

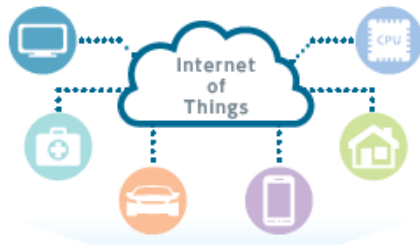


# Ferrotec Holdings Corporation

## FY3/20 Financial Highlights and Future Strategy

**Wednesday, July 8, 2020**

# Review of the Past Years and Outlook for the Future



## Summary of business results in the previous fiscal year

### Outcomes

- ✓ The sales of silicon parts, parts cleaning, and power semiconductor substrates, which are mid-term strategic products, grew steadily.
- ✓ We followed the trend of producing products domestically in China, and our production capacity and customers increased.
- ✓ The structural reform for photovoltaic products, which had been in the red until the previous year, progressed, improving profitability.

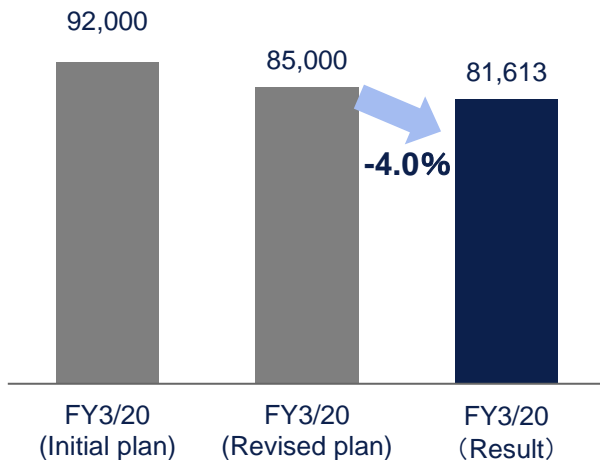
### Challenges

- ❑ Secure a system for increasing the production of components of semiconductor manufacturing equipment, as the semiconductor market will bottom out and grow due to the demand for 5G.
- ❑ Flexibly respond to the fluctuations in demand for each product, while monitoring the impact of COVID-19.
- ❑ Improve the financial standing from a mid-to-long term perspective, which is worsening slightly, while continuing investment for growth.

- In the second quarter last year, the business forecasts were revised downwardly, due to the U.S.-China trade friction, company's future capital investment, etc. In the fourth quarter, the new coronavirus (COVID-19) started affecting the business. Then, the results were slightly less than the revised forecasts for FY3/20.

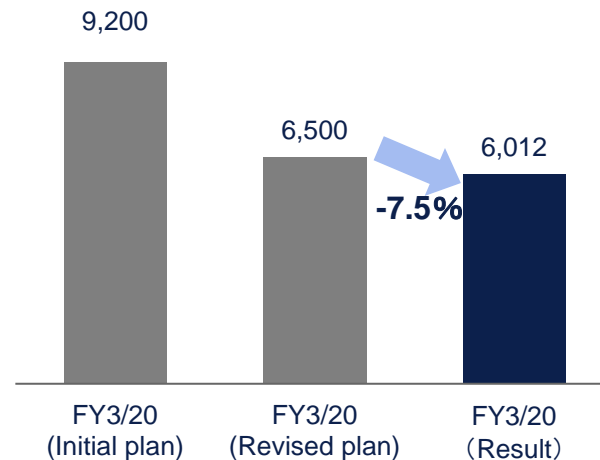
## Net sales vs. forecast

(Million yen)



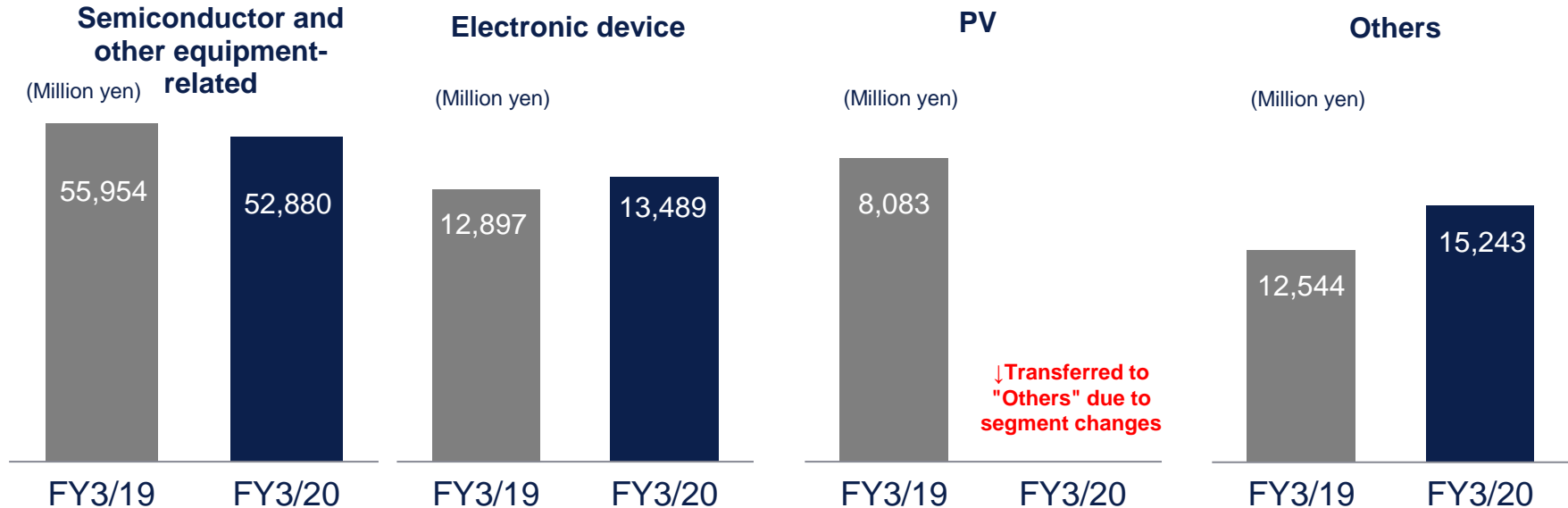
## Operating income vs. forecast

(Million yen)



Review of the Previous Fiscal Year: Sales of electronic devices grew, but the sales of semiconductor and other equipment-related products declined

Due to the growth of sales of thermo-electric module for 5G communications devices and power semiconductor substrates, the sales of electronic devices increased 4.6% (while the sales of semiconductor and other equipment-related products dropped 5.5%).

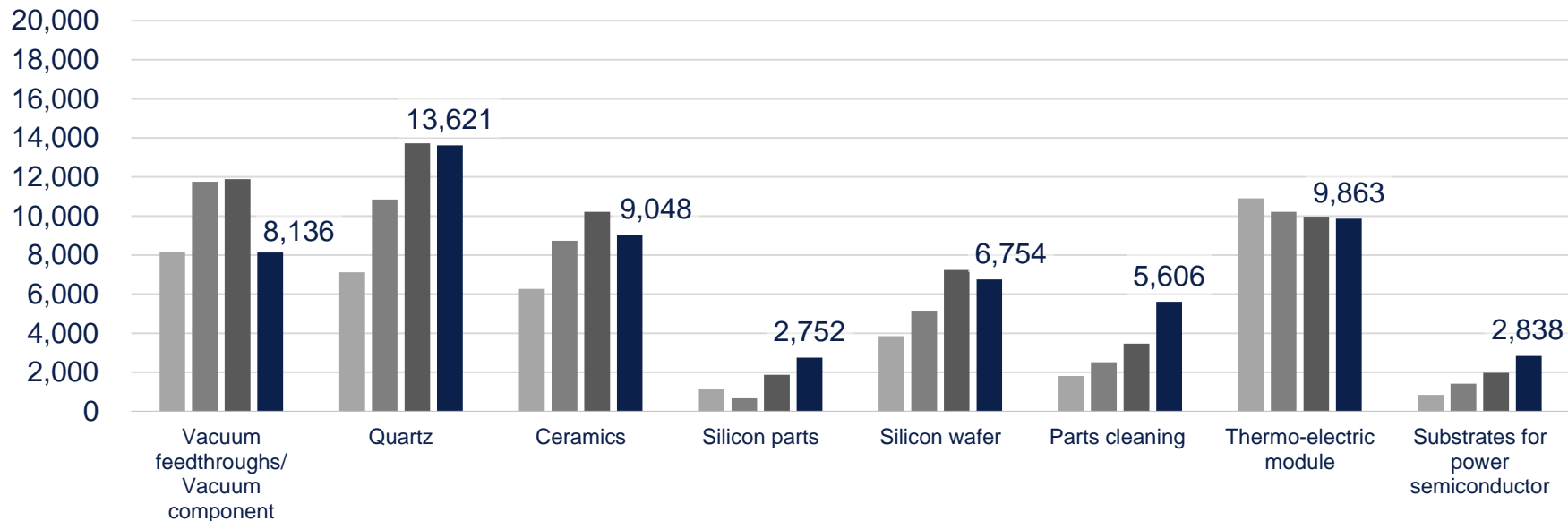


(Note) Equipment and parts cleaning is included in "Others" until FY18/3 and transferred to "Semiconductor and other equipment-related" from FY3/19 onward.

## Sales Trend by Product

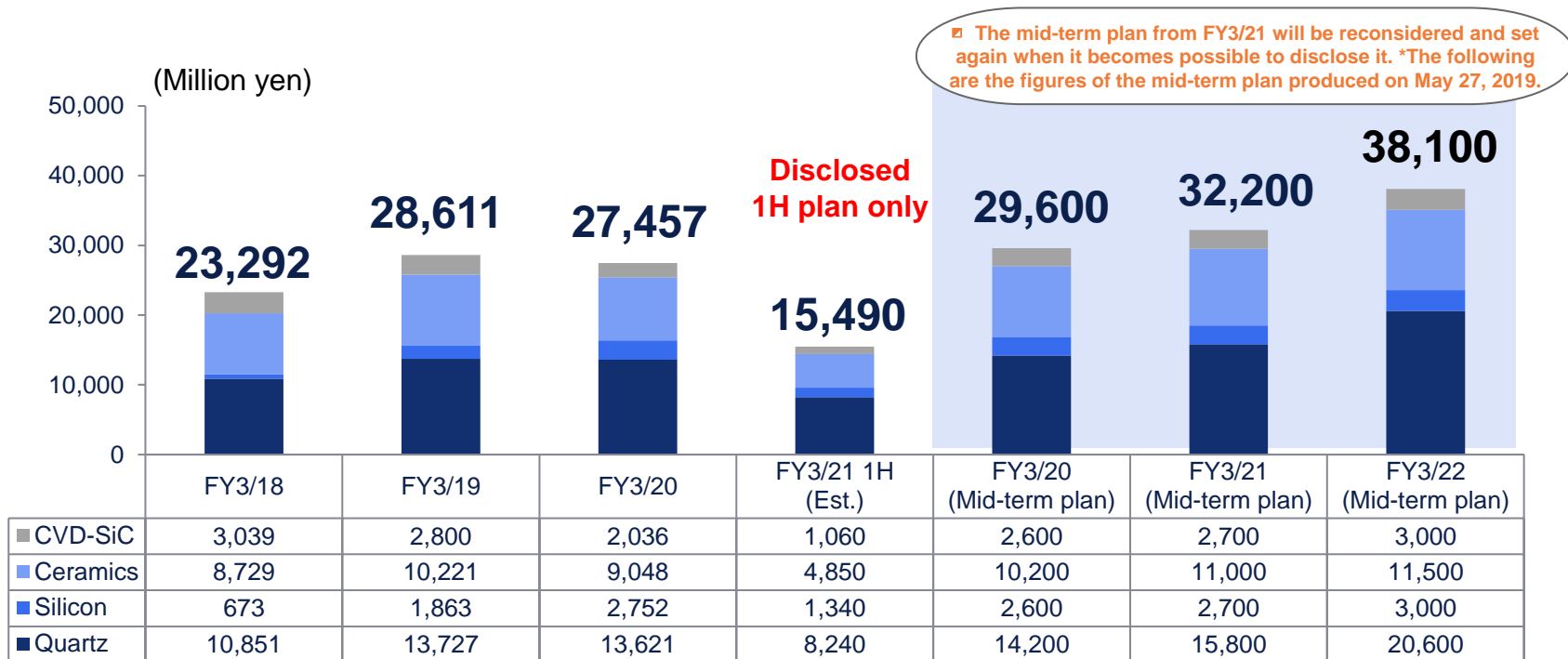
■ FY3/17 ■ FY3/18 ■ FY3/19 ■ FY3/20

(Million yen)



Strategic Product 1: Sales of semiconductor materials declined slightly in FY3/20, but there is no change to the growth track

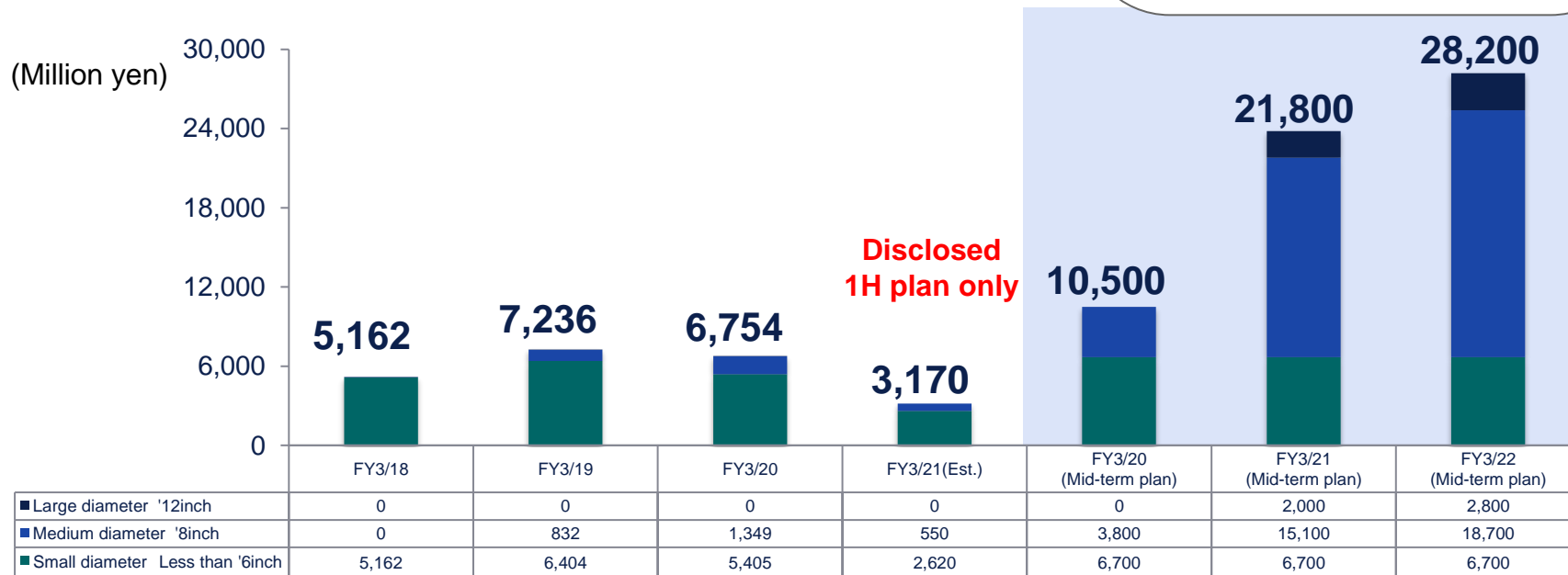
- In FY3/20, sales decreased 4%, due to the adjustment of investment in new equipment for semiconductors, mainly for memories.
- From FY3/21, there are new active investments in 5G, data centers, and semiconductor manufacturing equipment, including those for meeting demand in China, so the sales of materials are estimated to be healthy.



## Strategic Product 2: To grow the wafer business according to the market situation

- In FY3/20, the sales of semiconductor wafers dropped 6.7%, due to the weakening of the market.
- In FY3/21, we developed a flexible production system, to follow the trend of demand in the market. \*In the second half of FY3/21, we plan to start manufacturing 12-inch wafers.

▣ The mid-term plan from FY3/21 will be reconsidered and set again when it becomes possible to disclose it. \*The following are the figures of the mid-term plan produced on May 27, 2019.



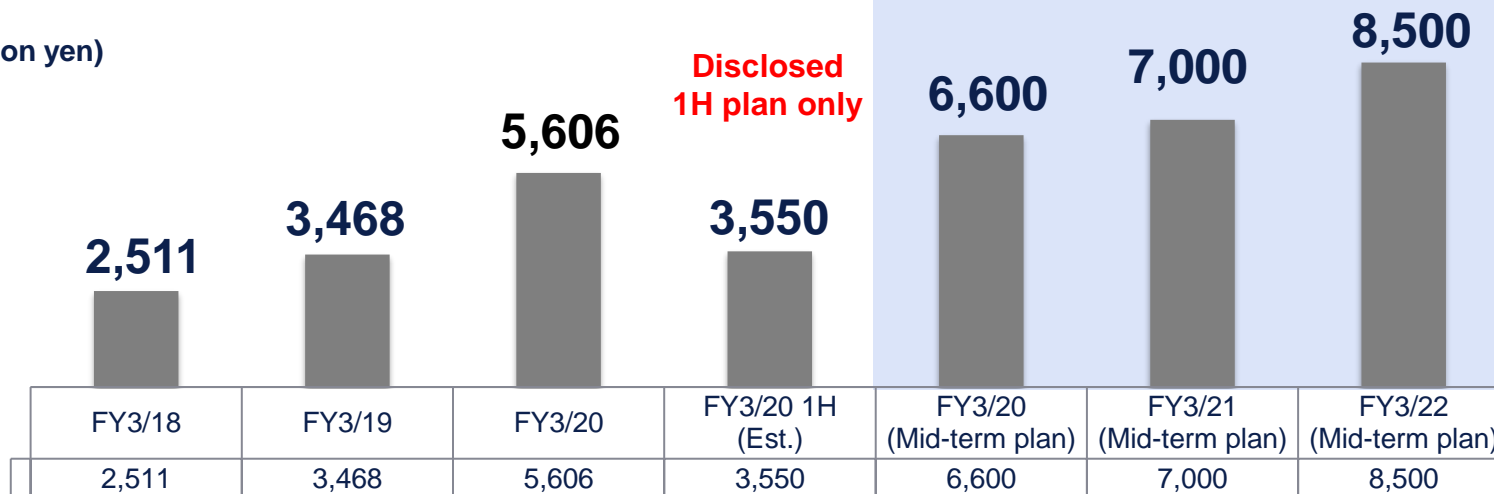


## Strategic Product 3: Improvement of equipment parts cleaning

- As the production capacities of client manufacturers of semiconductors and FPD (organic EL and liquid crystal) in China increased, the business of equipment parts cleaning is growing steadily (taking advantage of the top share in China).
- In FY3/19, we built factories in Tongling and Neijiang, Sichuan (2nd). From FY3/20, we have been continuing a system with enhanced production with 5 business bases and 6 factories.

■ The mid-term plan from FY3/21 will be reconsidered and set again when it becomes possible to disclose it.  
 \*The following are the figures of the mid-term plan produced on May 27, 2019.

(Million yen)

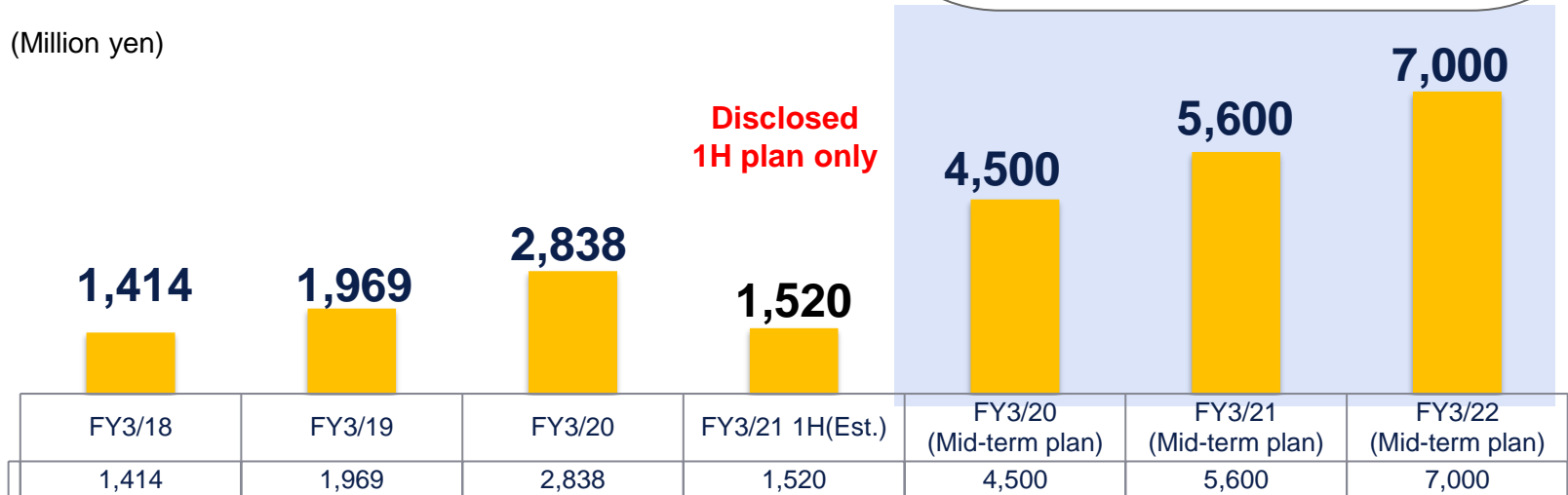


## Strategic Product 4: To expand the sales of power semiconductor substrates in the medium term

- We are increasing our production capacity with 2 bases in Shanghai and Dongtai, China.
- We will mass-produce silicon nitride and aluminum nitride substrates in addition to alumina ceramics, to meet the demand in the automotive field in addition to the power device industrial equipment and consumer product fields.

▣ The mid-term plan from FY3/21 will be reconsidered and set again when it becomes possible to disclose it.  
 \*The following are the figures of the mid-term plan produced on May 27, 2019.

(Million yen)



## Impact of COVID-19 and our overseas subsidiaries' response

- ❑ In Jan. 2020, COVID-19 spread in China. On Jan. 21, 2020, a task force was established in the headquarters of Ferrotec HD (hereafter; "FTHD"), and worked on securing the safety of employees and preventing the spread of COVID-19 in cooperation with Chinese subsidiaries. After the Lunar New Year, local employees gradually resumed work in Feb. and most employees returned to their workplaces and production activities at each facility became almost normal in late Mar. Accordingly, it is assumed that the impact of COVID-19 on the performance of Chinese subsidiaries from Jan. to Mar. (1Q of FY3/21 of FTHD) is minor.
- ❑ As some employees of Ferrotec Nord Corporation (headquartered in Moscow), a Russian subsidiary, were infected, the factory of thermo-electric modules was temporarily closed on Apr. 19, 2020. The factory operation was resumed on May 12, 2020, so it is assumed that the impact on business performance is minor.

## Market outlook

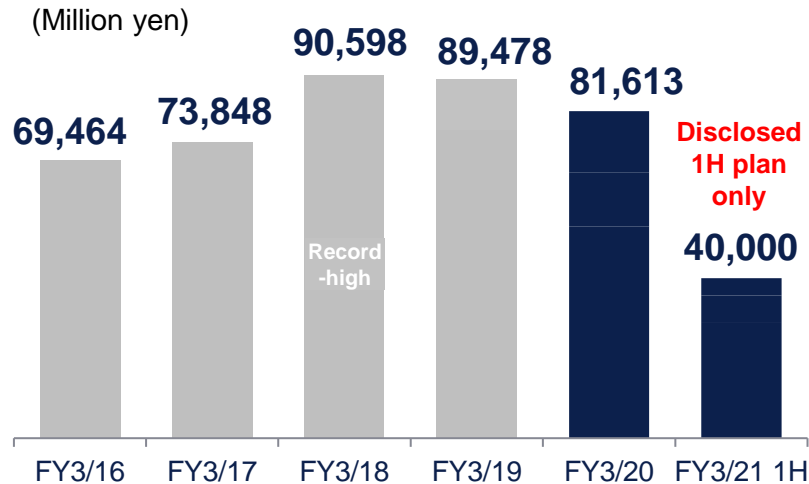
- ❑ As telecommuting and at-home learning became common around the world, server capacities became insufficient and the demand for additional PCs grew, so the demand for semiconductors was healthy. In addition, thanks to the demand for infrastructure, including 5G stations, the demand for new equipment for logics and memories is strong. Therefore, our core products related to semiconductor manufacturing equipment, such as vacuum feedthroughs, materials (quartz, ceramics, silicon, and CVD-SiC), equipment parts cleaning, and thermo-electric modules for temperature control, are estimated to perform well.
- ❑ On the other hand, the demand for automobiles, industrial equipment, etc. dropped, due to COVID-19. Accordingly, it is still unclear whether the demand will recover on a full-scale basis in the second half. Accordingly, the demand for 8-inch silicon wafers, power semiconductor substrates, etc. may drop temporarily.

# Overview of Results for FY3/20: Sales and profit dropped due to the adjustment in the semiconductor market

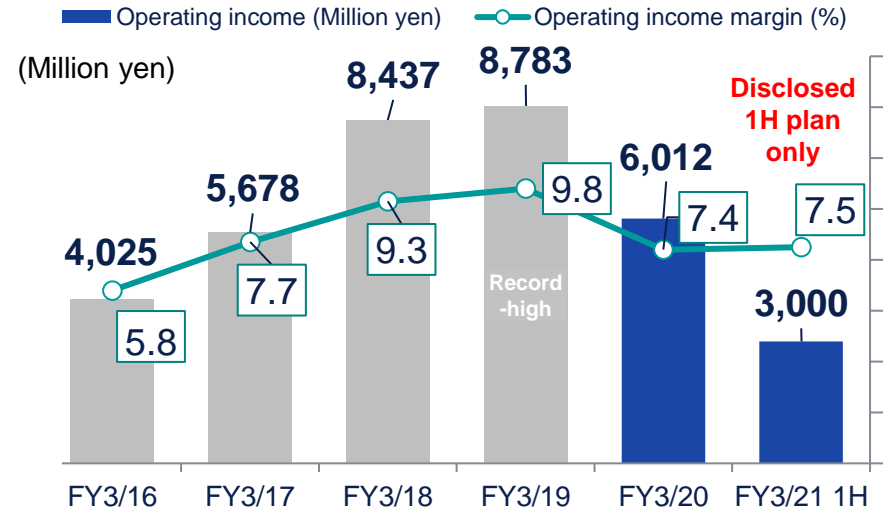
In FY3/20, sales declined 8.8% and profit decreased 31.5% due to the adjustment in the semiconductor market.

In FY3/21, there are uncertainties in the market due to the outbreak of COVID-19, so we disclosed the plan for the first half, only.

## Net sales



## Operating income



■ **Since it is still difficult to forecast the market situations, including the impact of COVID-19, and business results in FY3/21 and FY3/22, we will set again and disclose mid-term management goals, when the forecasting becomes possible.**

**\*The following is the gist of the mid-term management goals (FY3/20 to FY3/22) set on May 27, 2019.**

### **1. Strategic businesses**

- **The manufacturing of semiconductor materials (quartz, ceramics, silicon, and CVD-Sic), semiconductor wafers, and power semiconductor substrates and parts cleaning are recognized as strategic businesses, and we will grow them further as a stable revenue driver.**
- **We will start mass-producing medium and large-diameter wafers early and establish a system for producing 880,000 wafers per month. The cost for launching the semiconductor wafer business will be covered by the revenue from strategic products, to lay a foundation for expanding revenue from FY3/23.**

### **2. Withdrawal from some businesses and mid/long-term strategies**

- **We will withdraw from the photovoltaic-related business, which is not profitable.**
- **We will try to apply thermo-electric modules and ferrofluid to in-vehicle apps as core products of automotive projects, to nurture the future core business.**

### **3. Target KPIs**

- **The goals in the final fiscal year (FY3/22) of the mid-term plan are to achieve consolidated net sales of 125 billion yen and operating income of 12.5 billion yen (operating profit margin: 10.0%), an ROE of 10% or higher, an ROIC of 6% or higher, and a capital-to-asset ratio of 40% or higher.**

Since it is still difficult to forecast the market situations, including the impact of COVID-19, and business results in FY3/21 and FY3/22, we will set again and disclose mid-term management goals, when the forecasting becomes possible.

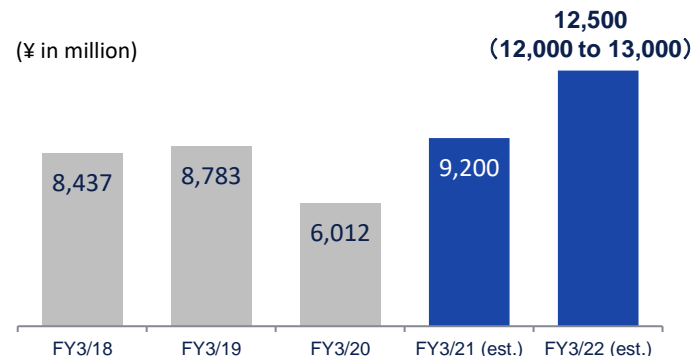
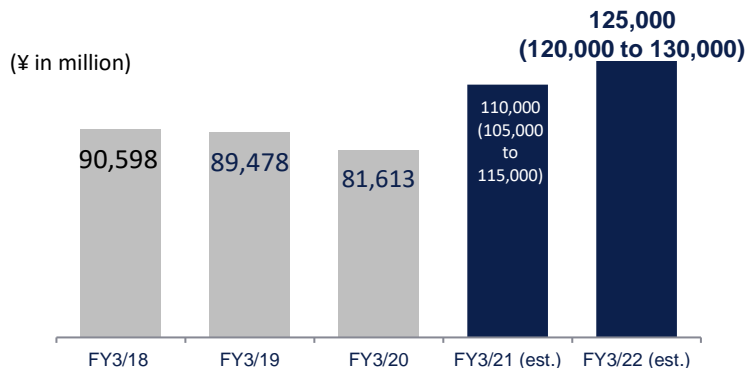
Net sales (FY3/22)  
125 billion yen  
(range: 120-130 billion yen)

Goals will be set again.

Operating income (FY3/22)  
12.5 billion yen  
(range: 12-13 billion yen)

The goals for FY3/21 and FY3/22 are to be revised (The figures below are those of the mid-term plan set on May 27, 2019.)

The goals for FY3/21 and FY3/22 are to be revised (The figures below are those of the mid-term plan set on May 27, 2019.)





# FY3/20 Financial Report

# FY3/20 Consolidated Financial Summary

Million yen	FY3/19		FY3/20		YoY	
	Amount	Pct. Of sales (%)	Amount	Pct. Of sales (%)	Pct. change (%)	Comments
Net sales	89,478	100.0	<b>81,614</b>	<b>100.0</b>	- 8.8	Sales dropped due to the adjustment of investment in semiconductor equipment.
Cost of sales	62,341	69.7	<b>54,686</b>	<b>67.0</b>	- 12.3	-
Gross income	27,137	30.3	<b>26,928</b>	<b>33.0</b>	- 0.8	The gross profits of the segments of electronic devices and other products improved.
SG&A expenses	18,354	20.5	<b>20,915</b>	<b>25.6</b>	14.0	The operation of new facilities began. The provision of allowance for doubtful accounts increased: +575
Operating income	8,783	9.8	<b>6,013</b>	<b>7.4</b>	- 31.5	-
Ordinary income	8,060	9.0	<b>4,264</b>	<b>2.0</b>	- 47.1	Interest expense: +539; Exchange loss: +886; Provision of allowance for doubtful accounts: +546
Extraordinary income	648	0.7	<b>523</b>	<b>4.1</b>	- 19.3	
Extraordinary loss	3,066	3.4	<b>1,247</b>	<b>5.2</b>	- 59.3	Impairment loss of the surface treatment business, etc.: 788
Net income attributable to owners of parent	2,846	3.2	<b>1,785</b>	<b>2.2</b>	- 37.3	-
Depreciation	5,755	-	<b>7,600</b>	-	32.1	Semiconductor and other equipment-related segment: +2,044
EBITDA*	14,538	16.2	<b>13,613</b>	<b>16.7</b>	- 6.4	-

Note: Exchange rate FY3/19⇒FY3/20: US\$ ¥110.36 → ¥109.24; RMB ¥16.64 → ¥15.82 (Avg. during period)

\*EBITDA = operating income + depreciation and amortization



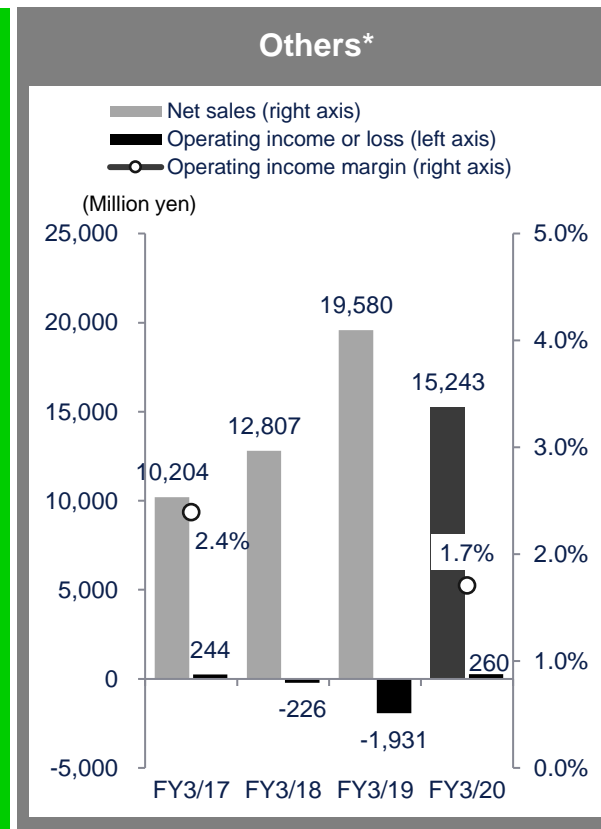
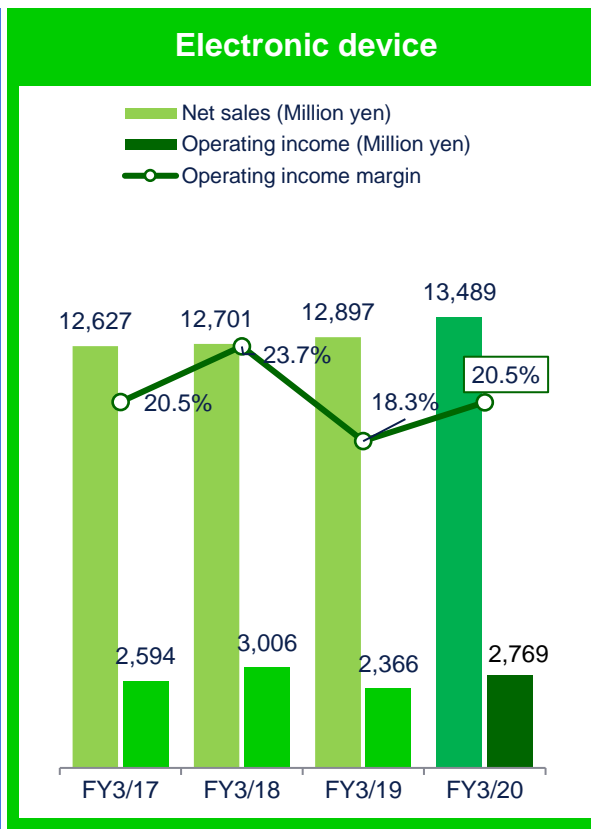
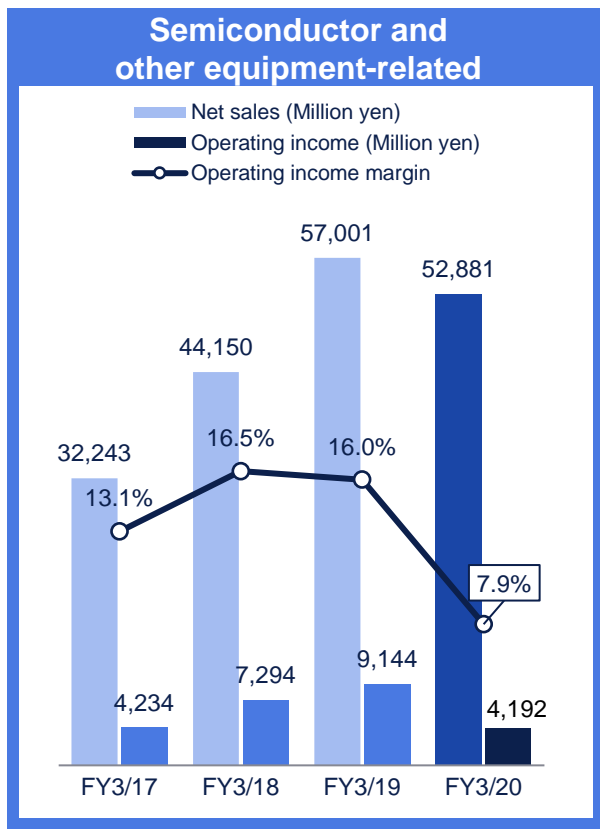
# Sales and Operating Income by Segment

Net sales (¥ in millions)	FY3/19		FY3/20		YoY	
	Amount	Pct. of sales (%)	Amount	Pct. of sales (%)	Difference	Pct. change (%)
Semiconductor and other equipment-related	57,001	63.7	52,881	64.8	- 4,120	- 7.2
Electronic device	12,897	14.4	13,489	16.5	592	4.6
Others	19,580	21.9	15,243	18.7	- 4,336	- 22.1
<b>Total</b>	<b>89,478</b>	<b>100.0</b>	<b>81,614</b>	<b>100.0</b>	<b>- 7,865</b>	<b>- 8.8</b>

Operating income (¥ in millions)	FY3/19		FY3/20		YoY	
	Amount	Pct. of sales (%)	Amount	Pct. of sales (%)	Difference	Pct. change (%)
Semiconductor and other equipment-related	9,144	16.0	4,192	7.9	- 4,951	- 54.2
Electronic device	2,366	18.3	2,769	20.5	404	17.0
Others	- 1,931	-	260	1.7	2,191	-
Corporate & elimination	- 796	-	- 1,208	-	- 412	-
<b>Total</b>	<b>8,783</b>	<b>9.8</b>	<b>6,013</b>	<b>7.4</b>	<b>- 2,769</b>	<b>- 31.5</b>

\*Due to the segment changes, the Photovoltaic-related business has been included in the Other segment from FY3/19.

# Sales and Operating Income Trend by Segment

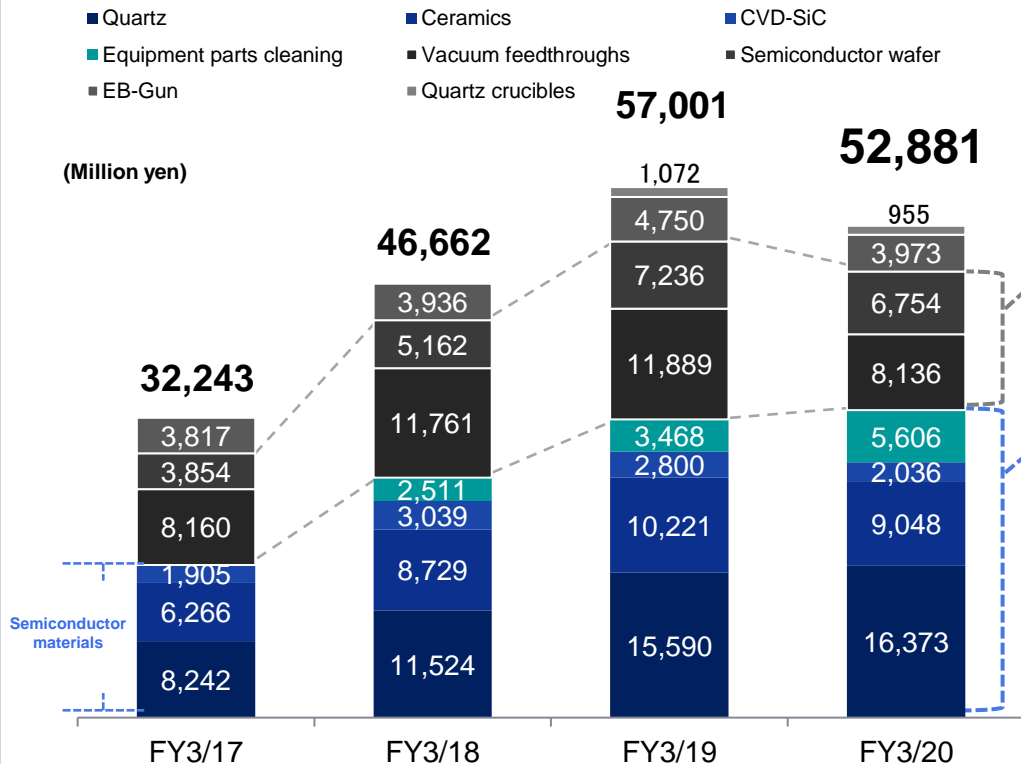


\*Due to the segment changes, the Photovoltaic-related business has been included in the Other segment from FY3/19.

# Sales by Product

(Million yen)	FY3/19	FY3/20	YoY Pct. change
Semiconductor and other equipment-related	57,001	52,881	- 7.2
Vacuum feedthroughs	11,889	8,136	- 31.6
Quartz	15,590	16,373	5.0
Ceramics	10,221	9,048	- 11.5
CVD-SiC	2,800	2,036	- 27.3
EB-Gun, LED	4,750	3,973	- 16.4
Semiconductor wafer	7,236	6,754	- 6.7
Equipment parts cleaning	3,468	5,606	61.6
Quartz crucibles (segment changed from FY3/20)	1,072	955	- 10.9
Electronic device	12,897	13,489	4.6
Thermo-electric module	11,930	12,701	6.5
Ferrofluid, others	967	789	- 18.4
Others	19,580	15,243	- 22.1
<b>Total</b>	<b>89,478</b>	<b>81,614</b>	<b>- 8.8</b>

## Transition of sales



### Overview of this segment

- The sales of semiconductor materials and parts cleaning were healthy, despite the effects of adjustment of capital investment.
- Major factors in decreasing sales and profit are (1) the cost for building a new factory of wafers in Hangzhou, (2) the drop in sales of vacuum feedthroughs, and (3) the drop in sales of ceramics.

### Vacuum feedthroughs and semiconductor wafer

- The sales of vacuum feedthroughs declined, due to the adjustment of investment in semiconductor equipment.
- The sales of semiconductor wafer were sluggish, due to the decline in demand for automobiles and industrial equipment, etc. The cost for building a new factory in Hangzhou affected the revenue of this segment.

### Cleaning business and semiconductor materials

#### [Cleaning business]

- Sales grew considerably, as the demand from Chinese semiconductor device manufacturers and FPD makers increased.

#### [Semiconductor materials (quartz, ceramics, and CVD-SiC)]

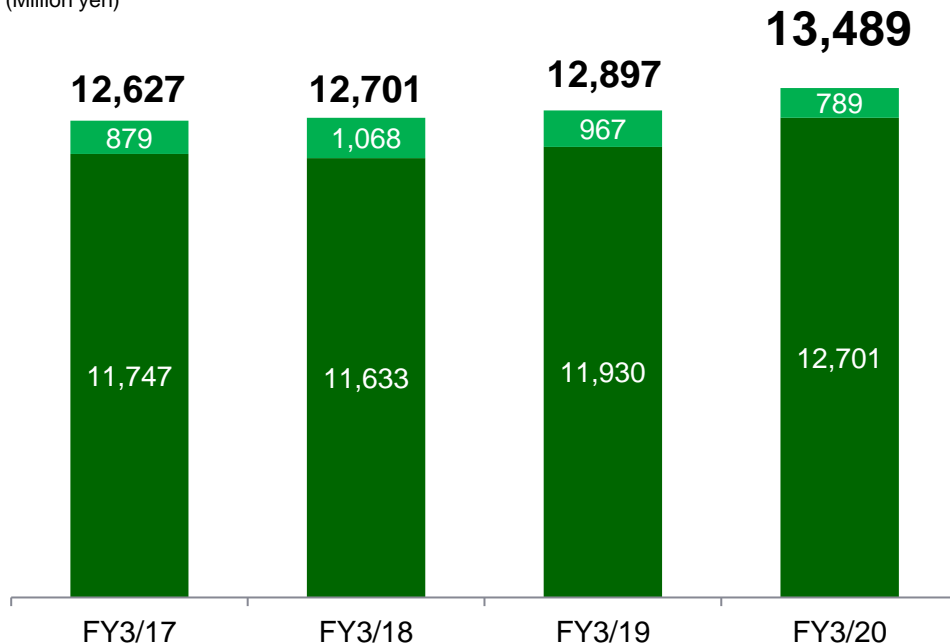
- Quartz is used mostly for consumable materials, so demand is firm. The operation of new factories completed in 2018 in Changshan and Dongtai began.
- The sales of ceramics declined due to clients' inventory adjustment, but the number of orders recovered in the second half of the fiscal year.
- As for CVD-SiC, the components for manufacturing equipment decreased.

\*Quartz crucibles are added in FY3/19 and FY3/20 due to reallocation of segments.

## Transition of sales

■ Thermo-electric module   ■ Ferrofluid, others

(Million yen)



### Overview of this segment

#### [Thermo-electric module]

- The sales of thermo-electric modules for 5G-related communications devices grew mainly in China, while the sales of thermo-electric modules for seat temperature controllers for automobiles decreased. However, total sales of thermo-electric modules continued growing.

#### [Other]

- The sales of power substrates dropped due to the adjustment of industrial equipment.

# Consolidated Balance Sheet –Assets-

(Million yen)	End-FY3/19	End-FY3/20	Difference
Current assets	77,271	<b>71,452</b>	△ 5,819
Cash & deposits	31,556	<b>23,709</b>	△ 7,846
Note & accounts receivable	21,461	<b>20,435</b>	△ 1,026
Inventory	16,277	<b>17,269</b>	992
Fixed assets	85,827	<b>118,558</b>	32,731
Tangible fixed assets	76,133	<b>110,817</b>	34,684
Buildings and structures	10,789	<b>27,346</b>	16,557
Equipment and machinery	18,256	<b>30,113</b>	11,857
Tools, furniture, and fixture	7,595	<b>7,022</b>	△ 573
Land	1,562	<b>1,892</b>	330
Leased assets (net)	405	<b>5,551</b>	5,146
Construction in progress	37,527	<b>38,894</b>	1,367
Intangible fixed assets	3,557	<b>500</b>	△ 3,057
Goodwill	166	<b>26</b>	△ 140
Investments & other assets	6,136	<b>7,242</b>	1,105
<b>Total assets</b>	<b>163,098</b>	<b>190,010</b>	<b>26,912</b>

**[Main reason for increase in current assets]**  
The decrease in cash and deposits is due to the payment for scheduled capital investment, etc.

**[Main reason for increase in tangible fixed assets]**  
• Fixed assets rose, mainly due to the investment for increasing the production of large-diameter wafers.  
• Lease assets grew 5,367 million yen, due to the effects of IFRS16.

**[Main reason for increase in intangible fixed assets]**  
Due to the effects of IFRS16, intangible fixed assets dropped 2,932 million yen.

# Consolidated Balance Sheet -Liabilities and Net Assets-

(Million yen)	End-FY3/19	End-FY3/20	Difference
Current liabilities	60,180	<b>61,443</b>	1,263
Notes and accounts payable	20,887	<b>18,252</b>	△ 2,635
Short-term debt	9,603	<b>12,510</b>	2,907
Current portion of long-term borrowings + bonds	10,743	<b>13,507</b>	2,764
Fixed liabilities	53,070	<b>78,419</b>	25,349
Bonds	11,225	<b>19,282</b>	8,057
Convertible bond-type bonds with share acquisition rights	-	<b>3,735</b>	3,735
Long-term debt	29,505	<b>29,440</b>	△ 65
<b>Total liabilities</b>	<b>113,250</b>	<b>139,862</b>	26,612
Net assets	49,848	<b>50,148</b>	299
Shareholder's equity	45,793	<b>46,943</b>	1,149
Total accumulated other comprehensive income	3,705	<b>1,453</b>	△ 2,253
Non-controlling interests	323	<b>1,679</b>	1,356
<b>Total liabilities &amp; shareholder's equity</b>	<b>163,098</b>	<b>190,010</b>	26,912

**[Main reason for increase in current liabilities]**  
**Notes and accounts payable: - 2,635 million yen**

**[Balance of interest-bearing debt, etc.]**

The parenthesis represents the change from the end of FY3/19

Short-term debt + Current portion of long-term borrowings + bonds: 26,017 million yen (+5,671)

Long-term borrowings + Bonds (including convertible bonds): 52,457 million yen (+11,727)

Total interest-bearing debt: 78,474 million yen (+17,398)

[Net interest-bearing debt: 54,765 million yen (+25,244)]

\*The subsidy for large-diameter wafers amounting to 6,727 million yen was posted as long-term deferred revenue (other fixed liabilities).

**[Major factors in change in net assets]**

Net income attributable to owners of parent: 1,784 million yen

Dividends: -889 million yen

Foreign currency translation adjustments: -2,158 million yen

Non-controlling interests: 1,356 million yen

Note: Exchange rate FY3/19⇒FY3/20: US\$ ¥111.00 → ¥109.56; RMB ¥16.16 → ¥15.67 (Avg. during period)

# Consolidated Cash Flow

(Million yen)	FY3/19	FY3/20
<b>Cash flow from operating activities</b>	<b>11,466</b>	<b>8,903</b>
Income before income tax	5,642	3,541
Depreciation	5,755	7,600
Exchange gain & loss (-:gain)	481	286
Changes in notes & accounts receivable (-:increase)	- 2,057	299
Changes in inventories (-:increase)	- 157	- 1,328
Changes in accounts payable (-:decrease)	1,543	- 1,168
Others	259	- 327
<b>Cash flow from investing activities</b>	<b>- 37,063</b>	<b>- 34,472</b>
Payments for purchase of tangible fixed assets	- 34,811	- 33,796
Proceeds from sales of tangible fixed assets	5	31
Payments for purchase of intangible fixed assets	- 1,142	- 124
Purchase of shares of subsidiaries and associates	- 682	-
Others	- 433	- 583
<b>Cash flow from financing activities</b>	<b>34,507</b>	<b>17,996</b>
Changes in short-term debt	4,038	3,036
Proceeds from long-term borrowings	27,634	10,852
Payments of long-term borrowings	- 5,846	- 9,539
Proceeds from the issuance of bonds	11,174	11,941
Proceeds from the issuance of shares	6	37
Others	- 2,499	1,668
<b>Changes in cash &amp; cash equivalents</b>	<b>7,907</b>	<b>- 7,969</b>
Cash and cash equivalents, beginning of year	<b>23,649</b>	<b>31,556</b>
Cash and cash equivalents, end of year	<b>31,556</b>	<b>23,709</b>

[Operating cash flow]
<b>Income before income tax + Depreciation:</b> 11,141 million yen
<b>Changes in notes &amp; accounts receivable, inventories and accounts payable:</b> -2,197 million yen

[Investing cash flow]
<b>Purchase of tangible and intangible fixed assets:</b> -33,920 million yen

[Financial cash flow]
<b>Details of major fund procurement</b>
•Proceeds from long-term borrowings: 10,852 million yen
•Proceeds from the issuance of bonds: 11,941 million yen
<b>Total</b> 22,793 million yen

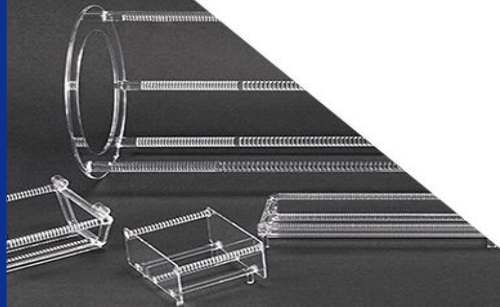




**Ferrotec**  
Ferrotec Holdings Corporation



## Business Forecasts for FY3/21



- The full-year business forecast is still to be determined, because it is difficult to reasonably estimate the impact of COVID-19. For the (cumulative) second quarter, it is projected that sales will be 40 billion yen, operating income will be 3 billion yen, and net income will be 1.5 billion yen.

(Million yen)	FY3/19 2Q	FY3/20 2Q (Est.)	YoY (%)	FY3/20 (Ref.)
Net sales	41,849	40,000	- 4.4	81,614
Operating income	3,566	3,000	- 15.9	6,013
Ordinary income	2,472	2,500	1.1	4,264
Net income attributable to owners of parent	1,540	1,500	- 2.5	1,784
Depreciation	3,435	5,000	45.5	7,600
EBITDA	7,001	8,000	14.3	13,613

Note: Exchange rate FY3/20⇒FY3/21 2Q: US\$ ¥109.24 → ¥108.34; RMB ¥15.82 → ¥15.34 (Avg. during period)

\*EBITDA = operating income + depreciation and amortization

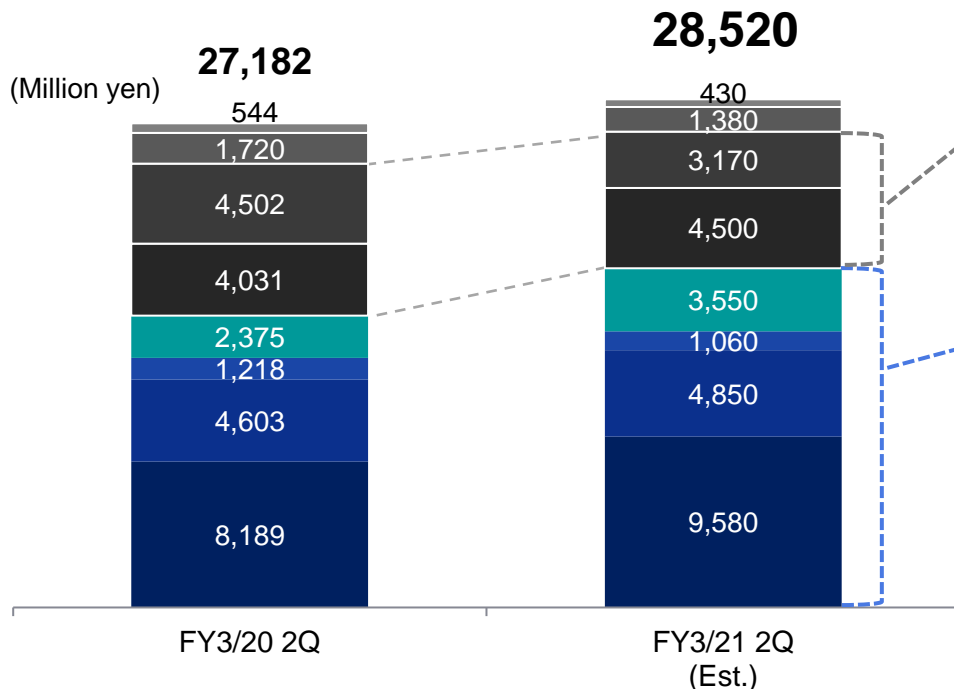
# FY3/21 1H Business Forecasts by Business

(Million yen)	FY3/20 2Q	FY3/21 2Q (Est.)	YoY Pct. change
Semiconductor and other equipment-related	27,182	28,520	4.9
Vacuum feedthroughs	4,031	4,500	11.6
Quartz	8,189	9,580	17.0
Ceramics	4,603	4,850	5.4
CVD-SiC	1,218	1,060	- 13.0
EB-Gun, LED	1,720	1,380	- 19.8
Semiconductor wafer	4,502	3,170	- 29.6
Equipment parts cleaning	2,375	3,550	49.5
Quartz crucibles (segment changed from FY3/20)	544	430	- 21.0
Electronic device	6,991	6,630	- 5.2
Thermo-electric module	6,651	6,310	- 5.1
Ferrolfluid, others	340	320	- 5.9
Others	7,676	4,850	- 36.8
<b>Total</b>	<b>41,849</b>	<b>40,000</b>	<b>- 4.4</b>

Note: Exchange rate FY3/20⇒FY3/21 2Q: US\$ ¥109.24 → ¥108.34; RMB ¥15.82 → ¥15.34 (Avg. during period)

## Transition of sales

- Quartz
- Ceramics
- CVD-SiC
- Equipment parts cleaning
- Vacuum feedthroughs
- Semiconductor wafer
- EB-Gun
- Quartz crucibles



### Overview of this segment

- The number of orders and sales for semiconductor materials and vacuum feedthroughs are estimated to grow.
- The cost for building a new factory of wafers in Hangzhou will be posted.

### Vacuum feedthroughs and semiconductor wafer

- Vacuum feedthroughs: The number of orders is recovering. Due to COVID-19, some customers' investments are delayed, but sales are expected to grow year on year.
- Semiconductor wafer: The demand for 6-inch wafers is estimated to recover, but the full-scale recovery of sales of 8-inch wafers is expected from the second half.
- The operation of the new factory in Hangzhou began, and marketing is progressing, but the cost for establishing the factory will affect the revenue for this term.

### Semiconductor materials and cleaning business

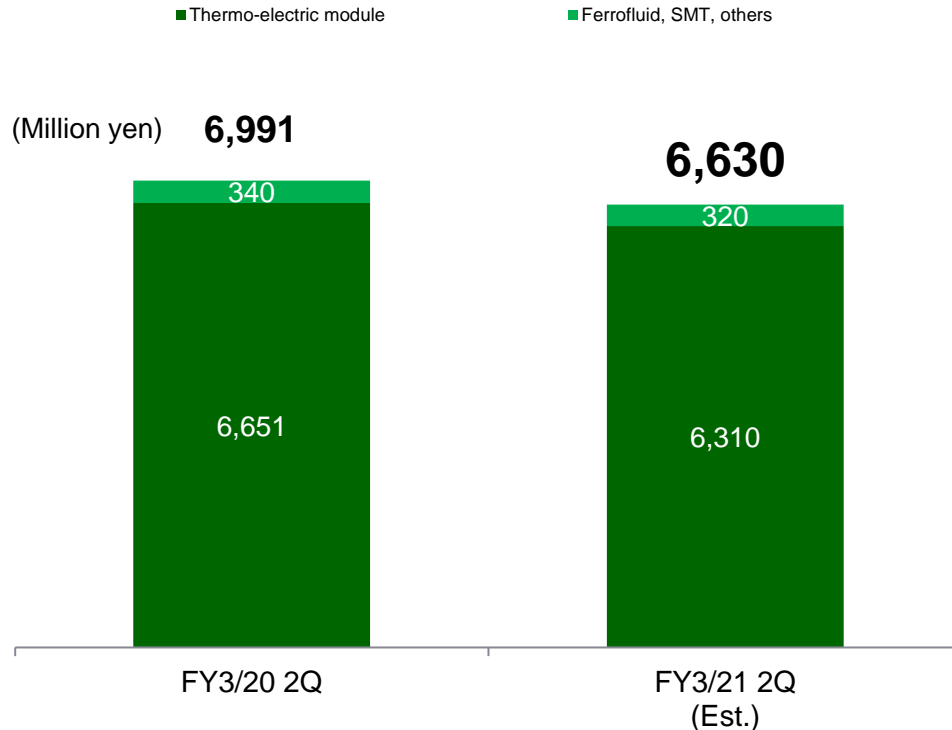
#### [Semiconductor materials (quartz, ceramics, and CVD-SiC)]

- Quartz: The demand for consumable materials is healthy. The factories in Changshan and Dongtai started operation. Sales are estimated to grow.
- Ceramics: Sales are projected to increase, due to the increase of sales of components of etching equipment, whose order quantity started recovering in the second half of the previous year, and the materials for semiconductor inspection jigs.
- CVD-SiC: Components for etchers are to be adopted in 4Q.

#### [Cleaning business]

- The demand from Chinese semiconductor device manufacturers and FPD makers will expand, and our production system will be upgraded, so that sales will grow.

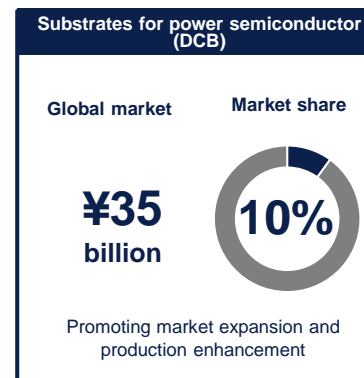
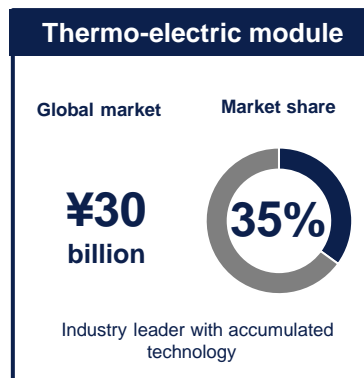
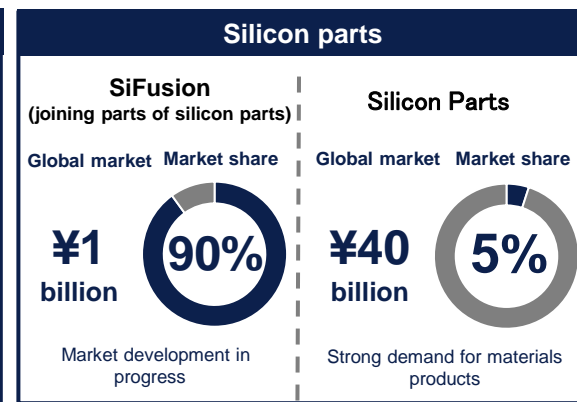
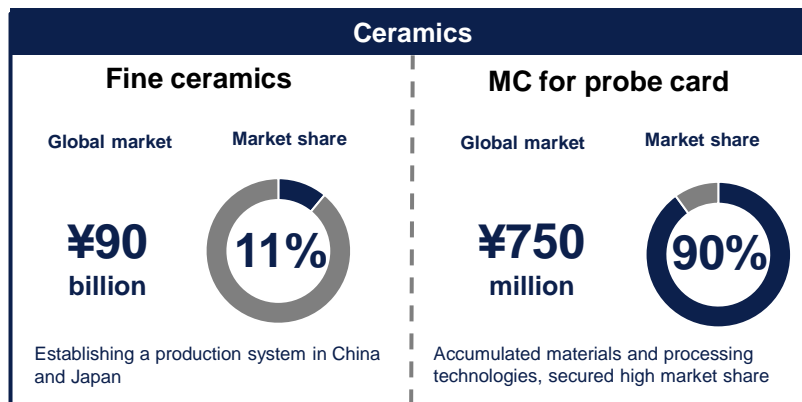
## Transition of sales



### Overview of this segment

- Thermo-electric module: The sales of products for seat temperature controllers for automobiles will decline due to COVID-19, but the products for 5G-related communication devices and bio-related devices for PCR testing, etc. will perform well. Sales will decline, but profit is estimated to be unchanged.
- The sales of power semiconductors are expected to grow from the second half of the previous year, although the demand for automotive products will be sluggish.

# Characteristics and Market Share by Product



## Impact of COVID-19 on major products

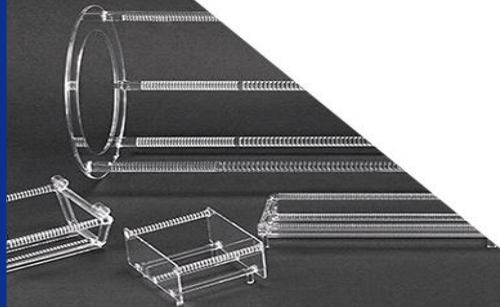
Product	Outline of products	Our company's position, etc.	Current situation of the impact and comments
Vacuum feedthroughs	<ul style="list-style-type: none"> <li>Power transmission components for equipment for manufacturing semiconductors and FPD</li> </ul>	<ul style="list-style-type: none"> <li>Top in the field; our market share: 65%</li> </ul>	<ul style="list-style-type: none"> <li>The number of orders from semiconductor manufacturing equipment makers started recovering in the second half of the previous term.</li> </ul>
Quartz products	<ul style="list-style-type: none"> <li>The ratio of components inside the chambers for semiconductor manufacturing and consumable materials is high.</li> </ul>	<ul style="list-style-type: none"> <li>Second/third largest in the field; our market share: 15%</li> </ul>	<ul style="list-style-type: none"> <li>As semiconductor manufacturers continued operation, demand is healthy.</li> </ul>
Ceramics products	<ul style="list-style-type: none"> <li>Fine ceramics (FC) for semiconductor manufacturing equipment and machinable ceramics (MC) for guide boards for probe cards</li> </ul>	<ul style="list-style-type: none"> <li>Fine ceramics (FC): our market share: 11%</li> <li>MC for probe cards: our market share: 90%</li> </ul>	<ul style="list-style-type: none"> <li>The number of orders from semiconductor manufacturing equipment makers recovered in the second half of the previous term.</li> </ul>
Silicon parts	<ul style="list-style-type: none"> <li>Silicon parts for semiconductor manufacturing equipment and Si Fusion products connected to silicon parts</li> </ul>	<ul style="list-style-type: none"> <li>Silicon parts: our market share: around 5%</li> <li>Si Fusion: our market share: 90%</li> </ul>	<ul style="list-style-type: none"> <li>As semiconductor manufacturing equipment makers continued operation, demand is healthy.</li> </ul>
Thermo-electric module	<ul style="list-style-type: none"> <li>A variety of purposes of use, including heat absorbing/generating modules, home appliance/optical communication modules, seat temperature controllers for automobiles, and medical apparatus</li> </ul>	<ul style="list-style-type: none"> <li>Top in the field; our market share: 35%</li> </ul>	<ul style="list-style-type: none"> <li>Due to COVID-19, the sales of thermo-electric modules for seat temperature controllers for automobiles decreased, but other products are performing well, and the sales of products for medical apparatus increased.</li> </ul>
Cleaning	<ul style="list-style-type: none"> <li>Cleaning/renewal of components of semiconductor manufacturing equipment and special cleaning processes, such as chemical cleaning, sand-blasting, and irradiation</li> </ul>	<ul style="list-style-type: none"> <li>Share in the Chinese market: 60%</li> </ul>	<ul style="list-style-type: none"> <li>As semiconductor manufacturers continued operation, demand is healthy.</li> </ul>
Power semiconductor substrates (DCB)	<ul style="list-style-type: none"> <li>The demand for power semiconductor substrates is growing in China.</li> </ul>	<ul style="list-style-type: none"> <li>Market share of DCB: 10%</li> <li>Started producing active metal brazing (AMB) substrates for automobiles, etc.</li> </ul>	<ul style="list-style-type: none"> <li>The demand from power semiconductor manufacturers is healthy, and the impact of COVID-19 is limited.</li> </ul>



**Ferrotec**  
Ferrotec Holdings Corporation



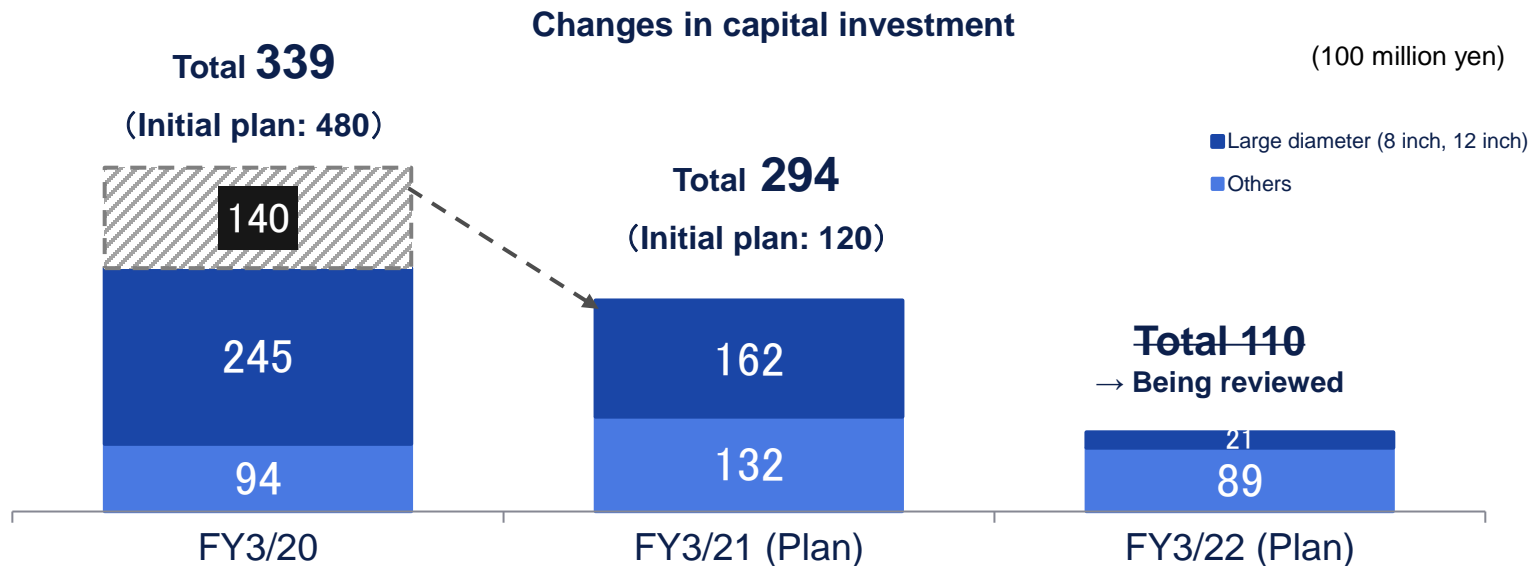
## Future Capital Investment and Financing





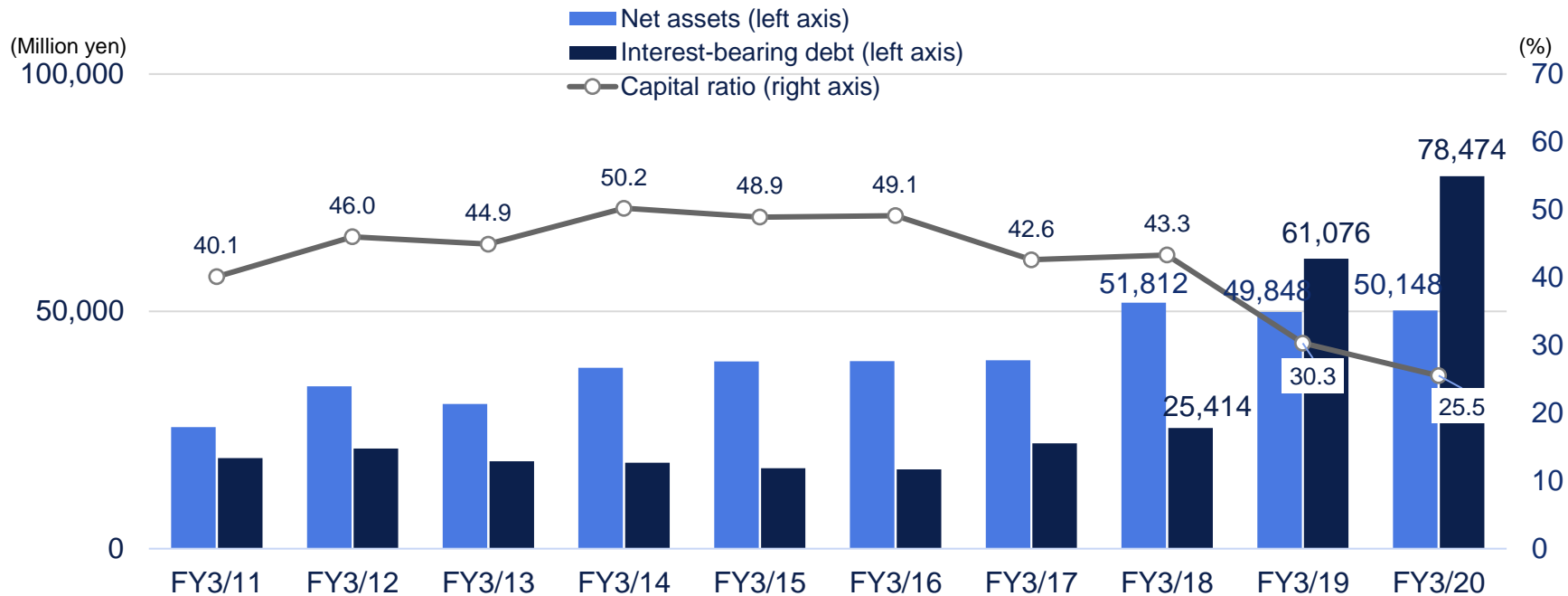
# Capital Investment Plan for FY3/21

- The capital investment amount in FY3/20 was 33.9 billion yen, which is 14.1 billion yen smaller than the estimate, mainly because of the postponement of investment in large-diameter wafers.
- For FY3/21, we plan to invest 29.4 billion yen, which is 17.4 billion yen larger than the initial estimate, due to the postponement from the previous term and investment in recyclable wafers.
- The capital investment plan from FY3/22 is being reviewed.



# Variations in Interest-Bearing Debt and Equity Capital in B/S

- Active capital investment for large-diameter wafers, etc.
- Interest-bearing debt augmented, and capital-to-asset ratio is declining.



[Recognition of the current situation]

Business environment	There are plenty of business opportunities, as the semiconductor market is expanding; especially the Chinese market is advancing.
Our strengths	Business portfolio with a stable business base, including semiconductor materials, thermo-electric modules, and vacuum feedthroughs
Our issues to be solved	Expansion of assets and interest-bearing debt through active investment in large-diameter semiconductor wafers, etc.



[Financial measures] To secure an appropriate balance between business/investment opportunities and financial standing

Investment/liabilities	Manage the level of investment in equipment, etc. and the level of interest-bearing debt.
Fund procurement	Diversify fund procurement methods and secure the stability of fund procurement. Discuss the utilization of partners and capital in China.

- In FY3/20, we diversified fund procurement methods, including corporate bonds, CB, and the increase of the capital of Chinese subsidiaries.

When expanding investment further, we will pay attention to the financial balance and think of utilizing partners and capital in China.

**Budget for capital investment in this term:  
About 29.4 billion yen**

**Estimated fund procurement amount in this term:  
About 26 billion yen**

**\*Breakdown of procured funds**

**•Annual procurement from financial institutions: About 9.5 billion yen**

**•Local borrowing for a Chinese subsidiary that produces semiconductor wafers: About 9.5 billion yen**

**•Subsidy for investment in semiconductor wafers in China: About 3 billion yen**

**•Increase of the capital of a Chinese subsidiary that produces recyclable wafers: About 4 billion yen**

**\*For reference: Cash and deposits at the beginning of this term (FY3/21): 23.7 billion yen**

### Outline of recent major fund procurement

Date	Details	Procured amount
2020	Increase in the capital of a Chinese subsidiary that produces recyclable wafers	About 4 billion yen
Apr. 2020	Continuation of the commitment line	About 2 billion yen
Feb. 2020	Alliance with Advantage Advisors and issuance of corporate bonds with share acquisition rights	About 3.7 billion yen
Dec. 2019	Increase in the capital of a Chinese subsidiary that conducts the cleaning business	About 600 million yen
Sep. 2019	Issuance of unsecured bonds	About 5 billion yen

- Since it is difficult to reasonably estimate the impact of COVID-19, the full-year business forecast is still to be determined.
- We will reconsider mid-term management goals and announce revised goals later.

		Final year of the initial plan		
	Unit	Goals for FY3/22	Results for FY3/20	Forecast for cumulative 2Q of FY3/21
Net sales	Million yen	125,000	81,614	40,000
Operating income	Million yen	12,500	6,013	3,000
Operating profit margin	%	10.0	7.4	7.5
ROE	%	10.0	5.4	-
ROIC	%	6.0	3.1	-
Capital-to-asset ratio	%	40.0	26.6	-

[Current situation]

- The new factories of quartz and power substrates started mass production, and a system for increasing the production of semiconductor wafers was established.
- There are many opportunities to expand business in the semiconductor market.
- Capital investment peaked in FY3/20. Due to some postponement, the scale of borrowing in FY3/21 will expand. We will manage the levels of investment and interest-bearing debt.
- We aim to grow our business, while paying attention to the balance between business opportunities and financial standing.



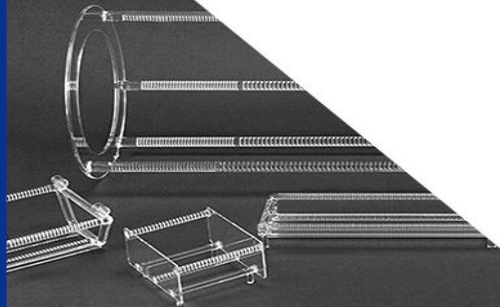
# FY3/20 Financial Results



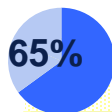
**Ferrotec**  
Ferrotec Holdings Corporation



## Status by Segment and Outlook



# Products by Segment



**Semiconductor and other equipment-related**

**Vacuum feedthroughs**



**Quartz**



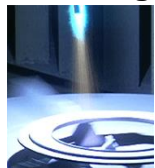
**Ceramics**



**CVD-SiC**



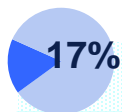
**Equipment parts cleaning**



**Silicon wafer**



etc...

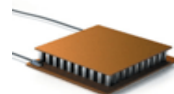


**Electronic device**

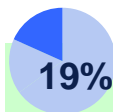
**Ferrofluid**



**Thermo-electric module**



**Substrates for power semiconductor**



**Others**

**Industrial blade Contract assembly**



**Commercial washing machine**

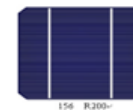


**Photovoltaic (OEM)**

**PV wafer**



**PV cell**



etc...

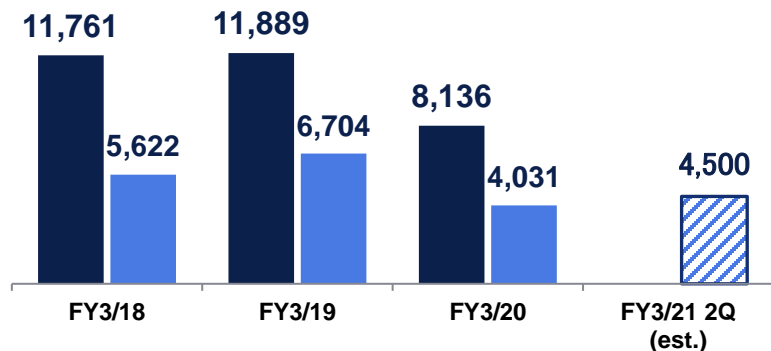
\*The circle graph represents the proportion of each segment to net sales as of FY3/20.



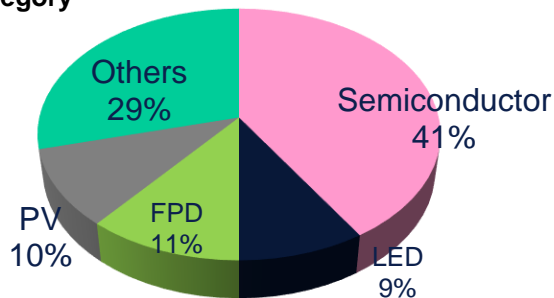
## Transition of sales

(million yen)

■ Full year ■ 2Q



## Sales by category



## 1. Status for FY3/20

- In 2019, sales were sluggish throughout the year, due to the adjustment of capital investment for manufacturing equipment of semiconductors and flat panels, such as organic EL and liquid crystal ones.
- As for contract processing, we met the demand for processing for products other than semiconductors inside and outside Japan, in order to continue the manufacturing operation.

## 2. Outlook for 2Q of FY3/21

- In the second half of 2019, the number of orders for equipment for manufacturing semiconductors and organic EL rebounded, and sales are estimated to grow year on year, although the installation by clients is slightly delayed due to the COVID-19 pandemic.
- The number of orders for contract processing is recovering in the fields of semiconductors and others, so sales are projected to increase in the first half.

## <Measures>

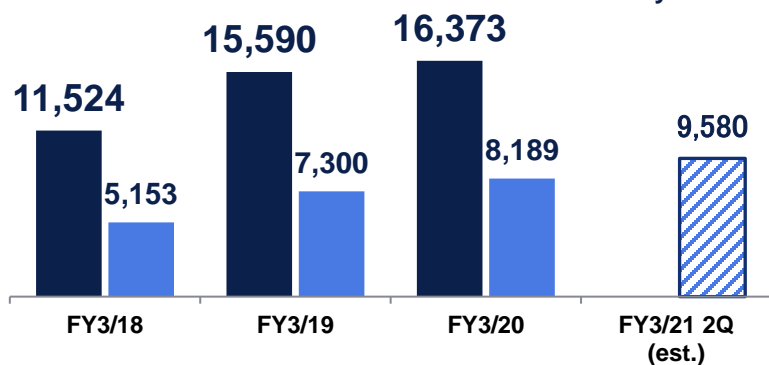
- Continue joint development projects with manufacturers of semiconductor manufacturing equipment
- Capital investments for large processing machinery
- Strengthen ties among Ferrotec Group companies to generate synergies
- Strengthen sales in the Chinese market, utilizing Group companies' existing channels and brands

Note) Others: Industrial vacuum systems, aviation, medical, science, etc.

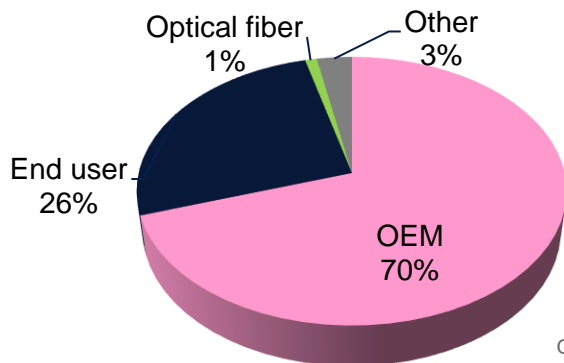
## Transition of sales

(million yen)

■ Full year ■ 2Q



Sales of category



### 1. Status for FY3/20

- Amid the adjustment in the semiconductor market, the ratio of repeated orders for consumable materials was high, and the sales of quartz were almost unchanged from the previous year. In the second half of 2019, demand and the number of orders started recovering.
- Si parts were adopted for semiconductor manufacturing equipment in the Chinese market, so sales increased amid the harsh market environment.

### 2. Outlook for 2Q of FY3/21

- Due to the COVID-19 pandemic, the installation of equipment is delayed, but there are new active investments in logics and memories mainly for the Chinese semiconductor market, which is growing rapidly. Accordingly, the demand for quartz is estimated to increase from the previous year (The new investments in 5G and data centers around the world are favorable to us.)
- The demand for Si parts for the film forming process and the vacuum etching process will be strong mainly in China, Taiwan and Japan.

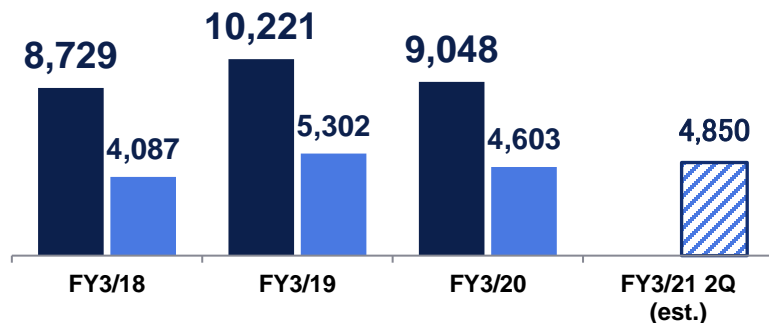
### <Measures>

- Strengthen production capacity in response to increased demand from major OEMs. (Operation started at 2 new factories (Changshan and Dongtai) in China.)
- Work more actively on development projects involving next-generation and later-generation devices.  
(In Yamagata, Japan, a development base and factory for next-generation product development began operations in May 2019. In 2020, they will move to the full-scale production phase.)

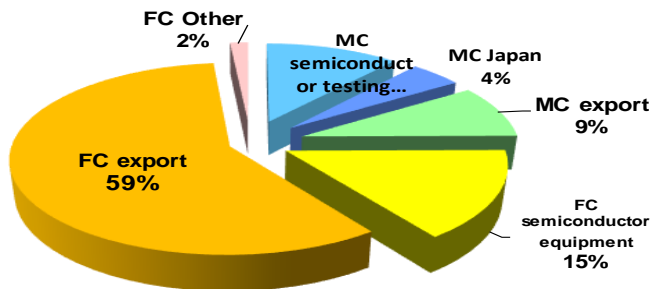
## Transition of sales

(million yen)

■ Full year ■ 2Q



## Sales by category



### 1. Status for FY3/20 (Jan. - Dec.)

#### Machinable ceramics “Photoveel”

- The conventional and new jigs for inspecting semiconductors performed well inside and outside Japan.
- Weak overseas sales of materials for semiconductor inspection jigs.
- The sales of overseas medical parts, etc. were healthy.

#### Fine ceramics

- In 2019, overseas sales of parts for etching equipment were weak, due to clients' inventory adjustment, etc.
- The sales of parts for film forming equipment in Japan started recovering in the second half.

### 2. Outlook for 2Q of FY3/21 (Jan. - Jun.)

#### Machinable ceramics “Photoveel”

- Overseas sales of materials for semiconductor inspection jigs are estimated to be well.
- Due to miniaturization, the sales of new semiconductor inspection jigs are estimated to be healthy.

#### Fine ceramics

- Overseas sales of parts for etching equipment will recover.
- The components of film forming equipment are projected to sell well inside and outside Japan.

### 3. Continued sales policy

#### Machinable ceramics

- Focus on sale promotion of new inspection jigs for miniaturization
- As there were business inquiries about highly-functional machinable ceramics, we will promote sales for next-generation products.
- As there were business inquiries about components of medical and analysis devices, we will promote sales.

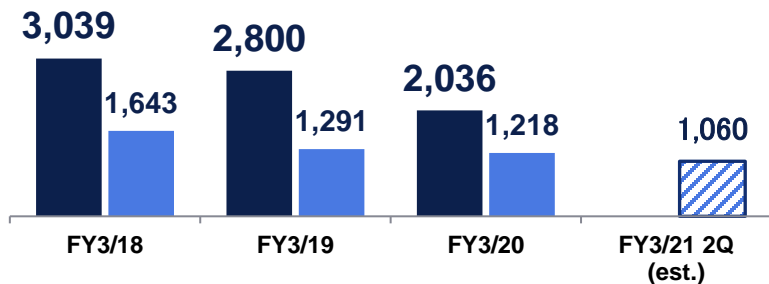
#### Fine ceramics

- By utilizing the characteristics of alumina materials that are highly inductive, we aim to make them adopted for components of new semiconductor equipment. With a wide array of ceramic materials, we will promote the sales of machine parts for general industries.

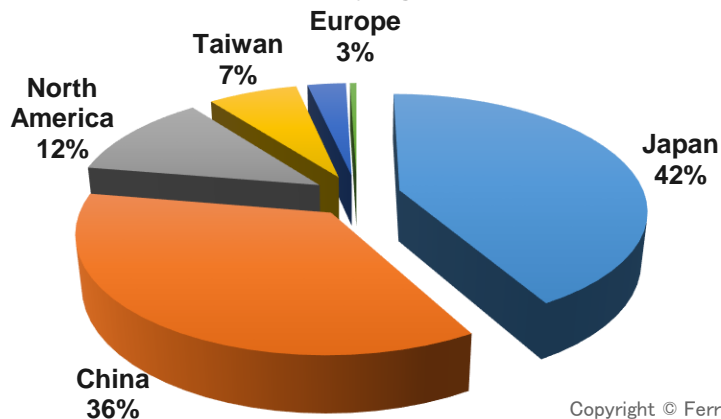
## Transition of sales

(million yen)

■ Full year ■ 2Q



### Sales by region



### 1. Status for FY3/20

- The sales of components for semiconductor manufacturing equipment declined, due to the adjustment of capital investment.
- High-purity heat resistant components for SiC epitaxial growth equipment performed well.

### 2. Outlook for 2Q of FY3/21

- The demand for components for Chinese device makers will be favorable.
- As for consumable materials for semiconductor etcher equipment, which will be newly adopted, mass production is expected in 4Q.

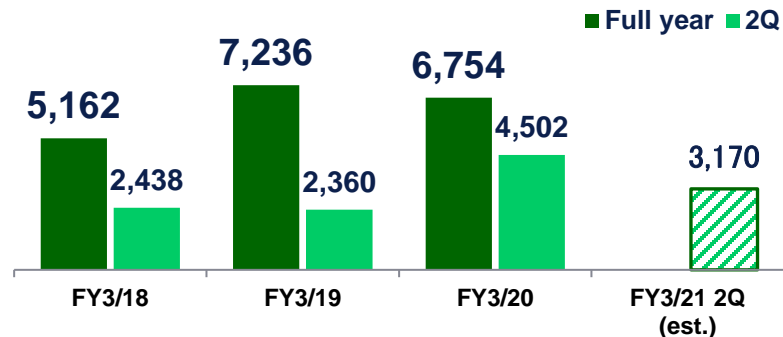
### <Measures>

- Increase sales of consumable materials for semiconductor etcher equipment and maintain production system.
- Strengthen development and trial production systems in the SiC semiconductor field.
- Make our products adopted by semiconductor manufacturing equipment and device manufacturers.

## Semiconductor wafer

### Transition of sales

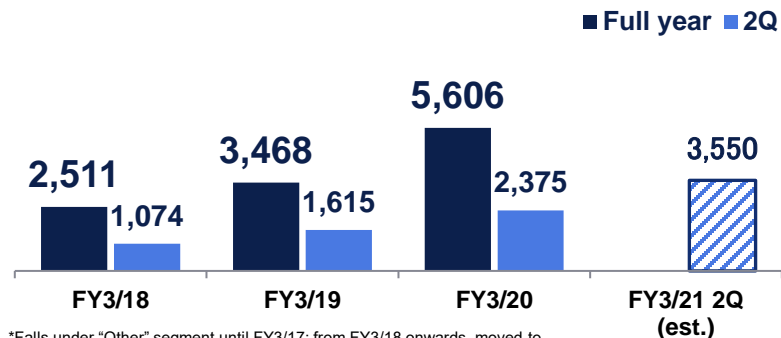
(million yen)



## Parts Cleaning\*

### Transition of sales

(million yen)



\*Falls under "Other" segment until FY3/17; from FY3/18 onwards, moved to semiconductor and other equipment-related segment.

## Semiconductor wafers:

### 1. Status for FY3/20

- Due to the decline in demand for automobiles, industrial equipment, etc., the sales of 6-inch and 8-inch wafers were stagnant from the second half, and annual sales dropped 6.7% year on year.

### 2. Outlook for 2Q of FY3/21

- There is a sign of demand recovery for 6-inch wafers, but the full-scale demand recovery of 8-inch wafers cannot be expected in the first half. Accordingly, total sales of wafers are projected to decrease 29.6% year on year.

#### <Measures>

- Increase new customers for 8-inch wafers at the new factory in Hangzhou.
- Increase customers for 12-inch wafers, and aim to start mass-production by the end of FY3/21.

## Parts cleaning:

### 1. Status for FY3/20

- Sales grew 62% year on year, as we responded to the expansion of production scale of semiconductor device manufacturers and FPD makers in China.

### 2. Outlook for 2Q of FY3/21

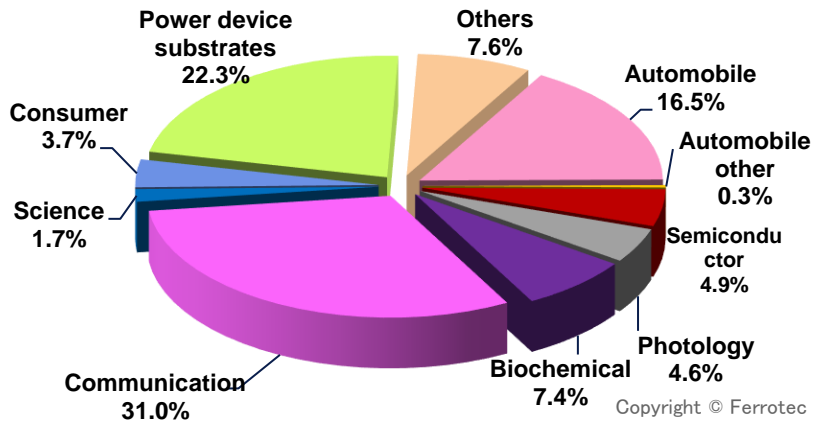
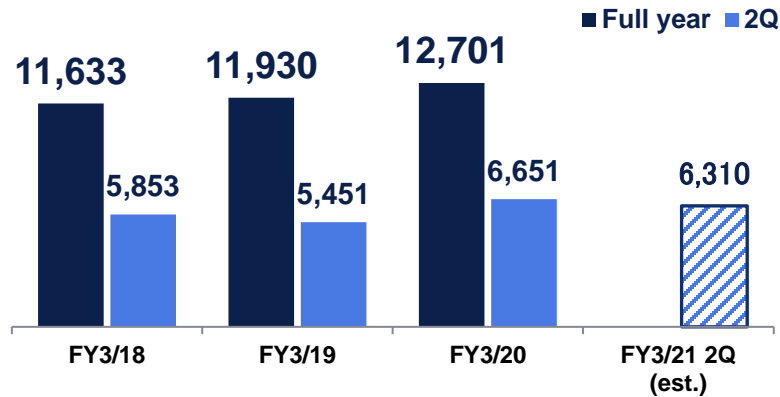
- We will continue the increase of production output with 5 bases and 6 factories in China, and the sales to Chinese semiconductor and FPD makers, which will boost production output, are estimated to rise 49% year on year.

#### <Measures>

- The parts cleaning business will be reorganized with its Tongling factory in Anhui as its main sub-subsidiary. An analysis center will be established in Shanghai to capture more advanced fields.

## Transition of sales

(million yen)



### 1. Status for FY3/20

#### Modules for Automobiles

- The sales of modules for seat temperature controllers kept decreasing.
- As for new purposes of use in the automotive field, we focused on transactions in which our products will probably be adopted.

#### Other applications

- Our products were increasingly adopted for 5G-related communication devices throughout the year.
- The annual sales of power semiconductor substrates increased, but the sales in the second half declined due to the adjustment of industrial equipment, etc.

### 2. Outlook for 2Q of FY3/21

#### Modules for Automobiles

- Due to the impact of COVID-19, the sales volume of automobiles decreased, and the sales of modules for seat temperature controllers are projected to decline.

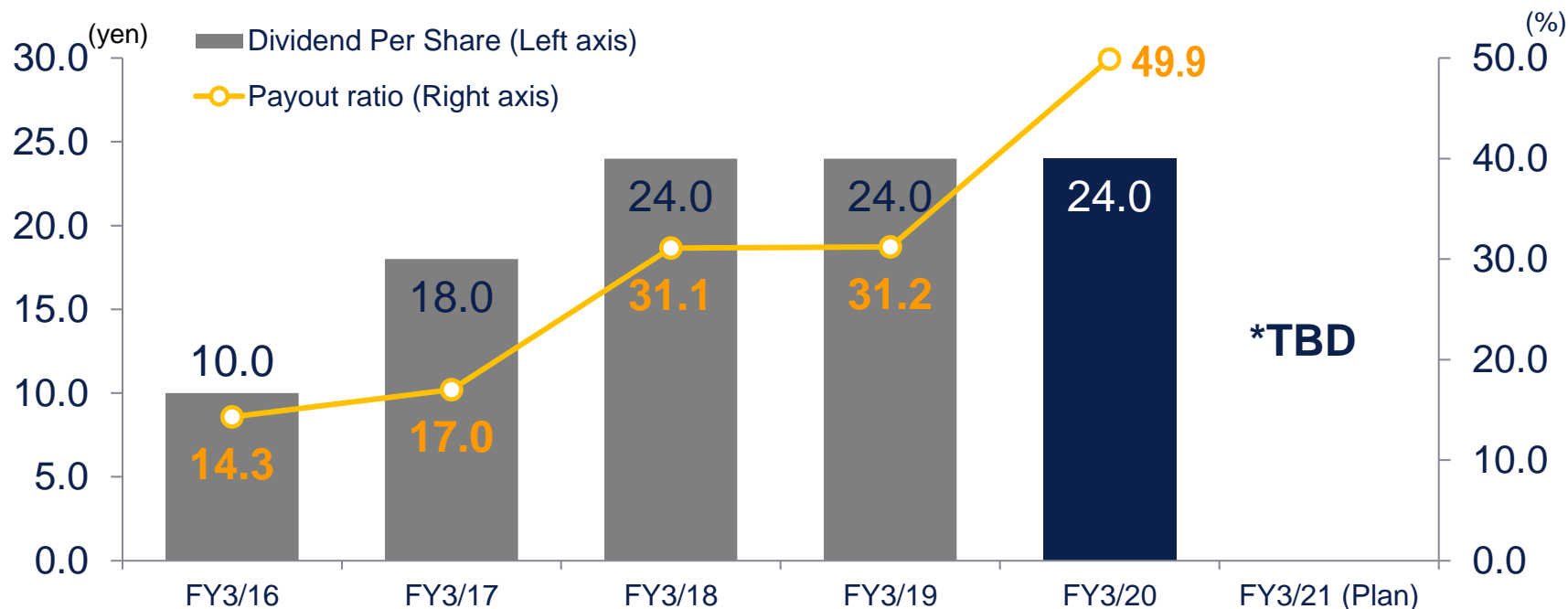
#### Other applications

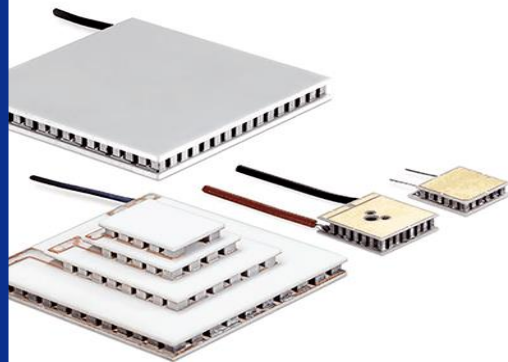
- The sales of products for communication devices related to 5G infrastructure investment will be healthy mainly in China.
- Consumer products for wearable devices and bio-related products for PCR testing are expected to perform well.
- The performance of power substrates for automobiles and industrial equipment is estimated to be sluggish, but sales are projected to grow from the previous second half.

#### <Measures>

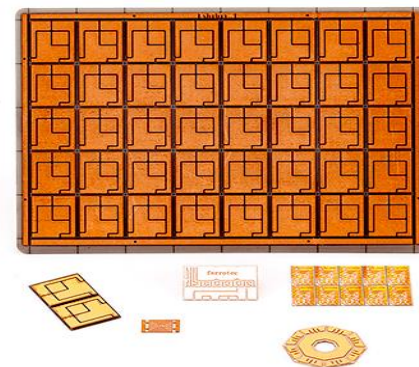
- Expand sales activities worldwide for thermo-electric module subassembly.
- Further strengthen sales of modules used in automobiles, aiming for mass production in 3-5 years.
- As for power substrate, strengthen sales of silicon nitride (AMB substrate) for automobiles.

- Due to the undisclosed business forecasts, the dividend forecast is also undetermined at this time.
- Basic policy is to pay a stable dividend, and consider the amount of the dividend based on an increase in dividends linked to performance





**Ferrotec**  
Ferrotec Holdings Corporation



## Appendix





Corporate Name	Ferrotec Holdings Corporation
Date of Foundation	September 27, 1980
Address	5 <sup>th</sup> floor of Nihonbashi Plaza Building, 2-3-4 Nihonbashi, Chuo-ku, Tokyo Japan
Listed on	JASDAQ (Listed Code: 6890)
President	Akira Yamamura
Business Segment	Business management and R&D operations of group companies
Capital	17,649,000,000 JPY
Issued Stock	37,090,590 shares (including 93,568 shares of treasury stock)
Related Company	[47 consolidated subsidiary] [6 companies accounted for by the equity method]
Employees	[Consolidated] 7,533 [Non-consolidated] 70

# Business Performance (FY3/20 1H vs. 2H)

(million yen)	FY3/20 1H Results		FY3/20 2H Results			
	Amount	Pct. of sales(%)	Amount	Pct. of sales(%)	Amount	Pct. change(%)
Semiconductor and other equipment-related	27,182	65.0	25,698	64.6	- 1,484	- 5.5
Vacuum feedthroughs	4,031	9.6	4,105	10.3	74	1.8
Quartz	8,189	19.6	8,184	20.6	- 5	- 0.1
Ceramics	4,603	11.0	4,445	11.2	- 158	- 3.4
CVD-SiC	1,218	2.9	818	2.1	- 400	- 32.8
EB-Gun, LED	1,720	4.1	2,253	5.7	533	31.0
Semiconductor wafer	4,502	10.8	2,252	5.7	- 2,250	- 50.0
Parts cleaning	2,375	5.7	3,231	8.1	856	36.0
Quartz crucible	544	1.3	411	1.0	- 133	- 24.4
Electronic device	6,991	16.7	6,499	16.3	- 492	- 7.0
Thermo-electric module	6,651	15.9	6,050	15.2	- 601	- 9.0
Ferrofluid, others	340	0.8	449	1.1	109	32.1
Others	7,676	18.3	7,567	19.0	- 109	- 1.4
<b>Total</b>	<b>41,849</b>	<b>100.0</b>	<b>39,764</b>	<b>100.0</b>	<b>- 2,085</b>	<b>- 5.0</b>

Gross income	13,908	33.2	13,020	32.7	- 888	- 6.4
SG&A expenses	10,342	24.7	10,574	26.6	232	2.2
Operating income	3,566	8.5	2,446	6.2	- 1,120	- 31.4
Ordinary income	2,472	5.9	1,791	4.5	- 681	- 27.5
Net income	1,540	3.7	244	0.6	- 1,296	- 84.2

# Business Performance (FY3/19 vs. FY3/20)



(million yen)	FY3/19 Results		FY3/20 Results			
	Amount	Pct. of sales (%)	Amount	Pct. of sales (%)	Amount	Pct. change (%)
Semiconductor and other equipment-related	57,001	63.7	52,881	64.8	- 4,120	- 7.2
Vacuum feedthroughs	11,889	13.3	8,136	10.0	- 3,753	- 31.6
Quartz	15,590	17.4	16,373	20.1	783	5.0
Ceramics	10,221	11.4	9,048	11.1	- 1,173	- 11.5
CVD-SiC	2,800	3.1	2,036	2.5	- 764	- 27.3
EB-Gun, LED	4,750	5.3	3,973	4.9	- 777	- 16.4
Semiconductor wafer	7,236	8.1	6,754	8.3	- 482	- 6.7
Parts cleaning	3,468	3.9	5,606	6.9	2,138	61.6
Quartz crucible	1,072	1.2	955	1.2	- 117	- 10.9
Electronic device	12,897	14.4	13,489	16.5	592	4.6
Thermo-electric module	11,930	13.3	12,701	15.6	771	6.5
Ferrofluid, others	967	1.1	789	1.0	- 178	- 18.4
Others	19,580	21.9	15,243	18.7	- 4,337	- 22.2
<b>Total</b>	<b>89,478</b>	<b>100.0</b>	<b>81,614</b>	<b>100.0</b>	<b>- 7,864</b>	<b>- 8.8</b>
Gross income	27,137	30.3	26,928	33.0	- 209	- 0.8
SG&A expenses	18,354	20.5	20,915	25.6	2,561	14.0
Operating income	8,783	9.8	6,013	7.4	- 2,770	- 31.5
Ordinary income	8,060	9.0	4,264	5.2	- 3,796	- 47.1
Net income	2,846	3.2	1,785	2.2	- 1,061	- 37.3
Capital investment	35,953	-	33,920	36.9	- 2,033	- 5.7
Depreciation	5,755	-	7,600	-	1,845	32.1

# Business Performance (FY3/20 1H results vs. FY3/21 1H Plan)



(million yen)	FY3/20 1H Results		FY3/21 1H Plan			
	Amount	Pct. of sales (%)	Amount	Pct. of sales (%)	Amount	Pct. change (%)
Semiconductor and other equipment-related	27,182	65.0	28,520	71.3	1,338	4.9
Vacuum feedthroughs	4,031	9.6	4,500	11.3	469	11.6
Quartz	8,189	19.6	9,580	24.0	1,391	17.0
Ceramics	4,603	11.0	4,850	12.1	247	5.4
CVD-SiC	1,218	2.9	1,060	2.7	- 158	- 13.0
EB-Gun, LED	1,720	4.1	1,380	3.5	- 340	- 19.8
Semiconductor wafer	4,502	10.8	3,170	7.9	- 1,332	- 29.6
Parts cleaning	2,375	5.7	3,550	8.9	1,175	49.5
Quartz crucible	544	1.3	430	1.1	- 114	- 21.0
Electronic device	6,991	16.7	6,630	16.6	- 361	- 5.2
Thermo-electric module	6,651	15.9	6,310	15.8	- 341	- 5.1
Ferrofluid, others	340	0.8	320	0.8	- 20	- 5.9
Others	7,676	18.3	4,850	12.1	- 2,826	- 36.8
<b>Total</b>	<b>41,849</b>	<b>100.0</b>	<b>40,000</b>	<b>100.0</b>	<b>- 1,849</b>	<b>- 4.4</b>
Gross income	13,908	33.2	13,567	33.9	- 341	- 2.5
SG&A expenses	10,342	24.7	10,567	26.4	225	2.2
Operating income	3,566	8.5	3,000	7.5	- 566	- 15.9
Ordinary income	2,472	5.9	2,500	6.3	28	1.1
Net income	1,540	3.7	1,500	3.8	- 40	- 2.6
Capital investment	19,123	-	14,000	-	- 4,323	- 22.6
Depreciation	3,435	-	5,000	-	1,565	45.5