Doosan Engine

Investor Relations

2014.2Q Operating Results

Sep. 2014
Doosan Engine

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2Q14 Income Statement

✓ **Sales W244bn, Operating Loss -W13bn(OPM -5.3%)**

(Wbn)

	'14.2Q	'14.1Q	QoQ	'13.2Q	YoY
Sales	**244** ①	165	+48.2%	212	+15.2%
COGS ratio(%)	**(100.9%)**	(105.4%)	(-4.5%p)	(91.8%)	(+9.1%p)
Gross Profit	**-2**	-9		17	
SG&A	**11**	10		15	
Operating Profit	**-13**	-19	CR	2	TR
OP Margin(%)	**(-5.3%)** ②	(-11.6%)	(+6.3%p)	(+0.9%)	(-6.2%p)
Other gain & loss	**0.5**	0.4		0.8	
Financial income &expense	**-0.2** ③	-1		-2	
Equity Method gain & loss	**-5** ④	-4		0.2	
Pretax Profit	**-17**	-24	CR	1.1	TR
Tax	**-3**	-5		0.1	
Net Profit	**-14**	-19	CR	1.0	TR

2Q Main Points (QoQ)

① Sales +48.2%(QoQ)

- Sales improved due to the increase in engine deliveries

② OP Margin -5.3% (Operating loss declined)

- Improvement of product mix
  (COGS ratio '14.1Q : 105.4% → '14.2Q : 100.9%)

③ Financial Income/Expense –W0.2bn

- Interest income & expense –W1.8bn
- FX translation gain & loss +W1.9bn
- Forward hedging gain & loss -W0.4bn

④ Gain/Loss on Equity Method –W5bn

- Equity method gain +W4bn
- Equity method loss –W9bn

Balance Sheet

✓ **Net debt W176bn, Liability ratio 131%**

(Wbn)

	'13.12	'14.06	+/-	
Current Assets	489	560	1	+71
Non-current Assets	1,173	1,138		-35
Total Assets	1,662	1,698		+36
Current Liabilities	538	652		+114
Advance receipts	*326*	*327*		*+1*
Non-current Liabilities	334	310		-24
Total Liabilities	872	962	2	+90
Paid in Capital	69.5	69.5		0
Capital Surplus	367	367		0
Retained Earnings	349	316		-33
Accumulated other comprehensive income	4	-16		-21
Total Equities	790	736	3	-54
Total Debt	312	313		+1
Cash & Cash Equivalents	188	137		-51
Net Debt	**124**	**176**	4	+52
Liability ratio	**110%**	**131%**		+21%p

Key Points

1 Current Assets +W71bn

- Account receivable jumped from the increase of sales in the second quarter +W64bn
- Increase of Work in process led to Inventory rise +W50bn

2 Total Liabilities +W90bn

- Account payable increased +W68bn

3 Total Equities –W54bn

- Net loss –W33bn

4 Net debt +W52bn

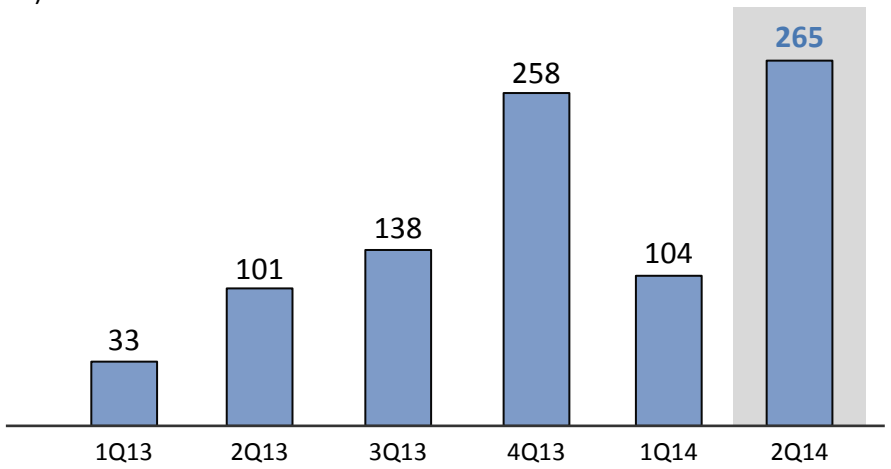
- Cash & cash equivalents dropped W51bn due to increase in working capital

Quarterly New Orders Trend

✓ **2Q New Orders : W265bn, new orders in the first half reached W369bn (+176% YoY)**

Quarterly New Orders Trend

(Wbn)

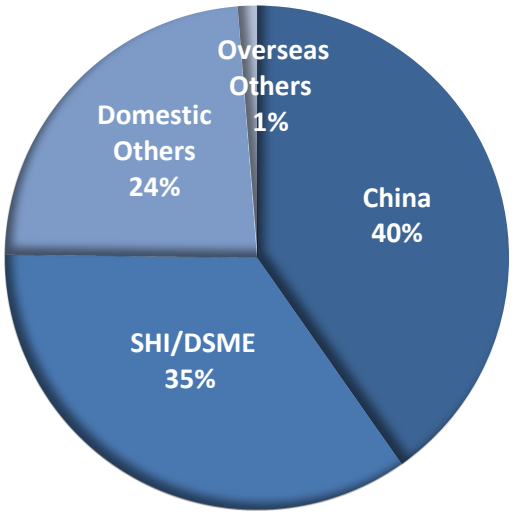


	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14
Low-speed	19	79	93	161	90	**226**
Med-speed	4	13	38	90	4	**7**
Others	10	9	7	7	10	**32**
Total	33	101	138	258	104	**265**

* New orders based on receiving advance receipts

New Orders by Customers

Marine Engine 1H14 (W326bn)

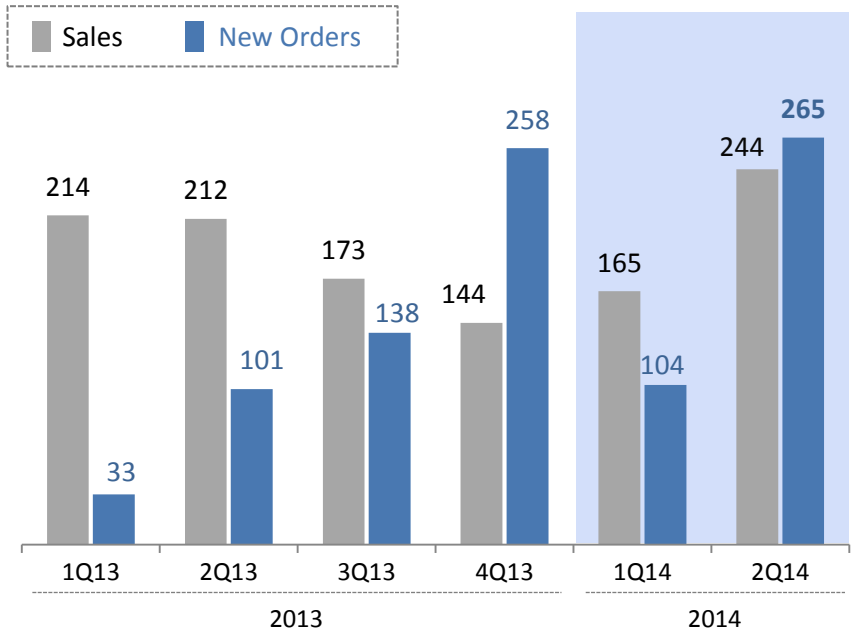


Quarterly Earnings Trend

✓ **Earnings has improved QoQ due to the increase of sales and decline in operating losses**

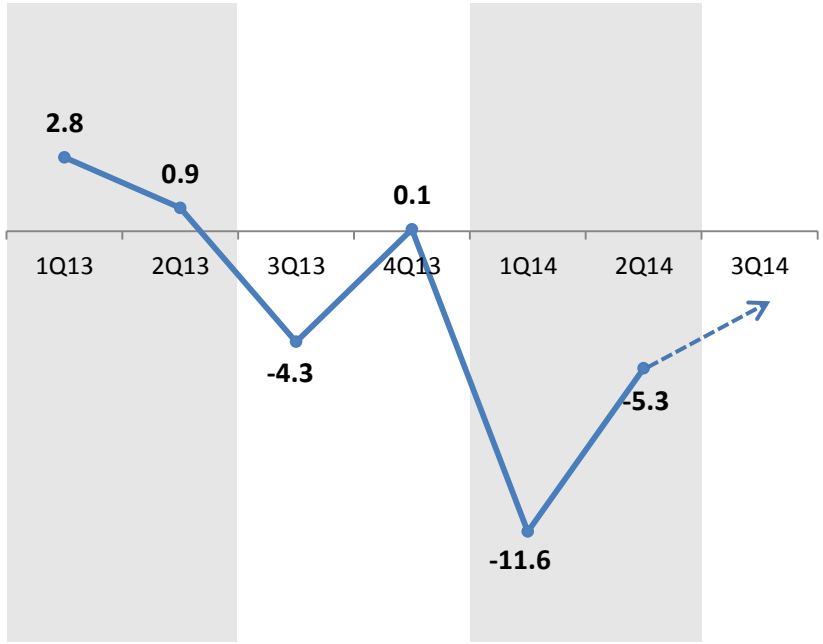
Quarterly Sales & New Orders Trend

(Wbn)



Quarterly Operating Margin Trend

(%)



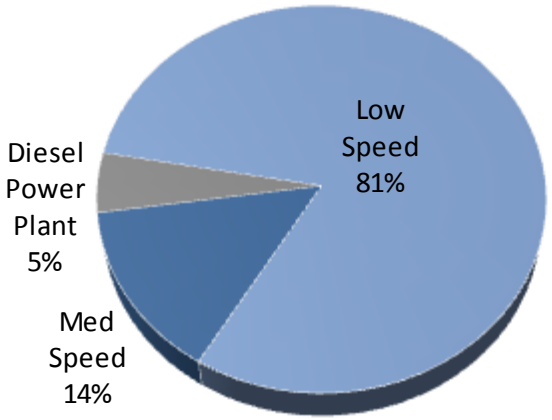
Order backlog

✓ **Order backlog : W1.9tr, marine engine accounts 95%**

Order Backlog Breakdown

W1,918bn

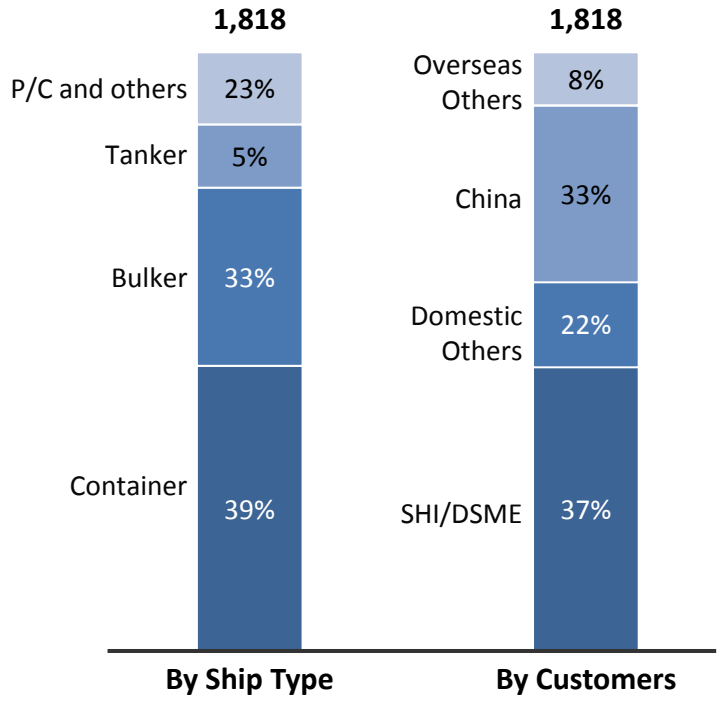
(as of June 2014)



※ Backlog : Recognized upon contract sign basis
(Reflection of cancellation and order changes)

Marine engine (low speed+ med speed) : W1,818bn

(Wbn, %)



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Mid to Long-Term Growth Strategy

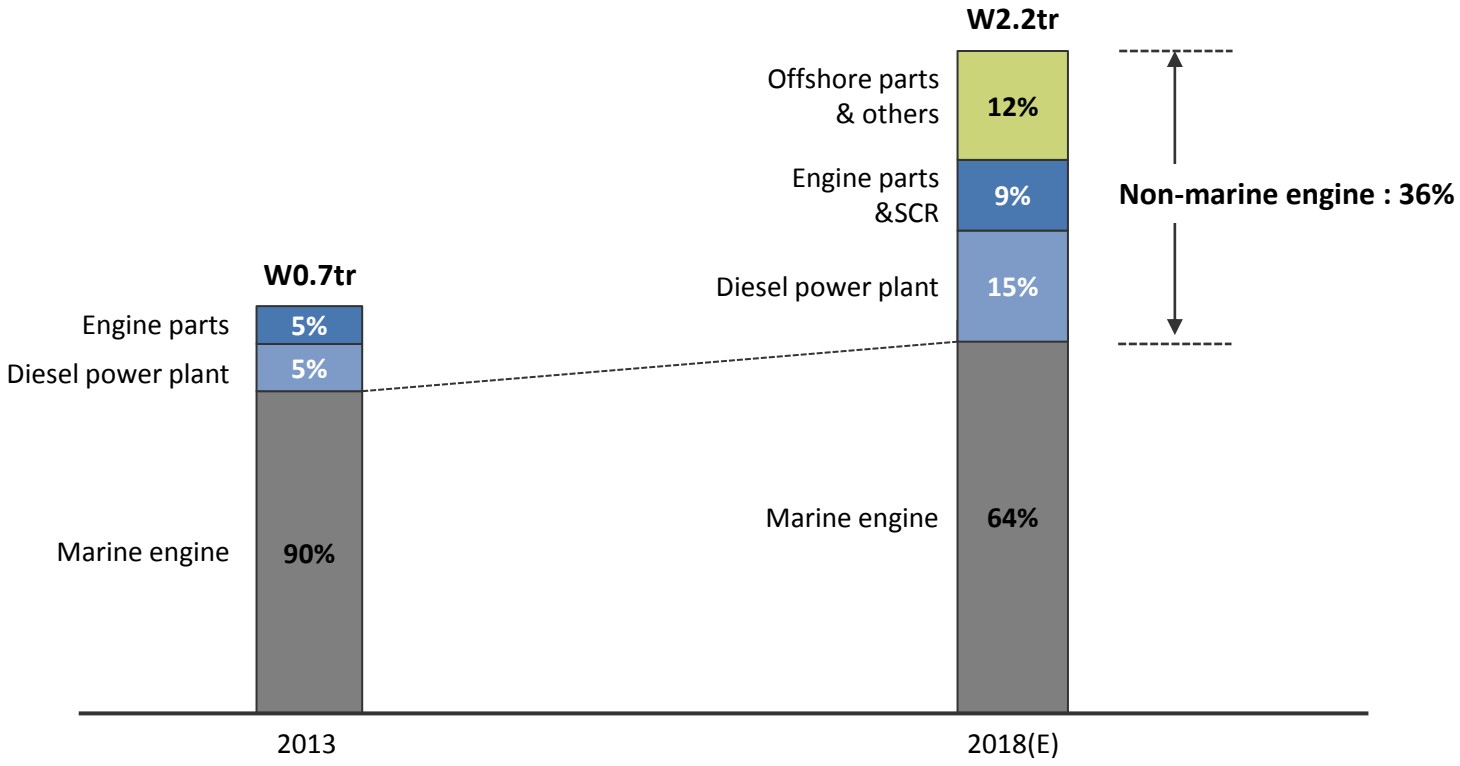
- ✓ **Sustaining competitiveness in the marine engine business by expanding eco-friendly engine and securing profitability in new orders**
- ✓ **Implementing a diverse business portfolio by strengthening diesel power plant and focusing on expansion into new business**

Strategy	'14 Key Strategy	Main Issues
1 Strengthen Marine Engine Business	• Strengthening marine engine business	• Expanding eco-friendly engine • Focus on securing profitability in new orders
2 Building Diverse Business Portfolio	• Developing our existing diesel power plant business	• Expanding new orders pool by focusing on target market • Implementing EPC based system engineering
	• Expanding into new business	• Successfully launching its SCR business • Entering into the offshore equipment part business

Mid to Long-Term Vision

✓ **Focusing on non-marine engine areas to achieve W2.2tr sales by 2018**

Mid to long-term Financial Aspiration – Sales



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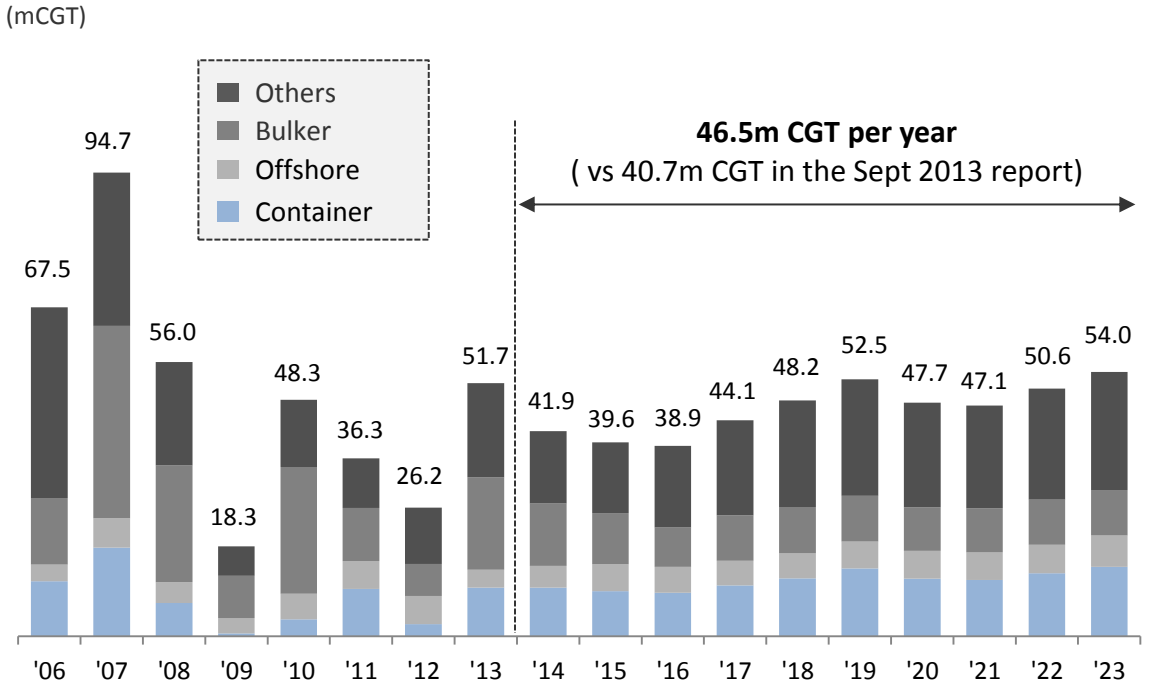
Shipbuilding market outlook

✓ **The global new orders amount rebounded from 2013 and will likely to maintain an annual average of 41mCGT level in the mid to long term**

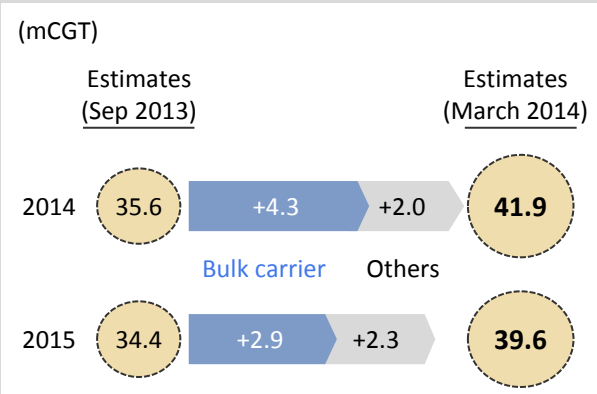
Global New Orders Outlook



※ Source : Clarkson Forecast Report (’14.3)

Escalation of Clarkson forecast

- The March 2014 report has higher estimates of 18%,15% for new orders outlook in 2014~2015 than the Sept. 2013 report
  - Outlook for bulk carrier is higher than other vessels

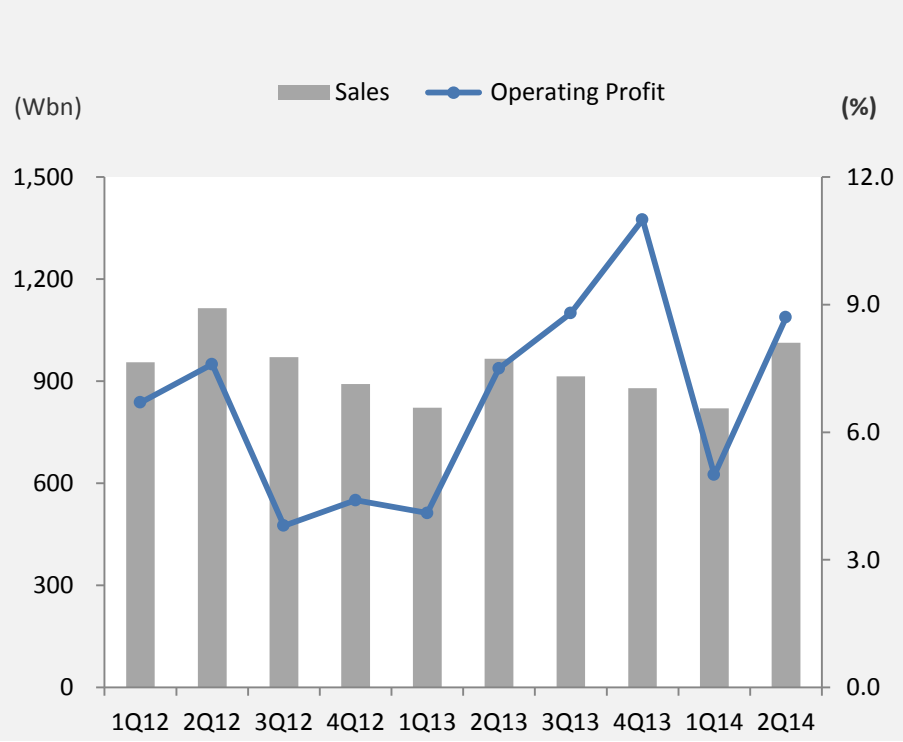


Investment Points 1. Gain(Loss) on Equity Method of Bobcat

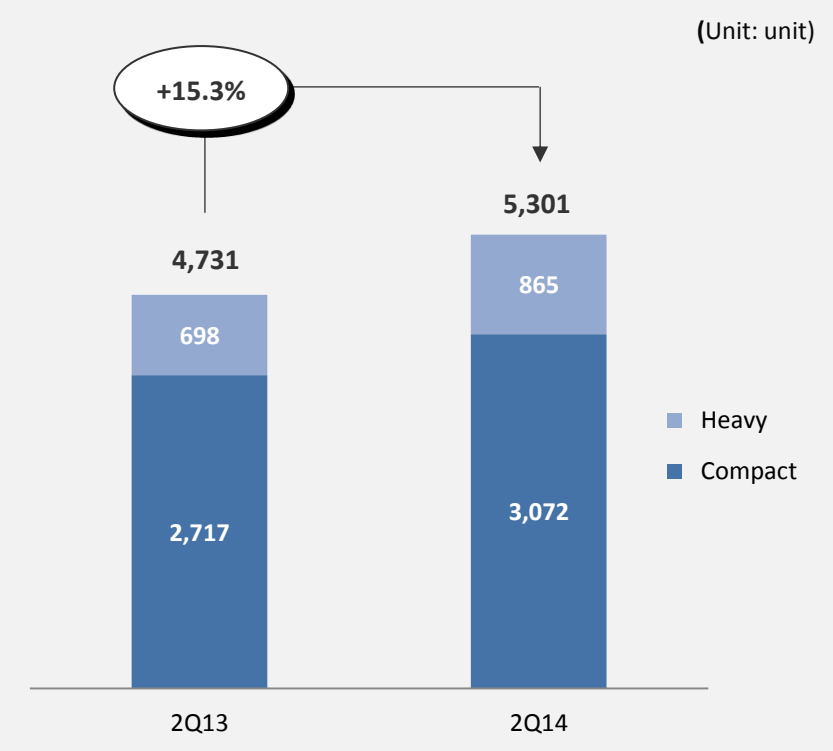
✓ **Bobcat earnings continues to improve due to the favorable performance in developed markets**

✓ **Europe : Sales has increased on the back of volume growth followed by recent economic recovery**

Bobcat earnings trend



EMEA Heavy/Compact CE sale volume



* Compact: SSL + CTL + MEX

** Heavy: HEX + WLD

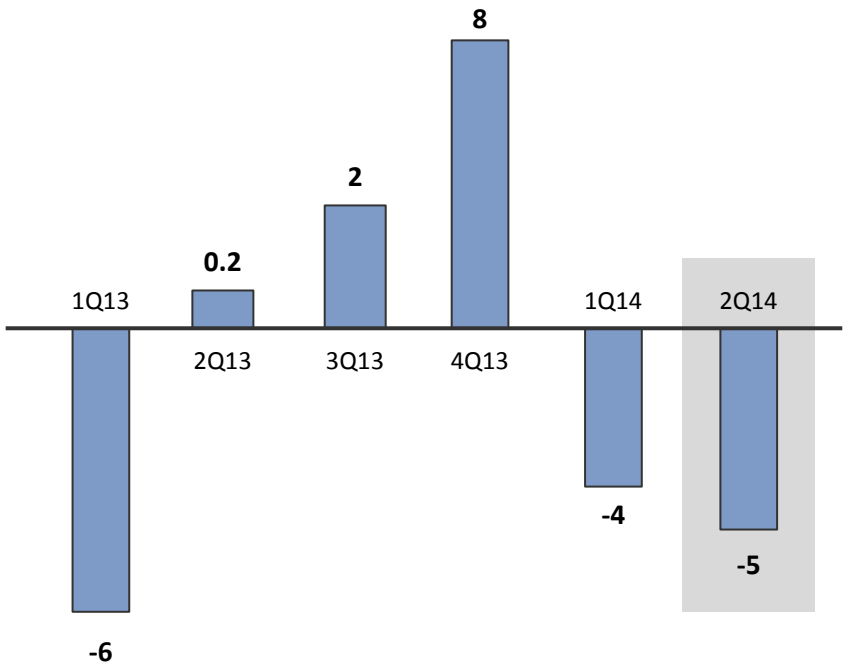
Investment Points 1. Gain(Loss) on Equity Method of Bobcat

✓ **2Q14 Gain(Loss) on equity method of Bobcat : -W5bn(Equity method gain W4bn, Equity method loss W9bn)**

✓ **Bobcat earnings has improved, but incurred equity method loss due to the one-off costs**

Bobcat Equity Method Gain Trend

(Wbn)



Bobcat Stake & Book Value

(Wbn, %)

	2Q13	2Q14
Stake(%)	15.5%	**15.5%**
Acquisition Cost	738	**738**
Book Value	460	**428**
Gain(Loss) on Equity Method of Bobcat	0.2	**-5**

NOx (Nitrogen oxides) regulation

Global as Tier II | after Jan. 2011	**ECA as Tier III** | after Jan. 2016
Under **14.4 g/kWh**	Under **3.4 g/kWh**

Emission Control Areas (MEPC 66th)

MEPC[1] 66th decided to keep the implementation date of the NOx Tier III requirements as 1 January 2016.
(North American and US Caribbean Sea)

For any future new ECA, the Tier III requirement will be made mandatory for ships constructed on or after the announcement of the establishment of the ECA, or any date decided by the parties proposing the ECA but not earlier than the announcement date.

- North American ECAs(NOx, SOx, PM)
- Baltic & North Sea ECAs(SOx)
- Discussed ECAs

1) MEPC(Marine Environment Protection Committee)

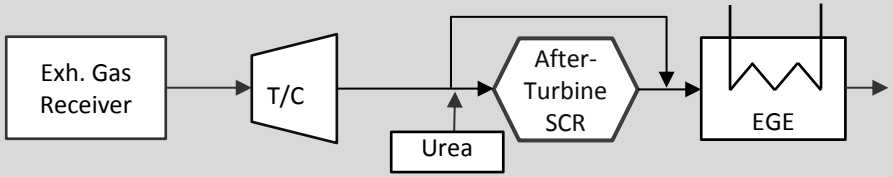
Investment Points 2. SCR(Selective Catalytic Reduction)

▪ After-turbine SCR

- NOx reduction method using catalyst and reactant (urea)
- High NOx reduction efficiency (≥80%)
- Consists of reactor, urea dosing system and control system
- Proven technology for IMO Tier lll

"Most effective and proven solution"

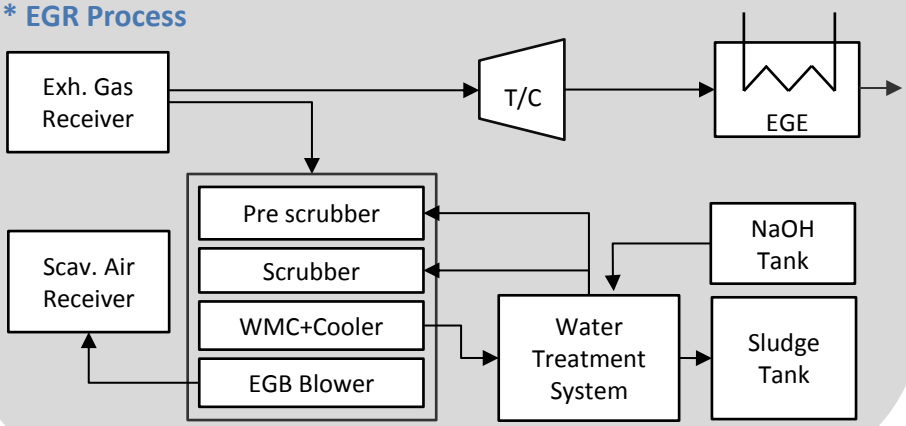
*** DelNOx Process**



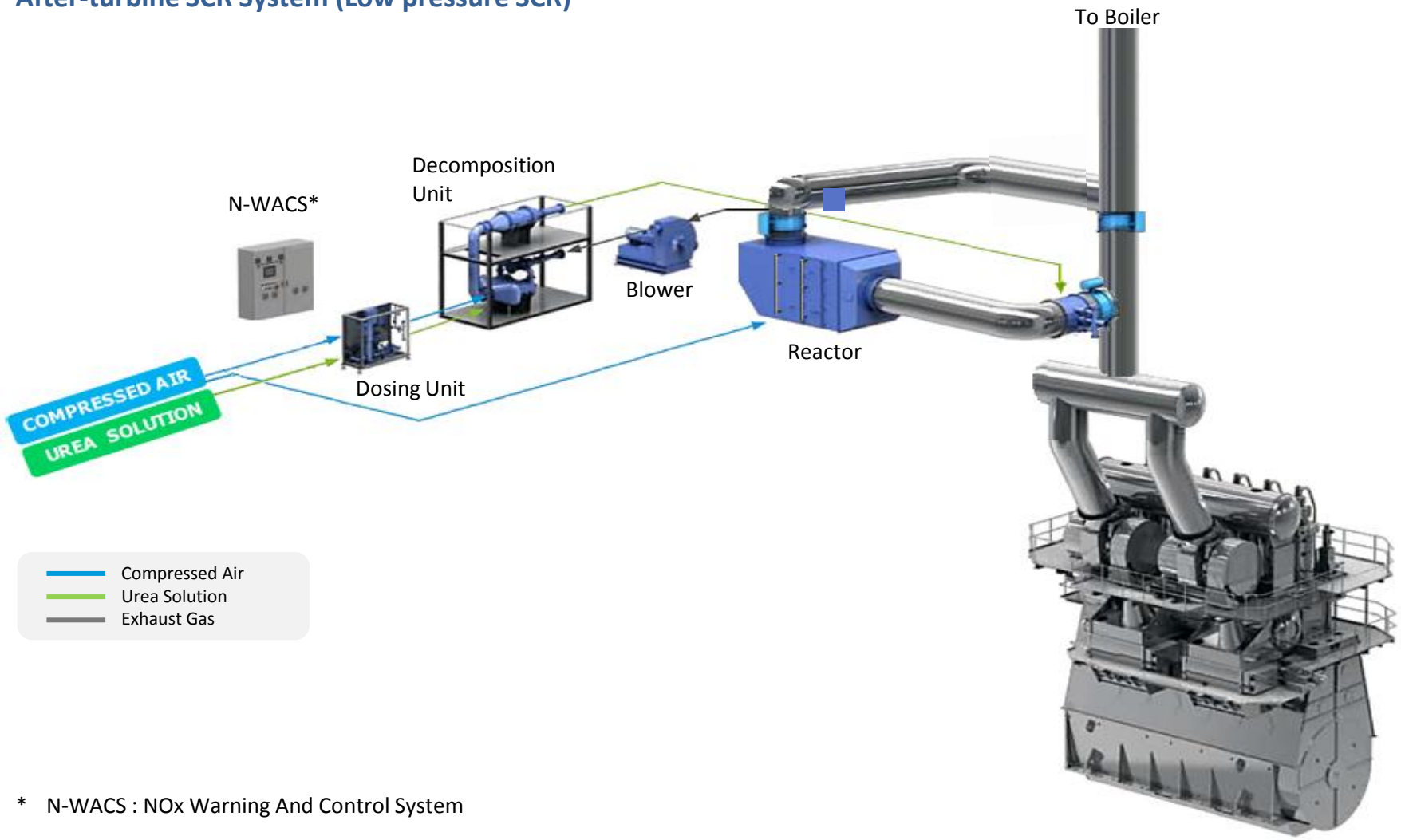
▪ EGR (Exhaust Gas Recirculation)

- NOx reduction by decreasing O_2 concentration of scavenge air
- Engine integrated + additional equipment
- More complex design

*** EGR Process**



After-turbine SCR System (Low pressure SCR)

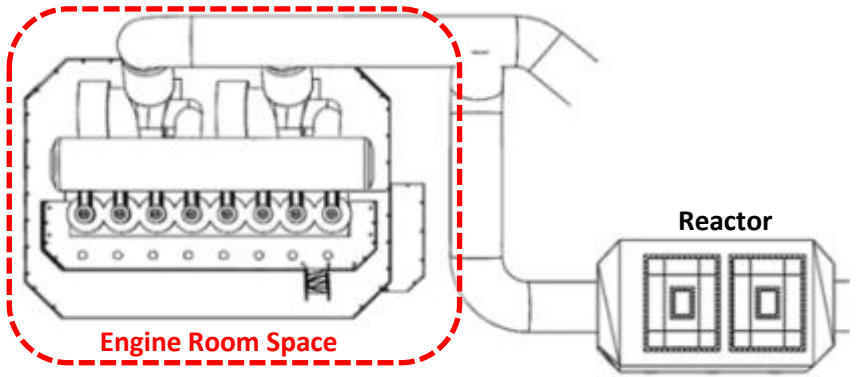


* N-WACS : NOx Warning And Control System

Investment Points 2. SCR

After-turbine SCR vs Pre-turbine SCR

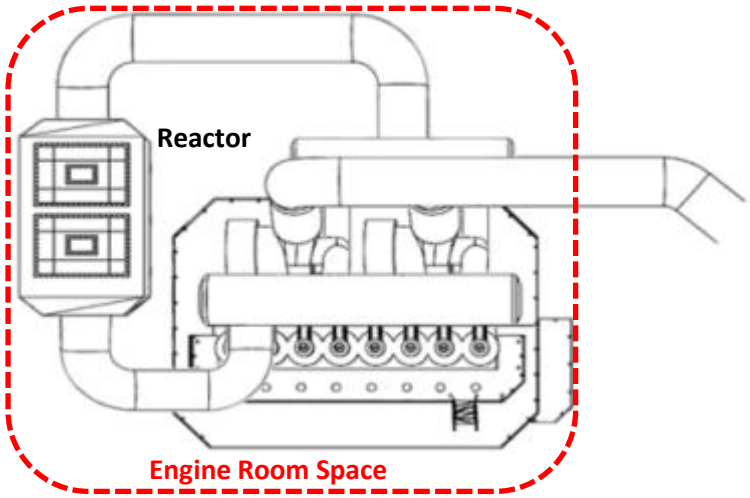
▪ After-turbine SCR (LP)



- Located after turbocharger
- Flexible arrangement in engine room and simple piping line
- Minimized modification of engine room design

" **Best Solution for IMO Tier III Compliance, Shipyard Design & Shipowner Operation** "

▪ Pre-turbine SCR (HP)



- Located between exhaust gas receiver and turbocharger
- Limited arrangement in engine room and complex piping line
  - Must be arranged near the main engine
  - Influenced by number of turbochargers
- Influence on engine room design

Appendix

I. Company overview

II. History

III. Plants

IV. Manufacturing infrastructure

V. Business area

Appendix 1. Company Overview

Overview

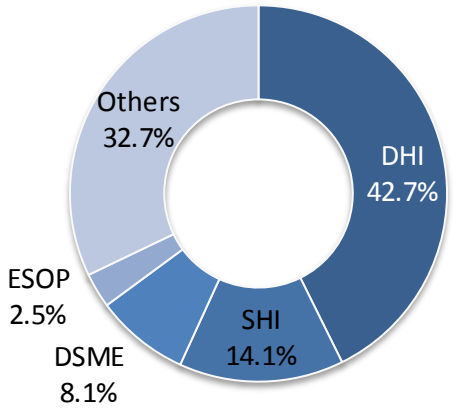
Company	Doosan Engine Co., Ltd
Date of Foundation	Dec 30, 1999
Address	Sinchon-dong 69-3, Seongsan-gu, Changwon-si, Gyeongnam
Business	Marine diesel engines / Diesel engines for power plants
Exports	Local/direct Exports(96%), Domestic (4%)
Capital	W69.5bn
No. of Employees	1,005 [As of Dec 2013]
Subsidiary	Doosan Marine Industrial (DMI) Dalian Co., Ltd (100% owned)

Business Areas

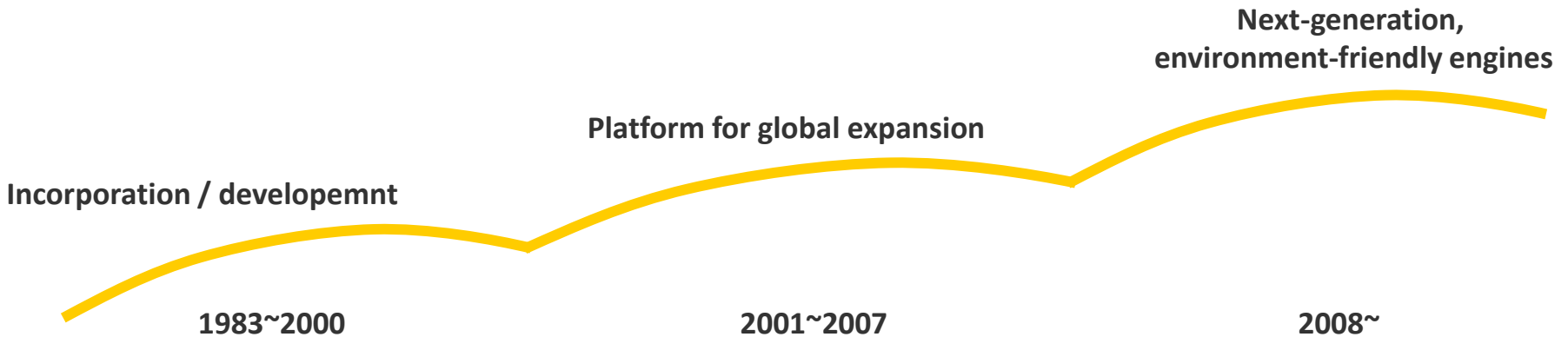
Business Areas	Sales (2013)	% of sales
Low-speed engine	W538bn	72%
Med-speed engine	W131bn	18%
Diesel power plant	W35bn	5%
Engine parts and C/S	W40bn	5%
Total	W744bn	100%

Shareholders

[As of 2013.12.31]



Appendix 2. History



1983~2000

1983

- **Doosan Heavy Industries launches engine business**

1994

- Samsung Heavy Industries(SHI) launches engine business

1999

- Doosan Heavy Industries(DHI) and SHI agree to establish a JV, **HSD Engine**

2000

- HSD Engine establishes R&D center
- Equity placement of W25bn (Daewoo Shipbuilding & Marine Engineering(DSME) participates)

2001~2007

2001

- Signs business transfer agreement with DHI, on internal combustion generators

2002

- **Receives WCP (world class product) award from the Ministry of Commerce, Industry & Energy for its large diesel engines**

2005

- Changes company name to Doosan Engine Co., Ltd

2006

- Establishes DMI in China, and builds plants

2007

- **Receives US$1bn Export Tower Award**

2008~

2008

- Constructs assembly line 4 and medium-speed engine production line (capacity : low-speed (12mn HP) and medium-speed (500 units p.a.)

2009

- Raises \33bn of equity (offering, ESOP, and rights, public offering)

2011

- **IPO listing in KRX (2011. 1. 4)**

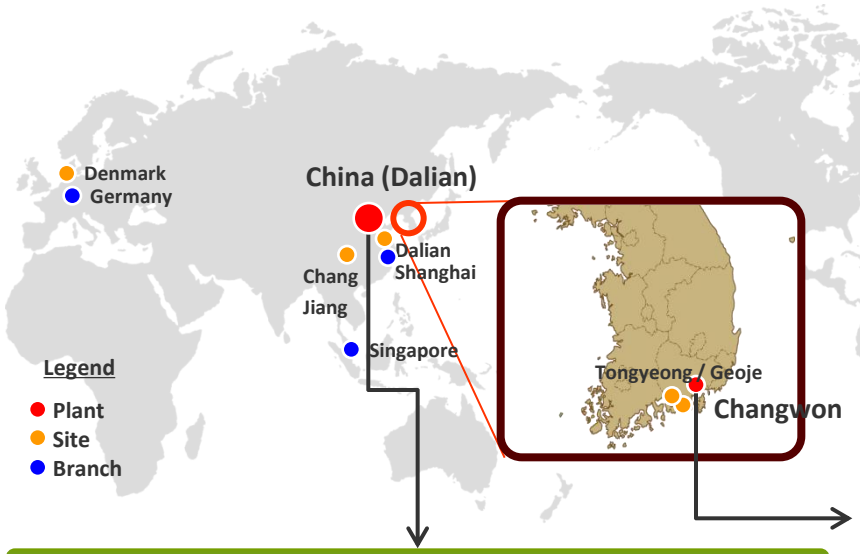
2012

- Achieves cumulative production of 80mn HP within shortest period(Jan 2012)

2013

- **Commercialization of ME-GI engine (Mar 2013)**

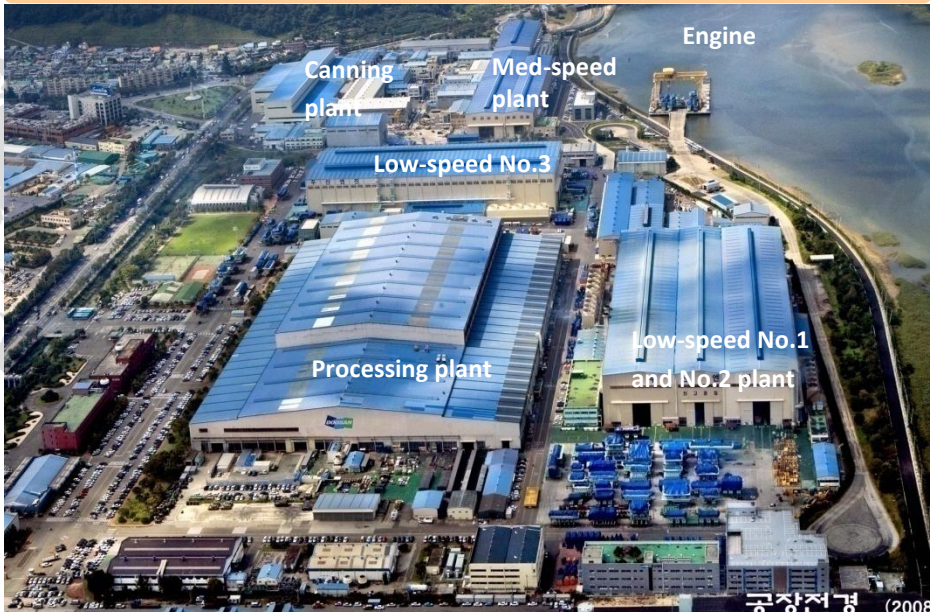
Appendix 3. Plants



Dalian, China plant

- Size : 57,904㎡ (17,500 pyeong)
- Product line-up : Diesel engine parts
- Production capacity : 250 blocks of engine canning parts

Changwon Plant (Headquarter)

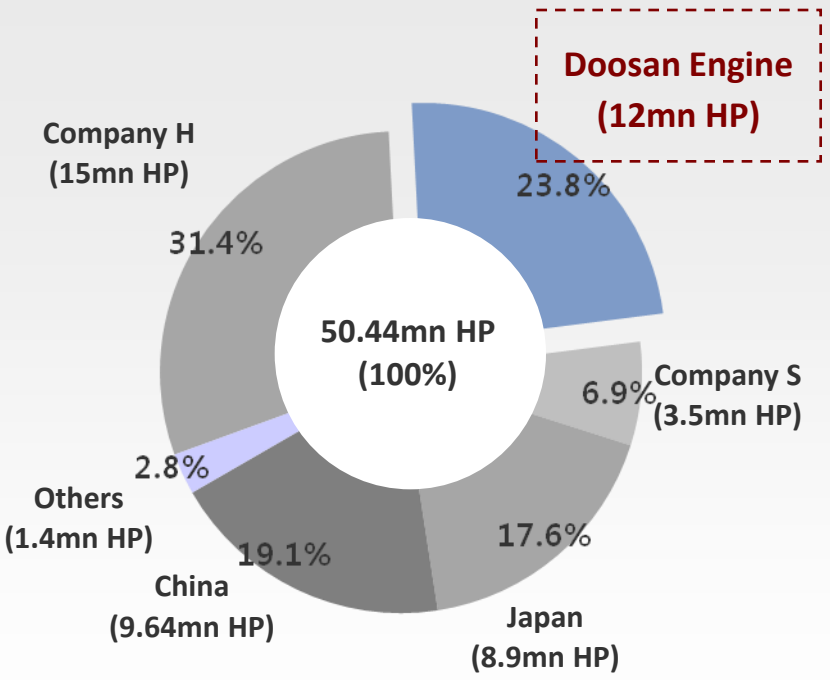


- Products : Diesel engines
- Size : 328,000㎡(99,500 pyeong)
- Overview

Classification	Size(㎡)	Production CAPA (per year)
Low-speed engine plants	42,720 (12,922 pyeong)	12,000,000 HP
Med-speed engine plant	17,010(5,145 pyeong)	2,000,000 HP
Processing plant	27,100(8,197 pyeong)	
Canning plant	4,894(1,480 pyeong)	
Total Capacity		**14,000,000 HP**

Second largest diesel engine production facility in the world

Low-speed diesel engine production Capacity



Note : Estimates based on each company's 2010 annual report

Production facilities and infrastructure

1. Large low-speed diesel engine plant
   - Production capacity : 12mn HP
     (Operating in 6mn HP)
   - Assembly and testing plants
   - Processing plant (7 Plano Millers, 8 Boring)
   - Canning plant(250 blocks/year)
2. Medium-speed diesel engine plant
   - Production capacity : 500units
   - Assembly and testing plants
   - Processing plant (5 Plano Millers, 4 Mill-Turns)
3. Top-of-line production infrastructure
   - High-quality supply chain
     (Quality/stable procurement and joint R&D)
   - Cutting-edge production system
     ("Flow production", "fool-proof" system)
   - Skilled design and production workforce

Appendix 5. Business area : Low-speed diesel engines

Low-speed diesel engines

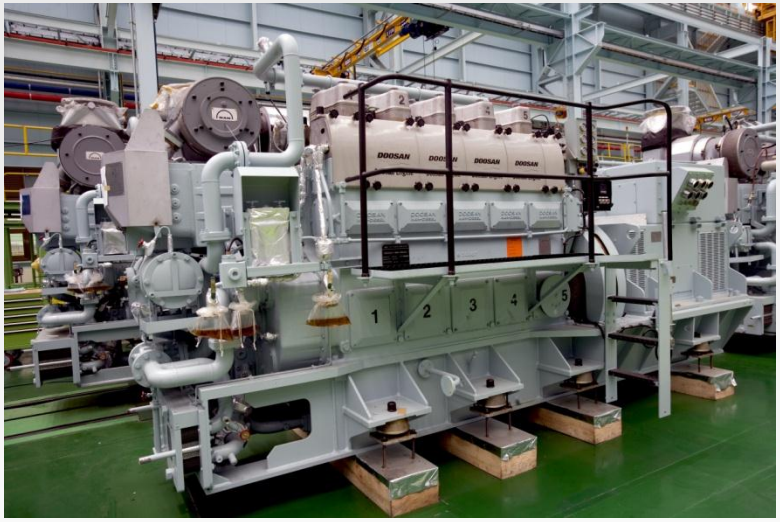
- Main Business(2013 Sales- 72% of total sales)
- Uses : Large vessels

  (e.g. containerships, crude tankers, LNG carriers)
- Market position : No.2 globally, with 24% m/s
- Customers : SHI, DSME, Yangzijiang(China)

  Sinopacific(China), COSCO(China)

Appendix 5. Business area : Med-speed diesel engines

Medium-speed diesel engines



- New growth business

  (Sales : 18% of total sales in ’13)

- Uses : Auxiliary engines in large ship engines,

  Propulsion engines in small to mid-sized ships

- Customers : SHI, DSME, China, Brazil

Appendix 5. Business area : Power plants (Low-speed & Medium-speed)

Diesel Power Plant

Med-speed Diesel Power Plant

- Med-speed diesel power plant engine
- Generates 1~25MW power suited for small capacity power plant
- Installed in small islands or remote areas and used for emergency purpose

(Philippines, Fujairah, Bangladesh)

Emergency Generators for Nuclear Power Plants

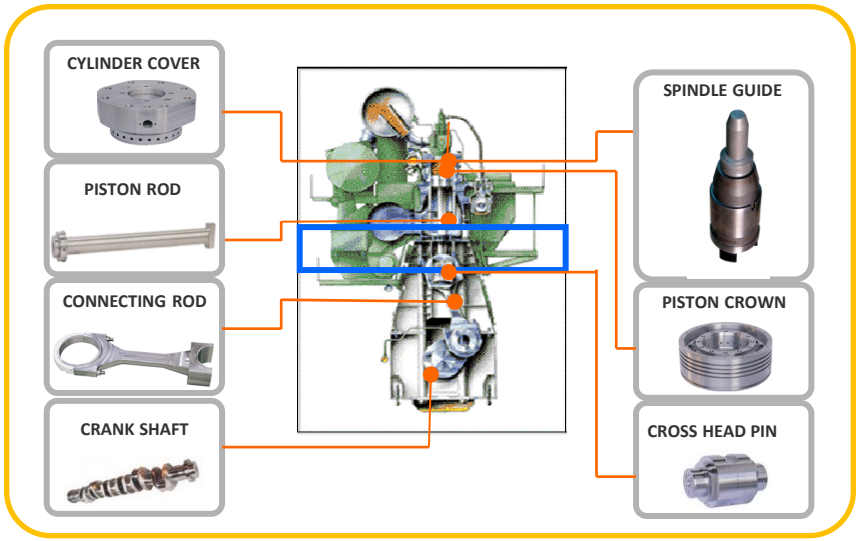
No.1 supplier of emergency generators for nuclear power plants

- Exclusive supplier of emergency generators for nuclear power plants in Korea; Orders to grow from rise in nuclear power plant exports
- Generates power capacity of 3,500 ~ 9,000KW
- Supplied to the major nuclear power plants in Korea

※ DPP (Diesel Power Plant) : Power plant with small capacity that is used in a place where construction is difficult (e.g. islands)
EDG (Emergency Diesel Generator) : EDG is a diesel-powered emergency backup systems for nuclear power plants

Appendix 5. Business area : Parts & C/S

Main engine parts



- Uses : Ship engines, Retrofit
- Customers :
  - 14 agencies (12 domestic, 2 overseas)
  - Ship owners: A.P.Moller(Denmark), CSCL(China), NOVO Ship(Russia)
- Market size : 600bn(as of 2012)
- Business overview
  - Domestic production of engine parts
  - Developing paid A/S items

CYLINDER COVER

ROD(CON/PISTON)

ALPHA RETROFIT

CROSS HEAD PIN