Global and China Marine Power System Industry Report, 2011

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STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include NBS(National Bureau of Statistics of China), Wind, and internal database of ResearchInChina etc.

Abstract

By usage, marine power systems can be divided into main engines and auxiliaries. Main engines can be classified into internal combustion engines and turbine engines. Turbine engines are primarily used in the naval field. Internal combustion engines are mainly diesel engines, including low speed (Rpm<300), medium-speed (Rpm=300-1100) and high speed (Rpm>1100) ones. Auxiliaries mainly include generators and auxiliary equipment.

Diesel engine was invented by a German in 1875. Over 100 years later, the threshold of the marine diesel engine industry is still very high. MAN, where the inventor of diesel engine worked, designs 80% of the low-speed diesel engines in the world. MAN also produces a small amount of low-speed diesel engines, licenses a large number of other companies to produce the low speed diesel engines designed by it, and charges design fees and royalties from them. After acquiring Swiss Suzler, Wartsila enters the field of low-speed diesel engines and occupies 18% market share, while Japan's Mitsubishi Heavy Industries (MHI) has 2% market share.

In the field of medium-speed diesel engines, Wartsila is the absolute leader with nearly 50% market share. Like MAN, Wartsila licenses other companies to produce the diesel engines designed by it, but the number of its licensed manufacturers is lower than that of MAN. MAN and Caterpillar also produce medium-speed diesel engines. Caterpillar entered this field through acquiring Germany's MAK in 1998.

In the field of high-speed diesel engines, there are many manufacturers, and the largest one is Germany's Tognum (MTU), followed by Japan’s Yanmar, France’s SETI (MAN), Caterpillar, Cummins, Volvo and John Deere.

Although the shipbuilding industry is in a downturn, there are many highlights in the field of marine power, wherein the hottest topics are the implementation of IMO TIER III standards in 2016 and LNG-fuelled vessels. Compared with IMO TIER II standards implemented in 2011, IMO TIER III standards will require that NOx emissions should be lower than the level stipulated by IMO TIER II standards by at least 70%, which is quite a challenge.

In the world, only a small number of vessels comply with IMO TIER III standards, tens of thousands of ships cannot do so. There are two solutions: first, to install SCR and EGR systems in engine systems. Germany, Finland, the United States, Japan and other leading countries started the development of SCR systems in late 1980s, and have achieved full automated monitoring and management of SCR systems.

In 2010, Wartsila Group and ABB cooperated with Swiss Hug Engineering developed a compact SCR system which was 80% smaller than the traditional system. In March 2011, MAN installed the compact SCR systems developed by itself in 6S46MC-C8 low-speed marine diesel engines for the first time; in June, NYK, Oshima Shipbuilding, MHI, Akasaka and other companies cooperated to complete the world's first shipboard trial on large low-speed diesel engine SCR system; in July, South Korea's HHI successfully developed SCR systems. China has not started to develop marine SCR systems.

The second solution is to adopt lean-burn gas engines (namely LNG-fuelled engines) which can meet IMO TIER III standards without adding any auxiliaries. Lean-burn gas engine manufacturers mainly include Wartsila and Rolls-Royce.

LNG has gradually shown its advantages as ship-use fuel. Compared with marine fuel oil (MFO) and heavy fuel oil (HFO), LNG is cheaper; LNG can help reduce the emissions of carbon dioxide and other waste and particulate matter significantly; besides, LNG long-term supply is stable. Therefore, in the next 5 to 10 years, the number of vessels taking LNG as fuel will continue to increase.

Global Marine Diesel Engine Manufacturers by Revenue, 2010-2011

Unit: million USD	2010	2011E	Note
MAN	2089	2249	Only Marine Diesel
Hyundai Heavy Industries	1808	2077	Only Marine Diesel
Doosan Engine	1419	1711	Only Marine Diesel
Wartsila	1592	1679	Only Marine Diesel
Mitsui Engineering & Shipbuilding	1188	1202	Only Marine Diesel
MAK (Caterpillar)	906	926	Only Marine Diesel
Tongum	675	680	Only Marine Diesel
Hudong Heavy Machinery	556	617	Total Turnover
Yanmar	620	608	Only Marine Diesel
STX Engine	641	584	Only Marine Diesel
Daihatsu Diesel MFG	552	577	Only Marine Diesel
Dalian Marine Diesel	408	463	Total Turnover
CSSC-MES	296	311	Total Turnover
Yichang Marine Diesel Engine	250	264	Total Turnover
Weichai Heavy Machinery	258	264	Only Marine Diesel
Shaanxi Diesel Engine	245	260	Total Turnover
Zibo Diesel Engine	221	233	Only Marine Diesel
Zhenjiang CME	178	187	Total Turnover

Table of contents

Selected Charts

- Completion in Global Shipbuilding Industry, 1970-2010
- Backlogs in Global Shipbuilding Industry, 2000-2010
- New Orders in Global Shipbuilding Industry, 1996-2010
- Orders in Global Shipbuilding Industry by Vessel Type, 1999-Oct. 2011
- New Orders, Delivered Vessels and Backlogs in China Shipbuilding Industry, 1998-2010
- New Orders in Global Shipbuilding Industry by Region, Q1-Q3 2011
- New Orders in South Korea Shipbuilding Industry, 2003-Q3 2011
- New Orders in South Korea Shipbuilding Industry by Vessel Type, 2007-Oct. 2011
- New Orders in China and South Korea Shipbuilding Industry, 2003-Q3 2011
- Delivered Vessels in China and South Korea Shipbuilding Industry, 2003-Q3 2011
- Backlogs in South Korea Shipbuilding Industry, 2003-Q3 2011
- Thermal Efficiency Comparison of Marine Power Systems
- Efficiency Comparison of Marine Power Systems under Standard Load
- Schedule of IMO TIER III
- Global ECA (Emission Control Areas) Distribution
- IMO TIER I, II, III Emission Standards
- LNG Carrier Price, 2003-2012
- LNG Demand and LNGC Fleet Forecast, 2000-2020
- LNG Supply Chain
- Backlogs and Delivered Volume of LNG Carrier, 2000-2011
- Global New Orders for LNG Carrier, 2000-2013
- Power System of HFO Diesel LNG Carrier
- Power System of Dual-fuel Diesel LNG Carrier
- Power System of DFDE LNG Carrier
- Electric Propulsion System of Dual-fuel Diesel Engine

Selected Charts

- Composition of Typical Dynamic Positioning System
- Marine Engine Market Scale, 2004-2013
- Global New Shipbuilding Orders by Region, 1999-Q3 2011
- Market Share of Low-speed Marine Diesel Engine Manufacturers (by Revenue), 2011
- Market Share of Medium-speed Diesel Engine Manufacturers (by MW), 2011
- Market Share of High-speed Marine Engine Manufacturers (by Revenue), 2011
- Market Share of Marine Diesel Engine Manufacturers in China, 2011
- Import Value of Marine Diesel Engine in China, 2006-2011
- MAN's New Orders and Revenue, 2007-2011
- MAN's Revenue and Operating Margin, 2007-2011
- Diesel & Turbo Revenue of MAN by Product
- Diesel & Turbo Operating Income of MAN by Product
- Power of MAN's ME-GI Engine Products
- Speed and Power of MAN's 4-stroke Diesel Engine
- S70ME-C8-GI DATA
- S60ME-C8-GI DATA
- S65ME-C8-GI DATA
- ME-GI Fuel Gas Supply
- ME-GI Mechanical Design
- ME-GI FGS System
- Partners of ME-GI Engine
- Operation Model of ME-GI Engine
- Wartsila's Revenue and Operating Margin, 2005-2011
- Wartsila's Revenue by Business, 2005-2010
- Output of Wartsila's Ship Engines, 2006-2010

Selected Charts

- New Orders and Backlogs of Wartsila's Ship Power Division, 2007-Q3 2011
- Wartsila's New Orders by Vessel Type, Q3 2011
- Wartsila's New Orders, Q1 2010-Q3 2011
- Wartsila's Backlogs by Vessel Type, Q3 2011
- Quoted MW per Fuel Type of Wartsila Power Plant, Q1 2004-Q3 2011
- New Orders of Wartsila Power Plant, Q1 2004-Q3 2011
- New Orders of Wartsila Power Plant by Type, Q3 2011
- New Orders of Wartsila Power Plant by Region, Q1-Q3 2011
- Operating Principle of Wartsila's Dual-fuel Engine
- Fuel System Composition of Wartsila's Dual-fuel Engine
- Gas and Fuel System
- Power of Wartsila's Dual-fuel Engine Products
- Composition of LNG Dual-fuel Marine Engine System
- Equipment Added for Conversion
- HFO-to-LNG Dual-fuel Projects
- Product Line Distribution of Caterpillar Marine Power System
- Global Manufacturing Bases of Caterpillar Marine Power System
- Revenue of Caterpillar Marine Power System by Application
- Revenue of Caterpillar Marine Power System by Region
- Revenue of Mitsubishi Heavy Industries by Division, 2009-2010
- Revenue and Operating Income of Mitsubishi Heavy Industries in Shipbuilding Business, FY2005-FY2012
- New Order Value of Mitsubishi Heavy Industries in Shipbuilding Business, FY2005-FY2012
- Organizational Structure of Mitsubishi Heavy Industries in Shipbuilding Business
- Steam Turbine System of MHI

Selected Charts

- UST Structure
- Tognum's Revenue and EBIT Margin, 2007-2011
- Tognum's Revenue by Region, 2009-2010
- Revenue of Tognum Engine Division by Product, 2009-2010
- Distribution of MTU Engine Product Lines of Tognum Engine Division
- Revenue and EBITDA Margin of Rolls-Royce Marine Division, 2006-2011
- Structure of Lean-burn Power System of Rolls-Royce
- Revenue and New Orders of Hyundai Engine / Machinery Division, 2005-2011
- Revenue of Hyundai Engine / Machinery Division by Region, 2006-2011
- Revenue of Hyundai Engine / Machinery Division by Product, 2010
- Revenue and Operating Margin of DOOSAN Engine, 2006-2011
- Revenue of DOOSAN Engine by Product, Q3 2010-Q3 2011
- New Orders of DOOSAN Engine by Client, 2010-Q3 2011
- Backlogs of DOOSAN Engine by Vessel type, 2010-Q3 2011
- Backlogs of DOOSAN Engine by Client, 2010-Q3 2011
- Market Share of DOOSAN Engine in China, 2008-Q3 2011
- Plants of DOOSAN Engine in South Korea and Dalian
- Revenue and Operating Margin of STX Engine, 2005-2011
- Revenue and Operating Income of STX Engine, Q1 2010-Q4 2011
- Revenue of STX Engine by Product, Q1 2010-Q4 2011
- Operating Income of STX Engine by Product, Q1 2010-Q4 2011
- New Orders of STX Engine by Product, Q1 2010-Q3 2011
- Backlogs of STX Engine by Product, Q1 2010-Q3 2011
- Revenue and Operating Income of Mitsui Engineering & Shipbuilding, FY2006-FY2012
- Revenue of Mitsui Engineering & Shipbuilding by Business, FY2011

Selected Charts

- Revenue and Operating Margin of Hudong Heavy Machinery, 2005-2011
- Shipment and Power of Diesel Engines of Hudong Heavy Machinery, 2007-H1 2011
- Shipment and Power of CSSC-MES, 2007-2011
- Volume and Power of Diesel Engines Delivered by Dalian Marine Diesel, 2006-2011
- Revenue and Gross Margin of Weichai Heavy Machinery, 2007-2011
- Revenue of Weichai Heavy Machinery by Product, 2008-2010
- Revenue and Operating Income of Daihatsu Diesel, FY2006-FY2012
- Sales Volume, New Orders and Backlogs of Daihatsu Diesel, FY2009-FY2011
- Sales, New Order Value and Backlog Value of Daihatsu Diesel, FY2009-FY2011
- Revenue of Daihatsu Diesel by Region, 2008-2011
- Marine Main Engine Production Line of Daihatsu Diesel
- Marine Auxiliary Production Line of Daihatsu Diesel
- Three Indicators of Major Shipbuilding Countries in the World, Jan.-Sep. 2011
- Three Indicators of Major Vessel Types in the World, Jan.-Sep. 2011
- EEDI Rules and Schedule
- Power Types of LNG Carriers Delivered and under Construction, 2011
- Configuration of LNG Carrier Engines in the World
- LNG-Fuelled Vessels in Operation in the World
- Power Suppliers of LNG-Fuelled Vessels under Construction in the World
- Comparison of Pod Electric Propulsions
- Vessels with AZIPOD, since 2006
- Ranking of Global Marine Diesel Engine Manufacturers by Revenue, 2010-2011
- Licensed Manufacturers of MAN Diesel & Turbo
- Licensed Manufacturers of Wartsila
- Application of 50DF Dual Fuel Engines

Selected Charts

- Vessels with Rolls-Royce LNG Engines
- Revenue of Doosan Engine by Product, 2009-2011
- Backlogs and New Orders of Mitsui Engineering & Shipbuilding, by Sep. 2011
- Power of Delivered Products and New Orders of Hefei Rong An Power Machinery, 2008-H1 2011
- Revenue and EBITDA of Dalian Marine Diesel, 2008-2011

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