



Ferrotec Holdings Corporation

Update of the Mid-Term Management Plan

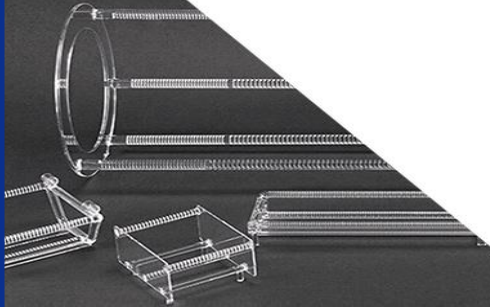
Mon. May 30, 2022



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Review of FY3/22



Business results

Net sales, operating income, and net income increased significantly from the previous term, reaching record highs

Semiconductor-related and electronic device businesses performed well, and the new factory, which has been in operation for several years, is in full production.

Significant year-on-year increases in net sales (+46.6%), operating income (+134.4%), and net income (+221.9%).

Investment for growth

To pursue further growth, increase production, and aggressively invest in development and technology

Invested for increasing production output by establishing the Changshan Factory for semiconductor-related quartz and metal processing and the Yinchuan Factory for SiP, and expanding the Dongtai Factory for quartz.

Increased the production output of AMB for power substrates and established a research institute in anticipation of growth of the EV market, etc.

Strengthening of quality and personnel

Automation and digitalization progressed, and China headquarters was established to strengthen the personnel and the organization.

While strengthening quality control, we advanced automation and digitalization at production sites.

We decided to establish China headquarters and strengthen human resources and organizations for business, technology, and management.

Fortification of the financial standing

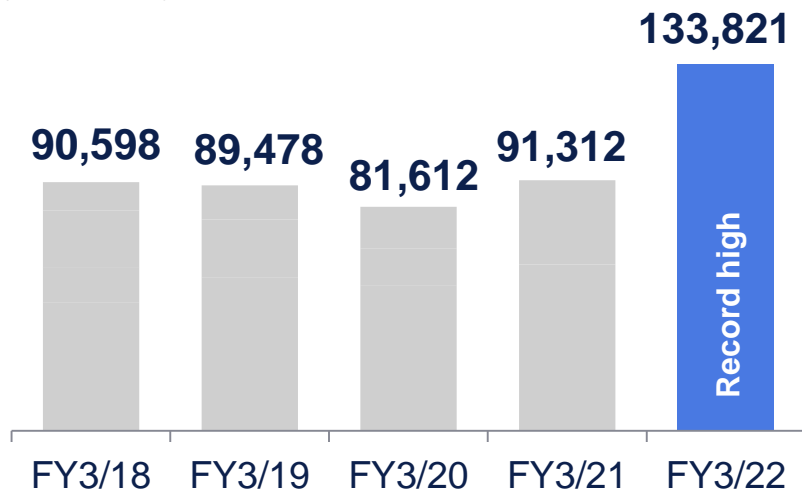
Capital increase of our company and subsidiaries in China as a basis for aggressive investment

Our company increased its capital by 19.3 billion yen, and our Chinese subsidiaries also increased their capital, including 8.3 billion yen at the power substrate subsidiary, 9.2 billion yen at the SiP crucible subsidiary, and 4.7 billion yen at the wafer recycling subsidiary, to raise equity ratio to 49.5% and net asset ratio to 60.8%.

- Net sales and operating income reached record highs owing to strong sales of semiconductor materials, parts cleaning, power semiconductor substrates, etc.

Net sales

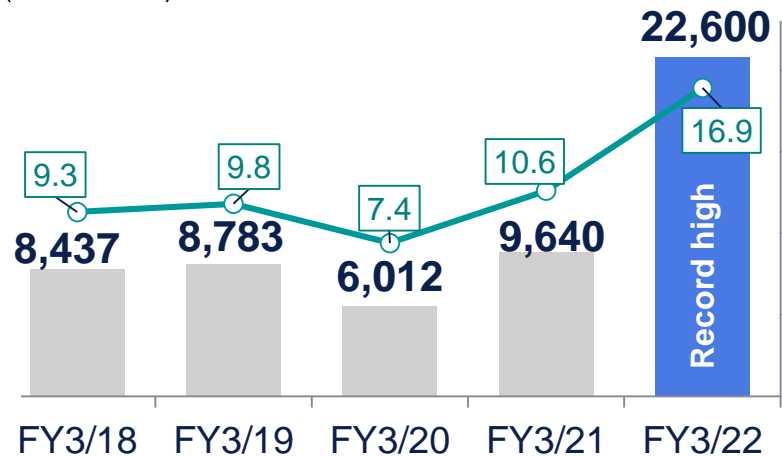
(¥ in millions)



Operating income

(¥ in millions)

■ Operating income ● Operating margin

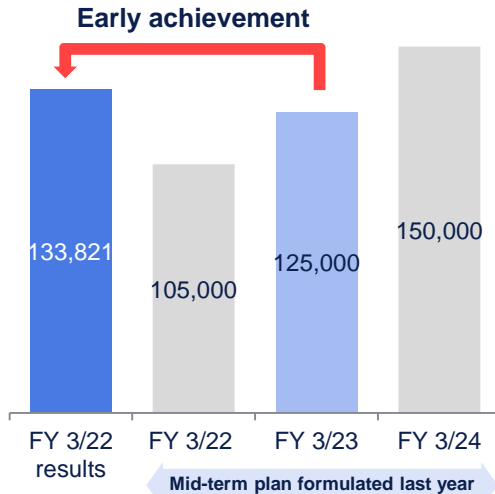


Achieved key mid-term plan targets ahead of schedule

- Achieved key performance targets for FY3/23 in the mid-term management plan, which was formulated last year, one year ahead of schedule.
- Our company's growth has been significantly faster than the assumption of the mid-term management plan disclosed last year thanks to the combination of increased production capacity and a sharp increase in demand.

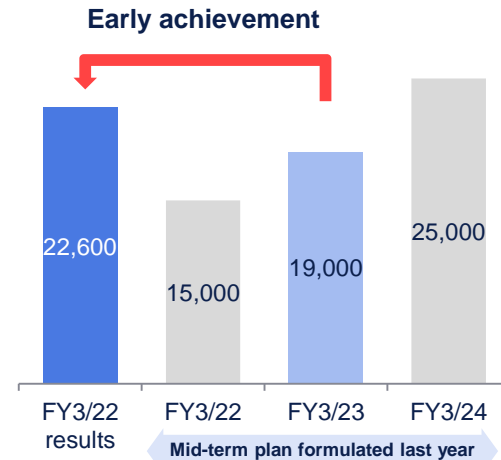
Net sales

(¥ in millions)



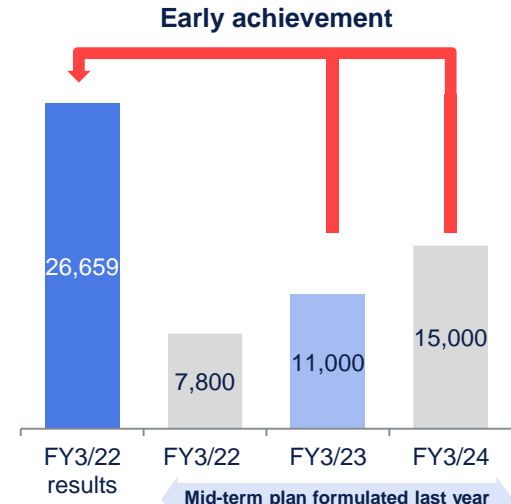
Operating income

(¥ in millions)



Net income

(¥ in millions)

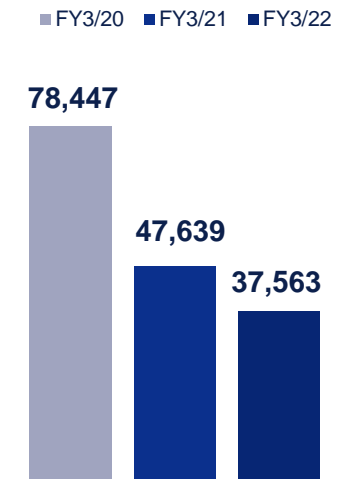


- Major management indicators are improving significantly as demand is strong and the subsidiary in the silicon wafer business was excluded from the scope of consolidation.

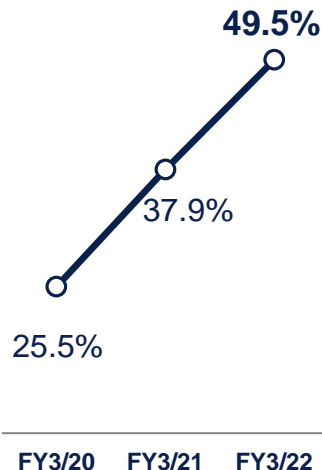
Variations in key indicators

(¥ in millions)

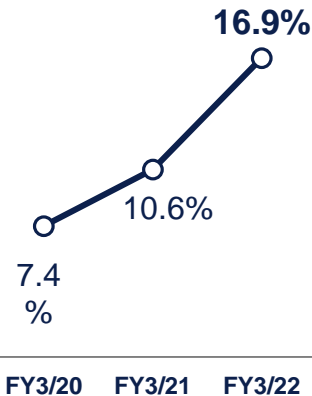
Interest-bearing debt



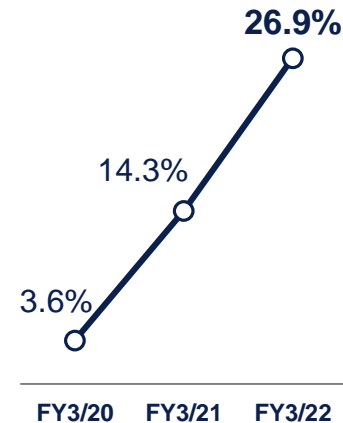
Equity ratio



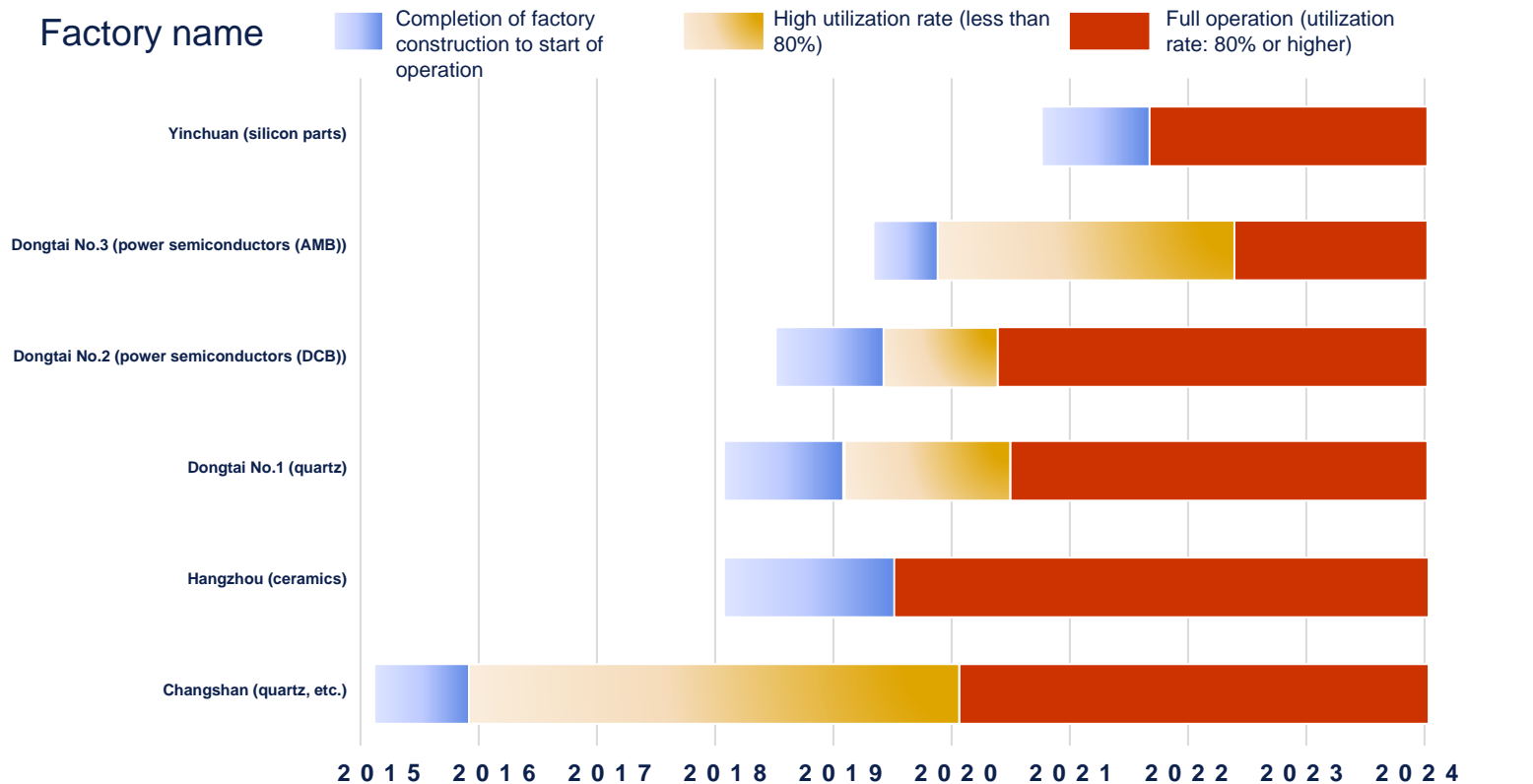
Operating margin









ROE



Recent launch and operation status of factories in China



•Cooperating in government measures to prevent infection, we continued production in accordance with the semiconductor industry protection policy.

Procurement	Production	Shipping
<ul style="list-style-type: none"> ▪ Delays were seen in the arrival of raw materials and parts, which are transported mainly via the the Port of Shanghai. <p style="text-align: center;">▼</p> <ul style="list-style-type: none"> ▪ Raw material inventories were increased in advance ▪ Obtained a special pass through negotiations with the city government, etc. <p>(Enjoying the benefits of the semiconductor industry protection policy)</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Truck disinfection and unloading</p>	<ul style="list-style-type: none"> ▪ Strict travel restrictions are imposed in each region and in some cases, travel between home and factory is not possible. <p style="text-align: center;">▼</p> <ul style="list-style-type: none"> ▪ Factory members, including the management, were gathered and workers were temporarily stationed on the premises. Production continues with the on-site staff. <p>(Production in April was carried out as usual.)</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Production. Employees during operation.</p>	<ul style="list-style-type: none"> ▪ Export via the Port of Shanghai was temporarily suspended ▪ Travel between provinces or regions is also restricted <p style="text-align: center;">▼</p> <ul style="list-style-type: none"> ▪ Ports other than the Port of Shanghai were used. ▪ Obtained a special pass through negotiations with the city government, etc. <div style="display: flex; justify-content: space-around;">   </div> <p>Recreational activities at the factory</p>

•Impact of the invasion of Ukraine: Russian operations (2 subsidiaries) account for only a small percentage of the total.

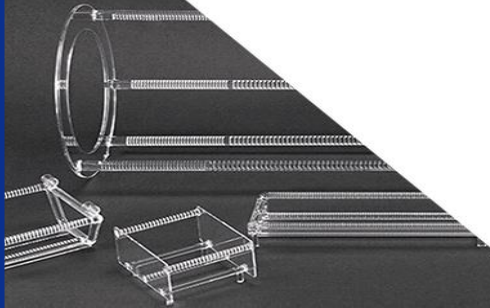
Annual sales of around 2 billion yen in Moscow; mainly manufactures and sells thermo-electric modules; alternative production in China is possible.



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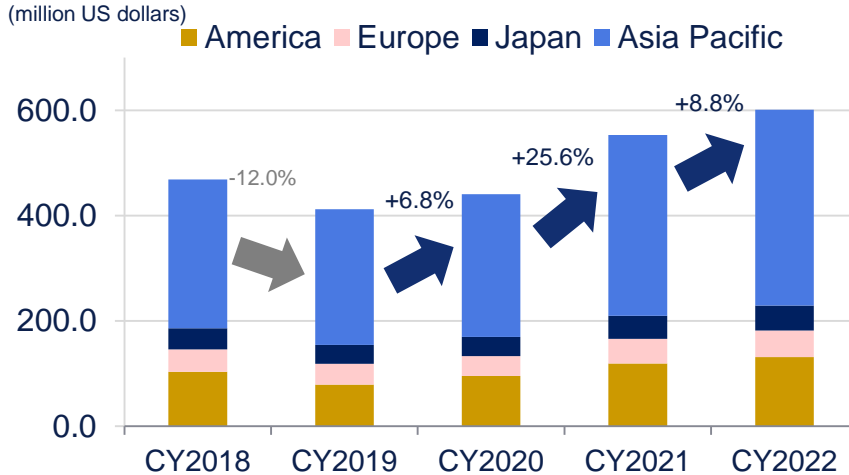
The market environment and our company's current status



The semiconductor market continues to be strong, with growth in China exceeding expectations

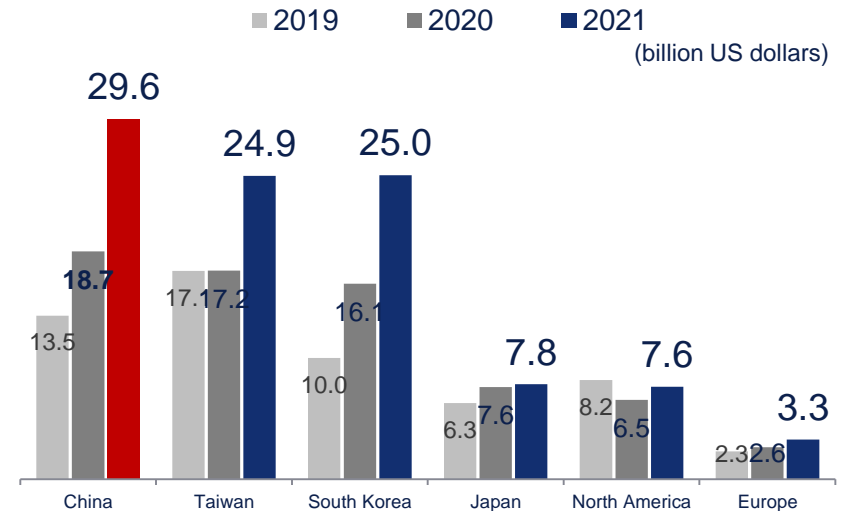
- Forecast for the semiconductor market in each region is +25.6% growth in 2021 and +8.8% growth in 2022.
- China, in particular, is expected to become the world's largest semiconductor market with a high growth rate of 58% year-on-year in terms of semiconductor manufacturing equipment sales.

Market forecast in each region



	CY2018	CY2019	CY2020	CY2021	CY2022
Total IC	468.8	412.3	440.4	552.9	601.4

Global sales of semiconductor manufacturing equipment



*Prepared by our company based on the release dated April 13, 2022 by SEMI.

*Prepared by our company based on the data published by the WSTS Japan Council (Dec. 2021).

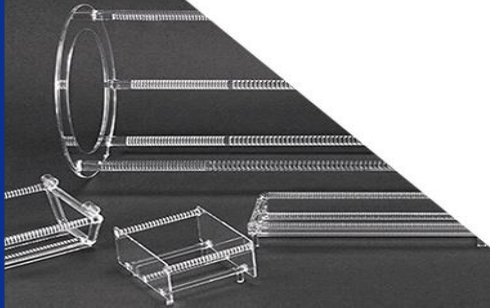
*CY = Calendar year (CY2022 = 2022)



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Update of the Mid-Term Management Plan



- The final year of the mid-term management plan (FY3/24) is set to achieve a 53% increase in net sales and a 40% increase in net income* compared to the previous plan.
- Further growth is planned for FY3/25: Net sales of 290 billion yen, operating income of 52 billion yen, and net income of 27 billion yen.

Former plan	Performance targets as formulated last year (¥ in millions)			
	FY3/21 (actual)	FY3/22 (plan)	FY3/23 (plan)	FY3/24 (plan)
Net sales	91,312	105,000	125,000	150,000
Operating income	9,640	15,000	19,000	25,000
Operating margin	10.6%	14.3%	15.2%	16.7%
Net income	8,280	7,800	11,000	15,000



New plan	Updated performance Targets (¥ in millions)				Target value
	FY3/21 (actual)	FY3/22 (actual)	FY3/23 (forecast)	FY3/24 (plan)	FY3/25 (plan)
Net sales	91,312	133,821	180,000	230,000	290,000
Operating income	9,640	22,600	30,000	40,000	52,000
Operating margin	10.6%	16.9%	16.7%	17.4%	17.9%
Net income	8,280	26,659	17,000	21,000	27,000

- Raise investment (cumulative total from FY3/22 to FY3/24) from 95 billion yen to 180 billion yen.
- Maintain plan to raise equity ratio to over 40% and raise shareholder returns (annual dividends)

Former plan	FY3/21 (actual)	Performance targets as formulated last year (¥ in millions)			Cumulative total for 3 years
		FY3/22 (plan)	FY3/23 (forecast)	FY3/24 (plan)	
Investment amount	14,297	40,000	29,000	26,000	95,000
ROE	14.3%	15.0%			
ROIC	7.2%	8.0%			
Equity ratio	37.9%	Over 40.0%			
Annual dividends	30.0 yen	28.0 yen			

New plan	FY3/21 (actual)	Updated performance Targets (¥ in millions)			Cumulative total for 3 years
		FY3/22 (actual)	FY3/23 (forecast)	FY3/24 (plan)	
Investment amount	14,297	35,378	73,622	71,000	180,000
ROE	14.3%	26.9%	Over 15.0%		
ROIC	7.2%	15.8%	Over 8.0%		
Equity ratio	37.9%	49.5%	Over 40.0%		
Annual dividends	30.0 yen	50.0 yen	70.0 yen	Mentioned later	

Note: The investment amount includes acquisition of tangible fixed assets, as well as M&A and investments under consideration.

Basic policy of thoroughly pursuing growth is unchanged and will be further accelerated

Business growth

Further acceleration of thorough pursuit of growth. Investment budget to be 180 billion yen (+85 billion yen)

- Newly established Changshan and Dongtai factories are in full operation, with strong requests from customers to increase capacity.
- Our market share and position in major businesses increased, our financial strength improved, and opportunities for IPOs of subsidiaries were also anticipated.
- To improve R&D functions in each business and strengthen the global production system (Malaysia and Japan)

Fortification of the financial standing

Progress in strengthening the financial base; capital procurement expected through IPOs of Chinese subsidiaries

- To ensure an appropriate balance between investment opportunities and the financial standing, and consider appropriate use of external capital
- To focus on net income and continue to strengthen investment return and ROIC management

Quality improvement

To strengthen quality control and accelerate digitization, automation, AI utilization, and visualization

- Continuing to strengthen quality control based on the belief that "quality is vital"
- Accelerate investment in digitalization and automation of production in parallel with expansion of production scale

Strengthening of personnel

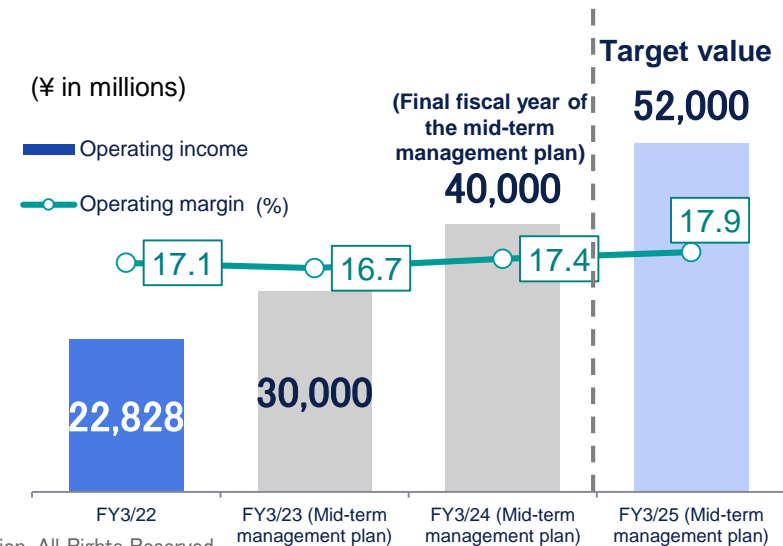
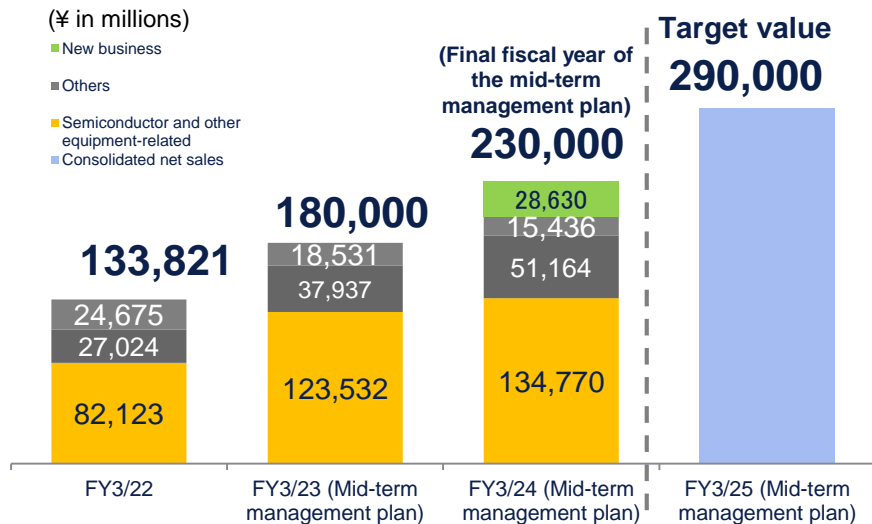
To accelerate the strengthening of organizations and human resources commensurate with business expansion

- Following the expansion of business scale, accelerate the strengthening of human resources in technology, business and management, and skilled workers to facilitate further growth
- Decided to establish a China headquarters to strengthen the organizational structure and human resources in China.

- As the semiconductor market is expected to keep growing for the foreseeable future, we aim to achieve net sales amounting to 290 billion yen in FY3/25.
- We will establish an optimal business portfolio, and aim to achieve an operating margin of 17.9% in the final fiscal year.

Target net sales: 230 billion yen
(FY3/25 target: 290 billion yen)

Target operating income: 40 billion yen
(FY3/25 target: 52 billion yen)

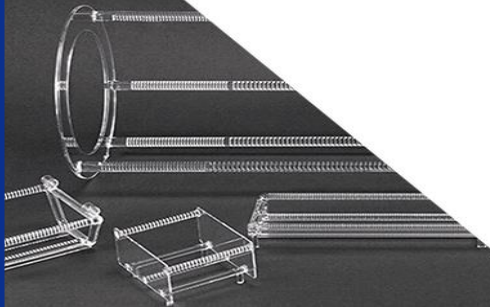




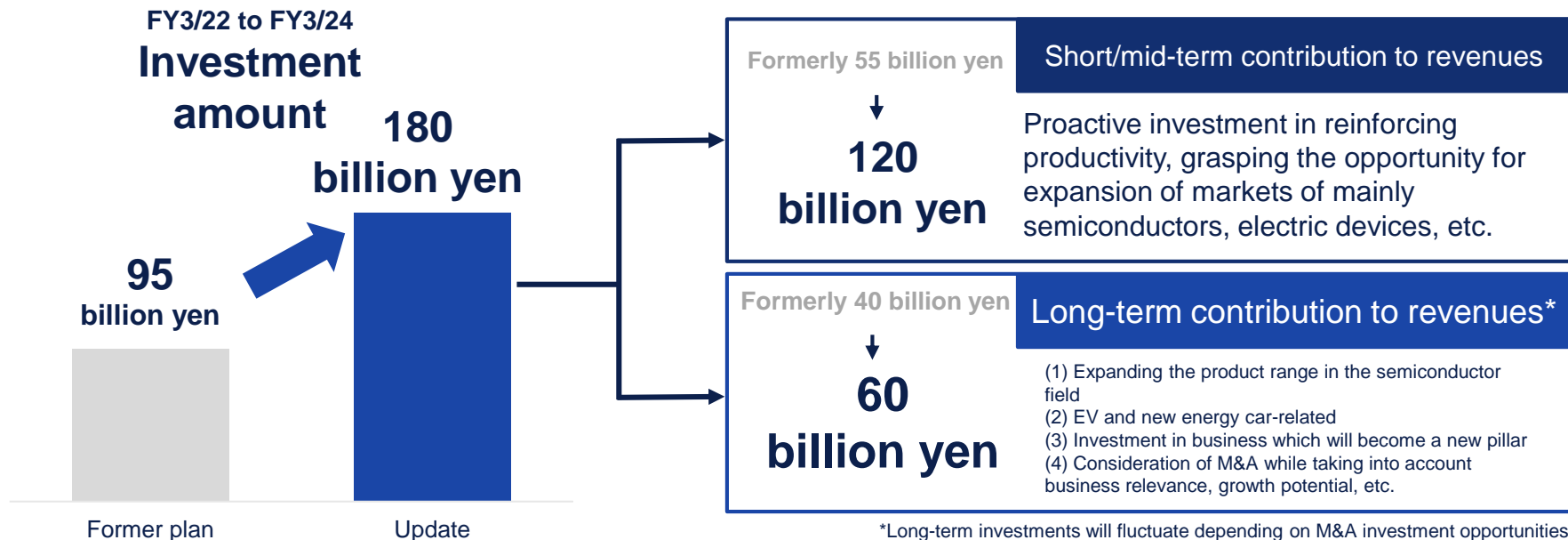
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Strengthening the investment plan



- Increasing the total investment amount in 3 years from 95 billion yen to 180 billion yen (including the funds for M&A)
- Forging ahead with proactive strategical investment not only for short-term and mid-term growth, but also for long-term growth in order to ensure potential for sustainable growth while grasping demand in the rapidly growing market

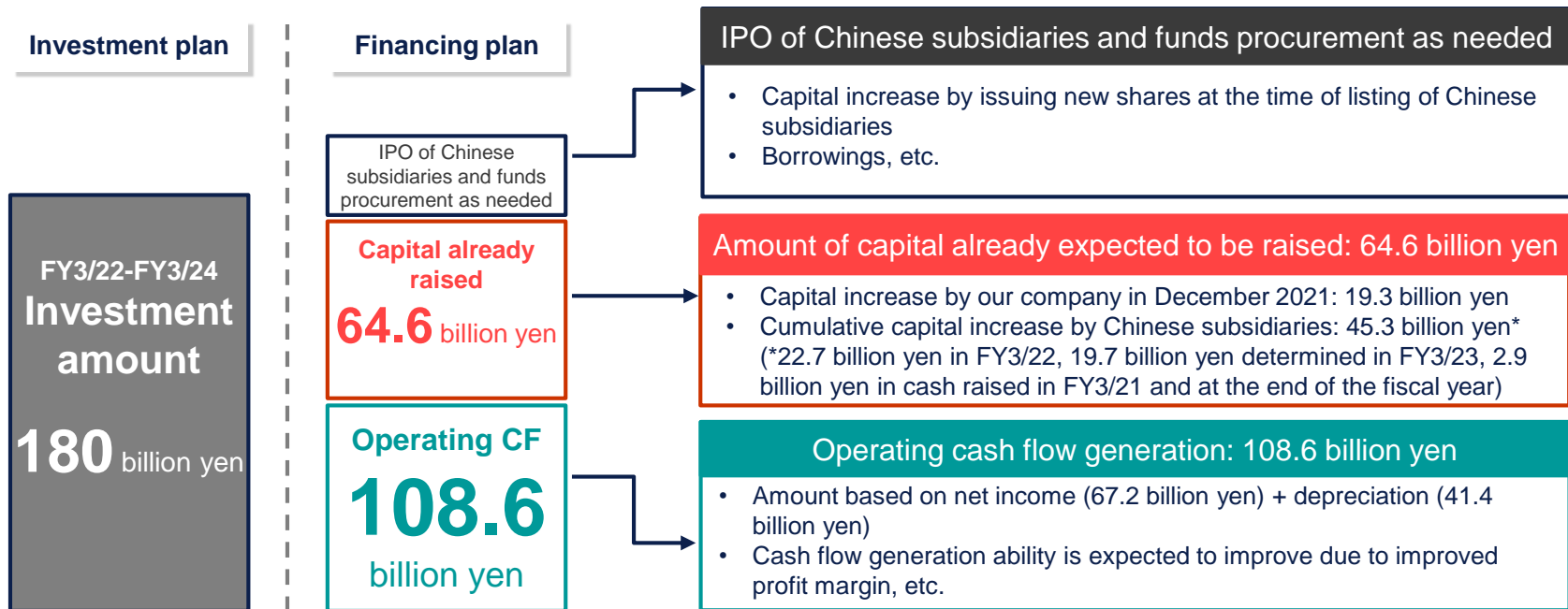


*Long-term investments will fluctuate depending on M&A investment opportunities.

*Consideration with the goal of ROIC above 5% within 3 years

Policy for procuring funds for investment

- The accumulated amount of capital increase to date is 70.3 billion yen, and the assumed accumulated amount of operating CF (net income + depreciation) over the three-year period is 173.2 billion yen.
- Our company expects that we will need to raise funds to deal with the increase in working capital, but even if the IPO of the Chinese subsidiaries is not factored in and the total amount is raised through borrowings from financial institutions, the company expects to maintain an equity ratio of 40% and a D/E ratio* of about 0.5.



Schedule of listing subsidiaries we assumed

- Our parts cleaning subsidiary passed the listing examination on May 6, and is scheduled to be listed during September to November 2022 (new shares with a 25% equity stake will be issued).
- The equity-method silicone wafer company will raise 3.3 billion yuan (56.5 billion yen) through a third-party allotment of new shares in 2021.

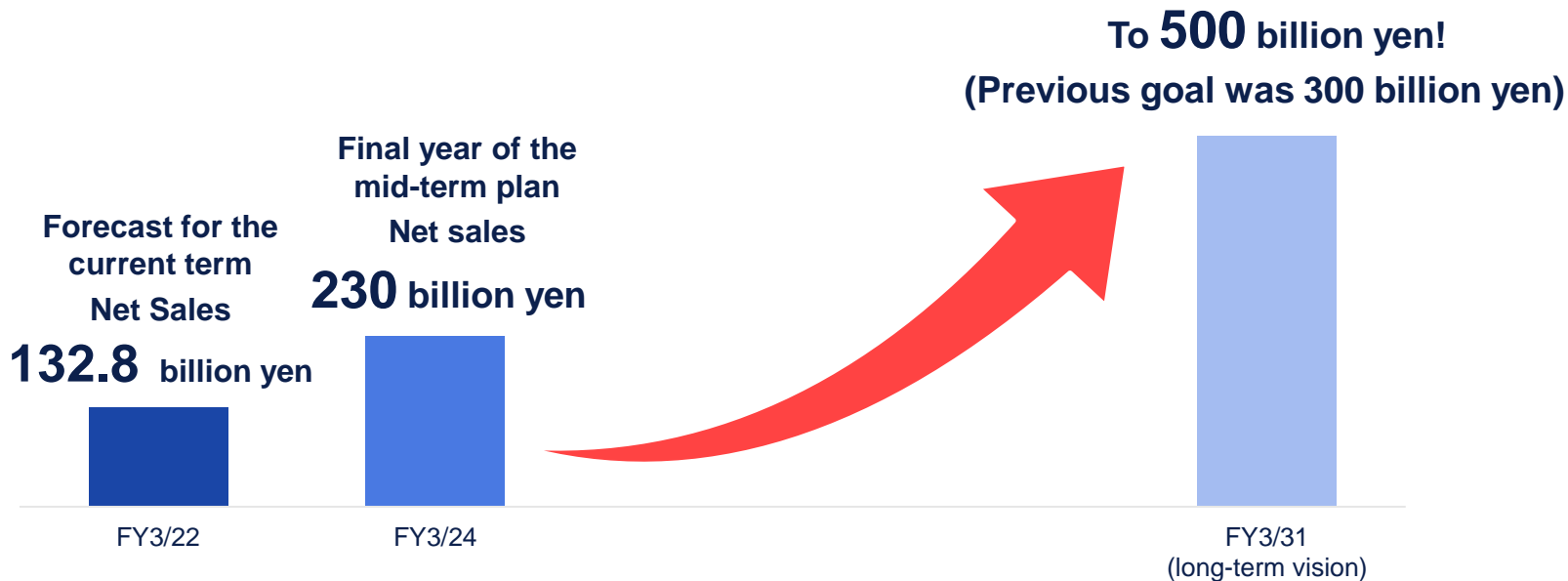
Business	Parts cleaning	Quartz crucibles and silicon parts	Power semiconductor substrates	Silicon wafer (equity method)	
Company name	Ferrotec (Anhui) Technology Development Co., Ltd.	Ningxia Duryuan Juxin Semiconductor Technology Corporation	Jiangsu Ferrotec Semiconductor Technology Co., Ltd.	Hangzhou Semiconductor Wafer Co., Ltd.	
Abbreviation	FTSVA	FTNC	FTSJ	CCMC	
Current investment ratio	66.98%	60.13%*	60.60%	23.05%	
Stock market	ChiNext, Shenzhen	STAR Market, Shanghai	STAR Market, Shanghai	STAR Market, Shanghai	
Listing advisor	Everbright Securities	Everbright Securities	Huatai Securities	Haitong Securities	
Most recent valuation (within 1 year)**	-	105.9 billion yen	105.8 billion yen	290.7 billion yen	
Percentage of new shares to be issued	25%	25%	25%	25%	
P r o g r e s s	Listing advisor registration	Aug. 11, 2020	Nov. 4, 2021	Feb. 23, 2022	Oct. 20, 2021
	Application	Jun. 28, 2021	Second half of 2022 (planned)	First half of 2023 (planned)	Middle of 2022 (planned)
	Passing the screening	May 6, 2022	-	-	-
	Official approval	Aug., 2022 (planned)	-	-	-
	Date of listing	Sep. to Nov., 2022 (planned)	1Q of 2024 (planned)	1Q of 2024 (planned)	1Q of 2023 (planned)

*FTNC's investment ratio is the figure after the capital increase through third-party allotment (disclosed on May 17, 2022).

**Values are calculated based on the share price at the time of the third-party allotment within the past year; FTSVA is omitted because there was no opportunity to evaluate the share price within the past year.

Strong performance trends led to the updating of long-term performance targets.

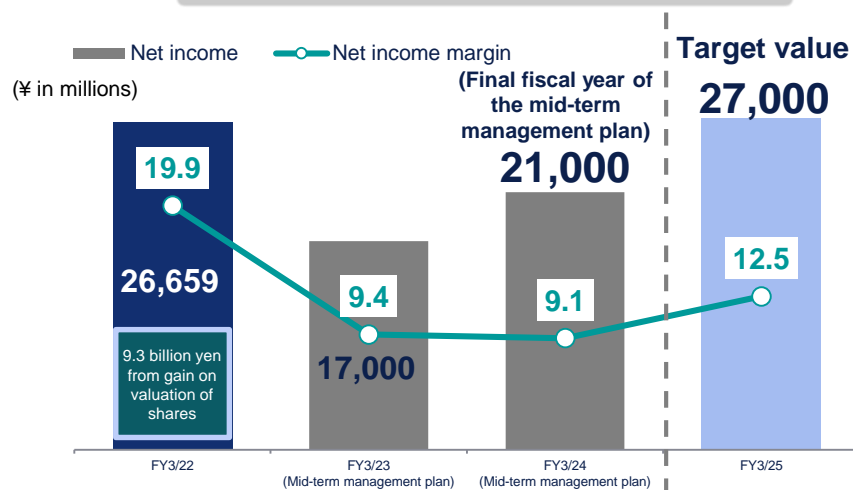
We aim to achieve net sales of **500** billion yen and a net income of **50** billion yen in **FY2030** (ending March 3031)!



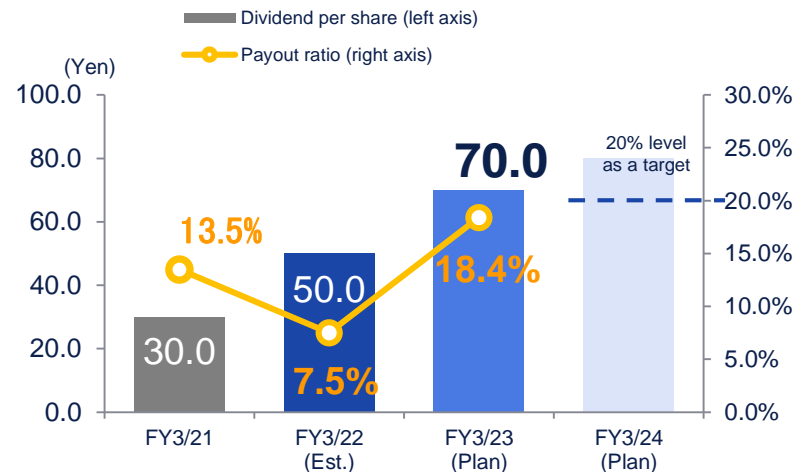
Dividend Policy

While the basic policy of increasing shareholder return through sustainable earnings growth remains unchanged, decisions on dividends will be made with an eye on a “payout ratio of 20%” and in consideration of the balance between financial and investment opportunities.

Target net income



Dividend target



*Net income refers to net income attributable to owners of parent.

Updated KPIs in the mid-term management plan

(¥ in millions)	3-year mid-term plan period			Target value
	FY3/22 (actual)	FY3/23 (forecast)	FY3/24 (plan)	FY3/25 (plan)
Net sales	133,821	180,000	230,000	290,000
Operating income	22,600	30,000	40,000	52,000
Operating margin	16.9%	16.7%	17.4%	17.9%
Net income	26,659	17,000	21,000	27,000
ROE	26.9%	Over 15%		
ROIC*	15.8%	Over 8%		
Equity ratio	49.5%	Over 40%		
Investment amount	35,378	73,622	71,000	
Dividend per share (annual)	50.0 yen	70.0 yen	Payout ratio of about 20%	

*Details of sales in FY3/25 (plan) in each segment and main products are not disclosed.

*ROIC = Net income attributable to owners of parent / (Interest-bearing debt + Net asset)

Net asset does not include share acquisition rights or non-controlling interests' equity.

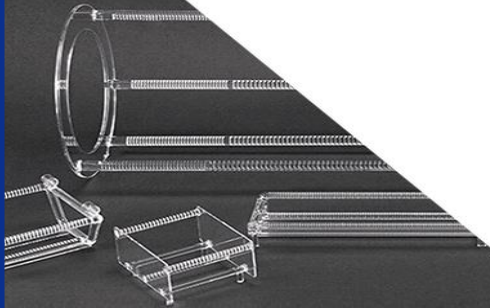
*Net income refers to net income attributable to owners of parent.



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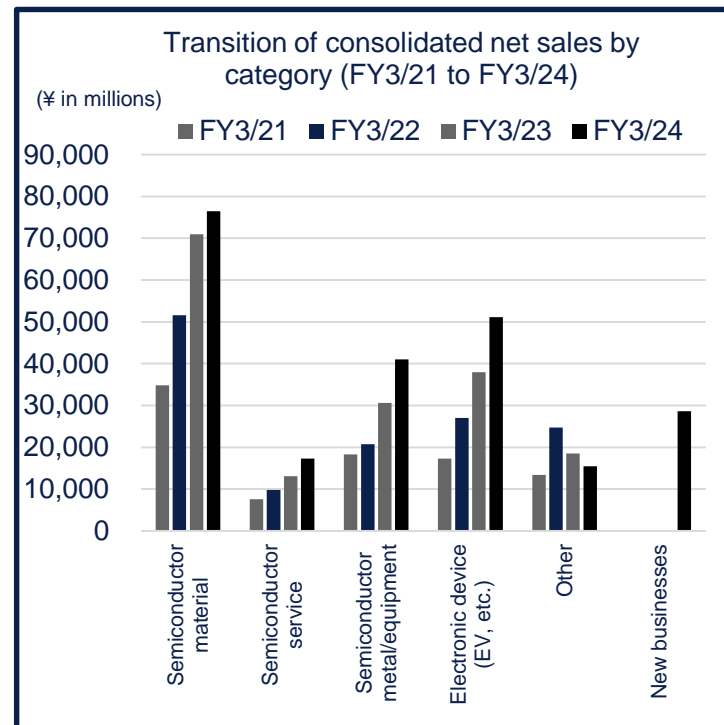
Updated targets for respective major businesses
and products



Target net sales by each category (FY3/24)

- Target net sales by each category until FY3/24 are disclosed.
- New businesses include businesses that cannot be categorized at this time, such as businesses at new business locations and M&A candidates.

	Category	Products	Results for FY3/22	FY3/24 (plan)	Increase/decrease rate
A	Semiconductor material	Quartz, ceramics, silicon parts, CVD-SiC, etc.	51,573	76,493	+48.3%
B	Semiconductor service	Parts cleaning, wafer recycling, etc.	9,829	17,269	+75.7%
C	Semiconductor metal/equipment	Vacuum feedthroughs, metal processing, deposition apparatus, etc.	20,721	41,008	+97.9%
A+B+C	Total of semiconductor Equipment-related	Total of material/service/semiconductor metal/equipment	82,123	134,770	64.1%
D	Electronic device (EV, etc.)	Thermo-electric modules, power semiconductor substrates, ferrofluid, etc.	27,024	51,164	+89.3%
E	Other	Blades, cleaning, other manufacturing equipment, etc.	24,675	15,436	-37.4%
F	New businesses*		-	28,630	-
A+B+C+D+E+F	Grand total (consolidated net sales)		133,821	230,000	+71.9%



*The strategic products are quartz, ceramics, CVD-SiC, and silicon.



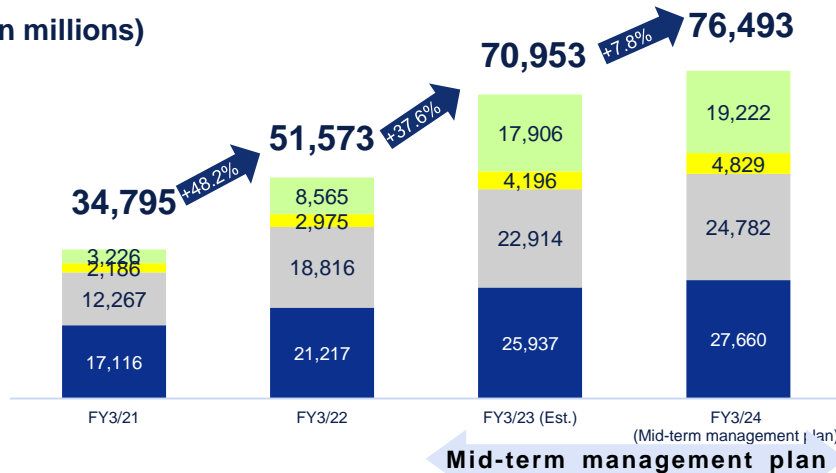
Target sales growth 2 years from now (FY3/24): 48.3%

- Sales increased significantly in FY3/22, up 48.2% year-on-year.
- The semiconductor market is expected to remain healthy due to digitalization-related investment, expanding demand for EVs, etc.
- As for semiconductor materials, the **demand for consumable materials** is strong, so the ratio of linkage to the **production operation rate** of semiconductor manufacturers is high (some are **investment-linked ones**).
- The wafer fab equipment (WFE) market is estimated to grow year by year after 2022, so we will respond to an increase in demand by **strengthening production capacity for materials as needed**.

Variations in sales

■ Quartz ■ Ceramics ■ CVD-SiC ■ Silicon

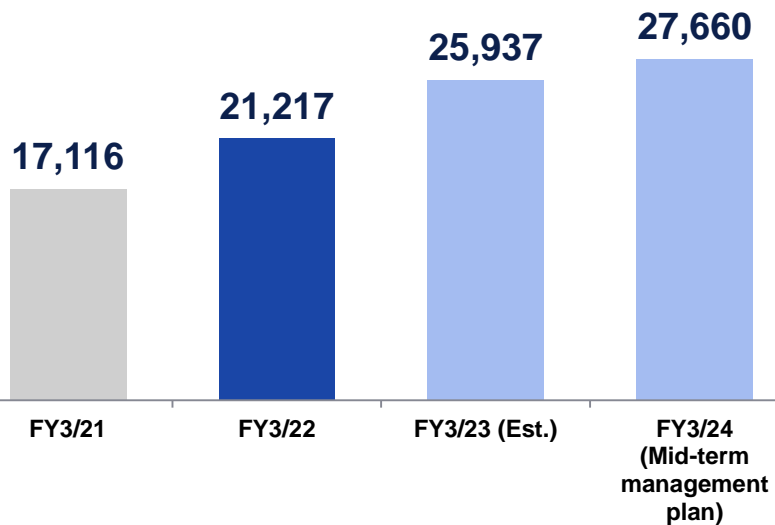
(¥ in millions)





Variations in sales

(¥ in millions)



Target sales growth 2 years from now (FY3/24): 30.4%

- Sales increased in FY3/22, up 22.2% year-on-year.
- In addition to a high level of new investment by semiconductor manufacturing equipment manufacturers and device manufacturers, the demand for consumables is remarkably firm.
- The semiconductor manufacturing equipment market is estimated to grow in 2022 and 2023.
- We have established a system for increasing production output with factories in Hangzhou and Changshan, Zhejiang and Dongtai, Jiangsu, China, and Yamagata City, Japan.
- In response to requests from customers in Southeast Asia, we plan to produce products **at a new site in Malaysia**.



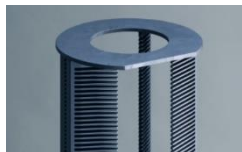
Pyro-processing of quartz by veteran engineers



Machining of quartz, whose production amount will be increased

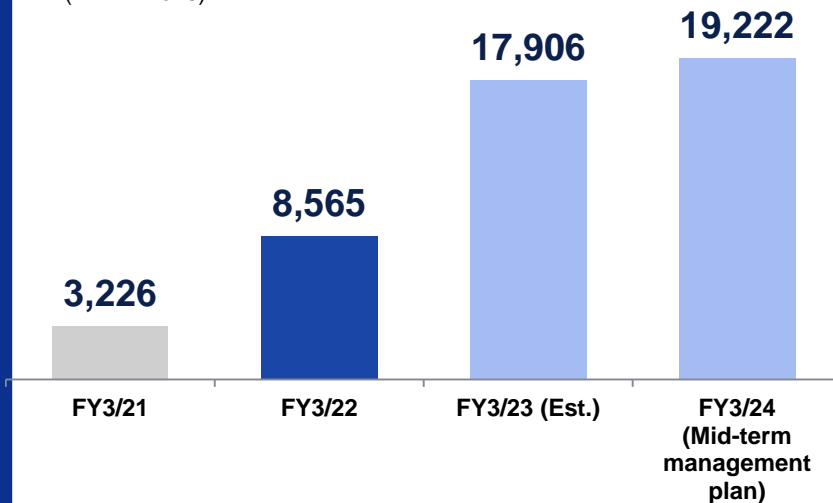
Map of factories for quartz in Japan and China





Variations in sales

(¥ in millions)



Target sales growth 2 years from now (FY3/24): 124.4%

- Sales increased significantly in FY3/22, up **165.5%** year-on-year.
- As miniaturization of parts in the semiconductor process is progressing, the demand for switching to high-purity silicon parts with the same thermal expansion coefficient as silicon wafers is growing.
- To meet the demand from semiconductor manufacturing equipment manufacturers and device manufacturers, the subsidiary that manufactures these products (Yinchuan) allocated new shares to third parties, to boost its production capacity.
- We built factories in Yinchuan, Ningxia, Hangzhou and Changshan, Zhejiang, China.
- We are preparing for the listing of the subsidiary in Yinchuan that manufactures silicon parts and quartz crucibles in the Chinese market.

Injector



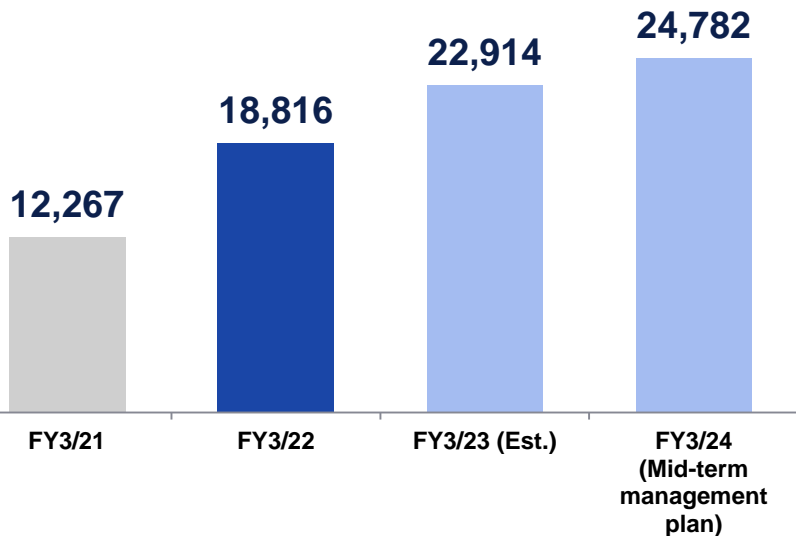
Focus ring





Variations in sales

(¥ in millions)



Target sales growth 2 years from now (FY3/24): 31.7%

- Sales increased in FY3/22, up 53.4% year-on-year.
- We are building the second factory in Ishikawa, with the aim of completing it in October 2022, to increase our capacity to produce fine ceramics and machinable ceramics in Japan.
- **In response to requests from customers in Southeast Asia, we plan to produce fine ceramics at a new site in Malaysia.**

Fine ceramics (FC), accounting for about 80% of total sales

- Inside and outside Japan, the parts of semiconductor manufacturing equipment are selling well. In response, we are enhancing the production capacity at the factory in Hangzhou, Zhejiang, China.

Machinable ceramics (MC), accounting for about 20% of total sales

- The sales of ceramic parts of jigs for semiconductor inspection grew considerably inside and outside Japan. We will further enhance the sales of laser-processed (high value-added) products.

Hyogo: Development and mass-production of fine ceramics



Hangzhou in China: Mass-production of fine ceramics



Fine ceramics production scheduled to begin in **Changshan, China**

Ishikawa: Mass-production of machinable ceramics



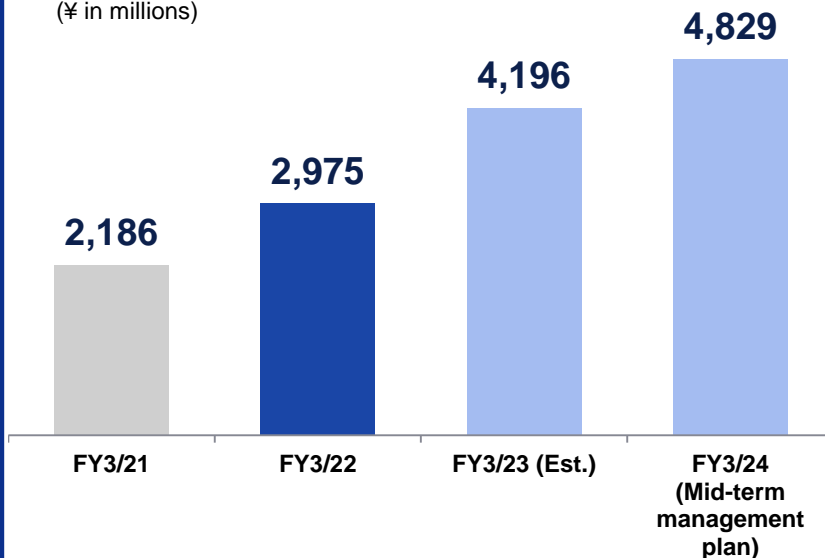
Ishikawa: Development of fine and machinable ceramics





Variations in sales

(¥ in millions)



Target sales growth 2 years from now (FY3/24): 62.3%

- Sales increased in FY3/22, up 36.1% year-on-year, reflecting favorable market conditions.
- As for CVD-SiC, we have the advantage in developing “materials and technologies for processing and coating” in Japan. (Okayama Factory in charge of development and mass-production). We plan to add another building in Okayama to increase production.
- We are responding to the growth of demand for semiconductor manufacturing equipment in Japan and the U.S. and promoting the adoption of our products for new purposes, such as heat-treating furnaces and etcher parts.
- It is essential to increase production capacity in response to the mid-term growth of Chinese client companies.



In response to the increasing demand in the Chinese market, we plan to produce CVD-SiC in **Changshan, China.**

Okayama: Development and mass-production of CVD-SiC

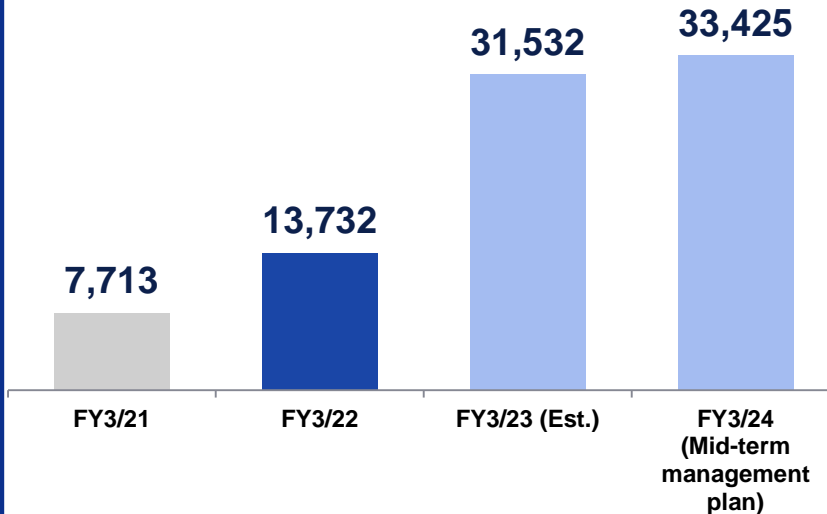


Situation of vacuum feedthroughs and metal processing products and the outlook



Variations in sales

(Note) Metal processing (U.S. portion) will be recorded as a semiconductor equipment-related business from FY3/23. (Previously recorded as "Other Businesses") (¥ in millions)



Target sales growth 2 years from now (FY3/24): 143.4%

- Sales increased in FY3/22, up 78.0% year-on-year, achieving a significant growth in sales.
- Regarding vacuum feedthroughs, the demand for new investments for semiconductor manufacturing equipment has been healthy.
- Mainly in the Chinese and U.S. markets, the business of undertaking the processing of metal to produce vacuum chambers, robot parts, etc. grew considerably.
- In China, we have manufacturing sites in Hangzhou and Changshan, and we plan to greatly increase the production capacity in Changshan, under the assumption that the business of undertaking the processing of metal will grow.

Production sites for vacuum feedthroughs and metal processing (current and future)

***More production planned in Japan and Malaysia** in response to increased demand in the metal processing business (**A large scale production increase is planned for the Changshan Factory**).



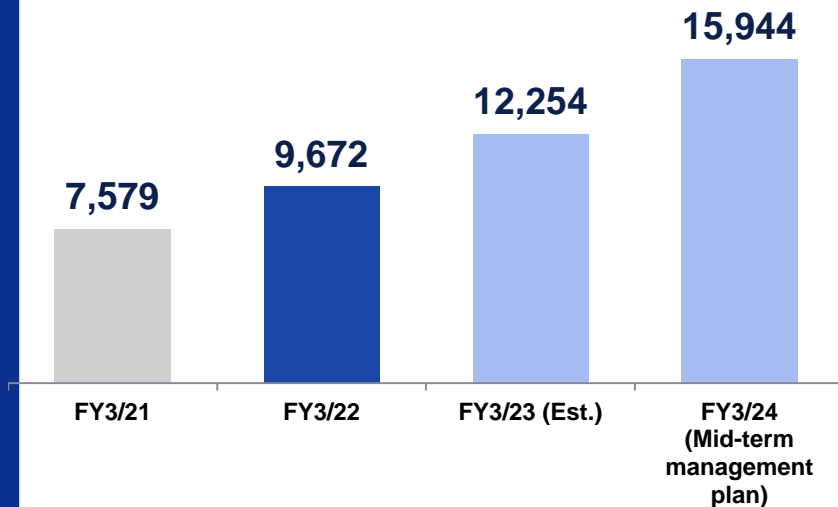
Metal processing

	Vacuum feedthroughs		Metal processing	
	Current	Future	Current	Future
U.S.	○	○	○	○
Japan	○	○	×	○
Hangzhou (China)	○	○	○	○
Changshan (China)	○	○	○	○
Malaysia	×	×	×	○



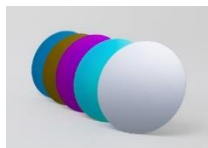
Variations in sales

(¥ in millions)



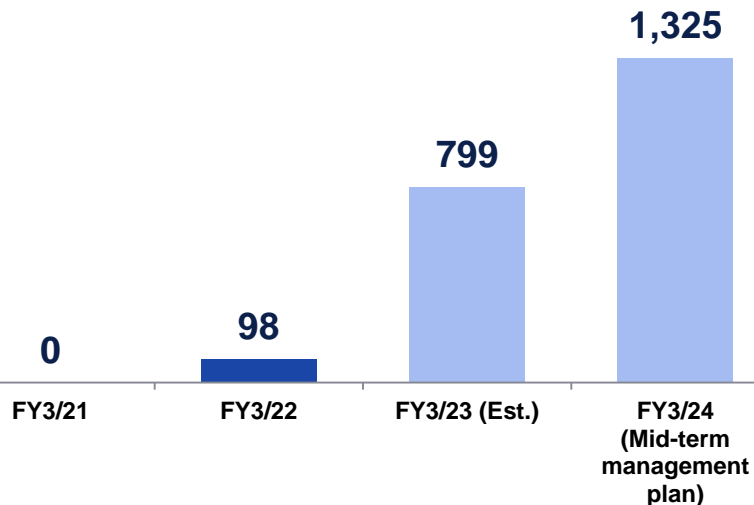
Target sales growth 2 years from now (FY3/24): 64.8%

- Sales increased in FY3/22, **up 27.6%** year-on-year.
- This business is targeted at the Chinese market. Its scale has been growing steadily year by year, in response to the expansion of demand mainly by **semiconductor manufacturers**.
- Since this business is **a recurring-revenue type that depends on clients' production operation**, like semiconductor materials, we can readily secure stable sales (**the business is expected to keep growing steadily**).
- Since we are increasing the cleaning volume with 5 bases and 9 factories (from 2022), **our market share in China is approaching 60%**.



Variations in sales

(¥ in millions)



Target sales for the final year (FY3/24): 1.3 billion yen



Wafer recycling factory built in Tongling, Anhui

- In FY3/22, launch, certification, and start of mass production: Net sales: 98 million yen
- **Due to the acceleration of domestic production of semiconductors in China**, the demand for wafer recycling rose sharply. Production will be increased step by step, mainly for 12-inch wafers, to meet strong customer demand, with plans to establish a system to produce 200,000 wafers/month in FY2023.
- Leveraging resources from the wafer business and know-how from the cleaning business. For the film removal process, we will form a technical alliance with a partner.
- Capital investment funds have been procured through two third-party allotments of new shares by the production subsidiary Ferrotec (Anhui) Changjiang Semiconductor Material Co., Ltd.



Wafer processing factory in Hangzhou, Zhejiang



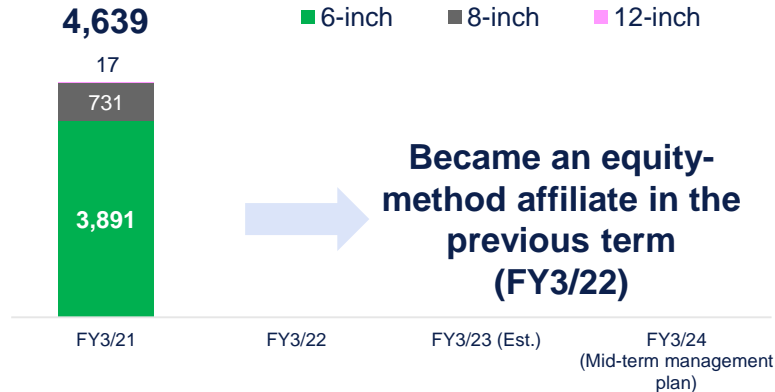
Epitaxial wafer processing factory, which is currently under construction in Lishui, Zhejiang (completion image)

*In Lishui, Zhejiang, CCMC established a factory for **processing epitaxial wafers** as a joint venture with governmental and private funds. (CCMC's investment accounts for 32%.) (Mass-production is scheduled to be started in the first half of FY2023, to produce 100,000 8-inch wafers/month and 200,000 12-inch wafers/month)

To manufacture 200,000 12-inch wafers per month

Variations in sales

(¥ in millions)

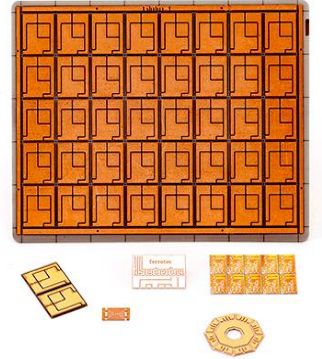


Became an equity-method affiliate in the previous term (FY3/22)

- Through the transfer of shares of the subsidiary producing semiconductor wafers (CCMC [former name: FTHW]) and the capital increase through third-party allotment, the shareholding ratio of our corporate group decreased to 23%. <The subsidiary became an equity-method affiliate in 4Q of FY3/21.>
- Due to strong demand for **6-inch products**, **our company plans to add 200,000 wafers per month** to its current production of 500,000 wafers per month (**700,000 wafers per month planned**).
- **We are strengthening the direct sales system of 8-inch wafers.** In Shanghai and Hangzhou, **we engaged in full-scale operation in FY2022. *The capacity is 450,000 wafers per month.**
- As for 12-inch wafers, we plan to increase the output from 70,000 wafers per month to 200,000 wafers per month (by the end of FY2023. The funds for capital investment will be procured through the capital increase through third-party allotment in China.)

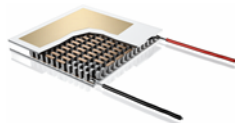
Ferrotec

Ferrotec Holdings Corporation



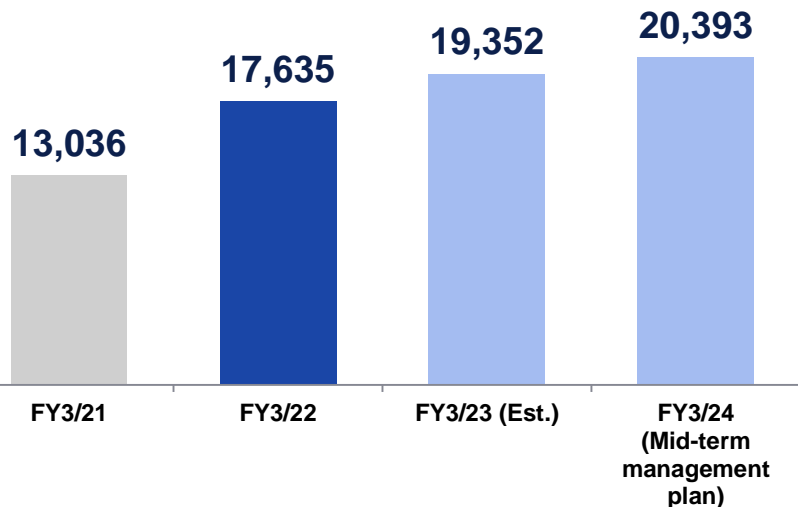
Goals for major businesses concerning electronic device business





Variations in sales

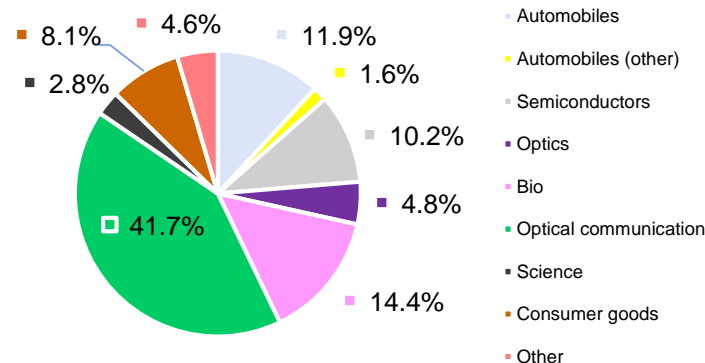
(¥ in millions)



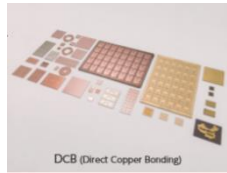
Target sales growth 2 years from now (FY3/24): 15.6%

- Sales increased in FY3/22, up 35.3% year-on-year.
- The thermo-electric modules for 5G communication devices are selling well, and the sales of products for bio-related equipment and semiconductors are growing.
- The sales of thermo-electric modules for automotive temperature control seats are declining. We aim to expand sales of products for exterior devices, such as cup holders, and products for components for important functions, such as cameras and sensors, which are used for autonomous driving.

Ratios of purposes of use of thermo-electric modules in FY3/22

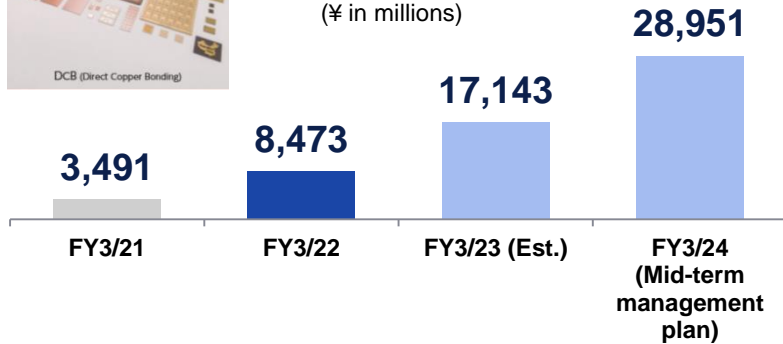


Situation of insulated substrates for power semiconductors and the outlook



Variations in sales

(¥ in millions)



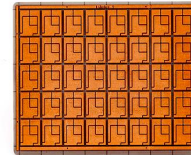
We plan to produce insulated substrates in **Neijiang, Sichuan Province, China.**

*A research institute for power semiconductors was built in Dongtai in 2022.

Target sales growth 2 years from now (FY3/24): 241.7%

- Sales increased in FY3/ 22, up **142.7%** year-on-year (demand for power devices is growing rapidly).
- We are preparing for the listing of the subsidiary** in Dongtai, Jiangsu **in the Chinese market.**
- A research institute for power semiconductors** was built in Dongtai in 2022.
- The power semiconductor substrate factory in Dongtai is expanding its production capacity, and sales are estimated to keep growing in the next and following terms. (We are planning to increase the monthly production capacity of the Shanghai and Dongtai factories **from 1.1 million DCB substrates to 1.6 million DCB substrates, and from 200,000 AMB substrates to 450,000 AMB substrates.**)
- We will actively apply DPC substrates with high heat resistance and high strength to the products for optical communication, power LED products, etc.

As the demand for in-vehicle devices grew, the demand for AMB substrates increased. DPC substrates was launched in FY2021



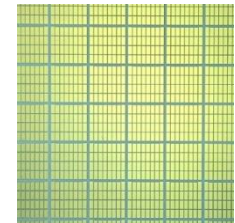
DCB substrates
(Direct Copper Bonding)

Material: Alumina ceramics



AMB substrates
(Active Metal Brazing)

Material: Silicon nitride



DPC substrates
(Direct Plated Copper)

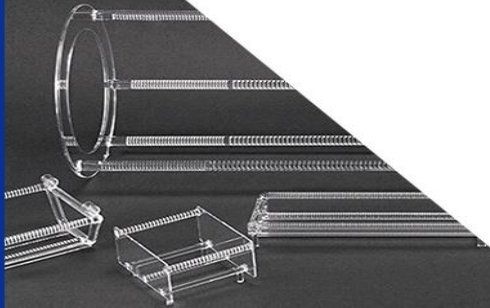
Material: Alumina ceramics, etc. + metalization (Ni, etc.)



Ferrotec
Ferrotec Holdings Corporation



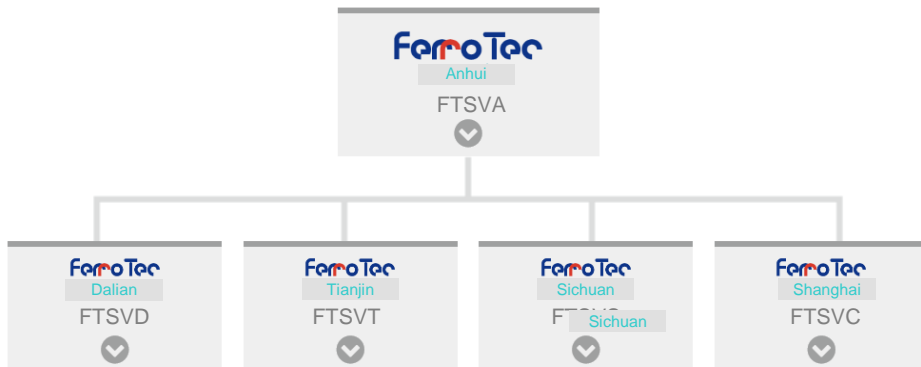
Recent topics
New business initiatives, etc.



- We are preparing for the listing of the subsidiary in Tongling, Anhui in the Chinese market. (To be listed on ChiNext of the Shenzhen Stock Exchange during September to November 2022.)
- We are increasing our production capacity for Chinese clients of semiconductors and FPDs (in Tongling, Neijiang, and Guangzhou).

★ For the equipment parts cleaning, we restructured our organization with the factory in Tongling, Anhui controlling the other factories.

★ To offer meticulous services in the vicinity of client facilities (5 bases and 7 factories → 6 bases and 9 factories in 2022 or later)



*We established a new subsidiary named Ferrotec (Guangzhou) Technology Co., Ltd.

Started production in the SiC (Silicon Carbide) business as a joint venture with the Chinese Academy of Sciences and government and private funds

SiC (silicon carbide) wafers (non-consolidated)



◆ We established a joint venture with the Shanghai Institute of Ceramics, Chinese Academy of Sciences (SICCAS) and government and private funds in Tongling City, Anhui Province in October 2020. We will develop and manufacture SiC (silicon carbide) single crystal ingots and wafers, whose market is expected to grow as they will be used for the most advanced semiconductors (third generation semiconductors) in China. *Completion ceremony was held on October 29, 2021.

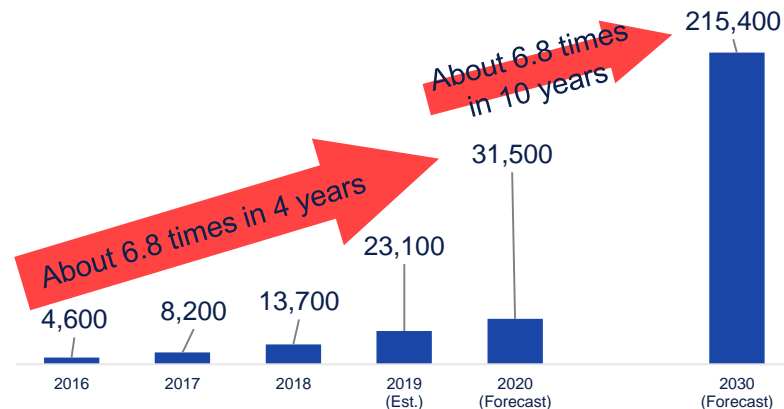


■ Current situation of the business as a joint venture

- Currently, the company has 110 units of front-end ingot manufacturing equipment and is working on prototyping and certification (plans to establish a system for producing 65,000 4-inch wafers per month).
- The demand is for 5G radio frequency components, power semiconductors for electric vehicles, medical equipment, etc.

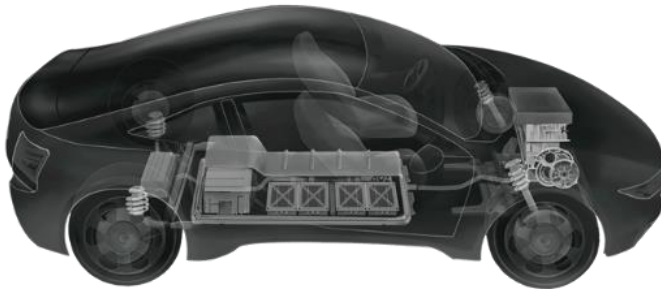
(¥ in millions)

Forecast for the scale of the SiC wafer market



*The graph is produced by our company with reference to the material of Fuji Keizai.

- With the advance of EVs (electric vehicles) and automated driving, automobiles are becoming more sophisticated and the number of semiconductors installed in them continues to increase.
- **Strategically expanding production capacity of power semiconductor substrates (mainly AMB) in response to the increased EV demand.**
- Full-scale cultivation of the domestic and Chinese markets in the automotive field, based on collaboration with Ohizumi Mfg., which excels at sensor technology.



Our products that can be used for in-vehicle devices

Ferrofluid

Power semiconductor substrates (mainly AMB substrate)

Thermo-electric module

- The forward-looking statements in this document are based on information available as of the date of publication of this document and assumptions concerning uncertain factors affecting future results.
- Actual results may differ materially from these forecasts due to various factors. Such factors include, but are not limited to, international conditions, economic conditions, product supply and demand trends, raw material prices, market conditions, and exchange rates.
- Quantitative targets and capital investments in these materials represent medium-to long-term strategies and visions, and are not performance forecasts. We undertake no obligation to update any information with respect to these matters.
- For official forecasts, please refer to the disclosure of financial results based on the Tokyo Stock Exchange Regulations.

<Inquiries>

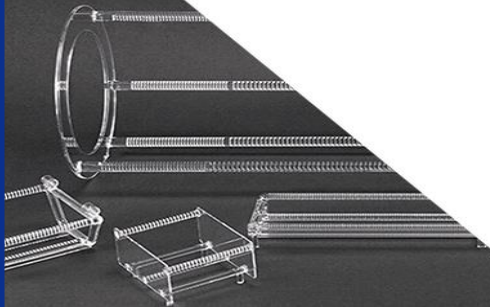
IR Office: 03-3281-8186



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Appendix



Jigs and consumables for semiconductor manufacturing equipment (our mainstay material products)



Quartz



Silicon parts



Ceramics



CVD-SiC

Our strengths: Not only capital investment-linked products (vacuum feedthroughs), but also a lineup of repeat consumables (materials) and services (cleaning and wafer recycling) linked to the production and operation of semiconductor device manufacturers



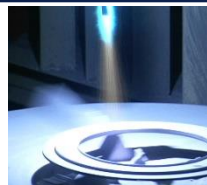
Vacuum feedthroughs

*Semiconductor and FPD production equipment parts (Market share: 65% (largest))



Metal precision machining

*Growth forecast due to increase in future customers (factories) in China



Equipment parts cleaning

*Focus on the Chinese market (Market share in China: 60% (largest))



Wafer recycling

*Focus on the Chinese market (New business to be launched in FY3/22)

Businesses at equity-method affiliates



Silicon wafers

*Monthly production capacity-6-inch: 420 thousand, 8-inch: 450 thousand, 12-inch: 30 thousand (increased from 100 thousand to 200 thousand)



SiC wafers

*Development and mass-production (New business to be launched in FY3/22)

Line-up of our electronic device-related products

Thermo-electric modules



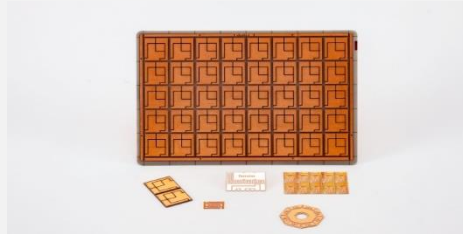
*As temperature adjustment devices, thermo-electric modules are increasingly used in the fields of automobiles, semiconductor manufacturing equipment, communications, medical biotechnology, consumer products, etc.
(Market share: 36% (largest))



Used for **DNA amplification (biotechnology)** to check the existence of pathogens that cannot be observed with a microscope (PCR methods)

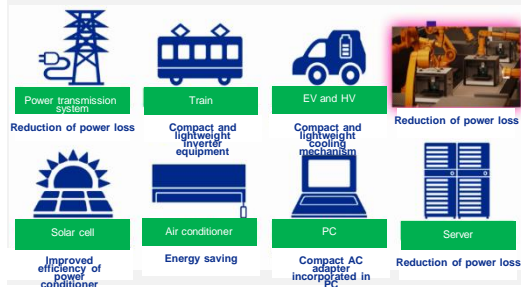
*Polymerase Chain Reaction

Power semiconductor substrates



*In response to **the global trend of power consumption reduction**, the demand from clients needing power semiconductors is growing. (DIRECT COPPER BONDING technology for bonding a copper circuit to an aluminum ceramics substrate)

Application of power semiconductors



Ferrofluid



*Used in a wider range of fields, including automobile speakers, high quality sound TV speakers, and smartphone vibration
(Market share: 80% (largest))



Adopted for **high-quality sound headphones**

*To stabilize vibration, to actualize deep bass and realistic sensation

Map of production bases of Ferrotec Group in China

Distribution of our factories in China



We will contribute to the growth of the market assuming domestic production and expand business by establishing production bases in the vicinity of major footholds of Chinese semiconductor enterprises and improving customer satisfaction.

- Quarts
- Silicon parts
- Ceramics
- CVD-SiC
- Parts cleaning
- Vacuum feedthroughs and metal processing
- Wafer recycling
- Thermo-electric modules
- Power semiconductor substrates
- Semiconductor wafers
- SiC wafers

Letters in red show major footholds of Chinese semiconductor enterprises.

- (1) Beijing
- (2) Shanghai
- (3) Wuhan
- (4) Hefei
- (5) Xian