# M H I GUIDE BOOK



### Creed

- We strongly believe that the customer comes first and that we are obligated to be an innovative partner to society.
- 2. We base our activities on honesty, harmony, and a clear distinction between public and private life.
- 3. We shall strive for innovative management and technological development from an international perspective.

### Reason for Instituting the Creed

In Japan there are many enterprises with their own "creeds" which simply represent their management concept. Mitsubishi Heavy Industries, Ltd. has a creed of this type, also. This creed was instituted in 1970 on the basis of the policy advocated by Koyata Iwasaki, president of Mitsubishi Goshi Kaisha in the 1920s, to indicate the essential attitude of the company, the mental attitude of the employees, and the future directions of the company. The reason for instituting the present creed is so that all of us can call to mind our one hundred years of tradition, and strive for further development in the future.

# GUIDE BOOK 2008

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Outline
Objects of the Company
Brief History
Foundation

### 1. Outline

### Name of the Company in Foreign Language :

Mitsubishi Heavy Industries, Ltd.

### **Head Office:**

16-5 Konan 2-chome, Minato-ku, Tokyo, 108-8215 Japan

Phone: 81-3-6716-3111 Fax: 81-3-6716-5800

### **President:**

Hideaki Omiya

### Foundation:

July 7, 1884

### **Establishment:**

January 11, 1950

### Capital:

265.6 bil. yen (As of March 31, 2008)

### **Orders Received:**

3,715.2 bil. yen (consolidated basis, April 1, 2007 - March 31, 2008) 2,903.1 bil. yen (non-consolidated basis, April 1, 2007 - March 31, 2008)

### Sales:

3,203.0 bil. yen (consolidated basis, April 1, 2007 - March 31, 2008) 2,471.1 bil. yen (non-consolidated basis, April 1, 2007 - March 31, 2008)

### **Domestic Offices:**

8

### **Research & Development Centers:**

6

### Works:

9

### **Employees:**

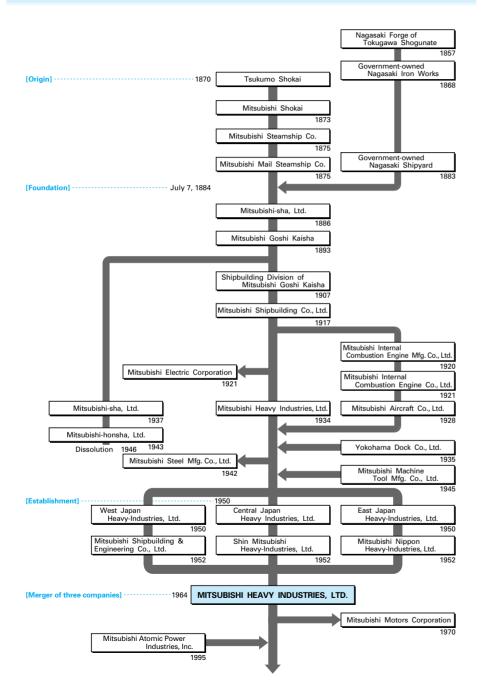
33,089 (As of March 31, 2008)

### 2. Objects of the Company

### The objects of the Company shall be to engage in the following businesses:

- (1) building, sale, repair and salvaging and scrapping of ships and defense vessels;
- (2) manufacture, sale and repair of special motor vehicles, railway rolling-stock and special armored vehicles;
- (3) manufacture, sale and repair of aircraft, space systems and missiles;
- (4) manufacture, installation, sale and repair of turbines, boilers, internal combustion engines, hydraulic turbines, nuclear equipment and other power systems;
- (5) manufacture, installation, sale and repair of iron and steel manufacturing machinery, ceramic machinery, mining machinery, chemical machinery, textile machinery, pulp and paper making machinery, box making machinery, printing machinery, plastic processing machinery, rubber and tire machinery, machine tools and tools, construction machinery, refrigerating machinery, air-conditioning machinery, agricultural machinery, machinery for cargo-hoisting and transportation, food machinery, packing machinery, blowers, compressors, wind tunnels, hydraulic machinery, oil hydraulic equipment, pneumatic control equipment, electric and electronic machinery and equipment, medical machinery and various other machinery, equipment and apparatus for industrial and general use;
- (6) manufacture, installation, sale and repair of air pollution prevention equipment, water corruption prevention equipment, solid waste treatment equipment and other pollution prevention and environmental improvement equipment;
- (7) manufacture, installation, sale and repair of bridges, hydraulic gates, stacks, offshore facilities and other steel structures and various iron works:
- (8) manufacture, sale and repair of defense arms;
- (9) design, observation and execution of civil engineering and construction work;
- (10) lease, engineering and technical assistance for those items mentioned in the foregoing sub-paragraphs and manufacture and sale of parts thereof;
- (11) lease, purchase, sale and administration of real property;
- (12) supply of electricity and heat;
- (13) disposal of general and industrial waste;
- (14) launching of satellites; and
- (15) all businesses incidental or relating to those items mentioned in the foregoing subparagraphs.

### 3. Brief History



### 4. Foundation

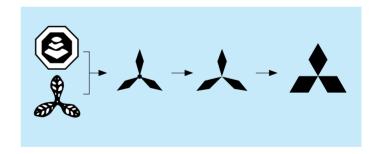
### The Date of Foundation

The Mitsubishi Mail Steamship Co., the predecessor to Mitsubishi Honsha, Ltd., got to its start in the shipbuilding business on July 7, 1884 by leasing the Government-owned Nagasaki Shipyard (the shipyard is now called Nagasaki Zosensho).

This work for this endeavor required much more than the takeover of the personnel, facilities, and organization of a government shipyard. Indeed, this medium-sized steamship company immediately took on projects commissioned by the government and began developing the Japanese shipbuilding industry based on its own plans, and at its own risk. For this reason, July 7, 1884 is now commemorated as the starting point for Mitsubishi Heavy Industries, Ltd.

### Origin of the Mitsubishi Logo

The "Three Diamonds," the company logo of Mitsubishi Heavy Industries, Ltd., originated as a design by Tsukumo Shokai, one of the forefathers of the company, as an emblem on the flag of a company ship. Tsukumo Shokai had designed the shape as a modification of the family emblem of Yataro Iwasaki, the founder of Mitsubishi. After several transformations (shown below), the present-day symbol came to be used for Mitsubishi Goshi Kaisha. The three diamond symbol is now known throughout the world as the logo of Mitsubishi Heavy Industries, Ltd. and the 92 companies in and affiliated with the Mitsubishi Group.



# ${\rm I\hspace{-.1em}I} \, . \, Stock$

Stock Information

Major Shareholders

Classified by Types of Shareholders

### Stock

### 1. Stock Information (As of March 31, 2008)

### No. of Stocks

Total Number of Issuable Shares 6,000,000,000 shares
Total Number of Shares Issued 3,373,647,813 shares

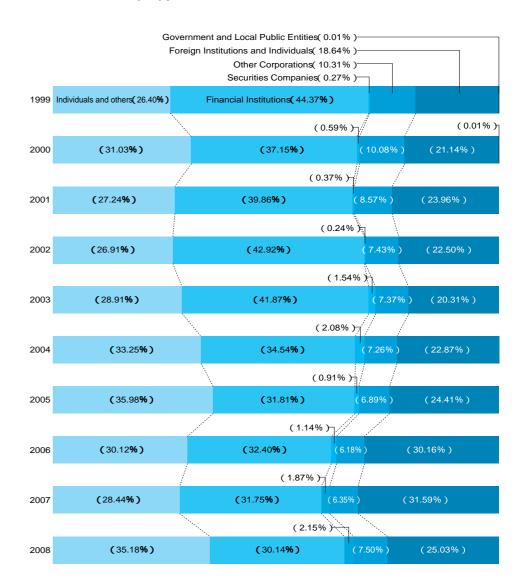
### **Shareholders**

Number of shareholders 360,820 persons Average holdings per person 9,350 shares

### 2. Major Shareholders (As of March 31, 2008)

Shareholder	Number of Shares owned by	Major Shareholder
State Street Bank and Trust Company	181,960,398	5.4%
The Nomura Trust and Banking Co., Ltd. (Holder in Retirement Benefit Trust for The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	125,666,000	3.7
Japan Trustee Services Bank, Ltd. (Holder in Trust)	124,815,900	3.7
The Master Trust Bank of Japan, Ltd. (Holder in Trust)	118,046,000	3.5
Meiji Yasuda Life Insurance Company	80,022,741	2.4
Tokio Marine & Nichido Fire Insurance Co., Ltd.	63,000,000	1.9
Japan Trustee Services Bank, Ltd. (Holder in Trust 4)	50,970,000	1.5
JP Morgan Chase Bank 380055	46,780,200	1.4
The Nomura Trust and Banking Co., Ltd. (Holder in Retirement Benefit Trust for Mitsubishi UFJ Trust and Banking Corporation)	45,934,000	1.4
State Street Bank and Trust Company 505041	33,114,055	1.0

### 3. Classified by Types of Shareholders (As of March 31, each year)



# ■. Board of Directors, Corporate Officers, and Senior Corporate Advisers

Board of Directors and Corporate Officers (Representative Directors)

Senior Corporate Advisers

MHI President Terms of Office

# 1. Board of Directors and Corporate Officers (\*Representative Directors)

(As of July 1, 2008)

	Name (Age)	Career
Chairman	Kazuo Tsukuda* (64)	Apr. '68 Joined Mitsubishi Heavy Industries, Ltd. Dec. '95 Deputy General Manager, Takasago Machinery Works Apr. '99 General Manager, Nagoya Machinery Works Jun. '99 Director, General Manager, Nagoya Machinery Works Apr. '00 Director, General Manager, Industrial Machinery Division Apr. '02 Managing Director, General Manager, Global Strategic Planning & Operations Headquarters, General Manager, Industrial Machinery Division Oct. '02 Managing Director, General Manager, Global Strategic Planning & Operations Headquarters Jun. '03 President Apr. '08 Chairman Jun. '08 Held also the post of Director, Mitsubishi Corporation
President	Hideaki Omiya* (61)	Jun. '69 Joined Mitsubishi Heavy Industries, Ltd. Jun. '99 Deputy General Manager, Nagoya Aerospace Systems Works Apr. '01 Deputy General Manager, Industrial Machinery Division Apr. '02 Deputy General Manager, Air-Conditioning & Refrigeration Systems Headquarters Jun. '02 Director, Deputy General Manager, Air- Conditioning & Refrigeration Systems Headquarters Apr. '03 Director, General Manager, Air-Conditioning & Refrigeration Systems Headquarters Jun. '05 Director, Executive Vice President, General Manager, Air-Conditioning & Refrigeration Systems Headquarters Apr. '07 Director, Senior Executive Vice President Apr. '08 President

	Name (Age)	Career
Director, Senior Executive Vice President	Hideo Egawa* (63)	<ul> <li>Apr. '67 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '96 General Manager, Aircraft Department of Aircraft &amp; Special Vehicle Headquarters</li> <li>May '99 Chief Coordinator, Presidential Administration Office</li> <li>Jun. '99 President of Mitsubishi Heavy Industries America, Inc.</li> <li>Jun. '02 Director, Chief Coordinator, Global Strategic Planning &amp; Operations Headquarters</li> <li>Jun. '03 Director, General Manager, Global Strategic Planning &amp; Operations Headquarters <ul> <li>Retired the post of President, Mitsubishi Heavy Industries America, Inc.</li> </ul> </li> <li>Apr. '05 Managing Director, General Manager, Global Strategic Planning &amp; Operations Headquarters</li> <li>Jun. '05 Director, Executive Vice President, General Manager, Global Strategic Planning &amp; Operations Headquarters</li> <li>Apr. '06 Director, Executive Vice President, General Manager, Presidential Administration Office, General Manager, Global Strategic Planning &amp; Operations Headquarters</li> <li>Apr. '07 Director, Senior Executive Vice President, General Manager, Presidential Administration Office</li> </ul>
Director, Senior Executive Vice President	Ichiro Fukue* (61)	Apr. '71 Joined Mitsubishi Heavy Industries, Ltd. Jun. '98 Deputy General Manager, Takasago Machinery Works Apr. '01 General Manager, Takasago Machinery Works Jun. '02 Director, General Manager, Takasago Machinery Works Apr. '04 Director, Deputy General Manager, Power Systems Headquarters Apr. '05 Managing Director, General Manager, Power Systems Headquarters Jun. '05 Director, Executive Vice President, General Manager, Power Systems Headquarters Apr. '08 Director, Senior Executive Vice President

	Name (Age)	Career
Director, Executive Vice President	Hiroshi Kan* (61)	Jul. '69 Joined Mitsubishi Heavy Industries, Ltd.  Apr. '99 General Manager, Finance Department  Apr. '02 General Manager, Accounting Department  Jun. '03 Director, General Manager, Accounting  Department  Apr. '05 Managing Director  Jun. '05 Director, Executive Vice President  Held also the post of Statutory Auditor, Mitsubishi  Motors Corporation
Director, Executive Vice President	Sunao Aoki* (60)	Apr. '72 Joined Mitsubishi Heavy Industries, Ltd. Jun. '00 General Manager, Takasago Research & Development Center of Technical Headquarters Jun. '03 Director, General Manager, Takasago Research & Development Center of Technical Headquarters Jan. '05 Director, General Manager, Technical Headquarters Jun. '05 Director, Senior Vice President, General Manager, Technical Headquarters Apr. '06 Director, Executive Vice President, General Manager, Technical Headquarters
Director, Executive Vice President	Katsuhiko Yoshida* (60)	<ul> <li>Apr. '70 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '02 General Manager, Industrial Vehicle Operations of General Machinery &amp; Special Vehicle Headquarters</li> <li>Apr. '03 Deputy General Manager, General Machinery &amp; Special Vehicle Headquarters</li> <li>Jun. '03 Director, Deputy General Manager, General Machinery &amp; Special Vehicle Headquarters</li> <li>Mar. '04 Director, General Manager, General Machinery &amp; Special Vehicle Headquarters</li> <li>Jun. '05 Director, Senior Vice President, General Manager, General Machinery &amp; Special Vehicle Headquarters</li> <li>Apr. '06 Director, Executive Vice President, General Manager, General Machinery &amp; Special Vehicle Headquarters</li> <li>Jun. '07 Held also the post of Director, Nippon Yusoki Co., Ltd.</li> </ul>

	Name (Age)	Career
Director, Executive Vice President	Shiro lijima* (61)	<ul> <li>Apr. '71 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '00 Deputy General Manager, Nagasaki Shipyard &amp; Machinery Works</li> <li>Apr. '04 General Manager, Nagasaki Shipyard &amp; Machinery Works</li> <li>Jun. '05 Senior Vice President, General Manager, Nagasaki Shipyard &amp; Machinery Works</li> <li>Apr. '06 Senior Vice President, General Manager, Shipbuilding &amp; Ocean Development Headquarters</li> <li>Jun. '06 Director, Senior Vice President, General Manager, Shipbuilding &amp; Ocean Development Headquarters</li> <li>Apr. '07 Director, Executive Vice President, General Manager, Shipbuilding &amp; Ocean Development Headquarters</li> </ul>
Director, Executive Vice President	Katsuhiko Yasuda* (61)	<ul> <li>Apr. '70 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Jun. '00 Deputy General Manager, Nagoya Aerospace Systems Works</li> <li>Apr. '01 Deputy General Manager, Nagoya Guidance &amp; Propulsion Systems Works</li> <li>Apr. '02 General Manager, General Affairs Department</li> <li>Jun. '05 Senior Vice President, General Manager, General Affairs Department</li> <li>Apr. '06 Senior Vice President, Assistant to Executive Vice President</li> <li>Apr. '08 Executive Vice President</li> <li>Jun. '08 Director, Executive Vice President</li> </ul>
Director, Executive Vice President	Akira Sawa* (60)	<ul> <li>Apr. '71 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '01 Deputy General Manager, Kobe Shipyard &amp; Machinery Works</li> <li>Apr. '04 General Manager, Kobe Shipyard &amp; Machinery Works</li> <li>Jun. '05 Senior Vice President, General Manager, Kobe Shipyard &amp; Machinery Works</li> <li>Apr. '08 Executive Vice President, General Manager, Nuclear Energy Systems Headquarters</li> <li>Jun. '08 Director, Executive Vice President, General Manager, Nuclear Energy Systems Headquarters</li> </ul>

	Name (Age)	Career
Director, Executive Vice President	Teruaki Kawai* (60)	Apr. '73 Joined Mitsubishi Heavy Industries, Ltd.  Apr. '02 Deputy General Manager, Nagoya Guidance & Propulsion Systems Works  Apr. '04 General Manager, Nagoya Guidance & Propulsion Systems Works  Apr. '06 Senior Vice President, General Manager, Nagoya Guidance & Propulsion Systems Works  Feb. '08 Senior Vice President, General Manager, Aerospace Headquarters  Apr. '08 Executive Vice President, General Manager, Aerospace Headquarters  Jun. '08 Director, Executive Vice President, General Manager, Aerospace Headquarters  Held also the post of Director, TOKIMEC INC.
Director, Executive Vice President	Shunichi Miyanaga* (60)	<ul> <li>Apr. '72 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Oct. '99 General Manager, Heavy Machinery Department of Machinery Headquarters</li> <li>Oct. '00 President of MHI-HITACHI Metals Machinery, Inc.</li> <li>Apr. '02 President of Mitsubishi-Hitachi Metals Machinery, Inc.</li> <li>Apr. '06 Senior Vice President, Deputy General Manager, Machinery Headquarters</li> <li>May.'06 Senior Vice President, Deputy General Manager, Machinery &amp; Steel Structures Headquarters</li> <li>Apr. '08 Executive Vice President, General Manager, Machinery &amp; Steel Structures Headquarters</li> <li>Jun. '08 Director, Executive Vice President, General Manager, Machinery &amp; Steel Structures Headquarters</li> </ul>
Director, Executive Vice President	Yoshiaki Tsukuda* (60)	<ul> <li>Apr. '74 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '01 Deputy General Manager, Takasago Machinery Works</li> <li>Apr. '02 General Manager, Turbine Engineering, Takasago Machinery Works</li> <li>Apr. '04 General Manager, Takasago Machinery Works</li> <li>Apr. '06 Deputy General Manager, Power Systems Headquarters</li> <li>Apr. '07 Senior Vice President, Deputy General Manager, Power Systems Headquarters</li> <li>Apr. '08 Executive Vice President, General Manager, Power Systems Headquarters</li> <li>Jun. '08 Director, Executive Vice President, General Manager, Power Systems Headquarters</li> </ul>

	Name (Age)	Career
Director, Senior Vice President	Fumio Wakisaka (61)	<ul> <li>Apr. '70 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '00 General Manager, Printing Machinery Operations of Paper &amp; Printing Machinery Division</li> <li>Apr. '03 Deputy General Manager, Paper &amp; Printing Machinery Division</li> <li>Apr. '05 General Manager, Paper &amp; Printing Machinery Division</li> <li>Jun. '05 Senior Vice President, General Manager, Paper &amp; Printing Machinery Division</li> <li>Jun. '06 Director, Senior Vice President, General Manager, Paper &amp; Printing Machinery Division</li> </ul>
Director, Senior Vice President	Ken Watabe (60)	<ul> <li>Apr. '72 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Apr. '01 Deputy General Manager, Machine Tool Division</li> <li>Mar. '05 General Manager, Machine Tool Division</li> <li>Jun. '05 Senior Vice President, General Manager, Machine Tool Division</li> <li>Jun. '06 Director, Senior Vice President, General Manager, Machine Tool Division</li> </ul>
Director, Senior Vice President	Kiyonobu Toma (58)	<ul> <li>Apr. '75 Joined Mitsubishi Heavy Industries, Ltd.</li> <li>Oct. '00 President of Mitsubishi Heavy Industries Climate Control Inc.</li> <li>Apr. '07 Senior Vice President, General Manager, Air-Conditioning &amp; Refrigeration Systems Headquarters</li> <li>Jun. '07 Held also the post of Director, Toyo Engineering Works, Ltd.</li> <li>Jun. '08 Director, Senior Vice President, General Manager, Air-Conditioning &amp; Refrigeration Systems Headquarters</li> </ul>
Director	Mikio Sasaki (70)	Apr. '60 Joined Mitsubishi Corporation Jun. '92 Director Jun. '94 Managing Director Apr. '98 President Jun. '01 Held also the post of Director, Mitsubishi Heavy Industries, Ltd. Apr. '04 Chairman

	Name (Age)	Career
Director	Akihiro Wada (74)	Apr. '56 Joined Toyota Motor Co., Ltd. Sep. '86 Director of Toyota Motor Corporation Sep. '90 Managing Director of the above Sep. '92 Senior Managing Director of the above Sep. '94 Executive Vice President of the above Jun. '99 Chairman of Aisin Seiki Co., Ltd. Jun. '05 Executive Advisor of the above Held also the post of Director, Mitsubishi Heavy Industries, Ltd.
Director	Yoshihiro Sakamoto (69)	Apr. '62 Joined the Ministry of International Trade and Industry Jun. '91 Director-General, Basic Industries Bureau of the above Jun. '92 Director-General, Machinery and Information Industries Bureau of the above Jun. '93 Director-General, International Trade Policy Bureau of the above Dec. '94 Vice-Minister for International Affairs of the above Aug. '96 Special Advisor of the above Oct. '98 Chairman & CEO of The Institute of Energy Economics, Japan Jun. '03 Representing Director and President of Arabian Oil Company, Ltd. Jun. '04 Representing Director and President of AOC Holdings, Inc. Apr. '06 Retired the post of Representing Director and President of the above Retired the post of Representing Director and President, Arabian Oil Company, Ltd. Apr. '07 Adviser of Mitsubishi Heavy Industries, Ltd. Jun. '07 Director of the above
Auditor	Koshin Nakamoto (56)	Apr. '74 Joined Mitsubishi Heavy Industries, Ltd. Apr. '02 General Manager, Personnel Department Jul. '05 General Manager, Internal Audit Department Jun. '07 Statutory Auditor Held also the post of Statutory Auditor, Toyo Engineering Works, Ltd.

	Name (Age)	Career
Auditor	Naoki Yasaka (57)	Apr. '73 Joined Mitsubishi Heavy Industries, Ltd. Apr. '04 General Manager, Finance Department Apr. '08 Chief Coordinator, Finance Department Jun. '08 Statutory Auditor
Auditor	Satoru Kishi (78)	Apr. '53 Joined The Mitsubishi Bank Ltd. Jun. '83 Director Jul. '85 Managing Director Jun. '88 Senior Managing Director Feb. '92 Executive Vice President Apr. '96 Executive Vice President of The Bank of Tokyo- Mitsubishi, Ltd. Jan. '98 President of the above Jun. '00 Chairman of the above Jun. '02 Senior Adviser of the above Held also the post of Statutory Auditor, Mitsubishi Heavy Industries, Ltd. Jan. '06 Senior Adviser of The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Auditor	Toyoshi Nakano (72)	Apr. '59 Joined The Mitsubishi Trust and Banking Corporation Jun. '87 Director Jun. '88 Managing Director Jun. '90 Senior Managing Director Jun. '91 Deputy President Jun. '92 President Jun. '95 President Jun. '96 Chairman Jun. '07 Held also the post of Statutory Auditor, Mitsubishi Heavy Industries, Ltd. Apr. '04 Senior Adviser Oct. '05 Senior Adviser of Mitsubishi UFJ Trust and Banking Corporation

	Name (Age)	Career
Auditor	Kichisaburo Nomura (74)	Apr. '59 Joined All Nippon Airways Co., Ltd. Jun. '83 Vice President of the above Jun. '91 Senior Vice President of the above Jun. '93 Executive Vice President of the above Jun. '97 President of the above Apr. '01 Chairman of the above Apr. '05 Executive Advisor of the above Jun. '05 Held also the post of Statutory Auditor, Mitsubishi Heavy Industries, Ltd.

	Name	
Senior Vice President	Toshiyuki Matsuoka	Deputy General Manager, Shipbuilding & Ocean Development Headquarters
Senior Vice President	Hiroshi Inoue	Deputy General Manager, Nuclear Energy Systems Headquarters
Senior Vice President	Makoto Shintani	General Manager, Hiroshima Machinery Works
Senior Vice President	Hisashi Hara	General Manager, Shimonoseki Shipyard & Machinery Works
Senior Vice President	Takato Nishizawa	General Manager, Plant and Transportation Systems Engineering & Construction Center of Machinery & Steel Structures Headquarters
Senior Vice President	Noriaki Fuseya	President, Mitsubishi Power Systems Americas, Inc.
Senior Vice President	Takumi Saito	General Manager, Global Strategic Planning & Operations Headquarters
Senior Vice President	Masafumi Wani	General Manager, Nagasaki Shipyard & Machinery Works
Senior Vice President	Yujiro Kawamoto	General Manager, Accounting Department
Senior Vice President	Hideaki Ninomiya	Chief Coordinator, General Machinery & Special Vehicle Headquarters Held also the post of President, Mitsubishi Caterpillar Forklift America Inc.
Senior Vice President	Atsushi Maekawa	General Manager, Takasago Machinery Works
Senior Vice President	Kiyoshi Yamauchi	Deputy General Manager, Nuclear Energy Systems Headquarters Held also the post of General Manager, Nuclear Energy Systems Engineering Center
Senior Vice President	Eiji Tsuchida	General Manager, Yokohama Dockyard & Machinery Works
Senior Vice President	Takashi Abe	General Manager, Corporate Planning Department of Presidential Administration Office
Senior Vice President	Shigero Masamori	General Manager, Kobe Shipyard & Machinery Works
Senior Vice President	Shinichi Yoshida	General Manager, Nagoya Aerospace Systems Works
Senior Vice President	Koji Hiramoto	Deputy General Manager, Power Systems Headquarters Held also the post of General Manager, Power Systems Project Management Division
Senior Vice President	Kazuyuki Kato	Chief Coordinator, Aerospace Headquarters Held also the post of Director, Senior Executive Vice President, Mitsubishi Aircraft Corporation
Senior Vice President	Takashi Kobayashi	General Manager, Nagoya Guidance & Propulsion Systems Works

# 2. Senior Corporate Advisers

	Name (Age)		Career
Senior Corporate Adviser	Kentaro Aikawa (81)	Sep. '80  Jan. '84  Jun. '85  Jun. '87  Jun. '88  Jun. '89  Jun. '93  Jun. '95  Jun. '99	Joined West Japan Heavy-Industries, Ltd. Deputy General Manager, Nagasaki Shipyard & Engine Works of Mitsubishi Heavy Industries, Ltd. General Manager, Nagasaki Shipyard & Engine Works Director, General Manager, Nagasaki Shipyard & Engine Works Managing Director, General Manager, Power Systems Headquarters Executive Vice President, General Manager, Power Systems Headquarters President Held also the post of Director, Mitsubishi Motors Corporation Chairman Held also the post of Director, Mitsubishi Corporation Senior Corporate Adviser Retired the post of Director, Mitsubishi Corporation Retired the post of Director, Mitsubishi Motors Corporation
Senior Corporate Adviser	Nobuyuki Masuda (74)	Oct. '87  Dec. '89  Jul. '90  Jun. '91  Jun. '92  Jun. '94  Jun. '95  Jun. '99	Joined Mitsubishi Shipbuilding & Engineering Co., Ltd.  Deputy General Manager, Hiroshima Machinery Works of Mitsubishi Heavy Industries, Ltd.  Deputy General Manager, Shimonoseki Shipyard & Machinery Works General Manager, Shimonoseki Shipyard & Machinery Works Director, General Manager, Shimonoseki Shipyard & Machinery Works Managing Director, General Manager, Machinery Headquarters Executive Vice President, General Manager, Machinery Headquarters President Chairman Held also the post of Director, Mitsubishi Corporation Senior Corporate Adviser Retired the post of Director, Mitsubishi Corporation

	Name (Age)	Career
Senior Corporate Adviser	Takashi Nishioka (72)	<ul> <li>Apr. '59 Joined Shin Mitsubishi Heavy-Industries, Ltd.</li> <li>Jul. '89 Deputy General Manager, Nagoya Aerospace Systems Works of Aircraft &amp; Special Vehicle Headquarters of Mitsubishi Heavy Industries, Ltd.</li> <li>Jun. '91 General Manager, Nagoya Aerospace Systems Works of Aircraft &amp; Special Vehicle Headquarters</li> <li>Jun. '92 Director, General Manager, Nagoya Aerospace Systems Works of Aircraft &amp; Special Vehicle Headquarters</li> <li>Apr. '93 Director, General Manager, Nagoya Aerospace Systems Works</li> <li>Apr. '95 Director, Deputy General Manager, Aircraft &amp; Special Vehicle Headquarters</li> <li>Jun. '95 Managing Director, General Manager, Aircraft &amp; Special Vehicle Headquarters</li> <li>Jun. '98 Executive Vice President, General Manager, Aircraft &amp; Special Vehicle Headquarters</li> <li>Jun. '99 President</li> <li>Jun. '00 Held also the post of Director, Mitsubishi Motors Corporation</li> <li>Jun. '03 Chairman</li> <li>Jun. '04 Held also the post of Auditor, The Tokyo Electric Power Company, Incorporated</li> <li>Jan. '05 Held also the post of Chairman, Mitsubishi Motors Corporation</li> <li>Jan. '06 Held also the post of Director, Japan Post Corporation</li> <li>Apr. '08 Director, Senior Corporate Adviser Held also the post of Chairman, Mitsubishi Aircraft Corporation</li> <li>Jun. '08 Senior Corporate Adviser</li> </ul>

### 3. MHI President Terms of Office

Term	Name	Personal history
June 1964 to May 1965	Shinzo Fujii	Born December 13, 1893 Graduated from Faculty of Law, the University of Tokyo
May 1965 to May 1969	Fumihiko Kohno	Born November 22, 1896 Graduated from Faculty of Engineering, the University of Tokyo
May 1969 to December 1971	Yoichiro Makita	Born January 15, 1903 Graduated from Faculty of Economics, the University of Tokyo
December 1971 to May 1973	Shigeichi Koga	Born April 20, 1903 Graduated from Faculty of Engineering, the University of Tokyo
May 1973 to June 1977	Gakuji Moriya	Born June 1, 1907 Graduated from Faculty of Engineering, the University of Tokyo
June 1977 to June 1981	Masao Kanamori	Born December 18, 1911 Graduated from Faculty of Engineering, Kyushu University
June 1981 to June 1985	Soichiro Suenaga	Born April 21, 1914 Graduated from Faculty of Engineering, the University of Tokyo
June 1985 to June 1989	Yotaro lida	Born February 25, 1920 Graduated from Faculty of Engineering, the University of Tokyo
June 1989 to June 1995	Kentaro Aikawa	Born June 8, 1927 Graduated from Faculty of Engineering, the University of Tokyo
June 1995 to June 1999	Nobuyuki Masuda	Born March 28, 1934 Graduated from Faculty of Engineering, Kyushu University
June 1999 to June 2003	Takashi Nishioka	Born May 3, 1936 Graduated from Faculty of Engineering, the University of Tokyo
June 2003 to March 2008	Kazuo Tsukuda	Born September 1, 1943 Completed Graduate School of Engineering, the University of Tokyo

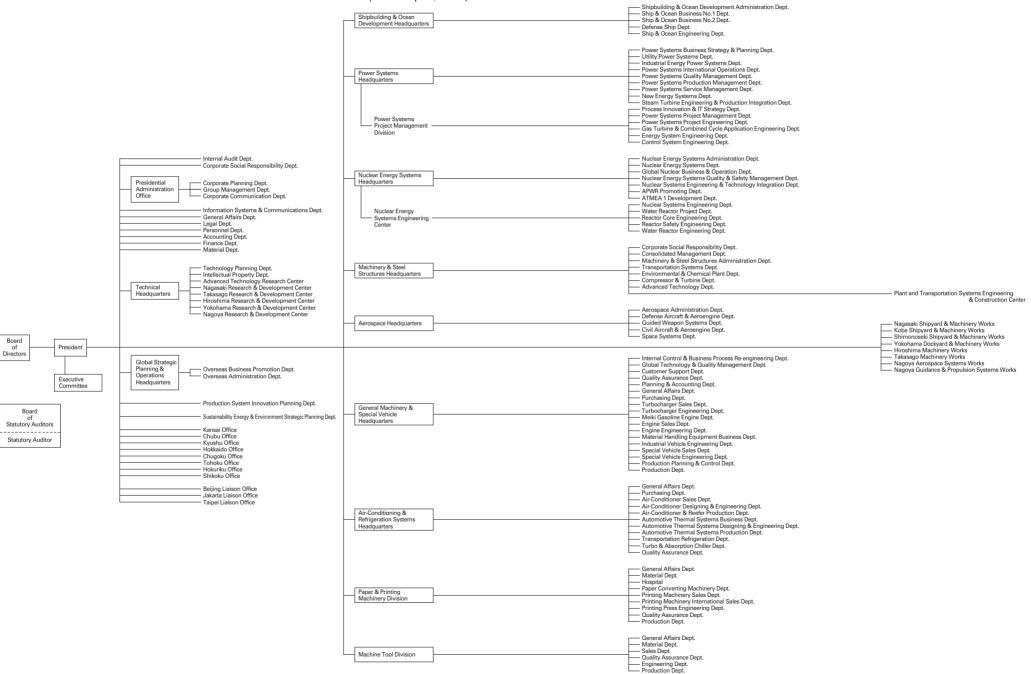
# IV. Organization Chart

Organization Chart

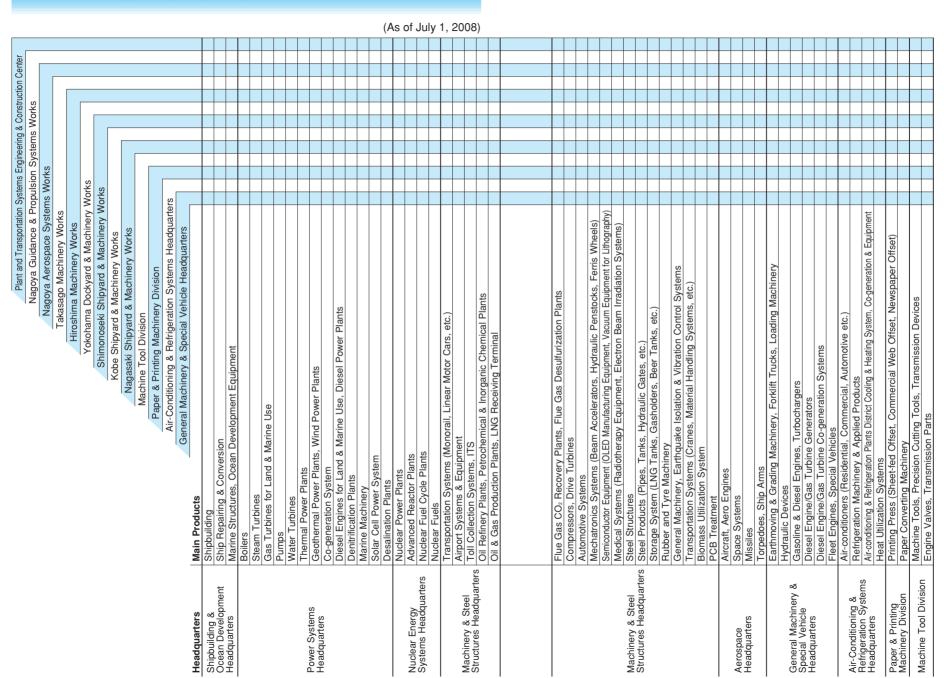
Main Products / Production Site

### 1. Organization Chart

(As of Sep. 1, 2008)



### 2. Main Products / Production Site



# V. Statement of Accounts Statement of Accounts (Consolidated) Statement of Accounts (Non-consolidated)

### 1. Statement of Accounts (Consolidated)

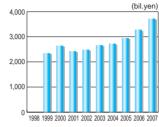
Transition of main financial data

			lions		

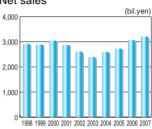
								`		or yerr)
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Orders received		2,349.8	2,640.3	2,424.9	2,480.9	2,662.8	2,722.8	2,942.0	3,274.7	3,715.2
Net sales	2,907.7	2,875.0	3,045.0	2,863.9	2,593.8	2,373.4	2,590.7	2,792.1	3,068.5	3,203.0
Operating income (loss)	65.3	-23.7	74.8	78.6	115.3	66.6	14.7	70.9	108.9	136.0
Ordinary income (loss)	53.9	-89.5	63.2	67.9	78.1	29.7	12.5	50.3	83.0	109.5
Income (loss) before income taxes	49.0	-217.6	-5.1	48.0	66.1	50.1	16.3	52.3	83.7	101.3
Net income (loss)	18.0	-137.0	-20.3	26.4	34.3	21.7	4.0	29.8	48.8	61.3
Total assets	4,746.5	4,636.7	4,236.6	3,915.2	3,666.8	3,715.3	3,831.1	4,047.1	4,391.8	4,517.1
Net assets	1,337.3	1,245.0	1,278.2	1,282.7	1,270.9	1,324.4	1,309.9	1,376.2	1,446.4	1,440.4
Debt with interest	1,249.2	1,205.3	1,090.6	1,049.9	1,122.9	1,101.2	1,172.8	1,198.6	1,273.5	1,365.3
Capital investment	143.2	100.2	96.4	109.7	119.1	109.8	112.2	140.5	175.9	191.4
Depreciation	101.6	105.3	99.3	95.9	97.0	99.8	99.1	100.8	106.7	129.2
Cash flows from operating activities		133.7	254.1	99.1	50.0	134.2	107.0	73.9	158.7	161.8
Cash flows from investing activities		-67.5	-76.1	-89.5	-106.1	-95.3	-163.3	-104.0	-158.6	-193.0
Free cash flows		66.2	177.9	9.5	-56.0	38.8	-56.2	-30.1	0	-31.2
Cash flows from financing activities		-52.2	-131.2	-69.4	59.3	-44.4	57.9	7.9	48.7	71.2

Note: Orders received and cash flows by fiscal year1998 are not disclosed to the public.

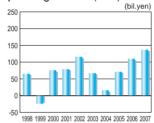
### Orders received



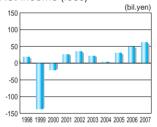
### Net sales



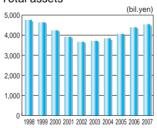
### Operating income (loss)



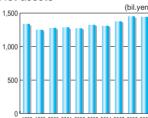
### Net income (loss)



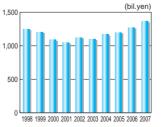
### Total assets



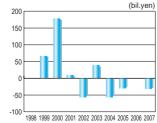
### Net assets



### Debt with interest



### Free cash flows



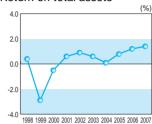
### Main financial index

	Unit	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Return on equity	%	1.3	-10.6	-1.6	2.1	2.7	1.7	0.3	2.2	3.5	4.3
Return on total assets	%	0.4	-2.9	-0.5	0.6	0.9	0.6	0.1	0.8	1.2	1.4
Operating income ratio	%	2.2	-0.8	2.5	2.7	4.4	2.8	0.6	2.5	3.5	4.2
Equity to assets ratio	%	28.2	26.9	30.2	32.8	34.7	35.6	34.2	34.0	32.5	31.4
Price earnings ratio	times	99.76	-	-	55.10	28.00	52.30	236.55	63.25	52.35	23.31
Earning per share	yen	5.36	-40.62	-6.03	7.84	10.14	6.46	1.20	8.85	14.56	18.28
Book value per share	yen	396.50	369.13	378.96	380.22	376.76	393.17	390.44	410.15	425.54	423.17

### Return on equity



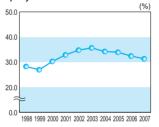
### Return on total assets



### Operating income ratio



### Equity to assets ratio



### Price earnings ratio



(Notes) Return on equity = net income (loss) / stockholders' equity average of the beginning and the end of period Return on total assets = net income (loss) / total assets average of the beginning and the end of period

Operating income ratio = operating income (loss) / Net sales

Equity to assets ratio = stockholders' equity / total assets

Price earnings ratio = stock price (year-end close) / income (loss) per share

Earning per share = net income (loss) / total number of shares issued

Book value per share = Net assets / total number of shares issued

### Orders Received by Industry Segment (Consolidated)

(Unit: billions of yen)

	2000	2001	2002	2003	2004	2005	2006	2007
Shipbuilding & Ocean Development	272.7 ( 10.3% )	168.1 (6.9%)	257.0 ( 10.4% )	329.9 ( 12.4% )		207.4 (7.1%)	314.2 ( 9.6% )	353.6 (9.5%)
Power Systems	739.1 ( 28.0% )	596.0 ( 24.6% )			691.4 ( 25.4% )	872.8 ( 29.7% )	1,008.2 ( 30.8% )	1,214.9 ( 32.7% )
Machinery and steel structures	364.1 ( 13.8% )	424.1 ( 17.5% )	388.5 ( 15.7% )		455.5 ( 16.7% )		469.0 ( 14.3% )	557.3 ( 15.0% )
Aerospace	432.7 ( 16.4% )	447.2 ( 18.4% )	441.2 ( 17.8% )	407.5 ( 15.3% )	411.0 ( 15.1% )			615.8 ( 16.6% )
Mass and Medium- Lot Manufactured Machinery	711.2 ( 26.9% )	675.7 ( 27.9% )			747.9 ( 27.5% )		856.6 ( 26.2% )	901.7 ( 24.3% )
Others	120.1 ( 4.6% )	113.4 ( 4.7% )					83.0 ( 2.5% )	71.7 (1.9%)
Total	2,640.3 ( 100.0% )	, -			2,722.8 ( 100.0% )			3,715.2 ( 100.0% )

Note: Orders Received by Industry Segment (consolidated) by fiscal year 1998 is not disclosed to the public.

### Sales by Industry Segment (Consolidated)

(Unit: billions of yen)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Shipbuilding & Ocean Development	314.2 (10.8%)		293.7 (9.6%)		265.8 ( 10.2% )		271.5 ( 10.5% )		247.1 (8.1%)	283.9 (8.9%)
Power Systems	687.9 ( 23.6% )	739.8 ( 25.7% )	900.3 ( 29.6% )							
Machinery and steel structures	650.3 ( 22.4% )	673.2 ( 23.4% )			418.7 ( 16.1% )					
Aerospace	405.8 ( 14.0% )	402.1 (14.0%)								
Mass and Medium- Lot Manufactured Machinery	779.5 ( 26.8% )	705.9 ( 24.6% )								0.000
Others	69.8 (2.4%)	78.7 (2.7%)	70.2 (2.3%)			72.0 (3.0%)				
Total		2,875.0 (100.0%)								3,203.0 (100.0%)

(Notes) Segment information had previously been provided on the basis of the following segment classification: Machinery and plants, Aerospace systems, Shipbuilding and Steel structures, and Others. In 1998, MHI has reclassified the segment information, considering the business scales and similarities, into Shipbuilding & Ocean Development, Power Systems, Machinery & Steel Structures, Aerospace, and Mass, Medium-Lot Manufactured Machinery, and Others.

### Operating income by Industry Segment (Consolidated)

(Unit: billions of yen)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2006
Shipbuilding & Ocean Development	7.0	-0.2	-4.1	5.4	11.1	-14.9	-11.7	-10.6	-5.3	4.0
Power Systems	18.6	-37.1	29.0	31.5	51.9	23.4	16.0	38.3	56.7	58.2
Machinery and steel structures	1.7	-5.0	8.4	9.5	10.0	9.6	-8.7	2.3	2.9	11.3
Aerospace	37.9	29.5	32.8	33.3	40.9	29.5	8.7	16.5	14.4	14.6
Mass and Medium- Lot Manufactured Machinery	-8.5	-18.8	0.4	-8.2	-3.4	9.8	4.3	16.7	31.3	40.0
Others	8.4	7.9	8.2	6.9	4.6	9.0	6.0	7.5	8.8	7.6
Total	65.3	-23.7	74.8	78.6	115.3	66.6	14.7	70.9	108.9	136.0

(Notes) Segment information had previously been provided on the basis of the following segment classification: Machinery and plants, Aerospace systems, Shipbuilding and Steel structures, and Others. In 1998, MHI has reclassified the segment information, considering the business scales and similarities, into Shipbuilding & Ocean Development, Power Systems, Machinery & Steel Structures, Aerospace, and Mass, Medium-Lot Manufactured Machinery, and Others.

# 2. Statement of Accounts (Non-consolidated)

### Transition of main financial data

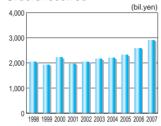
(Unit: billions of yen)

(OTILE : BILLIONS OF										
	1998	1999	2000	2001	<b>200</b> 2	2003	2004	2005	2006	2007
Orders received	2,050.9	1,924.1	2,213.8	1,970.4	2,050.7	2,159.2	2,202.0	2,318.3	2,586.6	2,903.1
Net sales	2,479.1	2,453.8	2,637.7	2,388.6	2,171.7	1,940.1	2,097.9	2,206.7	2,426.6	2,471.1
Operating income (loss)	47.6	-52.5	52.8	66.8	103.0	35.2	-9.7	38.2	71.6	94.9
Ordinary income (loss)	44.1	-91.0	46.5	59.4	65.1	7.5	-9.6	32.4	57.4	68.2
Income (loss) before income taxes	39.2	-214.0	24.4	33.4	54.5	23.7	0.2	35.3	59.0	54.2
Net income (loss)	23.2	-126.5	15.0	22.4	30.1	5.2	-2.0	26.1	39.5	34.4
Total assets	4,085.6	4,008.8	3,611.7	3,263.0	3,071.6	3,139.9	3,288.8	3,587.7	3,743.2	3,839.7
Net assets	1,151.5	1,049.8	1,128.3	1,115.8	1,129.1	1,166.2	1,147.5	1,307.0	1,273.0	1,240.4

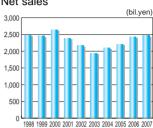
### Main financial index

	Unit	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Dividend per share	yen	10.0	2.5	4.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0

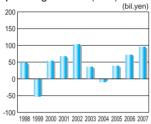
### Orders received



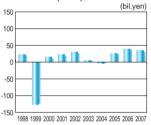
### Net sales



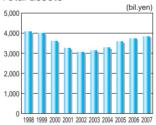
### Operating income (loss)



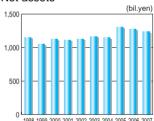
### Net income (loss)



### Total assets



### Net assets



# **VI. Personnel**

Statement of Employees (Consolidated)

Statement of Employees (Non-consolidated)

Breakdown of newly hired employees (Non-consolidated)

### 1. Statement of Employees (Consolidated)

(Unit: person)

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Shipbuilding & Ocean Development		6,290	6,208	5,946	5,796	5,707	5,531	5,388	5,285	5,196
ŧ	Power Systems		14,414	14,441	14,163	13,949	13,665	13,749	14,218	15,070	15,978
ner	Machinery and steel structures		9,136	8,785	8,445	8,136	8,121	7,839	8,998	8,246	7,662
egr	Aerospace		7,585	7,637	7,615	7,504	7,374	7,314	7,712	8,211	8,724
Ō	Mass and Medium-Lot Manufactured Machinery		17,966	18,127	17,935	17,346	16,203	16,154	16,930	17,032	17,489
	Others		9,600	8,798	8,649	8,561	8,879	8,653	8,966	9,096	9,054
Total			64,991	63,996	62,753	61,292	59,949	59,240	62,212	62,940	64,103

(Note) Data for 1995-1998 are unlisted

Data of employees as of March 31 each year.

### 2. Statement of Employees (Non-consolidated)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
No. of employees	39,620	39,304	37,934	36,692	35,530	34,396	33,500	32,627	32,552	33,089
Average age	41.4	41.3	41.3	41.5	41.4	41.4	41.5	41.5	41.4	40.9
Average length of service	20.4	20.3	20.2	20.4	20.3	20.2	20.3	20.2	20.0	19.3
Average salary	419,769	7,179,478	6,874,225	7,099,019	7,216,070	7,267,280	7,300,750	7,272,617	7,482,699	7,588,310

(Notes)

Data of employees as of March 31 each year.

### 3. Breakdown of newly hired employees (Non-consolidated)

(Unit: person)

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
ersity	Business affairs	156	119	67	91	101	89	112	102	126	149
vers	Engineer	425	329	240	301	331	307	309	323	420	525
Univ	Total	581	448	307	392	432	396	421	425	546	674
	of Technology graduates	84	70	45	63	56	29	46	52	68	93
High s	chool graduates, other	173	123	36	70	39	37	38	40	82	108
Manuf	acturing employees	591	392	266	359	327	264	344	402	613	637
Total		1,429	1,033	654	884	854	726	849	919	1,309	1,512

No. of new graduates as of April 1st each year

<sup>1.</sup> Employees on secondment to subsidiaries, non-regular employees, and part-time employees are not included.

<sup>2.</sup> Average salary is average monthly salary before tax from April to March, including non-standard wages but excluding bonuses and other extra allowances (however, from 1999 onward, average annual salary including bonuses is used).

# **WI. Headquarters & Divisions**

Power Systems Headquarters
Nuclear Energy Systems Headquarters
Machinery & Steel Structures Headquarters
Aerospace Headquarters
General Machinery & Special Vehicle Headquarters
Air-Conditioning & Refrigeration Systems Headquarters
Paper & Printing Machinery Division
Machine Tool Division
On the Restructuring of Industrial Machinery Operations

Shipbuilding & Ocean Development Headquarters

### 1. Shipbuilding & Ocean Development Headquarters

### **Shipbuilding**

### Outline

The MHI Shipbuilding Division has delivered LNG carriers (Moss type, Membrane type), LPG carriers, and VLCCs to support the transportation of energy resources, as well as a new generation of container carriers, RO/RO passenger ferries, and pure car carriers to support global logistics, based on more than a century of experience in advanced shipbuilding. The large cruise ships are also the products of the Headquarters for people's leasure activities. Employing the very latest technologies, the Division continues to develop highly reliable structures and high-performance hull forms with optimally low energy consumption, while enhancing economical efficiency, reliability, and safety through the development of technologies such as energy-saving propulsion plant systems and maritime safety systems. The advanced technology used in its repair and conversion works has been of paramount importance in ensuring substantial economic improvements, as well as safe working environments in the shipbuilding industry.

### Main Products

### Main Types of Newbuildings

- Tankers: LNG carriers (Moss type, Membrane type), LPG carriers, crude oil carriers (VLCC), multi-purpose gas carriers, etc.
- Cargo ships: container carriers, RO/RO ships, heavy lifters, high-speed cargo ships
- Passenger ships: cruise ships, RO/RO passenger ferries, high-speed ships
- Industrial carriers: pure car truck carriers, etc.
- Special-purpose vessels: cable layers, survey/research/training ships, pollution-treatment ships (oil-recovery ships), ships to collect sea-borne debris, spent fuel carriers, firefighting ships, and pollution-prevention ships
- Defense & patrol vessels: for the Ministry of Defense and Japan Coast Guard

### **Ship Repairing Conversion**

The Shipbuilding Headquarters has extended its shipbuilding experience by performing a great many vessel conversions using unique construction methods to improve structures and economy.

### Conversions:

Hull enlargement and hull shortening

Re-freshing of accommodation for cruise ships

Re-engining and replacement of cargo-handling machines to optimize energy efficiency Broad conversion work to change the basic configurations of vessels (from cargo ships and tankers to single-purpose carriers, chemical carriers, and special-purpose vessels)

General repair: periodical surveys, damage repair, modification work, maintenance

### Other Products and Services

- Various automated systems: ship operation support system for integrated bridge operation, machinery operation and cargo-handling ship-shore information system, and other special computer systems.
- Training simulator: operation training system for merchant ships, training simulators for the Japanese Maritime Self-Defense Force
- Technical services: engineering assistance, technological assistance, shipbuilding facility engineering

### Production History

Date	Product
1887	Completed Japan's first steel passenger and cargo ship, the YUGAO MARU.
1940	Completed the NITTA MARU and YAWATA MARU, two luxury passenger ships.
1942	Completed the MUSASHI, the world's largest battleship of the day.
1956	Nagasaki Shipyard & Engine Works became the world's highest aggregate
	launched gross tonnage work. Japan became the world's top shipbuilding country.
1963	Began construction on the OSHIO, the largest submarine produced since World
	War II.
1971	Completed three of the world's largest high-speed container ships.
~ 72	Completed tillee of the world's largest high-speed container ships.
1974	MHI's shipbuilding activities peaked, totaling an aggregate of 3,700,000 gross tons
	(48 vessels) launched (including 19 VLCCs).
1982	Completed the RIVER BOYNE, the first of a new-generation of coal-fired
	steamships.
1983	Completed two large LNG carriers.
1989	Completed the FUJI MARU, a large cruise passenger ship.
	Completed the HAKUHO MARU, an advanced oceanographic research vessel.
1990	Completed the CRYSTAL HARMONY, the world's most luxurious cruise ship.
1991	Completed the NEDLLOYD EUROPA, a hatch coverless container ship.
	Completed the ASUKA, Japan's largest cruise ship of the day.
1992	Completed the KDD OCEAN LINK, the world's most advanced cable layer.
	Completed the YAMATO I, a superconductive electromagnetic propulsion ship.
1993	Completed the KONGO, an AEGIS destroyer.
	Completed the RAINBOW, a hydrofoil catamaran.
1994	Completed the EVER RENOWN, a large container ship.
1996	Completed one of the world's largest LNG carriers.
1997	Completed the UNICORN, one of the fastest mono-hull type high-speed car ferries.
1998	Completed the SUBARU, Japan's largest cable layer.
1999	Completed two the world's fastest RO/RO ferries.
2000	Completed the EUROPEAN CAUSEWAY, the first RO/RO Passenger Ferry for P&O.
	Completed the LNG JAMAL, the first LNG carrier fitted with a re-liquefaction plant.
2001	Completed the NEW CENTURY 1, the most advanced pure car carrier.
2002	Completed the PUTERI INTAN SATU, a membrane tank type LNG carrier.
2003	Completed the HIMAWARI No. 5, the HIMAWARI No. 6, the SUNFLOWER
	HAKATA, the SUNFLOWER TOKYO, a family of high-efficiency RO/RO cargo
	ships.

Date	Product
2004	Completed the DIAMOND PRINCESS and SAPPHIRE PRINCESS, the world's
	largest-class cruise ships.
	Completed the HAMANASU and AKASHIA, the world's first high-speed ferries
	adopting hybrid CRP-POD propulsion systems.
2006	Completed a 145,000m <sup>3</sup> Moss-type LNG carrier for the Snohvit Project.
	Completed an 83,000m <sup>3</sup> LPG carrier for BP Shipping.
2007	Completed the MOL CREATION, high performance large size container ship.
	Completed a 145,000m³ Moss-type LNG carrier for the Sakhalin Project.

### **Marine Structures**

### Outline

MHI's Marine Structures Division manufactures various equipment, facilities, and systems related to marine research, survey, and development, as well as offshore oil and gas production. The Division also manufactures and develops a broad range of products and technologies to meet social demands, including products and technologies for the expanded and efficient development of port facilities, the exploration and recovery of ocean resources and offshore oil fields, the use of marine space, and the prevention of ocean pollution. More recent achievements have included the development of the URASHIMA, the world's first autonomous underwater vehicle powered by fuel cells, recorded a continuous cruising distance of 314 km off the shore of Suruga basin in February 2005 and the CHIKYU, a deep-sea scientific riser drilling vessel.

### Main Products

- Offshore oil production facilities: floating production storage and off-loading barge, support vessel for offshore oil development.
- Offshore oil-loading facilities: oil-storage barges, single-point moorings, sea berths, offshore CTS systems
- Others: deep-sea scientific riser drilling vessels, various marine facilities, deep-strata
  chemical mixer barges, crane barges, oil- and gas-loading facilities, multi-purposes service
  vessels, geophysical survey ships, submersible research vessels, dredgers, underwater
  vehicles, underwater robots, motion simulation theater, floating intelligent buildings.

### Production History

Date	Product
1965	After building the SEDCO 135A, Japan's first offshore drilling unit,
~ 86	MHI completes 16 semi-submersible type units, 6 jack-up type units, and 4 vessel
	type units.
1981	Completed the SHINKAI 2000, a 2,000m deep submersible research vehicle.
1988	Completed a tank ship to be used for an offshore oil storage facility at the Kami-Goto
	Islands.
1989	Completed the SHINKAI 6500, a 6,500m deep submersible research vehicle.
1990	Completed the PUTERI DULANG, an 850,000bbls crude oil FSO vessel (FSO:
	floating storage and offloading).
1992	Completed a draft-controlled launcher for the Japanese Government.
1993	Completed a DMCCS (deep-sea microorganism collecting and cultivating system)
	for JAMSTEC (Japan Maritime Science and Technology Center).
1994	Completed the KASUMIZAURUSU, a sludge dredger, for the Kanto Regional
	Construction Bureau under the Ministry of Construction.
1995	Completed the ANASURIA, an 850,000bbls crude oil FPSO vessel.
	(FPSO: floating production, storage, and offloading)
1996	Completed a tank ship to be used for an offshore oil storage facility at the
	Shirashima Islands.
1997	Completed a new type of sand drain barge.
1998	Completed FPSO conversion work for Japan Vietnam Petroleum Co., Ltd.
1999	Completed the ARUANGWA, a 1,000m³ trailing suction hopper dredger for the
	Mozambican dredging company, EMODRAGA E. P.
2000	Completed BENKEI, a borehole reentry/observatory system.
2005	Completed the SEIRYUMARU, a trailing suction hopper dredger & oil recovery ship
	for the Chubu Regional Development Bureau under the Ministry of Land,
	Infrastructure and Transport.
	Completed the CHIKYU, a deep sea drilling vessel, for JAMSTEC (Japan Agency
	for Marine-Earth Science and Technology).

### Vessels Completed by Mitsubishi Shipyard (FY 2004-2007)

	-			
	Name	Works	Owner	Туре
2004	PUTERI FIRUS SATU YUYO BERGE TAKAMINE SAPPHIRE PRINCESS TORRENS HAMANASU SAZANAMI UTOPIA ACE TAKASHIO New Camellia New Kiso POSITIVE STAR CELESTIAL WING	Nagasaki Nagasaki Nagasaki Nagasaki Nagasaki Nagasaki Kobe Kobe Shimonoseki Shimonoseki Shimonoseki Shimonoseki	MALAYSIA INTERNATIONAL SHIPPING CORPORATION YUYO STEAMSHIP CO., LTD. NIPPON YUSEN KABUSHIKI KAISHA PRINCESS CRUISES WILH. WILHELMSEN ASA SHIN NIHONKAI FERRY CO., LTD. JAPAN DEFENSE AGENCY MITSUI O.S.K. LINES, LTD. JAPAN DEFENSE AGENCY NIPPON YUSEN KABUSHIKI KAISHA TAIHEIYO FERRY CO., LTD. ATTRACTIVE FLEET MANAGEMENT S.A. WING CAR CARRIER S.A. JAPAN COAST GUARD	LNGC LPGC VLCC Cruise Ship PCTC Passenger Ferry Destroyer PCTC Submarine Passenger Ferry Passenger Ferry PCTC PCTC PATROL SHIP
2005	TRANS FUTURE 5 ARCTIC PRINCESS  PACIFIC EURUS  BRITISH CONFIDENCE CHIKYU HATSU SHINE WANA BHUM TOYOFUJI MARU TOYOFUJI MARU TOYOFUKU MARU SEIWA MARU FERRY AMAMI	Nagasaki Nagasaki Nagasaki Nagasaki Nagasaki Kobe Shimonoseki Shimonoseki Shimonoseki Shimonoseki	FENG LI MARITIME CORPORATION MITSUI O.S.K. LINES, LTD. LEIF HOEGH & CO. STATOIL TOKYO ELECTRIC POWER COMPANY NIPPON YUSEN KABUSHIKI KAISHA MITSUBISHI CORPORATION BP SHIPPING JAMSTEC HATSU MARINE LIMITED REGIONAL CONTAINER LINES TOYOFUJI SHIPPING CO., LTD. TOYOFUJI SHIPPING CO., LTD. FUKUJU KIGYO CO., LTD. FUKUJU KIGYO CO., LTD. FUJI TRANS CORP. AMAMI KAIUN CO., LTD.	PCC LNGC  LNGC  LPGC Drilling Vessel Container Carrier Car Carrier Car Carrier Car Carrier Car Carrier Car/General Cargo Carrier Cargo/Passenger Ferry
2006	ARCTIC LADY  IBRI LNG  BRITISH COURAGE TOWADA TOPEKA ATAGO EVER SUPERB SETOSHIO KINUURA MARU HOTOKU MARU HOSHO MARU POSITIVE LEADER	Nagasaki Nagasaki Nagasaki Nagasaki Nagasaki Kobe Kobe Shimonoseki Shimonoseki Shimonoseki	MITSUI O.S.K. LINES, LTD. LEIF HOEGH & CO. OMAN SHIPPING COMPANY MITSUI O.S.K. LINES, LTD. MITSUBISHI CORPORATION BP SHIPPING TAIHEIYO KAIUN CO., LTD. WILH. WILHELMSEN ASA Ministry of Defence GREENCOMPASS MARINE S.A. Ministry of Defence IZUMI KISEN CO., LTD. NICHITOKU KISEN CO., LTD. TOYOFUJI SHIPPING CO., LTD. MIYAZAKI SANGYO KAIUN K.K. OCEANIC TRADER S.A. (Panama)	LNGC  LNGC  LPGC VLCC PCTC AEGIS destroyer Container Carrier Submarine Car Carrier Car Carrier Car Carrier Car Carrier Car Carrier
2007	MOL CREATION SERI BAKTI GRAND ELENA ALTO ACLUX YUYO ASHIGARA EVER SALUTE AQUAMARINE ACE LUNA SPIRIT ANDROMEDA SPIRIT SUNFLOWER GOLD SUNFLOWER PEARL KOYO MARU	Nagasaki Nagasaki Nagasaki Nagasaki Nagasaki Kobe Kobe Shimonoseki Shimonoseki Shimonoseki Shimonoseki	MOL EURO-ORIENT SHIPPING S.A. MISC BERHAD NYK-SCF LNG SHIPPING NO.1 LTD. KANTO LEASING LTD. SUNNY GAS TRANSPORTATION, S.A. MINISTRY OF DEFENATIONAL S.A. POLAR EXPRESS S.A. MITSUBISHI CORPORATION MITSUBISHI CORPORATION THE DIAMOND FERRY CO. LTD. NATIONAL FISHERIES UNIVERSITY	Container Carrier LNGC LNGC LNGC LNGC LPGC AEGIS destroyer Container Carrier PCTC Car Carrier Car Carrier Ferry Ferry Training Ship

### Others

### Vessels Completed by Mitsubishi Shipyards

			1998			1999	)		2000			2001			2002			2003			2004			2005	;		2006			2007	
	Works	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)	No.	G/T (thou.)	DWT (thou.)
Nagasaki Shipyard & Machinery	domestic vessels export vessels	_ 13	<b>–</b> 648	<b>–</b> 644	1 9	111 896	72 1,507	2 9	223 965	140 1,498	<b>–</b> 5	<b>–</b> 309	_ 206	<b>–</b> 5	- 473	_ 335	<b>–</b> 5	- 345	_ 286	2 10		12 1,159	1 9	57 645	27 826	<b>–</b> 13	_ 1,084	<b>–</b> 854	_ 7	_ 715	<b>–</b> 760
Works	total	13	648	644	10	1,007	1,579	11	1,188	1,638	5	309	206	5	473	335	5	345	286	12	1,081	1,171	10	702	854	13	1,084	854	7	715	760
Kobe Shipyard & Machinery	domestic vessels export vessels	_ 4	<b>–</b> 208	_ 222	<b>–</b> 5	<b>–</b> 279	<b>–</b> 255	_ 4	<b>–</b> 277	_ 253	_ 3	<b>–</b> 215	<b>–</b> 202	_ 3	<b>–</b> 228	<b>–</b> 228	<b>–</b> 5	<b>–</b> 291	<b>–</b> 319	<b>–</b> 5	<b>–</b> 245	<b>–</b> 124	1	5 211	4 172	_ 4	<b>–</b> 300	<b>–</b> 314	<b>-</b>	_ 227	<b>–</b> 238
Works	total	4	208	222	5	279	255	4	277	253	3	215	202	3	228	228	5	291	319	5	245	124	4	215	176	4	300	314	4	227	238
Shimonoseki Shipyard & Machinery	domestic vessels export vessels	10 2	52 10	27 11	5 <b>–</b>	43 —	22 -	2 5	2 95	2 66	3 2	24 31	12 21	3 2	20 31	9 16	7 —	102 —	40 —	2 1	13 44	5 11	3 4	29 136	12 83	5 1	57 44	25 11	5 <b>–</b>	76 —	32 —
Works	total	12	62	38	5	43	22	7	97	68	5	55	33	5	51	25	7	102	40	3	57	16	7	164	95	6	101	36	5	76	32
(	Grand total	29	918	904	20	1,329	1,856	22	1,562	1,959	13	579	441	13	752	588	17	737	645	20	1,383	1,311	21	1,082	1,124	23	1,485	1,204	16	1,019	1,030

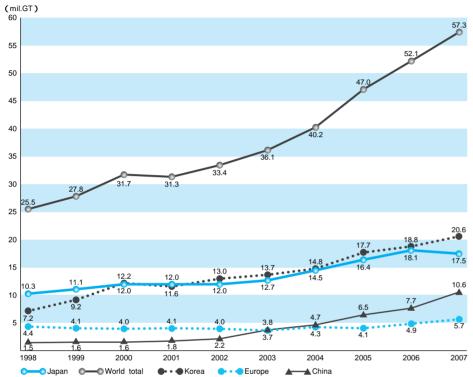
### List of Ships Newly Built by Major Japanese Shipbuilders

		1995			1996			1997		1998				1999			2000		2001		
	No.	G/T(thou.)	%	No.	G/T(thou.)	%															
Mitsubishi Heavy Industries, Ltd.	29	1,241	13.3 (5.5)	26	1,335	13.2 (5.2)	28	1,420	14.4 (5.6)	29	918	8.9 (3.6)	20	1,329	12.0 (4.8)	22	1,562	13.0 (4.9)	13	579	4.8 (1.9)
IHI Corporation	9	555	6.0	10	683	6.7	14	729	7.4	12	853	8.3	13	1,069	9.7	13	1,060	8.8	13	991	8.2
Hitachi Zosen Corporation	10	969	10.4	10	652	6.4	18	534	5.4	11	748	7.3	9	756	6.8	9	797	6.6	11	957	8.0
Mitsui Engineering & Shipbuilding Co., Ltd.	10	557	6.0	11	637	6.3	8	199	2.0	16	768	7.5	19	729	6.6	21	902	7.5	20	541	4.5
NKK Corporation	10	538	5.8	7	496	4.9	8	654	6.6	11	568	5.5	10	691	6.3	11	756	6.3	11	954	7.9
Kawasaki Heavy Industries, Ltd.	7	543	5.8	8	418	4.1	11	656	6.6	11	446	4.3	8	442	4.0	7	622	5.2	11	626	5.2
Sumitomo Heavy Industries, Ltd.	4	174	1.9	8	553	5.4	11	415	4.2	7	310	3.0	17	763	6.9	13	465	3.9	11	420	3.5
Total	79	4,577	49.2	80	4,774	47.0	98	4,607	46.6	97	4,611	44.9	96	5,779	52.3	96	6,164	51.3	90	5,068	42.1
Domestic total	717	9,311	100.0 (41.1)	687	10,149	100.0 (39.3)	650	9,883	100.0 (38.7)	601	10,272	100.0 (40.3)	446	11,051	100.0 (39.7)	457	12,020	100.0 (37.9)	462	12,024	100.0 (38.4)
World total	2,032	22,652	100.0	2,099	25,837	100.0	2,087	25,537	100.0	1,954	25,464	100.0	1,829	27,822	100.0	1,799	31,696	100.0	1,553	31,292	100.0

		2002			2003			2004			2005					2007		
	No.	G/T(thou.)	%	No.	G/T(thou.)	%												
Mitsubishi Heavy Industries, Ltd.	13	752	6.3 (2.3)	17	737	5.8 (2.0)	20	1,383	9.5 (3.4)	21	1,082	6.6 (2.3)	23	1,485	8.2 (2.9)	16	1,019	5.9 (1.8)
Universal Shipbuilding Corporation	25	2,067	17.3	22	1,928	15.2	24	1,955	13.5	28	1,974	12.0	23	1,842	10.2	27	2,018	11.6
IHI Marine United Inc.	11	868	7.3	11	852	6.7	13	899	6.2	14	1,213	7.4	17	1,156	6.4	8	852	4.9
Mitsui Engineering & Shipbuilding Co., Ltd.	15	803	6.7	13	782	6.2	21	876	6.0	26	1,244	7.6	33	1,507	8.3	24	1,188	6.9
Kawasaki Shipbuilding Corporation	9	399	3.3	13	560	4.4	10	454	3.1	12	934	5.7	15	1,141	6.3	10	544	3.1
Sumitomo Heavy Industries, Ltd.	5	237	2.0	10	514	4.1	8	383	2.6	8	368	2.2	9	403	2.2	9	505	2.9
Total	78	5,126	42.9	86	5,374	42.4	96	5,949	41.0	109	6,814	41.5	120	7,534	41.6	94	6,126	35.4
Domestic total	397	11,957	100.0 (35.8)	405	12,688	100.0 (35.1)	430	14,515	100.0 (36.1)	469	16,434	100.0 (35.0)	534	18,176	100.0 (34.9)	539	17,325	100.0 ( 30.6 )
World total	1,539	33,383	100.0	1,540	36,131	100.0	1,729	40,171	100.0	2,129	46,970	100.0	2,447	52,118	100.0	2,689	56,575	100.0

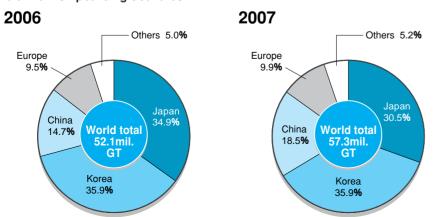
Note: ( ) represents share of world total.

### Vessels Completed by Main Shipbuilding Countries

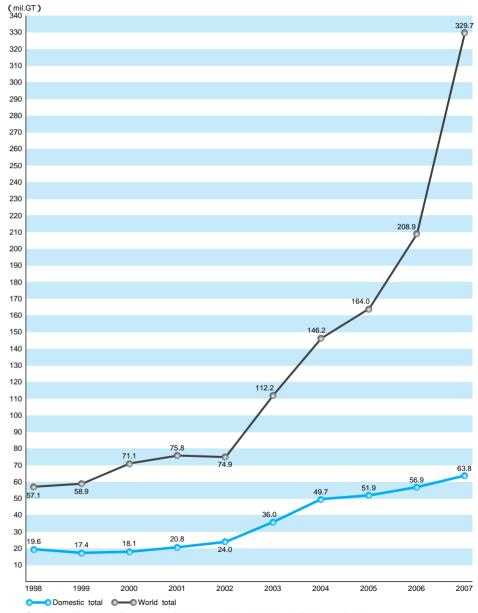


- \*1 Data: The World Shipbuilding Statistics published by Lloyd's Register Fairplay
- \*2 Steel Ship of not less than 100GT

### **Share of Main Shipbuilding Countries**



### **Shipbuilding Order Book**



<sup>\*1</sup> Data: The World Shipbuilding Statistics published by Lloyd's Register - Fairplay

<sup>\*2</sup> Steel Ship of not less than 100GT

### 2. Power Systems Headquarters

### Outline

The Power Systems Headquarters has long been designing, manufacturing, constructing, and installing power systems equipment and diesel engines for power generation and various uses for industry, households, and maritime applications. A long history of deliveries has now accrued.

Major efforts are now focused on the development of the technologies for new targets related to energy saving, oil substitution, new and renewable energy, and environmental protection. Through these efforts, the Headquarters has already achieved major successes in technologies for energy saving, high-temperature and high-efficiency steam turbines, high-temperature and high-efficiency gas turbines, combined-cycle power plants with the world's highest heat efficiency, ultra-supercritical boilers, and large-capacity, high-head reversible pump turbines. The Headquarters has also developed outstanding technologies for coal gasification, a pressurized fluidized bed boiler, wind and geothermal power generation systems, a photovoltaic system, fuel cells, a secondary battery to meet new targets in the fields of oil substitution and new/renewable energy, and flue gas De-NOx systems for environmental protection.

MHI's ongoing R&D efforts and abundant R&D experiences have led to the realization of many hundreds of power system technologies. In the field of gas turbines, the Power Systems Headquarters completed the "G" series gas turbine, the world's most advanced turbine of its class, with an inlet temperature of 1,500°C. This technology is a milestone achievement for MHI's power system business in a world where the demand for gas turbine plants is rapidly increasing.

MHI has created the world's most advanced boiler technologies, including new systems with vertical furnace walls with rifle tubing, one-through boilers, and low level pollution combustion systems and De-NOx technologies for licensing overseas.

MHI manufactures engines of many outputs. Among them, the Power Systems Headquarters handles PS marine diesel engines and diesel/gas engines for power generation, with outputs from 1,500PS to 90,000PS. With help from the unique technologies MHI has researched over its history, starting from the technologies built into Japan's first diesel engines in 1917, MHI has developed a long succession of UE engines, KU engines, and MET turbochargers. The Headquarters has technologically refined and marketed the UEC Eco-Engine, the latest UE series, a series of MACH-30G gas engines, a series of MARK-30B diesel engines (the world's most efficient), and the MET-MA turbochargers.

Over the many years following the delivery of an engine, MHI provides various services to respond to customer needs through maintenance and environmental works.

### Main Products

- Boilers for land use: Ultra supercritical pressure through current boilers, supercritical
  pressure through current boilers, forced circulation boilers, natural circulation boilers,
  chemical recovery boilers, bark boilers, CO boilers, bagasse boilers, exhaust gas boilers,
  waste heat boilers, packaged boilers, circulating fluidized boilers, pressurized fluidized
  boilers, coal gasification furnace
- Steam turbines for land use: 200kW-over 1,000,000kW (for power plants, industrial plants, geothermal plants)
- Gas turbines: 6 MW-over 330MW class
- Water turbines: reversible pump turbines, various water turbines (Francis type, Deriaz type, Kaplan type, Pelton type, tubular type)
- Wind turbines: 1,000kW, 2,400kW
- Blowers: blowers for power systems
- NOx Removal System
- Marine boilers: marine boilers for main propulsion, auxiliary marine boilers
- Marine turbines: marine steam turbines for main propulsion, marine generator turbines, marine gas turbines
- Marine machinery: various marine pumps, steering gear systems, deck machinery, propellers (fixed-pitch type), fin stabilizer, water jet
- Diesel/Gas engines:
- 1,500-90,000PS diesel engines (marine/power generation); UE low-speed 2-cycle diesel engines (marine/power generation); KU medium-speed 4-cycle diesel/gas engines (power generation); Wartsila low-speed 2-cycle diesel engines (marine/power generation); MAN medium-speed 4-cycle diesel engines (marine/power generation)
- Turbochargers: MET turbochargers
- Thin film PV module (amorphous silicon type, Micromorph Tandem type)
- Pumps: Large pumping plants for water works and sewage treatment plants; process pumps for gas, oil, and chemical plants; various pumps for other industrial applications domestically and overseas.
- Seawater desalination plants: Multi-stage flash (MSF) type and reverse osmosis (RO) type seawater desalination plants.

### Production History

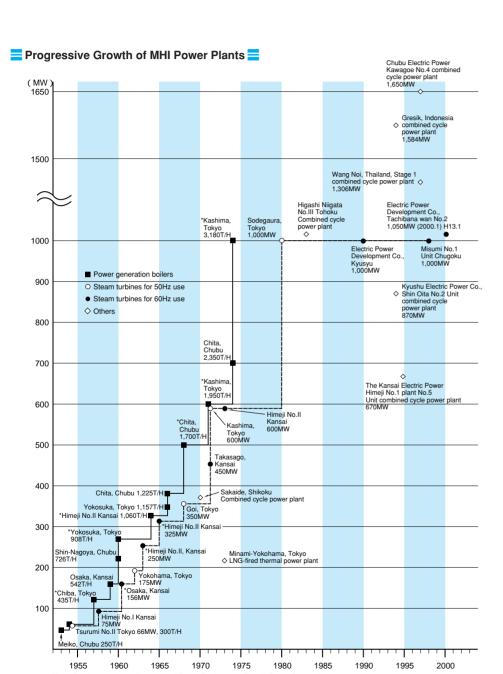
Date	Product
1974	Completed a 2,350T/H supercritical pressure boiler for a 700MW power plant (then
	one of Japan's largest) (Chubu Electric Power Co., Inc.).
	Completed a 3,180T/H supercritical pressure boiler for a 1,000MW power plant
	(then one of Japan's largest) (Tokyo Electric Power Co., Inc.).
1979	Completed a supercritical steam turbine for a 1,000MW power plant (then one of
	Japan's largest) (Tokyo Electric Power Co., Inc.).
1980	Delivered a 318MW Francis-type water turbine for a hydraulic power plant (the
	largest yet in MHI's export records) (Chicoasen Power Station, Mexico).
	Delivered MHI's first large thermal power plant on a full-turn-key contract basis
	(Harutha Power Station 4 x 200MW, Iraq).
1981	Completed two of Japan's largest coal-fired boilers for a 500MW power plant
	(Electric Power Development Co., Ltd.).
1984	Completed 307MW Francis-type pump turbines for a hydraulic power plant (one of
	Japan's highest heads yet) (Shikoku Electric Power Co., Inc.).
1984	Completed a 1,090MW large-capacity, high-efficiency, combined-cycle plant with
~ 85	domestic technology (Tohoku Electric Power Co., Inc.).
1986	Completed the first MF-111, a gas turbine with high thermal efficiency (Mitsubishi Oil
	Co., Ltd.).
1987	Completed the first MWT-250 wind turbine (300kW) (Kyushu Electric Power Co.,
	Inc.).
	Delivered a 151,000kW geothermal plant in the U.S.A. (then one of the world's
	largest).
	Completed a 145,000kW blast furnace gas-fired combined-cycle plant (world's
	highest output and efficiency) (Kawasaki Steel Corp.).
1988	Delivered MHI's first export wind turbine, for Hawaii, U.S.A. (MWT-250, 37 x
	250kW).
1989	Completed a 2,300T/H coal-fired boiler (one of Japan's largest yet) for a 700MW
	power plant (Kyusyu Electric Power Co., Inc.).
	Completed a 2,150T/H ultra supercritical boiler (one of Japan's largest yet) for a
	700MW power plant (Chubu Electric Power Co., Inc.).
	Completed a 3,190T/H supercritical boiler (one of the world's largest yet) (Tokyo
	Electric Power Co., Inc.).
	Delivered a 625MW thermal power plant for the Qurraya Power Station Phase I,
	Saudi Arabia (the largest exported by MHI).

Date	Product
1990	Completed a 2,400T/H soda recovery boiler (one of Japan's largest yet) (Oji Paper Co., Ltd.).
1991	Delivered the first overseas 501F gas turbine, one of the world's most efficient and highest-output types, for the U.S.A.
1992	Completed the first 701F gas turbine (1,350°C-class, 50-cycle), one of the world's most efficient and highest-temperature types, for MHI's Yokohama Dockyard & Machinery Works.
1994	Completed the 501F gas turbine (1,350°C-class 50-cycle), one of the world's highest-class, highest-temperature, and highest-efficiency types (Kyushu Electric Power Co., Inc.).
1995	Delivered one of the most efficient combined-cycle power plants (670MW), the fifth of its type built, for Himeji Daiichi Power Plant (Kansai Electric Power Co., Inc.).
	Completed the world's largest-class 1 million kW coal-fired supercritical sliding pressure operation boiler (130T/H mill x 6 units) (Soma Kyodo Power Plant).
	Completed the world's highest-temperature 500MW steam turbine (566°C/593°C) (Hokuriku Electric Power Co.).
1996	Completed the 501F gas turbine, one of the world's most efficient and highest- output (MHI Takasago Machinery Works).
	Delivered the first overseas 701F gas turbine, one of the world's most efficient and
	highest-output types (Wang Noi Stage 1 combined-cycle electric power plant in Thailand).
	Completed operational research under a national project to develop a pilot plant for coal gasification combined power generation (200t/day).
1997	Launched commercial operation of Position T, a 330MW combined-cycle power plant with 501G gas turbine (MHI Takasago Machinery Works).
	Launched Japan's first commercial combined-cycle power plant with pressurized fluidized bed combustion (PFBC) (delivered PFBC, steam turbine, and gas turbine) (Hokkaido Electric Power Co., Inc.).
	Launched commercial operation of a 1,000MW coal-fired power plant using ultra supercritical variable pressure (USVP) (Tohoku Electric Power Co., Inc.).
	Delivered Japan's largest combined-cycle power plant (1,650MW) (Chubu Electric Power Co., Inc.).

Date	Product
1998	Delivered a highly efficient coal-fired power plant with an environment-friendly
	design. (Chugoku Electric Power Co., Inc.).
	Completed a vacuum residue (extra-heavy oil)-fired boiler (Koa Oil Co., Ltd.).
1999	Delivered the first combined-cycle power plant to use world's most heat-efficient gas
	turbine, the M701G (805MW, Tohoku Electric Power Co., Inc.).
	Delivered the world's largest class (75MW) diesel power plant, for the Electric Power
	Agency in Kenya.
2000	Delivered a 1,440MW combined-cycle power plant using the M701F gas turbine
	(Tokyo Electric Power Co., Inc.).
	Delivered a KU diesel power plant (135MW) to Pakistani Japan Power Generation
	(Independent Power Producer, IPP).
2001	Delivered fifty MWT-1000 wind turbines to the Rock River I project in the U.S.A.
2002	Establishment of two companies for electric power supply.
	MHI Yokohama Power., Ltd.: Gas Engine
	Seto Wind Hill Corporation: Wind Turbine
	Delivered the first overseas M501G gas turbine project.
	(Ilijian combined-cycle power plant (1,200MW) in the Philippines)
2003	Delivered the IGCC (431MW) Power plant to Nippon Petroleum Refining Co., Ltd.
	Delivery record over 300 sets of KU series engines.
	Delivered M501G combined-cycle power plant successively in the U.S.A.: Mystic
	(1,600MW) and Fore River (800MW).
	Delivered 41 MWT-1000A wind turbines (Combine Hills project) and 160 MWT-
	1000A wind turbines (Brazos project).
2004	Completed the first electronically controlled marine diesel engine, the UEC Eco-
	Engine.
	Delivery record of over 3,000 sets of fixed pitch propellers.
	Established a joint venture for the manufacture of gas turbine components in China:
	Mitsubishi Heavy Industries Dongfang Gas Turbine (Guangzhou) Co., Ltd.
	Launched operation of the world's largest 1,000kWp amorphous type solar power
	plant: GP solarpark (Buttenwiesen, Germany).
	Delivered 1,000kWp amorphous type PV modules to world largest GP solarpark
	(Buttenwiesen, Germany)

Date	Product							
2005	Delivered the following for overseas FTK projects: Tuas Stage II combined-cycle power plant (720MW) in Singapore, Port Dickson combined-cycle power plant (714.6MW) in Malaysia.							
	Delivered 120 units of MWT-62/1.0 (MWT-1000A) wind turbines (Sun Juan Mesa project) and 50 units of MWT-62/1.0 (MWT-1000A) wind turbines (Iowa Wind Power project).							
2006	Completed the first M701F gas turbine project in China. (Beijing No. 3 combined-cycle power plant (350MW))							
	Delivered 1,400kWp amorphous type PV modules to Toledo solar plant (Spain).							
2007	Delivery record of over 5,000 sets of Marine boiler for propulsion, auxiliary marine boiler.  Delivery record of over 30,000,000 ps of UE diesel engine.							
	Delivered the following overseas projects:							
	Map Ta Phut power plant (2 × 717MW) in Thailand,							
	Blast furnace gas-fired combined cycle power plants in China at Anshan (300MW) and Maanshan (150MW).							

### 3. Nuclear Energy Systems Headquarters



Note: Captions represent the names of Power Stations and Electric Power Companies and \*represents new record for capacity and output at that time.

### Outline

From the very beginnings of nuclear power development in 1957, the Nuclear Energy Systems Headquarters has been actively designing, manufacturing, and constructing pressurized water reactor (PWR) plants. MHI is now Japan's foremost supplier of nuclear power plants. Twenty-three PWR plants built by MHI, with a total output of 20,000MW, are currently in operation.

The Nuclear Energy Systems Headquarters is run mainly by MHI, with support from other members of the Mitsubishi Group. It currently handles wide-ranging activities, from the design and manufacture of reactor components, equipment, and nuclear fuel to construction, operator training, maintenance and service. It also supplies state-of-the-art PWR plants with advanced PWRs (APWRs), and participates in the development of fast breeder reactors (FBRs), high-temperature gas cooled reactors (HTGRs), and controlled thermonuclear reactors (CTRs). The current work to develop FBRs is undertaken as part of a national project. MHI's technical strength and knowledge are being put to good use in the development of these new types of reactors. In the nuclear fuel cycle field, the Headquarters is developing, designing, and manufacturing equipment to treat, transport, store and dispose wastes, to transport and store fuels, to enrich uraniums, and to reprocess used fuels. Researchers at the Headquarters are helping to complete the nuclear fuel cycle in Japan through the wide use of comprehensive MHI technologies.

### Nuclear related companies in the Mitsubishi Group:

Mitsubishi Heavy Industries, Ltd.

Mitsubishi Electric Corporation

Mitsubishi Nuclear Fuel Co., Ltd.

(Established in 1971)

Nuclear Power Training Center Ltd.

(Established in 1972)

Nuclear plant Service Engineering Co., Ltd.

(Established in 1978)

Nuclear Development Corp.

(Established in 1990)

Nuclear Fuel Transport System Co., Ltd.

(Established in 1983)

RECO Ltd. (Established in 1991)

Advanced Reactor Technology Co., Ltd.

(Established in 1994)

Computer Software Development Co., Ltd.

(Established in 1987)

Engineering Development Co., Ltd.

(Established in 1988)

Rokkasho Reprocessing Plant Maintenance Service Co., Ltd.

(Established in 2001)

Mitsubishi Nuclear Energy Systems, Inc.

(Established in 2006)

Mitsubishi FBR Systems, Inc.

(Established in 2007)

ATMEA S.A.S.

(Established in 2007)

### Main Products

- Nuclear power plants: PWR, APWR, US-APWR, EU-APWR, ATMEA1 nuclear reactors and turbines
- Advanced reactor plants: FBRs, HTGRs, nuclear fusion reactors
- Nuclear fuel cycle plants: Spent fuel reprocessing equipment, radioactive waste treatment plants, nuclear fuel flasks, uranium enrichment equipment
- Nuclear fuels: light water reactor fuels, advanced reactor fuels, non-nuclear fuel bearing components

### Production History

Date	Product
1970	Completed Japan's first PWR power plant (340MW), for the Mihama Power Plant
	Unit 1 (The Kansai Electric Power Co., Inc.).
1972	Completed Japan's first domestically manufactured PWR power plant (500MW), for
	the Mihama Power Plant Unit 2 (The Kansai Electric Power Co., Inc.).
1974	Completed Japan's first three-loop class PWR power plant (826MW), for the
	Takahama Power Plant Unit 1 (The Kansai Electric Power Co., Inc.).
1979	Completed the world's largest PWR power plant (1,175MW × 2) and the world's
	first four-loop plant, for the Ohi Power Plant Unit 1 and 2 (The Kansai Electric Power
	Co., Inc.).
1984	Completed the first PWR power plant (890MW) under a project sponsored by the
	Ministry of International Trade and Industry for the Improvement & Standardization
	of the Sendai Nuclear Power Plant Unit 1 (Kyushu Electric Power Co., Inc.).
1987	Adopted Japan's first Containment Vessel made from prestressed concrete.
	Completed a PWR power plant (1,160MW) for the Tsuruga Power Plant Unit 2
	(The Japan Atomic Power Co.).
1989	Completed Japan's first 50Hz PWR power plant, for the Tomari Power Plant Unit 1
	(Hokkaido Electric Power Co., Inc.).

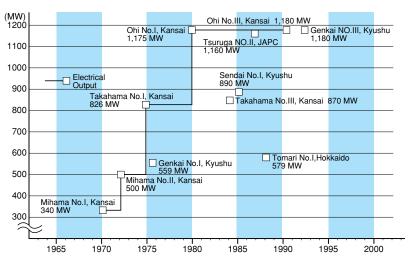
### Others

Nuclear Power Plant Capacity in the World (As of Jan. 1. 2008)

(Unit 10MWe, Gross Output)

		In Operation		Under Construction		Planned		Total	
Country Region		Output	Units	Output	Units	Output	Units	Output	Units
4	LLC A								
1	U.S.A.	10,606.1	104	100.0	4	120.0	1	10,726.1 6,765.0	105
3	France	6,602.0 4,958.0	59 55	163.0 256.5	1	1,494.5	11	6,765.0	60 69
4	Japan Russia	2,319.4	27	615.4	8	550.0	5	3,484.8	40
5	Germany	2,319.4	17	615.4	0	550.0	5	2,137.1	17
6	Republic of Korea	1,771.6	20	680.0	6	280.0	2	2,731.6	28
7	Canada	1,771.6	18	080.0	O	280.0	_	1,342.5	18
8	Ukraine	1,342.5	15	200.0	2			1,583.5	17
9	United Kingdom	1,195.2	19	200.0				1,195.2	19
10	Sweden	938.4	10					938.4	10
11	Spain	772.7	8					772.7	8
12	China	911.8	11	790.0	8	800.0	8	2,501.8	27
13	Belgium	611.7	7	790.0	0	800.0	0	611.7	7
14	Taiwan	516.4	6	270.0	2			786.4	8
15	Czech Republic	386.0	6	270.0				386.0	6
16	Switzerland	337.2	5					337.2	5
17	India	412.0	17	316.0	6	280.0	4	1,008.0	27
18	Finland	280.0	4	170.0	1	200.0	-	450.0	5
19	Slovak Republic	220.0	5	170.0				220.0	5
20	Brazil	200.7	2			135.0	1	335.7	3
21	Bulgaria	200.0	2			200.0	2	400.0	4
22	Hungary	194.0	4			200.0	_	194.0	4
23	South Africa	189.0	2			11.0	1	200.0	3
24	Lithuania	150.0	1					150.0	1
25	Romania	141.2	2	211.8	3			353.0	5
26	Mexico	136.4	2					136.4	2
27	Argentina	100.5	2	74.5	1			175.0	3
28	Slovenia	72.7	1					72.7	1
29	Netherlands	51.0	1					51.0	1
30	Pakistan	46.2	2	30.0	1			76.2	3
31	Armenia	40.8	1					40.8	1
32	Iran			100.0	1	36.0	1	136.0	2
33	Indonesia					400.0	4	400.0	4
34	Egypt					187.2	2	187.2	2
35	Israel					66.4	1	66.4	1
36	Turkey					N/A	3	N/A	3
37	Kazakhstan					N/A	1	N/A	1
38	Vietnam					N/A	1	N/A	1
	Total	39,224.1	435	3,877.2	43	4,560.1	48	47,661.4	526
	(previous year)	(38,704.8)		(2,940.4)	(35)	(5,217.4)	(47)	(46,862.6)	(511)

#### **Progressive Growth of MHI Nuclear Power Plants**

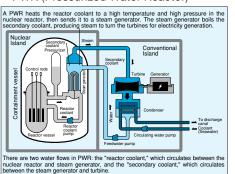


#### **PWR and BWR**

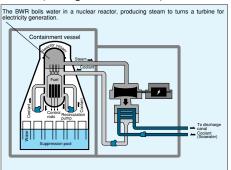
Of the approximately 400 nuclear power plants currently in service worldwide, 88%\* or more are Light Water Reactors (LWRs), a type that uses normal water for coolant. There are two basic designs for an LWRs: the PWR (pressurized water reactor) and BWR (boiling water reactor). About 74% of LWRs are the former type, the PWR. MHI is the only manufacturer of PWR plants in Japan.

\* By generating capacity ratio.

#### PWR (Pressurized Water Reactor)



#### BWR (Boiling Water Reactor)



Of the 55 nuclear power plants now in service in Japan, 23 units are PWR plants manufactured by MHI. These PWR plants are operated by the electric power companies of Hokkaido, Kansai, Shikoku, and Kyushu, as well as The Japan Atomic Power Company. The BWR plants are operated by the electric power companies of Tohoku, Tokyo, Chubu, Hokuriku, Chugoku.

#### 4. Machinery & Steel Structures Headquarters

#### Outline =

The Machinery & Steel Structures Headquarters was newly formed within MHI in May 2006 through the integration of two formerly independent headquarters: the Machinery Headquarters, a provider of forefront technologies and business services developed to satisfy the needs of the times and society, and the Steel Structures & Construction Headquarters.

The Transportation Systems Department provides air brakes and new transportation systems such as APMs (automated people movers), LRT (light rail transit), the Shinkansen core system, and linear motor cars. It also handles Intelligent Transport Systems (the ETC (electronic toll collection) System, ERP (electronic road pricing) System, etc.).

The Chemical Plant Department engages in total engineering and construction for expansive fields in chemical processing plants, including oil refinery, petrochemicals, and inorganic chemicals, flue gas desulfurization plants, and flue gas CO<sub>2</sub> recovery plants as well as facilities for the production and storage of oil and gas.

The Compressor & Turbine Department produces compressor and mechanical drive steam turbine for oil & gas, refinery, petrochemical, air separation, and carbon capture & strage fields. Advanced Technology Department provides forefront automotive-related technologies such as motors for EVs, testing equipment, laser measuring systems for exhaust gas, and laser welding

motors for EVs, testing equipment, laser measuring systems for exhaust gas, and laser welding systems. It also develops new businesses in new fields such as beam accelerators, medical systems and semiconductor equipment.

The Consolidated Management Dept. engages in control of group companies and products such as rubber and tire machinery, crane and material handling systems.

The Environmental Systems group designs and constructs environment conservation plant facilities and infrastructure facilities such as waste treatment facilities, soil remediation systems, biomass utilization systems. These businesses were taken over in 2008 by Mitsubishi Heavy Industries Environment Engineering Co., Ltd.

The Metals Machinery group constructs iron and steel manufacturing plants and related machinery, continuous casting machines, rolling mill equipment, processing equipment, and pipe manufacturing equipment. All of these products have significantly contributed to industrial development domestically and overseas. These businesses were taken over in 2004 by Mitsubishi-Hitachi Metals Machinery, Inc., a joint venture company established with Hitachi, Ltd. The newly established Mitsubishi Heavy Industries Parking Co., Ltd. has been running MHI's vertical parking garage business since October 2005.

The newly established Mitsubishi Heavy Industries Bridge & Steel Structures Engineering Co., Ltd. has been running MHI's bridge business since 2006.

#### Main Products

#### **Transportation Systems & ITS**

- Transportation systems: automated guideway transits, APMs (automated people movers), suspended monorails, the Shinkansen core system, LRT (light rail transit) systems, linear motor cars, maintenance vehicles
- Air brake equipment: various types for bullet trains ("Shinkansens"), freight cars, rolling stock
- Toll equipment: toll-collection equipment for main toll expressways (magnetic-card types for closed roads, receipt-issue types for open roads)
- ITS: ETC (electronic toll collection) systems, ERP (electronic road pricing) systems, DSRC (dedicated short range communication) equipment

#### **Chemical Plants**

- Chemical plants: production plants for petrochemicals, fertilizer, methanol, DME, and inorganic chemicals
- Oil and gas production plants: onshore and offshore plants for oil and gas production, plants for LNG and LPG production, transportation and receiving facilities, oil refineries
- Flue gas desulfurization plants for power generation and process industries
- Flue gas CO<sub>2</sub> recovery plants: plants for chemical industries, CO<sub>2</sub> enhanced oil recovery projects (CO<sub>2</sub> EOR)

#### **Compressor & Turbine**

 Compressor and mechanical drive steam turbine for oil & gas, refinery, petrochemical, air separation, and carbon capture & strage fields

#### **Advanced Technology Department**

- Automotive Systems: wind tunnels, fatigue and vibration testing equipment, vehicle crash simulators, dynamic driving simulators, laser measuring systems for exhaust gas, motors for EVs, laser welding systems
- Mechatronics Systems: beam accelerators, hydraulic penstocks, Ferris wheels, stage machinery systems, retractable seat systems, retractable roofs
- Semiconductor Equipment: OLED manufacturing equipment, vacuum equipment for lithography
- Medical Systems: Radiotherapy systems, electron beam irradiation systems

#### **Metals Machinery**

 Iron and steel manufacturing plants and machinery: iron-making and steelmaking equipment, rolling mill equipment, processing equipment, pipe-manufacturing equipment (Mitsubishi-Hitachi Metals Machinery, Inc.), continuous casting machines (MHI Steel Machinery Engineering & Service Co., Ltd.)

#### **Steel Structures**

- Tunnel-boring machinery: shield machines, tunnel-boring machines, rotator-type boring machines (The newly established Mitsubishi Heavy Industries Tunneling Machinery & Geotechnology Co., Ltd. took over the tunnel-boring machinery business in 2007.)
- Mechanical parking facilities: integrated and standalone parking structures, including systems for lift parking, presto parking, tower parking, slide parking, sift parking, and integrated parking (The recently established Mitsubishi Heavy Industries Parking Co., Ltd. took over the vertical parking garage business in October 2005)
- Steel bridges and stacks: all types of steel roadway bridges, railway bridges, tube tunnels, road-maintenance equipment, and stacks. (The recently established Mitsubishi Heavy Industries Bridge & Steel Structures Engineering Co., Ltd. took over the bridge business in 2006.)
- Tanks: beer tanks, gasholders
- Steel pipes: penstocks, cooling water pipes, water supply pipes
- Others: hydraulic gates

#### **Environment**

• Waste treatment systems for the following applications: municipal waste incineration (small-to-medium and large incinerators (stoker systems, pyrolysis systems, gasification systems, etc.)); flue gas treatment; waste water treatment; ash vitrification; thermal recovery for power generation, swimming pool heating, gardening, social welfare institutions with public baths, etc.; municipal waste classification plants; bulky waste treatment plants; recycling of steel, aluminum, and paper; various types of industrial waste incineration, PCB treatment, soil groundwater purification; biomass utilization

#### **General Machineries**

- Rubber and tire machinery: engineering and manufacture of various plant equipment and automated systems for tire manufacture, such as mixers, extruders, bias cutters, building machines, curing presses, and tire endurance testers; mixers for industrial rubber goods
- Crane and material-handling systems: various cranes for iron and steel manufacturing plants, container handling quayside cranes, rubber-tyred/rail-mounted gantry cranes, various overhead traveling cranes for industrial plants, integrated automated storage systems
- General machinery: loading arms, laser welding systems, electron beam irradiation systems, etc.
- Vacuum Equipment: integrated piping and instrument systems

# Production History

#### **Transportation Systems & ITS**

	Transportation dystems a rec			
Date	Product			
1970	Delivered the first suspended-type monorail for commuters, for Shonan Monorail.			
1988	Delivered a suspended-type monorail for commuters in Chiba.			
1998	Delivered an electronic road pricing system for Singapore LTA.			
1999	Delivered the full turnkey project for the LRT (line 3) in the heart of Manila,			
	Philippines.			
2002,	Completed a fully automated, driverless rubber-tyred LRT system for the Sengkang			
2004	and Pungol new town area in Singapore.			
2004	Completed the first domestically produced 100% low-floor light rail vehicle (LRV), for			
	Hiroshima Dentetsu Co., Ltd.			
2005	Contracted to build the Red Line for Dubai Metro, the world's largest fully automated			
	driverless LRT system, in the UAE.			
2006	Completed Japan's first project to export its Shinkansen train system, the Taiwan			
	High-Speed Rail (345km): MHI, as a Consortium leader, took charge of the track,			
	the signal, communication, and overhead catenary system, and the overall system			
	integration.			
	Delivered APM system for Changi Airport in Singapore.			
	Commercially released the MOBE-400 and -450 transponders for electronic toll-			
	collection systems.			

#### **Chemical Plant**

Offici	eniicai riant			
Date	Product			
1977	Completed MHI's first ethylene plant, in Shanghai, China.			
1979	Completed large-scale urea fertilizer plant in Iraq.			
1981	Successfully started up MHI's first flue gas desulfurization plant, in the USA.			
1982	Completed full-scale oil refinery plant in Myanmar.			
1984	Completed LNG receiving terminal (2,900000T/Y) in Niigata, Japan.			
1993	Completed MTBE Propylene Plant (300,000T/Y) in Malaysia.			
1997	Completed methanol plant (2,500T/D) in Saudi Arabia.			
1999	Completed purified terephthalic acid plant (350,000T/Y) in India.			
	Completed hydrocracking plant (23,000BPSD) in Slovakia.			
	Completed MHI's first commercial plant for CO₂ Recovery (160T/D), for a fertilizer			
	plant in Malaysia.			
2000	Completed polyethylene plant (256,000T/Y × 2) in Saudi Arabia.			
2004	Received order for a fertilizer complex ammonia plant (2,000T/O, granulated UREA			
	$1,750T/O \times 2)$ from Oman.			
	Established a J/V named Advatech LLC with US engineering firm URS. The J/V			
	received long-term FGD supply contract from Tennessee Valley Authority (TVA).			
2005	Received order for a mega methanol plant (5,000T/O) from Saudi Arabia.			
2006	Completed LNG recovery terminal (2,700,000T/Y) in Sakai, Japan.			
	Completed purified telephtalic acid plant (600,000T/Y) in China.			

#### Compressor & Turbine

Date	Product	
2001	Delivered pipeline compressors for GAZPROM in Russia.	
2003	Completed a high-pressure (450bar) natural gas injection compressor.	
2005	Delivered MHI's 500th set of Mitsubishi advanced compressors (MACs).	
2006 Contracted to produce compressors for the world's largest class of mega		
	plant (1,300,000 T/Y).	
	Shop test facility for Mega size compressor (2,000,000T/Y Ethylene).	
2007	Delivered Compressors and turbines for 1,000,000T/Y Ethylene Complex for	
	Tasnee Petrochemical Co. in Saudi Arabia.	
	Delivered Compressors and turbines for 7,800,000T/Y LNG Complex for Ras Gas	
	Co., Ltd. in Qater.	

#### **Advanced Technology Department**

Date	Product			
1962	Delivered Japan's first steel pipes made of high-tensile-strength steel, for Tokyo			
	Electric Power Company.			
1964	Delivered a wind tunnel for cooling tests of vehicle engines, for Mitsubishi Motors.			
1977	Delivered the stage machinery system for the New National Theater in Tokyo.			
1989	Delivered the normal-conduction RF cavity and superconductive RF cavity for the			
	TRISTAN project in High Energy Accelerator Research Organization (KEK).			
1996	Delivered the large-scale low noise (world's quietest) wind tunnel, for Railway			
	Technical Research Institute.			
1997	Delivered a stage machinery system to New National Theatre, Opera House.			
2000	Delivered a retractable seat system and a variable ceiling wall (moving block) to			
	Saitama Super Arena.			
	Completed the Saitama Super Arena, a facility with a movable-seating floor system.			
2005	Delivered a proton accelerator, for High Energy Accelerator Research Organization			
	(KEK) / Japanese Atomic Energy Agency			
	Delivered 3-D full-scale earthquake testing facility, for Hyogo Earthquake			
	Engineering Research Center of National research Institute for Earth science and			
	Disaster prevent.			
2006	Delivered a full-scale acoustic wind tunnel, for SUZUKI Motor Corporation.			
2008	Delivered Ferris wheel (Singapore Flyer) in Marina Bay, Singapore.			

#### **Metals Machinery & Steel Structures**

Date	Product		
1868	Completed Japan's first steel bridge (the Kurogane-bashi).		
1962	Completed Japan's first steel pipes made of high-tensile-strength steels, for Tokyo		
	Electric Power Company.		
1988	Completed the large Second Bosporus Bridge (Turkey).		
	Completed a 8,620mm EPB shield for the Channel Tunnel (T5).		
1989	Completed Japan's largest movable seating system (11,000 seats) (Yokohama		
	Arena).		
1991	Completed 125,000kl in-ground LNG tank, to Tokyo Electric Power Company.		
1992	Completed Japan's first high-tech stage machinery system for a European-style		
	theater (Aichi Prefectural Theater of Arts).		
1995	Delivered a hot strip mill (BH PLANT) for Baoshan Iron & Steel Corporation in		
	China.		
1996	Delivered the No. 4 cold complex (K4C) for POSCO Kwang Yang Steelworks in		
	Korea.		

Date	Product		
1998	Completed the world's largest suspension bridge (the Akashi Kaikyo Bridge).		
1999	Completed the world's largest cable-stayed bridge (the Tatara Bridge).		
2001	Completed an ultrahigh stack (230m).		
	Completed Japan's largest LNG in-ground storage tank (200,000kl).		
2004	Delivered a continuous pickling and tandem cold complex for Baoshan Iron & Steel		
	Corporation in China.		

#### **Environment**

Date	Product		
1964	Delivered the first Mitsubishi traveling stoker-type refuse incinerator, to Sagamihara		
	City, Japan (total capacity: 180T/D).		
1974	Delivered the first Mitsubishi-Martin refuse incinerator, to Kawasaki City, Japan (total		
	capacity: 600T/D with 2,000kW turbine generator).		
2000	Delivered the world's largest waste-to-energy plant to the Ministry of the		
	Environment, Singapore (total capacity: 4,320T/D, with a 132,600kW turbine		
	generator).		
2003	Awarded the largest domestic class of PCB waste treatment plant, from Japan		
	Environmental Safety Corporation, Japan (PCB treatment capacity: 2T/D).		
2004	Awarded the largest domestic class of food waste fermentation and power-		
	generating plant, from BIOENERGY Corporation, Japan (total capacity: 110T/D with		
	1,000kW power generator).		

#### **General Machineries**

Date	Product	
1982	Completed one of the world's largest ladle cranes (520T).	
2000	Completed the world's first container-handling crane with a seismic isolation system	
	(at Tokyo Port, Ohi Wharf).	
2002	Delivered MHI's 4,000th set of tire-curing presses.	
2005	Completed the world's first automatic rubber-tyred gantry cranes, for Tobishima	
	Container Berth Co., Ltd. (at Nagoya Port)	
2007	Delivered MHI's 5,000th set of tire-curing presses.	

## 5. Aerospace Headquarters

#### Outline

In addition to developing and producing fighters, helicopters, and guided weapon systems, the Aerospace Headquarters and other MHI divisions involved in defense propose integrated defense systems based on the newest information technologies.

Not long after developing and producing Japan's first supersonic jet trainer, the T-2, in 1967, MHI used its technologies from the T-2 to develop the F-1 supersonic jet support fighter. This was followed in 1978 by the development of the control-configured vehicle (CVC) experimental aircraft, a new-generation aircraft with unprecedented maneuverability. The company is now collaborating with Lockheed Martin Corporation to produce the F-2 support fighter, an aircraft based on the U.S. F-16.

MHI is also a prolific manufacturer of defense helicopters. Last March, for example, the company delivered the domestically produced SH-60J, an anti-submarine helicopter based on Sikorsky's SH-60B. Earlier, in the summer of 2005, the company completed development and began delivery of the SH-60K, a new-generation patrol helicopter based on the SH-60J. The UH-60J, a helicopter for rescue/utility operations, is also manufactured and fully supported after sale.

MHI divisions involved in guided weapon systems manufacture the Patriot surface-to-air missile, air-to-air missiles, anti-ship missiles, surface-to-ship missiles, and several kinds of torpedoes and shipborne weapons.

In commercial aircraft products, MHI manufactures aft fuselage panels for the Boeing767/777 and is expanding its broad cooperative relationship with the Boeing Company. In the codevelopment of the next-generation Boeing787 transport aircraft, MHI handles all composite wing development. The company also manufactures the wing of the Bombardier Global Express business jet and Challenger 300 business jet. In aero engines, MHI participates in the production of PW4000 and V2500 turbofan engines, as well as the co-development of the TRENT1000 turbofan engine.

In the field of commercial helicopters, MHI produces the cabin of the Sikorsky S-92.

MHI plays a leading role in space systems development and the coordination of Japan's space transportation projects under the direction of JAXA (the Japan Aerospace Exploration Agency). The company participates in the development of the low cost and highly reliable H-

A rocket, as well as the H- B (augmented version of the H- A). The Aerospace Headquarters contributes to the International Space Station program by collaborating in the development of the Japanese Experiment Module (KIBO) and developing an HTV unmanned orbital carrier for the module. MHI has also been developing a satellite launch business using the H- A rocket.

#### Main Products

- Aircraft: Jet fighters, trainers, helicopters, transport planes, and wings, doors, and fuselage panels for commercial aircraft
- Aero engines: Turboshaft fan engines, turboshaft engines
- Guided weapon systems: Missiles, torpedoes, mine hunters
- Space equipment: Space transportation vehicles, engines, ground support facilities
- Industrial equipment: Engine test cells, civil helicopter simulators

#### Production History

#### **Aircraft**

1) ~ 1945 (during World War )		
Type 1 attack-bomber	Intercepter fighter "RAIDEN"	
Type Zero carrier fighter	Type 100 command reconnaissance plane	
2) 1945 ~ (after World War )		
F-86F jet fighter	SH-60J anti-submarine helicopter	
F-104J jet fighter	SH-60K maritime patrol helicopter	
F-4EJ jet fighter	UH-60J rescue helicopter	
F-15J/DJ jet fighter	UH-60JA utility helicopter	
T-2 supersonic trainer	MH2000 multi-purpose helicopter	
F-1 close support fighter	MU-2 business turboprop aircraft	
F-2 support fighter(developed by U.S./Japan cooperation)	MU-300 business jet aircraft	
S-55 utility rescue helicopter	YS-11 middle-sized transport	
S-62 rescue helicopter	Boeing 767 transport	
HSS-2 anti-submarine helicopter	Boeing 777 transport	
S-61A rescue/antarctic research helicopter	Boeing 787 transport	
	Bombardier Global Express business jet	
	Bombardier Q400 turboprop airliner	
	Bombardier CRJ 700 regional jet	
	Bombardier CRJ 900 regional jet	
	Bombardier Challenger 300 business jet	

# Aero Engines

1945 ~ (after World War )			
GCM1 Gas turbine Compressor (F104, F4) TJM2 Turbojet Engine (SSM-1) TJM3 Turbojet Engine (Target Drone)			Domestic Development
JT8D-200 Turbo PW4000 V2500 TRENT1000	fan Engine " " "	(MD80) (Boeing 777, Boeing 747, A330, MD11 etc) (A320 series, MD90) (Boeing 787)	International Collaboration
TS1 Turboshaft Engine (OH-1) MG5 Turboshaft Engine (MH2000)			Domestic Development
PW210 Turboshaft Engine (S-76D) International Collaborate			International Collaboration

#### Space Equipment (up to 2007)

1) Launch vehicles		2) Engines	
N-	7 units	MB-3	24 units
N-	8 units	LE-3	7 units
H-	9 units	LE-5 (exclude development prototype)	9 units
H-	8 units	LE-5A ( " )	7 units
H- A	14 units	LE-7 ( " )	8 units
Solid motor chamber production	33 units	LE-5B ( " )	15 units
		LE-7A ( " )	14 units
		CN (for rocket reaction control)	27 units
		RCS (for satellite reaction control)	17 units

#### 3) Ground facilities

Hot Firing Test Stand

High Altitude Test Stand

Stage Firing Test Stand

High enthalpy shock tunnel

M rocket launcher

Aerospace ground support equipment (AGE)

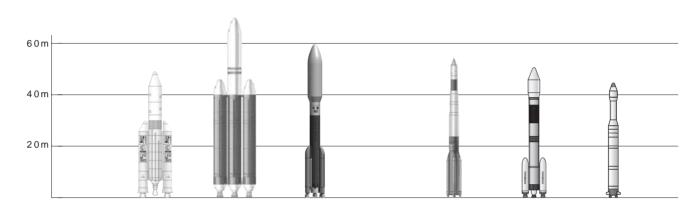
H- A Rocket Launch Facilities

#### Guided Weapon System (up to 2007)

dulued weapon System (up to 2007)		
1) Air-to-Air Missile	2) Surface-to-Air Missile	
AAM-1	NIKE-J	
AIM-9L	Patriot	
AAM-3		
AAM-5		
3) Anti-Ship Missile	4) Light Weight Torpedo	
ASM-1	Type 73	
ASM-1C	MK-46	
ASM-2	Type 97	
SSM-1		
SSM-1B		
5) Heavy Weight Torpedo	6) Shipborne Weapons	
Type 72	Anti-Submarine Rocket Launcher	
Type 80	MK41 Vertical Launching System	
Type 89	Anti Submarine Rocket	
	Type 75 Mine Hunter (S-4)	
	Mine Hunter (S-7)	
	Mine Hunter (PAP-104)	
	Mine Sweeper (S-10)	

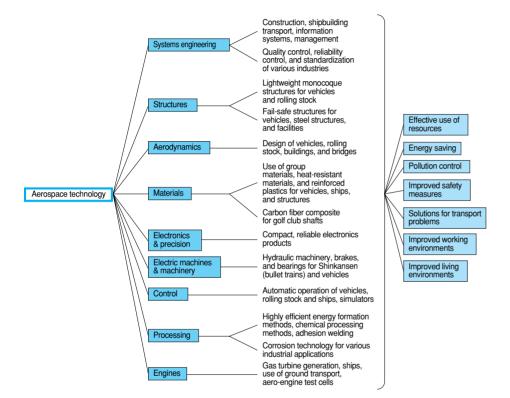


Major rockets of the world for the launch of large-scale static satellites with capacities of 2 to 6 tons



Name	ALIANE V	DELTA IV	ATLAS V	PROTON K	H-IIA (standard type)	CZ-3 (3A)
Country	Europe	U.S	S.A.	Russia	Japan	China
Payload capacity into Low Earth Orbit (t)	18	8.1 ~ 23	12.5 ~ 20.5	21	10.0	8.5
Payload capacity into Geostationary Orbit (t)	6.8 ~ 12	4.2 ~ 13	4.9 ~ 8.7	4.9	4.0	2.6

#### Technological effects of the aircraft industry



#### 6. General Machinery & Special Vehicle Headquarters

#### Outline

The General Machinery & Special Vehicle Headquarters handles the trading of four categories of products provided by MHI to support daily life and societies around the world: engines, turbochargers, industrial vehicles, and special vehicles.

The Headquarters trades in both diesel and gasoline engines. The diesels include small to medium-sized engines (3.0~4,000kW) for machinery such as generators, pumps, small-sized ships, and agricultural machinery. Gasoline engines of two size range are handled: 0.7~9.6kW for machinery such as agricultural machines, fountain machines, and mowing machines. The engines supplied can also be divided into two types based on the purchasers: those for final manufacturers and those installed within products for immediate use by the customer. The Headquarters does not trade in engines for automobiles.

In the field of turbo the Headquarters supplies in turbo chargers for vehicles of all sizes, from automobiles to ships (10~1,500kW), to improve the combustion efficiency of engines and cope with environmental regulations.

The Headquarters trades in forklift trucks (1~42ton), the core of its industrial vehicles and main business. Three forklift manufacturing plants are operating worldwide. Other goods traded include heavy cargoes such as automatically guided vehicles and heavy-loaded transporters, motor graders for transportation and clearing land.

The main special vehicles traded at the Headquarters are tanks, self-propelled howitzers, and fleet engines.

# Main Products

#### Engine/Turbocharger

#### 1. Engines

Application	Туре	Output (kW)	Product name		
For agricultural use (agricultural machinery/ small-sized industrial machinery)	Air-cooled gasoline Water-cooled diesel	0.7 ~ 9.6 3.0 ~ 28	MEIKI gasoline engine MITSUBISHI diesel engine		
For industrial use (construction machinery/ generators/industrial drive units)	Water-cooled diesel 3.0 ~ 4,000		MITSUBISHI diesel engine		
For industrial use (generators/ industrial drive units)	Water-cooled gas-diesel	62 ~ 2,500	MITSUBISHI gas engine CAT gas engine		
For marine use (main propulsion/ auxiliary use)	Water-cooled diesel	10 ~ 4,000	MITSUBISHI marine diesel engine		

#### 2. Engine Generating Equipment

Product name	Output (kVA)
Portable gasoline generator MG	0.55 ~ 5.8
Diesel engine generator PG	20 ~ 450
Portable engine generator MGP	25 ~ 875
Diesel engine generator sets	200 ~ 4,150
Gas engine generator sets	350 ~ 1,163

#### 3. Turbochargers

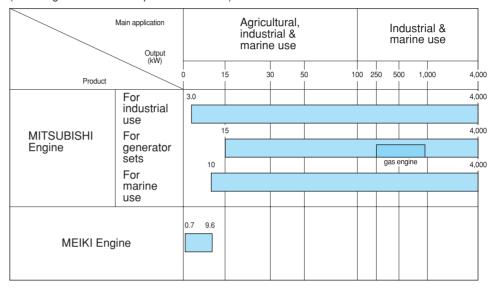
Product	Capacity			
Turbochargers	10 ~ 1,500kW			

#### 4. Others

Product	Capacity			
Cogeneration system	Output 40 ~ 2,630kW			

#### Mitsubishi Small-and Medium-Sized Engine Series

(excluding automobile and special vehicle use)



#### **Material Handling Equipment**

Forklift trucks, heavy cargo carriers

#### **Construction Machinery**

Earthmoving and grading machinery : Motor graders

Hydraulic equipment: Hydraulic equipment

#### Special Vehicle

Tanks, selfpropelled howitzers, fleet engines

# Production History

#### Engine/Turbocharger

Date	Product					
1931	Began production of industrial engines.					
1946	Began production of agricultural engines.					
1947	Began production of marine engines.					
1956	Began production of turbochargers.					
	Began production of engine generators.					
1995	Began production of gas engine generators.					

#### **Material Handling Equipment**

Date	Product
1971	Began sale of forklift trucks (internal-combustion type).
1985	Began sale of heavy cargo carriers.
1994	Began sale of forklift trucks (electric type).

#### **Construction Machinery**

Date	Product
1950	Began sale of motor graders.
1950	Began sale of tractors.
1961	Began sale of hydraulic excavators.
1987	Established Shin Caterpillar Mitsubishi Ltd.
	(Transferred production and sale of hydraulic excavators)
2002	Transferred sale of construction machinery, excluding motor graders.

#### Special Vehicle

1) ~ 1945 (during World War )						
Type 95 light tanks	Type 97 medium tanks					
2)1945 ~ (after World War )						
Type 61 tanks Type 74 tanks Type 90 tanks Type 60 armored personnel carriers Type 73 armored personnel carriers Type 89 mechanized infantry combat vehicle	Type 75 self-propelled 155mm howitzers Type 99 self-propelled 155mm howitzers Heavy wheeled recovery Type 90 tank recovery Type 91 bridge layer					

#### ■ Brief History of the Production Site ■

Date	Product
1920	Established as an automobile maintenance factory in Shibaura, Tokyo. Lines were
	added for the manufacture of diesel engines, construction machinery, and special
	vehicles in ensuing years.
1970	The Automobile Division split from Mitsubishi Heavy Industries, Ltd. The production
	facilities for construction machinery moved to their current location, in Sagamihara.
2000	The General Machinery & Special Vehicle Headquarters was established as an
	integrated organization with sales and manufacturing divisions (from April 1).
2005	Gasoline engines were transferred to the Headquarters from the Industrial
	Machinery Division on April 1.

#### **Area** (As of April 1, '08)

	Area (m²)				
	Site	Building			
Main Plant	375,693	200,113			
Iwatsuka Plant	20,000	20,000			
Chitose Plant	42,395	6,993			
Total	438,088	227,106			

# **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Main Plant	1,872	1,866	1,873	1,847	1,815	1,802	1,789	1,829	1,944	2,101
Iwatsuka Plant	-	-	-	-	-	-	-	129	128	129
Chitose Plant	10	10	10	3	3	3	3	2	-	-
Total	1,882	1,876	1,883	1,850	1,818	1,805	1,792	1,960	2,072	2,230

- 1 No. of employees as of March 31 each year 2 Data from 1999 to 2000 is No. of employess in Sagamihara Machinery Works

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## 7. Air-Conditioning & Refrigeration Systems Headquarters

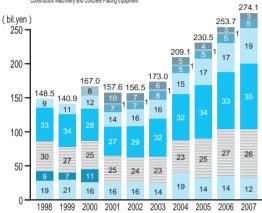
#### Outline

As a total producer of air-conditioners and refrigeration, the Air-Conditioning & Refrigeration Systems Headquarters manufactures a comprehensive range of product series, from residential-use air-conditioners to commercial-use air-conditioners, automotive thermal systems, applied refrigeration use machines, transport refrigeration units, and centrifugal chillers. It also produces air-conditioning and refrigeration systems for temperature control, industrial process applications, and district cooling and heating plants. The integrated organization of the Headquarters facilitates the development, manufacture, and marketing of a wide range of high-quality products, including many industry-first and top-of-the-line product series. The Headquarters' highly integrated technical resources resulted successful award of heating and cooling plant contracts for nationally admired projects; specifically, the New Tokyo International Airport, the Kansai International Airport, the Shinagawa Station East Area Renewal Project and a district development project in Singapore.

The Headquarters' recent innovations have environment friendly and high energy-saving features. One of the latest examples is a wide range of air-conditioners compliant with the CFC regulations for stricter environmental protection. Another is the NART- , a series of high efficiency centrifugal liquid chillers; the NART- recently became MHI's first product ever to win the METI Minister prize, the de facto Grand-Prix for energy saving products. Other notable innovations include a series of highly efficient air-conditioners of Hyper-Inverter for commercial-use and development of wasted energy and heat recovery plant. The overseas department within the Headquarters has prepared for expected expansions in overseas markets by establishing bases in Thailand, Saudi Arabia, China, Hong Kong, the U.S.A., the Netherlands, Australia, and so on. These overseas bases coordinate organically with each other for efficient procurement as a part of our global business development structure.



Special Vehicles and Naval-Use Engine Construction machinery / Leisure equipment
Forbliff tucks / Distribution equipment Desire Induced Industrial Engine Industrial Engine State Industrial Engine Industrial Engine Industrial Engine Industrial Engine Industrial Engine Industrial Engine



ote: 1. Figures in the column are in percentage (%) unit

#### Machinery Production Facilities

Machine tools	NC machine tools including, machining centers (about 700 units) Various other machine tools, including 70 gear-cutting machines (about 1,150 units in total), FMS (flexible manufacturing system; 13 lines)
Sheet metal welding facilities	NC gas cutting machines, laser beam processor, electron beam welder, arc welding robot Various other sheet metal processing machines (about 300 units) Welding FMS (flexible manufacturing system; 2 lines)
Heat treatment & surface treatment facilities	Vacuum carburizing furnace, automatic continuous quenching and tempering furnace, nitriding furnace (gas, ion), aluminum heattreatment furnace, high-frequency quenching equipment, various electroplating baths, coating booths, etc.
Assembly and operation facilities	Assembly lines (including a line for small-sized forklift trucks) Engine operation equipment (max. 6,000kW) Vehicle test equipment, hydraulic test equipment, generator set test equipment

Figures on the column show the amount of total annual production. (unit: billion yen)

#### Main Products

- Commercial use air-conditioners: packaged air-conditioners for shops, packaged air-conditioners for facilities, chilling units, gas heat pump air-conditioners, ice-storage-type packaged air-conditioners
- Residential use air-conditioners: room air-conditioners, humidifiers
- Automotive thermal systems: automotive thermal systems, truck air-conditioners
- Applied refrigeration use machines: semi-hermetic type condensing units, hermetic condensing units, storage refrigeration units
- Transport refrigeration units: bus air-conditioners, truck and trailer refrigeration units
- Centrifugal chiller: centrifugal chiller, air-conditioning and refrigerating plants

#### Production History

Date	Product
1915	Began sales of marine carbonic acid gas refrigerators.
1946	Began sales of small-sized open-type condensing units.
1952	Began sales of multi-cylinder refrigerators.
1953	Began sales of packaged-type air-conditioners.
1956	Began sales of air-conditioners for residential use.
1957	Began sales of automotive thermal systems.
1961	Began sales of air-cooled heat pump package-type air-conditioners.
1967	Began sales of marine transport refrigeration units.
1970	Began operation of district heating and air-conditioning system in Senri New Town.
1971	Began sales of split-type room air-conditioners.
1978	Began sales of wall-mount type commercial use air-conditioners.
1980	Began sales of ceiling recessed commercial use air-conditioners.
1981	Began sales of pressure cooling units.
1982	Began export of automobile air-conditioners to the U.S.A.
1984	Began sales of ceiling-suspension, wall-mounted, floor-standing conversional air-
	conditioners.
1986	Began sales of a high-temperature heat-pump system for industrial use.
1987	Began sales of a very-high-air-temperature outlet, fast pull-down residential heat
	pump and a low-air-temperature outlet, fast pull-down residential air-conditioner.
	Began sales of a heat pump high-temperature self-cleaning anti microbe soft ice
	cream freezer.
1988	Began sales of ceiling fan type indoor unit.

Date	Product
1989	Began sales of a fuzzy control high-temperature-air outlet heat pump.
	Began operation of a district heating and air-conditioning system designed to use
	waste heat from the subway in Sapporo.
1990	Began sales of zone air-conditioners for outdoor use.
	Began sales of PSA-feron recovery equipment.
1991	Began sales of underfloor-type air-conditioning systems.
	Developed an ethylene removal system.
1992	Began sales of land-use container freezing units (achieved -30°C) using CFC22.
1993	Began sales of a residential use air-conditioners with a highly efficient new-type DD
	scroll compressor.
1994	Began sales of space-saving air-conditioners for commercial use incorporating
	horizontal scroll compressors.
	Began sales of ice-storage-type commercial use air-conditioners.
1995	Began sales of roof air-conditioners to be installed in the roofs of camping cars.
	Began sales of refrigerant-heating-type commercial use air-conditioners.
1996	Began sales of small-size split-type refrigerating and freezing units designed for use
	with the new cooling agent R404.
1997	Began sales of the triple DD scroll compressor air-conditioner designed for use with
	the new cooling agent R410A.
1998	Began sales of high efficiency and high-grade residential use air-conditioners (the
	RZ series).
1999	Began sales of high-efficiency residential use air-conditioners with a new ventilation
	mechanism (the BLSV series).
	Began sales of high-efficiency inverter-type commercial use air-conditioners (the
	HiCoP25 series).
2000	Began sales of an air-conditioner for residential use which can be operated via the
	internet (the e-@ir).
	Began sales of multi-type ice storage air-conditioners for buildings (the High Peak
	Shift & Cut series).
2001	Began sales of speedy heating/cooling and low-noise air-conditioners based on jet
	engine technology (the SD series).
	Began sales of the world's highest-efficiency centrifugal liquid chiller designed for
	use with R134a (the NART series).
2002	Began sales of inverter-type commercial use air-conditioners (the Hyper-Inverter
	series).

Date	Product
2003	Began sales of centrifugal liquid chillers with the world's highest partial load efficiency (the NART- series).
2004	Began sales of an inverter-type variable flow air-conditioners for buildings (the Hyper Multi LX series).
2005	Began sales of high-efficiency gas heat pump air-conditioners (GHPs) (the ECO7 series).
2006	Began sales of TFV2000D, the country's first freezing unit for trailers.
2007	Began sales of the New SJ series, and the New ZJ series residential air-conditioners.

#### Brief History of the Production Site

Date	Product
1962	The Biwajima plant was established as part of the Nagoya Machinery Works.
1982	The Biwajima plant began operating independently as the Nagoya Air-Conditioning
	& Refrigeration Machinery Works.
1987	"Nagoya" dropped from the name of the Works (new name: Air-Conditioning &
	Refrigeration Machinery Works).
2000	Air-Conditioning & Refrigeration Systems Headquarters established as a
	consolidated entity with sales and production divisions.

#### Area (As of April 1, '07)

	Area (m²)					
	Site	Building				
Biwajima plant	158,858	121,108				
Matsusaka plant	176,386	47,833				
Air-Conditioning & Refrigeration Machinery Technical Training Center	30,123	9,409				
Turbo & Absorption Chiller Department resident		1,244				
Total	365,367	179,594				

#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Air-Conditioning Refrigeration Systems Headquarters	1,291	1,438	1,382	1,335	1,267	1,139	1,072	1,045	1,016	984

- No. of employees as of March 31 each year
   Data 1999 is No. of employees in Air-Conditioning & Refrigeration Machinery

#### Annual Production Capacity

Commercial use air-conditioners ("Saison" air conditioner for stores, packaged air conditioners, etc.)

......240,000 units Automotive thermal systems (compressor) Motor drive...... 130,000 units Transport refrigeration units (truck and trailer refrigeration units, bus air conditioners) ...... 61,000 units

Centrifugal chiller (centrifugal chiller) ...... 250,000 refrigerating tons

# Production Distribution Commercial industrial packaged air conditioner Residential use air conditioner Automotive thermal systems Applied refrigeration use machinery Transport refrigeration machinery Centrifugal chiller (bil.yen) 200 -150 -100 1999 2000 2001 2002 2003 2004 2005 2006 2007

1. Figures in the column are in percentage (%) unit 2. Figures on the column show the amount of total annual production. (unit: billion yen)

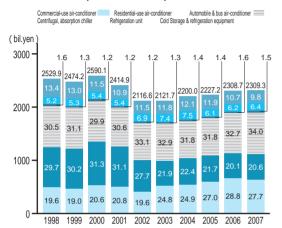
#### Main Production Facilities

Machinery equipment	Machining centers, NC lathes, NC grinding machines, NC turning centers, etc.
Assembling equipment	Packaged air-conditioner assembly line, automotive thermal systems line, compressor assembly lines, etc.
Sheet metal & welding	Heat exchanger assembly lines, vacuum brazing furnace for heat exchangers, Nocolok brazing furnace, large-size press line, forging press
Surface treatment & coating	Phosphoric acid coating treatment, hard anode oxidization treatment, cationic electrodeposition coating treatment
Test Facility	Large-capacity refrigeration plant test facility (capable of refrigerating up to 10,000 tons)

#### 8. Paper & Printing Machinery Division



# Air-Conditioning & Refrigeration Products Total Demand (1998.4 ~ 2008.3)



- : 1. Figures in the column are in percentage (%) unit
- Figures on the column show the amount of total annual production. (unit: billion yen)
- Figures are based on "the Machine Statistics Monthly Report" by Ministry of Economy, Trade and Industry. (Domestic + Export)

#### Outline

The Paper & Printing Machinery Division handles two categories of products, all remarkably successful domestically and overseas.

The vast line of presses manufactured by the printing machinery section includes the new series of DIAMOND V sheet-fed offset presses, along with commercial and publication web offset and newspaper web offset presses. These products attest to that active technical developments that enable MHI to meet the demand for various applications, from low- to high-volume printing, and from highly diverse lot printing to high-quality printing.

The paper-converting machinery section manufactures corrugating machines for the production of corrugated cardboard sheets and box-making machines. This section is highly adept at responding to global needs for computerized systems in the paper manufacturing industry.

#### Main Products

- Printing machinery: sheet-fed offset presses, commercial web offset presses, newspaper offset presses
- Paper-converting machinery: corrugating machines, box-making machines

## Production History

Date	Product
1952	Completed the first paper machine (fourdrinier and multi-dryer cylinder type).
1956	Started the production of paper converting machinery.
1961	Delivered the first biaxially oriented film production line.
1962	Started the production of printing presses.
1964	Delivered the first non-oriented film production line.
1966	Delivered the first newspaper offset press.
1967	Completed the first single-color sheet-fed offset press (the DAIYA).
1977	Developed a commercial web offset press (the LITHOPIA-500).
1987	Commercial test-operation of the world's first dual-deck corrugating machine (the
	Mitsubishi U-corrugator).
1990	Commenced production of newspaper offset presses with 322 rotary folder exports to the
	U.S. market.
1994	Began sales of a board machine (the MH-B former).
1997	Began sales of a new box-making machine (the Summit-X).
2001	Launched the DIAMOND series sheet-fed offset presses to target requirements of the
	21st century.
	Began sales of a high-speed paper machine (the MJ series).
2002	Launched the DIAMOND3000TP Tandem Perfector press based on Mitsubishi's unique
	perfecting unit (launched by MHI).
2003	Began sales of a new high-speed box-making machine (the EVOL).
2007	Launched the DIAMOND V series sheet-fed offset presses.

#### ■ Brief History of Production Site

Date	Product
1943	Established the Mihara rolling stock works.
1955	Renamed the Mihara Machinery Works.
2000	Paper & Printing Machinery Division established as an integrated organization with
	sales and manufacturing divisions (from April 1).

#### **Area** (As of April 1, '08)

	Area	(m²)
	Site	Building
Itozaki Plant	305,000	209,252
Kohama Plant	51,000	22,536
Wadaoki Plant	668,000	28,370
Total	1,024,000	260,158

Site area is shared with Plant and Transportation Systems Engineering & Construction Center.

#### **Employees**

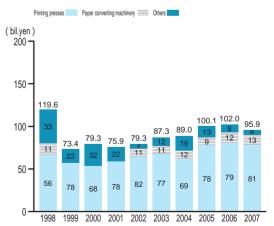
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Itozaki Plant	2,176	2,297	1,592	1,519	1,492	1,392	1,347	1,468	1,428	1,341
Kohama Plant	219	136	160	159	95	88	101	92	53	54
Wadaoki Plant	234	117	132	110	88	80	76	73	86	87
Total 2	2,629	2,550	1,884	1,788	1,675	1,560	1,524	1,633	1,567	1,482

- 1 No.of employees as of March 31 each year
- 2 Data 1999 is No.of employees in Mihara Machinery works includes that of Paper & Machinery Division

# Annual Production Capacity

Box making machines...... 36 units





- Note: 1. Figures in the column are in percentage (%) unit
  - 2. Figures on the column show the amount of total annual production. (unit: billion yen)

#### 9. Machine Tool Division

#### Outline

The Machine Tool Division manufactures various machine tools, precision cutting tools, auto parts (engine valves and transmission parts), and power transmissions at its main plant at Ritto in Shiga Prefecture, and the Iwatsuka plant (Nagoya).

The Division has accumulated technologies highly praised in and outside of Japan, as a pioneer in the Japanese Machine Tool Industry. It Division aims to reach the maximum limits for productivity, accuracy, and performance. The sundry products manufactured meet the diverse requests of customers and supply industry with the very best machines and services for machining processes.

Foremost among the precision cutting tools produced in the Division is the world's first dry cutting hob capable of that completely dry cutting, available since 2002. The Division is a total manufacturer of gear cutting tools, renowned worldwide for its versatile skills in the production of both precision cutting tools and gear cutting machines, and for the outstanding new products it develops based on its extensive experience. In May 2005, MHI established Mitsubishi Heavy Industries India Precision Tools, Ltd., a production base for precision cutting tools expected to increase MHI's share in Indian and other overseas markets.

The Division began producing engine valves for the Zero Fighter, and now it produces valves mainly for automobiles. The technical expertise and quality capabilities cultivated by the Division through years of experience are prized in both domestic and overseas markets, accompanying an active overseas expansion in deployment. The Division began producing engine valves with MHI's Chinese joint venture partner, Shenyang Aerospace Xinguang Mitsubishi Heavy Industries Engine Valve Co., Ltd., in April 2005.

The Division uses its gear cutting machines to mass produce transmission parts and power transmissions. The technologies acquired through operations are used to develop transmission parts, power transmissions, and machine tools.

#### Main Products

- Machine tools: machining center, large machine (boring and milling machines), specialpurpose machine, gear cutting machine, cylindrical grinding machine
- Precision machinery products: precision cutting tools, engine valves, transmission parts, transmission devices, precision position feedback sensor

#### Production History

Date	Product
1944	Began production of aircraft engine valves.
1953	Developed Japan's first transfer line for mass-production.
1960	Began production of the Mitsubishi-Innocenti CWB milling-and-boring combined
	machine.
1961	Began production of the Mitsubishi-Lorenz hobbing machine.
1963	Began production of worm gear units.
1966	Began production of the Mitsubishi-Reihauer shaving cutter grinder.
1967	Developed Japan's first NC horizontal boring mill. Began sales of the MAF machine.
1968	Developed the Mitsubishi horizontal machining center (the MPA Series).
1978	Began production of the Mitsubishi-Warner Swasey cylindrical grinding machine.
1980	Developed Japan's first NC gear hobbing machine.
	Began sales of the GH400NC.
	Developed the Mitsubishi Planetary traction drive units.
1983	Developed Japan's first NC cylindrical grinding machine (the A6G/P6G).
1985	Began sales of a vertical precision milling machine (the M-VR series).
1986	Completed the world's largest-class NC milling-and-boring combined machine (the
	Supermiller).
1987	Developed a high-speed, high-precision die and mold machine (the M-KR series).
1997	Developed a dry cutting system. Began sales of SuperDry hobbing machines (the
	GN series and SuperDry hob).
2003	Began sales of the new vertical precision milling machine (the MVR series).
2004	Began sales of E series machines for gear manufacture: SuperDry hobbing machine
	(the GE series), SuperDry gear shaping machine (the SE25A), gear shaving
	machine (the FE30A), and gear grinding machine (the ZE series).
	Began sales of large-size die and mold machine (the MVR-FM series).
2005	Developed the world's first wafer bonding machine operable at room temperature for
	MEMS.

# ■ Brief History of the Production site

#### Hiroshima

Date	Product
1939	Toyo Kikai Company established. Commenced the manufacture of lathes at the
	Hiroshima Plant.
1943	Toyo Kikai Company renamed Mitsubishi Machine Tool Company.
1945	Mitsubishi Machine Tool Company merged into Mitsubishi Heavy Industries, Ltd.
	Hiroshima Plant renamed the Hiroshima Works.
1982	Hiroshima Machine Tool Works established under the direct authority of the Mass-
	Production Headquarters.

#### Ritto

Date	Product
1944	The former Mitsubishi Heavy Industries, Ltd. commenced production of aircraft
	engine valves at Kyoto Machinery Works (Uzumasa).
	Production of aircraft engines commenced at Kyoto Engine Works (Katsura).
1970	Automobile Division separated from the Kyoto Machinery Works. Plant renamed the
	Kyoto Machinery Works of Mitsubishi Heavy Industries, Ltd.
1983	Ritto Plant constructed in Ritto, Shiga Prefecture, Japan.
1986	Universal machine manufacturing plant constructed in Ritto Plant.

After integration

Date	Product
2000	Kyoto Machinery Works and Hiroshima Machine Tool Works of Mitsubishi Heavy
	Industries, Ltd. integrated and renamed Machine Tool Works (January).
	Machine Tool Division established in order to integrate production and sales
	operations (April).
2003	No. 2 Machine Tool Plant constructed. Hiroshima Plant moved and integrated into the
	Ritto Plant.
2004	Mitsubishi Heavy Industries Machine Tool Sales Co., Ltd. established as a
	dedicated machine tool sales subsidiary in Japan (April).
	MHI Machine Tools H.K., Ltd. established as a dedicated machine tool sales/service
	subsidiary in Hong Kong (December).
2005	Integrated production of power transmissions (Iwatsuka Plant) with the Machine
	Tool Division (April).
	Mitsubishi Heavy Industries, Ltd. acquired Indian tool company S.R.P. Tools Limited.
	Mitsubishi Heavy Industries India Precision Tools, Ltd. established (May).
	Shenyang Aerospace Xinguang Mitsubishi Heavy Industries Engine Valve Co., Ltd.
	established in China as a joint venture for engine valve production (October).

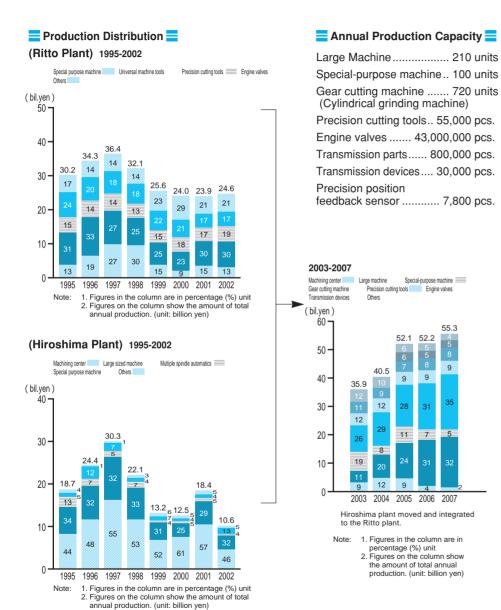
# Area (As of April 1, '08)

	Area (m²)				
	Site	Building			
Ritto Plant	368,800	79,120			
Iwatsuka Plant	14,202	14,202			
Total	383,002	93,322			

# Employees

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Ritto Plant	814	845	851	784	713	836	826	834	829	833
Hiroshima Plant	523	434	285	281	261	1	-	-	-	-
lwatsuka Plant	-	-	-	-	-	-	-	84	86	83
Total	1,337	1,279	1,136	1,065	974	837	826	918	915	916

No.of employees as of March 31 each year



3. Figures until FY2002, due to relocation

Main Production Facilities									
Metal work equipment	Large-scale machining line (max × 4.2m width in portal × 11m length) Large-size square parts FMS (flexible manufacturing system), square parts mass-production FMS Machining center cell, gear-cutting tool-machining line Broach cutters machining line, engine valves machining line Engine valve hot forging line, transmission part machining line (Machining centers, grinding machines, gear-cutting machines, etc. (over 800))								
Special-purpose equipment	Carburizing furnace, salt bath furnace, induction hardening equipment Plasma-coating furnace, three-axis measuring equipment, gearmeasuring equipment								

# 10. On the Restructuring of Industrial Machinery Operations

Effective April 1, 2005, MHI established three wholly owned subsidiaries to respectively handle food packaging machinery, injection molding machinery, and commercial-use laundry machinery businesses: Mitsubishi Heavy Industries Food & Packaging Machinery Co., Ltd., Mitsubishi Heavy Industries Plastic Technology Co., Ltd., and Mitsubishi Heavy Industries Industrial Machinery Co.

By establishing these companies and integrating the development and manufacturing functions of MHI and the sales and service functions of affiliates, MHI aims to accelerate decision-making processes and enhance its abilities to respond to markets and customers. If successful in these endeavors, MHI expects to win out in its competitions with the companies specialized in these products.

Four product groups have been consolidated into other departments to produce maximized synergy effects:

- · Food & Packaging Plant
  - → Mitsubishi Heavy Industries Food & Packaging Machinery Co., Ltd.
- · Injection molding machines
  - → Mitsubishi Heavy Industries Plastic Technology Co., Ltd.
- · Cleaning & washing equipment
  - → Mitsubishi Heavy Industries Industrial Machinery Co., Ltd.
- · Industrial robots
  - → Machinery & Steel Structures Headquarters [Sales: Mitsubishi Heavy Industries Industrial Machinery Co., Ltd.]
- · Power transmission
  - → Machine Tools Development
- · Gasoline engines
  - → General Machinery & Special Vehicle Headquarters

New companies

Transfer to other departments

# **W.** Works

Nagasaki Shipyard & Machinery Works
Kobe Shipyard & Machinery Works
Shimonoseki Shipyard & Machinery Works
Yokohama Dockyard & Machinery Works
Hiroshima Machinery Works
Takasago Machinery Works
Nagoya Aerospace Systems Works
Nagoya Guidance & Propulsion Systems Works
Plant and Transportation Systems
Engineering & Construction Center

## 1. Nagasaki Shipyard & Machinery Works

#### Outline

The Works was established in 1857 as "Nagasaki Yotetsusho," the first warship repair facility in Japan. In the years since the Works has grown as both a shipbuilder and manufacturer of machinery, leading the industry both in quality and quantity. The Works presently consists of four plants: the Main plant, the Koyagi Plant, the Saiwaimachi Plant, and the Isahaya Plant. The shipbuilding division excels in the building of ships with value added, such as LNG ships, LPG ships, and cruise ships. The machinery division contributes to the development of society as a producer of thermal, geothermal, and wind power plants, as well as solar cells, pollution control equipment, desalination plants, and marine machinery. The Works also participates in the production of space equipment based on long years of accumulated experience and technology, and develops new fields and products, including its fuel-cells-integrated cool gasification combined-cycle power plant.

#### Area (As of April 1, '08)

	Area (m²)				
	Site	Building			
Main Plant	586,584	332,432			
Saiwaimachi Plant	68,298	67,126			
Koyagi Plant	1,606,065	440,495			
Isahaya Plant	135,961	40,070			
Total	2,396,908	880,123			
Nagasaki R & D Center	201,906	74,077			

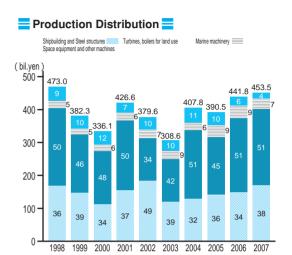
#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Main Plant	4,632	4,463	4,297	4,147	4,059	4,010	3,906	3,722	3,557	3,582
Koyagi Plant	2,067	2,074	2,003	1,951	1,937	1,825	1,742	1,714	1,861	1,769
Saiwaimachi Plant	324	318	309	289	296	297	288	291	291	294
Isahaya Plant	116	139	153	156	160	167	156	157	163	182
Total	7,139	6,994	6,762	6,543	6,452	6,299	6,092	5,884	5,872	5,827
Nagasaki R & D Center	447	445	438	433	426	420	426	419	417	415

No. of employees as of April 1 each year

#### Annual Production Capacity

for land use ...... 4,000,000 kW Steam turbines



Note: 1. Figures in the column are in percentage (%) unit 2. Figures on the column show the amount of total annual production. (unit: billion yen)

# Production Facilities < Main Plant > Shipbuilding facilities

		Length (m)	Breadth (m)	Draft (m)	Shipbuilding capacity(dwt)
Drydock	No. 1 No. 2 (repair) No. 3 (repair)	375 350 276.6	56 56 38.8	14 14 12.3	(approx.) 225,000 300,000 95,000
Building berth	No. 1•2	324	56	-	80,000
Quay	Tategami Hachikenya Mukojima Akunoura Mizunoura	226 155 328 167 244	- - - -	10.0 8.5 9.5 7.5 6.0	70,000 D.T. 4,700 300,000 260,000 90,000

Note: D.T. for displacement tonnage

# **Turbine and Boiler Manufacturing Facilities**

Machining Facilities	Large NC combined production milling machine "2 GAUNTRY PRANOMATIC" 8,200(throad) × 4,200(H) × 45,000(travel)mm  Large NC lathe: 3,500 × 12,000(L)mm  Large NC vertical lathe: 8,500 × 5,000(L)mm  Large gear cutting machine: 7,500 × 2,300(B)mm
Assembly Facilities	Turbine-rotor large high-speed balancing test facilities Turbine governor test facilities
Boiler Production Facilities	8,000-ton hydraulic press Annealing furnace: 4,000(W) × 3,750(H) × 26,000(L)mm 350-ton overhead travelling crane(overhang)
High-tech Facilities	Computer control systems assembling tester, Environmental testing facilities, Simulator training center, Global net diagnostic center, Photovoltaics manufacturing facilities, Fuel cell manufacturing facilities

# < Koyagi Plant > Shipbuilding facilities

		Length (m)	Breadth (m)	Draft (m)	Shipbuilding capacity(dwt)
Dock	Building Repair	990 400	100 100	14.5 ~ 9.55 14.5	(approx.) 1,000,000 500,000
Quay	East No. 1 & No. 2	683	-	9.5	500,000 × 2
	East No. 3	370	-	9.5	500,000

#### **Boiler and Wind Turbine Manufacturing Facilities**

Boiler Production Facilities (Superheater & Reheater Tube Shop)	TIG automatic welder Continuous bender Continuous heat-treatment facilities Assembling and welding robot
Boiler Production Facilities (Furnace Wall & Economizer Tube Shop)	Multiple head panel processing machine - capable of 44 welding head simultaneous welding Automatic tube elongation facilities Spiral fin-tube welder Assembling and welding robot
Boiler Production Facilities (Pipe-Header Shop)	High-frequency pipe bender, Automatic laser marking facilities, NC header boring machine MIG automatic welder Header nozzle welding robot Electron beam welding machine
Boiler Production Facilities (Module Shop)	Tube header prefabrication shop Large sized annealing furnace; 7,500(W) × 7,500(H) × 13,000(L)mm 200-ton overhead travelling crane(overhang)
Assembly Facilities	Large Fan test facilities, Wind turbine-generator assembly line

# 2. Kobe Shipyard & Machinery Works

#### Outline

The Kobe Shipyard and Machinery Works was started in 1905 mainly as a facility for repairing ships. Today it comprises the Main Plant and the Futami Plant. The marine division, manufactures quality vessels such as container ships, pure car and truck carriers, submarines, and deep submergence research vehicles. The machinery division, meanwhile, manufactures diverse equipment and structures such as nuclear power plants, diesel engines, toll-collection systems, mechatronics system equipment (ex. experimental equipment), and power train (servomotors for electric vehicles). This broad spectrum of products is making major contribution to industrial development and the building solid social and industrial infrastructure. The Works fully applies its rich experiences and sophisticated technologies to tackle the growing need for Intelligent Transport Systems, fuel cells, robots, semiconductor equipment and space equipment, and pioneering in new fields.

#### Area (As of April 1, '08)

	Area	(m²)
	Site	Building
Main Plant	669,100	406,000
Futami Plant	501,100	52,400
Total	1,170,200	458,400

#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Main Plant	5,399	5,400	5,190	4,803	4,684	4,484	4,345	4,255	4,172	4,084
Futami Plant	176	177	166	161	160	162	161	152	148	145
Taibi Plant	37	34	29	26	-	-	-	-	-	-
Total	5,612	5,611	5,385	4,990	4,844	4,646	4,506	4,407	4,320	4,229

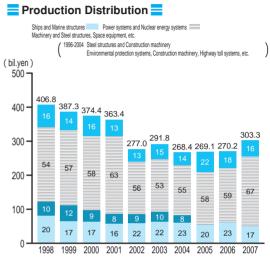
No.of employees as of March 31 each year

Note: Taibi Plant was consolidated into the Main Plant as of October 1, 2002.

## 

Toll-collection machinery (incl.

related systems) ...... 600 lanes



te: 1. Figures in the column are in percentage (%) unit

Figures on the column show the amount of total annual production. (unit: billion yen)

# Production Facilities

#### **Shipbuilding Facilities**

			Length (m)	Breadth (m)	Draft (m)	Shipbuilding capacity(dwt)
Dock	No. 1* No. 4		95.0 301.5	19.0 43.7	11.7 9.5	4,300 160,000
Building berth	No. 3 No. 4-1 No. 4-2 Marine structure berth		305.0 136.0 104.0 289.6	61.4 12.0 19.0 33.8	- - -	310,000 24,500 33,000
Mooring pier	No. 1 No. 2 No. 3 No. 4 No. 5	1 2 1 2 3 1 2 3 2	160 295 350 120 290 160 295 295 295 220	- - - - - -	6.0 8.2 8.2 4.8 8.5 8.5 9.0 8.5 7.3	16,000 150,000 250,000 10,000 150,000 16,000 150,000 150,000 65,000

Note: \* indicates floating dock.

#### **Machinery Production Facilities**

Machina tagla	Super Miller (NC Centry Type Type Types and Milling Machine)
Machine tools	Super Miller(NC Gantry-Type Turning and Milling Machine) 13,000(B) × 12,500(H) × 32,500(Travel)mm max size for work pieces: 11,500 × 12,500(H)mm NC horizontal boring mill 14,000(Travel) × 5,800(H)mm Five-face fabrication haibe 3,800(B) × 3,050(H) × 5,000(Travel)mm Machine tool for core barrel fabrication max. size for work pieces: 6,300mm × 8,400mm Turn Miller(Turning and Milling Machine) 6,550(B) × 4,500(H) × 7,000(Travel)mm Table Diameter 5,000 × 6,500(H)mm Machine tool for monoblock fabrication 4,700(B) × 5,200(H) × 12,000(Travel)mm Large NC lathe max size for work pieces: 2,700 × 15,000(L)mm Large Turning Center max size for work pieces: 15,000 × 4,500(H)mm Gantry Miller 7,400(B) × 7,200(H) × 30,000(Travel)mm Deep hole driling machine (5 spindles BTA) 5,000(B) × 4,000(H) × 1,025(D)mm
Bending and Heat treatment equipment	6,000-ton hydraulic press Heat treatment Furnace size: 13,000(B) × 12,000(H) × 26,000(L)mm
Welding equipment	Electron beam welder output : 150kW YAG Laser welder output : 6kW
Steel structure facilities	Bending roller (3rollers): max size for work pieces 110mm (thickness), 4,000mm (breath) Bending roller (4rollers): max size for work pieces 60mm (thickness), 5,000mm (breath) Hydraulic press machine: max press weight 2,000 ton Panel welding robot: coverage 5,000(B) × 20,000(L) × 1,000(H)mm NC gas plasma cutting machine: max size for work pieces 5,000mm (breath) NC high speed drilling machine: max size for work pieces 5,000mm (breath)
Sheet metal facilities	NC gas plasma cutting machine Abrasive jet cutting machine
Operating facilities	Water brake dynamometer : 4

# 3. Shimonoseki Shipyard & Machinery Works

#### **Other Facilities**

Nuclear Service Center	This center was established for the purpose of shortening refueling outage work period and reducing radiation exposure. The ultimate objective is improvement of plant reliability and availability. To achieve these purposes, this center is used for training refueling outage workers and functional testing of newly developed tools using mockups.
Mitsubishi Maintenance Training Center	This center is equipped with full-size models of reactor vessel and core internals available for high-reliability verification and training in various maintenance and servicing activities for heavy components within the containment vessel including, for example, remotecontrolled underwater operations on nuclear power plants.
Simulator Center	This center is furnished as a facility to develop and verify software for all kind of control devices and training simulators for nuclear power plants. Also, the latest full-scale PWR simulator is equipped to support software verification of control devices, improvement in human-machine interface, and educational training.
Super Heavy Component Shop at Futami Plant	This shop is equipped with the following facilities to accommodate assembly and welding operations for the large-sized reactor pressure vessels of nuclear power plants: super miller (NC gantry-type turning and milling machine), automatic large welding equipment, X-ray examination equipment, heat treatment furnace, etc.
Mechatronic Equipment Shop	This shop assembles and tests various robots and control panels for nuclear systems and other industrial systems.
Kobe Space Center	The facility is equipped with a clean room for the assembly and testing of high-precision products and devices that require absolute cleanliness (such as space equipment, semiconductor production equipment, and so on), as well as related research and development. High-density plasma chemical vapor deposition equipment has also been installed at the site for demonstrations in conduct semiconductor fields.
Toll-Collection and Traffic Control System Shop	This shop assembles toll-collection systems. The facilities are equipped to perform environmental tests with variable temperature, moisture, and vibration. Shielded rooms and a host of different instruments are on hand for tests and inspections.
Intelligent Transport System (ITS) Test Course	The ITS test course is used for the development, experimentation, and verification of toll-collection equipment, noise barrier testing (Active Soft Edge), and various ITS products. Three straight lanes (400m in length) and twelve tollgate lanes are used.

#### Outline

This Works was established in 1914 as a facility for ship repair. Today it consists of two plants, the Enoura Plant and Yamatomachi Plant. The shipbuilding department specializes and excels in building special-purpose vessels such as cable layers, ocean research vessels, luxury ferries, high-speed RORO boats, all types of light-alloy high-speed ships, and other value-added vessels. The machinery department produces various products such as deck machinery, air preheaters, testing systems, hydraulic machinery, and FRP components.

#### Area (As of April 1, '08)

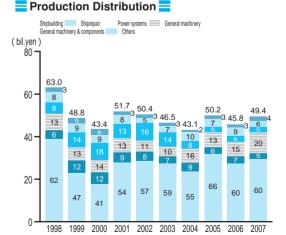
	Area (m²)					
	Site	Building				
Enoura Plant	131,303	50,578				
Yamatomachi Plant	131,430	51,128				
Total	262,733	101,706				

#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Enoura Plant	742	742	720	667	621	595	567	586	607	613
Yamatomachi Plant	359	351	335	318	326	297	274	276	285	312
Total	1,101	1,093	1,055	985	947	892	841	862	892	925

- 1 Data from 2000 to 2008 is No.of employees as of March 31
- 2 Data 1999 is No.of employees as of April 1st

#### Annual Production Capacity



- Note: 1. Figures in the column are in percentage (%) unit 2. Figures on the column show the amount of total annual
  - production. (unit: billion yen)

# Main Production Facilities Shipbuilding Facilities

		Length (m)	Breadth (m)	Draft (m)	Shipbuilding capacity(dwt)
Berth	No. 1	-	-	-	-
	No. 2	185.9	53.2	-	33,000
	Light-alloy ship shop	84.0	24.7	-	600
Dock	No. 1	164.1	23.8	9.5	17,000
	No. 2	217.0	32.0	10.0	40,000
	No. 3	82.8	16.3	5.9	4,000
	No. 4	55.6	10.5	4.4	1,000
Quay	No. 1	200.0	-	6.0	33,000
	No. 2	200.0	-	6.2	33,000
	No. 7	88.0	-	5.5	9,000
	No. 8	117.0	-	6.0	40,000
	No. 14	80.2	-	6.0	40,000

During now, Light alloy ship facilities expansion.

#### **Machinery Production Facilities**

Sheet metal facilities	Hydraulic press NC plasma & gas cutting machine Automatic welding machine with twin electrodes Welding positioner for post of deck cranes Manufacturing line for elements of airpreheater Arc welding robot
Machining facilities	Milling, boring and combined machine "MAF" NC large vertical lathe Precision milling machine Turning center: machining dia. Various NC machine tools
Assembly facilities	Winch test tower Deck crane operating facilities Hydraulic machinery test stand
Composite facilities	Ray-up room Autoclave Ultrasonic c-scan X-ray inspection equipment Material testing equipment instron Filament winding, Prepreg cutting machine

# 4. Yokohama Dockyard & Machinery Works

#### Outline

The Yokohama Dockyard & Machinery Works reaches its history back to 1891 with the establishment of Yokohama Dock Company, Ltd. Originally set up for the purpose of ship repairs, the company later extended its business line to include shipbuilding and machinery production. In 1935, Yokohama Dock Company was merged with Mitsubishi Heavy Industries (and became known as the Yokohama Shipyard and Engine Works).

To meet expanding production requirements an additional plant was opened in Honmoku in 1966. In 1982, in conjunction with "Minato Mirai"— a project devised by Yokohama City to promote redevelopment of urban coastal districts — the Works was moved from the site it had occupied since its founding to Honmoku Plant and Kanazawa Plant a year later the Works was renamed Yokohama Dockyard and Machinery Works.

Today's Yokohama Dockyard & Machinery Works offers technology and products designed to achieve a more comfortable society. With a full understanding of future social needs, the Works remains totally committed to meeting the challenges for new technologies and new fields.

#### Area (As of April 1, '08)

	Area	(m²)
	Site	Building
Kanazawa Plant	329,994	125,608
Honmoku Plant	523,736	132,268
Total	853,730	257,876
Advanced Technology Research Center	31,800	11,112
Yokohama R & D Center	15,953	9,566

Note: Parts of the Advanced Technology Research Center and Yokohama Research & Development Center are physically located within the Yokohama Dockyard, though the employees of these two research centers are not counted as employees of the dockyard

#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Kanazawa Plant	1,100	1,111	1,125	1,124	1,112	1,082	1,029	966	915	876
Honmoku Plant	836	849	857	793	794	784	764	683	564	409
Total	1,936	1,960	1,982	1,917	1,906	1,866	1,793	1,649	1,479	1,285
Advanced Technology Research Center	102	106	84	76	72	77	79	67	44	46
Yokohama R & D Center	106	115	118	120	119	119	115	112	110	106

No.of employees as of March 31 each year

#### Annual Production Capacity

 Ship repair
 6,600,000 GT

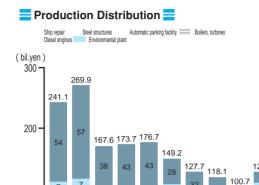
 Steel structures
 22,000 t

 Boilers
 5,600 t/h

 Turbines
 534,000 kW

 Diesel engines, Gas engines
 400,000 kW

 Marine machinery
 40 units



Note: 1. Figures in the column are in percentage (%) unit

2. Figures on the column show the amount of total annual production. (unit: billion yen)

1999 2000 2001 2002 2003 2004 2005 2006 2007

# Main Production Facilities Ship repairing facilities (in Honmoku Plant)

		Length (m)	Breadth (m)	Draft (m)	Capacity(dwt)
Dock	1RD 2RD 3RD	350.0 270.0 180.0	60.0 60.0 30.0	8.8 9.8 10.7	270,000 120,000 38,000
Mooring Pier	1W 3AW 3BW 4W 6W 7W	334.0 196.0 208.0 413.0 250.0 270.0	- - - -	9.0 9.0 9.0 7.0 10.0 12.0	200,000 25,000 38,000 250,000 75,000 75,000

#### **Machinery Production Facilities**

Machine tools	Combined production milling machine  NC machining area: 4,300(B) × 4,000(H) × 20,000(L)mm  Horizontal boring machine: 4,000 × 15,000mm  Flexible manufacturing system for parts of diesel engine, gas engine:  Horizontal type machining center × 4  Automatic pallet changer × 1
Operating facilities	Diesel engine, Gas engine : 16,000kW × 4, 18,000kW × 2 Controllable pitch propeller Propeller dia : 10,000mm
Boiler production facilities	4,000-ton hydraulic press Annealing furnace max. : 150 tons, 5,000(B) × 20,000(L) × 3,500(H)mm X-ray equipment : LINATRON-M6A
Steel structure facilities	NC Plasma cutting machine : $7.3m(B) \times 30m(L) \times 1$ NC Laser cutting machine : Max power $6kW : 4.1m(B) \times 25m(L) \times 1$ NC Milling, boring and combined machine "MAF" : $\times 1$ NC Drilling machine : $5.5m(B) \times 1$ NC Welding robot : $5.2m(B) \times 55m(L) \times 1$ Hydraulic press : $1,000ton \times 1,300ton \times 1$ Bending machine : $6m(B) \times 1$

## 5. Hiroshima Machinery Works



This Works was established as the Hiroshima Shipyard & Engine Works in 1944. Later, after the separation of the marine division in 1986, the Works was renamed the Hiroshima Machinery Works. The two main sites, the Kan-on and Eba Plants, have continued to produce a wide range of products since. The Kan-on Plant produces and constructs various industrial machinery and plants such as turbo machinery, rubber and tyre machinery, and iron and steel manufacturing machinery. The Eba Plant produces and constructs cranes, and material handling systems, and assembles the fuselage panels for commercial aircraft, helicopter cabins, and so on.

#### Area (As of April 1, '08)

	Area	(m²)
	Site	Building
Eba Plant	692,770	131,605
Kan-on Plant	680,904	204,906
Total	1,373,674	336,511
Hiroshima R & D Center	(36,940)	(23,267)

Note: Land and Building areas of Hiroshima Research Center are included in the Hiroshima Machinery Works

### Employees =

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Kan-on Plant	1,824	1,755	1,520	1,324	1,032	962	959	953	952	970
Eba Plant	760	724	640	640	599	602	572	552	366	314
Total	2,584	2,479	2,160	1,964	1,631	1,564	1,531	1,505	1,318	1,284
Hiroshima R & D Center	239	231	213	210	195	186	173	169	165	154

No. of employees as of March 31 each year

# Annual Production Capacity

...... 240 units

2004 ~

Note:

# Production Distribution

150 -

100 -

13

10

Bridge, Steel Stacks Crane and Material Handling System, Logistics and Distribution System
Boilers, Tudnines, Nuclear Plant Equipment Set Inon and Steel Manufacturing Machinery
Tutho Machinery Air Carl
Rubber and Tive Machinery, Packaging Machinery, Tutho Molecular Pump, General Machinery "Chemical Machinery

Tutho Molecular Pump, General Machinery

Tutho Molecul

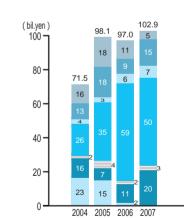
Environmental Plants and Equipment, Gas Turbine

\*General Machinery : Clean Room. Ultra High Pressure Isostatic Press, Factory and Facilities Engineering

\*\*Objected Machinery Cheal rounit, use any Pressure Susalic Press, Faculty and Pacifies Engineering

(bil.yen)

250 ¬ 239.7



Bridge, Steel Stacks Crane and Material Handling System

\* General Machinery: Clean Room, Factory and Facilities Engineering

Packaging Machinery, Turbo Molecular Pump, General Machinery\*, among others

Iron and Steel Manufacturing Machinery Turbo Machinery
Aircraft Rubber and Tyre Machinery



12

 Figures in the column are in percentage (%) unit
 Figures on the column show the amount of total annual production. (unit: billion yen) Figures in the column are in percentage (%) unit

Figures on the column show the amount of total annual production. (unit: billion yen)

# 6. Takasago Machinery Works

#### Main Production Facilities

Designing Facilities	2-and 3-D CAD systems for machine design, electric design, piping design, and civil engineering design.
Aircraft Assembly Facility	Aircraft assembly shop, automatic riveter for large-size panel, etc.
Electronic Equipment Manufacturing Facilities	Control panel manufacturing plant
Medical Device Manufacturing Facilities	Medical device assembly shop
Machine Tools for Metal Processing	Large combined machine tools, Precision large size gear machining center
Rubber and Tyre Machinery Manufacturing Facilities	Rubber and Tyre machinery assembly plant, Mixing trial facilities
Trial Run Facilities	Various equipment for trial runs of various types turbo machinery, Technical development verification equipment for crane and material handling system, New type continuous casting machine
Machine Tools for Sheet Metal	Various types of large capacity presses, Various types of bending rollers, Annealing equipment flaw detector equipment
Casting & Forging Facilities	Electric furnace, Low frequency furnace, Forging press, Annealing furnace
Steel Structure Manufacturing Facilities	Crane and material handling system FA facilities (cutting, construction assembly lines, etc.), Outside crane and material handling system continuous assembly lines

#### Outline

In 1962 this Works began operating as a turbine manufacturing plant within the Kobe Shipyard & Machinery Works, a producer of large-capacity power plants and machinery. In 1964 the plant was separated from the Kobe Works and established as the Takasago Machinery Works. Today it manufactures products such as gas, steam, and water turbines and pumps. The high-performance gas turbines produced at the Works, the most heat-efficient ever realized, contribute to the advancement of both daily life and industry all over the world.

#### **Area** (As of April 1, '08)

	Area	(m²)
	Site	Building
Main Plant	873,841	248,792
Iwanai Plant	7,120	2,220
Total	880,961	251,012
Takasago R & D Center	143,148	61,039

#### = Employees =

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Main Plant	3,065	3,082	3,132	3,248	3,285	3,188	3,172	3,235	3,374	3,645
Iwanai Plant	-	-	3	3	4	4	4	4	2	2
Total	3,065	3,082	3,135	3,251	3,289	3,192	3,176	3,239	3,376	3,647
Takasago R & D Center	462	447	416	430	407	396	386	389	384	393

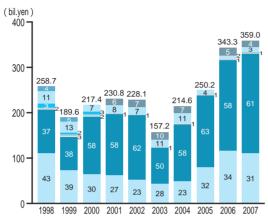
No.of employees as of March 31 each year

#### Annual Production Capacity

Gas turbines ...... 6,000,000 kW Steam turbines for thermal & nuclear power plants ...... 2,400,000 kW Water turbines ...... 750,000 kW Pumps...... 500 units

## Production Distribution

Steam turbines for thermal & nuclear power plants Gas turbines
Water turbines Blowers & compressors Pumps Refrigeration systems, heating and cooling systems



Note: 1. Figures in the column are in percentage (%) unit 2. Figures on the column show the amount of total annual production. (unit: billion yen)

#### Main Production Facilities

Machine	Flexible manufacturing cell for HP casing
tools	max. work dimension 7,400W x 7,000L mm  Turbine blade high speed machining center max. spindle rotation 24,000rpm max. work length 700mm  Large NC lathe max. work. dia. 5,500mm work length 15,000mm  Large vertical lathe max. work. dia. 12,500mm max. work. height 5,500mm  Large horizontal boring machine max. work dimension 6,500W x 8,000Hmm  Multiple spindle drilling machine: 41 & 35 spindles Side-entry milling machine max. work. dia. 3,200mm work length 15,000mm  Boring and trepanning association machine max. spindle rotation 3,000rpm max. work depth 1,000mm  Bosindles independent control
Forging equipment	High speed automatic forging machine: 100 tons x 4 heads Screw press: 10,000 tons 2,800 tons
Fabrication equipment	Hydraulic press: 3,000 tons U bend tube automatic inserting machine: 5 heads max. tube length 17.5m
Welding equipment	Electron beam welder output 45kW vacuum chamber 5,800W x 7,400L x 4,400H mm  Furnace (Large) internal diameter of the furnace 8,000W x 16,500L x 7,000H x 250 tons max. heating temperature 850  Laser beam processor: output 3.5kW max. work dimension 2,600W x 1,700L x 600H mm  Micro plasma welder: output 1.75kW max. work dimension 1,100W x 900L x 500H mm  YAG laser welding processor for combustor: output 4.5kW max. work dimension 5,000W x 800L x 800H mm  Hot press: max. temp 1,300 800 tons (2 heads)
Thermal spray equipment	Low Pressure Plasma Spray equipment max. output 120kW Air Plasma Spray equipment max. output 55kW, 6-axis robot 2-axis turntable Thermal spraying equipment for high pressure frame Gas flow mach 7, 6-axis robot 2-axis turntable
Test facilities	Steam turbine test facility steam max. 370 tons/h 30kg/cm² x 425 Turbine-rotor high-speed balancing test facility max. test rotor 5,600mm dia x 15,000mm length 200 tons weight Gas turbine component test facility max. 20kg/cm²G air flow 50kg/s Gas turbine fuel load test facility max. 132 MW, Pump load test facility max. water flow 76,500m³/h max. water flow 76,500m electric power capacity 15,000KVA (GTO inverter) Flow measurement equipment: for combustion baskets, fuel nozzles, transition pieces and turbine blade & vanes

# **™. Works**Nagoya Aerospace Systems Works

# 7. Nagoya Aerospace Systems Works

#### Outline

This Works was established in 1920 as a subsection of Mitsubishi Internal Combustion Engine Manufacturing Co., Ltd. Later, in 1956, the aircraft division split from the Nagoya Machinery Works and named itself the Nagoya Aircraft Works. Then, in 1989, the Nagoya Aircraft Works split into two entities, the Nagoya Aerospace Systems Works and the Nagoya Guidance & Propulsion Systems Works. The Nagoya Aerospace Systems Works comprises the Oye Plant, Tobishima Plant, and Komaki South Plant. In addition to designing and manufacturing products for advanced aircraft, and product-support services, the Works designs and manufactures the latest space equipments and provides launch services. To meet the growing demands of MHI's civil aircraft business, the Works commissioned a new a composite wing center at the Oye Plant in 2006.

#### Area (As of April 1, '08)

	Area	(m²)
	Site	Building
Oye Plant	364,400	305,600
Tobishima Plant	155,200	50,300
Komaki South Plant	331,700	104,000
Haneda Supply Center	800	2,600
Total	852,100	462,500

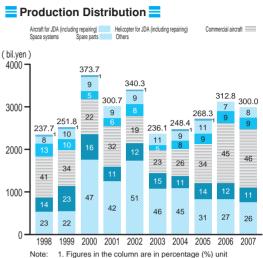
#### **Employees**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Oye Plant	2,160	2,207	2,194	2,183	2,202	2,131	2,112	2,215	2,472	2,682
Tobishima Plant	428	404	374	355	328	348	343	357	355	367
Komaki South Plant	1,244	1,270	1,323	1,296	1,258	1,264	1,267	1,283	1,331	1,347
Tanegashima Launch Services Center	-	-	-	-	-	-	-	6	7	6
Total	3,832	3,881	3,891	3,834	3,788	3,743	3,722	3,861	4,165	4,402

No.of employees as of March 31 each year

# Main Products Fixed-wing Aircraft Helicopter Commercial Aircraft

Space Systems



 Figures in the column are in percentage (%) unit
 Figures on the column show the amount of total annual production. (unit: billion yen)

# 8. Nagoya Guidance & Propulsion Systems Works

#### Main Production and R & D Facilities

Production	Drafting	Automatic drafting machine			
facilities	Detail fabrication	3 head 5 axis NC profiler 2 head 5 axis NC profiler 1 head 5 axis NC profiler 5 axis flexible manufacturing system 4 axis flexible manufacturing system Large sized 4 axis machining center Vertical NC turning lathe 5 axis NC boring machine Verson wheel on direct acting hydraulic press Hot sizing press 1500 ton skin stretcher 1250 ton press brake 150 ton frame stretcher Fabrication of stringer line Skin polishing machine 5 axis NC trim machine 3 axis NC laser scribe Chemical milling line Shot peening & forming machine NC tube bending machine Vector 1 tube measuring machine Frame roll machine Horizontal Type High speed 5-Axis profiler			
	Composite & assembly	Honeycomb milling machine Wing Automation System Prepreg cutting machine Automated tape layer Autoclave Electron beam welder Automatic riveter			
	Equip & final assembly	Helicopter blade test equipment Automatic electric circuit tester Avionics bench tester Noise Suppressor for aircraft and engines			
	Inspection	Automatic X-ray inspection equipment Automatic ultrasonic inspection equipment Large-sized CNC coordinate measuring machine FM Laser Radar Measuring equipment Video Grametry			
	Others	Clean room Plastic media blast system			
R & D facilities	60cm trisonic wind tunnel 2m low-speed wind tunnel Material test laboratory Composites laboratory Functional test (various environmental & functional tests) laboratory Structure test laboratory Flight simulators Space environmental test laboratory Radio anechoic chamber Avionics system integration laboratory Super-computer				

#### Outline =

This Works began operation in 1972 as the Komaki North Plant within the Nagoya Aircraft Works. Seventeen years later, in 1989, it became independent and named itself the Nagoya Guidance & Propulsion Systems Works. The Works now manufactures missiles, aerospace engines, and control equipment.

#### Area (As of April 1, '08)

	Area	. (m²)
	Site	Building
Main Plant	382,103	157,162
Tashiro Field Laboratory	1,176,000	4,244
Total	1,558,103	161,406

#### **Employees**

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
M	lain Plant	1.610	1.605	1.666	1.669	1.658	1.641	1.612	1.662	1.732	1.849

No.of employees as of March 31 each year

#### Main Products

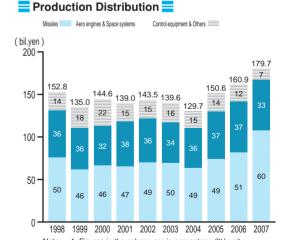
Missiles

Aero engines & Space systems Control equipment

Transmission system for helicopter

Engine test cell

Hybrid IC for heavy environment



Note: 1. Figures in the column are in percentage (%) unit 2. Figures on the column show the amount of total annual

Figures on the column snow the amount of total annual production. (unit: billion yen)

#### 9. Plant and Transportation Systems Engineering & Construction Center

#### Main Production and R & D Facilities

Production facilities	Machine tools	Horizontal/vertical 5axis machining center Horizontal 4axis machining center Vertical 3axis machining center NC horizontal surface broaching machine Center drive lathe Fir tree slot edge rounding machine NC lathe/NC vertical lathe Jig bore 2head fir tree grinding machine 2head vertical grinding machine High speed YAG laser machine Curvic coupling grinding machine Wire cut electric discharge machine Sinking electric discharge machine
	Fabrication equipment	NC shot peening Fluid forming press Spinning machine
	Welding/ Thermal spray equipment	Large NC electron beam welding machine Laser welding machine Plasma coating machine Automatic TIG welding machine Resistance seam welding machine
	Heat treatment	Large vacuum furnace
	Surface treatment	Electroplating tank (Ni, Cu, Cd, Pb) Chemical treatment Copper electrolytic forming
	Quality Assurance	Large engine test cell Helicopter GEAR-BOX test stand Large coordinate measuring machine Automatic scanning equipment of ultrasonic inspection Automatic eddy current inspection Micro focus X-ray TV system
	Others	High-quality clean room Printed board assembly equipment Control device functional test equipment Large dynamic balancing machine
R & D facilities	test facilities, S	firing test stand, Acoustics test facilities, Other environmental small engine test facilities, Electronic equipment development rials analysis equipment (Materials Lab.)

#### Outline

The Plant and Transportation Systems Engineering & Construction Center was formed in April 2003 through the integration of two organizations within MHI: the Mihara Machinery & Transportation Systems Works, founded in 1943 as a workshop for steam locomotives and air brakes, and the Engineering & Construction Center, founded in 1970 as an engineering business firm. The new center enhances project management and engineering work performance for chemical plants, transportation systems, and environmental plants. Its outstanding capabilities have recently been proven in the Taiwan High-Speed Railway project. It continues to manufacture unique and high-quality products to be incorporated within engineering businesses, including the Automated People Mover.

#### **Area** (As of April 1, '08)

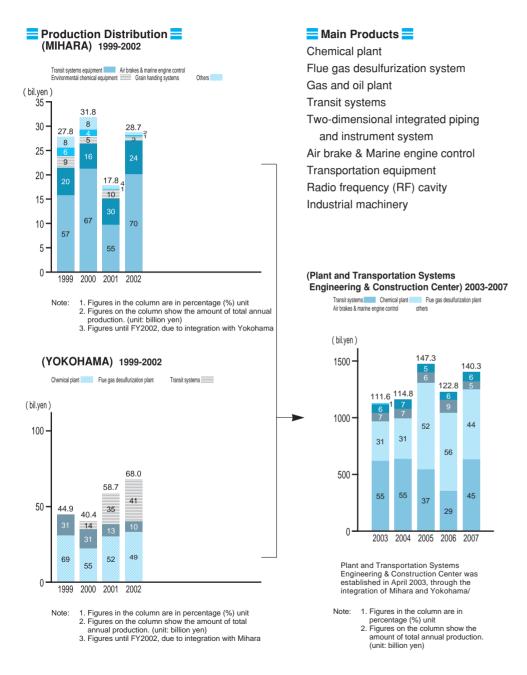
	Area (m²)		
	Site	Building	
Itozaki Plant	305,000	13,713	
Kohama Plant	51,000	13,247	
Wadaoki Plant	668,000	15,590	
Total	1,024,000	42,550	

Site area is shared with Paper & Printing Machinery Division

# Employees =

		2004	2005	2006	2007	2008
'n	Itozaki Plant	246	272	255	265	237
ihara	Kohama Plant	104	91	95	96	137
≅	Wadaoki Plant	74	77	104	105	112
	Yokohama	360	348	377	385	409
Total		784	788	831	851	895

1 No.of employees as of March 31 each year



	Main	<b>Production</b>	<b>Facilities</b>	
--	------	-------------------	-------------------	--

Metal machine tools	NC lathe, Ultra-precision lathe, Machining center, Planomiller, Five-side finishing machine
Sheet metal & welding equip-ment	Automatic welding machine, Vacuum brazing furnace, FSW exclusive equipment
Vehicle • air brake manufacturing Facilities	Panel welding machine, Carbody Shell assembly station, Painting booth with articulated robot, Under floor fabrication & interior works station, Function test facility, APM test track, AL pipe bracket bonding and cleaning equipment, Paint robot, Vehicle leak test facility
Instrumentation measurement	3-D coordinate measuring machine, roundness metrology, Surface finish and form measurement, Brake Control unit automatic test machine, Vacuum measuring machine, Air Brake test stand

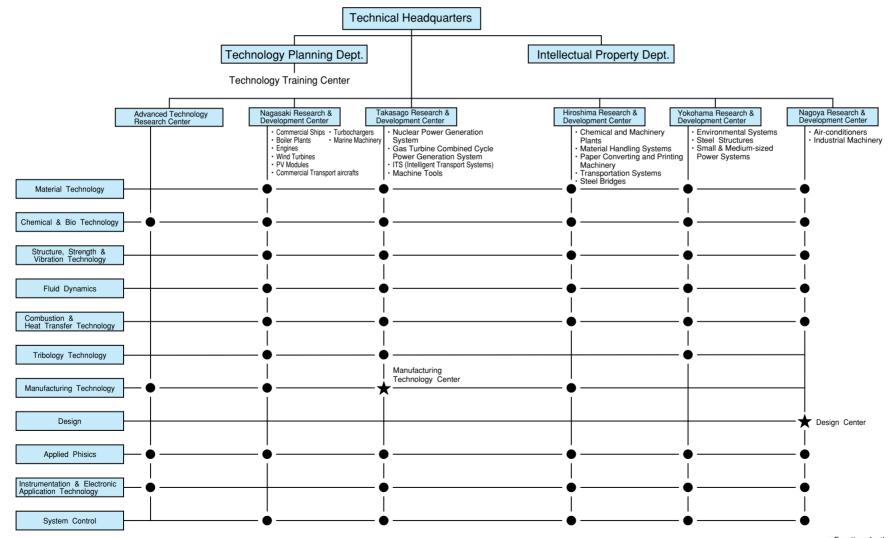
# IX. Research & Development

Research & Development Organization
Research & Development Centers
Recent Main Research & Development Activities
Research & Development Costs
Technical License Agreements
Intellectual Property

# 1. Research & Development Organization

Our Company's research & development has been promoted through close collaboration between the Production Headquarters & Divisions responsible for the development of products and the Technical Headquarters, a core MHI organization that controls and encourages research at the Advanced Technology Research Center and five Research & Development Centers (Nagasaki, Takasago, Hiroshima, Yokohama and Nagoya). The MHI product centers serve as core organizations specialized in various fields of product

development by offering technological and development support for existing and next-generation products and developing critical technologies for products of the future. MHI's technology units, meanwhile, develop R&D plans for various technological fields and promote technology transfer through the R&D centers. In this way, MHI has sought to realize its comprehensive capabilities to the fullest in managing its research & development activities.



#### 2. Research & Development Centers

#### **Advanced Technology Research Center**

This center develops key leading-edge technologies for energy and environment-related products by making the best use of MHI's vast technical expertise in film deposition technology and computer simulation. It also engages in the development of new products, such as room-temperature wafer bonder, through close cooperation with individual headquarters and divisions. In addition, it has stepped up other activities, such as market intelligence and business engineering research.

#### Nagasaki Research & Development Center

This center takes on distribution and energy/environmental problems from various angles. Armed with basic technologies in materials, mechanics, combustion and other areas, it works to enhance the performance and quality of key products, such as commercial ships, boilers, aircraft and engines, and commercialize clean energy technologies, such as wind turbines and photovoltaic modules.

#### **Takasago Research & Development Center**

To help reduce the burden on the environment, this center conducts R&D on nuclear and thermal power plants and other energy-related equipment/systems and commercializes energy-efficient air-conditioning and refrigeration products. In addition, it also conducts R&D, such as ITS, machine tools and aeronautics/space.

#### **Hiroshima Research & Development Center**

This center develops chemical plants, pumps for thermal power plant, steel-making machines, traffic systems and printing machines. It also works on the development of leading-edge products in fields such as clean energy and healthcare. Examples include fuel-cell systems and radiotherapy equipment.

#### Yokohama Research & Development Center

This center actively conducts R&D on environmental equipment, steel structures, and medium to small size generators, it is also engaged in the development of environmental and energy solution systems incorporating these products.

#### Nagoya Research & Development Center

This center conducts basic research in the air-conditioners and industrial machinery fields, covering a diverse array of technologies, encompassing product design, flow, heat conduction, acoustics, electronics/control, power electronics, telecommunications, chemistry, materials, and so on, and has achieved substantial results. Based on these results, the center is now developing products towards enhancing the quality of life.

### 3. Recent Main Research & Development Activities

Through close cooperation among its offices and R&D centers, the MHI Group (MHI and its consolidated subsidiaries) is vigorously researching and developing technologies to expand its businesses and strengthen the competitiveness of its products in all fields, from shipbuilding and ocean development to power systems and aerospace. The R&D at MHI responds closely to the latest environmental, resource, and energy issues.

#### (1) Shipbuilding & Ocean Development

- Joint development with the Nippon Steel Corp of the steel plate for general merchant ships, which has a 47k grade yield stress. Development of the technology for the continuous construction of the large-scale container ships, which uses the above mentioned steel plate, and has the capacity to convey 8,100 twenty-foot containers, the largest container ships manufactured by MHI.
- Development of the technology of continuous construction for the LNG ship, which has a freight capacity of up to 152,000 m³, the largest LNG ship manufactured by MHI.
- Development of the technology for the continuous construction of the large-scale ferry, which adapted the propulsion system of driving one large propeller by two engines for the first time in Japan, and realized the superior combustion and operability at the same time.

#### (2) Power Systems

- Development of the elemental technologies which are indispensable for the 1,700°C-grade super high temperature gas turbine; such as the compressor of high pressure ratio and high performance, the low NOx combustion system, the high-efficiency cooling system, the high-load high-performance turbine, the heat shield coating with the low thermal conductivity, as well as materials with resistance for high temperature.
- (Participate in the element technology development project to develop Practical use of Ultra High-Efficiency Gas-turbine by the Agency of Natural Resources and Energy, and the High Temperature Materials 21 Project by National Institute for Materials Science.
- Began reliability examinations for the demonstration model of the "MWT95/2.4", which increased the rotor diameter of "MWT92/2.4" from 92 m to 95 m, and improved the generation performance in the low wind velocity area. Development of the technology for the cold district type, which expects the future demand increases in North America.
- Development of the triple type photovoltaic modules, which laminates one layer of the generation membrane on micromorph tandem photovoltaic modules. Development of the production technology for the low cost photovoltaic modules, which enlarged the size of photovoltaic modules from 1.1 m × 1.4 m (1.5 m²) to 4 m².
- Development of the technology of the next generation light water reactor plant. Development of the inspection and repair technologies to increase the reliability for the existing light water reactor plant.

- Joint development with AREVA Inc. in France for the new 1.1 million kW class nuclear power plant.
- Design and development of the elemental technologies for the Japan Atomic Energy Agency, as a core company for the development of the demonstration reactor of Fast Breeder Reactor (FBR).

#### (3) Machinery & Steel Structure

- Development of the motor inverter system, which has features of the small-size and lightweight, and contributes to environmental load reduction, by installing to the hybrid engine for a truck.
- Development of the laser-type exhaust gas measurement device, which enables the real time measurement of various components from engine exhaust gas, and contributes to the development of the next generation super clean engine, so that to cope with the tighter car exhaust gas regulations imposed worldwide.
- Development of the technologies to absorb CO<sub>2</sub> from the exhaust gas drained from the boilers of coal-fired power plants, for the purpose of the global warming prevention.
- Development of the membrane type dehydration device, to decreases the energy consumption by approx. 40% for the energy required for the dehydration process of bio ethanol production, compared to the previous method.
- Development of the production device for the white organic EL (Electroluminescence) illumination panels, which has little environmental damage with no mercury components, fewer CO<sub>2</sub> emission, and so on, and is expected to be the next generation illumination.
- Development of the radioactive rays' treatment device, which adopted the 3D image processing functions, and other advanced technologies such as for the accelerator and irradiation mechanism for radioactive rays' irradiation, enabling accurate and simple cancer treatments.

#### (4) Aerospace

- Study of the flight control system for aircrafts, which is capable of high-performance maneuvers while remaining hard to detect by radar.
- Japan-U.S. joint development of the intercepts missile with improved ability for the seabased ballistic missile defense (BMD).
- Development of the latest regional jet aircraft, MRJ (Mitsubishi Regional Jet), which satisfies both the world best navigation economy and comfortable cabin.
- Development of the space station supply machine, HTV (H- Transfer Vehicle), for the transport of supplies to the International Space Station (ISS).
- Development of the H- B rocket, which satisfies the diversifying demands for the satellite launch.

#### (5) Mass and Medium-Lot Manufactured Machinery

- Development of six models of diesel engines for 600 2000 kW generation set, which
  reduced NOx (nitrogen oxide) and PM (particulate matter) components in diesel exhaust
  gas, and is in compliance with U.S. EPA TIER 2 applied for the engine with output equal to
  or more than 560 kW.
- Development of the diesel hybrid forklift truck, which combines our original technologies about diesel engines, power electronics, and power transmission mechanism, to contribute to environmental measures such as energy-saving or CO<sub>2</sub> discharge reduction.
- Development of the medium sized forklift truck (6 t, 7 t), which equipped the turbo charger
  for the S6S diesel engine, and introduced the solenoid control valve for cargo work, and
  improved operability and safety, so that to cope with the TIER 3 in EU and the U.S. applied
  for the engine with output less than 75 kW since January, 2008.
- Development of the new type compressor for car air-conditioners, which realized the smallsize, light-weight, and high-efficiency, compared to our previous models.
- Development of the new type inverter air-conditioned for building, which realized the compact design with approx. one half installment size, compared to our prior multi-type airconditioners with 8 - 12 horse power for buildings.
- Development of the refrigeration unit for trucks, which equipped the newly developed 3D scroll compressors of high-performance, small-size, and light-weight for the first time for our refrigeration unit for transport, and accordingly reduced mileage and a CO<sub>2</sub> discharge max. 27%, compared to our previous models.
- Development of three new models, sheet-fed offset presses of the "DIAMOND" series, which eliminated the time loss of an operator thoroughly and improved operation rate, based on three points: "maintenance", "make-ready time", and "printing imperfections".
- Development of the "EYE-Proof", the monitor simulation system for the newspaper printing, which largely reduced color adjustment work, and decreased running cost such as printed color samples or ink, and contributed to the stabilization of quality, by doing color adjustment on a monitor screen before print.
- Development of the "GE06A", a small-sized hobbing machine, which is space-saving and meets the demand of high efficiency processing, by realizing size reduction of approx. 30% and process time reductions of approx.31%, compared with our higher rank models.
   Development of the hobbing machine "GE15A with deburring function", which introduced chamfering function, and shortened the full line length largely. Development of the narrow width gear shaving machine "FEN30A", which reduced the machine width by approx. 23% compared to our previous models.
- Development of the "µV1-5X", a small-sized precision 5-axis machining center, to realize the high-precision 5-axis machining for dies / electrodes / parts / optical parts processing, which was impossible in the previous models.

- Development of the 3000emR, the super large-sized electric injection molding machine with opposing type double injection system and rotary platen system, so that to cope with the decrease in the weight of cars (for the plasticization of glasses such as a panorama roof).
- Development of the germ-free filling machines for PET bottles, which realized reduction in size of the device and reduction of cleaning reagent (75% reduction from previous models) and germ free water (80% reduction from previous models), by introducing a new washing method, and so on.

### 4. Research & Development Costs

### Research and development expenditures by segment

(Unit:hundred millions of yen)

	0000	0000	0004	0005	0000	0007
	2002	2003	2004	2005	2006	2007
Shipbuilding & Ocean Development	27	24	68	22	17	26
Power Systems	289	242	250	245	272	340
Machinery and steel structures	109	104	84	67	67	56
Aerospace	468	425	505	390	389	361
Mass and Medium-Lot Manufactured Machinery	198	198	330	278	313	291
Others	-	-	-	3	2	2
Total	1,094	995	1,240	1,007	1,063	1,079

Notes 1. Consolidated data

2. Including custom research

### 5. Technical License Agreements

### **Introduced Technologies**

The chart below shows the main licensors.

Headquarters	ltem	Licensor				
Ship	Spherical tank type LNG tankers	Moss Maritime a.s	Norway			
building	Membrane type LNG tankers	GAZTRANSPORT & TECHNIGAZ SAs	France			
Power systems	Diesel engines	Wärtsilä Switzerland Ltd	Switzerland			
	SH-60J/K, UH-60J, UH60JA helicopters	Sikorsky Aircraft Corporation	U.S.A.			
	F-15 jet fighters	THE BOEING COMPANY	U.S.A.			
	Patriot missile system	Raytheon Company	U.S.A.			
A 0.40	F-16 jet fighter technology for F-2 production	Lockheed Martin Corporation	U.S.A.			
Aero space	MK41 vertical launching system	Lockheed Martin Corporation	U.S.A.			
Space	PAC-3 missile segment command and launch system equipment	Lockheed Martin Corporation	U.S.A.			
	PAC-3 missile	Lockheed Martin Corporation	U.S.A.			
	H- A launch vehicle technology	Japan Aerospace Exploration Agency	Japan			

### **Supplied Technologies**

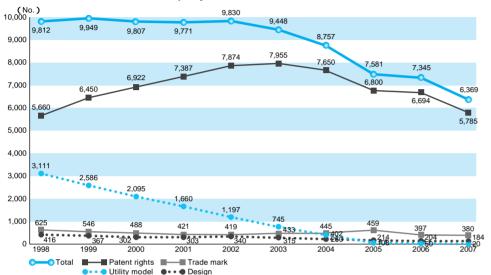
The chart below shows the main licensees.

Headquarters	ltem	Licensee	
	Gas turbine	DONG FANG TURBINE Co., Ltd.	China
	Steam turbine	Harbin Turbine Co., Ltd.	China
	USC boiler	Harbin Boiler Co., Ltd.	China
Power	UE diesel engines for China	Wärtsilä Switzerland Ltd	Switzerland
systems	UE diesel engines	Kobe Diesel Co., Ltd.	Japan
Cyclonic	UE diesel engines	Akasaka Diesels Ltd.	Japan
	Pump for thermal power plant	Bharat Heavy Electricals Ltd.	India
	Gas turbine	Doosan Heavy Industries & Construction Co., Ltd.	Korea
Nuclear energy systems	Nuclear steam turbine	Harbin Turbine Co., Ltd.	China

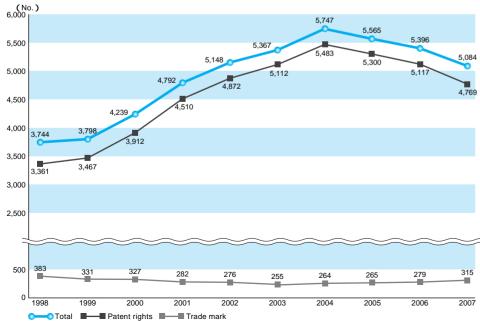
### 6. Intellectual Property

### No. of Intellectual Property Held

### No. of Domestic Intellectual Property Held



### No. of Overseas Intellectual Property Held



# X. Affiliated Companies of Mitsubishi Heavy Industries, Ltd.

# Affiliated Companies of Mitsubishi Heavy Industries, Ltd.

(As of June 30. 2008)

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	Choryo Senpaku Kouji Co., Ltd.	Nagasaki-shi	80	100	Provides services and delivers materials related to MHI shipbuilding.
ment	MHI Marine Engineering, Ltd.	Minato-ku, Tokyo	30	100	Sales and servicing of MHI products.
Develop	MHI Maritech	Nagasaki-shi	30	100	Design, adjustment, and testing of MHI products.
Ocean	Kowa Kogyo Co., Ltd.	Nagasaki-shi	30	71.7	Tugboat operation of ships made by our company.
Shipbuilding and Ocean Development	Kanmon Dock Service Co., Ltd.	Shimonoseki-shi, Yamaguchi	20	100	Provides services for manufacture of MHI products and facilities maintenance.
Shipbu	Sanshin-Tec. Ltd.	Hyogo-ku, Kobe-shi	15	69.5	Contract of partial production, and repair / remodeling of products made by our company. Contract of production / maintenance of our company's facility and factory.
	DIA Precision Casting Co., Ltd.	Utsunomiya-shi, Tochigi	450	100	Manufacture of MHI products.
	Nuclear Development Corporation	Naka-gun, Ibaraki	400	100	Research / development / examination of products made by our company.
ns	Nuclear Power Training Center Ltd.	Tsuruga-shi, Fukui	300	66.7	Education / training of nuclear power operation engineers, using products made by our company.
Power Systems	Choryo Designing Co., Ltd.	Nagasaki-shi	100	100 (31.8)	Design and software development for MHI products.
Powe	Mitsubishi FBR Systems, Inc.	Shibuya-ku, Tokyo	100	90	Research / development / design / analysis of products made by our company.
	Diastein Co., Ltd.	Nougata-shi Fukuoka	100	50	Manufacture and sales of MHI products.
	MHI Energy & Service Co., Ltd.	Kanazawa-ku, Yokohama-shi	90	100	After-sale service of products made by our company. Sale of home generated electricity.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	Nuclear Plant Service Engineering Co., Ltd.	Hyogo-ku, Kobe-shi	80	100	Maintenance and inspection of MHI products.
	Choryo Inspection Co., Ltd.	Nagasaki-shi	50	100	Inspection of products made by our company.
	Choryo Control System Co., Ltd.	Nagasaki-shi	40	100	Design / production of products made by our company.
	Computer Software Development Co., Ltd.	Minato-ku, Tokyo	40	100	Design of products made by our company, and development of computer software.
	Rokkasho Reprocessing Plant Maintenance Service Co.	Kamikita-gun, Aomori	30	100	Service of products made by our company.
	Engineering Development Co., Ltd.	Nishi-ku, Yokohama-shi	30	100	Design / analysis of products made by our company.
Ø	MHI Diesel Service Co., Ltd.	Hyogo-ku, Kobe-shi	25	100	After-sales service for MHI products.
Power Systems	Shinryo Technical Service Engineering Co., Ltd.	Hyogo-ku, Kobe-shi	20	100	After-sale service of products made by our company.
Pow	M.H.I. Digital System Co., Ltd.	Nishi-ku, Yokohama-shi	20	100	Design / production / adjustment / after-sale service of products made by our company.
	Koryo Inspection & Service Co., Ltd.	Takasago-shi, Hyogo	20	100	Inspection of products made by our company.
	Advanced Reactor Technology Co., Ltd.	Minato-ku, Tokyo	20	100	Design / analysis of products made by our company.
	Mitsubishi Power Systems Americas, Inc.	Florida U.S.A.	130 (In millions of U.S. dollars)	100 (100)	Manufacture, sales and after-sales service of MHI products.
	CBC Industrias Pesadas S.A.	Sao Paulo, Brazil	77.9 (In millions of Real)	100	Design / assembling / equipping / after-sale service of products made by our company.
	Mitsubishi Heavy Industries Dongfang Gas Turbine (Guangzhou) Co., Ltd.	GuanDong Province, China	202.7 (In millions of RMB)	51	Production / sale / repair / service of products made by our company.
	Mitsubishi Power Systems Europe, Ltd.	London, U.K.	3.1 (In millions of Pound)	100 (100)	Production / sale / service of products made by our company.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	MHI International Investment B.V.	Amsterdam, The Netherlands	6.4 (In millions of Euro)	100	Holding company for wind power operations which use products made by our company.
	Mitsubishi Nuclear Energy Systems Inc.	Washington D.C., U.S.A.	(In millions of U.S. dollars)	100	Licensed acquisition / sale / after-sale service of products made by our company.
	MHI Power Systems SPAIN, S.L.	Madrid, Spain	2 (In millions of Euro)	100 (100)	After-sale service of products made by our company.
tems	Mitsubishi Heavy Industries BFG Gas Turbine Service (Nanjing) Co., Ltd.	Nanjing, China	17.4 (In millions of RMB)	100 (10)	After-sale of products made by our company.
Power Systems	MHI Technical Services Corp.	Manila, Philippines	100 (In millions of Philippine peso)	100	Design / drafting of products made by our company.
Ğ	MHI Shenyang Pump Engineering Co., Ltd.	Liaoning Province, China	1 O (In millions of RMB)	60	Design / production of products made by our company.
	Mitsubishi Power Systems (Asia Pacific) Pte. Ltd.	Singapore	1.8 (In millions of Singapore dollars)	100 (100)	Sale / service of products made by our company.
	Mitsubishi Power Systems (Thailand) Ltd.	Samutprakarn, Thailand	16 (In millions of Bhat)	49 (48)	Sale / service of products made by our company.
	Diamond GT Service Europe s.r.l.	Cremella Lecco,	O.3 (In millions of Euro)	60 (60)	After-sale service of products made by our company.
	Shonan Monorail Co., Ltd.	Kamakura-shi, Kanagawa	8,000	55.2	Operation of monorails which use products made by our company.
Machinery and Steel Structures	Mitsubishi Heavy Industries Bridge & Steel Structures Engineering Co., Ltd.	Naka-ku, Hiroshima-shi	5,000	100	Administration of bridge / chimney operations devolved from our company, and construction / after-sale service of products made by our company.
y and St	Mitsubishi-Hitachi Metals Machinery, Inc.	Shinagawa-ku, Tokyo	3,500	65.7	MHI manufactures a part of their iron and steel manufacturing machinery
Machiner	Mitsubishi Heavy Industries Environment Engineering Co., Ltd.	Minato-ku, Tokyo	1,000	100	Design, manufacture, installation and after-sales service of exhaust gas processing operations devolved from MHI, and after-sales service for MHI products.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information	
	Lumiotec Inc.	Yonezawa-shi, Yamagata	700	51	Manufacture and sale of organic electroluminescence sample panels for illumination using MHI products.	
	Mitsubishi Heavy Industries Tunneling Machinery & Geotechnology Co., Ltd.	Akashi-shi, Hyogo	400	100	Production / after-sale service of products made by our company.	
	Mitsubishi Heavy Industries Parking Co., Ltd.	Nishi-ku, Yokohama-shi	350	100	Administration of multistory carparking operations devolved from MHI.	
Se	Mitsubishi Heavy Industries Plant Construction Co., Ltd.	Nishi-ku, Hiroshima-shi	300	100	Installation, engineering work and after- sales services for MHI products.	
Machinery and Steel Structures	Shinryo High Technologies, Ltd.	Hyogo-ku, Kobe-shi	100	100	Design / production / installation / after-sale service of products made by our company.	
and Ste	Ryowa Engineering Co., Ltd.	Nishi-ku, Yokohama-shi	100	100	Design / drafting of products made by our company.	
thinery a	MEC Engineering Service Co., Ltd.	Naka-ku, Hiroshima-shi	80	100	Installation and after-sales services of MHI products.	
Mac	MHI Turbo-Techno Co.	Minato-ku, Tokyo	40	100	After-sale service of products made by our company.	
	Ryoju Transportation Equipment Engineering & Service Co., Ltd.	Kawasaki-ku, Kawasaki-shi	30	100	Design / production / operation / maintenance of products made by our company.	
	Hiroshima Ryoju Engineering Co., Ltd.	Nishi-ku, Hiroshima-shi	30	100	Design / production of products made by our company.	
	Tokyo Environment Operation Co., Ltd.	Minato-ku, Tokyo	30	100 (40)	Administration of the PCB processing facility which uses products made by our company.	
	Yokohama Machinery Works Co., Ltd.	Isehara-shi, Kanagawa	30	50	Design / processing / the assembling of products made by our company.	*1
Aerospace	Mitsubishi Aircraft Corporation	Minato-ku, Nagoya-shi	35,000	68.2	Development, manufacture, sale and after-sales service for aircraft using MHI technology. Commissioned manufacture of the said aircraft for MHI.	

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information	
	MHI Logitec Company Limited	Komaki-shi, Aichi	60	100	After-sales service for MHI products.	
	MHI Aerospace Systems Corp.	Minato-ku, Nagoya-shi	50	100	Design and software development for MHI products.	
	MHI Aero Engine Service Co., Ltd.	Komaki-shi, Aichi	30	100	Repair of MHI products.	
	MHI Oceanics Co., Ltd.	Nagasaki-shi	30	100	Design / production / examination of products made by our company.	
Aerospace	MHI Aerospace Production Technologies, Ltd.	Minato-ku, Nagoya-shi	20	100	Assembly work for MHI products.	
Aeros	Diamond Air Service	Nishikasugai-gun, Aichi	20	100	Repair / service of products made by our company.	
	MHI Aerospace Logitem Co., Ltd.	Naka-ku, Nagoya-shi	10	100	Distribution / contract preparation for products made by our company.	
	Intercontinental Jet Service Co.	Oklahoma, U.S.A.	(In millions of U.S. dollars)	100 (100)	Service of products made by our company.	
	MHI Canada Aerospace, Inc.	Ontario, Canada	1.1 (In millions of Canadian dollars)	100	Production of products made by our company.	
	MHI Aerospace Vietnam Co., Ltd.	Hanoi, Vietnam	112,000 (In millions of dong)	100	Production of products made by our company.	
achinery	Mitsubishi Agricultural Machinery Co., Ltd.	Yatsuka-gun, Shimane	5,866	85.8	Supply of MHI products.	*2
Mass and Medium-Lot Manufactured Machinery	Mitsubishi Heavy Industries Engine Systems Co., Ltd.	Shinagawa-ku, Tokyo	450	100	Sales and servicing of MHI products.	
m-Lot Manu	Mitsubishi Heavy Industries Forklift Sales Co., Ltd.	Shinagawa-ku, Tokyo	300	100	Sales and servicing of MHI products.	
nd Mediu	Tokiwa Machinery Works Ltd.	Isehara-shi, Kanagawa	50	99.7	Production of products made by our company.	
Mass a	MHI Sagami High-tech, Ltd.	Sagamihara-shi, Kanagawa	30	100	Design of MHI products.	

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	MHI Special Vehicles Parts Supply & Technical Service Co., Ltd.	Shinjuku-ku, Tokyo	30	100	Sales and after-sales service for MHI products.
	Sagami Logistics & Service Co., Ltd.	Sagamihara-shi, Kanagawa	10	100	Distribution services such as transportation / shipment of products and parts made by our company.
	Mitsubishi Caterpillar Forklift America, Inc.	Texas, U.S.A	65 (In millions of U.S. dollars)	88.5	Manufacture, sales and servicing of MHI products.
	MHI Equipment Europe, B.V.	Almere, The Netherlands	38.3 (In millions of Euro)	100	Assembly work, sales and after-sales service for MHI products.
hery	Mitsubishi Caterpillar Forklift Europe B.V.	Almere, The Netherlands	18.2 (In millions of Euro)	70	Production / sale / service of products made by our company.
Machir	Mitsubishi Turbocharger Asia Co., Ltd.	Chonburi, Thailand	4,350 (In millions of Bhat)	100	Assembling / sale / parts supply of products made by our company.
ıfacturec	MHI-VST Diesel Engines Pvt. Ltd.	Mysore, India	415 (In millions of Rupee)	90	Assembling / operation / sale of products made by our company.
Mass and Medium-Lot Manufactured Machinery	MHI Engine System Asia Pte. Ltd.	Singapore	12.2 (In millions of Singapore dollars)	100	Assembling / operation / sale of products made by our company.
ledium-	Mitsubishi Engine North America, Inc.	Illinois, U.S.A.	8.5 (In millions of U.S. dollars)	100 (100)	Sale / service / parts supply of products made by our company.
s and M	MHI-Pornchai Machinery Co., Ltd.	Chonburi, Thailand	170 (In millions of Bhat)	86.2	Assembling / operation / parts supply of products made by our company.
Mas	Mitsubishi Caterpillar Forklift Asia Pte. Ltd.	Singapore	385	70	Sale / service of products made by our company.
	Mitsubishi Heavy Industries Air-Conditioning & Thermal Systems Corporation	Shinagawa-ku, Tokyo	400	100	Sales and servicing of MHI products.
	Ryoju Cold Chain Co., Ltd.	Chiyoda-ku, Tokyo	200	100	Sales and servicing of MHI products.
	Mitsubishi Heavy Industries Air-Conditioning & Refrigeration Systems Corporation	Chuo-ku, Tokyo	180	100	Sales and servicing of MHI products.
	Kusakabe Co., Ltd.	Adachi-ku, Tokyo	100	100	Sales of products made by our company.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	Mitsubishi Heavy Industries Climate Control, Inc.	Indiana U.S.A.	100 (In millions of U.S. dollars)	100	Manufacture and sales of MHI products.
	Mitsubishi Heavy Industries-Jinling Air- Conditioners Co., Ltd.	GuanDong Province, China	253.2 (In millions of RMB)	75.5	Production / sale of products made by our company.
	Mitsubishi Heavy Industries-Haier (Qingdao) Air-Conditioners Co., Ltd.	Shandong Province, China	127.7 (In millions of RMB)	55	Production / sale / after-sale service of products made by our company.
	Mitsubishi Heavy Industries-Mahajak Air Conditioners Co., Ltd.	Bangkok, Thailand	324.7 (In millions of Bhat)	81.9	Manufacture and sales of MHI products.
Mass and Medium-Lot Manufactured Machinery	Mitsubishi Automotive Climate Control (Shanghai) Co., Ltd.	Shanghai, China	16.6 (In millions of RMB)	70	Production / sale of products made by our company.
nufactured	Mitsubishi Heavy Industries Printing & Paper Converting Machinery Sales Co., Ltd.	Oota-ku, Tokyo	500	100	Sales and servicing of MHI products.
um-Lot Ma	Mitsubishi Heavy Industries Food & Packaging Machinery Co., Ltd.	Nakamura-ku, Nagoya-shi	450	100	Administration of food packaging machinery operations devolved from MHI.
s and Medi	Mitsubishi Heavy Industries Plastic Technology Co., Ltd.	Nakamura-ku, Nagoya-shi	450	100	Administration of injection molding machine operations devolved from MHI.
Mass	Mitsubishi Heavy Industries Industrial Machinery Co., Ltd.	Nakamura-ku, Nagoya-shi	350	100	Administration of industrial washing machine operations devolved from MHI. Also, carry out sale / service of our company's industrial robots.
	Mitsubishi Heavy Industries Machine Tool Sales Co., Ltd.	Ritto-shi, Shiga	300	100	Sales and servicing of MHI products.
	MHI Machine Tool Engineering Co., Ltd.	Ritto-shi, Shiga	200	100	Design and Manufacture of MHI products.
	Mihara Ryoju Engineering Co., Ltd.	Mihara-shi, Hiroshima	130	100	Design and drafting of MHI products.
	Mihara Ryoju Machinery Works Co., Ltd.	Mihara-shi, Hiroshima	50	100	Production of products made by our company.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	MLP U.S.A., Inc.	Illinois, U.S.A.	23 (In millions of U.S. dollars)	92.4 (92.4)	Sales and servicing of MHI products.
	MLP UK Ltd.	Leeds, U.K.	1 O . 1 (In millions of Pound)	82.7	Sale / after-sale service of products made by our company.
ıry	MHI Injection Molding Machinery, Inc.	Illinois, U.S.A.	17 (In millions of U.S. dollars)	100 (100)	Sales and servicing of MHI products.
Mass and Medium-Lot Manufactured Machinery	Shenyang Aerospace Xinguang Mitsubishi Heavy Industries Engine Valves Co., Ltd.	Liaoning Province, China	82 (In millions of RMB)	65 (32.5)	Production / sale of products made by our company.
lanufacture	Beijing Mitsubishi Heavy Industries Beiren Printing Machinery Co., Ltd.	Beijing, China	46 (In millions of RMB)	51	Production / sale of products made by our company.
dium-Lot M	Mitsubishi Heavy Industries India Precision Tools, Ltd.	Ranipet, India	69.7 (In millions of Rupee)	96.5	Production / sale of products made by our company.
s and Med	MLP Canada Ltd.	Ontario, Canada	1.6 (In millions of Canadian dollars)	65	Sale / after-sale service of products made by our company.
Mas	MHI Machine Tool (H.K.) Ltd.	H.K.	12 (In millions of Hong Kong dollars)	100 (100)	Sale / service of products made by our company.
	MLP Hong Kong Ltd.	H.K.	(In millions of Hong Kong dollars)	56.3 (12.5)	Sale / after-sale service of products made by our company.
	MLP Europe S.A.	Lisses, France	0.5 (In millions of Euro)	93.2	Sale / after-sale service of products made by our company.
	Tamachi Building	Minato-ku, Tokyo	3,000	100	Commissioned administration of MHI buildings.
Others	Ryoin Co., Ltd.	Arakawa-ku, Tokyo	1,000	100	Contracted printing, copying, information communications for MHI and its affiliates.
Oth	Chiyoda Lease Company Limited	Nagasaki-shi	500	51	Sales of products and leasing to MHI and its affiliates.
	Ryoju Estate Co., Ltd.	Minato-ku, Tokyo	250	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	MHI Finance Co., Ltd.	Minato-ku, Tokyo	200	100	Allocation and leasing the products produced by MHI and its affiliates, leasing for MHI and its affiliates, consolidated finance for MHI related companies.
	Ryonichi Engineering Co., Ltd.	Naka-ku, Yokohama-shi	200	100	Design and drafting of MHI products.
	Kinki Ryoju Estate Co., Ltd.	Hyogo-ku, Kobe-shi	200	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
	Higashi Chugoku Ryoju Estate Co., Ltd.	Mihara-shi, Hiroshima	100	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
	Nishinihon Ryoju Estate Co., Ltd.	Nagasaki-shi	100	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
Others	Hiroshima Ryoju Estate Co., Ltd.	Nishi-ku, Hiroshima-shi	100	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
	Nagoya Ryoju Estate Co., Ltd.	Minato-ku, Nagoya-shi	100	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
	Seiryo Engineering Co., Ltd.	Hyogo-ku, Kobe-shi	100	100	Design and drafting of MHI products.
	Koryo Engineering Co., Ltd.	Takasago-shi, Hyogo	100	100	Design / drafting of products made by our company.
	Ryosen Engineers Co., Ltd.	Nishi-ku, Hiroshima-shi	100	100	Design / drafting of products made by our company.
	Churyo Engineering Co., Ltd.	Nakamura-ku, Nagoya-shi	100	100	Design and drafting of MHI products.
	MHI General Services Co., Ltd.	Hyogo-ku, Kobe-shi	100	100 (35)	Security / guard / utility work of our factory, and maintenance check of our factory's electric equipment.
	MHI Medical Systems, Inc.	Minato-ku, Tokyo	96	50	Marketing / sale / service of products (medical products) made by *1 our company.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	MHI Accounting Service, Ltd.	Minato-ku, Tokyo	60	100	Commissioned accounting services for MHI and its affiliates.
	Shunjusha Ltd.	Minato-ku, Tokyo	50	100	Handling of various insurance policies against loss for our company and associated companies.
	MHI Solution Technologies Co., Ltd.	Nishi-ku, Hiroshima-shi	40	100	Rendering of services for research and development / design / trial operation of products and technology of our company.
	Choryo Software Co., Ltd.	Nagasaki-shi	40	100	Development of computer software and sale / maintenance of computer hardware that our company and associated companies use.
	Shimonoseki Ryoju Estate Co., Ltd.	Shimonoseki-shi, Yamaguchi	30	100	Management of welfare facilities used by MHI and its affiliates, and construction and other work on consignment.
Others	MHI Personnel Staff, Ltd.	Minato-ku, Tokyo	30	100	Contract of management of personnel information, diligence and indolence / salary calculation, travel expenses, office transportation expenses, retirement bonus, and related welfare programs of our company.
	Choryo Engineering Co., Ltd.	Nagasaki-shi	30	100 (65)	Contract of research and development for our company's experiments.
	Kensa Kenkyusho Inspection Co., Ltd.	Naka-ku, Yokohama-shi	20	100	Inspection / measurement of products made by our company.
	Shimonoseki Ryojyu Engineering Co., Ltd.	Shimonoseki-shi, Yamaguchi	20	100	Contract of design / drafting / information communication of products made by our company.
	Hiroshima Dia System Co., Ltd.	Nishi-ku, Hiroshima-shi	20	90.3	Development of computer software for our company and associated companies.
	Mitsubishi Heavy Industries America, Inc.	New York U.S.A.	203.6 (In millions of U.S. dollars)	100	Assembling / sale / installation / after- sale service of products made by our company. Rendering of services to our company such as marketing research.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information
	Mitsubishi Heavy Industries Europe, Ltd.	London, U.K.	7.6 (In millions of Pound)	100	Assembling / sale / installation / after- sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries, (Hong Kong) Ltd.	H.K.	34 (In millions of Hong Kong dollars)	100	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries Singapore Private Ltd.	Singapore	3.8 (In millions of Singapore dollars)	100	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries Philippines, Inc.	Manila, Philippines	93.6 (In millions of Philippine peso)	100	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
Others	Mitsubishi Heavy Industries de Mexico, S.A. de C.V.	Mexico D.F., Mexico	1 O (In millions of Mexican peso)	100 (1)	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries (Thailand) Ltd.	Samutprakarn, Thailand	25 (In millions of Bhat)	100 (5.1)	Sale / installation / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries Korea, Ltd.	Seoul, Korea	750 (In millions of Won)	100	Sale / installation / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Heavy Industries, (Shanghai) Co., Ltd.	Shanghai, China	4.6 (In millions of RMB)	100	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.
	Mitsubishi Industrias Pesadas do Brasil Limitada	Sao Paulo, Brazil	491 (In thousands of Real)	100 (1)	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information	
Others	Mitsubishi Heavy Industries India Private Ltd.	New Delhi, India	25 (In millions of Rupee)	100 (1)	Sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.	
	Mitsubishi Heavy Industries Australia, Pty. Ltd.	Melbourne, Australia	300 (In thousands of Australian dollars)	100	Assembling / sale / after-sale service of products made by our company. Rendering of services to our company such as marketing research.	
	Others 69 companies					

	Name of Company	Location	Capital (Million yen)	Proportion of voting rights held (%)	Related information	
aff	iliates accounted for by the	equity me	ethod			
Lot	Caterpillar Japan Ltd.	Setagaya-ku, Tokyo	23,100	33	Supply of MHI products.	
Mass and Medium-Lot Manufactured Machinery	Nippon Yusoki Co., Ltd.	Nagaokakyou -shi, Kyoto	4,890	20	General business collaboration for MHI logistics equipment (forklifts etc.).	*2
ss and Nutacture	Toyo Engineering Works Ltd.	Shinagawa- ku, Tokyo	2,334	37.2	After-sales service for MHI products.	*2
Mas	Mitsubishi Motors Corporation	Minato-ku, Tokyo	657,349	15.7 (0.5)	Supply of MHI products.	*2
	Others 33 companies					
	Other related companies 52 companies					

- There are no companies corresponding to special subsidiaries.
   Although MHI's equity holding is less than 50%, this affiliate is listed as a subsidiary because MHI exercises effective control over the company.
- 3. \*2 Submits financial statements.

- 2 Submits infancial statements.
   Proportions of voting rights shown in parentheses are for indirect possession.
   Mitsubishi Heavy Industries Parking Co., Ltd. relocated to the present address on August, 2008.
   Shin Caterpillar Mitsubishi Ltd. changed its name to Caterpillar Japan Ltd. in August 2008.
   The proportion of voting rights held by MHI changed from 50% to 33%.

# **XI. Statement of Overseas Activities**

Overseas network Overseas Sales

Major Supply Records

#### XI. Statement of Overseas Activities

Mitsubishi Heavy Industries America. Inc. (MHIA) Headquarters Environmental System DivisionTransportation Systems Division Tire Machinery Division Aircraft Product Support Division Corrugating Machinery Division Machine Tool Division · Los Angeles Office · Houston LNG Tank & Steel Structure Systems Office Houston Office · Seattle Office · Fort Worth Office · Boston Office · Hartford Office · East Hartford Office Mitsubishi Caterpillar Forklift America Inc. (MCFA) Mitsubishi Heavy Industries Climate Control Inc. (MCC) Head Office · Los Angeles Office Detroit Office MLP Canada Ltd. (MLP-C) Mitsubishi Power Systems, Inc. (MPS) Mitsubishi Engine North America, Inc. (MENA) MHI Injection Molding Machinery, Inc. (MIMM) MLP U.S.A., Inc. (MLP-A) Mitsubishi-Hitachi Metals Machinery USA, Inc. (MHU) FMS Equipment Rental Inc. (FMS) Rapidparts Inc. (Rapidparts-A) Southern California Material Handling Inc. (SCMH) Cormetech, Inc. (CORMETECH) ADVATECH. LLC VienTek, LLC MHI Canada Aerospace. Inc. (MHICA) Mitsubishi Nuclear Energy Systems, Inc. (MNES) Central and South America Mitsubishi Industrias Pesadas do Brasil Limitada (MHIB) **CBC** Industrias Pesadas S.A. (CBC)

### 1. Overseas network

#### Overseas Offices and Major Subsidiaries

Mitsubishi Heavy Industries Europe, Ltd. (MHIE)

- · Head Office
- Munich Branch
- · Paris Liaison Office
- Madrid Branch
- · Praha Liaison Office
- · Derby Office
- · Bristol Branch, Derby Office
- Car Air Conditioner Division
- · Italy Branch

Mitsubishi Power Systems, Ltd. (MPSE)

MHI Equipment Europe B.V. (MEE)

Mitsubishi Caterpillar Forklift Europe B.V. (MCFE)

MLP UK Ltd. (MLP-UK)

MLP Europe S.A. (MLP-E) MHI-Duro Felguera, S.A. (MHI-DF)

Rocla Oyj

MHI Equipment Alsace S.A.S. (MEA)

### Russia • Eastern Europe, etc.

Moscow Representative

Istanbul Representative

The Middle East

Beijing Liaison Office

MHI-IDKU LNG L.L.C. (MHI IDKU LNG)

#### Middle East Office

Taipei Liaison Office

Saudi Factory for Electrical Appliances Co., Ltd. (SELECT)

Mitsubishi Heavy Industries, (Hong Kong) Ltd. (MHIH) MHI MACHINE TOOLS H.K., Ltd. (MMH)

Mitsubishi Heavy Industries (Thailand) Ltd. (MHIT)

Mitsubishi Heavy Industries Philippines, Inc. (MHIP) Mitsubishi Heavy Industries Philippines, Inc. (MHIP) Mitsubishi Heavy Industries (Shanghai) Co., Ltd. (MHISH) MHI-Pornchai Machinery Co., Ltd. (MPM) Mitsubishi Caterpillar Forklift Asia Pie Ltd. (MCFS)

Mitsubishi Heavy Industries-Haier (Qingdao)

Air-Conditioners Co., Lts. (MHAQ)
Mitsubishi Heavy Industries-Mahajak Air Conditioners Co., Ltd. (MACO) Mitsubishi Heavy Industries-Mariajan Air-Conditioners Co., Ltd. (MACO) Mitsubishi Heavy Industries-Jinling Air-conditioners Company, Ltd. (MJA) MHI Automotive Climate Control (Shanghai) Co., Ltd. (MACC) MLP Hong Kong Ltd. (MLP-HK)

Milsubishi Heavy Industries-Heng Xing Paper Machinery Co., Ltd. (MHI-HX) MHI Technical Services Corp. (MTS)

MCF Forklift (Shanghai) Co., Ltd.

MHI Service Vietnam Co., Ltd. (MHISV)

TES Philippines, Inc. (TESP) Thai Compressor Manufacturing Co., Ltd. (THACOM)

Shanghai MHI Turbocharger Co., Ltd.

Mitsubishi Heavy Industries India Private Ltd. (MHII) Mitsubishi Heavy Industries India Precision Tools, Ltd. (MHI-IPT)

Mitsubishi Heavy Industries Singapore Private Ltd. (MHISP)

Mitsubishi Power Systems (Asia Pacific) Pte. Ltd. (MPS-AP)

Mitsubishi Heavy Industries Korea, Ltd. (MHIK)

· Head Office · Pusan Office

Mitsubishi Heavy Industries Dong Fang Gas Turbine (Guangshou) Co., Ltd. (MHI-DGT) Shenyang Aerospace Xinguang Mitsubishi Heavy Industries Engine Valve Co., Ltd. Beijing Mitsubishi Heavy Industries Beiren Printing Machinery Co., Ltd. Mitsubishi Heavy Industries-Guosheng Laundry Machinery Co., Ltd.

MHI Engine System Philippines Incorprated (MHIES-P) MHI Engine System Asia Pte. Ltd. (MHIES-A) Mitsubishi Turbocharger Asia Co., Ltd. (MTA) Mitsubishi Power Systems (Thailand) Ltd. (MPS-T) MHI VTL Diesel Engines Pvt. Ltd. (MVDE) L&T-MHI Turbine Generators Private Limited L&T-MHI Boilers Private Limited

Hanoi Representative

Ho Chi Minh City Representative

Jakarta Liaison Office

Oceania

MHI Engine System Vietnam Co., Ltd. (MHIES-V)

MHI Aerospace Vietnam Co., Ltd. (MHIVA)

PT. MHI Engine System Indonesia (MHIEŚ-I)

Mitsubishi Heavy Industries Australia, Pty. Ltd. (MHIAÚ)

Head Office

· Air-Conditioning & Refrigeration Division

Overseas Offices

**North America** 

Mitsubishi Heavy Industries de Mexico, S.A. de C.V.

MHI Climate Control

Mexico, S.A.DE C.V.

(MHIMEX)

(MCC-MX)

Representatires

Overseas Subsidiaries

### 2. Overseas Sales

(Unit: millions of yen)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Asia	316,843	434,189	417,895	188,228	212,793	324,696	416,846	522,450	437,470	452,216
	(10.9)	(15.1)	(13.7)	(6.6)	(8.2)	(13.7)	(16.1)	(18.7)	(14.3)	(14.1)
North America	280,160	263,614	289,204	346,504	271,239	262,145	265,596	322,550	371,865	435,833
	(9.6)	(9.2)	(9.5)	(12.1)	(10.5)	(11.1)	(10.2)	(11.6)	(12.1)	(13.6)
Europe	94,717	133,211	157,841	192,381	210,549	136,775	162,303	182,893	237,428	258,811
	(3.3)	(4.6)	(5.2)	(6.7)	(8.1)	(5.7)	(6.3)	(6.5)	(7.8)	(8.1)
Latin America	168,194	130,357	104,438	157,312	68,400	95,159	147,113	108,588	123,705	222,987
	(5.8)	(4.5)	(3.4)	(5.5)	(2.6)	(4.0)	(5.7)	(3.9)	(4.0)	(6.9)
Middle East	108,759	188,854	186,013	121,032	55,574	40,812	28,131	57,265	257,800	168,860
	(3.7)	(6.6)	(6.1)	(4.2)	(2.1)	(1.7)	(1.1)	(2.0)	(8.4)	(5.3)
Oceania	14,370	5,705	3,873	5,209	7,646	6,456	9,409	15,486	15,465	13,419
	(0.5)	(0.2)	(0.1)	(0.2)	(0.3)	(0.3)	(0.3)	(0.6)	(0.5)	(0.4)
Africa	24,954	22,570	13,795	8,099	11,673	26,612	19,967	16,753	18,909	9,009
	(0.9)	(0.8)	(0.5)	(0.3)	(0.5)	(1.1)	(0.8)	(0.6)	(0.6)	(0.3)
Total	1,007,999	1,178,504	1,173,064	1,018,770	837,878	892,658	1,049,367	1,225,989	1,462,646	1,561,139
	(34.7)	(41.0)	(38.5)	(35.6)	(32.3)	(37.6)	(40.5)	(43.9)	(47.7)	(48.7)
Consolidated Sales	2,907,761	2,875,039	3,045,023	2,863,984	2,593,894	2,373,440	2,590,733	2,792,108	3,068,504	3,203,085

<sup>( ):</sup> The share of overseas sales in the consolidated sales (Unit: %)

Note 1. Divisions of countries or regions are based on the geographical distribution.

2. Major countries or regions in each division are as follows.

(1) Asia	Bangladesh, China, Hong Kong, India, Indonesia,
, ,	Korea, Malaysia, Mongolia, Philippines,
	Singapore, Taiwan, Thailand, Vietnam

(2) North America ......Canada, U.S.A.

(4) Latin America ......Argentina, Bahamas, Brazil, Chile, Mexico Panama

(5) Middle East ......Cyprus, Qatar, Saudi Arabia, Turkey, U.A.E.

(6) Oceania ......Australia, New Zealand

(7) Africa ......Algeria, Egypt, Mozambique, Senegal, South Africa

Overseas sales include the sales outside the country or region by the firm and its consolidated subsidiaries.

# 3. Major Supply Records

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
North and South America	Argentina	Power Systems	Steam Turbine/Gas Turbine	Costanera 800MW Combined Cycle Plant	Central Costanera S. A.	1999	2/1	M701F / 312MW
	Argentina	Power Systems	Gas Turbine/Steam Turbine/HRSG	Parana 830MW Combined Cycle Plant	AES Parana S.A.	2001	2/1/2	M701F3 / 319MW / 373T/H
	Brazil	Power Systems	Steam Turbine	Veracel	Veracel Celulose S. A.	2005	1	125MW×1
	Chile	Power Systems	Gas Turbine/Steam Turbine/HRSG	San Isidro 370MW Combined Cycle Plant	Compania Electrica San Isidro A.A.	2002	1/1/1	M701F / 130MW / 268T/H
	Mexico	Power Systems	Boiler/Steam Turbine	Petacalco #3, 4	CFE	1993	2/2	1,185T/H / 350MW
	Mexico	Power Systems	Boiler/Steam Turbine	Petacalco #5, 6	CFE	1995	2/2	1,193T/H / 350MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine	Chihuahua 435MW Combined Cycle Plant	Norelec Del Norte S. V. C. V.	2001	2/1	M501F / 160MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine/HRSG	Campeche 254MW Combined Cycle Plant	TransAlta Campeche, S. A. de C. V.	2001	1/1/1	M501F / 90MW / 486T/H
	Mexico	Power Systems	Gas Turbine/Steam Turbine	Tuxpan	Electricidad Agulila de Tuxpan S.de R.L.de C.V.	2002	2/1	M501F3 / 498MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine	Altamira II 503MW Combined Cycle Plant	ELECTRICIDAD deAGUILA de ALTAMIRA S.A. de R.L.de C.V.	2002	2/1	M501F3 / 189MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine	Tuxpan	Electricidad Agulila de Tuxpan S.de R.L.de C.V.	2003	2/1	M501F3 / 498MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine	Tuxpan	Electricidad Agulila de Tuxpan S.de R.L.de C.V.	2003	2/1	M501F3 / 498MW
	Mexico	Power Systems	Gas Turbine/Steam Turbine/HRSG	Tuxpan	Kyushu Electric Power / Mitsubishi Corporation (CFE)	2006	2/1/2	M501F / 187MW / 455T/H
	Mexico	Machinery & Steel Structures	Chemical Plant	Polyethylene Plant	PETROQUIMICA MORELOS. S.A DE C.V.	2006	1	300,000T/Y
	U.S.A.	Power Systems	Gas Turbine/Steam Turbine	Mystic 1600MW Combined Cycle Plant	Excelon	2003	4/2	M501G / 250MW
	U.S.A.	Power Systems	Gas Turbine/Steam Turbine	Fore River 800MW Combined Cycle Plant	Excelon	2003	2/1	M501G / 250MW
	U.S.A.	Power Systems	Wind Turbine	Rock River I	Rock Rover I, LLC.	2001	50	MWT-1000×50
	U.S.A.	Power Systems	Wind Turbine	Mountain View II	Mountain View II, LLC.	2001	37	MWT-600×37
	U.S.A.	Power Systems	Wind Turbine	Texas Oregon Condon I	Condon Wind Power, LLC.	2001	41	MWT-600×41
	U.S.A.	Power Systems	Wind Turbine	Combine Hills	Eurus Energy	2003	41	MWT-1000A

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
North and South America	U.S.A.	Power Systems	Wind Turbine	Brazos	Shell WindEnergy	2003	160	MWT-1000A
	U.S.A.	Power Systems	Wind Turbine	OASIS	enXco, Inc.	2004	60	MWT-1000×61
	U.S.A.	Power Systems	Wind Turbine	San Juan Mesa	Edison Mission Energy	2005	120	MWT-62 / 1.0( MWT-1000A )
	U.S.A.	Power Systems	Wind Turbine	Iowa Wind Power	MidAmerican Energy Company	2005	50	MWT-62 / 1.0( MWT-1000A )
	U.S.A.	Power Systems	Wind Turbine	Buena Vista Wind Project	Babcock Brown Power Operating Partners LLC.	2006	38	MAT-62 / 1.0( MWT-1000A )
	U.S.A.	Power Systems	Wind Turbine	Aragonne Mesa Wind Project	Babcock Brown Power Operating Partners LLC.	2006	90	MAT-62 / 1.0( MWT-1000A )
	U.S.A.	Power Systems	Wind Turbine	Sweet Water	Babcock Brown Power Operating Partners LLC.	2007	135	MAT-62 / 1.0( MWT-1000A )
	U.S.A.	Power Systems	Wind Turbine	Ceder Creek	Babcock Brown Power Operating Partners LLC.	2007	221	MAT-62 / 1.0( MWT-1000A )
	U.S.A.	Machinery & Steel Structures	Retractable Roof	Milwaukee Miller Park	Southeast Wisconsin Professional Baseball Park District (SWPBPD)	2001	1	Fan Type Retractable Roof
	U.S.A.	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	Trico Steel Company	1996		
	Venezuela	Machinery & Steel Structures	Chemical Plant	VPM Methanol Plant	METHANOL DE ORIENT, METOR, S.A.	1994	1	2,200T/D
Asia	China	Power Systems	Boiler/Steam Turbine	Zhuhai Thermal Power Station #1, 2	Guandong Zhuhai Power Station Company Ltd.	2000	2/2	2,290T/H / 700MW
	China	Power Systems	Boiler/Steam Turbine	Dalian	Huaneng International Power Develop Corp.	1989	2/2	1,150T/H / 350MW
	China	Power Systems	Boiler/Steam Turbine	Fuzhou	Huaneng International Power Develop Corp.	1989	2/2	1,150T/H / 351MW
	China	Power Systems	Gas Turbine/Steam Turbine	Beijing No.3	Beijing Jingfeng Thermal Power Co., Ltd.	2005	1/1	M701F / 350MW
	China	Power Systems	Boiler	Huaneng Yuhuan Power Plant Unit 1&2	Harbin Boiler Co., Ltd.	2006	2	2,952T/H
	China	Power Systems	Gas Turbine	Qianwan LNG Power Plant No.2	Dong Fang Steam Turbine Works	2006	1	M701F
	China	Machinery & Steel Structures	Coal Handling System	Qinghuan tao C/H	CINTEC	1997	1 set	Coal Handling System
	China	Machinery & Steel Structures	Coal Handling System	Qingtao C/H	CINTEC	1996	1 set	Coal Handling System
	China	Machinery & Steel Structures	Stage Machinery System	Shanghai Grand Theater	Shanghai Grand Theater	1998	1	Opera Theater

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
Asia	China	Machinery & Steel Structures	Stage Machinery System	China National Grand Theater	China National Technical Import and Export Corporation	2006	1	4 Stages Opera House
	China	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill (BH PLANT)	Baoshan Iron & Steel Corporation	1995		
	China	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	Anshan Iron & Steel	2000		
	China	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	Thangshan Iron & Steel Group Co.	2003		
	China	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	Baosteel Group Shanghai No.1 Iron & Steel Co., Ltd.	2003		
	China	Machinery & Steel Structures	Metals Machinery	Continuous Pickling and Tandem Cold Mill	Maanshan Iron & Steel Co., Ltd.	2004		
	China	Machinery & Steel Structures	Refuse Incinerator	Guangzhou Li-keng Waste- To-Energy Plant	Guangzhou Municipal Environment and Sanitation Administration	2005	2	450T/D×2
	China	Machinery & Steel Structures	Chemical Plant	CPTA Purified Telephtalic Acid	Ningbo Mitsubishi Chemical Corp.	2006	1	600,000T/Y
	China	Power Systems	Gas Turbine/Steam Turbine	Blast furnace gas-fired Combined Cycle Plant	Angang Group International Trade Corporation	2007	1/1	M701S(F) / 117MW
	China	Power Systems	Gas Turbine/Steam Turbine	Blast furnace gas-fired Combined Cycle Plant	Maanshan Iron & Steel Co., Ltd.	2007	1/1	M701S(DA) / 63MW
	India	Power Systems	Gas Turbine/Steam Turbine/Boiler	Auraiya 600MW Combined Cycle Plant	NTPC	1990	4/2/4	701D / 107MW / 167T/H
	India	Power Systems	Boiler	Anpara B #4, 5	UPSEB	1992	2	1,720T/H
	India	Machinery & Steel Structures	Chemical Plant	DP Purified Telephtalic Acid Plant	MCPI	1999	1	350,000T/Y
	India	Machinery & Steel Structures	Hydraulic Penstock	Purulia Pumped Storage Project	West Bengal State Electricity Board	2007	1	8,300ton Steel Penstock
	Indonesia	Power Systems	Gas Turbine/Steam Turbine	Gresik 1500MW Combined Cycle Plant	PLN	1992/1993	9/3	701D / 188.9MW
	Indonesia	Power Systems	Gas Turbine/Steam Turbine	Grati 868MW Combined Cycle Plant	PLN	1996	6/1	701D / 189.5MW
	Indonesia	Machinery & Steel Structures	Chemical Plant	SM-2 Stylene Monomer Plant	P.T. STYRINDO MONO INDONESIA	1999	1	200,000T/Y
	Indonesia	Machinery & Steel Structures	Chemical Plant	AMJ Ammonia Plant	P.T. KALTIM PASIFIK AMMONIAK	2000	1	2,000T/D
	Indonesia	Machinery & Steel Structures	Chemical Plant	KPI Ammonia Plant	P.T. KALTIM PARNA INDUSTRI	2002	1	1,500T/D
	Indonesia	Machinery & Steel Structures	Chemical Plant	K-4 Fertilizer Complex	P.T. PUPUK KALIMANTAN TIMUR	2003	1	1,000T/D (Ammonia) 1,725T/D (Granulated UREA)

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
Asia	Korea	Power Systems	Steam Turbine	Gwangyang No.9	POSCO	2006	1	100MW
	Korea	Machinery & Steel Structures	LNG Storage Tank	Inchon No.11 & 12 LNG Storage Tanks	Korea Gas Corporation	2001	2	LNG In-ground Storage Tank (140,000kl x 2)
	Korea	Machinery & Steel Structures	Metals Machinery	No.4 Cold Complex (K4C)	POSCO Kwang yang steel works	1996		
	Korea	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill (TSMP)	POSCO Kwang yang steel works	1996		
	Malaysia	Power Systems	Gas Turbine/Steam Turbine/HRSG	Port Dickson	Tenaga Nasional Berhad	2005	2/1/2	M701F / 714.6MW
	Malaysia	Machinery & Steel Structures	Chemical Plant	Gas Processing Plant 1 and Export Terminal	PETRONAS GAS BERHAD	2005		
	Malaysia	Machinery & Steel Structures	Chemical Plant	MTBE/Propylene Complex	MTBE (MALAYSIA) SDN, BHD	1993	1	80,000T/Y (Propylene) 300,000T/Y (MTBE)
	Malaysia	Machinery & Steel Structures	Chemical Plant	PFK Fertilizer Complex	PETRONAS FERTILIZER (KEDAH) SDN, BHD	1999	1	1,350T/D (Ammonia) 200T/D (Methanol) 2,000T/D (Granulated UREA) 17T/D (UF85)
	Pakistan	Power Systems	Diesel	Diesel Goverating Plant	Japan Power Generation	2000	24	18KU30( 5.65MW )
	Pakistan	Power Systems	Boiler/Steam Turbine	Lal Pir Power Station	AES	1997	1/1	1,200T/H / 362MW
	Philippines	Power Systems	Boiler/Steam Turbine	Pagbilao Power Station #1, 2	HOPEWELL	1995	2/2	1,250T/H / 385MW
	Philippines	Power Systems	Boiler/Steam Turbine	Masinloc Stage I, II	PLN	1998	2/2	1,050T/H / 300MW
	Philippines	Power Systems	Gas Turbine/Steam Turbine	Ilijan 1200MW Combined Cycle Plant	KEPCO ILIJAN CORPORATION	2002	4/2/4	M501G / 234MW
	Philippines	Machinery & Steel Structures	Transportation System	MRT System	MRTC	1999/2000	16.9km	28,000p/h
	Philippines	Machinery & Steel Structures	Chemical Plant	BAPE Polyethlene & Polypropylene Complex	JG SUMMIT PETRO CHEMICAL CORP.	1998	1	87,500T/Y × 2 (Polyethlene) 180,000T/Y (Polypropylene)
	Singapore	Power Systems	Gas Turbine/Steam Turbine/HRSG	TUAS II 720MW Combined Cycle Plant	TUAS POWER	2001	2/2/2	M701F3 / 120MW / 360T/H
	Singapore	Power Systems	Gas Turbine/Steam Turbine/HRSG	Tuas Stage II	TUAS POWER	2005	2/2/2	M701F / 720MW
	Singapore	Machinery & Steel Structures	Container Crane	PPT Terminal	PSA Corp.	1997 ~ 1998	24	Post Panamax C/C
	Singapore	Machinery & Steel Structures	Stage Machinery System	The Esplanade theaters on the bay	The Esplanade Co. Ltd.	2002	1	Opera Theater Concert Hall
	Singapore	Machinery & Steel Structures	Ferris Wheel	Singapore Flyer	Singapore Flyer Ltd.	2008	1	28 Sets of Cabin (28 Passengers/Cabin)

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
Asia	Singapore	Machinery & Steel Structures	Refuse Incinerator	Senoko	Ministry of Environment	1992	6	552T/D×6
	Singapore	Machinery & Steel Structures	Refuse Incinerator	Tuas South	Ministry of Environment	2000	6	720T/D×6
	Singapore	Machinery & Steel Structures	ITS	ERP	LTA	1998 ~	42 Gantries	Error Ratio 10 <sup>-5</sup>
	Singapore	Machinery & Steel Structures	Chemical Plant	SMAG2 MMA Plant	Sumitomo Chemical Singapore PTE LTD	2005	1	76,000T/D
	Thailand	Power Systems	Gas Turbine/Steam Turbine/HRSG	Wang Noi 1300MW Combined Cycle Plant Stage I	EGAT	1996	4/2/4	M701F / 205MW / 250T/H
	Thailand	Power Systems	Gas Turbine/Steam Turbine/HRSG	Wang Noi 720MW Combined Cycle Plant Stage II	EGAT	1998	2/1/2	M701F / 250MW / 633T/H
	Thailand	Power Systems	Boiler/Steam Turbine	Ratchaburi #1, 2	EGAT	1999	2/2	2,530T/H / 700MW
	Thailand	Power Systems	Boiler/Steam Turbine	Map Ta Phut	BLCP Power	2006	2/2	2,285T/H / 700MW
	Thailand	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	Siam Strip Mill Public Co., Ltd.	1997		
	Taiwan	Power Systems	Gas Turbine/Steam Turbine/HRSG	Nampu 248MW Combined Cycle Plant	Taiwan Power Company	2001	1/1/1	M501F / 90MW / 200T/H
	Taiwan	Power Systems	Gas Turbine/Steam Turbine/HRSG	Dah-Tarn Stage	Taiwan Power Co.	2006	6/2/6	M501G / 282MW / 490T/H
	Taiwan	Power Systems	Gas Turbine	Chang Bin 490MW Combined Cycle Plant	Star Energy	2004	2	M501F / 185MW
	Taiwan	Power Systems	Gas Turbine	Fong Der 980MW Combined Cycle Plant	Taiwan Cogen	2004	4	M501F / 185MW
	Taiwan	Machinery & Steel Structures	Refuse Incinerator	Hsintien	Environmental Protection Administration	1994	2	450T/D×2
	Taiwan	Machinery & Steel Structures	Refuse Incinerator	Shulin	Environmental Protection Administration	1995	3	450T/D×3
	Taiwan	Machinery & Steel Structures	Refuse Incinerator	Lihtser	Environmental Protection Administration	2005	2	300T/D×2
	Vietnam	Machinery & Steel Structures	Cement Plant	5,800T/D Cement Plant	Nghi Son Cement Corporation	2000		
Middle East	Bahrain	Machinery & Steel Structures	Chemical Plant	BU Granulated UREA Plant	GULF PETROCHEMICAL INDUSTRIES. CO.	1997	1	1,700T/D
	Egypt	Power Systems	Gas Turbine	Cairo North 750MW Combined Cycle Plant	Cairo Electricity Production	2004	2	M701F / 273MW
	Egypt	Power Systems	Steam Turbine	Nubaria	WDFPC	2006	2	255MW

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
Middle East	Egypt	Machinery & Steel Structures	Container Handling Crane	Container Crane for Damietta Port	Damietta Container & Cargo Handling Co.	2001	4	
	Egypt	Machinery & Steel Structures	Container Handling Crane	Rubber Tyred Gantry Crane for Damietta Port	Damietta Container & Cargo Handling Co.	2001	14	
	Kuwait	Power Systems	Boiler	Sabiya Power Station #1 ~ 8	MEW	2000/2001	8/8	925.6T/H / 300MW
	Qatar	Machinery & Steel Structures	LNG Storage Tank	Ras Laffan LNG Storage Tanks	Ras Laffan LNG CO., Ltd	1999	3	LNG Above-ground Storage Tank (140,000kl x 3)
	Saudi Arabia	Power Systems	Boiler/Steam Turbine	Qurayyah Power Station #3,4	SCECO EAST	1992	2/2	2,080T/H / 600MW
	Saudi Arabia	Power Systems	Boiler/Steam Turbine	Rabigh Extension Stage III	SCECO WEST(EWR)	1996	2/2	850T/H / 260MW
	Saudi Arabia	Power Systems	Boiler/Steam Turbine	Qurayyah Power Station #1,2	SCECO EAST	1988/1989	2/2	2,080T/H / 600MW
	Saudi Arabia	Machinery & Steel Structures	Chemical Plant	AR-RAZ-III Methanol Plant	SAUDI METHANOL COMPANY (AR-RAZI)	1997		
	Saudi Arabia	Machinery & Steel Structures	Chemical Plant	AR-RAZ-IV Methanol Plant	SAUDI METHANOL COMPANY (AR-RAZI)	1999		
	Saudi Arabia	Machinery & Steel Structures	Chemical Plant	SPED Polyethylene Plant	EASTERN PETROCHEMICAL COMPANY (SHARQ)	2000		
	Saudi Arabia	Machinery & Steel Structures	Chemical Plant	YEP Polyethylene & Polypropylene Complex	SAUDI YANBU PETROCHEMICAL CO. (YANPET)	2000	2 1	256,000T/Y x 2 (Polyethlene) 260,000T/Y (Polypropylene)
	Turkey	Power Systems	Gas Turbine/Steam Turbine	Bursa 1400MW Combined Cycle Plant	TEAS	1999	4/2	M701F / 230MW
	Turkey	Power Systems	Steam Turbine	Afsin-Elbistan B	Turkish Electricity Generation Company (EUAS)	2005	4	360MW × 4( lignite-fired )
North Europe	Iceland	Power Systems	Geothermal Turbine	Nesjavetlir No.3	Reykjavik City	2001	1	30MW
	Iceland	Power Systems	Geothermal Turbine	Hellisheidi Geothermal Power Plant	Reykjavik Energy	2006	1	40MW
	Ireland	Power Systems	Gas Turbine/Steam Turbine	Huntstown Phase II Combined Cycle Plant	Viridian Group	2007	1/1	M701F / 187MW
Europe	Czech Republic	Machinery & Steel Structures	Flue Gas Desulfunization plant	Prunerov II	CEZ a.s.	1996	5	210MW×5
	Netherlands	Machinery & Steel Structures	Metals Machinery	Hot Strip Mill	CORUS (Hoogovens Staal BV)	2000		
	Spain	Power Systems	Gas Turbine/Steam Turbine/HRSG	Cristobal Colon Combined Cycle Power Plant	ENDESA	2006	1/1/1	M701F / 135MW / 669T/H
	Spain	Power Systems	Gas Turbine/Steam Turbine/HRSG	Castelnou 800MW Combined Cycle Plant	Electrabel S.A.	2006	2/1/2	M701F / 220MW / 360T/H

Area	Country	Headquarters (Division)	Product	Project name	Client	Year of delivery	No. of unit	Description
Europe	Spain	Power Systems	Gas Turbine/Steam Turbine/HRSG	Cartagena Combined Cycle Power Plant	AES	2006	3/3/3	M701F / 130MW / 360T/H
	United Kingdom	Power Systems	Gas Turbine/Steam Turbine	Saltend 400MW Combined Cycle plant #1 ~ 3	Saltend Cogeneration Company Ltd.	2000	3/3	M701F / 111MW
	United Kingdom	Power Systems	Gas Turbine/Steam Turbine	Damhead Creek 793MW Combined Cycle Plant	Kingsnorth Power Ltd.	2001	2/1	M701F / 167MW
Others	Alzeria	Machinery & Steel Structures	Chemical Plant	AOL LPG Plant	SONATRACH	1997	1	6.2MMN m³/h
	Australia	Power Systems	Gas Turbine	Pinjarra Co-Generation Unit#2	Alinta Co-Generation (Pinjarra) Pty	2006	1	M701DA
	Azerbaijan	Power Systems	Gas Turbine/Steam Turbine	Severnaya 400MW Combined Cycle Plant	Joint Stock Company Azerenerji	2002	1/1/1	M701F / 130MW
	Kenya	Power Systems	Diesel	Diesel Goverating Plant	Kenya Power Co., Ltd.	1999	6	9L 58/64( 12.5MW )
	Kenya	Power Systems	Geothermal	Olkaria II	KENGEN, Ltd.	2004	2	3.4MW×2
	New Zealand	Power Systems	Geothermal	Mokai II	Tuaropaki Power Co., Ltd.	2005	1	19.2MW × 1

# XII. Society & Environment

Corporate Social Responsibility

Management

Environmental Report

Social Report

### 1. Corporate Social Responsibility

In the MHI Group we view corporate social responsibility — CSR — as the foundation and core of our management. In a quest for MHI to become a trusted company, we place the perspective of society as our constant pivotal point and seek to meet the expectations of society. In line with this goal, we have established a CSR committee with myself as chairperson, and we have founded the Corporate Social Responsibility Department under my direct responsibility. Through these new entities, we aim to strengthen our activities in CSR. For group employees to put CSR management into practice, we have prepared "CSR Action Guidelines."

#### **CSR Action Guidelines**

In order to ensure a secure future for the Earth, we will establish and maintain,

### Close ties with the Earth

Safeguard an abundantly green Earth through environmental technologies and environmental awareness:

### Close ties with society

Build a relationship of trust with society through proactive participation in society and trustworthy actions;

### A bridge to the next generation

Contribute to the cultivation of human resources who can shoulder responsibility in the next generation through technologies that can realize dreams.

#### **Specific Guidelines**

#### Close ties with the Earth

Contribute to the resolution of global environmental and energy issues through superlative technologies.

Reduce environmental burdens in all areas of business through a high level of environmental awareness by all individuals.

#### Close ties with society

Provide safe products of high quality matching the needs of customers and society.

Through continuous sincere actions, respect social norms and achieve transparency of information.

Maintain self-awareness as a member of society and contribute proactively to development of regions and societies.

#### A bridge to the next generation

Foster comfortable working environments and a working culture where creativity blossoms.

Through business operations and technologies that make dreams come true, cultivate children who are filled with hope.

### 2. Management

### Corporate Governance

#### Approach to promoting fair and sound management

Committed to the ethos of customer-first, MHI conducts its business activities as a responsible corporate citizen based on consideration for all stakeholders.

MHI is implementing a number of initiatives to enhance management efficiency and strengthen compliance, including reforming the management system to allow more effective decision-making in response to radical changes in the economic environment, and promoting fair and sound management. MHI is also working to make management more transparent by disclosing information rapidly and accurately to shareholders and other external stakeholders.

#### **Administrative Organization**

The Board of Directors makes important management decisions and oversees the execution of business operations. MHI is strengthening management oversight functions through the appointment of outside directors. Currently, of the Company's 19 directors, three are from outside MHI. Additionally, MHI has established an Executive Committee to provide a forum for discussing important matters related to business execution. This allows for a more cohesive approach to discussion as part of the operational execution framework centered on the President, and consequently leads to more appropriate management decisions and business execution.

#### **Modifying the Corporate Governance Structure**

MHI overhauled its corporate governance framework in June 2005 to improve the soundness and transparency of management and increase efficiency and flexibility. The main components of this reform included streamlining the Board of Directors while increasing the number of outside directors, shortening the terms of directors, and introducing an executive officer system. These modifications were aimed at enhancing the oversight functions of the Board of Directors and clearly delineating the roles and responsibilities of directors and executive officers. Directors are responsible for general oversight of the Company's operations and making important business decisions, while executive officers are responsible for the day-to-day business and affairs of the Company. Subsequently, in June 2007, MHI appointed an additional outside director to make the decision-making process more sound and transparent.

### Compliance

We have promoted the business activities MHI fairly and faithfully in order to "base our activities on honesty, harmony, and a clear distinction between public and private life." As a more specific activity guideline, we established the MHI Compliance Guideline in 2001.

#### **Business activities**

We will conduct sensible company activities in compliance with laws and in an appropriate manner, and contribute to society by providing safe, high-quality products and services.

- 1. We will endeavor to provide safe, high-quality products and services.
- 2. In conducting business activities, we will pursue fair and free intercorporate competition in compliance with the Antimonopoly Act, the Act against Delays in the Payment of Subcontract Proceeds, etc. to Subcontractors, the Construction Business Act, and other relevant regulations.
- 3. Regarding gift-giving and entertainment with civil officers and suppliers, we will not violate laws or deviate from socially accepted practices.
- 4. We will implement appropriate accounting and tax accounting in accordance with relevant laws, accounting standards, and internal regulations.
- In relation to overseas business, we will follow laws related to import and export and local laws.

#### Relationship between the company and society

We will try to preserve the environment and live in harmony with society as a good corporate citizen.

- 1. We will follow environment-related laws and try to preserve the environment.
- 2. We will disclose information related to management in an appropriate and timely manner.
- We will not make political donations exceeding the amounts stipulated in our internal regulations.
- 4. We will respond firmly to antisocial forces.

#### Relationship between the company and employees

The company will secure a safe, healthy work environment, and company members will make clear distinctions between public and private, comply with laws and internal rules, and execute their duties faithfully.

- 1. The company will follow labor-related laws and try to secure a safe, healthy work environment.
- 2. Company members will follow internal regulations such as labor regulations.
- 3. Company members will not engage in discriminative behavior or sexual harassment.
- Company members will handle company secrets appropriately, and will not disclose them without prior consent.
- 5. Company members will not conduct unfair transactions in stock (insider trading).

### 3. Environmental Report

MHI has contributed to society through the manufacture of products since its founding. Broadly speaking, the company now focuses on the environment with two overriding goals: first, to decrease the burdens on the environment imposed by manufacturing activities; second, to develop technology useful for solving the problems of the environment and energy. In 1996 we established the Environment Committee to further contribute to society and the harmonious coexistence of people and the natural environment. The environmental management system is constructed in accordance with the Basic Policy on Environmental Matters and the seven Guidelines established by the company.

### Basic Policy and Guidelines on Environmental Matters

MHI has established the following basic policy on environmental matters to enable the development of a sustainable society.

As clearly laid out in provision 1 of its creed – "We strongly believe that the customer comes first and that we are obligated to be an innovative partner to society." – MHI believes its primary purpose is to contribute to society through its R&D, manufacturing and other business activities. Accordingly, in the performance of its business activities the company shall embrace the awareness that it is an integral member of society and, in all aspects of its business activities, it will strive to reduce burden on the environment and shall devote its comprehensive technological capabilities to the development of technologies and products that will protect the environment, as its way of contributing to the development of a sustainable society.

# To achieve its basic policy on the environment, MHI has set the following seven guidelines.

- 1. Accord high priority to environmental protection within company operations, and take steps company-wide to protect and enhance the environment.
- Clarify roles and responsibilities regarding environmental protection by developing an organized structure to deal with environmental protection matters, defining environmentrelated procedures, etc.
- 3. Strive to alleviate burden on the environment in all aspects of company business activities from product R&D and design to procurement of raw materials, manufacture, transport, usage, servicing and disposal through pollution prevention, conservation of resources, energy saving, waste reduction, reuse and recycling.
- 4. Strive to develop and provide advanced, highly reliable, wholly proprietary technologies and products that will contribute to solving environmental and energy problems.
- 5. Strive continuously to improve and enhance environmental protection activities not only by fully complying with environmental laws and regulations but also, when necessary, by establishing, implementing and evaluating independent standards and setting

environmental goals and targets.

- 6. In the performance of business activities overseas and exportation of products, pay full heed to impact on the local natural and social environments and strive to protect those environments; also, become actively involved in technological cooperation overseas in matters of environmental protection.
- 7. Take steps to raise environmental awareness among all employees through environmental education, etc., undertake activities to provide environment-related information to the public, and proactively make environment-enhancing contributions to society.

#### **Environmental Management Structure**

The Environment Committee was established in 1996 to clarify the company's initiatives in protecting the environment. Each year the committee plans and proposes environmental measures to be carried out throughout the company and sets the direction for the term. MHI also promotes and follows up on the environmental protection plans prepared annually by the respective divisions, headquarters and works.

Two entities have been established in-house to undertake activities to resolve environmental issues. The Environment Liaison Conference functions to implement, on a company-wide basis, decisions rendered by the Environment Committee. The Energy Conservation Liaison Conference specializes in measures to save energy and reduce CO<sub>2</sub> emissions. The headquarters, divisions, and works of MHI have also set up their own environmental committees to implement company environmental policies and undertake environmental management activities responsive to the special features of every locality.

#### **Environmental Management Structure**



#### **Introduction of the Environmental Management System**

Some years ago, Yokohama Dockyard & Machinery Works became Japan's first general heavy industrial manufacturer to obtained ISO14001 certification. Today, all 15 headquarters/divisions/works and all 6 reserch & development centers of MHI have obtained this certification, as well as the MHI Head Office (accredited in March 2006). We have renewed the ISO certification without fail through continuous improvements to our environmental management system and the smooth operation of the Plan-Do-Check-Act (PDCA) cycle.

#### **Environmental Management System of the MHI Group**

MHI decided to require each affiliated company to develop its own environmental management system aimed at establishing a general environmental management system for the whole MHI group. Individual group companies have already promoted activities at related MHI works in accordance with their specific environmental burdens. Taking those conditions into account, MHI decided to establish an original set of standards alongside the ISO14001 standards, in order to facilitate the achievement of environmental management.

To encourage affiliated companies to introduce environmental management systems, MHI prepared two original environmental standards: M-EMS (conforms with ISO14001) and M-EMS EcoAction (conforms with EcoAction 21). The standards are controlled by MHI's Environmental Management Section as secretariat and 16 chief auditors and 9 auditors (qualified auditors trained at external institutes). Each affiliated company has created its own set of environmental policies and selected related environmental aspects in accordance with the requirements of the standard, prepared and organized documentation, and conducted environmental training programs for all employees. Through these efforts, more than 90 percent of the domestic affiliated companies have established their own environmental management systems.

The MHI group will now move forward by making concerted efforts to implement the environmental management standards through the precise identification of environmental management problems, discussion of solutions, and promotion of PDCA cycle-based EMS activities.

Company name

### **Environmental Management Systems Adopted at MHI and its affiliated companies**

#### ISO14001 accreditation at MHI works and affiliates

		Date of issue
		(or registration)
	Yokohama Dockyard & Machinery Works	Oct. 31, 1997
	Nagasaki Shipyard & Machinery Works	May 22, 1998
	Takasago Machinery Works	June 26, 1998
	Air-Conditioning & Refrigeration Systems Headquarters	Nov. 20, 1998
	General Machinery & Special Vehicle Headquarters	May 21, 1999
	Paper & Printing Machinery Division	Sept. 3, 1999
Ф	Plant and Transportation Systems Engineering & Construction Center (Mihara)	Sept. 3, 1999
MHI site	Hiroshima Machinery Works	Sept. 30, 1999
	Shimonoseki Shipyard & Machinery Works	Nov. 24, 1999
_	Nagoya Guidance & Propulsion Systems Works	Dec. 18, 1999
	Kobe Shipyard & Machinery Works	Feb. 18, 2000
	(Former) Industrial Machinery Division	Mar. 17, 2000
	Machine Tool Division	Dec. 28, 2000
	Plant and Transportation Systems Engineering & Construction Center (Yokohama)	June 29, 2001
	Nagoya Aerospace Systems Works	Oct. 1, 2003
	Head Office	Apr. 6, 2006
Research & lopment Centers	Nagasaki Research & Development Center	Aug. 21, 2006
ă è	Advanced Technology Research Center	Nov. 9, 2006
50	Yokohama Research & Development Center	Nov. 9, 2006
Research & Iopment Ce	Hiroshima Research & Development Center (Mihara)	Dec. 5, 2006
Ses	Nagoya Research & Development Center	Dec. 26, 2006
	Takasago Research & Development Center	Mar. 9, 2007
De	Hiroshima Research & Development Center (Hiroshima)	Aug. 2, 2007
	MHI Solution Technologies Co., Ltd.	Aug. 28, 1998
	Mitsubishi Agricultural Machinery Co., Ltd.	July 24, 2001
	Nagoya Ryoju Estate Co., Ltd.	Mar. 14, 2002
	Nishinihon Ryoju Estate Co., Ltd.	July 12, 2002
	Chubu Jukan Operation Co., Ltd. Head Office	Jan. 13, 2004
	Mitsubishi Heavy Industries Environment Engineering Co., Ltd., Yokohama Branch	Apr. 12, 2004
	Ryoin Co., Ltd., Head Office	Apr. 23, 2004
	Ryoin Co., Ltd., Chubu Factory	July 22, 2004
	Ryoin Co., Ltd, Mihara Branch	Aug. 3, 2004
	Mihara Ryoju Machinery Works Co., Ltd.	Feb. 16, 2005
တ	Ryowa Engineering Co., Ltd.	Feb. 17, 2005
ate	Shimonoseki Ryoju Estate Co., Ltd.	Mar. 14, 2005
ij.	Ryoju Estate Co., Ltd.	Mar. 17, 2005
Domestic affiliates	Mitsubishi Heavy Industries Food & Packaging Machinery Co., Ltd.	Mar. 17, 2005
lest	Seibu Jukan Operation Co., Ltd.	Mar. 22, 2005
ПО	Kusakabe Co., Ltd.	Mar. 24, 2005
	Tamachi Building Co., Ltd.	Mar. 25, 2005
	Higashi Chugoku Ryoju Estate Co., Ltd.	Mar. 29, 2005
	Hiroshima Ryoju Estate Co., Ltd.	Apr. 9, 2005
	Mitsubishi Heavy Industries Environment Engineering Co., Ltd., Head Office	Apr. 9, 2005
	Ryojyu Cold Chain Co., Ltd.	Apr. 22, 2005
	Dia Precision Casting Co., Ltd.	May 11, 2005
	Tokiwa Machinery Works Ltd.	May 18, 2005
	Jukan Operation Co., Ltd. Head Office	Aug. 1, 2005
	MHI Aerospace Logitem Co., Ltd.	Jan. 5, 2007
	Mitsubishi Heavy Industries Air-Conditioning & Thermal Systems Co., Ltd. Manufacturing Department	Sep. 14, 2007
		Dec. 31, 2007

	: Date of issue
Base or Company name	(or registration)
Mitsubishi Heavy Industries Haier (Qingdao) Air-Conditioners Co., Ltd.	Dec. 14, 1998
MHI Equipment Europe B.V.	Nov. 9, 2001
Mitsubishi Caterpillar Forklift Europe B.V.	July 25, 2002
Mitsubishi Heavy Industries Climate Control Inc.	June 12, 2003
Mitsubishi Power Systems, Inc., Orlando Service Center	Feb. 8, 2004
MHI Automotive Climate Control (Shanghai) Co.,Ltd.	July. 11, 2005
CBC Industrias Pesadas S.A.	Dec. 1, 2005
Mitsubishi Heavy Industries Korea Ltd.	Dec. 17, 2005
Mitsubishi Heavy Industries Mahajak Air Conditioners Co.,Ltd.	Dec. 21, 2005
Mitsubishi Heavy Industries-Jinling Air-Conditioners co., Ltd.	Jan. 24, 2006
MHI Machine Tool (Hong Kong) Ltd.	Mar. 30, 2006
Mitsubishi Heavy Industries (Hong Kong), Ltd.	Apr. 5, 2006
MLP Hong Kong, Ltd.	May 25, 2006
Mitsubishi Heavy Industries, (Shanghai) Co., Ltd.	July 5, 2006
MHI-Pornchai Machinery Co., Ltd.	July 17, 2006
Mitsubishi Heavy Industries India Private Ltd.	Dec. 7, 2006
Mitsubishi Heavy Industries Singapore Private Ltd.	Jan. 21, 2007
Mitsubishi Heavy Industries America, Inc. Headquarters	Oct. 15, 2007
Mitsubishi Heavy Industries America, Inc. Tire Machinery Division	Oct. 15, 2007
Mitsubishi Caterpillar Forklift America Inc.	Dec. 6, 2007
Mitsubishi Heavy Industries (Thailand) Ltd.	Dec. 31, 2007
	MHI Equipment Europe B.V.  Mitsubishi Caterpillar Forklift Europe B.V.  Mitsubishi Heavy Industries Climate Control Inc.  Mitsubishi Power Systems, Inc., Orlando Service Center  MHI Automotive Climate Control (Shanghai) Co.,Ltd.  CBC Industrias Pesadas S.A.  Mitsubishi Heavy Industries Korea Ltd.  Mitsubishi Heavy Industries Mahajak Air Conditioners Co.,Ltd.  MItsubishi Heavy Industries Mahajak Air Conditioners co., Ltd.  MIH Machine Tool (Hong Kong) Ltd.  MIH Machine Tool (Hong Kong) Ltd.  MIP Hong Kong, Ltd.  Mitsubishi Heavy Industries (Shanghai) Co., Ltd.  MHI-Pornchai Machinery Co., Ltd.  MHI-Pornchai Machinery Co., Ltd.  Mitsubishi Heavy Industries India Private Ltd.  Mitsubishi Heavy Industries Singapore Private Ltd.  Mitsubishi Heavy Industries America, Inc. Headquarters  Mitsubishi Heavy Industries America, Inc. Headquarters  Mitsubishi Heavy Industries America, Inc. Tire Machinery Division  Mitsubishi Caterpillar Forklift America Inc.

#### **EcoAction 21 accreditation at MHI affiliates**

		Date of issue (or registration)
nestic liates	Daiya Building Service Co., Ltd.  Nuclear Development Co., Ltd.  Ryonichi Engineering Co., Ltd.	Apr. 21, 2005
	Nuclear Development Co., Ltd.	May 30, 2005
Dor	Ryonichi Engineering Co., Ltd.	Oct. 31, 2005

#### K-EMS\* accreditation at MHI affiliates

	Company name	Date of issue (or registration)
	Seiryo Engineering Co., Ltd.	Dec. 24, 2004
Ś	Kinki Ryoju Estate Co., Ltd.	Feb. 23, 2005
ate	Shinryo High Technologies, Ltd.	Feb. 23, 2005
░	Engineering Development Co., Ltd.	Mar. 24, 2005
	Nuclear Power Training Center, Ltd.	Mar. 24, 2005
Domestic affiliates	MHI General Services Co., Ltd.	Mar. 24, 2005
ШO	Ryoin Co., Ltd., Kobe Branch	Mar. 24, 2005
Ω	Techno Data Engineering Co., Ltd.	Feb. 27, 2006
	Energis Co., Ltd.	Mar. 23, 2006

#### Kamakura EcoAction 21\*\* accreditation at MHI affiliates

	Base or Company name	Date of issue (or registration)
Domestic affiliates	Shonan Monorail Co., Ltd.	Apr. 4, 2007

#### MHI affiliates adopting M-EMS (based on ISO14001)

Company name	(or registration)
Kensa Kenkyusho Inspection Co., Ltd.	Apr. 25, 2005
Ryoin Co., Ltd., Shinagawa Branch	Apr. 26, 2005
Mitsubishi Heavy Industries Printing & Paper Converting Machinery Sales Co., Ltd.	May 12, 2005
Mitsubishi Heavy Industries Air-Conditioning & Refrigeration Systems Corporation	May 13, 2005
Mitsubishi Heavy Industries Forklift Sales Co., Ltd.	July 12, 2005
Mitsubishi Heavy Industries Engines Systems Co., Ltd.	July 12, 2005
Mitsubishi Engine North America, Inc.	Jan. 19, 2007
MHI Injection Molding Machinery, Inc.	Jan. 19, 2007
MLP U.S.A., Inc.	Jan. 19, 2007
	Kensa Kenkyusho Inspection Co., Ltd.  Ryoin Co., Ltd., Shinagawa Branch  Misubishi Heavy Industries Printing & Paper Converting Machinery Sales Co., Ltd.  Misubishi Heavy Industries Air-Conditioning & Refrigeration Systems Corporation  Mitsubishi Heavy Industries Forklift Sales Co., Ltd.  Mitsubishi Heavy Industries Engines Systems Co., Ltd.  Mitsubishi Engine North America, Inc.  MHI Injection Molding Machinery, Inc.

#### MHI affiliates adopting M-EMS EcoAction (based on EcoAction 21)

	Company name	Date of issue (or registration
	Mihara Ryoju Engineering Co., Ltd.	Apr. 20, 2005
	Ryoin Co., Ltd., Sagamihara Branch	Apr. 25, 2005
	Shunjusha Ltd.	Apr. 26, 2005
S	MHI Sagami High-tech, Ltd.	May 9, 2005
Domestic affiliates	Ryosen Engineers Co., Ltd.	May 10, 2005
░	MHI Turbo-Techno Co.	May 11, 2005
o o	Hiroshima Dia System Co., Ltd.	May 11, 2005
est	Ryoju Transportation Equipment Engineering & Service Co., Ltd.	May 12, 2005
E O	MHI Marine Engineering, Ltd.	May 16, 2005
	Churyo Engineering Co., Ltd.	May 16, 2005
	Ryoin Co., Ltd., Minatomirai Branch	May 16, 2005
	MHI Aerospace Systems Corp.	July 12, 2005
	MDS Corporation	July 22, 2005

# Affiliates incorporated into ISO14001 certification of MHI works or Head Office

	Company name	Date of issue (or registration)	MHI division/works
	Mitsubishi Heavy Industries Plastic Technology Co., Ltd.	Apr. 1, 2000	IMD
	Mihara Ryoju Engineering Co., Ltd. Information Systems & Electric Device Department	Oct. 8, 2004	PPMD
	Ryoin Co., Ltd., Nagoya Branch	Oct. 22, 2004	NASW
	MHI Aerospace Production Technologies, Ltd.	Oct. 22, 2004	NASW
	Diamond Air Service Incorporation	Oct. 22, 2004	NASW
	Ryoin Co., Ltd., Shimonoseki Branch	Nov. 22, 2004	SSMW
	Kanmon Dock Service, Ltd.	Nov. 22, 2004	SSMW
es	Shimonoseki Ryo-Jyu Engineering Co., Ltd.	Nov. 22, 2004	SSMW
Jomestic affiliates	Ryoin Co., Ltd., Nagoyanishi Branch	Jan. 6, 2005	IMD
aff	Mitsubishi Heavy Industries Industrial Machinery Co., Ltd.	Jan. 6, 2005	IMD
stic	MHI Machine Tool Engineering Co., Ltd.	Feb. 25, 2005	MTD
ше	Ryoin Co., Ltd., Kyoto Branch	Feb.25, 2005	MTD
å	MHI Aero Engine Service Co., Ltd.	Apr. 11, 2005	NGPSW
	MHI Logitec Company Limited	Apr. 11, 2005	NGPSW
	MHI Diesel Service Co., Ltd.	May 12, 2005	KSMW
	Nuclear Plant Service Engineering Co., Ltd.	May 12, 2005	KSMW
	Sinryo Thermal Power Plant Service Engineering Co., Ltd.	May 12, 2005	KSMW
	Sanshin-Tec. Ltd.	May 12, 2005	KSMW
	Mitsubishi Heavy Industries Tunneling Machinery & Geotechnology Co., Ltd.	May 12, 2005	KSMW
	Mitsubishi Heavy Industries Parking Co., Ltd.	May 14, 2005	YDMW

	Company name	(or registration)	division/work
	Ryoin Co., Ltd., Yokohama Branch	May 14, 2005	YDMW
	Ryoju Estate Co., Ltd., Yokohama Branch	May 14, 2005	YDMW
	MHI Energy & Service Co., Ltd.	May 14, 2005	YDMW
	Koryo Inspection & Service Co., Ltd.	May 14, 2005	TMW
	Mitsubishi Heavy Industries Plant Construction Co., Ltd. Power Systems Service Headquarters	May 14, 2005	TMW
	Koryo Engineering Co., Ltd.	May 14, 2005	TMW
	Ryoin Co., Ltd., Takasago Branch	May 14, 2005	TMW
	Nuclear Plant Service Engineering Co., Ltd., Takasago Division	May 14, 2005	TMW
	MEC Engineering Service Co., Ltd.	June 23, 2005	HMW
	Hiroshima Ryoju Engineering Co., Ltd.	June 23, 2005	HMW
	Mitsubishi Heavy Industries Plant Construction Co., Ltd.	June 23, 2005	HMW
	Mitsubishi-Hitachi Metals Machinery, Inc.	June 23, 2005	HMW
	Ryoin Co., Ltd., Hiroshima Branch	June 23, 2005	HMW
	Sagami Logistics & Service Co., Ltd.	Sept. 13, 2005	GMSVH
	Choryo Senpaku Kouji Co., Ltd.	Sept. 22, 2005	NSMW
	Ryoin Co., Ltd., Nagasaki Branch	Sept. 22, 2005	NSMW
	Choryo Inspection Co., Ltd.	Sept. 22, 2005	NSMW
	MHI Oceanics Co., Ltd.	Sept. 22, 2005	NSMW
tes	Kowa Kogyo Co., Ltd.	Sept. 22, 2005	NSMW
filia	Choryo Control System Co., Ltd.	Sept. 22, 2005	NSMW
aff	Choryo Designing Co., Ltd.	Sept. 22, 2005	NSMW
stic	MHI Maritech, Ltd.	Sept. 22, 2005	NSMW
Domestic affiliates	Choryo Software Co., Ltd.	Sept. 22, 2005	NSMW
	Chiyoda Lease Company Limited	Sept. 22, 2005	NSMW
	Mitsubishi Heavy Industries Machine Tool Sales Co., Ltd.	Jan. 13, 2006	MTD
	Ryoju Estate Co., Ltd., Department of Facilities Management Service	Apr. 6, 2006	НО
	Tamachi Building Co., Ltd., Shinagawa Building Management Center	Apr. 6, 2006	НО
	MHI Personnel Staff, Ltd.	Apr. 6, 2006	НО
	MHI Tourist, Ltd.	Apr. 6, 2006	НО
	MHI Accounting Service, Ltd.	Apr. 6, 2006	НО
	MHI Finance Co., Ltd.	Apr. 6, 2006	НО
	Dia Food Service Co., Ltd.	Apr. 6, 2006	НО
	Daiya PR Co., Ltd.	Apr. 6, 2006	НО
	Computer Software Development Co., Ltd.	Apr. 6, 2006	НО
	Advanced Reactor Technology Co., Ltd.	Apr. 6, 2006	НО
	Diamond Air Service Incorporation	Apr. 6, 2006	НО
	E-Techno Ltd.	May 13, 2006	KSMW
	Choryo Engineering Co., Ltd.	Aug. 21, 2006	NSMW
	Foods Ryowa Co., Ltd.	Nov. 27, 2006	SSMW
	Mitsubishi Heavy Industries Bridge & Steel Structures Engineering Co., Ltd.	Aug. 2, 2007	HMW
	Shinryo System Corp.	May. 1, 2008	KSMW

#### \* K-EMS

An environmental management system promoted by Kobe City, Japan.

### \*\* Kamakura EcoAction 21

An environmental management system promoted by Kamakura City, Japan.

### 4. Social Report

#### MHI Technology and Products Developed in Consideration of the Environment

MHI hopes for a 21st century that's gentle to the earth, the earth environment, and earth inhabitants.

We will deliver technology and products with this hope foremost in mind.

Field	Product	New technology
Energy	Power genelation: Gas turbine combined cycle Nuclear power system Solar power system, wind power generation system Gas engine co-generation system Coal gasification power sysytem Geothermal power generation syster Fuel cell Biomass gasification power generati Biomass gasification methanol Other: production system	luei ceii
Air	CO2 reduction: Flue gas CO2 recovery plant Exhaust reduction: White smoke exhaust prevention cooling tower Electronic toll collection system Dust reduction: Electrostatic precipitator NOx reduction: Flue gas denitrification plant Low NOx combustion system CNG forklift SOx reduction: Flue gas desulfurization plant Mitsubishi dielectric droplet scrubber (MDDS) Double-contact-flow scrubber(DCFS) VOC elimination: Solvent recovery plant	CO2 recovery technology Pollutant reduction technology in exhaust gas by way of catalyst and absorption tower Development of ceramic filter for black smoke exhaust removal of diesel engine
Water	Water area Multi-purpose oil recovery boat for open water pollution prevention: Water cleaning unit Water quality improvement: Rinsing water recycling High performance membrane filter treatment systems Various waste water treatment systems	Decomposition treatment technology of dioxin in waste water
Soil	Soil treatment: Soil-ground water purification system PCB contaminated soil treatment busin Construction sludge recycling plant	ess Hazardus substances (PCB, etc.) extraction-decomposition technology
Waste material	Waste material: Municipal waste incineration · melting system Industrial waste incineration · carbonization · melting syster High efficiency waste disposal power plant Sewage sludge incineration · carbonization · melting system PCB hydrothermal decomposition system Recycle: System for the recycling of waste into usable resources	fermentation technology
Sound	Noise reduction: Noise reduction equipment Soundproofing Active soft edge noise barrier	Low frequency noise reduction technology

### Social Contribution Activities

Focusing on the contribution to local communities and the nurturing of the next generation, MHI is committed to the social contribution activities. As a global company, we will contribute to society through various activities.

#### Live together with local communities and contribute to their development.

Our basic policy is to live together with local communities of branch offices, overseas offices, and associated companies in foreign countries, building strong relationships based on mutual trust. With this in mind, we undertake various activities suitable for local cultures and contribute to the local development and activation both in Japan and overseas.

# MHI is passing on "the heart of Japanese manufacturing" and "the arts of science and technology" to the next generation.

MHI has developed and produced more than 700 kinds of products in its long history, cultivating "the heart of Japanese manufacturing" and "the arts of science and technology". To pass its knowledge and skills onto succeeding generations, MHI has a tradition of organizing educational activities such as science classes with experiments for children.

#### Policy for social contribution

#### Local contribution

Live together with communities and contribute to their development

## Upbringing of the next generation

Transfer "the heart of Japanese manufacturing" as well as "the arts of science and technology" to the next generation

### **Expenditure on Social Contribution.**

Ever since Nippon Keidanren (Japan Bussiness Federation) founded the "One Percent Club" in November 1990, MHI endorses the goals of the program, and pledges to use at least 1% of their ordinary profits, as well as reports the result of social contribution activities each year.

### Expenditure on socially beneficial activities

(Unit: million yen)

Year	2004	2005	2006
Academic research	276	148	223
Education	468	682	630
Community activities	72	97	126
Sports	51	106	121
Other	320	241	771
Total	1,187	1,274	1,870
Percentage of ordinary profit	_	3.93%	3.25%

Note: • Figures include cash donations, payments in kind, activities by employees, free use of company facilities, etc., converted to monetary equivalents; activities performed by employees privately are not included.

- No percentage is provided for 2004 because ordinary income ended with a loss.
- The figures for 2007 are now being prepared.

#### **Examples of Social Contribution Activities.**

#### Contribution to local communities

- Clean-up activities (entire company)
- Exhibition and tour of the launching ceremony
- Health Support Consultation (Kobe Shipyard & Machinery Works)
- Softball championship
- Periodical recitals by Brass Band Club
- Historical exhibition of Nagoya Aerospace Systems Works
- Sponsor of matching gift programs

#### Contribution to the next generation

- Internship program
- Mitsubishi Shinsen Summer School
- Social studies learning program
- Donations of Killifish (Hiroshima Machinery Works)
- Accepting trainees from China
- Chair programs at Vietnamese universities

#### Examples of social contribution activities by group companies.

- Emergency diagnosis of bridges in earthquake disasters
- Traffic safety classroom for new entrants of elementary school
- Special lectures of advanced environmental technologies at universities
- Training of Non-Destructive Inspector to support local economies
- Support of a traditional local event, the Rodeo Show

#### Recovery assistance to areas hit by natural disasters.

MHI has long embraced a humanitarian perspective and offered assistance and support to both domestic and international areas in the aftermath of large-scale natural disasters. As for recent examples, we donated relief funds each to the snow storms disaster in South China in January 2008, Myanmar - delta region Cyclone Nargis, and Sichuan Earthquake in China in May, and they were used for revivals at the earliest occasion.

### Major Relief Support Activities in Recent Years

(unit: million yen)

	• • • • • • • • • • • • • • • • • • • •		(driit. friiiiori yeri)
Year	Disaster	Scale of support	Type of support
2008	Sichuan earthquake in China	210	Cash donation
	Myanmar - delta region Cyclone Nargis	3	Cash donation
	Snow storms disaster in South China	1.5	Cash donation
2007	Niigata Chuetsu Earthquake	10	Cash donation
	Noto Hanto Earthquake	1	Cash donation
2006	Mid Java Earthquake, Indonesia	10	Donation of gasoline generators and cash
2005	Northern Pakistan Earthquake	5	Cash donation
	Hurricane in the southern U.S.	30	Donation of light towers and cash
	Typhoon in China's Liaoning Province	0.44	Cash donation
2004	Sumatra earthquake and tsunami	27.78	Cash donation
	Niigata Chuetsu Earthquake	10	Cash donation
	Torrential rains in Niigata Prefecture	1	Cash donation
	Torrential rains in Fukui Prefecture	1	Cash donation
	Bam (SE Iran) earthquake	8	Donation of gasoline generators and cash



#### Mitsubishi Minatomirai Industrial Museum

#### Name

Mitsubishi Minatomirai Industrial Museum

#### Location

Mitsubishi Juko Yokohama Building, 3-1 Minatomirai 3-chome, Nishi-ku, Yokohama-shi

#### **Opening**

June 1, 1994

#### **Outline**

The Mitsubishi Minatomirai Industrial Museum was opened to promote public understanding of the roles of technology in supporting and enriching lives and society. The come-and-experience style of exhibitions at the museum make it fun to learn about new technologies.

The museum also promotes the education of children and young people in various ways. With advanced reservations, for example, students from elementary, junior high and senior high schools, and universities can visit the museum to participate in extra curricular activities free of charge. The biggest mission for the museum over the long term is to enlighten the younger generations who are to shoulder tomorrow's world, as a place where youth can experience technology and find new food for dreams.

#### Introduction

The museum is organized into six zones based on the following themes: the "Space", "Ocean", "Transportation", "Daily Life Discovery", "Environment/Energy" and the "Technology Quest". Visitors can improve their understanding of science and technology in all of these areas, and enjoy hands-on experiences such as the Helicopter Flying Simulation, the Ships & Airplanes Design Experience, and the 3D Theater.

#### Space



Space development is advancing fast. The Space Zone exhibits Japan's H-IIA and H-II rockets alongside the main engines used to power them (the LE-7A and LE-7). You can feel the overwhelming power of these engines simply by standing nearby. Visitors can also see realistic reproductions of the international Space Station (ISS) now under construction and KIBO, the Japanese Experiment Module (JEM). The displays give you a sense of space development in the past and future, with fascinating details on artificial satellites and interplanetary exploration.

#### Ocean



The ocean has enormous potential for energy and resource development. 海洋。Ocean development is significant not only for island nations such as Japan, but for the entire world. Visit this zone to learn about systems, activities, and future programs for ocean research, including the missions of the deep-sea probe Shinkai 6500, the Chikyu riser drilling vessel, and the Urashima deep sea cruising probe, a remarkable vessel capable of exploring the sea to unknown depths.

#### **Transportation**



New transportation systems are being developed as possible solutions to alleviate global warming, air pollution, noise pollution, and various other 交通 輪撲 problems facing the global environment. Visit the Transport City Panorama to explore the principle technologies already being used to deal with environmental issues such as these. You can enjoy the simulated experience of operating a full-scale jTRAM, an eco-friendly tram with an ultra-low floor.

#### Daily Life Discovery

The "things" that we casually use in our daily lives are interspersed with THE WIN various cutting edge technologies and production techniques. This zone allows visitors to discover manufacturing processes and secrets through everyday activities, such as unwinding in one's living room or shopping in a store, within a space made up as a mock street corner.

> Moreover, visitors have their interest in discovery aroused by making use of the importance of the "realizations" acquired here in their ordinary lives.

#### Environment/Energy

Currently, our earth is facing significant problems in the form of the II-IXLAND "exhaustion of resources" and "global warming" accompanying our consumption of energy which is increasing yearly, and there are demands for the further development of fuel cells and other forms of clean energy.

> Through the installation of a card system in this zone, visitors can learn about the current state of the global environment and various environmentallyfriendly power generation technologies by wandering through the "Feel the Environmental Issues Area" and the "Power Generation Areas" located around it.

#### **Technology Quest**



Have you ever wondered about what technology or process used to make something that you rely on but take for granted in daily use? In this exhibit you can explore the basics of "creating things." On display are interactive systems with hydraulic pressure, pulleys, generators, and other mechanisms in which various technologies are applied. You can also see models of the plant assembly for H-IIA rockets and new transportation system vehicles.

### **Transportation Information**

• For arrival by train,

Take the JR Negishi Line or Yokohama Subway Line to Sakuragi-cho Station. From there, it's an 8-minute walk.

Take the Minatomirai Subway Line to Minatomirai Station. From the exit for Keyaki-dori Ave.. it's a 3-minute walk.

• For arrival by car,

Please use the fee-of-charge parking area in the basement of the Mitsubishi Juko Yokohama Building, in front of the exit of the Minatomirai Ramp of the Shuto Expressway Yokohane Branch.

#### Open

10:00 a.m. -5:30 p.m.(admission until 4:30 p.m.)

#### Closed

Every Monday (the following day if Monday is a national holiday); year-end and New Year; and on specified closed days

#### **Admission fees**

300 yen for general admission; 200 yen for junior and senior high school students; 100 yen for elementary school students. 100 yen discount per person for groups (10 persons or more).

Admission is free for visitors aged 65 or over, and visitors escorting disabled people. (Please present an appropriate certificate or card.)

Fee admission will be free for elementary school, junior high school, high school, and university feild trip visits (prior booking required).

### For inquiries

Mitsubishi Minatomirai Industrial Museum TEL. 045-224-9031 FAX. 045-224-9902 http://www.mhi.co.jp/museum/

**W. Address List** 

### Office, Works and Subsidiaries

**Head Office** 16-5, Konan 2-chome, Minato-ku, Tokyo

> Phone: 81-3-6716-3111 Fax: 81-3-6716-5800

(Yokohama)

3-1. Minatomirai 3-chome. Nishi-ku, Yokohama

### **Research & Development Centers**

**Research Center** 

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FMS Equipment Rental Inc. (FMS)

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511458. China

Turbine (Guangzhou) Co., Ltd. (MHI-DGT)

Phone: 86-20-8498-9430 Telefax: 86-20-8498-9030 http://www.mhidf.com.cn

Technology Co., Ltd.

(TET)

NanJing TianLing Energy 8F Technology Center Building of Nanjing Olympic Center, No.222 Jiang Dong Zhong Road, Naniing, 210018 China

Phone: 86-25-8669-0730 Telefax: 86-25-8669-0733

Changzhou Baoling **Heavy & Industrial** 

41 Xinve Road, Changzhou, Jiangsu, China

Phone: 86-519-3258888 Machinery Co., Ltd. Telefax: 86-519-3260460 http://www.bgcy.com/

MHI Shenvang Pump Engineering Co., Ltd. (MSPE)

408 Room Feng Da Building, Yin Zun No.19-1, Huahai Road.

Economic & Technical Development Area.

Shenyang, China

Phone: 86-24-2580-0788 Telefax: 86-24-2580-1789

Mitsubishi Heavy Industries BFG Gas **Turbine Service** (Nanjing) Co., Ltd.

19/F Jianwei Building, 88 North Zhongshan Road.

Naniing, China

Phone:86-25-83242711 Telefax:86-25-83242715

Mitsubishi Heavy Industries Korea, Ltd. (MHIK)

Seoul Head Office

12th Fl. Keumkang Tower, 889-13, Daechi-4Dong,

Gangnam-GU, Seoul, 135-570 Korea

Phone: 82-2-566-0821 Telefax: 82-2-566-0822

**Busan Office** 

Samsung Fire & Marine Insurance Bldg. 17F

#1205-22, Choryang-1dong, Dong-GU, Busan, 601-728, Korea

Phone: 82-51-464-0801 Telefax: 82-51-462-7317 Mitsubishi Heavy **Industries India** Private Ltd. (MHII)

Head Office

3B, 3rd Floor, Lotus Towers, Community Centre, New Friends Colony, New Delhi-110 065 India

Phone: 91-(11) 5102 1234 Telefax: 91-(11) 5102 5150

**Power Systems** Engineering Division Bangalore -560 001 India

5th Floor, CRISTSU COMPLEX, #41/7, Lavelle Road.

Phone: 91-80-40197197 Telefax: 91-80-40197198

Mitsubishi Heavy Industries India Precision Tools, Ltd. (MHI-IPT)

No.2. SIPCOT Industrial Complex, Ranipet, Tamil Nadu India

Phone: 91-4172-244361 Telefax: 91-4172-244485

**MHI-VST Diesel Engines** Pvt. Ltd. (MVDE)

Plot No.305. Hebbal Industrial Area. Metagalli.

Mysore-570 016, India Phone: 91-821-4003400 Telefax: 91-821-4003499

**L&T MHI Boilers Private** 

Limited

12/4 Delhi Mathura Road Near Sarai Khawaja Chowk,

Faridabad - 121003, India Phone: 91-129-4291263 Telefax: 91-129-4291222

Mitsubishi Heavy **Industries** 

Bangna Towers, Tower A, 8th Floor, 2/3 Moo 14, Bangna-Trad Road, K.m. 6.5

Bangkaew, Bangplee, Samutprakarn 10540, Thailand (Thailand) Ltd. (MHIT)

> Phone: 66-2-751-9800 Telefax: 66-2-751-9801

Mitsubishi Power Systems (Thailand) Ltd. (MPS-T)

Bangna Towers Tower A 8th floor, 2/3 Moo 14.

Banga-Trad K.M.6.5. Bangkaew, Bangplee, Samutprakarn,

10540. Thailand Phone: 66-2751-9355 Telefax: 66-2751-9354

MHI-Pornchai Machinery Co., Ltd. (MPM)

700/669 Moo 1 Amata Nakorn Industrial Estate Phase 7 T. Phanthong A. Phanthong Chonburi 20160, Thailand

Phone: 66-38-447-349 Telefax: 66-38-447-355 Mitsubishi Heavy Industries-Mahaiak **Air Conditioners** Co., Ltd. (MACO)

Lat Krabang Industrial Estate, Phase 3 No. 200 Moo 4, Lamplatiew, Lat Krabang, Bangkok 10520. Thailand

Phone: 66-2-326-0401 Telefax: 66-2-326-0419 http://www.maco.co.th

Thai Compressor Manufacturing Co., Ltd. (THACOM)

33/3 Moo 21, Suwintawong Road, Saladang, Bangnumprieo. Chachoengsao 24000. Thailand

Phone: 66-38-593-062 Telefax: 66-38-593-067

Mitsubishi Turbocharger Asia Co., Ltd. (MTA)

59/18 Moo 3, Tiwanon Road, T. Bangkadi. A. Muang Pathumthani 12000, Thailand

MHI Aerospace Vietnam Co., Ltd. (MHIVA)

Plot No. N-8, Thang Long Industrial Park,

Dong Anh District, Hanoi City, Socialist Republic of Vietnam Phone: 84-4-955-0216 Telefax: 84-4-955-0217

**MHI Service Vietnam** Co., Ltd. (MHISV)

No.2 & No.3/M3 Long Binh Tan Ward Bien Hoa City Dong Nai Province

Socialist Republic of Vietnam Phone: 84-61-833785 Telefax: 84-61-833787

**MHI Engine System** Vietnam Co., Ltd. (MHIES-V)

39 Dai Lo Huu Nghi, Vietnam Singapore Industrial Park Thuan An District, Binh Duong Province Socialist Republic of

Vietnam

Phone: 63-2-775-0209 Telefax: 63-2-775-0310

Mitsubishi Heavy Industries Philippines, Inc. (MHIP)

24th Floor Yuchengco Tower, RCBC Plaza,

Avala Ave. Cor. Gil Puyat Ave., Makati City, Metro Manila, Philippines

Phone: 63-2-889-3500 Telefax: 63-2-889-3491

**MHI Engine System** Philippines, Inc. (MHIES-P)

24 Warehouse 4C Sunblest Compound KM 23.

West service road BO. Cupana. Muntinlupa, Metro Manila, Philippines

Phone: 63-2-775-0209 Telefax: 63-2-775-0310 **MHI Technical Services** 

25th Floor, BPI Buendia Center, Sen. Corp. (MTS) Gil Puvat Avenue, Makati City,

> Metro Manila, Philippines Phone: 63-2-891-1902 Telefax: 63-2-891-1880 http://www.mhi-tsc.com

TES Philippines, Inc.

(TESP)

**EDSA MRT DEPOT** 

North Ave. cor. EDSA Quezon City.

Metro Manila, Philippines Phone: 63-2-920-0232 Telefax: 63-2-920-0173

Mitsubishi Heavy **Industries Singapore** Private Ltd. (MHISP)

150 Beach Road, #28-01 Gateway west. Singapore 189720, Republic of Singapore

Phone: 65-6293-6552 Telefax: 65-6293-6553

MHI Engine System Asia Pte. Ltd. (MHIES-A)

No.2. Tuas Avenue 20. Singapore 638818

Republic of Singapore Phone: 65-6862-2202 Telefax: 65-6862-5728 http://www.mhiesa.com.sq

Mitsubishi Caterpillar Forklift Asia Pte Ltd.

(MCFS)

No.1, Tuas West Street, Singapore 637444

Republic of Singapore Phone: 65-6571-6237 Telefax: 65-6897-7562 http://www.mcfs.com.sq

Mitsubishi Power Systems (Asia Pacific)

Pte. Ltd. (MPS-AP) 150 Beach Road, #15-07 Gateway West.

Republic of Singapore 189720 Phone: 65-6293-5352 Telefax: 65-6293-5361

P.T. MHI Engine System Indonesia (MHIES-I)

#302 Bld. Cilandak Commercial Estate P.O. Box 7510 CCE.

Cilandak, Jakarta, Indonesia Phone: 62-21-7890191 Telefax: 62-21-7890278

P.T. Power Systems Service Indonesia (P.T. POSSI)

Hyatt Skyline Bldg 5th Floor

Jl. Jend. Basuki Rakhmat 124-128 Surabaya 60271,

Indonesia

Phone:62-31-5326395 Telefax:62-31-5326397 Mitsubishi Heavy Industries Australia, Pty. Ltd. (MHIAU) Head Office

Level 6, 160 Queen Street,

Melbourne, Victoria 3000, Australia

Phone: 61-3-9670-9799 Telefax: 61-3-9670-4197

**Air-Conditioning &** Office 1, Level 2, 81 Railway Stre **Refrigeration Division** Rockdale, NSW 2216, Australia Office 1, Level 2, 81 Railway Street

Phone: 61-2-9597-7977 Telefax: 61-2-9597-7304

Note: Major overseas affiliate companies are listed.

# **XV. Main PR materials**

### Main PR materials

(As of Aug. 1. 200					
Name	Languages	Department in charge	Contents		
Introduction of Company					
Guide to Mitsubishi Heavy Industries, Ltd.	<ul><li>Japanese</li><li>English</li><li>Chinese</li></ul>	Corporate Communication Dept.	Overall introduction to Company s organization, Technologies, and Products		
Corporate promotion video	<ul><li>Japanese</li><li>English</li><li>Chinese</li></ul>	Corporate Communication Dept.	Overall introduction to Company s organization, Technologies, and Products		
Guide to Works, Divisions, and Research and Development Centers	Japanese & English	Each Works, Divisions, and Research and Development Centers/ Corporate Communication Dept.	Outline of each Works, Divisions, and Research and Development Centers		
Promotion video of Works, Divisions, and Research and Development Centers	<ul><li>Japanese</li><li>English</li><li>Other languages</li></ul>	Each Works, Divisions, and Research and Development Centers	Outline of each Works, Divisions, and Research and Development Centers		
Technical Review	<ul><li>Japanese</li><li>English</li></ul>	Technical Planning Dept.	Detailed introduction to company's technologies in each field, aimed at technical specialists.		
Business Report					
Annual Report	English	Corporate Communication Dept.	Business report in English, based on consolidated accounts.		
CSR Report (Social and Environmental Report)	·Japanese ·English	Corporate Social Responsibility Dept.	Report on company 's approach and activities regarding Corporate Social Responsibility and environmental protection.		
Company PR					
Mitsubishi Heavy Industries graph	·Japanese ·English	Corporate Communication Dept.	PR journal of company 's products and technology. Issued quarterly.		
Guide to Mitsubishi Minatomirai Industrial Museum	∙Japanese •English	Corporate Communication Dept Mitsubishi Minatomirai Industrial Museum	Introduction to exhibition facility of Mitsubishi Minatomirai Industrial Museum		
Introduction of Mitsubishi Group					
Mitsubishi Profile	<ul><li>Japanese</li><li>English</li><li>Chinese</li></ul>	Corporate Communication Dept.	Introduction to the overview of Mitsubishi group and companies.		
Mitsubishi Monitor	English	Corporate Communication Dept.	English journal for employees of the Mitsubishi companies working overseas. Issued bimonthly.		

### Guide book 2008

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