

WÄRTSILÄ

WÄRTSILÄ SINGAPORE PTE LTD

CORPORATION

ARNAULD FILANCIA
DIRECTOR , COMMUNICATIONS & BRANDING

16TH NOVEMBER 2012





**POWER
PLANTS**



SHIP POWER



SERVICES

This is what we bring to the market

EFFICIENCY

**ENVIRONMENTAL
SOLUTIONS**

**FUEL
FLEXIBILITY**





Little Island - Singapore

- One of the busiest ports in the world
- Major ship repair centre globally
- World leader in FSO/FPSO conversion
- World leader in jack-up newbuilding

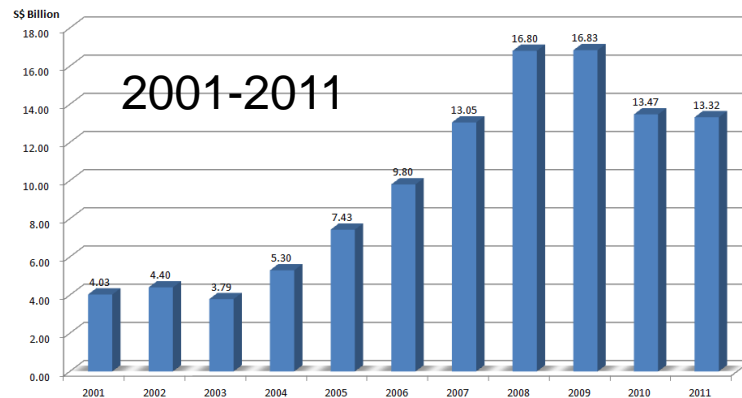
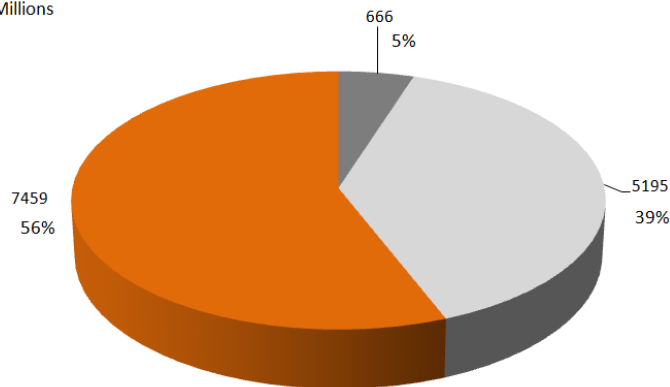


Little Island – Singapore Marine Industries

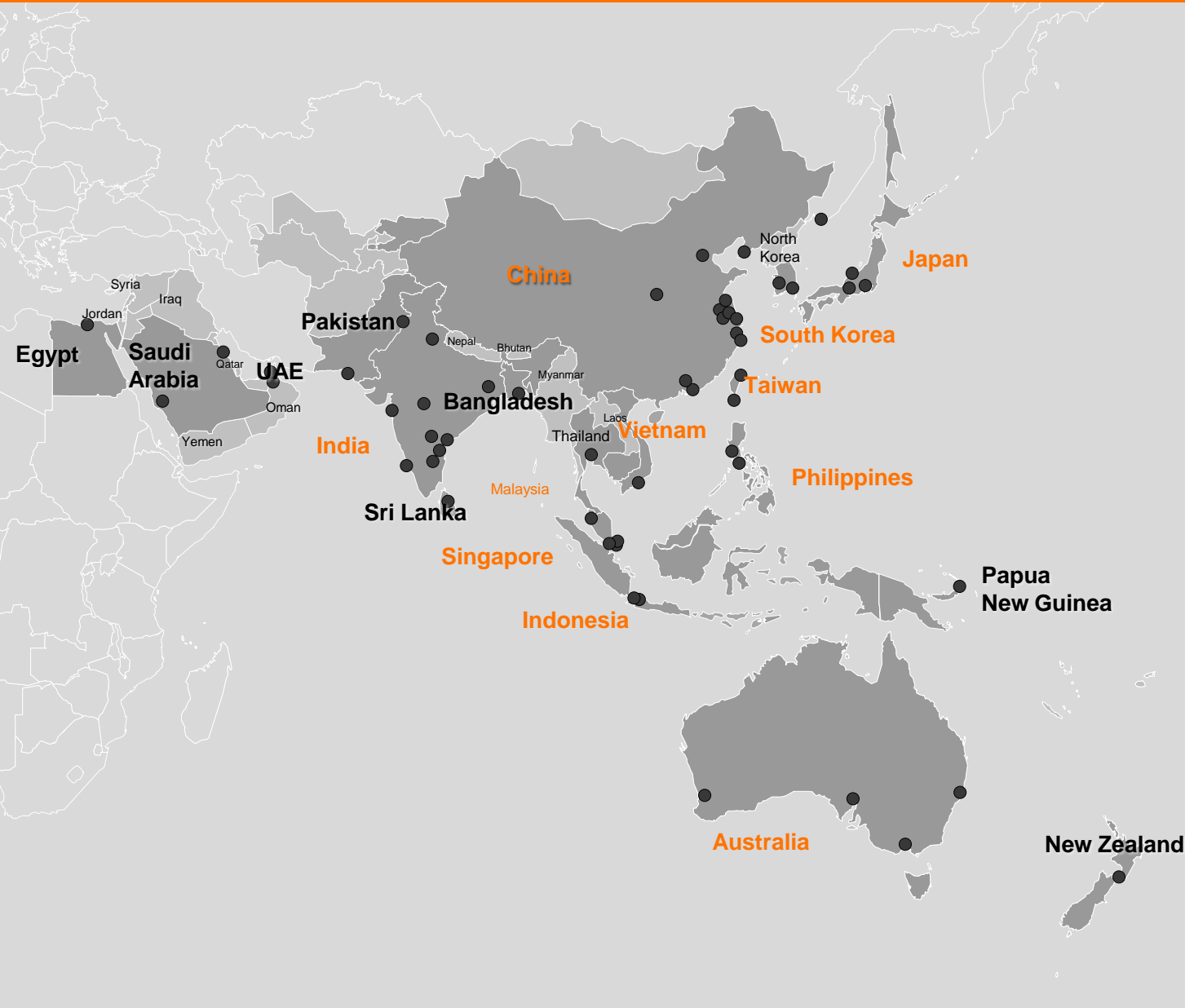
KEY FIGURES FOR 2011

Total Turnover	S\$ 13.320 billion	
Turnover for Ship repair and Conversion Sector	S\$ 5.195 billion	
Turnover for Shipbuilding Sector	S\$ 0.666 billion	
Turnover for Offshore Sector	S\$ 7.459 billion	
Total Employment	111,000 workers	
Vessels called in Singapore for repairs	8,235 vessels	
Total tonnage of vessels repaired in Singapore	37,267,000 grt	
Number of vessels launched in Singapore	88 vessels	
Total Tonnage of vessels launched in Singapore	298,150 grt	

SGD Millions



Wärtsilä started the Far East journey from Singapore



Milestones of Wärtsilä Singapore

- 1981 Set up of Wärtsilä Power Singapore
a 50/50 joint venture company with Keppel was set up
- 1984 Worldwide crisis in shipbuilding
- 1986 Wärtsilä took over Keppel's share of MSGD 3.5
Company is renamed to Wärtsilä Diesel Singapore Pte Ltd
- 1987 The first power plant order was signed with the Indonesian Government
- 1988 Inception of license-assembly in Indonesia
- 1993 Philippines office started as a service station
- 1994 Opening of Wärtsilä Diesel Vietnam Representative Office
- 1995 The Philippines office became an independent network company
- 1998 Vietnam rep office upgraded to Wärtsilä NSD Vietnam Co Ltd

Milestones of Wärtsilä Singapore

- 2000 Company renamed to Wärtsilä Singapore Pte Ltd
- 2001 Certification of ISO 14001 Environmental Management System by DNV
- 2002 Won Quality Award by Singapore Productivity and Standards Board (PSB)
Extension of scope to propulsion (Lips) and reconditioning (Ciserv)
- 2003 Extension: 37,000 m2 workshop and office
- 2006 Wärtsilä acquired Total Automation
- 2007 Wärtsilä in Singapore employs more than 1,000 personnel
- 2008 Wärtsilä Singapore received the Plaque of Commendation from NTUC.
Extension of scope to Ship Design: acquisition of Conan Wu & Associates
- 2011 Wärtsilä acquired Cedervall, one of the leading manufacturer of shaft seals and bearings systems
- 2012 Extension of scope to pumps with the acquisition of Hamworthy PLC, and boiler services with the acquisition of MMI Boiler Management Pte Ltd

Wärtsilä Singapore today



Services

- Brunei
- Cambodia
- Laos
- Malaysia
- Myanmar
- Singapore
- Thailand

Ship Power

- Brunei
- Cambodia
- Laos
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand

Wärtsilä Singapore today

4 locations

Wärtsilä in Pandan



approx. 489 employees

Wärtsilä in Benoi



approx. 36 employees
+ 48 from Wartsila Ship Design

Wärtsilä in Gul



approx. 190 employees



Wärtsilä Pumps in Benoi
(formerly Hamworthy)
approx. 180 employees

Ship Power

We are passionate about optimising lifecycle value by offering what our customers need. We deliver on this promise because we provide the only true total offering of marine products, integrated solutions and services in the industry – worldwide.

We help our customers find the shorter route to robust growth and bigger profits by focusing on operational efficiency, environmental excellence, fuel flexibility and services.

Ship Power's focus on growth

OUR STRATEGIC GOAL

To be recognised as the leading solutions provider in the marine industry for:

LEADER IN

Efficiency



Gas and dual-fuel solutions



Environmental solutions

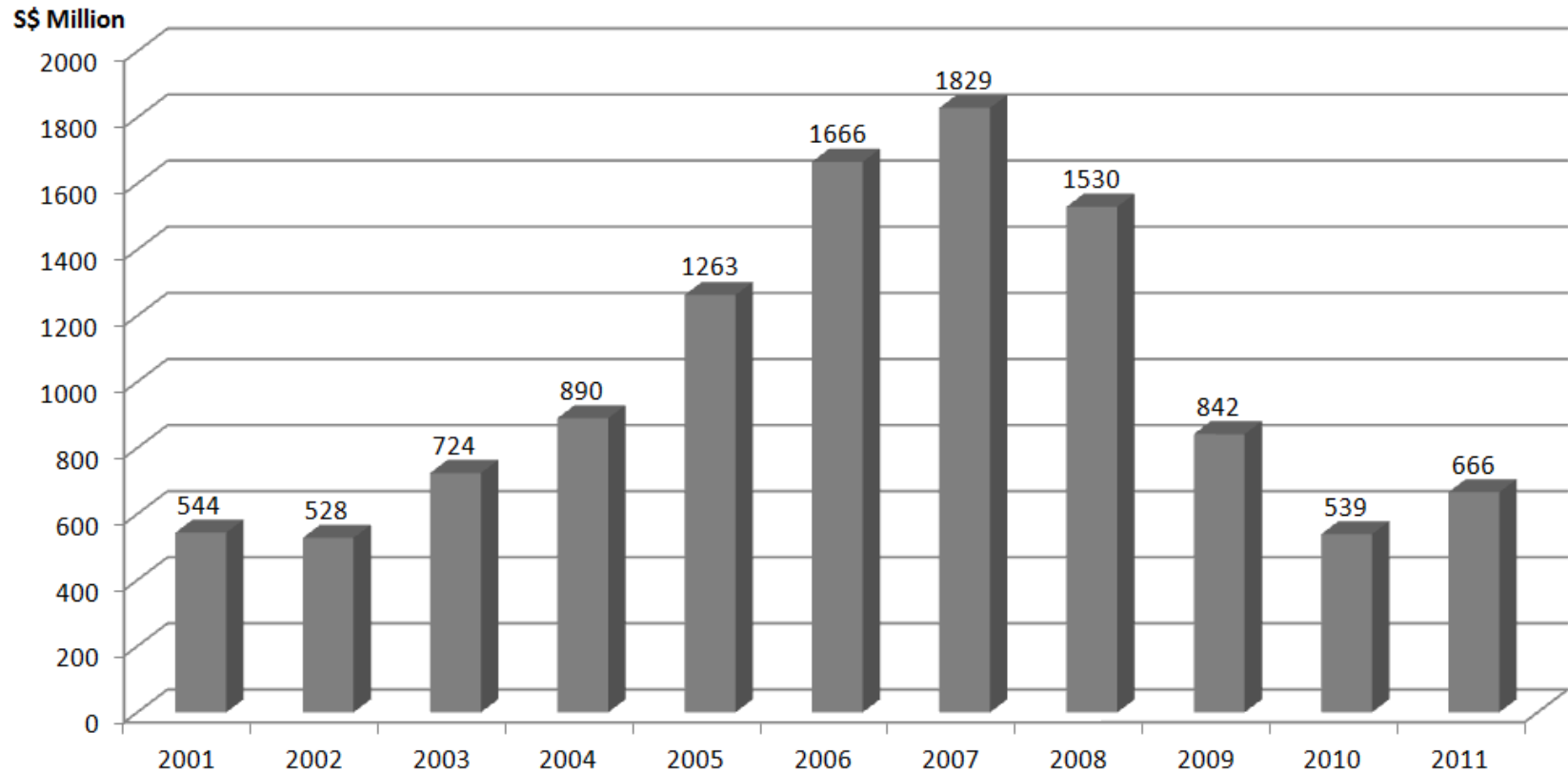


THROUGH
OFFERING

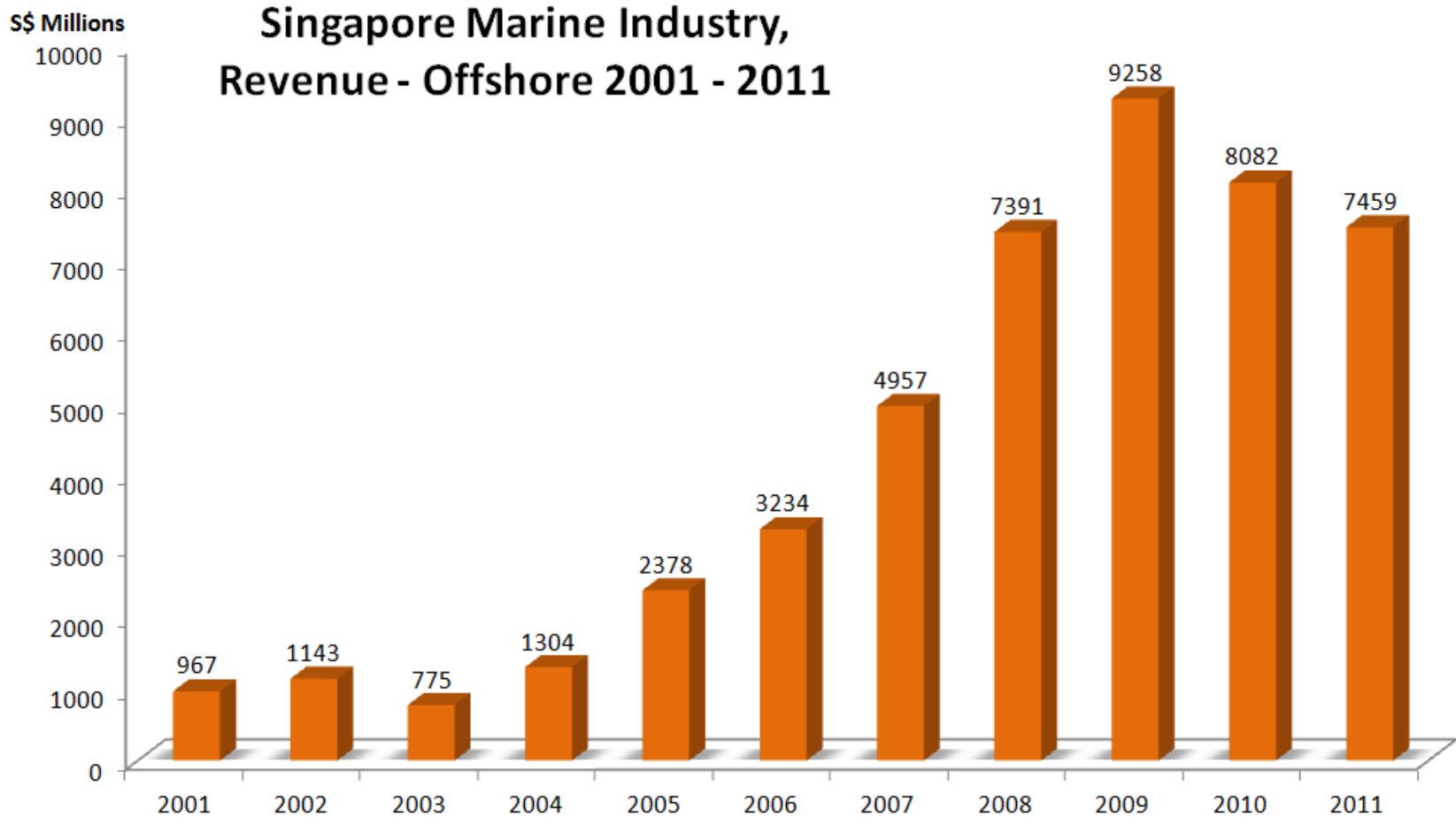
- Lifecycle solutions for ship owners and operators
- Enhanced system integration for the ship building industry
- The best product sales and delivery process for the marine industry

Singapore marine industry Revenues

Singapore Marine Industry Revenue - Shipbuilding, 2001 - 2011



Singapore marine industry Revenues



Singapore Marine Business Outlook

The **clear driver for Singapore Marine business is O&G exploration and production.** The business here follows the trend in global market as most business here for the owners outside of Singapore and the assets built here are operated elsewhere in the world.

The **business for Wärtsilä Ship Power in Singapore is mainly driven by the Offshore Segment.** The three major yards Keppel, Sembawang and Jurong lead the way in Drill Ships, Jack Up rigs, Semi Submersibles and FPSO Conversions. The smaller yards like ASL, Jaya, Dry Dock World are engaged in building smaller Offshore Support Vessels.

Most **offshore engineering companies and Oil Majors** have a large base here and that makes it a Oil & Gas hub for Asia. Close proximity with India, Thailand, Indonesia, Philippines and Malaysia with large and cost effective pool of manpower help these companies in establishing design & engineering bases in Singapore. SBM, MODEC, BW Offshore, Shell, BP, Technip, Saipem, Bumi Armada, Petronas etc. have established their support centres in Singapore and also in Malaysia (especially Kuala Lumpur).



Singapore Marine Business Outlook



Several large shipping companies in **merchant segment** are also based here and they operate and support the global fleet from Singapore, which makes it very attractive for Marine Service.

The geographical location of **Singapore also helps in a thriving Marine Logistic** and support market in terms of Bunkers, Provisions, Spare parts and Services for the vessels in transit.

Wärtsilä Ship Power's strength is its excellent product and support, track record and ability to provide a complete ship solution in case of Offshore Support vessels including Ship Design.

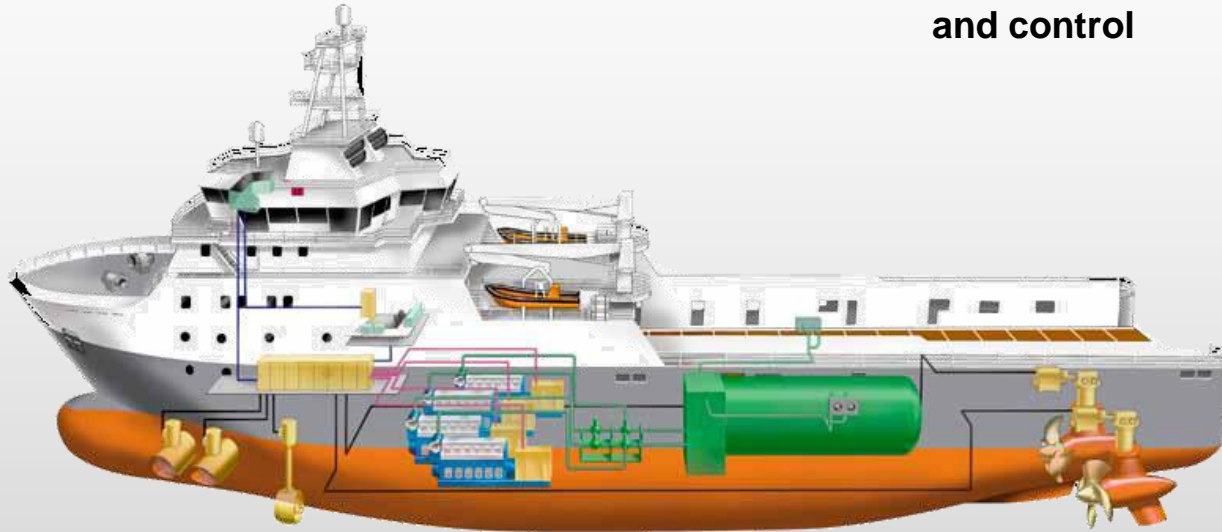
The only complete marine offering

Service agreements

Ship Design

Communication and control

Flow & Gas Solutions



Propulsion

Environmental Solutions

Automation

Power drives

Engines

Seals & bearings

Power distribution

Wärtsilä Ship Design

We offer:

- a unique range of ship designs and design services
 - simple, low cost, proven standard designs, including full equipment packages
 - advanced customized designs based on client-specific requirements
 - designs for everything from sophisticated research ships to high technology offshore support vessels
 - strong global presence
- Among **Top 3** in the world when it comes to global reach, presence, capabilities and offerings
 - **No 1. independent Ship Design company in the world**
Known for Energy, Environment and Economy
 - **No 1. in Environmental Ships**
 - **No 1. in Efficient Ships**
 - **No 1. in Extreme Ships**

We meet the needs of the market, maximizing energy efficiency, reliability and achieving environmentally sound performance throughout the lifecycle of the vessel.

Wärtsilä Ship Design in Singapore

- Initial design
- Basic design
- Detailed design
- Consultancy services
- Total headcount of 62
(including 14 from JB office)
- To date deliveries of over 1000
vessels



Wärtsilä Ship Power Business in the Territories

- Well accepted brand
- Market leader in Ship Design
- Singapore Marine Industry is geared very much towards offshore

- In 2005, Ship Power received a single biggest order from Keppel-Fels Singapore for supply of power generation and thruster package to 4 Jack-up and Semi-Submersible Rigs (A.P. Moller)

- In 2010, SP received the first integral order for supply of complete design & equipment package consisting of ship design, main engines, propulsion and E&A from Sealink International Bhd for 2 ships, 150TBP Hybrid Anchor Handling Tugs


- In 2011, SP received the first integral order from Nam Cheong Shipyard for our new WSD800 Platform Supply Vessel (PSV) design with diesel-electric propulsion + equipment package consisting of main gensets, thrusters and Wärtsilä LLC

- In 2012, Wärtsilä has been awarded the contract from Jurong Shipyard Pte Ltd, subsidiary of Sembcorp Marine, to supply main generating engines and thrusters for 6 new deep water drill ships, to be built in Brazil (Estaleiro Jurong Aracruz)

References semi submersible rigs

3 x Semi-submersible drilling rig for Maersk
at Keppel Fels (Hulls B280, 281, 295)

- 8 x 4960 kW – Wartsila 16V26 Generating Sets
- 8 x 4000 kW – LIPS FS3500/NU Thrusters



We provide superior value to our customers with our flexible, efficient and environmentally advanced energy solutions, which enable a transition to a more sustainable and modern energy infrastructure.

Power Plants solutions for different markets



Flexible base-load power generation



Grid stability and peaking



Industrial self-generation



Solutions for oil and gas industry



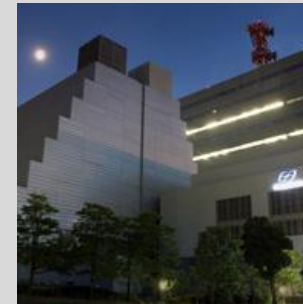
Oil, dual-fuel and gas fired power plants



Liquid biofuel power plants



Flexible grid stability power plants



Combined heat & power plants (CHP)



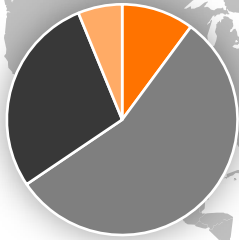
Pumping and compression applications

Americas:

Output: 9909 MW

Plants: 370

Engines: 1246



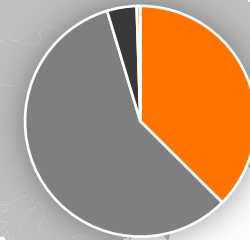
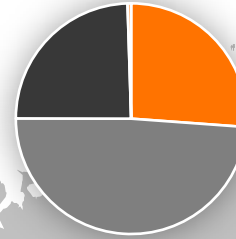
- Industrial self-generation
- Flexible baseload
- Grid stability & peaking
- Oil & gas

Europe:

Output: 12008 MW

Plants: 1786

Engines: 3348

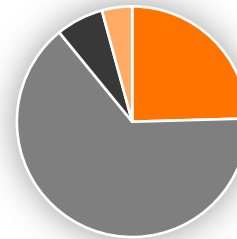


Asia:

Output: 17299 MW

Plants: 1622

Engines: 3503

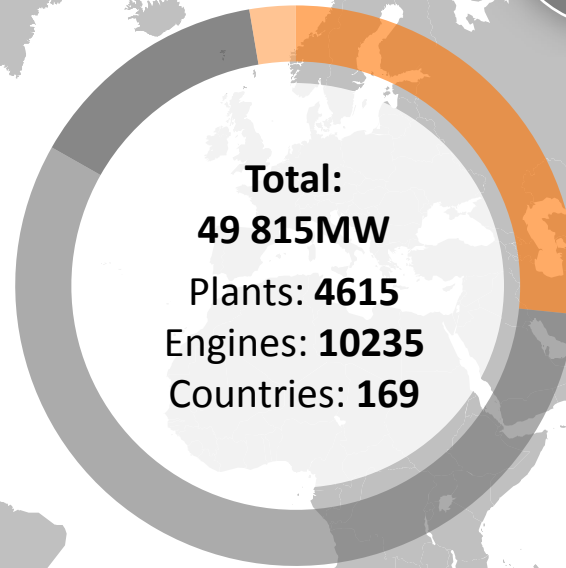


Africa & Middle East:

Output: 10599 MW

Plants: 837

Engines: 2138



Wärtsilä – Smart Power Generation

Competitive generation cost and high dispatch

- Highest simple cycle electrical efficiency (>46%)
- High efficiency even in hot ambient conditions
- Flexicycle™ (Combined cycle combustion engine plant)
- High part load efficiency
- High plant efficiency over a wide load range due to multiple generating sets

Energy Efficiency

Smart Power Generation

Fuel Flexibility

Continuous choice of the most feasible fuel

- Solutions for
 - Liquid and gaseous fuels
 - Renewables
- Hedge for the future
 - Multi fuel plants
 - Fuel conversions

Multi tasking plant prepared for future markets

- Unlimited, super fast, reliable starting and stopping with no impact on maintenance schedule
- Fast reserve, load following, peaking and base load
- All ancillary services
- Grid support, wind enabling

Operational Excellence

Wartsila Business in the Territories

Power Plants

Even though it is not a traditional engine-driven power plant market, we still have some success stories to share.



60% of the electricity in Phnom Penh, Cambodia is supplied by Wärtsilä

Wartsila Business in the Territories

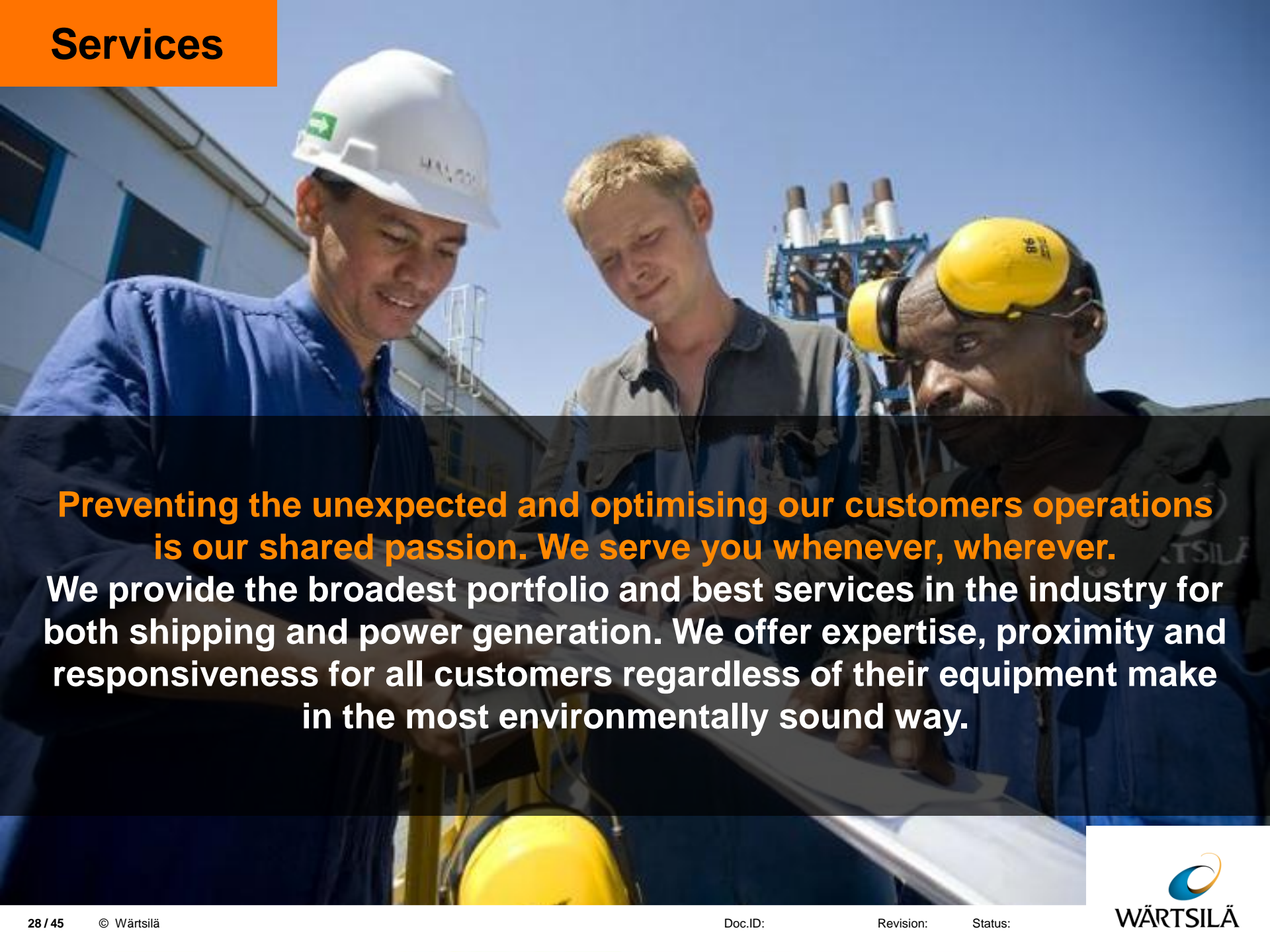
Power Plants

The plant have increased from 5 sets to 19 sets of 18V32 generating sets.

Over the years, the plant converted the fuel from **LFO to HFO to LNG** today.



Batamindo
Industrial Park first
purchased 5 x 18V32
power plant in 1994.



Preventing the unexpected and optimising our customers operations is our shared passion. We serve you whenever, wherever.
We provide the broadest portfolio and best services in the industry for both shipping and power generation. We offer expertise, proximity and responsiveness for all customers regardless of their equipment make in the most environmentally sound way.

Wide range of expertise



Engine services



Propulsion services



Electrical & automation services



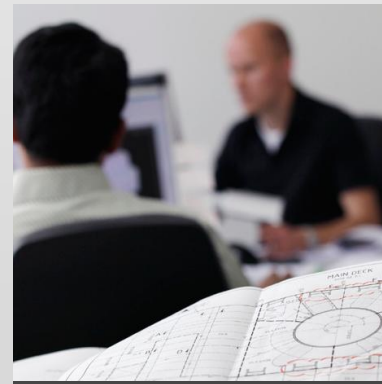
Boiler services



Environmental services



Service agreements



Service projects



Training services

Competitive product portfolio



4-stroke engines



2-stroke engines



Gensets & auxpacs



Propellers
FPP/CPP



Steerable thrusters



Transverse thrusters



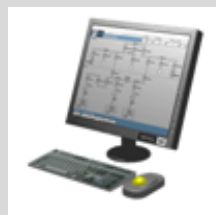
Energy efficiency systems



Frequency converters



Propulsion controls



Automation, monitoring & control



I/O cabinets



Switchboards



Gears



Fuel cells



Flue gas desulphurisation & scrubbers



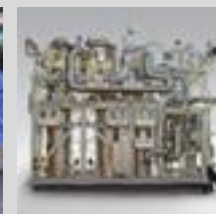
Catalysts (SCR, Oxicat, etc.)



Pump systems – Flow solutions



Ballast water system



LNG regasification



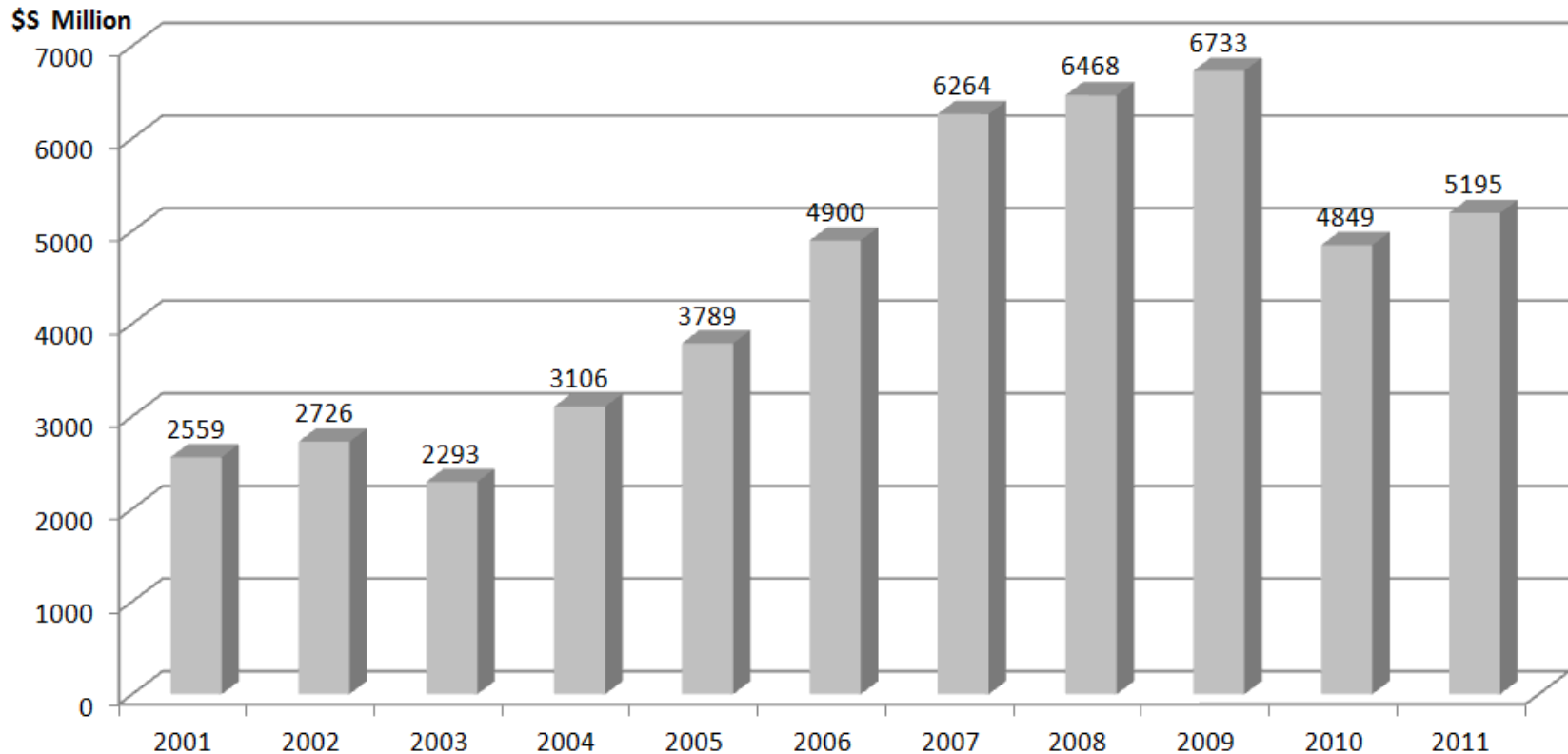
MG



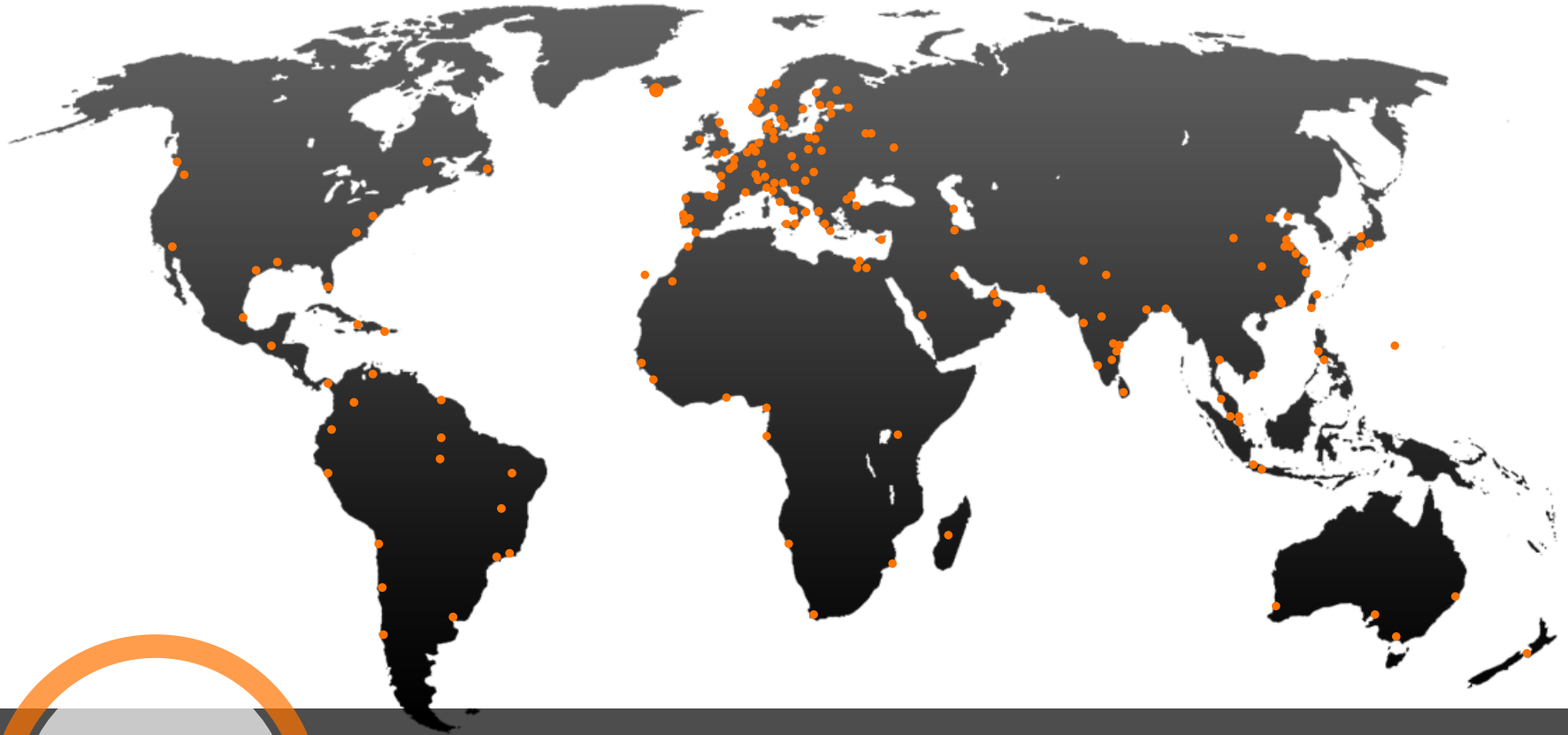
Inert gas systems

Singapore marine industry Revenues

Singapore Marine Industry Revenue - Shiprepair and Conversion 2001 - 2011



70 countries, 160 locations, 5000 field service experts



Installed
base
180,000 MW

Wärtsilä Services global network
Widest range of offering and expertise

Wartsila Business in the Territories Services

- Leading Service Provider in the region with more than 600 Service personnel
- Leader in Electrical and Automation System Integration for niche areas
- Biggest reconditioning workshop in the region
- ICU Test Bench
- 110 m in-house wharf
- Combined strength of Metalock/Van Der Horst/Total Automation in the local marine service industry
- One and only one real ONE-STOP-SHOP for the complete engine room and control room

Workshop

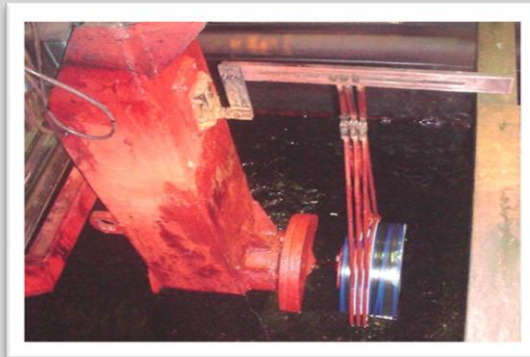
Wartsila Singapore business comprises of three workshops with a total area of 18,588 m² and offers servicing, overhauling, repairing and reconditioning of marine 2-stroke or 4-stroke engine of all makes as well as fuel injection servicing and component repair. We aim to provide a one-stop-shop to cater to all our customers' needs.



Chroming



Preparation for chroming of ram shaft after pre-grinding.



Build up of piston ring grooves by hard chromium deposit with state-of-the-art automatic rotating plating equipment.

Honing



Deep honing
of cylinder liner

The large honing machine with a Sulzer RTA 96C
put into its 6-metre deep pit in preparation for the work.

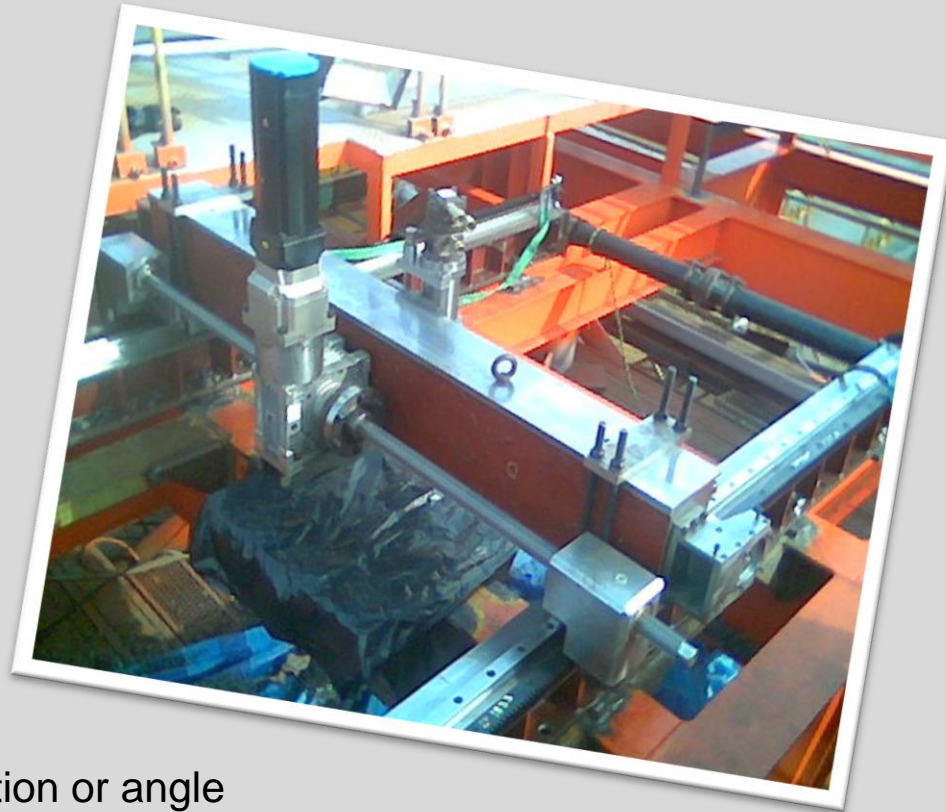
Fuel Injection & Component Repair



Reconditioning of Injection Control Unit (ICU) & full function/calibration test on ICU test bench



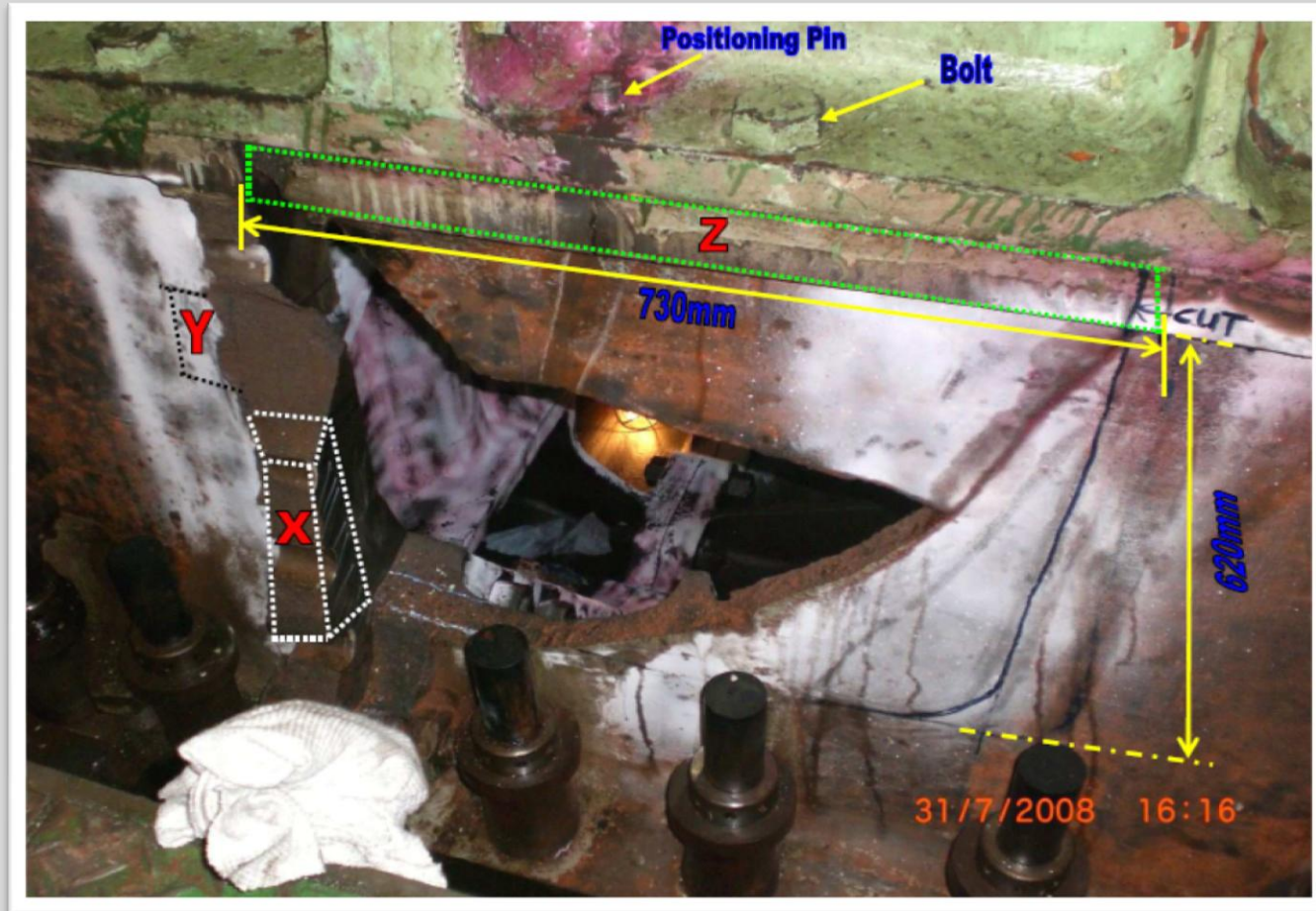
X-Y Machine



Functions:

- Able to set up at any position or angle
- It can be knock down to min. 1.5m x 2.0m and extend to max. 4mx10m
- Achievable cutting tolerance of 0.1 mm for every 30 m sq
- Milling of various type of equipment: skid, engine base plate, engine foundation, rectangular thrusters, deck rails, jack-up canter lever

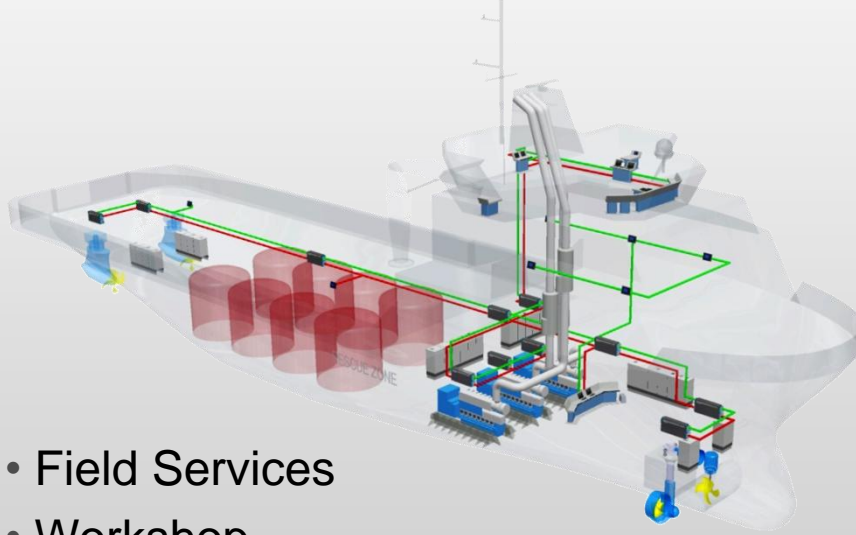
For MV 'Singa Ace' UEC 60HA Main Engine



Bedplate – External damaged section on bedplate

Services - Electrical & Automation Services

- Safety integrated systems (SIS)
- Integrated automation systems (IAS)
- Alarm & monitoring systems (AMS)
- Power plant automation systems
- LNG terminal automation



- Field Services
- Workshop
- Engineering
- Manpower supply
- Turnkey project management



- Hydraulic
- Control Systems
- Rotating Electrical Equipment
- Power Drives (Frequency Converter)
- Power Distribution (Switchboards)
- System components

Boiler Service

For over 18 years, Wartsila Singapore Boiler Service (formerly MMI Boiler Management Pte Ltd) has served operators of all brands of watertube and smoketube boilers in south-east Asia & the Pacific regions.

We are certified by:

1. American Society of Mechanical Engineers
2. National Board of Boiler & Pressure Vessel Inspectors
3. Germanischer Lloyd

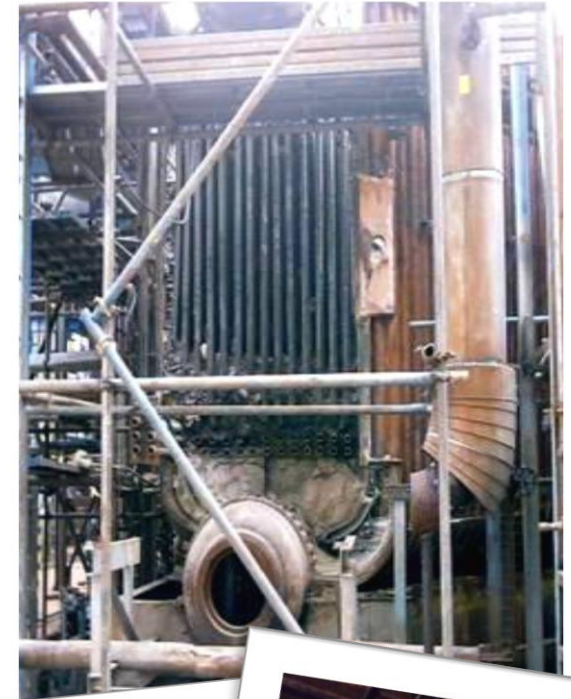
Our Products:

1. Drums, Headers, Furnace Shell, Tube Plate
2. Waterwalls, Superheater, Generating Tubes, Economiser
3. Plain Tubes, Spiral Tube, Finned Tubes
4. 'U' or 'C' Bends, Reducers



Boiler Field Service

1. Emergency inspection & repair of burners & tubes
2. Complete repair or fabrication of economisers, superheater tubes & heat recovery steam generators from 1 to 200 tons/h capacity
3. Replace heat exchangers, condensers, coolers, hydrophores & drums
4. Complete replacement of refractory, insulation & casing
5. Repair & upgrade Burner Management Systems
6. Retrofit & modernize existing boilers to suite new application
7. Low sulfur fuel modification to meet MARPOL & EU regulations for operating in SO_x Emission Controlled Areas
8. Supply new boilers tailor made to meet specific steam or hot water requirements. Carry out site erection & commissioning of complete boiler & auxiliary sys
9. Field replacement of cargo tank heating coil
10. Chemical cleaning, hydro-washing, pressure testing



Profitable growth by focusing on three areas

Smart Power Generation



The transition to sustainable and modern energy systems drives the demand for smart power generation.

Gas as a fuel



Economic and environmental reasons increase the growth potential for gas solutions in both end markets.

Environmental solutions



Environmental regulation and increased focus on optimised lifecycle efficiency create demand in the marine industry.

Singapore is a marine and oil & gas hub.

Ship design capabilities associated with strong product portfolio (engine, propulsion, electrical and automation) is a solid differentiator.

Power plant Smart Power Generation concept is supporting the demand of Asian countries to build up their capacity in an efficient and economic way.

Services offers the larger scope of service from a one-stop-shop partner, supporting 2-stroke and 4-stroke engine lifecycle, as well as services on other equipment such as boilers, electrical and automation, reconditioning, in situ-machining...



WÄRTSILÄ

THANK YOU!