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# **Financial Results for Second Quarter FY2021**

**November 2nd, 2021**

**Hitachi Zosen Corporation**

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# Financial Information

**Director,  
General Manager of  
Corporate Planning HQ  
Michi Kuwahara**

**Highest first half order intake and sales  
in 10 years**

(Billions of JPY)

	FY2020-2Q (a)	FY2021-2Q (b)	Difference (b)-(a)
Order intake	221.2	380.6	159.4
Net sales	166.8	180.4	13.6
Operating income	-1.3	-1.4	-0.1
(Ratio to Net sales)	(- 0.8%)	(- 0.8%)	
Ordinary income	-2.4	-2.8	-0.4
(Ratio to Net sales)	(- 1.4%)	(- 1.6%)	
(Extraordinary loss)	0.0	0.0	0.0
Net income	-1.9	-3.0	-1.1
(Ratio to Net sales)	(- 1.1%)	(- 1.7%)	

(Billions of JPY)

	FY2020-2Q (a)	FY2021-2Q (b)	Difference (b)-(a)
Environment	166.3	319.8	153.5
Machinery and Infrastructure	50.7	56.8	6.1
Others	4.2	4.0	-0.2
Total	221.2	380.6	159.4

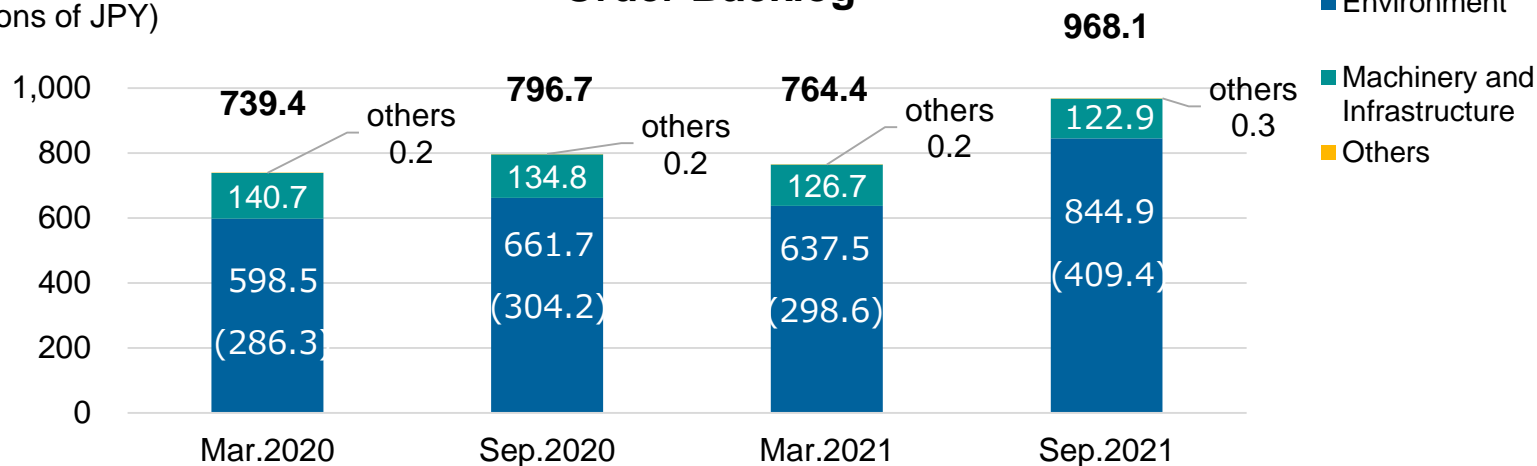
# FY2021 2Q Results – Order backlog

(Billions of JPY)

	End of Mar. 2020	End of Sep. 2020	End of Mar. 2021 (a)	End of Sep. 2021 (b)	Difference (b)-(a)
Environment	598.5	661.7	637.5	844.9	207.4
of which, long-term operation	286.3	304.2	298.6	409.4	110.8
Machinery and Infrastructure	140.7	134.8	126.7	122.9	-3.8
Others	0.2	0.2	0.2	0.3	0.1
<b>Total</b>	<b>739.4</b>	<b>796.7</b>	<b>764.4</b>	<b>968.1</b>	<b>203.7</b>

## Order Backlog

(Billions of JPY)



(Billions of JPY)

	FY2020-2Q (a)	FY2021-2Q (b)	Difference (b)-(a)
Environment	106.3	123.5	17.2
Machinery and Infrastructure	56.4	52.9	-3.5
Others	4.1	4.0	-0.1
Total	166.8	180.4	13.6



(Billions of JPY)

	FY2020-2Q (a)	FY2021-2Q (b)	Difference (b)-(a)
Environment	-1.3	-0.7	0.6
Machinery and Infrastructure	0.0	-0.9	-0.9
Others	0.0	0.2	0.2
Total	-1.3	-1.4	-0.1

(Billions of JPY)

<b>FY2020-2Q Operating income</b>		<b>- 1.3</b>
Breakdown of changes in Operating income	• Improvement in Inova Group	+2.2
	• Decrease in highly profitable projects (Water business, retrofit works)	- 1.5
	• Decrease in profit in Press Machine (due to sales decrease from low order intake in the previous year)	- 0.6
	• Others	- 0.2
<b>FY2021-2Q Operating income</b>		<b>- 1.4</b>

# FY2021 2Q Results – Balance Sheet

(Billions of JPY)

	End of Mar. 2020 (a)	End of Sep. 2021 (b)	Difference (b)-(a)
<b>Cash and deposits</b>	47.3	67.2	19.9
<b>Operating assets</b>	193.2	147.0	- 46.2
Trade notes and accounts receivable	169.3	127.9	- 41.4
Inventories	23.9	19.1	- 4.8
<b>Tangible &amp; intangible fixed assets</b>	122.8	121.3	- 1.5
<b>Others</b>	66.0	62.9	- 3.1
<b>Total Assets</b>	429.3	398.4	- 30.9
<b>Operating liabilities</b>	88.3	86.4	- 1.9
Notes and accounts payable	63.4	48.9	- 14.5
Advances received	24.9	37.5	12.6
<b>Interest bearing debt</b>	98.1	82.4	- 15.7
<b>Others</b>	114.7	107.3	- 7.4
<b>Total Liabilities</b>	301.1	276.1	- 25.0
<b>Equity</b>	126.4	120.5	- 5.9
<b>Non-controlling interests</b>	1.8	1.8	- 0.0
<b>Total Net Assets</b>	128.2	122.3	- 5.9
<b>Total Liabilities and Net Assets</b>	429.3	398.4	- 30.9
<b>Equity Ratio</b>	29.4%	30.3%	0.9%

## Cash flows

(Billions of JPY)

	FY2020-2Q (a)	FY2021-2Q (b)	Difference (b)-(a)
Cash flows from operating activities	12.4	38.6	26.2
Cash flows from investing activities	- 5.6	- 0.8	4.8
Cash flows from financing activities	- 9.5	- 18.0	- 8.5
Increase in cash and cash equivalents	(Note 1) - 2.5	(Note 1) 19.9	22.4
Cash and cash equivalents at beginning	41.5	45.8	4.3
Cash and cash equivalents at end	39.0	65.7	26.7

## Interest-bearing debt

(Billions of JPY)

	End of Mar. 2020 (a)	End of Sep. 2021 (b)	Difference (b)-(a)
Borrowings	(Note 2) 73.1	(Note 2) 62.4	-10.7
Bond	25.0	20.0	-5.0
Total	98.1	82.4	-15.7

**Note 1: Including Foreign exchange translation (FY2020-2Q: 0.2, FY2021-2Q: 0.1)**

**Note 2: Including lease obligation**

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## Forecast of FY2021

(Billions of JPY)

	FY2020	FY2021		Difference	
	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c) - (a)	(c) - (b)
Order intake	429.4	450.0	580.0	150.6	130.0
Net sales	408.5	400.0	400.0	-8.5	0.0
Operating income	15.3	14.0	14.0	-1.3	0.0
(Ratio to Net sales)	(3.8%)	(3.5%)	(3.5%)		
Ordinary income	11.7	9.0	9.0	-2.7	0.0
(Ratio to Net sales)	(2.9%)	(2.3%)	(2.3%)		
Net income	4.2	5.0	5.0	0.8	0.0
(Ratio to Net sales)	(1.0%)	(1.3%)	(1.3%)		

(Billions of JPY)

	FY2020	FY2021		Difference	
	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c)-(a)	(c)-(b)
Environment	303.7	315.0	445.0	141.3	130.0
Machinery and Infrastructure	117.3	125.0	125.0	7.7	0.0
Others	8.4	10.0	10.0	1.6	0.0
Total	429.4	450.0	580.0	150.6	130.0

(Billions of JPY)

	FY2020	FY2021		Difference	
	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c)-(a)	(c)-(b)
Environment	269.4	265.0	265.0	-4.4	0.0
Machinery and Infrastructure	130.8	125.0	125.0	-5.8	0.0
Others	8.3	10.0	10.0	1.7	0.0
Total	408.5	400.0	400.0	-8.5	0.0



(Billions of JPY)

	FY2020	FY2021		Difference	
	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c)-(a)	(c)-(b)
Environment	12.6	13.0	13.0	0.4	0.0
Machinery and Infrastructure	2.6	1.0	1.0	-1.6	0.0
Others	0.1	0.0	0.0	-0.1	0.0
Total	15.3	14.0	14.0	-1.3	0.0

(Billions of JPY)

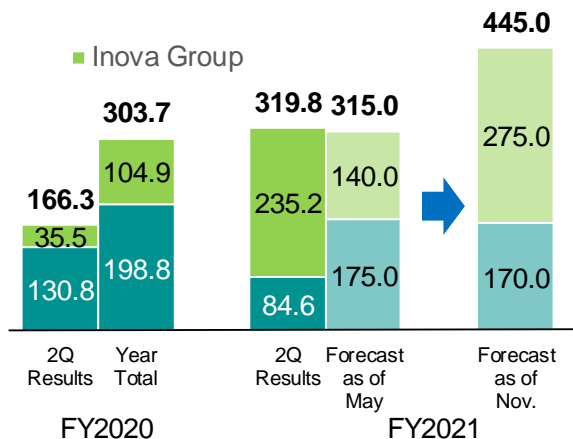
	FY2018 Results	FY2019 Results	FY2020 Results	FY2021 Plan
Total assets	429.0	409.5	429.3	430.0
Cash and deposits	35.6	42.9	47.3	48.0
Equity	119.5	118.0	126.4	130.0
Equity ratio	27.8%	28.8%	29.4%	30.0%
ROE	4.6%	1.9%	3.5%	3.9%
Interest-bearing debt	126.3	99.6	98.1	96.5
Capital investment	6.9	10.3	10.8	10.0
Depreciation	8.9	10.1	10.2	11.0

Balance sheet items are as of the end of each year

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## Details by Segments

## 【Order intake】



(Billions of JPY)

## Order intake

### ■ 2Q Results (vs. FY2020 2Q)

319.8 (+153.5)

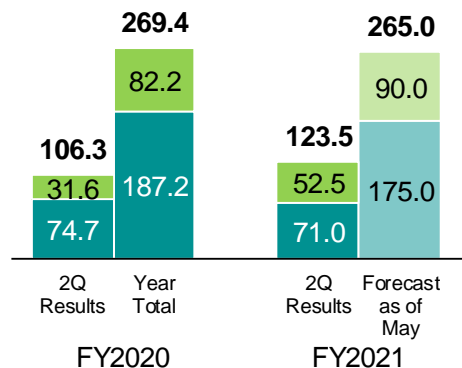
- Order intake in Dubai (EPC, O&M), UK (EPC)

### ■ FY2021 Forecast (vs. as of May)

445.0 (+130.0)

- Upward revision based on the above

## 【Net sales】



## Net sales

### ■ 2Q Results (vs. FY2020 2Q)

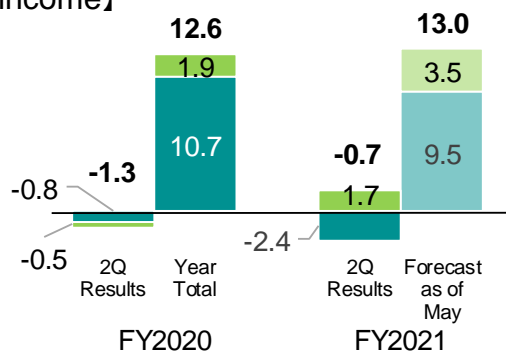
123.5 (+17.2)

- Steady progresses in Inova's construction

### ■ FY2021 Forecast (vs. as of May)

265.0 (No change)

## 【Operating income】



## Operating income

### ■ 2Q Results (vs. FY2020 2Q)

-0.7 (+0.6)

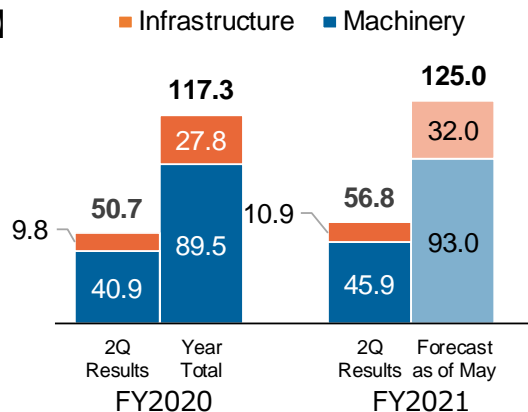
- Improvement in Inova

### ■ FY2021 Forecast (vs. as of May)

13.0 (No change)

(Billions of JPY)

## 【Order intake】



## Order intake

### ■ 2Q Results (vs. FY2020 2Q)

56.8 (+6.1)

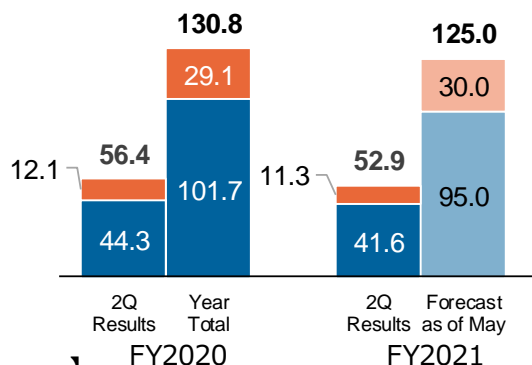
· Increase in marine diesel engine, press machine and precision machinery

### ■ FY2021 Forecast (vs. as of May)

125.0 (No change)

· Increase in process machine  
· Decrease in marine diesel engine and other machinery

## 【Net sales】



## Net sales

### ■ 2Q Results (vs. FY2020 2Q)

52.9 (-3.5)

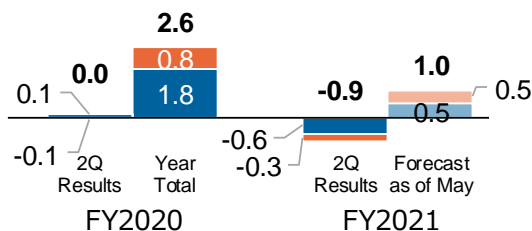
· Decrease in press machine and process equipment

### ■ FY2021 Forecast (vs. as of May)

125.0 (No change)

· Decrease in press machine and process equipment

## 【Operating income】



## Operating income

### ■ 2Q Results (vs. FY2020 2Q)

-0.9 (-0.9)

· Decrease in press machine and precision machinery

### ■ FY2021 Forecast (vs. as of May)

1.0 (No change)

· Decrease in press machine, precision machinery and other machinery

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# Management and Business Information

**President and COO**  
**Sadao Mino**

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# Medium-Term Management Plan

Contribute to the realization of sustainable and safe & secure society through overall corporate activities. Aim to be corporate group capable of sustainable growth by strengthening profitability.

Basic Policy and Initiatives	Progress
<p>Increase the added value of products and services</p> <ol style="list-style-type: none"> <li>1) Cutting-edge technologies</li> <li>2) Shift business positioning, Close dialogue with customers and markets</li> <li>3) Group's comprehensive strengths</li> </ol>	<p>Deployment of AI and IoT in products and services</p> <ul style="list-style-type: none"> <li>▶ Promotion of manpower saving and automation in EfW plants</li> <li>▶ AI ultrasonic inspection systems, inspection in food factories, etc.</li> </ul> <p>O&amp;M for energy-from-waste plants globally (Istanbul, Australia, UAE)</p> <p>Wind power and Power to Gas (PtG) businesses</p> <ul style="list-style-type: none"> <li>▶ Issuance of green bond (for wind power project)</li> <li>▶ Selected as Green Innovation Fund project (Electrolyzer - larger scale and modularization, Methane slip reduction for LNG fuel vessels)</li> </ul>
<p>Promote business selection and concentration of businesses and shift resources to growth areas</p> <ol style="list-style-type: none"> <li>1) Utilizing Hitz Goal Achievement Monitoring System</li> <li>2) Further promote portfolio management</li> </ol>	<p>Promoting portfolio management</p> <ul style="list-style-type: none"> <li>▶ Assessing the market growth potential of each business from a sustainability perspective (Sustainability of society - company)</li> <li>▶ Quantitative and qualitative assessments of each business and discussion by the Board of Directors on counter-measures</li> <li>▶ New company for shield machine biz with Kawasaki Heavy Ind.</li> </ul>
<p>Promoting work style reforms by improving operational efficiency and productivity</p> <ol style="list-style-type: none"> <li>1) Improve operational efficiency by reforming the group management system</li> <li>2) Review of manufacturing businesses</li> <li>3) Develop human resources &amp; work style reform</li> </ol>	<p>Strategic staffing</p> <ul style="list-style-type: none"> <li>▶ Development of management personnel and DX personnel, Selection of young managers, etc.</li> </ul> <p>Work style reform</p> <ul style="list-style-type: none"> <li>▶ Improving productivity by utilizing ICT</li> <li>▶ Best Practice Awards</li> </ul>



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## **First Half Results and Status of Each Business**

# Orders Received (Japan)

Order received	Project/Order	Outline	Capacity, etc.	Schedule, delivery
April	<b>Methanation</b> Received order for methanation equipment from Tokyo Gas	Installed in Tokyo Gas's Yokohama Techno Station. Demonstration to begin in 2021.	12.5Nm <sup>3</sup> /h	Feb. 2022
June	<b>Water business</b> Contract awarded for construction of sludge recycling treatment centre in Koga City	New sludge reclamation centre to be built next to existing ageing manure treatment facility	52kL/day	Dec. 2023
July	<b>PPS</b> Supplying renewable electricity to the main office building of the city hall and the water and sewerage bureau building in Itami City	Switch to renewable electricity is expected to reduce greenhouse gas emissions by approx. 712 tonnes per year for 2 facilities in total.	2.2 mil. kWh	Main office : Sep.21-Dec.22  Water bureau : Sep.21-Sep.24



Methanation equipment



HiMethz (Methanation catalyst)

# Orders Received (Global)

Order received	Project/Order	Outline	Capacity, etc.	Schedule, delivery
May	Water treatment : Osmoflo Water treatment plants in Iraq	Scope : Water filtration and treatment equipment for water from rivers, RO water treatment plants, etc. Customer : JGC	12,500m <sup>3</sup> /day	Aug. 2022
June	Energy-from-waste plant : Inova EfW plant in Dubai, UAE	Scope : EPC、 O&M Place : Warsan, Dubai, UAE	1.9 mil.t/yr (5 lines) 200MW	Jul. 2024
June	Energy-from-waste plant EfW plant in Taiwan	Scope : Design of plant, grates and other major equipment and SV Customer : FengYu Resources Co., Ltd. Place : Changhua Coastal Industrial Park	350t/day 15.5MW	Jun. 2024
July	Energy-from-waste plant : Inova EfW plant in Skelton Grange, U.K.	Scope : EPC Customer : enfinium Skelton Grange Limited Place : Leeds, West Yorkshire	0.41mil.t/yr 49MW	Jul. 2025
Sep.	Energy-from-waste plant :HZIND EfW plant in India HZIND: Hitachi Zosen India Private Limited.	Scope : Design of plant, grates and other major equipment Supply SV dispatch Customer : Antony Lara Renewable Energy Pvt. Ltd Place : Pune, Maharashtra	700t/day 14MW	May 2023

Dubai, UAE



Skelton Grange, U.K.



Pune, India



# Environment Business - Major Projects

Execution O&M

	Place (Country)	Order	completion	Formation	Scope	Calendar year						
						2018	2019	2020	2021	2022	2023	2024
Japan	Shiga	Mar.2017	Mar.2023※	JV	DBO	[Gantt bar: Execution from 2018 to 2023, O&M from 2023 to 2024]						
	Shiga	Mar.2017	Jun,2022	JV	DBO	[Gantt bar: Execution from 2018 to 2022, O&M from 2022 to 2024]						
	Gunma	Jun.2018	Jan.2025	Solo	EPC	[Gantt bar: Execution from 2018 to 2025]						
	Hokkaido	Nov.2019	Jul.2024	JV	EPC	[Gantt bar: Execution from 2019 to 2024]						
	Chiba	Feb.2020	Mar.2023	JV	DBO	[Gantt bar: Execution from 2020 to 2023, O&M from 2023 to 2024]						
	Niigata	Mar.2020	Mar.2024	JV	BTO	[Gantt bar: Execution from 2020 to 2024]						
	Kumamoto	Jul.2020	Mar.2024	JV	DBO	[Gantt bar: Execution from 2020 to 2024]						
	Saga	Aug.2020	Mar.2024	Solo	DBO	[Gantt bar: Execution from 2020 to 2024]						
	Tokyo	Sep.2020	May.2027	JV	EPC	[Gantt bar: Execution from 2020 to 2027]						
	Kagoshima	Feb.2021	Aug.2024	JV	DBO	[Gantt bar: Execution from 2021 to 2024, O&M from 2024 to 2025]						
Global	Chansha(China)	Dec.2018	Feb.2022	Solo	EP+SV	[Gantt bar: Execution from 2019 to 2022]						
	Zuzhou(China)	Jan.2019	Dec.2021	Solo	EP+SV	[Gantt bar: Execution from 2019 to 2021]						
	Rayong(Thailand)	May.2019	Jul.2021	Consortium	EP+SV	[Gantt bar: Execution from 2019 to 2021] <b>[Completed]</b>						
	Shanghai(China)	Jul.2019	Jan.2023	Solo	EP+SV	[Gantt bar: Execution from 2019 to 2023]						
	Shanghai(China)	Aug.2020	Apr.2023	Solo	EP	[Gantt bar: Execution from 2020 to 2023]						
	Bidadi(India)	Dec.2020	Oct.2022	Consortium	EP+SV	[Gantt bar: Execution from 2020 to 2022]						
	Changhua(Taiwan)	Aug.2021	Jun.2024	Solo	EP+SV	[Gantt bar: Execution from 2021 to 2024]						
	Moshi(India)	Sep.2021	May.2023	Consortium	EP+SV	[Gantt bar: Execution from 2021 to 2023]						

※Demolition work, etc. until Mar. 2023.

# Hitachi Zosen Inova - Major Projects

Execution O&M

Project (country)	Order	Completion	Formation	Inova's Scope	Calendar year							
					2018	2019	2020	2021	2022	2023	2024	
Istanbul(Turkey)	Sep.2017	Oct.2021	JV	EP+O&M(1-year)								
Ivery(France)	Nov.2018	2021	Sole	EP+SV								
Rookery(UK)	Mar.2019	Feb.2022	Sole	EPC								
Moscow1-4(Russia)*	Nov.2019	Jun.2023	Consortium	EP+SV								
Rockingham(Australia)	Jan.2020	Dec.2022	Consortium	EP+SV+O&M(long term)								
Newhurst(UK)	Feb.2020	-	Sole	EPC								
Emmenspitz(Swiss)	Feb.2020	Dec.2025	Sole	EP+SV								
Slough(UK)	Dec.2020	2024	Sole	EPC								
Dubai(UAE)	Jun.2021	Jul.2024	Consortium	EP+SV+O&M(long term)								
Skelton Grange(UK)	Jul.2021	Jul.2025	Sole	EPC								

\*Order received for Moscow 1 in 2019, Moscow 2-3 in 2020



【Istanbul site】



【Rookery site】

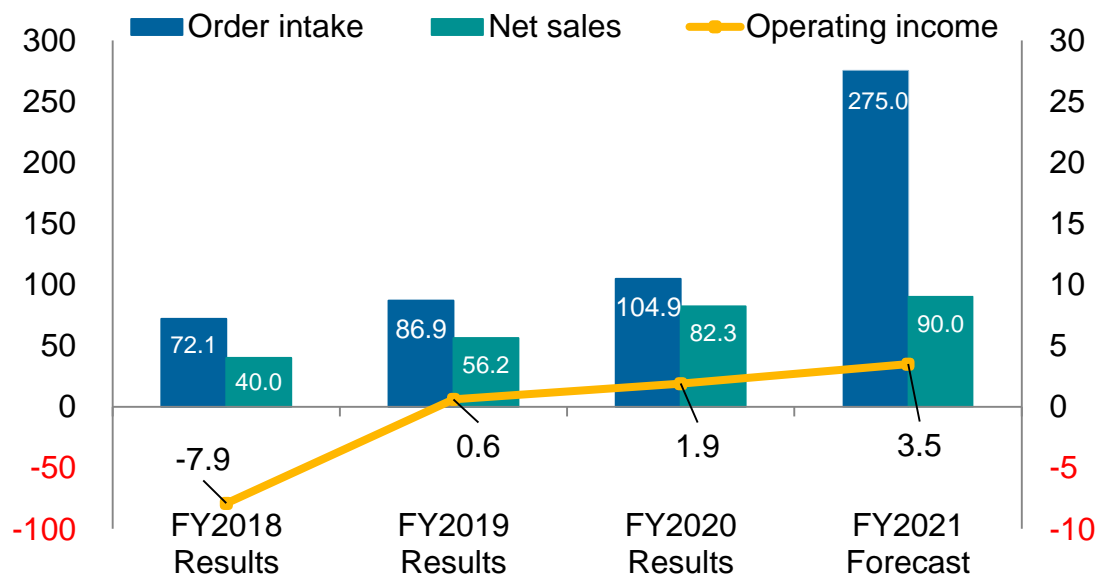
## Major results for the first half of 2021

2 EfW orders 1H order intake JPY235.2bn	UAE (Dubai) ▶ Long-term O&M contract also awarded U.K. (Skelton Grange) ▶ 15th order in UK and Ireland
Istanbul Project	Completion in Oct. 2021 (Under customer's acceptance process) Our O&M to start
Renewable Gas	100th order for Kompogas (dry methane fermentation) Acquisition of biogas companies in Germany (wet type methane fermentation)

Order intake/Sales  
(Billions of JPY)

### Inova's performance

Operating income  
(Billions of JPY)

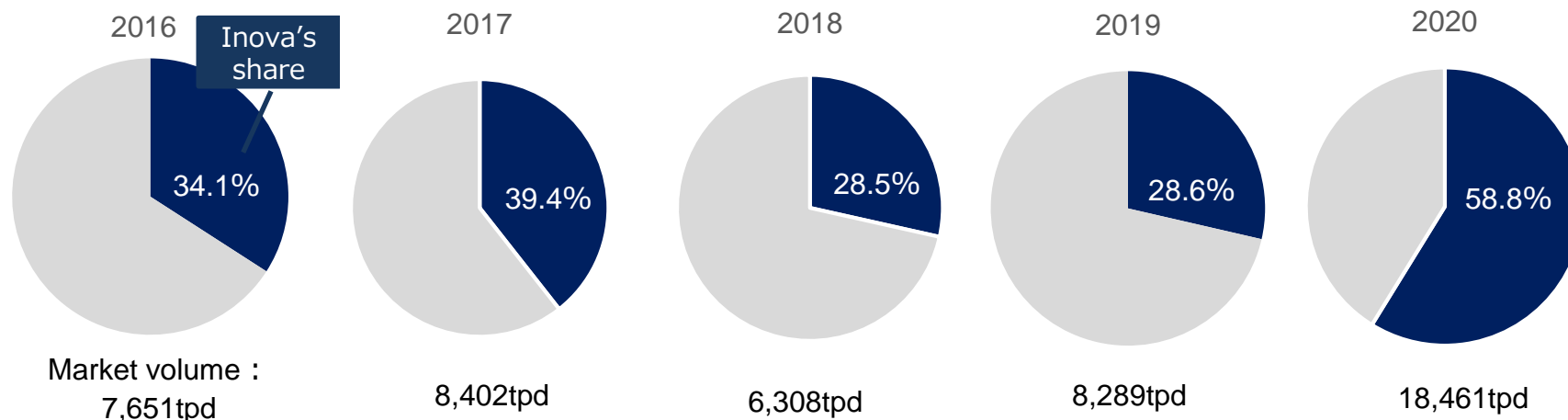


## Medium- to Long-Term Initiatives

Synergies with Hitachi Zosen	Standardization of specifications for major equipment, cooperation in procurement, and collaboration in Dubai (UAE)
New markets outside EU	Turkey (2017) Russia (2019) Australia (2020) UAE (2021)
3rd order intake of O&M	Turkey (2017) Australia (2020) UAE (2021)
Establishing O&M service network in Europe	Expanded service network in France, Germany, and the U.K. through M&A, etc. Covers 70% of energy-from-waste plants in Europe
Future business structure	Targeting energy-from-waste: 50%, renewable gas: 25%, O&M services: 25%.

Inova's Market Share (EMEA) Order intake (capacity base)

Source: A.Vaccani & Partner AG research



## Environment Business (Hitachi Zosen, group companies other than Inova)

### ■ Energy from waste (EPC)

- Japan : Orders in the market is about 30% less than the previous year. Next year will be back to the same level as the previous year.

(Our order intake expected mainly in 2nd half.)

- Order intake in Taiwan and India in 1st half.

### ■ Energy from waste (O&M)

- Demand pauses for major retrofit works
- Aiming to improve profit margins using ICT
- Promoting O&M biz with local partner in China

### ■ Electricity sales

- Electricity wholesaling contracts with new sales partners

### ■ Water business (EPC, O&M)

- Order intake: Sludge recycling facility(Koga city)
- Retrofit down from last year
- Strengthening comprehensive management proposals, differentiation through sophistication of processing systems and operational management using AI and ICT

## Risks and responses to changes in the external environment

### ■ Impact of COVID-19

- No major impact on the construction schedule, either in Japan or abroad
- Limited travel for overseas projects, but handled by remote supervisors, etc.

### ■ Generally material cost increase exceeding a certain level is passed on to prices.

### ■ Tight logistics

- Delays in delivery of procured goods are almost under control both in Japan and overseas. (International logistics still limited by space.)



## Machinery & Infrastructure Business

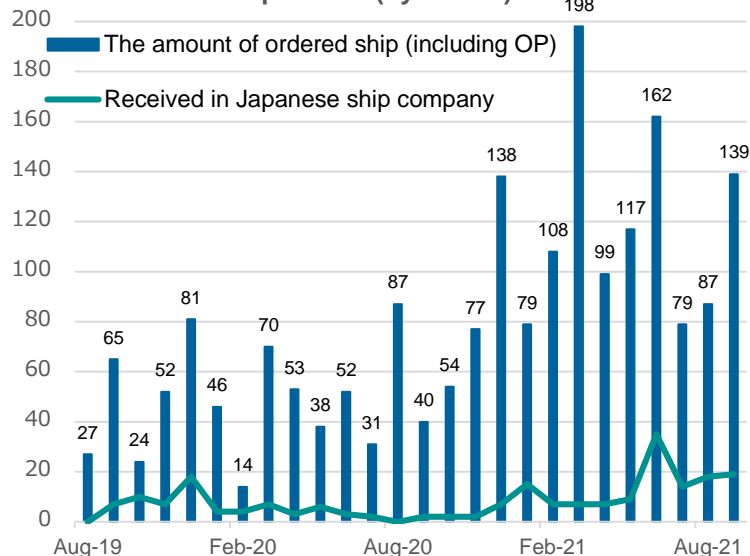
### ■ Marine Diesel Engine

- Orders in the shipbuilding industry high, but engine prices remain tough
  - Strengthen after-sales service business (Expand menu, increase staff)
  - SCR systems to comply with NOx regulations
- Cumulative orders exceeded 100 units  
Proposal leveraging our strengths (engine + SCR)

### ■ Press Machine

- While business negotiations are gradually increasing, full recovery in orders will take time.
- Aim to improve operating income through cost reduction and expense reduction
- Allocate sales resources to areas of high demand
- Increased demand for effective use of existing facilities, focus on O&M services

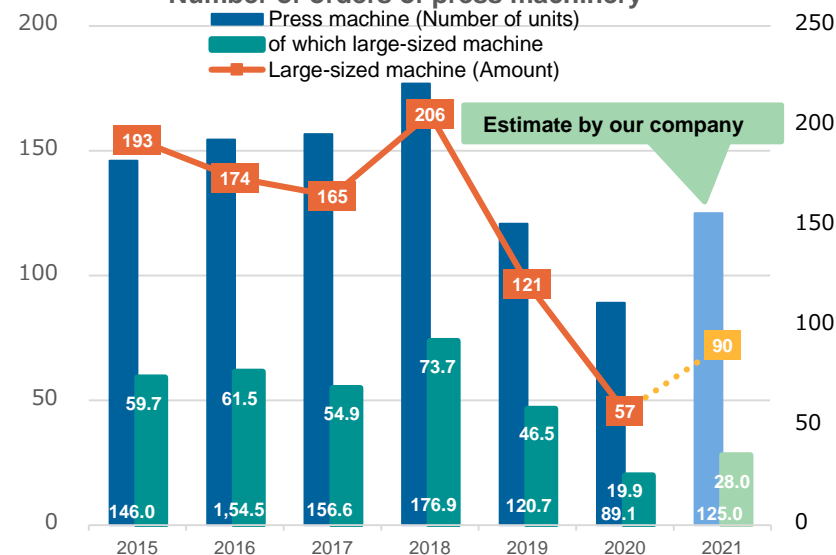
Number of new ship orders (by month)



Source: Edited based on article of Kaiji Press

(Billions of JPY)

Number of orders of press machinery



Source: Japan Forming Machinery Association

## Machinery & Infrastructure Business

### ■ Process Equipment

- Declined investment in refining and petrochemicals  
Movements in petrochemical sector, incl. ammonia
- Focus on models that take our advantage
- Use a JV in India, mainly for non-special products
- Strengthening after-sales service in Japan

### ■ Precision Machinery

- Semiconductor equipment orders remain strong
- China accelerates domestic production of Semiconductors  
Set up local production and maintenance bases

### ■ Steel Structure & Disaster Prevention

- Bridge market size is about the same as usual year
- Orders for bridges, sluice gates, iron pipes and other public projects, mainly in the second half of the year (as in previous years)

### ■ Shield Machine

- **Underground Infrastructure Technologies**

**Corporation** - equity method affiliate (50:50)

Integration of sales and engineering divisions with Kawasaki Heavy Industries for strengthening competitiveness in Japan and overseas

## Risks and responses to changes in the external environment

### ■ Material cost increase

- In Machinery business, working to reduce costs and expenses in design and manufacturing, and at the same time striving to receive orders at reasonable prices
- In infrastructure, generally material cost increase exceeding a certain level is passed on to prices.

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# Topics

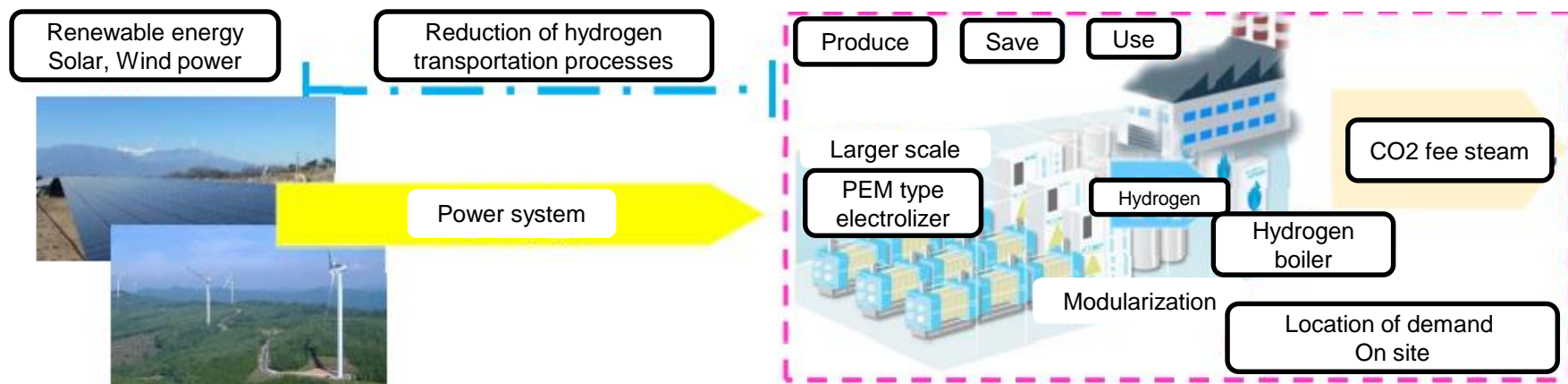
## Hydrogen production by water electrolysis using renewable power (Yamanashi Pref.) Selected as a NEDO subsidized project (Green Innovation Fund Project)

Design and testing of PEM water electrolyzers for larger scale and modularization

■ Members of the consortium  
Yamanashi Prefecture, Hitachi Zosen, Tokyo Electric Power Holdings, TEPCO Energy Partner, Toray Industries, Siemen's Energy, Kaji Tech, Miura, Nichicon

- Secretary Yamanashi Prefecture
- Place Several sites in Yamanashi
- Project period FY2021~FY2025
- Facility size 16MW (total)

NEDO : New Energy and Industrial Technology Development Organization



(Source: Yamanashi Prefecture)

## Feasibility Study on High-Pressure PEM-type Electrolyzer for Green Ammonia Production and Supply Project in Lao PDR Adopted as a commissioned project by NEDO

This study aims to develop and commercialise technology to produce green hydrogen from unused renewable energy generated in Laos and to convert it into green ammonia that is in line with the energy development policy of the ASEAN region and Japan's decarbonization policy.

- Name of Study:  
2021 International Demonstration Project of Japanese Technologies for Efficient Energy Consumption – Study on compliance with demonstration requirement
- Representative company: Hitachi Zosen
- Proposing company: Hitachi Zosen, Renova

Renewable energy



Unused power



Electrolyzer

HydroSpring <sup>H<sub>2</sub></sup>



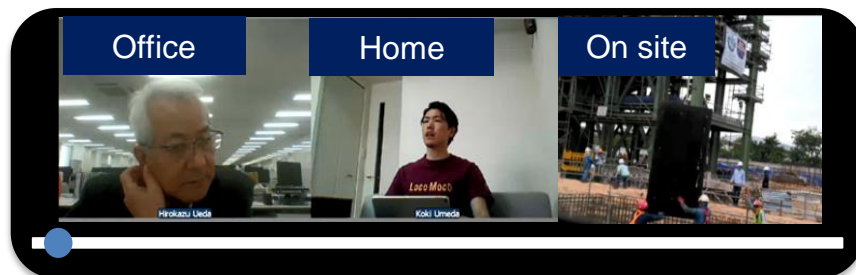
## Completion of Energy-from-Waste (EfW) Plant in Rayong Province, Thailand

“Remote Supervisor” to complete facility construction (July, 2021) , while unable to travel overseas due to the spread of COVID-19

(Outline of Project) Customer : Jurong Engineering Limited (Singapore)

Ultimate customer : Global Power Synergy Public Co., Ltd. (Bangkok)

Facility : Stoker type, capacity 300tpd, output : 9.8MW



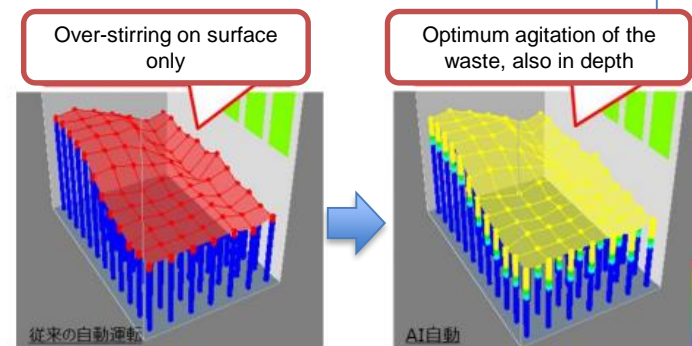
Field staff wearing smart glass (Thailand)



## Advanced Optimal Operation Using Big Data from EfW Plant

Completed "Research and Development of Advanced Control Technology for EfW Plants" at Sugunami Incineration Plant with the cooperation of Clean Authority of Tokyo

- Waste bunker & crane 3D system with priority input of agitation degree, AI automatic operation, the next generation automatic combustion control using AI technology. Operated simultaneously.
- Confirmed that it can contribute to the realization of more stable furnace operation, saving of labor, power consumption and service cost.



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## **Supplementary Information (Breakdown by Small Segments)**

# Order Intake, Net Sales, Operating Income (2Q Results)

(Billions of JPY)

		FY2018 2Q	FY2019 2Q	FY2020 2Q (a)	FY2021 2Q (b)	Difference (b)-(a)
Order intake	Environment	123.4	115.4	166.3	319.8	153.5
	Machinery & Infrastructure	56.1	79.3	50.7	56.8	6.1
	Other	6.0	5.5	4.2	4.0	-0.2
	Total	185.5	200.2	221.2	380.6	159.4
Net sales	Environment	87.9	106.4	106.3	123.5	17.2
	Machinery & Infrastructure	59.9	56.3	56.4	52.9	-3.5
	Other	5.4	5.5	4.1	4.0	-0.1
	Total	153.2	168.2	166.8	180.4	13.6
Operating income	Environment	-8.1	-0.5	-1.3	-0.7	0.6
	Machinery & Infrastructure	-0.6	-6.2	0.0	-0.9	-0.9
	Other	0.3	0.4	0.0	0.2	0.2
	Total	-8.4	-6.3	-1.3	-1.4	-0.1



# Order Intake, Net Sales, Operating Income (Full year Results and Forecast) Hitachi Zosen

(Billions of JPY)

		FY2018	FY2019	FY2020	FY2021		Difference	Difference
		Results	Results	Results	Forecast as of May	Forecast as of Nov.	(c)-(a)	(c)-(b)
				(a)	(b)	(c)		
Order intake	Environment	314.7	289.4	303.7	315.0	445.0	141.3	130.0
	Machinery & Infrastructure	128.3	154.0	117.3	125.0	125.0	7.7	0.0
	Other	12.0	10.7	8.4	10.0	10.0	1.6	0.0
	Total	455.0	454.1	429.4	450.0	580.0	150.6	130.0
Net sales	Environment	228.3	254.3	269.4	265.0	265.0	- 4.4	0.0
	Machinery & Infrastructure	138.4	136.7	130.8	125.0	125.0	- 5.8	0.0
	Other	11.4	11.4	8.3	10.0	10.0	1.7	0.0
	Total	378.1	402.4	408.5	400.0	400.0	- 8.5	0.0
Operating income	Environment	5.6	15.8	12.6	13.0	13.0	0.4	0.0
	Machinery & Infrastructure	1.0	- 2.8	2.6	1.0	1.0	- 1.6	0.0
	Other	0.7	0.8	0.1	0.0	0.0	- 0.1	0.0
	Total	7.3	13.8	15.3	14.0	14.0	- 1.3	0.0

# Small Segment : Environment Business (2Q Results)

		FY2018 2Q	FY2019 2Q	FY2020 2Q (a)	FY2021 2Q (b)	Difference (b)-(a)	(Billions of JPY)
Order intake	EPC	43.0	54.8	85.5	138.1	52.6	
	AOM*	80.4	60.6	80.8	181.7	100.9	
	Total	123.4	115.4	166.3	319.8	153.5	
Net sales	EPC	42.8	55.1	57.4	72.0	14.6	
	AOM*	45.1	51.3	48.9	51.5	2.6	
	Total	87.9	106.4	106.3	123.5	17.2	
Operating income	EPC	- 9.7	- 2.6	- 2.3	- 1.2	1.1	
	AOM*	1.6	2.1	1.0	0.5	- 0.5	
	Total	- 8.1	- 0.5	- 1.3	- 0.7	0.6	

【Of which, Inova Group (consolidated)】

		FY2018 2Q	FY2019 2Q	FY2020 2Q (a)	FY2021 2Q (b)	Difference (b)-(a)	(Billions of JPY)
Order intake	EPC	1.9	6.5	32.2	115.3	83.1	
	AOM*	5.0	6.1	3.3	119.9	116.6	
	Total	6.9	12.6	35.5	235.2	199.7	
Net sales	EPC	14.7	18.4	25.8	47.5	21.7	
	AOM*	3.4	4.9	5.8	5.0	- 0.8	
	Total	18.1	23.3	31.6	52.5	20.9	
Operating income	EPC	- 7.6	- 2.6	- 1.4	1.3	2.7	
	AOM*	0.0	0.1	0.9	0.4	- 0.5	
	Total	- 7.6	- 2.5	- 0.5	1.7	2.2	

\*AOM:  
After-sales operation and maintenance and other post-completion services.

# Small Segment : Environment Business (Full year Results and Forecast)

		FY2018	FY2019	FY2020	FY2021		Difference	Difference	(Billions of JPY)
		Results	Results	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c)-(a)	(c)-(b)	
Order intake	EPC	148.5	132.9	168.7	195.0	210.0	41.3	15.0	
	AOM	166.2	156.5	135.0	120.0	235.0	100.0	115.0	
	Total	314.7	289.4	303.7	315.0	445.0	141.3	130.0	
Net sales	EPC	107.3	125.8	136.6	140.0	140.0	3.4	0.0	
	AOM	121.0	128.5	132.8	125.0	125.0	- 7.8	0.0	
	Total	228.3	254.3	269.4	265.0	265.0	- 4.4	0.0	
Operatng income	EPC	- 9.3	1.7	1.1	1.5	1.5	0.4	0.0	
	AOM	14.9	14.1	11.5	11.5	11.5	0.0	0.0	
	Total	5.6	15.8	12.6	13.0	13.0	0.4	0.0	

【Of which, Inova Group (consolidated)】

		FY2018	FY2019	FY2020	FY2021		Difference	Difference	(Billions of JPY)
		Results	Results	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)	(c)-(a)	(c)-(b)	
Order intake	EPC	63.7	62.5	97.7	124.0	144.0	46.3	20.0	
	AOM	8.4	24.4	7.2	16.0	131.0	123.8	115.0	
	Total	72.1	86.9	104.9	140.0	275.0	170.1	135.0	
Net sales	EPC	33.9	47.2	70.8	77.0	77.0	6.2	0.0	
	AOM	6.1	9.0	11.5	13.0	13.0	1.5	0.0	
	Total	40.0	56.2	82.3	90.0	90.0	7.7	0.0	
Operatng income	EPC	- 9.2	0.3	1.8	3.0	3.0	1.2	0.0	
	AOM	1.3	0.3	0.1	0.5	0.5	0.4	0.0	
	Total	- 7.9	0.6	1.9	3.5	3.5	1.6	0.0	

# Small Segment: Machinery and Infrastructure Business (2Q Results)

(Billions of JPY)

		FY2018 2Q	FY2019 2Q	FY2020 2Q (a)	FY2021 2Q (b)	Difference  (b)-(a)
Order intake	Marine Diesel Engine	5.2	15.2	10.5	12.5	2.0
	Press Machine	13.4	12.9	4.8	7.7	2.9
	Process Equipment	4.0	6.9	3.7	2.4	- 1.3
	Precision Machinery	10.5	8.9	11.3	14.4	3.1
	Other Machinery	9.4	11.7	10.6	8.9	- 1.7
	Infrastructure	13.6	23.7	9.8	10.9	1.1
	<b>Total</b>	<b>56.1</b>	<b>79.3</b>	<b>50.7</b>	<b>56.8</b>	<b>6.1</b>
Net sales	Marine Diesel Engine	8.0	8.0	10.3	10.9	0.6
	Press Machine	12.5	11.3	9.7	6.1	- 3.6
	Process Equipment	7.9	5.7	6.7	5.0	- 1.7
	Precision Machinery	12.1	9.8	9.5	10.4	0.9
	Other Machinery	6.7	8.2	8.1	9.2	1.1
	Infrastructure	12.7	13.3	12.1	11.3	- 0.8
	<b>Total</b>	<b>59.9</b>	<b>56.3</b>	<b>56.4</b>	<b>52.9</b>	<b>- 3.5</b>
Operating income	Marine Diesel Engine	- 0.9	- 0.1	0.0	0.0	0.0
	Press Machine	0.3	0.2	0.5	0.0	- 0.5
	Process Equipment	0.3	- 2.8	- 0.7	- 0.5	0.2
	Precision Machinery	0.2	- 0.4	0.0	- 0.4	- 0.4
	Other Machinery	- 0.4	- 0.1	0.3	0.3	0.0
	Infrastructure	- 0.1	- 3.0	- 0.1	- 0.3	- 0.2
	<b>Total</b>	<b>- 0.6</b>	<b>- 6.2</b>	<b>0.0</b>	<b>- 0.9</b>	<b>- 0.9</b>

# Small Segment: Machinery and Infrastructure Business

## (Full year Results and Forecast)

(Billions of JPY)

		FY2018	FY2019	FY2020	FY2021		Difference (c)-(a)	Difference (c)-(b)
		Results	Results	Results (a)	Forecast as of May (b)	Forecast as of Nov. (c)		
Order intake	Marine Diesel Engine	21.8	26.7	28.4	19.5	19.5	- 8.9	0.0
	Press Machine	23.6	21.3	12.7	15.0	15.0	2.3	0.0
	Process Equipment	12.5	22.1	4.9	18.0	18.0	13.1	0.0
	Precision Machinery	24.9	23.4	24.3	25.5	25.5	1.2	0.0
	Other Machinery	17.9	20.8	19.2	15.0	15.0	- 4.2	0.0
	Infrastructure	27.6	39.7	27.8	32.0	32.0	4.2	0.0
	Total	128.3	154.0	117.3	125.0	125.0	7.7	0.0
Net sales	Marine Diesel Engine	20.3	22.7	24.0	24.5	24.5	0.5	0.0
	Press Machine	25.3	23.1	16.6	14.0	14.0	- 2.6	0.0
	Process Equipment	18.9	14.3	18.4	14.0	14.0	- 4.4	0.0
	Precision Machinery	25.3	23.5	23.9	25.5	25.5	1.6	0.0
	Other Machinery	16.8	19.6	18.8	17.0	17.0	- 1.8	0.0
	Infrastructure	31.8	33.5	29.1	30.0	30.0	0.9	0.0
	Total	138.4	136.7	130.8	125.0	125.0	- 5.8	0.0
Operating income	Marine Diesel Engine	- 1.2	- 0.4	0.0	0.1	- 0.1	- 0.1	- 0.2
	Press Machine	- 0.1	0.6	0.3	- 0.5	- 0.3	- 0.6	0.2
	Process Equipment	- 0.5	- 2.9	- 0.5	- 0.3	- 0.3	0.2	0.0
	Precision Machinery	1.0	0.7	1.0	0.8	0.8	- 0.2	0.0
	Other Machinery	0.5	0.8	1.0	0.4	0.4	- 0.6	0.0
	Infrastructure	1.3	- 1.6	0.8	0.5	0.5	- 0.3	0.0
	Total	1.0	- 2.8	2.6	1.0	1.0	- 1.6	0.0



# 地球と人のための技術をこれからも

日立造船はつないでいきます。かけがえのない自然と私たちの未来を。

(将来に関する記述等についてのご注意)

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