minas Gerais, Brazil
- 2011: New Progress Rail locomotive assembly plant in Muncie, Ind.
- 2011: Joint venture with Chinese Anqing CSSC Diesel Engine Company, Ltd., to manufacture MaK brand medium-speed marine engines for China and the Asia Pacific region

- 2011: Enlargement of the Caterpillar facility in Piracicaba, Brazil, to package 3500C series engines, generator sets and diesel electric propulsion systems for marine and offshore applications
- 2011: New engine manufacturing facility in India that will produce Perkins branded engines

## **B. Caterpillar Motoren GmbH**

### **Headquarters**

- Kiel, Germany

### **Major Shareholders**

Subsidiary of Caterpillar Inc, USA

### **Number of employees**

- 1.066 (2009)
- 1.009 (2010)
- 1.014 (2011)
- 1.250 (2012)

### **Annual revenues**

- 695,7 million EUR (2009)
- 625,5 million EUR (2010)
- 547,2 million EUR (2011)
- 550,0 million EUR (2012)

### **Maritime subsidiaries**

- Caterpillar Motoren Rostock GmbH
- Caterpillar Castings Kiel GmbH (since August 2013)

### **Main marine fields of activities**

Main marine products of the Caterpillar facilities in Kiel and Rostock are propulsion engines in the power range from 1.020 to 16.000 kW and generator sets from 970 kWe to 7.680 kWe

### **Selected mergers & acquisitions**

- 1997: Acquisition of the German Krupp Maschinenbau GmbH in Kiel by the American Caterpillar Inc.
- 2011: Joint venture with Chinese Anqing CSSC Diesel Engine Company, Ltd., to manufacture MaK brand medium-speed marine engines for China and the Asia Pacific region
- 2013: Acquisition of the insolvent German Foundry Kiel

### **Selected joint ventures and production facilities in Asia/Brazil (of Caterpillar Inc., USA)**

- Production facility for MaK brand engines in Guangdong/China

## 1.8 Central Industry Group, Netherlands

### Headquarters

- Groningen, Netherlands

### Majority Shareholders

- Marée Invest B.V., Netherlands

### Number of employees

- About 500

### Annual revenues

- About 138 million EUR

### Maritime subsidiaries

Central Industry Group (CIG) is a group of the following 10 companies, providing industrial goods and services to the international shipbuilding market and to complex architectural projects.

- Numeriek Centrum Groningen, Netherlands
- Vuyk Engineering Groningen, Netherlands
- Centraalstaal, Netherlands
- Ostseestaal, Germany
- Shipkits, Netherlands
- Shippipe Bremen, Germany
- Staal Bewerking Noord, Netherlands
- Ship's Equipment Centre Bremen, Germany
- Ship's Equipment Centre Groningen, Netherlands
- Shanghai SEC Machinery & Equipment, China

The companies are located in the Netherlands, in Germany and in China. CIG has a joint venture in St. Petersburg, Russia.

### Main marine fields of activities

The group is divided into 3 sectors:

- shipbuilding services
- shipbuilding prefabrication and construction
- ship's outfitting/equipment.

Main products and services are:

- Numeriek Centrum  
(Numeriek develops and markets NUPAS-CADMATIC 3D ship design software)
- Vuyk Engineering  
(Vuyk is engaged in design and engineering of work ships, cargo vessels, yachts and other marine structures)
- Centraalstaal  
(world leader in 3D forming of all metal plates and profiles, partner to more than 150 shipyards, annual output in excess of 40.000 tons of steel and aluminum, supplying building kits for more than 50 projects a year, logical numbering of more than 750.000 parts a year)
- Ostseestaal  
(specializes in the manufacturing and supply of precise-fit building assemblies, made from cut-to-size, three dimensionally formed steel plate)
- Shipkits  
(shipbuilding services and products based on Centraalstaal building kits, ranging from basic concepts to the delivery of turnkey vessels)

- Shippipe Bremen  
(industrial manufacturer of piping products for the shipbuilding industry and civil engineering)
- Staal Bewerking Noord  
(specialist in the field of steel cutting)
- Ship's Equipment Centre Bremen  
(leading manufacturers of container lashing equipment)
- Ship's Equipment Centre Groningen  
(supplier of a wide range of deck equipment)

**Selected joint ventures and production facilities in Asia/Brazil**

- Shanghai SEC (Ship Equipment Centre) Machinery & Equipment

## 1.9 Consilium, Sweden

### Headquarters

- Nacka, Sweden

### Majority Shareholders/Parent Company

- Patanen Holding B.V. (Rosenblad family related party, 41,2%)
- MCT Brattberg AB (18,0%)

### Number of employees

- About 600 (2012, total)

### Annual revenues (total)

- 926 million SEK (net sales, 2010)
- 978 million SEK (net sales, 2011)
- 950 million SEK (net sales, 2012)
- Export share more than 90%
- Consilium's marine & safety business reached 84% of the total revenue in 2012

### Main marine fields of activities

Leading supplier of products, services and systems for safety, navigation and automation applications for the international shipping and oil & gas industry,

Consilium covers the business areas marine & safety and fire safety & automation. The product range of the business area marine & safety includes the following products:

- Fire and gas detection systems
- Navigation systems  
Consilium's portfolio includes navigational radar, speed logs, marine voyage data recorders (VDRs) and electronic navigational and information systems.
- Environmental monitoring  
Consilium markets a number of systems for measuring exhaust gas emissions from ships.

The business area fire safety & automation focuses on the international oil and gas industry, particularly in the Middle East, and offers products and systems for fire safety, and automation systems for oil and gas facilities.

### Selected mergers & acquisitions

- 1995: Acquisition of Selesmar/Italy, which becomes Consilium Selesmar
- 2000: Consilium acquired the Japanese marine fire alarm company Nittan
- 2004: Acquisition of the Norwegian company Servoteknikk

### Selected joint ventures and production facilities in Asia/Brazil

- 2004: establishment of a production facility for navigational products in China.

## 1.10 GE Power Conversion, France

### Headquarters

- Belfort, France

### Majority Shareholders/Parent Company

- GE Energy Management, USA

### Number of employees

- About 5.500 (2010)

### Annual revenues (GE Energy Management)

- About 7.5 billion USD (2012, total)
  - Power 2,1 billion EUR (2012, expected annual growth rate 2012 to 2015: 6%)
  - Oil & gas 0,7 billion EUR (2012, expected annual growth rate 2012 to 2015: 12%)
  - Marine 0,7 billion EUR (2012, expected annual growth rate 2012 to 2015: 6%)
  - Industrial 2,2 billion EUR (2012, expected annual growth rate 2012 to 2015: 8%)
  - Technology 1,8 billion EUR (2012, expected annual growth rate 2012 to 2015: 6%)  
& commercial

### Main marine fields of activities:

The most important core markets for GE Power Conversion are power generation, oil and gas and offshore, marine, industry and services as well as renewable energies.

GE Power Conversion develops and provides solutions built around the three core components electrical machines, variable speed drives as well as automation and process control.

The company is a leader in the electrification of the marine industry supplying the most advanced technologies in power generation and distribution, electric propulsion, vessel automation, dynamic positioning, power management and control systems to merchant marine vessels such as cruise-liners, LNG carriers or research vessels and to naval ships. GE Power Conversion supplied the first LNG carrier ever equipped with electric propulsion. For the last 30 years the company has partnered the French, U.S. and UK and Navies for militarized, low noise signature, integrated full electric propulsion systems installed on the most advanced generations of warships such as destroyers, frigates or aircraft carriers and on logistic vessels.

GE Power Conversion delivers above all electric motors & generators, gas compressors, variable speed drives, dynamic positioning systems and POD drives for the offshore oil & gas industry.

### Selected mergers & acquisitions:

- Convertteam was acquired by GE Energy Management in September 2011 for 3.2 billion USD. This acquisition also complements GE Energy's existing capabilities in energy conversion, industrial automation and process efficiency.

## 1.11 Hamworthy (a Wärtsilä company), UK

### Headquarters

- Poole, UK

### Majority shareholders

- Hamworthy is a 100%-subsidiary of Wärtsilä

### Number of employees

- Only data for Wärtsilä available

### Annual revenues

- Only data for Wärtsilä available

### Maritime subsidiaries

- All the former Hamworthy plc companies/subsidiaries:
  - Wärtsilä Hamworthy Ltd
  - Wärtsilä Water Systems Ltd
  - Wärtsilä Valves Ltd
  - Wärtsilä Hamworthy Inc.
  - Wärtsilä Serck Como GmbH
  - Wärtsilä Moss AS
  - Wärtsilä Suzhou Ltd.
  - Wärtsilä Hamworthy Middle East FZC
  - Wärtsilä Svanehøj A/S
  - Wärtsilä Pumps Pte. Ltd
  - Wärtsilä Oil and Gas Systems AS
  - Wärtsilä Baltic Design Centre Sp. Z.o.o
  - Wärtsilä Hamworthy Korea Ltd.

### Main marine fields of activities

- Hamworthy is a market-leading global company providing specialist equipment and services to the marine, oil & gas and industrial sectors including compressors and valves
- In the business segment Marine Solutions Wärtsilä offers a great variety of products and services:
  - Ballast water management systems
  - Compressors
  - Exhaust gas cleaning systems
  - Gas systems (incl. LNG/LPG fuel gas systems)
  - Pumps and pump systems
  - Water and wastewater management systems

### Selected mergers & acquisitions

- 1993: Svanehøj, a leading Norwegian manufacturer of cargo pumps for unloading of tankers
- 1998: the Norwegian Kværner Group,
- 2006: the German Serck Como GmbH, a market leader in desalination plant for cruise ships and other vessels and condensers/heat exchangers for onshore applications,
- 2008: the Polish Baltic Design Centre
- 2009: Greenship, a privately owned Dutch business unit specialising in ballast water treatment for ships
- 2009: Aibel AS, the Norwegian oil services company

- 2009: Krystallon Ltd, a leading supplier of marine exhaust sulphur emissions reduction technology
- 2011: AW Flow Holdings Ltd and its subsidiary undertakings in October AW Flow is a UK based specialist valve manufacturer for the oil and gas sector.
- **2012: Hamworthy was acquired by Wärtsilä**

#### **Selected joint ventures and production facilities in Asia/Brazil**

- Wärtsilä Suzhou Ltd., China
- Wärtsilä Hamworthy Middle East FZC, Dubai
- Wärtsilä Hamworthy Korea Ltd
- Wärtsilä Hamworthy India
- Wärtsilä Pumps Pte. Ltd., Singapore

### **1.12 Hempel, Denmark**

#### **Headquarters**

- Kgs. Lyngby, Denmark

#### **Majority shareholders**

- The Hempel Foundation is the company's sole shareholder.

#### **Number of employees**

- About 5.000 (2011, total Hempel)

#### **Annual revenues**

- 1.077 million EUR (2011, total Hempel)
- 1.242 million EUR (2012, total Hempel)

#### **Maritime subsidiaries**

- Hempel has worldwide 24 factories, 48 sales offices, 3 main and 7 regional research and development centres (2011).

#### **Main marine fields of activities**

As a global supplier of marine paints and coatings, Hempel offers products for different parts of ships and yachts: underwater hulls, ballast tanks, cargo holds, cargo tanks, decks, topsides and superstructures, accommodation facilities and potable water tanks.

Hempel covers the following main marine and offshore product/market segments

- Protective
- Marine
- Container
- Yacht
- (Decorative)

#### **Selected mergers & acquisitions**

- 2006: Lacor, Germany
- 2011: Crown Paints Ltd., UK
- 2012: Blome International, USA



### **Selected joint ventures and production facilities in Asia/Brazil**

- 2009: Hempel A/S has acquired 100% shares of Hempel-Hai Hong and the company name was changed to Hempel (China) Ltd. With its headquarters in Hong Kong, there are three production facilities, ten sales offices located in Beijing, Dalian, Qingdao, Shanghai, Chengdu, Guangzhou, Shenzhen, Wuhan, Chongqing and Tianjin, and eleven stock points strategically located in China.  
The former company of Hempel (China) Ltd was Hempel-Hai Hong (China) Ltd which was founded in 1992 as a joint venture of the Hempel Group and China Merchants Holdings (International) Co Ltd.
- 2011: Hempel agreed with the local government of the Russian region Ulyanovsk to build the company's first Russian production facility close to the city of Ulyanovsk, 893 km east of Moscow
- 2013: The Hempel Gulf Group is a joint venture of the United Industries Company, Hempel Paints - Denmark and private investors. The Hempel Gulf Group operates five plants in the Gulf Cooperation Council (GCC) region. All these plants are owned and managed by the JC Hempel Foundation.

### **Strategic objectives/Investment projects**

- To become one of the top ten leading coatings suppliers in the world by 2015
  - Quadruple sales in Decorative
  - Double sales in Protective
  - Becoming a leading Marine Maintenance player

## 1.13 Huisman Equipment, Netherlands

### Headquarters

- Schiedam, Netherlands

### Majority Shareholders

- Privately owned company

### Number of employees

- Not available

### Annual revenues

- About 135 million EUR

### Main marine fields of activities

Huisman is a globally operating company with extensive experience in the design and manufacturing of heavy construction equipment for world's leading on and offshore companies. Founded in 1929 and originally a steel construction company - Huisman joined forces with the engineering company Itrec in 1987 to develop products entirely under own management, from concept to installation.

The product range can be subdivided into six main categories:

- Cranes  
(wide range of both onshore and offshore cranes)
- Drilling equipment  
(complete drilling packages, new solutions to improve drilling operations)
- Pipelay Equipment  
(turnkey delivery of deepwater pipelay systems, winches driven by hydraulic or electric motors)
- Heave compensation  
(Huisman's equipment can be fitted with constant tension and passive and / or active heave compensation systems to compensate the relative motion between the vessel and fixed objects such as wellheads or platforms on the seabed)
- Vessel designs  
(complete in-house solutions in vessel design for drill ships, mobile offshore drilling units, crane barges, pipe laying vessels, construction vessels, and vessels for the wind turbine installation).
- New concepts  
(drilling equipment sets for drill ships, semi-submersible drilling rig for harsh environments, wind turbine shuttle, self-elevating drilling/workover unit suitable for workovers and well interventions, multi-purpose catamaran, rotating cantilever on jack-ups)

### Selected mergers & acquisitions

- 2008: Bodewes Winches to expand the product range with stand-alone winches and mooring systems.

### Selected joint ventures and production facilities in Asia/Brazil

- Brazil:  
Engineering, Sales and Service office in Rio de Janeiro, Brazil. In addition, Huisman is currently building a new production facility in Navegantes, Santa Catarina. The new production facility should be operational in 2014.
- China (Fujian Huisman Steel Manufacturing Co., Ltd.):  
Huisman expanded its operations to Fujian Province (Xiamen area) in China, to facilitate customers in this region and to increase the overall production capacity. The facility has

been fully operational since April 2007 and delivers a significant contribution to the overall Huisman engineering and production capacity.

**Strategic Objectives/Investment projects**

- New series of large offshore cranes

## 1.14 Imtech Marine, Netherlands

### Headquarters

- Rotterdam, Netherlands

### Majority Shareholders

- Royal Imtech NV, Netherlands

### Number of employees

- 2.474 (2010)

### Annual revenues

- 506 million EUR (2010, more than 10% of the total turnover of Royal Imtech)

### Maritime subsidiaries

Imtech Marine is built on companies with strong market positions on the global marine market:

- Radio Holland Group, Netherlands
- Imtech Marine & Offshore, Netherlands,
- Imtech Schiffbau-/Dockbautechnik, Germany
- Imtech Marine, Germany
- Van Berge Henegouwen Installaties, Netherlands
- Royal Dirkzwager, Netherlands
- Elkon, Turkey.

Imtech marine has a worldwide maritime network of more than 70 service locations in more than 20 countries.

### Main marine fields of activities

Imtech Marine is a leading company in the global maritime market, operating as a full-service provider and system integrator of tailor-made, innovative and sustainable technology solutions covering the whole ship, including new-build ships, refits, maintenance and services. Imtech specializes in automation (platform and bridge), navigation & communication including connectivity, energy & drive systems, HVAC (heating, ventilation and air-conditioning) solutions and fire protection systems, A/V entertainment and maritime information services.

### Selected mergers & acquisitions

- 2004: HDW-Hagenuk Schiffstechnik (HTS)/Germany  
HST is a high-quality maritime specialist in electrical systems, automation concepts, security systems and navigation & communication equipment. The activities are spread across construction, service and maintenance. In addition, HST has a stake of 38% in a Chinese Joint Venture for electrical switchgear and console production facilities.
- 2006: Radio Holland Group, Netherlands  
Founded in 1916, Radio Holland Group is a product and supplier-independent international maritime specialist in the field of satellite and radio communications, automation, and observation and navigation systems. Other activities include safety facilities onboard ships, onboard IT networks and airtime for satellite communication.
- 2010: Elkon/Turkey  
Elkon was founded 30 years ago and has since grown into the most innovative maritime technological services provider. Originally Elkon was mainly focussed on merchant marine type of ships. In recent years, Elkon is increasingly involved in the realization of technology wise more complex vessels.
- 2011: Groupe Techsol Marine  
The Canadian Techsol Marine specializes in high-tech marine technical solutions in the

field of vessel automation, alarm, monitoring & control, navigation & communication and electrical systems, including switchboard and console construction. Management and specializes in high-tech marine technical solutions in the field of vessel automation, alarm, monitoring & control, navigation & communication and electrical systems, including switchboard and console construction.

- 2011: ETNA  
ETNA is a French marine service provider
- 2012: Van Stappen & Cada  
Van Stappen & Cada specializes in marine electronics, electrical solutions and air conditioning.

### **Strategic Objectives/Investment projects**

- A supplier independent top three player in the global marine market.
- A true life cycle management partner to all customers. The aim is to create smart and green solutions.

## 1.15 Inmarsat, UK

### Headquarters

- London, UK

### Number of employees

- 1.600 (2012, Inmarsat total)

### Annual revenues

- 358,9 million USD (2011, Maritime sector, 50% of Inmarsat total)
  - 90,2 million USD (voice services)
  - 268,7 million USD (data services)
- 411,2 million USD (2012, Maritime sector, 56% of Inmarsat total)
  - 79,7 million USD (voice services)
  - 331,5 million USD (data services)

### Main marine fields of activities

Inmarsat owns and operates one of the largest satellite communications networks in the world and was set up in 1979 to enable ships to stay in constant touch with shore. Inmarsat offers the largest portfolio of global satellite communications solutions and value-added services on the market. It comprises a fleet of eleven satellites in geostationary orbit around 36.000 kilometers from earth.

Inmarsat Solutions operates the following four business units:

- Inmarsat Maritime, focusing on worldwide commercial maritime opportunities
- Inmarsat Government, focusing on US government opportunities, both military and civil on land, at sea and in the air
- Inmarsat Global Government, focusing on worldwide (i.e. non-US) civil and military government opportunities on land, at sea and in the air
- Inmarsat Enterprise, focusing on worldwide energy, industry, carriers, commercial aviation and M2M opportunities.

### Selected mergers & acquisitions

- 2009: Stratos/USA  
Stratos is a global provider of mobile and fixed satellite communications solutions and one of Inmarsat's two largest distributors.
- 2010: Segovia/USA  
Segovia is leading provider of secure internet protocol managed solutions to the United States Army and other US military services and government agencies.
- 2012: Ship Equip/Norway  
Ship Equip International AS, based in Ålesund, Norway, is a leading provider of VSAT maritime communications services to the shipping, and offshore oil and gas industry.

### Strategic objectives/Investment projects

- November, 2013:  
Inmarsat and ORBCOMM, a leading global provider of Machine-to-Machine (M2M) solutions, have announced a strategic alliance to collaborate on joint product development and distribution. Both companies intend to work together to create a standard satellite platform and develop cost-effective hardware and flexible service pricing models for the global M2M industry.

## 1.16 Jotun Group, Norway

### Headquarters

- Sandefjord, Norway

### Majority shareholders

- There are two major groups of shareholders
  - About 54% hold Gleditsch family (2010):
  - Almost 43% hold Orkla, a Norwegian industrial concern (2010)

### Number of employees

- Around 8.300 (2011, total Jotun)
- More than 9.000 (2012, total Jotun)

### Annual revenues

- 10.659 million NOK; 1.902 million USD (2011, total Jotun)
- 11.350 million NOK; 1.952 million USD (2012, total Jotun)
  - 35% Business Segment (BS) Decorative Paints
  - 32% BS Marine Coatings
  - 23% BS Protective Coatings
  - 10% BS Powder Coatings

### Maritime subsidiaries:

- The company has 36 production facilities in 19 countries, 71 companies in 45 countries and is represented in more than 90 countries around the world.

### Main marine fields of activities

- The business portfolio of Jotun is divided in two business units: Decorative Paints and Performance Coatings (including Marine, Protective and Powder Coatings). Within the segment Performance Coatings the following products and applications are offered:
  - Antifouling and marine coatings
  - Corrosion protection for industrial and offshore use
  - Powder coatings for appliances, furniture, building components, pipelines and general industries
- Jotun is the second largest manufacturer of marine paints in the world and the market leader in the commercial marine market in the UK. (2011) Altogether worldwide more than 15.000 vessels are protected with Jotun Marine Coatings.

### Selected mergers & acquisitions

- 1972: Jotun merges with three other Norwegian paint manufacturers
- 1999: Jotun acquired Valspar's marine operation in the United States and Canada
- 2000: Acquisition of the US-base PRS (Products, Research, Service Inc.), a regional manufacturer of marine, protective and industrial coatings based in Belle Chasse

### Selected joint ventures and production facilities in Asia/Brazil

- 1993: Jotun Ocean Paint Co Ltd in China was formed as a joint venture through the acquisition of a 51% stake in a factory run by the Chinese state shipping company Cosco
- 1993: Corro-Coat Saudi Arabia was set up
- 1996: Opening of P T Jotun in Indonesia (First manufacturer of liquid and powder coatings)
- 1999: A new paint and powder coatings factory opened in Thailand (Jotun's single largest investment before 2010)
- 2008: Jotun's first manufacturing facility in India was opened

- 2009: Jotun Saudi inaugurated a new state of the art paint factory in Yanbu/Saudi Arabia
- 2009: New factory for marine paints in Korea

#### **Strategic objectives/Investment projects**

- 2011: Jotun spent 160 million RM on the production facility for its plant in Nilai, Negeri Sembilan. The largest plant in Asia-Pacific will produce solvent-based advanced protective coatings, marine paints as well as high-performance anti-fouling paints and tinters for markets in South-East Asia.
- 2012: The Jotun Group made a total investment of 796 million NOK, and major projects during the year included:
  - Completion of the new factory in Sandefjord, Norway, and new the powder coatings factory in Zhangjiagang, China
  - On-going construction of new factories in Qingdao, China and USA
  - New land and warehouse in Vietnam
  - New regional service centre in Dubai
- Outlook: Jotun will continue its ambitious expansion programme with new plants in Brazil, Russia, USA and other markets, and continued organic growth.



## 1.17 Kongsberg Maritime, Norway

### Headquarters

- Kongsberg, Norway

### Majority Shareholders

- Kongsberg Gruppen, Norway

### Number of employees

- About 4.163 (2012)

### Annual revenues

- About 6,0 billion NOK (2008)
- About 6,7 billion NOK (2009)
- About 6,3 billion NOK (2010)
- About 6,7 billion NOK (2011)
- About 7,5 billion NOK (2012)

Kongsberg Maritime reached nearly 50% of the Kongsberg total revenue in 2012 (15,7 billion NOK)

### Maritime subsidiaries

#### Merchant Marine Division

- Kongsberg Maritime Korea
- Kongsberg Maritime China, Shanghai
- Kongsberg Maritime China, Zhenjiang
- Kongsberg Maritime Deutschland GmbH

#### Offshore Division

- Kongsberg Seatex
- Kongsberg Shipmedics
- Kongsberg Process & Simulation Systems

#### Subsea Division

- GeoAcoustics
- Hydroid
- Kongsberg Mesotech
- Kongsberg Underwater Technology
- Simrad (technologies for sustainable fisheries)

### Main marine fields of activities

Kongsberg Maritime was founded in 2003 as merger between Kongsberg Simrad, Kongsberg Maritime Ship Systems and Simrad to one of the world's largest suppliers of maritime electronics. Kongsberg Marine delivers systems for dynamic positioning and navigation, marine automation, safety management, cargo handling, subsea survey and construction, maritime simulation and training, and satellite positioning. Kongsberg Marine offers additional competence in providing turnkey engineering services within the shipbuilding and floating production sectors. Main manufacturing locations are in Aberdeen/UK, Draper/USA, Great Yarmouth/UK, Horten and Kongsberg/Norway, Pocasset/USA, Trondheim/Norway, Vancouver/Canada and Zhenjiang/China.

### Main product segments are:

- Merchant Marine (Bridge systems, engine room systems, sensors and transmitters, simulators, tank gauging and measurements)

- Offshore (Bridge systems, engine room systems, simulators, motion monitoring systems, process automation, safety systems)
- Subsea (Autonomous underwater vehicles, camera systems, echo sounders, hydrographic data processing software, seismic systems, sonars, sub bottom profilers, subsea positioning systems, telemetry, underwater vehicle instrument)

### **Selected mergers & acquisitions**

- 2007: Hydroid  
Important manufacturer of Autonomous Underwater Vehicles (AUVs)
- 2008: MetaSystems AS  
MetaSystems develops intelligent electronic applications in terms of software, sensors and instruments for the maritime and land based industries
- 2008: Lodic AS  
Manufacturer of software for hydrostatics and stability calculations for ships and floating offshore structures
- 2008: GeoAcoustics  
Manufacturer of sonar seabed survey equipment
- 2008: GlobalSim  
Main products are crane simulators
- 2011: Evotec AS  
Evotec develops and delivers marine technology handling systems to market segments like seismic, offshore supply and subsea.
- 2012: Jotron Consultas  
Consultas delivers loading computer to the maritime sector and onboard maintenance, spare parts/inventory control, budget control, payroll systems and ship-to-shore data communication systems

### **Selected joint ventures and production facilities in Asia/Brazil**

- Kongsberg Maritime and Zhenjiang Marine Electrical Appliances form joint venture. The new company, Kongsberg Maritime China Zhenjiang Ltd., is focused on the delivery of electrical control & distribution units to the marine industry

### **Strategic Objectives/Investment projects**

- Kongsberg Maritime is expected to maintain its strong market positions, and the level of activity will remain good also in 2013.
- Kongsberg Maritime launched a new 24/7 customer support concept called “follow the sun”. This concept exploits the business area’s global presence and ensures 24 hours continuous support, which provides for expanded service support to the business area’s clients.

## 1.18 Liebherr, Switzerland

### Headquarters

- Bulle, Switzerland (Liebherr-International AG / Holding)
- Nenzing, Austria (Liebherr-MCCtec GmbH / Maritime cranes)

### Majority shareholders

- The Liebherr Group's holding company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family

### Number of employees

- About 33.000 (2010, total Liebherr Group)
- About 35.300 (2011, total Liebherr Group)
- About 37.800 (2012, total Liebherr Group)

### Annual revenues

- 7.587 million EUR (2010)
  - Maritime cranes: EUR 729,6 million EUR (2010,)
- 8.334 million EUR (2011)
  - Maritime cranes: EUR 808,0 million EUR (2011)
- About EUR 9,1 billion EUR
  - Maritime cranes: About EUR 830,0 million EUR (2012)

### Maritime subsidiaries

- The development and manufacturing of all the products and components of the Liebherr Group is distributed across 40 production company locations in 17 countries on four continents
- The Maritime Cranes Division covers 4 different production companies in Austria, Ireland, UK and Germany
  - Liebherr-Werk Nenzing GmbH, (Austria) manufactures and sells an extensive range of products including ship-, offshore- and harbour mobile cranes as well as an extensive range of hydraulic duty cycle crawler cranes and lift cranes. (Workforce: 1.700; 2011)
  - Liebherr-MCCtec Rostock GmbH, (Germany): Maritime cranes with lifting capacities up to 2.000 t. (Workforce: 1.000; 2011)
  - Liebherr Sunderland Works Ltd., (UK): Ship-, offshore- and special purpose cranes (Workforce: 200, 2011)
  - Liebherr Container Cranes Ltd., (Killarney, Ireland): Container Cranes (Workforce 350, 2011)

### Main marine fields of activities

- The Liebherr business was established in 1949 starting with tower cranes. Today Liebherr is one of the world's leading manufacturers of construction machinery. The company has now grown into a Group with more than 35.000 employees in more than 130 companies across all continents.
- Liebherr technology is well established in the field of the structural and civil engineering. The range of construction machines encompasses complete model lines of tower cranes, mobile cranes, hydraulic excavators, mining trucks, hydraulic and cable-operated excavators, wheel loaders, crawler tractors and loaders, pipelayers, telescopic handlers, concrete mixing plants and truck mixers. However, Liebherr also has comprehensive product lines in many other areas. In the sphere of freight and cargo handling, these include ship cranes, floating cranes, offshore cranes, container cranes and mobile dock cranes, reach stackers, as well as other machines specially designed for efficient material handling. For the construction of machines and plants, Liebherr provides machine tools,

automation systems, aircraft equipment and transportation technologies. And for the household, Liebherr offers a complete range of refrigerators and freezers.

- The most maritime part of the business portfolio are maritime cranes covering various types of special-purpose cranes for material handling tasks in the maritime sector, including ship to shore cranes, offshore cranes and a range of floating cranes available for bulk-handling and transshipping purposes.

#### **Selected mergers & acquisitions**

- **2012: The Liebherr Group acquired German concrete pump manufacturer Waitzinger**, based in Neu-Ulm

#### **Selected joint ventures and production facilities in Asia/Brazil**

- Liebherr Machine Tools India Private Limited (Bangalore, India): The joint venture company produces gear cutting machines in Bangalore that are intended for sale on the Asian market in particular.
- Xuzhou Liebherr Concrete Machinery Co., Ltd. (Xuzhou, China): The joint venture company produces concrete batching plant and recycling plant for the Chinese market
- Zhejiang Liebherr Zhongche Transportation Systems Co., Ltd. (Zhuji, China)
- Liebherr Brasil Ltda. (Guaratinguetà/Brazil): Crawler excavators, wheeled excavators, wheel loaders, truck mixers, tower cranes
- Liebherr Aerospace Brasil Ltda. (Guaratinguetà/Brazil): Aircraft components
- Liebherr-Aerospace Singapore (Singapore) provides a full range of repair and customer support services to the aircraft operators based in the Asia-Pacific region.
- Liebherr Aerospace China (Shanghai, China) provides a full range of repair and customer support services to the aircraft operators based in China.
- Liebherr India Private Limited (Mumbai, India) acts as a sales subsidiary, a.o. for marine cranes
- Liebherr (HKG) Limited (Hongkong, China) acts as a sales subsidiary, a.o. for marine cranes

#### **Strategic objectives/Investment projects**

- With the aim of further strengthening the Liebherr Group's international market position in the maritime sector, Liebherr has built an additional production location with an overall area of 330.000 square metres in the Rostock harbour area to manufacture maritime cranes with lifting capacities up to 2.000 t. The facility comprises three production buildings and an administrative block including a total of 135.000 square metres of built-over area. Production started in 2002.

## 1.19 MAN Diesel & Turbo, Germany

### Headquarters

- Augsburg, Germany

### Majority shareholders

- The largest shareholder is Volkswagen that was increasing its share of the voting rights in MAN SE to 75.03 percent with effect from June 6, 2012.

### Number of employees

- About 52.500 (2011, total MAN Group/MAN SE)
  - About 14.000 (2011, MAN Diesel & Turbo)
- About 54.300 (2012, total MAN Group/MAN SE)
  - About 14.900 (2012, MAN Diesel & Turbo)

### Annual revenues

- 16.472 million EUR (2011, total MAN Group/MAN SE)
  - 3.610 million EUR (2011, MAN Diesel & Turbo)  
incl. 1.670 million EUR (2011, Engines & Marine Systems)
- 15.772 million (2012, total MAN Group/MAN SE)
  - 3.780 million EUR (2012, MAN Diesel & Turbo)  
incl. 1.552 million EUR (2012, Engines Marine Systems)

### Maritime subsidiaries

- MAN employs around 15.000 staff at more than 100 international sites.
- With four Strategic Business Units Engines & Marine Systems, Power Plants, Turbomachinery and After Sales, MAN offers also a broad range of products and services in the fields of energy and maritime transport. Diesel & Turbo is the world market leader for large diesel engines for use in ships and power stations, and is one of the three leading suppliers of turbo machines. MAN Diesel & Turbo is a company within the Power Engineering Business Area of MAN SE.
- MAN is the majority shareholder (76%) of the German company Renk (Renk AG and Renk Test Systems GmbH) that is also based in Augsburg, among others acting as a globally ship supplier of high-quality special gear units, propulsion components and testing systems.

### Main marine fields of activities

- The MAN Group is one of Europe's leading commercial vehicle, engine and mechanical engineering companies. In the marine field, MAN primarily acts as a global supplier of diesel engines and turbomachinery.
- MAN Diesel & Turbo offers
  - two- and four-stroke engines for use in ships (and power plants),
  - on-board gensets, exhaust-gas turbochargers, and propulsion systems and
  - compressors, gas turbines and steam turbines.
- Renk is manufacturer of
  - special gear units for specialist marine and stationary applications
  - standard gear units, primarily for merchant shipping, industrial applications, and wind power
  - turnkey testing systems for (the automotive, rail, and aviation industries as well as) for wind power plants
- MAN (incl. Renk) runs own production sites in Augsburg/Germany (large four-stroke engines, core components/spare parts for all four stroke engines and large turbochargers as far as gears and couplings, Frederikshavn/Denmark (Propulsion systems and propellers),

Copenhagen/Denmark (Two-stroke components and spare parts). St. Nazaire (Large four-stroke engines and spare parts) and further facilities in the Czech Republic, Switzerland as well as in China and in India

- MAN acts as a global leader in license granting (Production of large-bore diesel engines)
  - 47 license grantings worldwide, more than 40 different licensees (2011)
  - 24 license grantings 4-stroke engines; incl. China (12); Japan (5), Korea (2); Croatia(2)
  - 23 licence grantings 2-stroke

#### **Selected mergers & acquisitions**

- 2007: Shareholding/takeover of SEMT Pielstick , France, by MAN Diesel
- 2007/08: Step-by-step increase of acquisition of shares in RENK AG, exceeds 75%

#### **Selected joint ventures and production facilities in Asia/Brazil (Maritime Sector)**

- MAN Turbocharger China is the leading supplier of turbochargers for marine diesel-engine manufacturers in China. This facility had already established in Shanghai in 2002. Initially acting as an assembly workshop for axial turbochargers, MAN subsequently localized component production over the years. In time, the Shanghai factory became too small and, in 2011, the turbocharger workshop was moved to the existing plant in Changzhou.
- MAN runs a production facility and an engineering center for four-stroke engines In Aurangabad/India

#### **Strategic objectives/Investment projects**

- MAN Turbocharger China recently unveiled the first TCR12 turbocharger completely assembled at its Changzhou factory. This new development confirms MAN Diesel & Turbo's strategy of localizing its turbocharger production in China.

## 1.20 Muehlhan, Germany

### Headquarters

- Hamburg, Germany

### Majority shareholders

- In 2005/06 Muehlhan was converted into a joint stock company and renamed Muehlhan AG. The company went public in October 2006.
- The main shareholders are GIVE Maritime & Industrial Services GmbH, Greverath Investment Verwaltungs- und Erhaltungs GbR and Syntegra Capital Ltd (Dec. 2012)

### Number of employees

- About 2.100 (2011)
- About 2.200 (2012)

### Annual revenues

- 172,3 million EUR (2011)
- 186,2 million EUR (2012)
  - 25,8 million EUR Ship newbuilding
  - 42,8 million EUR Ship repair
  - 42,2 million EUR Oil & Gas and other energies
  - 36,2 million EUR Industry
  - 39,0 million EUR Other services

### Maritime subsidiaries

- The Muehlhan brand stands for five different business sectors, with almost 30 subsidiaries on 3 continents and over 2.200 employees in Europe, North America, the Middle East and Asia. (2012)
- Nearly all subsidiaries at roundabout 40 locations serve marine and offshore costumers:
  - Ship newbuilding and repair (17)  
including locations in Qatar, Singapore and China
  - Oil & Gas (12)
  - Wind energy (6)

### Main marine fields of activities

- Muehlhan is an experienced service provider for surface protection, scaffolding and steel construction for onshore and offshore projects. At roundabout 40 locations, Muehlhan offers customized services for four different marine and offshore sectors.

#### Services:

- Surface protection
- Insulation
- Filling/Fairing
- Scaffolding
- Access technology/Rope Access
- Steel construction

#### Sectors:

- Ship newbuilding
- Ship repair
- Oil & Gas
- Wind energy
- (Industry)

### **Selected mergers & acquisitions**

- 2002: Haraco Services Pte Ltd, a Singapore-based corrosion protection contractor formed in 1986, is acquired by the Muehlhan Group. Haraco also provide their corrosion protection services as well as fireproofing to the oil and gas industry, offshore engineering and power generation
- 2003: Muehlhan Group acquires the offshore service-providing company “Meaux Sandblasting”, based in Lafayette/LA, USA. Established in 1984, Meaux Sandblasting provides surface preparation and coatings on offshore platforms, drilling rigs and semi-submersibles. The purchase of Meaux also increases Muehlhan’s offshore activities.

### **Selected joint ventures and production facilities in Asia/Brazil**

- Asian service company locations of Muehlhan are situated in China, Qatar, Singapore and United Arab Emirates
  - Muehlhan Surface Protection (Shanghai) Co., Ltd; (Foundation:1997)
  - Muehlhan Dehan Qatar W.L.L.
  - Muehlhan Pte. Ltd. / Haraco Services Pte. Ltd. (Foundation: 1986, acquisition: 2002)
  - Procon Emirates L.L.C.
- 2011: Muehlhan entered into a 5-year cooperation agreement with the South Korean windmill tower manufacturer CS Wind for surface protection services for wind turbine towers at a production facility in Windsor, Ontario – Canada. Muehlhan will provide all necessary equipment including the recently developed paint robot technology for a production capacity of several hundred thousand square meters per year.

### **Strategic objectives/Investment projects**

Strategic reorientation of placing greater emphasis on industrial corrosion protection in the gas and oil sectors, industry and other services in order to compensate for the decline in the maritime sector and to lead Muehlhan sustainably back into the profit zone.



## 1.21 Rolls-Royce Marine, UK

### Headquarters

- London, UK (former Marine Head office)

### Majority shareholders

- Rolls-Royce Holdings plc

### Employees

- About 8.600 (2011, total business segment Marine)
- About 8.800 (2012, total business segment Marine)

### Annual revenues

- 2.204 million GBP (2008, total business segment Marine)
- 2.589 million GBP (2009, total business segment Marine)
- 2.591 million GBP (2010, total business segment Marine)
- 2.271 million GBP (2011, total business segment Marine)
- 2.249 million GBP (2012, total business segment Marine, 18% of the total Rolls-Royce revenue in 2012)

#### Revenue mix 2012:

- Marine equipment revenue 57%
- Services revenue 43%

#### Revenue by market sectors

- Offshore 47%
- Naval 33%
- Merchant 20%

### Maritime subsidiaries

- Singapore: Rolls-Royce moved its global marine headquarters to Singapore (2009)
- Norway: Rolls-Royce Marine AS Design and manufacture of ship equipment
- Norway: Bergen Engines AS Design and manufacture of medium-speed diesel engines (50%)
- Finland: Rolls-Royce OY AB (Manufacture of marine winches and propeller systems)
- Sweden: Rolls-Royce AB Manufacture of marine propeller systems
- USA: Rolls-Royce Marine North America Inc. Design and manufacture of marine equipment and marine aftermarket support services

### Main marine fields of activities

- Leading range of capabilities in the marine market, encompassing the design, supply and support of power and propulsion systems.
- Strong positions in offshore, naval and merchant and naval sectors
- Marine portfolio:
  - Ship design and ship systems (Power systems, controls and instrumentation)
  - Prime movers (Diesel engines, 0.5 to 10 MW, gas engines, gas turbines 3 to 50 MW)
  - Propulsors (Water jets, thrusters, controllable pitch and fixed pitch propellers, gears, podded propulsors)
  - Motion control (Steering gears, stabilisers)
  - Automation & DP systems (Propulsion controls, automation systems, positioning systems, simulation and training)
  - Automated handling systems ( )

### **Selected mergers & acquisitions**

- 1998: Acquisition of Ulstein by Vickers, together with Kamewa, Brown Brothers and Michell Bearings establishment of Vickers Ulstein Marine Systems
- 1999: Acquisition of Vickers by Rolls Royce
- 2011: Acquisition of Tognum AG, Germany by Rolls Royce/UK and Daimler/Germany with the core aim to integrate the Rolls Royce Bergen Diesel engines (medium-speed diesel and gas engines) with the Tognum engines (high-speed diesel engines)  
On 1 January 2013, conditions were fulfilled which gave the Group certain rights that result in Tognum AG being classified as a subsidiary and consolidated.  
Rolls-Royce and Daimler each hold 50 per cent of the shares of Engine Holding GmbH, which itself holds approximately 99 per cent of the shares of Tognum AG.

### **Tognum AG, Germany**

- Tognum is a premium supplier of engines, propulsion systems and components for marine, energy, defence, and other industrial applications
- Diesel Engines & Systems with the following main business units
  - Diesel engines & systems (Prime Power, continuous power, emergency power)
  - Gas & Fuel Cell Systems (Prime Power, continuous power)
  - Injection Systems (High-speed engines, medium Speed Engines)
- Market access mainly in Europe and in the USA

### **Selected joint ventures and production facilities in Asia/Brazil**

- 2001: Korea  
Joint development project for a medium-speed engines with Hyundai Heavy Industries with joint tests in Bergen/Norway und Ulsan/Korea (on the basis of the Bergen engine C25:33)
- 2006: China  
Rolls-Royce Marine Manufacturing (Shanghai) Limited  
Manufacture and supply of marine equipment and marine aftermarket support services

### **Strategic objectives/Investment projects**

- System integration capabilities
- Strength in technology, product and systems capabilities as a result of the acquisition of Tognum AG, Germany (together with Daimler/Germany).

## 1.22 Saipem, Italy

### A. Saipem SpA

#### Headquarters

San Donato Milanese (Milano), Italy

#### Majority Shareholders

- 43.0% ENI
- 57.0% Public

#### Number of employees

- 40.388 (2011, average workforce total Saipem)
  - 13.336 (2011, offshore engineering & construction)
  - 16.242 (2011, onshore engineering & construction)
  - 1.655 (2011, offshore drilling)
  - 5.823 (2011, onshore drilling)
  - 3.322 (2011, staff positions)
- 42,554 (2012, average workforce total Saipem)
  - 13.973 (2012, offshore engineering & construction)
  - 16.817 (2012, onshore engineering & construction)
  - 2.368 (2012, offshore drilling)
  - 7.162 (2012, onshore drilling)
  - 2.234 (2011, staff positions)

#### Annual revenues

- About 12.593 million EUR (2011, total Saipem)
  - About 5.075 million EUR (2011, offshore engineering & construction)
  - About 5.945 million EUR (2011, onshore engineering & construction)
  - About 833 million EUR (2011, offshore drilling)
  - About 740 million EUR (2011, onshore drilling)
- About 13.369 million EUR (2012, total Saipem)
  - About 5.356 million EUR (2012, offshore engineering & construction)
  - About 6.175 million EUR (2012, onshore engineering & construction)
  - About 1.088 million EUR (2012, offshore drilling)
  - About 750 million EUR (2011, onshore drilling)

#### Main marine fields of activities

Saipem is a large, international turnkey contractor in the oil & gas industry.

Saipem has a strong bias towards oil and gas related activities in remote areas and deepwater and is a leader company in the provision of engineering, procurement, project management and construction services with distinctive capabilities in the design and the execution of large-scale offshore and onshore projects.

Saipem is organised into two business units:

- Engineering & Construction and Drilling (offshore and onshore).

The Saipem Group owns a strong, technologically advanced and highly-versatile fleet and world class engineering and project management expertise. These capabilities and competences, together with a long-standing presence in strategic frontier markets represent an industrial model that is particularly well suited to EPCI (Engineering, Procurement, Construction, Installation) projects.

Saipem offshore vast spectrum of activities is comprehensive of platforms, marine terminals, pipelines, subsea deep water developments, FPSOs.
- Drilling (offshore and onshore)

At the end of 2012, the Saipem offshore drilling fleet consisted of 18 vessels, divided up as follows: seven deep water units for operations at depths in excess of 1.000 metres,

two for mid water operations at depths of up to 1.000, three high specification jack-ups for operations at depths from 300 to 450 feet, five standard jack-ups for activities at depths of up to 300 feet, and one barge tender rig. All units are the property of Saipem, with the exception of one jack-up, which is on leave from third parties.

## 1.23 SAM Electronics, Germany

### Headquarters

- Hamburg, Germany

### Majority Shareholders/Parent Company

- Since 2006 SAM belongs to the L-3 Marine & Power Systems Group, part of L-3 Communications Corporation, New York/USA.
- L-3 Marine & Power Systems (L-3 M&PS) is part of the L-3 business segment Electronic systems and comprises 20 operating companies with more than 86 locations in 18 countries. L-3 M&PS is a leading supplier for maritime automation and control, navigation, communications, dynamic positioning, and power distribution and conditioning for the U.S. and foreign navies as well as commercial customers.

### Number of employees

- About 1.390 (2011, Group)

### Annual revenues

- 312 million EUR (2011, Group)

### Maritime subsidiaries

#### Germany

- Funa International GmbH Nachrichtentechnik, Emden/Germany
- STN Schiffselektrik GmbH & Co. KG, Elmenhorst/Germany
- DEBEG GmbH, Hamburg/Germany

#### Europe

- APSS S.r.l., Diano d`Alba/Italy
- Lyngsø Marine A/S, Hørsholm/Denmark
- SAM Electronics Nederland B.V., Rotterdam/The Netherlands
- Valmarine A/S, Drammen/Norway

#### Asia

- L-3 Marine Systems Korea Co. Ltd., Pusan/ Korea
- SAM Taihang Electronics Co., Ltd., Taizhou/China and Shanghai/China
- L-3 Marine Systems Singapore

### Main marine fields of activities

Major manufacturer of turnkey electrical and electronic equipment packages for shipyards and shipping companies. Main product segments are:

- Navigation and Communication  
(Ship Control Center – SCC, Integrated Navigation Systems – NACOS, Radar, Chart radar, Multipilot, AIS, Log, DGPS, VDR, S-VDR, ECS, ECDIS, Communications systems, GMDSS)
- Automation  
(Propulsion control systems, Energy safety systems, Electronic governor systems, Power management systems, Machinery alarm and monitoring systems, Integrated monitoring, alarm and control, Cargo alarm and monitoring systems, Cargo management systems, Fire detection systems, Emergency control systems, Integrated ship management systems, Reefer container monitoring systems, SeaSense – Seakeeping decision support systems)
- Energy and drives  
(Medium and low-voltage switch-boards, motor switchgears, Cable systems planning and installation, Degaussing systems, Shaft generator systems, Electric propulsion systems, Electrical equipment for winches, dredgers and cranes, lateral thruster systems,

Generators, motors, Internal communication and entertainment systems, Safety and security monitoring and control systems, Shore connection systems (SAMCon)

**Selected mergers & acquisitions**

- 2011: FUNA International. FUNA is a supplier of control and safety systems, communication systems and entertainment solutions for cruise ships, ferries and mega yachts. FUNA employs over 245 people worldwide

## 1.24 Scana Industrier, Norway

### Headquarters

- Stavanger, Norway

### Majority Shareholders/Parent Company

- Different shareholders

### Number of employees

- approx. 1.760

### Annual revenues

- About 2,9 billion NOK (2008)
- About 2,3 billion NOK (2009)
- About 1,7 billion NOK (2010)
- About 2,0 billion NOK (2011)

65% of revenue is energy and oil & gas related

### Maritime subsidiaries

- 20 companies in 8 countries

### Main marine fields of activities

- Scana Energy  
(Customized high quality products in steel, large in-house production capacity of around 150.000 tonnes of melted material, market leader within cylindrical products in the upper weight and length segment, leading provider of riser components for field development in very deep water)
- Scana Offshore  
(Design, engineering, production, testing & assembly, maintenance and repair of drilling equipment and risers, In-house products and systems within anchoring, cargo loading and offloading, mooring solutions, actuators and valve control systems, casted components for offshore installations)
- Scana Propulsion  
(Reduction gears, controllable pitch propellers, fixed pitch propellers, tunnel thrusters, remote control systems)

## 1.25 Schneider Electric Industries, France

### Headquarters

- Rueil Malmaison, France

### Majority Shareholders (Schneider Electric)

- Capital research and management (7,5%)
- Individual shareholders (5,6%)
- Employees (4,4%)
- CDC group (3,7%)
- Treasury stock, own shares (1,5%)
- Other institutional investors (77,3%)

### Annual revenues

- 24.000 million EUR (2012, global group turnover)
- 8.738 million EUR (2012, total business segment power)

### Main marine fields of activities

Schneider Electric is a key marine player and provides solutions for electrical distribution, automation and control as well as safety systems to commercial and naval applications. The business segment power covers low voltage and renewable technologies and is in charge of integrated solutions for the residential and marine end-markets.

Main products for electrical distribution solutions are:

- HVA and LV switchboards
- Power management systems
- AC and DC circuit-breakers
- Motor starters
- Contactors and variable speed drives
- Control desks.

### Selected mergers & acquisitions

- 1981-1997: Schneider group refocuses on the electric industry with several strategic acquisitions including:
  - 1988: Telemecanique
  - 1992: Merlin Gerin
- 2007: APC
- 2010: Areva T&D (distribution activities)
- 2011: Telvent



## 1.26 Siemens, Germany

### C. Siemens Marine Solutions

#### Headquarters

- Hamburg, Germany

#### Majority Shareholders

Siemens AG, Germany  
Industry Sector, Drive Technology Division

#### Number of employees

- Not available

#### Annual revenues

- About 9.2 billion EUR (2011, total drive technology division)
- About 9.6 billion EUR (2012, total drive technology division)

#### Main marine fields of activities

Siemens Marine solutions belongs to the division drive technologies and is a leading company in the development of advanced marine solutions and turnkey provider for design, manufacture and commissioning of electrical equipment for all types of merchant vessels, naval vessels and submarines worldwide. The portfolio encompasses:

- Power generation  
(generators, shaft generator plants, transformers, converters, fuel cell technology)
- Power distribution  
(Switchboards, installations, switchgears)
- Propulsion technology  
(diesel-electric propulsion systems, podded propulsion systems, combined cycle power plant, propulsion systems, booster and waste heat recovery systems)
- Automation  
(power management systems, Monitoring and safety systems, process control system, fire and gas monitoring system, remote control systems, ship service control system, damage control systems, IT solutions, ship management systems, HVAC control systems, service integrated networks)

### D. Siemens Oil & Gas

#### Headquarters

- Duisburg, Germany

#### Major Shareholders

Siemens AG, Germany  
Energy Sector, Oil & Gas Division

#### Number of employees

- Not available

#### Annual revenues

- About 4.3 billion EUR (2009, total oil & gas division)
- About 4.2 billion EUR (2010, total oil & gas division)
- About 4.7 billion EUR (2011, total oil & gas division)
- About 5.1 billion EUR (2012, total oil & gas division)

## **Main marine fields of activities**

The Siemens division oil & gas is part of the Siemens segment energy. The oil & gas division covers different field of activities as e.g. offshore drilling, offshore production & processing, subsea, onshore production & processing, gas/liquid pipeline, LNG, tank farm & terminal, underground gas storage, refining and petrochemicals. The main offshore related fields are:

- **Offshore drilling**  
Siemens offers concept, design and equipment solutions for offshore oil and gas drilling including e.g. power generation and distribution, power supply systems and battery banks, marine power management, offshore drive solutions for drilling, azimuth thrusters and winch applications, drilling motors, automation and electrical information management and integrated telecommunications and navigation systems.
- **Offshore production & processing**  
Siemens contributes to offshore production and processing with e.g. compression and pumping, power generation and distribution, water management, automation and control, industrial IT and life-cycle services.
- **Subsea**  
Siemens meets the growing subsea challenges with a comprehensive range of products, solutions and consulting services.

## **Selected mergers & acquisitions**

- **2011:** Siemens acquired two Norwegian subsea specialists, Poseidon Group and Bennex Group, from Norway's Subsea Technology Group. Poseidon offers subsea maximization, engineering and consulting services, while Bennex designs and produces subsea equipment mainly for power solutions.
- **March 2012:** Business with components suitable for deep sea oil and gas production from UK-based holding company Expro.

## 1.27 Schottel, Germany

### Headquarters

- Spay, Germany

### Majority Shareholders/Parent Company

- Different shareholders including the Norwegian company Frydenbø Industri AS (15%)

### Number of employees

- About 820 (2011)

### Annual revenues

- About 264 million EUR (2008)
- About 270 million EUR (2009)
- About 250 million EUR (2010)

### Main marine fields of activities

Schottel ranks among the world's leading manufacturers of high-end marine propulsion systems, especially steerable propulsion units. Founded in 1921 the Schottel Group is an independent family-owned business which production facilities in Germany (Spay and Wismar) and in Suzhou (China). Schottel builds propulsion and manoeuvring systems with power ratings of up to 30MW for vessels of all types and sizes. Schottel also produces a range of thrusters and includes azimuthing, fixed and retractable versions in its portfolio.

Schottel offers propulsion and manoeuvring systems for a wide range of vessels:

- SRP Rudder Propellers
- STP Twin Propellers
- SCD Combi Drives
- SRP Retractable Thrusters
- SPJ Pump Jets
- SCP Controllable-Pitch Propellers
- STT Transverse Thrusters

### Selected mergers & acquisitions

- 2007: Acquisition of a 15% share in SCHOTTEL by the Norwegian company Frydenbø Industri AS. Frydenbø is one of the largest suppliers of diesel engines, generating sets and propeller equipment in Norway.
- 2011: German company Wolfgang Preinfalk GmbH

## 1.28 Technip, France

### B. Technip

#### Headquarters

- Paris, France

#### Majority Shareholders (total Technip, May 2013)

- 83,0% Institutional Investors
- 6,2% Individual Shareholders
- 2,6% Employees
- 7,2% Others

#### Number of employees

- 23.277 (2010, total Technip)
- 25.717 (2011, total Technip)
- 30.241 (2012, total Technip)

#### Annual revenues

- About 6.082 million EUR (2010, total Technip )
- About 6.813 million EUR (2011, total Technip)
  - About 2.972 million EUR (2011, Technip Subsea share)
  - About 914 million EUR (2011, Technip Offshore share)
  - About 2.927 million EUR (2011, Technip Onshore share)
- About 8.204 million EUR (2012, total Technip)
  - About 4.048 million EUR (2012, Technip Subsea share)
  - About 4.156 million EUR (2012, Technip Onshore/Offshore share)

#### Maritime subsidiaries

Technip's production facilities (for flexible pipes and umbilicals), manufacturing yard, logistic bases and spoolbases are located in Angola, Brazil, France, the United States, Finland, Indonesia, Malaysia, Norway and the United Kingdom. The Group's fleet comprises of 33 vessels specialized in subsea rigid and flexible pipelines, subsea construction and diving support, four of which are under construction. (February 28.2013)

#### Main marine fields of activities

Technip is a world leader in project management, engineering and construction for the energy industry in general. Technip possesses integrated capacity and recognized expertise in subsea infrastructures (Subsea), onshore facilities (Onshore) and offshore platforms (Offshore).

Technip's subsea operations include the design, manufacture and installation of rigid and flexible subsea pipelines as well as umbilicals.

The Offshore business includes engineering, development and construction operations in relation to offshore oil and gas facilities for both shallow water (fixed platforms) and deepwater (floating platforms).

#### Selected mergers & acquisitions

- 2011: Acquisition of the UK based Subocean Group to develop the position in the renewables market
- 2011: Takeover of AETech reinforcing the portfolio in the subsea business with acoustic emission technology
- 2011: Acquisition of Cybernétix (Subsea asset integrity management)
- 2011: Acquisition of Global Industries to expand the subsea market share and the capability of execution of complex projects from deep-to-shore
- 2012: Takeover of Stone & Webster Process Technologies (Onshore process technologies and associated oil & gas engineering capabilities)

- 2013: Acquisition of Norwegian Ingenium AS (Offshore expertise and engineering capabilities)

#### **Selected joint ventures and production facilities in Asia/Brazil**

Technip SA is the Group parent company. The Company is primarily a holding company. The subsidiaries manage and execute the Group's contracts. Among others, Technip runs own subsidiaries also in Asia and Brazil

- Technip Geoproduction (M) Sdn Bhd. in Kuala Lumpur/Malaysia; a production plant for flexible hoses and umbilicals) is operated in Tanjung Langsat.
- Flexibras Tubos Flexiveis Limitada in Vitoria/Brazil (Manufacturer of flexible offshore oil and gas pipes); a new plant is under construction in Acu.

Furthermore office facilities are operated at different places in China, India, Indonesia, Singapore, South Korea, Thailand and Vietnam.

- In September 2013 Technip and China Offshore Oil Engineering Co. Ltd (COOEC), the largest offshore engineering and construction company in China, have signed a joint-venture agreement. The five-year agreement, which builds on existing relationships, combines the know-how, technical resources, complementary assets as well as commercial and financial capabilities of both companies to target deepwater engineering, procurement, construction and installation of subsea umbilicals, risers and flowlines projects at a water depth greater than 200 meters in China.

#### **Strategic objectives/Investment projects**

- The acquisition of Suporte Consultoria e Projetos in Brazil by the newly formed Technip company Genesis (2012) added significant skill sets to the global Subsea activity and strengthened its relationships with Brazilian customers.
- The strategic alliance with the Dutch Heerema (2012) will enable the Group to reinforce its Subsea capabilities and know-how in ultra-deep waters.
- The current registered backlog of Technip orders amounts to about 15.9 billion EUR (September 2013); the Subsea and Offshore share reaches 70%.
- In 2014, Technip targets Subsea revenues between 4.35 and 4.75 billion EUR and Offshore/Onshore revenues between 5.4 and 5.7 billion EUR.

## 1.29 TTS Group, Norway

### Headquarters

- Bergen, Norway

### Majority Shareholders/Parent Company

- Different shareholders

### Number of employees

- About 1.100

### Annual revenues

- About 3,8 billion NOK (2009)
- About 3,2 billion NOK (2010)
- About 2,6 billion NOK (2011)
- About 2,4 billion NOK (2012)

About 80% of revenue in 2012 was marine equipment related

### Maritime subsidiaries

- The group encompasses 25 units worldwide and has subsidiaries in Norway, Sweden, Finland, Germany, Poland, Italy, Czech Republic, Greece, USA, China, Korea, Vietnam and Singapore.

### Main marine fields of activities

TTS is an enterprise that designs, develops and supplies equipment for the marine and offshore industries and is one of the top three largest suppliers in its specialized market segments. TTS covers the following main segments

- Marine equipment  
(RoRo equipment, hatch covers, side doors, cruise and mega yachts, winches, deck equipment, cranes, davits)
- Offshore handling equipment  
(Offshore cranes, offshore ships equipment, offshore winches, active heave compensation cranes)
- Port & logistics  
(Equipment for shipyards, terminals and industry)

### Selected mergers & acquisitions

30 acquisitions and establishments since 1996:

- 1997: Norlift AS
- 2001: Hydralift Marine
- 2001: Hamworthy KSE AB, Dry Cargo
- 2004: Liftec Oy in Tampere, Finland
- 2004: LMG Cranes in Lübeck, Germany
- 2004: JV in Shanghai, China
- 2005: Kocks GmbH in Bremen, Germany
- 2008: Wellquip Holding AS, Norway
- 2012: Neuenfelder Maschinenfabrik GmbH (NMF)

Divestments (Sales):

- April 2012: TTS Group ASA signed the agreement to sell the drilling equipment business to Cameron for 270 million USD

### **Selected joint ventures and production facilities in Asia/Brazil**

Long history of business in China. Joint ventures with two leading Chinese state owned corporations:

- 1998: China State Shipbuilding Corporation (CSSC)
  - China's largest shipbuilding company
  - TTS HuaHai in Shanghai (1998)
  - Jiangnan TTS Marine Equipment Co. in Nantong (2007)
  - Hatch Covers and Winches (introduced in 2011)
- 2005: Dalian Shipbuilding Industry Corporation (DSIC)
  - TTS Bohai in Dalian
  - Cargo Cranes, Offshore Cranes (and previously drilling equipment)

### **Strategic Objectives/Investment projects**

- The service market is for TTS a challenging market that holds great potential.
- Strong development for TTS in China.
- Strategy 2016: Building a global 1 billion EUR shipping and offshore equipment/service company.

## 1.30 Umoe Schat-Harding, Norway

### Headquarters

- Lysaker, Norway

### Majority Shareholders

- Herkules Private Equity, Norway.
- Herkules signed an agreement to acquire Umoe Schat-Harding AS. The acquisition is being carried out in cooperation with the owners of Noreq AS, who, in parallel, are selling Noreq to Herkules and reinvesting a substantial amount in a new, joint holding company. The transactions are expected to be finalised the first half of July 2013.

### Number of employees

- About 800

### Annual revenues

- About 1.2 billion NOK (2012)

### Main marine fields of activities

Umoe Schat-Harding is a global market leader in marine life saving systems and offers a worldwide service network. Schat-Harding offers products and services for the offshore, the merchant and cruise ship market. Main products are:

- Freefall Lifeboat Systems
- Rescue Boat Systems
- Totally Enclosed Lifeboats Systems
- Partially Enclosed Lifeboats Systems
- Spareparts and Services

Schat-Harding is the global market leader in marine life saving systems including lifeboats, davits and winches.

### Strategic Objectives/Investment projects

- Umoe Schat-Harding offers the largest worldwide service network for life-saving equipment. This service network consists of more the 60 stations worldwide and provides maintenance, spare parts, repairs and refurbishment wherever it is required.



## 1.31 Viking Life-Saving Equipment, Denmark

### Headquarters

- Esbjerg, Denmark

### Majority Shareholders

- Sørensen family, Denmark

### Number of employees

- About 1.700 (2012)

### Annual revenues

- 1.253 million DKK (2008)
- 1.237 million DKK (2009)
- 1.397 million DKK (2010)
- 1.557 million DKK (2011)
- 1.694 million DKK (2012)

### Maritime production subsidiaries

Esbjerg in Denmark, Bergen in Norway, and Laem Chabang in Thailand.

### Main marine fields of activities

VIKING is a market leader in maritime safety, providing and servicing essential safety equipment for passenger and commercial vessels, offshore installations and vessels, the defence sector, industrial firefighting as well as leisure yachts. Main products are:

- Passenger evacuation systems
- Offshore evacuation systems
- Defence evacuation systems
- Rescue boats
- Liferafts
- Protective clothing
- Lifesaving appliances.

## 1.32 Wärtsilä, Finland

### Headquarters

- Helsinki, Finland (Head office)

### Majority shareholders

- The largest single shareholders of Wärtsilä as a listed company are Avlis Ab, Avlis Invest Ab and Varma Mutual Pension Insurance Company. They own about 27% of the current shares. (April 30 2013)

### Number of employees

- Approximately 18.000 (2010, total Wärtsilä)
- Approximately 17.700 (2011, total Wärtsilä)
- Approximately 18.900 (2012, total Wärtsilä)

### Annual revenues

- 4.553 million EUR (2010, Net sales total Wärtsilä)
- 4.209 million EUR (2011, Net sales total Wärtsilä)
- 4.725 million EUR (2012, Net sales total Wärtsilä)
  - Ship power 27,5%
  - Power plants 31,7%
  - Services 40,4%
  - Others 0,4%

### Maritime subsidiaries

- Wärtsilä has operating units in nearly 170 locations in 70 countries around the world.
- Propulsion engine production facilities are situated in Vaasa/Finland, Trieste/Italy as well as in China (Wärtsilä Qiyao Diesel Company Ltd) and Korea (Wärtsilä Hyundai Engine Company)

### Main marine fields of activities

- Wärtsilä is a global leader in complete power solutions for the marine and energy markets.
- Wärtsilä is world's second largest supplier of ship engines and world market leader for 4-stroke engines (medium-speed)
- In the business segment Marine Solutions Wärtsilä offers a great variety of products and services:
  - Automation devices
  - Ballast water management systems
  - Compressors
  - Propulsion engines and generating sets
  - Exhaust gas cleaning systems
  - Gas handling systems
  - Gears
  - Inert gas systems
  - Power electric systems
  - Propulsers
  - Pumps and valves
  - Seals, bearings and stern tubes
  - Ship design
  - Water and wastewater management systems

### **Selected mergers & acquisitions**

- 2006: Acquisition of Aker Kvaerner Power and Automation Systems AS (AKPAS), a Norwegian supplier of power and automation systems for oil & gas, marine and industrial markets
- 2006: Acquisition of Total Automation Ltd, Singapore; a company engaged in marine automation in offshore and LNG sectors
- 2006: Acquisition of the German ship design company group SCHIFFKO
- 2007: Acquisition of the South African company Marine Propeller (Pty) mainly focused on repairing of propellers.
- 2008: Acquisition of the global ship design group Vik-Sandvik
- 2008: Acquisition of Conan Wu & Associates Pte Ltd (CWA), a naval architecture and ship design company headquartered in Singapore.
- 2011: Acquisition of the Swedish Cedervall, one of the leading manufacturers of shaft seal and bearing systems for the marine industry  
The company also has subsidiaries in Spain, China and Singapore, with manufacturing facilities in Sweden, China and Spain.
- 2012: Acquisition of Hamworthy headquartered in Poole, UK. Hamworthy has employed around 1.150 people worldwide and operates design, manufacture and sale of equipment facilities in the UK, Norway, Denmark, Germany, Singapore, and a modern assembly plant in China. (See separate profile of Hamworthy)
- 2012: Acquisition of MMI Boiler Management Pte Ltd., a Singapore-based company specialising in the service and maintenance of boilers for marine and industrial applications.

### **Selected joint ventures and production facilities in Asia/Brazil**

- 2006: Establishment of Qingdao Qiyao Wärtsilä MHI Linshan Marine Diesel Co Ltd (QMD) a joint-venture with China Shipbuilding Industry Corporation (CSIC) and Mitsubishi Heavy Industries (MHI) to manufacture large, low-speed marine engines in China.
- 2007: Establishment of Wärtsilä Hyundai Engine Company Ltd, Korea, a 50/50-owned joint-venture with Hyundai Heavy Industries Co. Ltd (HHI) in Korea. The company will manufacture dual-fuel engines for LNG (liquefied natural gas) carriers.

### **Strategic objectives/Investment projects**

- In the beginning of 2012, Wärtsilä finalised the acquisition of Hamworthy. The total consideration for the company was EUR 456 million, while the cash flow from the acquisition was 389 million EUR due to Hamworthy's cash balance at closing.  
The acquisition brings important growth synergies to Wärtsilä in the offshore, marine gas applications and environmental solutions markets. Hamworthy has been divided into two business lines; Flow & Gas solutions and Environmental solutions and the integration into Wärtsilä's Ship Power business is moving according to plan. Wärtsilä's target is to double the net sales for Flow & Gas solutions and Environmental solutions over the next five years.
- Wärtsilä Qiyao Diesel Company, a China-based joint venture company manufacturing Wärtsilä 20 auxiliary engines, is planning to expand its production capacity.
- Wärtsilä TMH Diesel Engine Company LLC, a joint venture owned 50/50 by Wärtsilä and Transmashholding, has begun construction of a modern factory located in Penza, Russia. The new plant is expected to be ready to start production in the second half of 2013, and will provide assembly and manufacturing facilities.
- Wärtsilä and Yuchai Marine Power Co. Ltd. signed an agreement in December 2012 in Zhuhai, China to establish a 50/50 joint venture for manufacturing medium-speed marine engines in Zhuhai City, Guangdong Province. The joint venture will serve the increasingly dominant Chinese shipbuilding industry, with the emphasis being on the assembly and

testing of Wärtsilä 20, Wärtsilä 26 and Wärtsilä 32 engines. Operation is planned to start in 2014.

- The European Investment Bank (EIB) has granted a 150 million EUR loan to Wärtsilä to finance the company's research, development and innovation (RDI) activities in several European countries. The contract for the 10-year loan was signed in June 2013.

## **2 European Shipbuilding Suppliers – Examples for Globalisation, Internationalisation of Production**

### **2.1 Steel**

#### **1. Central Industry Group, Netherlands**

Central Industry Group (CIG) is a group of 10 companies, providing industrial goods and services to the international shipbuilding market and to complex architectural projects. Part of CIG is Centralstaal from the Netherlands, a leading company in 3D forming of metal plates and profiles.

The CIG companies are located in the Netherlands, in Germany and in China. CIG has a joint venture in St. Petersburg.

### **2.2 Paintings/Coatings**

#### **1. AkzoNobel, Netherlands**

17 manufacturing locations (including eight R&D Centres) belong to the Business Unit Marine & Protective Coatings.

#### **Selected joint ventures and production facilities in Asia/Brazil**

- 2013: International Paint opened its new global Marine Coatings headquarters in Singapore. The move recognises the increasing importance to the company of Asia-Pacific markets, where a significant proportion of global maritime activity takes place. International Paint selected Singapore as the location for its global Marine Coatings headquarters due to its strategic importance to customers and the wider shipping industry, as well as its central location within Asia.

#### **2. Hempel, Denmark**

Hempel has worldwide 24 factories, 48 sales offices, 3 main and 7 regional research and development centers.

#### **Selected joint ventures and production facilities in Asia/Brazil**

- 2009: Hempel A/S has acquired 100% shares of Hempel-Hai Hong and the company name was changed to Hempel (China) Ltd. With its headquarters in Hong Kong, there are three production facilities, ten sales offices located in Beijing, Dalian, Qingdao, Shanghai, Chengdu, Guangzhou, Shenzhen, Wuhan, Chongqing and Tianjin, and eleven stock points strategically located in China. The former company of Hempel (China) Ltd was Hempel-Hai Hong (China) Ltd which was founded in 1992 as a joint venture of the Hempel Group and China Merchants Holdings (International) Co Ltd.

#### **3. Jotun Paints, Norway**

The company has 36 production facilities in 19 countries, 71 companies in 45 countries and is represented in more than 90 countries around the world.

#### **Selected joint ventures and production facilities in Asia/Brazil**

- 1993: Jotun Ocean Paint Co Ltd in China was formed as a joint venture through the acquisition of a 51% stake in a factory run by the Chinese state shipping company Cosco
- 1996: Opening of P T Jotun in Indonesia (First manufacturer of liquid and powder coatings)

- 1999: A new paint and powder coatings factory opened in Thailand (Jotun's single largest investment before 2010)
- 2008: Jotun's first manufacturing facility in India was opened
- 2009: New factory for marine paints in Korea

#### **4. Muehlhan, Germany**

The Muehlhan brand stands for five different business sectors, with almost 30 subsidiaries on 3 continents and over 2.200 employees in Europe, North America, the Middle East and Asia.

##### **Selected joint ventures and production facilities in Asia/Brazil**

- Asian service company locations of Muehlhan are situated in China, Qatar, Singapore and United Arab Emirates
  - Muehlhan Surface Protection (Shanghai) Co., Ltd; (Foundation:1997)
  - Muehlhan Dehan Qatar W.L.L.
  - Muehlhan Pte. Ltd. / Haraco Services Pte. Ltd. (Foundation: 1986, acquisition: 2002)
  - Procon Emirates L.L.C.
- 2011: Muehlhan entered into a 5-year cooperation agreement with the South Korean windmill tower manufacturer CS Wind for surface protection services for wind turbine towers at a production facility in Windsor, Ontario – Canada. Muehlhan will provide all necessary equipment including the recently developed paint robot technology for a production capacity of several hundred thousand square meters per year.

### **2.3 Ship Operation**

#### **1. TTS Group, Norway**

The group encompasses 25 units worldwide and has subsidiaries in Norway, Sweden, Finland, Germany, Poland, Italy, Czech Republic, Greece, USA, China, Korea, Vietnam and Singapore

##### **Selected joint ventures and production facilities in Asia/Brazil**

Long history of successful business in China with respect to joint ventures with two leading Chinese state owned corporations:

- 1998: China State Shipbuilding Corporation (CSSC)
  - China's largest shipbuilding company
  - TTS HuaHai in Shanghai (1998)
  - Jiangnan TTS Marine Equipment Co. in Nantong (2007)
  - Hatch Covers and Winches (introduced in 2011)
- 2005: Dalian Shipbuilding Industry Corporation (DSIC)
  - TTS Bohai in Dalian
  - Cargo Cranes, Offshore Cranes (and previously drilling equipment)

#### **2. Viking Life-Saving Equipment, Denmark**

Esbjerg in Denmark, Bergen in Norway, and Laem Chabang in Thailand.

## 2.4 Cargo Handling Equipment

### 1. Cargotec, Finland

Cargotec production facilities are located in China, Finland, India, Ireland, Malaysia, Poland, South Korea, Spain, Sweden and the United States. Part of the manufacturing has been outsourced to partner plants located mainly in Asia.

#### Selected joint ventures and production facilities in Asia/Brazil

- 2003: Kalmar's new Shanghai/China assembly plant for terminal tractors begins operations
- 2012: Partnership agreement with Dongnam Marine Crane Co Ltd (DMC) in South Korea  
The signing of a partnership agreement between with Dongnam Marine Crane Co Ltd (DMC) has now been expanded to cover the manufacture of MacGregor offshore cranes originally covered the manufacture of MacGregor cargo handling cranes for South Korean customers.
- 2012: Joint venture with Jiangsu Rainbow Heavy Industries in China  
Rainbow-Cargotec Industries Co. Ltd. (RCI) has a registered capital of 65 million EUR, with Cargotec holding a 49% share of the joint venture and RHI a 51% share. As one of Cargotec's key long-term suppliers, RHI has been supplying steel components for ship-to-shore cranes, rubber-tyred gantry cranes, rail mounted cranes and marine specialty cranes to Cargotec for many years. The joint venture focuses on the design, R&D and manufacturing of large-scale port equipment including ship-to-shore cranes, rubber-tyred gantry cranes, rail mounted gantry cranes and marine specialty cranes. The majority of initial production is targeted at the global market.

### 2. Liebherr, Switzerland

The development and manufacturing of all the products and components of the Liebherr Group is distributed across 40 production company locations in 17 countries on four continents. The Maritime Cranes Division covers 4 different production companies in Austria, Ireland, UK and Germany.

#### Selected joint ventures and production facilities in Asia/Brazil

- Liebherr Machine Tools India Private Limited (Bangalore, India): The joint venture company produces gear cutting machines in Bangalore that are intended for sale on the Asian market in particular.
- Xuzhou Liebherr Concrete Machinery Co., Ltd. (Xuzhou, China): The joint venture company produces concrete batching plant and recycling plant for the Chinese market
- Zhejiang Liebherr Zhongche Transportation Systems Co., Ltd. (Zhuji, China)
- Liebherr Brasil Ltda. (Guaratinguetá/Brazil): Crawler excavators, wheeled excavators, wheel loaders, truck mixers, tower cranes
- Liebherr Aerospace Brasil Ltda. (Guaratinguetá/Brazil): Aircraft components
- Liebherr-Aerospace Singapore (Singapore) provides a full range of repair and customer support services to the aircraft operators based in the Asia-Pacific region.
- Liebherr Aerospace China (Shanghai, China) provides a full range of repair and customer support services to the aircraft operators based in China.
- Liebherr India Private Limited (Mumbai, India) acts as a sales subsidiary, a.o. for marine cranes
- Liebherr (HKG) Limited (Hongkong, China) acts as a sales subsidiary, a.o. for marine cranes

## 2.5 Cargo Handling/Special Cargo Plants

### Offshore Oil & Gas

#### 1. Aker Solutions, Norway

##### Selected joint ventures and production facilities in Asia/Brazil

- May 2013: The new plant in Paraná/Brazil that will double the company's subsea production capacity in Brazil. This new plant will strengthen Aker's subsea offering and will have about 1.200 employees and generate work for an additional 5.000 people at suppliers. The plant will be built on a plot of land totaling 168.220 m<sup>2</sup>. Aker Solutions is expanding its manufacturing capacity after winning a contract in April to deliver subsea equipment to the Brazilian oil company Petrobras.

#### 2. Huisman, Netherlands

##### Selected joint ventures and production facilities in Asia/Brazil

- Brazil:  
Engineering, Sales and Service office in Rio de Janeiro, Brazil. In addition, Huisman is currently building a new production facility in Navegantes, Santa Catarina. The new production facility should be operational in 2014.
- China (Fujian Huisman Steel Manufacturing Co., Ltd.):  
Huisman expanded its operations to Fujian Province (Xiamen area) in China, to facilitate customers in this region and to increase the overall production capacity. The facility has been fully operational since April 2007 and delivers a significant contribution to the overall Huisman engineering and production capacity.

#### 3. Technip, France

##### Selected joint ventures and production facilities in Asia/Brazil

- Brazil:  
Flexibras Tubos Flexiveis Limitada in Vitoria/Brazil (Manufacturer of flexible offshore oil and gas pipes); a new plant is under construction in Acu.
- Furthermore office facilities are operated at different places in China, India, Indonesia, Singapore, South Korea, Thailand and Vietnam
- In September 2013 Technip and China Offshore Oil Engineering Co. Ltd (COOEC), the largest offshore engineering and construction company in China, have signed a joint-venture agreement. The five-year agreement, which builds on existing relationships, combines the know-how, technical resources, complementary assets as well as commercial and financial capabilities of both companies to target deepwater engineering, procurement, construction and installation of subsea umbilicals, risers and flowlines projects at a water depth greater than 200 meters in China.

## 2.6 Propulsion/Power Generation

#### 1. Wärtsilä, Finland

##### Selected joint ventures and production facilities in Asia/Brazil

- 2006: Establishment of Qingdao Qiyao Wärtsilä MHI Linshan Marine Diesel Co Ltd (QMD) a joint-venture with China Shipbuilding Industry Corporation (CSIC) and Mitsubishi Heavy Industries (MHI) to manufacture large, low-speed marine engines in China.



- 2007: Establishment of Wärtsilä Hyundai Engine Company Ltd, Korea, a 50/50-owned joint venture with Hyundai Heavy Industries Co. Ltd (HHI) in Korea. The company will manufacture dual-fuel engines for LNG (liquefied natural gas) carriers.
- Brazil:  
Wärtsilä is to set up a new fully-owned manufacturing facility in Brazil to meet the increasing market demand, particularly in the offshore market. Wärtsilä's investment in the new facilities is approximately 20 million EUR. The manufacturing premises will be based on a multi-product factory concept for the assembly and testing of Wärtsilä generating sets and propulsion products. In the initial phase, activities will focus on medium sized, medium speed generating sets and steerable thrusters, with the possibility to flexibly expand the product range to respond to market needs. The new manufacturing plant will be located some 300km north of Rio de Janeiro in the Açu Superport Industrial Complex. The construction of the 4.000m<sup>2</sup> plant, with its own waterfront and quay, will commence in April 2013 and it is scheduled to be fully operational by mid-2014. The new delivery centre is expected to employ close to 100 people.

## 2. Rolls-Royce, Finland

### Selected joint ventures and production facilities in Asia/Brazil

- 2009: Rolls-Royce moved its global marine headquarters to Singapore
- 2001: Korea  
Joint development project for a medium-speed engines with Hyundai Heavy Industries with joint tests in Bergen/Norway und Ulsan/Korea (on the basis of the Bergen engine C25:33)
- 2006: China  
Rolls-Royce Marine Manufacturing (Shanghai)  
Manufacture and supply of marine equipment and marine aftermarket support services

## 3. MAN, Germany

### Selected joint ventures and production facilities in Asia/Brazil

- 2002: MAN Turbocharger China is the leading supplier of turbochargers for marine diesel-engine manufacturers in China. This facility had already established in Shanghai in 2002. Initially acting as an assembly workshop for axial turbochargers, MAN subsequently localized component production over the years. In time, the Shanghai factory became too small and, in 2011, the turbocharger workshop was moved to the existing plant in Changzhou.
- MAN runs a production facility and an engineering center for four-stroke engines in Aurangabad/India.

## 4. Caterpillar, Germany

### Selected joint ventures and production facilities in Asia/Brazil

- Pant for the production of MaK engines in Guangdong, China.
- Joint venture with Chinese Anqing CSSC Diesel Engine Company, Ltd., to manufacture MaK brand medium-speed marine engines for China and the Asia Pacific region.

## 5. Schottel, Germany

### Selected joint ventures and production facilities in Asia/Brazil

- Production facility (Schottel Suzhou Propulsion Co., Ltd., Suzhou - SND)

## 2.7 Ballast Water, Fire Fighting

### 1. Alfa Laval Aalborg, Denmark

Alfa Laval Aalborg operates engineering centres in Aalborg, Nijmegen, Rotterdam, Kobe, Rauma, Singapore, Sydney and Petrópolis while the major factories are located in China, Denmark, Brazil and Vietnam.

#### Selected joint ventures and production facilities in Asia/Brazil

Major factories of Alfa Laval Aalborg are located in China, Denmark, Brazil and Vietnam:

- Aalborg Industries Ltd., Qingdao, China (Manufacturing of marine boilers, heat exchangers, and inert gas systems since 1974)
- Alfa Laval Hai Phong Co. Ltd., Hai Phong, Vietnam (Manufacturing of marine boilers since 2006) Aalborg Industries Vietnam Co. Ltd. was established in 2004 as a **joint venture** between VINASHIN (Vietnam Shipbuilding Industry Corp.) and Aalborg Industries A/S. In 2009, after mutual agreement the Aalborg Industries Group became the sole owner of Aalborg Industries Co. Ltd., Vietnam
- Aalborg Industries S.A., Petrópolis, Brazil (Manufacturing of marine and industrial boilers since 2000)

### 2. Hamworthy, UK

#### Selected joint ventures and production facilities in Asia/Brazil

- Wärtsilä Suzhou Ltd., China
- Wärtsilä Hamworthy Middle East FZC, Dubai
- Wärtsilä Hamworthy Korea Ltd
- Wärtsilä Hamworthy India
- Wärtsilä Pumps Pte. Ltd., Singapore

## 2.8 Electric/Electronics/Nautical Equipment

### 1. Imtech Marine, Netherlands

Imtech Marine will organize itself around six regions worldwide. Imtech plans to strengthen its current production sites in China, the Singapore region and Turkey, to provide new build ships with state-of-the-art technological solutions.

### 2. Kongsberg Maritime, Norway

Manufacturing location in Zhenjiang/China.  
Kongsberg Maritime and Zhenjiang Marine Electrical Appliances form joint venture. The new company, Kongsberg Maritime China Zhenjiang Ltd., is focused on the delivery of electrical control & distribution units to the marine industry.

### 3. Consilium, Sweden

Production facility for navigational products in China since 2004.