



Financial Results

for 1st half of the Fiscal Year ending March 2023

日本発条株式会社(東証プライム市場 5991)
NHK Spring Co., Ltd.(5991/ TSE Prime Market)

NHK
NHK SPRING CO.,LTD.

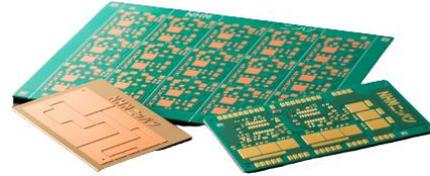
Message from CEO

President & CEO
Representative Member of the Board

Takashi Kayamoto

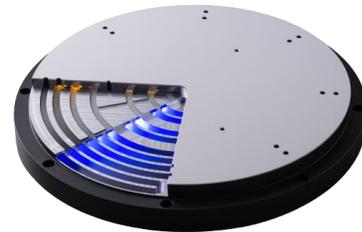
Recent Major Investments

IMS Integrated Metal Substrate



July 2022	Komagane Plant Capacity expansion	(1 billion yen)
February 2023	Acquisition of land adjacent to Komagane Plant	(approx.20000m ²)
September 2023	Komagane Plant Capacity expansion	(1 billion yen)
December 2023	New production building in Malaysia	(5 billion yen)

Semiconductor Process Components



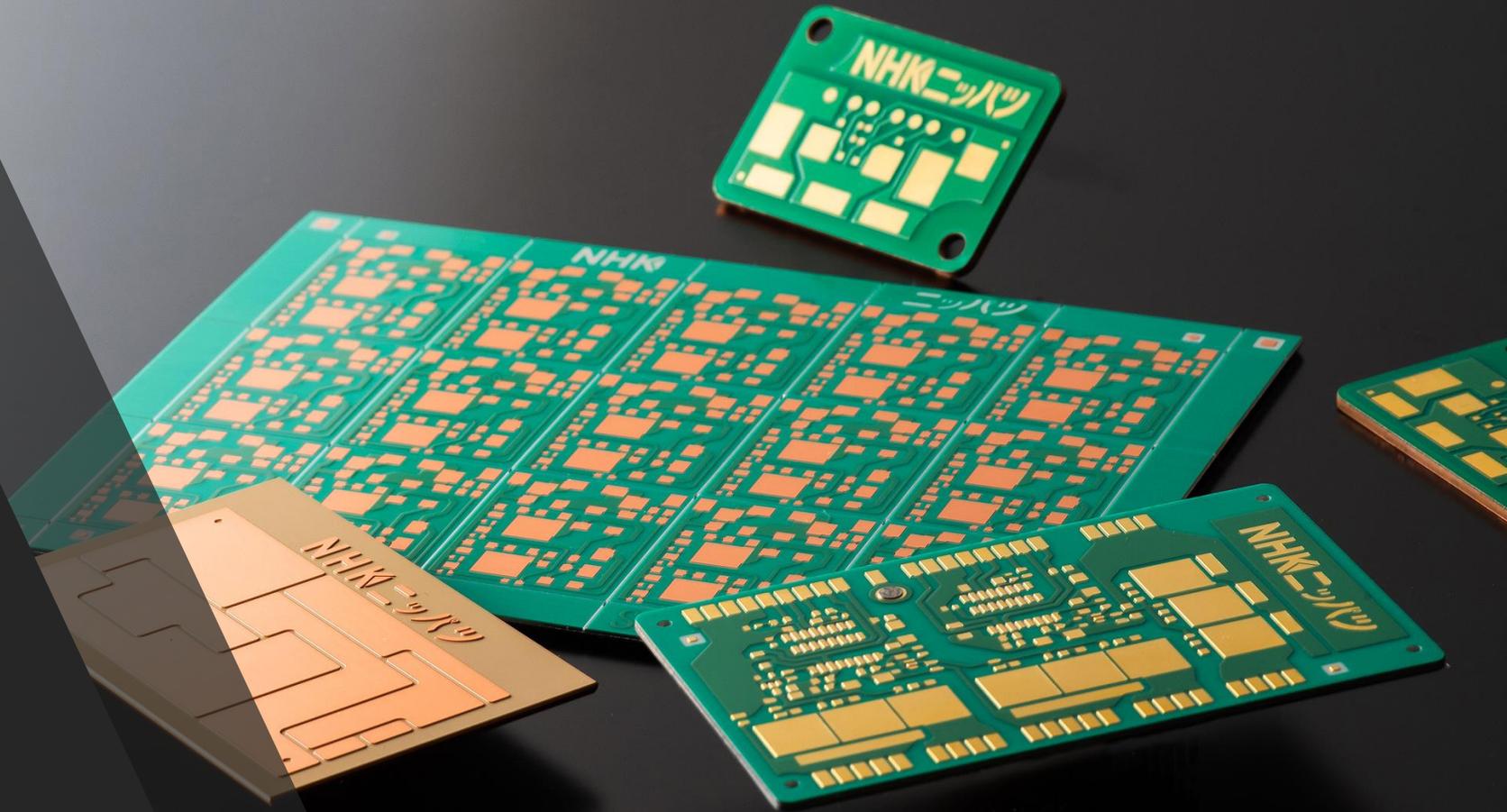
July 2022	Miyada Plant capacity expansion	(400 million yen)
October 2022	Miyada Plant capacity expansion	(900 million yen)
April 2024	Miyada Plant extension	(3.5 billion yen)

Motor Cores



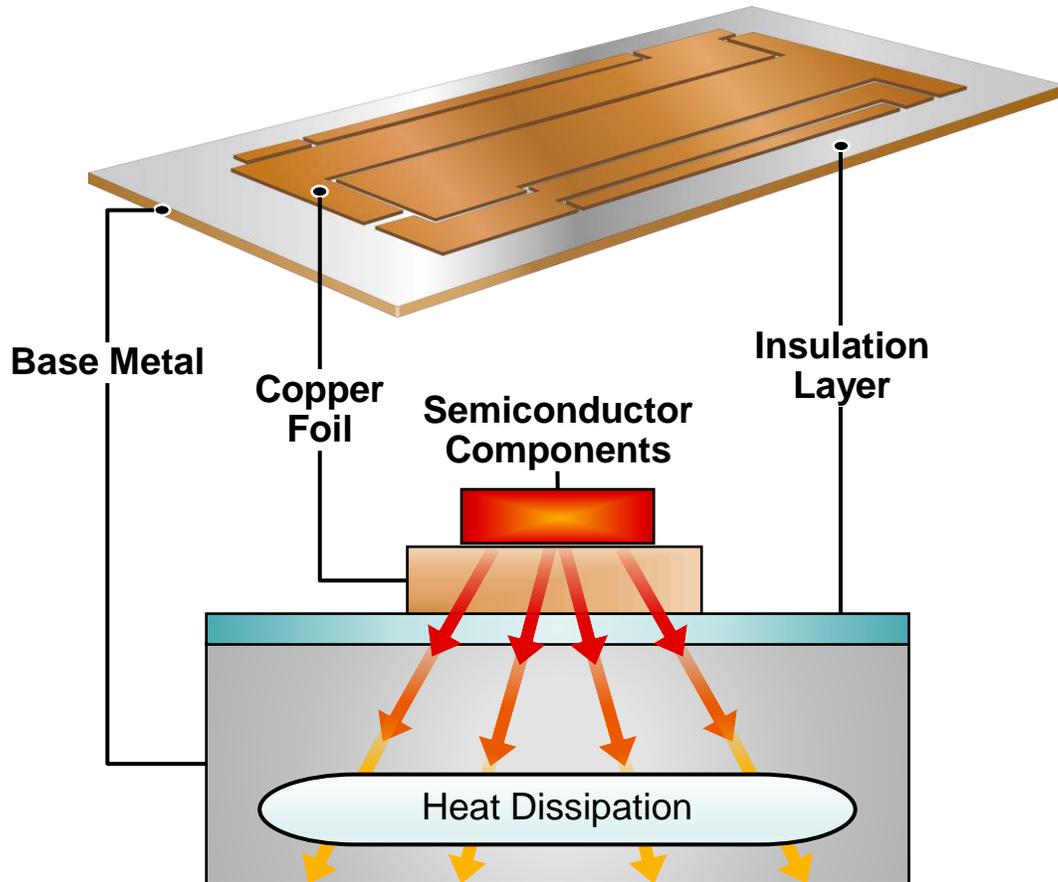
December 2022	Acquisition of land adjacent to NHK SPRING MEXICO (approx. 38,000 m ²)	
April 2023	Atsugi Plant Capacity expansion	(500 million yen)
October 2023	New production building at Atsugi Plant	(5 billion yen)
4th quarter 2023	China Plant: Capacity expansion	(1 billion yen)

IMS
Integrated
Metal Substrate



What is IMS

Substrate with high heat dissipation



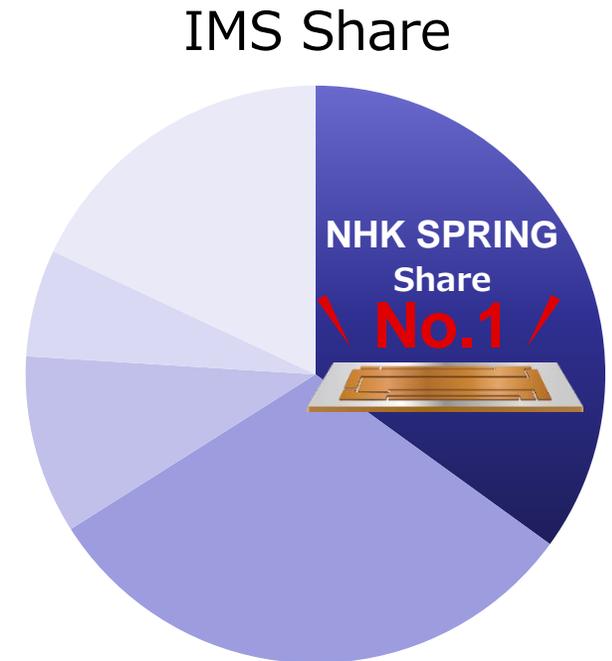
Circuits are formed via an insulating layer on metal base, such as aluminum or copper.

Efficiently dissipates heat generated by mounted semiconductor components.

High heat dissipation and widely used in industrial and consumer fields, mainly in automobile Applications.

High Efficiency、 High Reliability

- High heat dissipation
High thermal conductivity
High Performance
- High-precision thick copper circuit formation technology
- High reliability and market performance based on proprietary evaluation technology
- Two production sites in Japan and Malaysia



Sales Breakdown

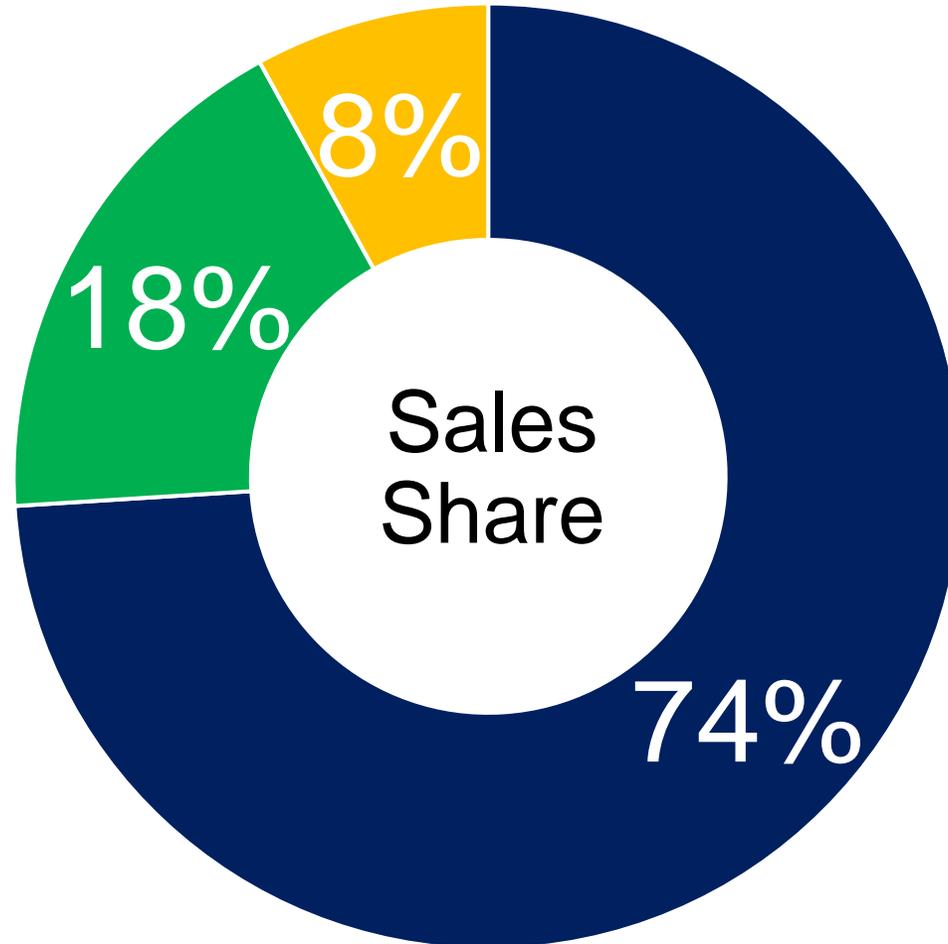
Approximately 70% of sales are for automotive applications

Consumer

LED lighting
Air-Conditioner

Industry

IGBT Module
Robot
Invertor



Automobile

LED Head Lamp
DC-DC Convertor
Charger
Electric Power Steering
Head Up Display
Meter Panel

Consumer



Air-conditioner



LED Lighting

IMS Applications

Industry



Robot



Solar Inverter

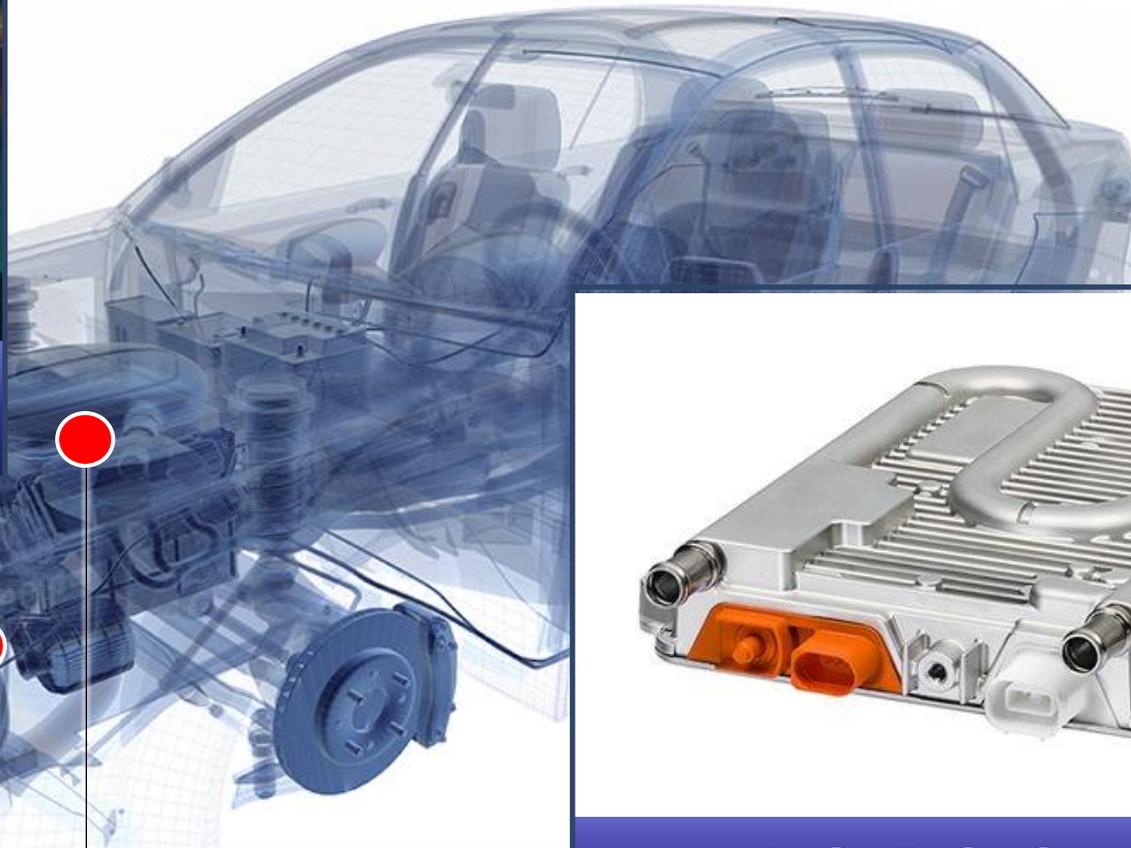


IGBT Module

Automobile



LED Head Lamp

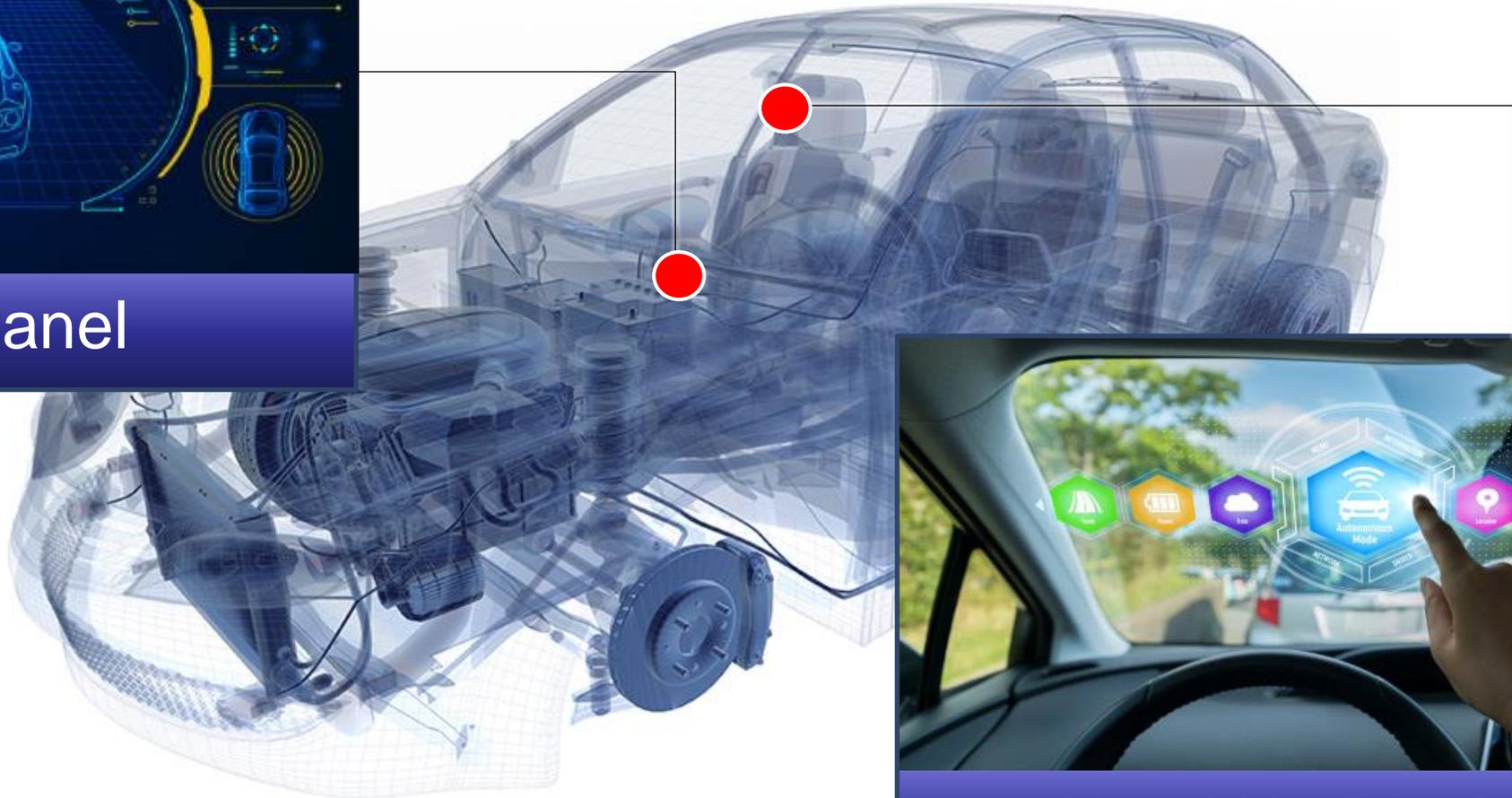


DC-DC Converter

Automobile



Meter Panel

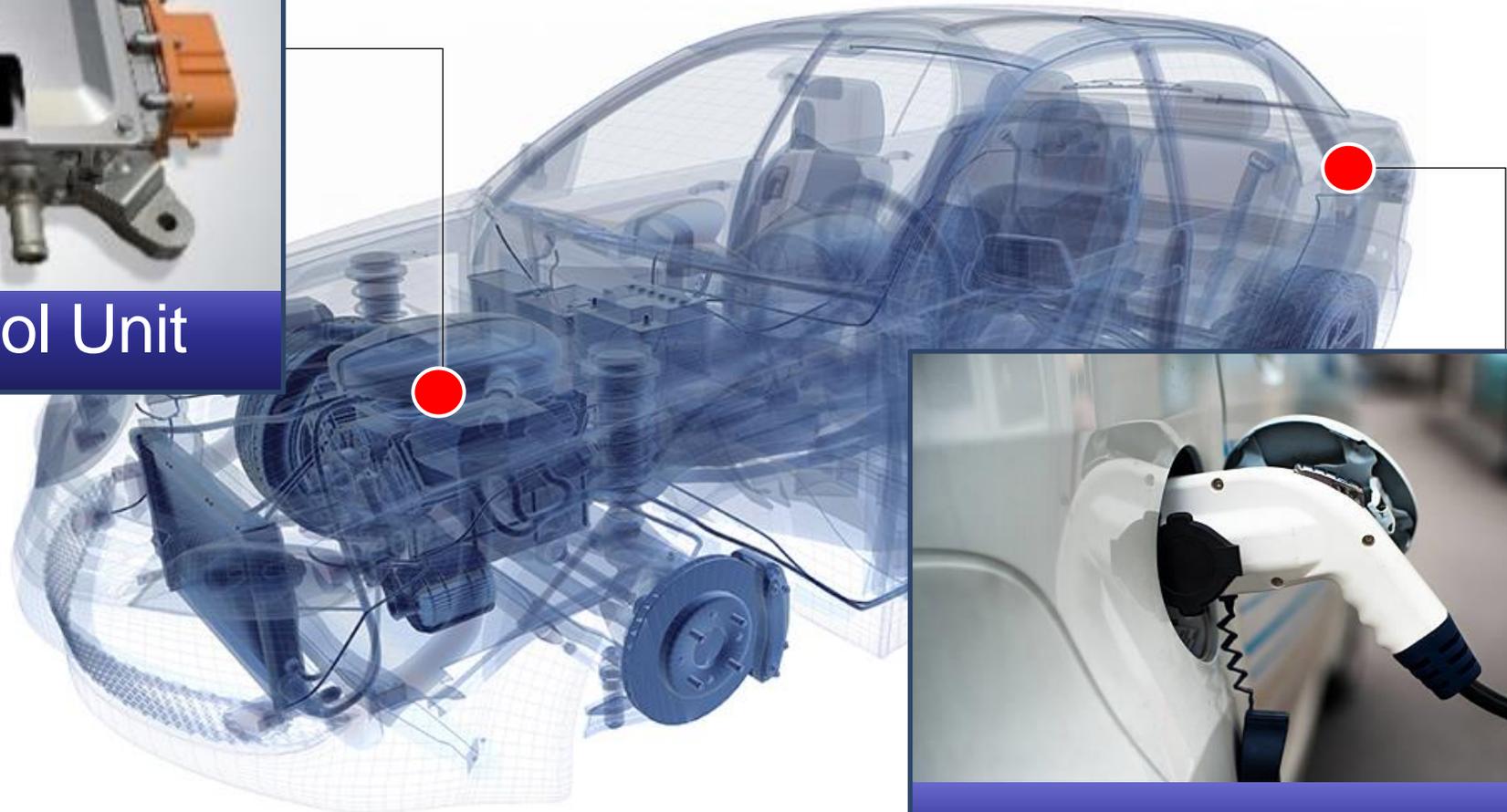


Head Up Display

Automobile



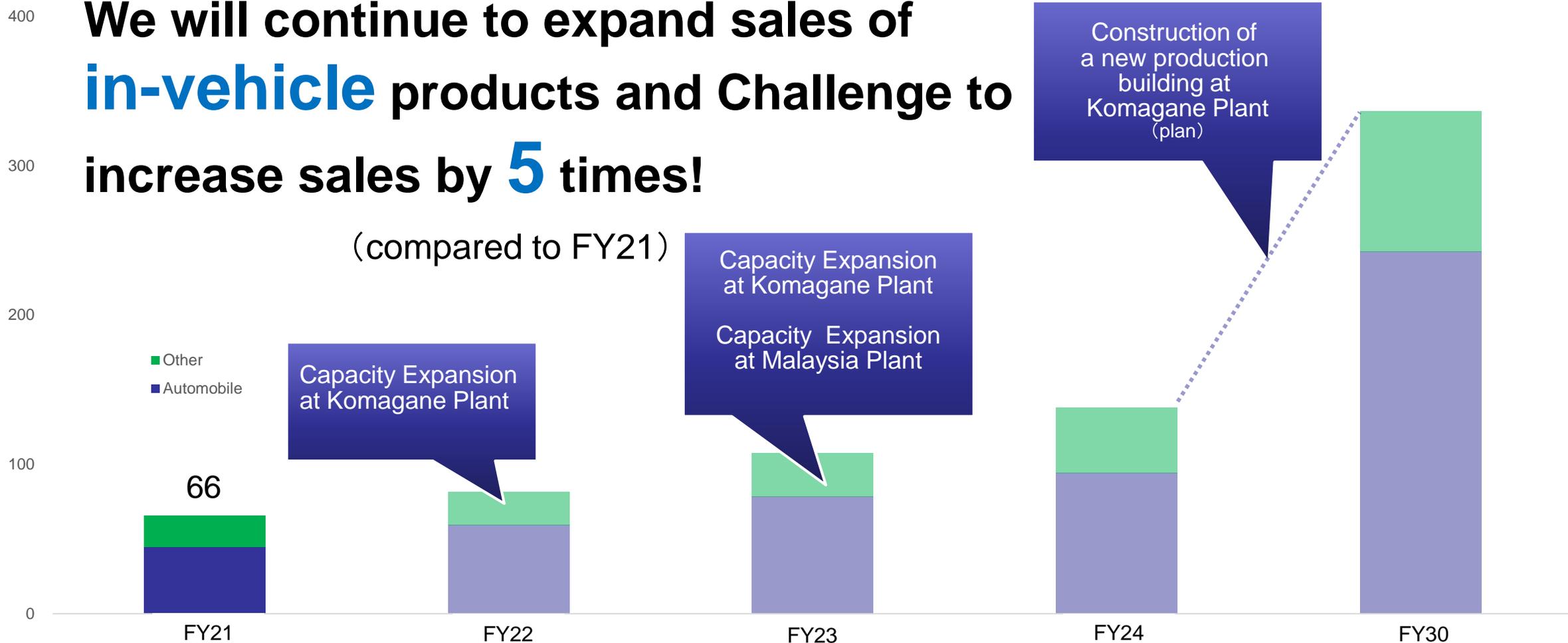
Power Control Unit



Charger

Aiming for sales over 30 billion yen !

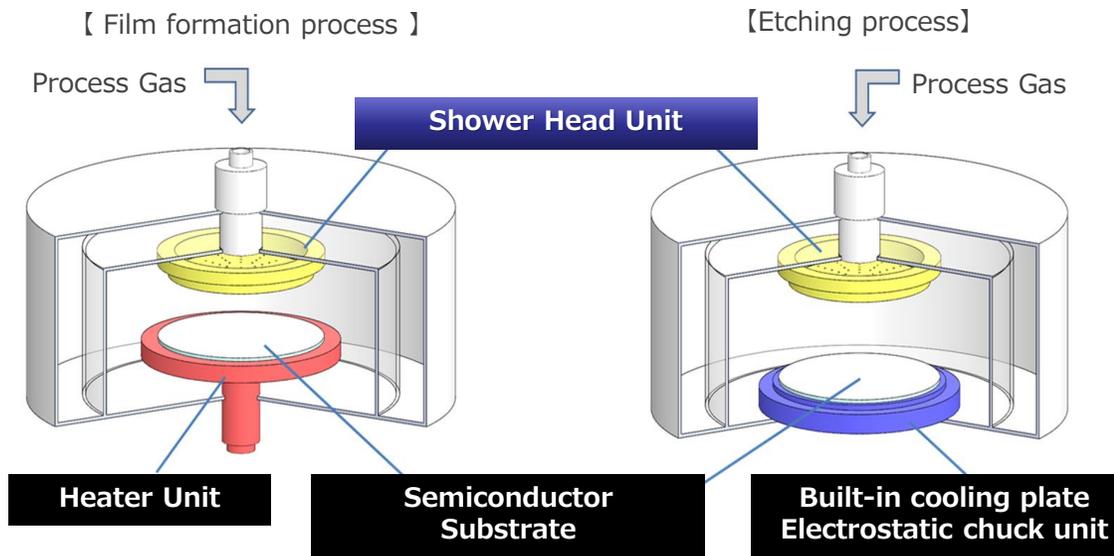
We will continue to expand sales of in-vehicle products and Challenge to increase sales by 5 times!



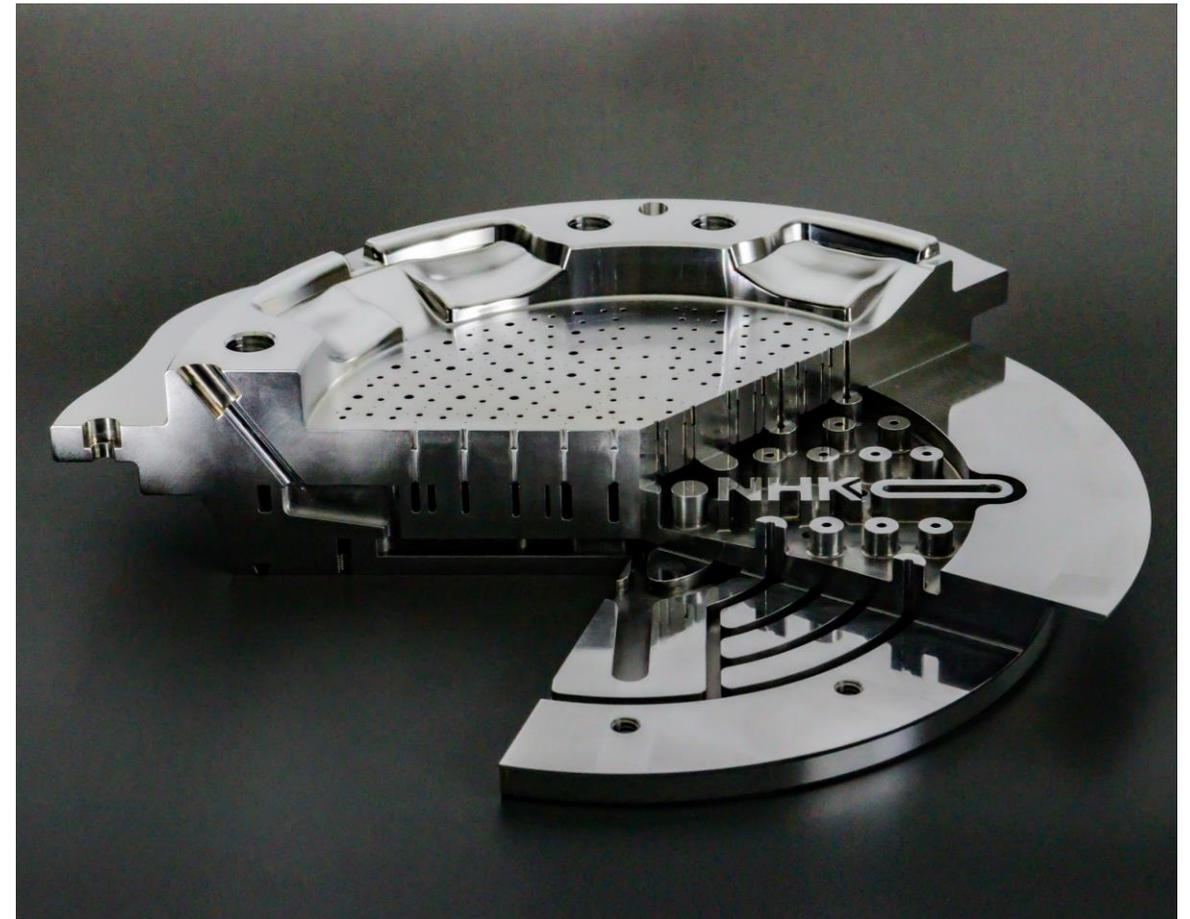


Semiconductor
Process
Components

Shower Head Unit

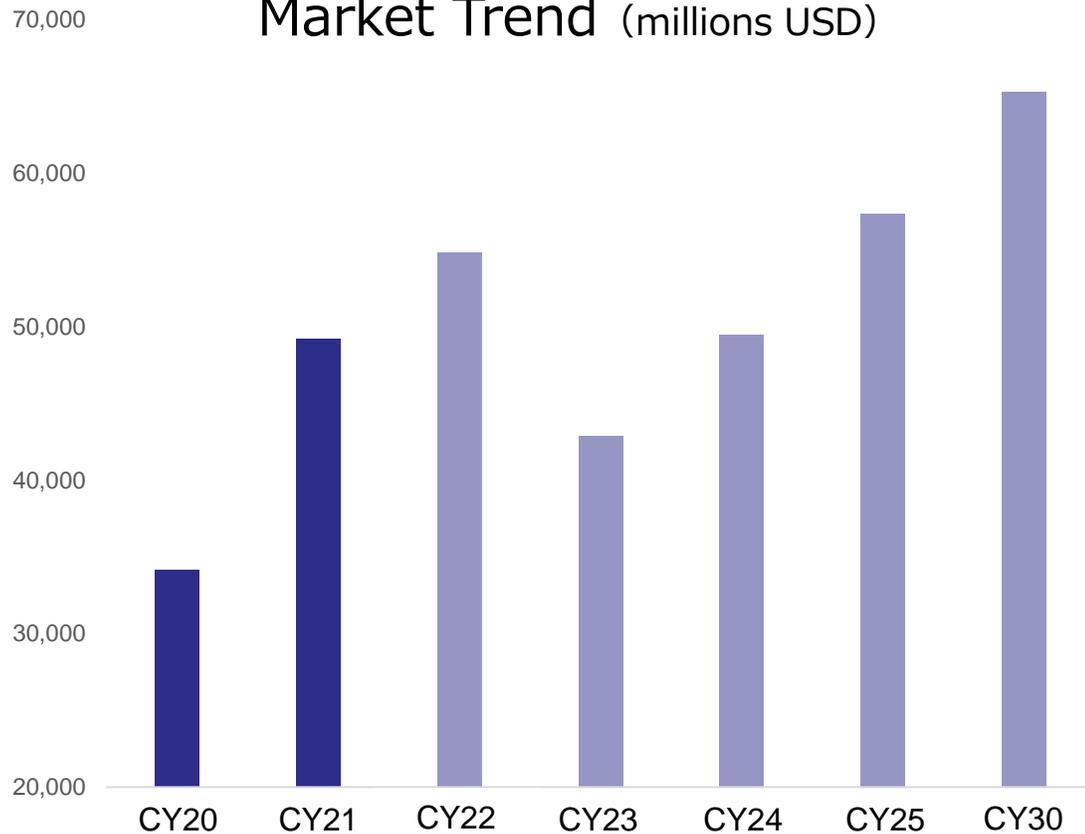


- It supplies the gases required in the semiconductor manufacturing process uniformly to the wafer.
- High-performance semiconductors require showerheads with more complex structures.

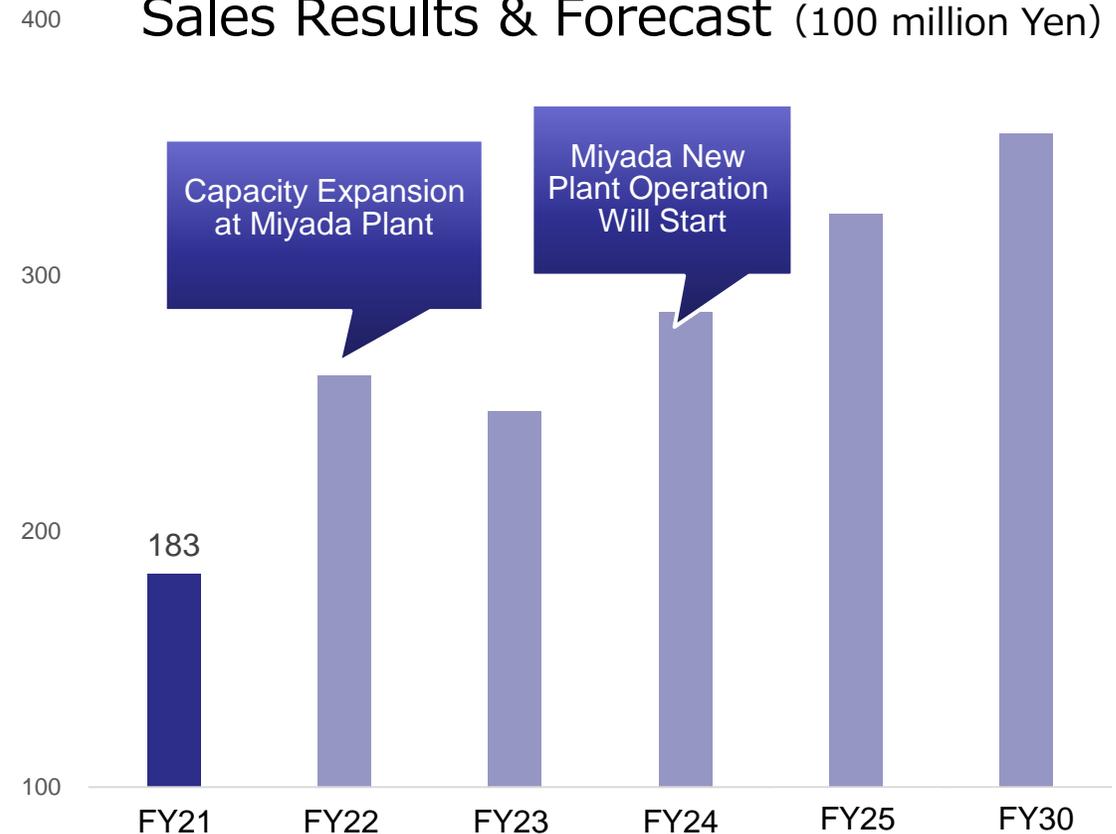


Market is expected to slow down, but sales will increase due to new sales expansion of shower head units.

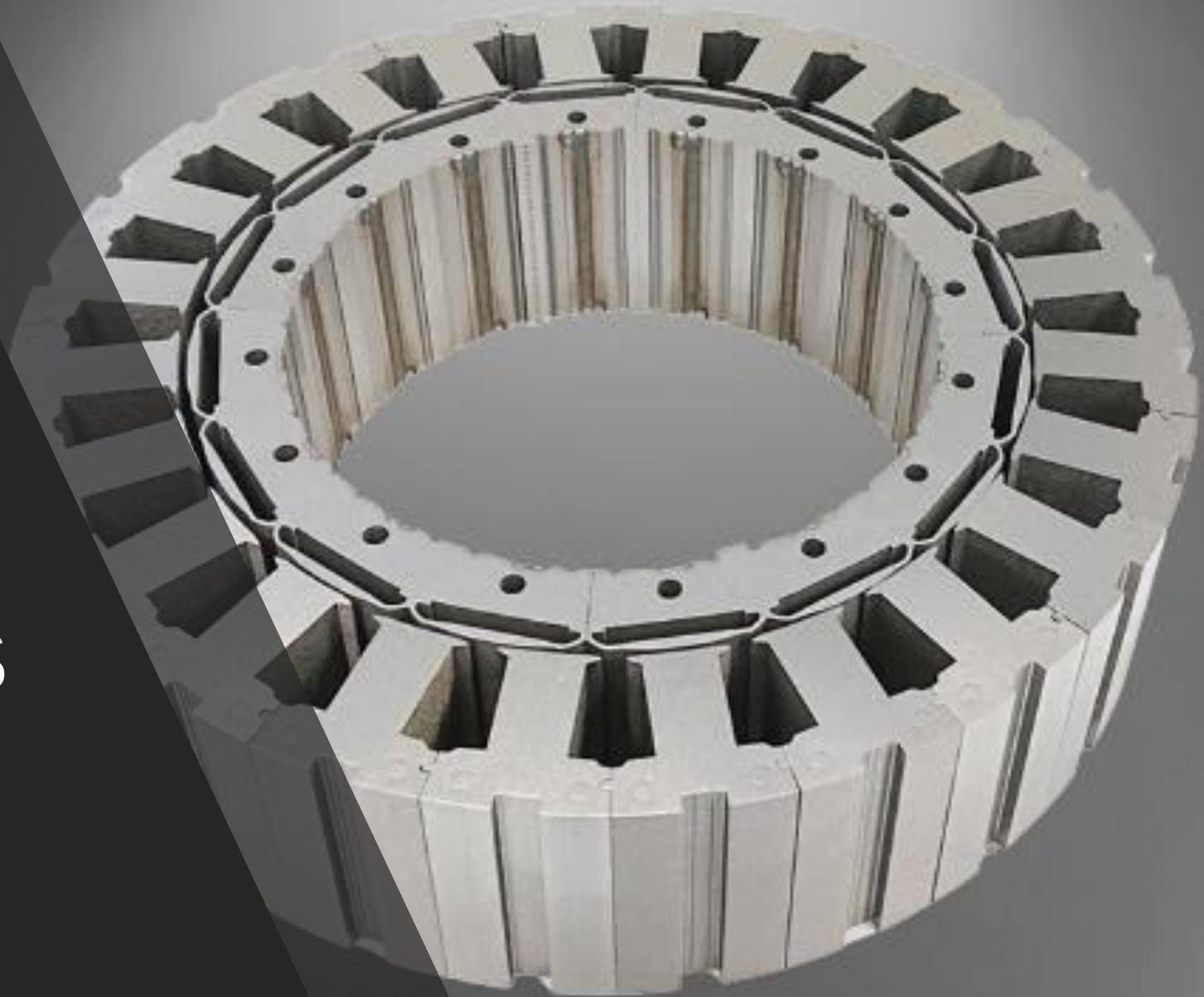
Film formation process/Etching Process Market Trend (millions USD)



Semiconductor Process Components Sales Results & Forecast (100 million Yen)



Motor Cores



Japan-Mexico-China. trilateral framework

Japan

Motor Cores Business Entry

2010

Mexico

Mass production begins

(Relocated from U.S.)

Mass production base for U.S.

2016

2013

U.S.

Mass production begins

Mounted on EV for the first time in the world

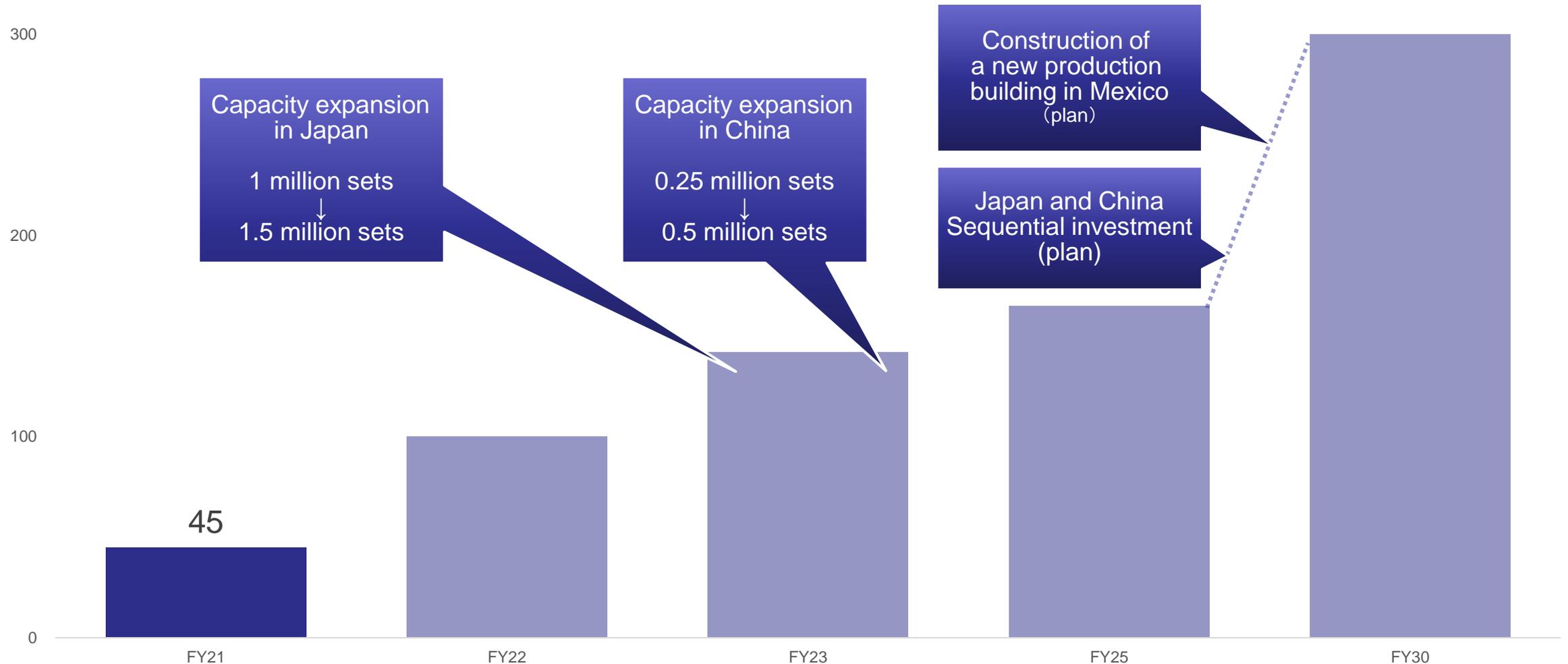
2021

China

Mass production begins

Mass production base for China

Aiming for sales over 30 billion yen !



Overview of the Financial Results for 1st half of the year ending March 2023

Executive Vice President & CFO and
Representative Member of the Board

Toru Sugiyama

Results for 1st half of the year ending March 2023

(100 million yen)

		FY2021 1st half	FY2022 1st half		Vs. FY2021 1st half	Vs. Forecast	
			Forecast	Results			
Net Sales		2,789	3,080	3,326	536	246	
Operating Income		102	157	172	69	15	
Ratio		3.7%	5.1%	5.2%	1.5%	0.1%	
Ordinary Income		135	167	279	144	112	
Ratio		4.9%	5.4%	8.4%	3.6%	3.0%	
Profit Attribute to Owners of Parent		84	100	198	114	98	
Extraordinary profits/losses		-2	-	-	2	-	
Average Rate	US\$	110.2	120.0	133.5	23.3	13.5	
	Thai Baht	3.5	3.5	3.6	0.1	0.1	
Current Rate	US\$	this year	111.9	118.0	144.8	32.9	26.8
		previous year	110.7	-	122.4	11.7	-
	Thai Baht	this year	3.4	3.5	3.9	0.4	0.4
		previous year	3.4	-	3.4	-0.0	-

Forecast for the year ending March 2023

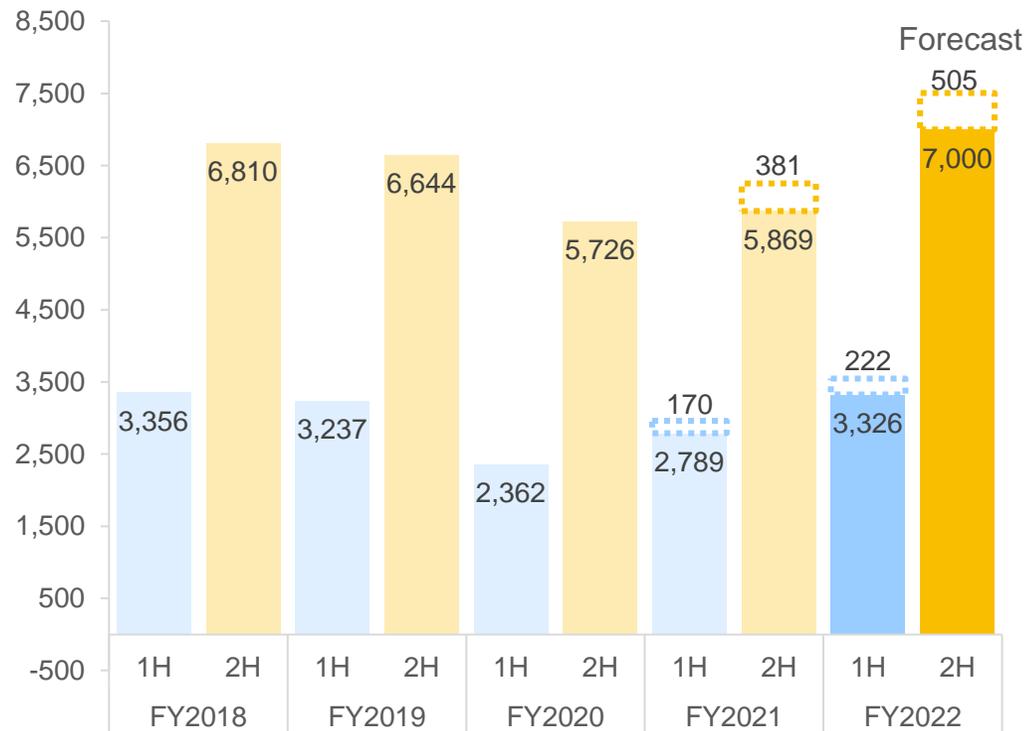
(100 million yen)

		FY2021 Results	FY2022		Vs. FY2021	Vs. Initial Forecast	
			Initial Forecast	Latest Forecast			
Net Sales		5,869	6,350	7,000	1,130	650	
Operating Income		213	380	380	166	—	
Ratio		3.6%	6.0%	5.4%	1.8%	-0.6%	
Ordinary Income		306	400	400	93	—	
Ratio		5.2%	6.3%	5.7%	0.5%	-0.6%	
Profit Attribute to Owners of Parent		319	240	240	-79	—	
Extraordinary profits/losses		194	—	—	-194	—	
Average Rate	US\$	112.9	118.0	136.5	23.6	18.5	
	Thai Baht	3.4	3.5	3.7	0.3	0.2	
Current Rate	US\$	this year	122.4	115.0	140.0	17.6	25.0
		previous year	110.7	122.4	122.4	11.7	—
	Thai Baht	this year	3.4	3.5	3.7	0.3	0.2
		previous year	3.4	3.4	3.4	-0.0	—

Result Trends

Net Sales

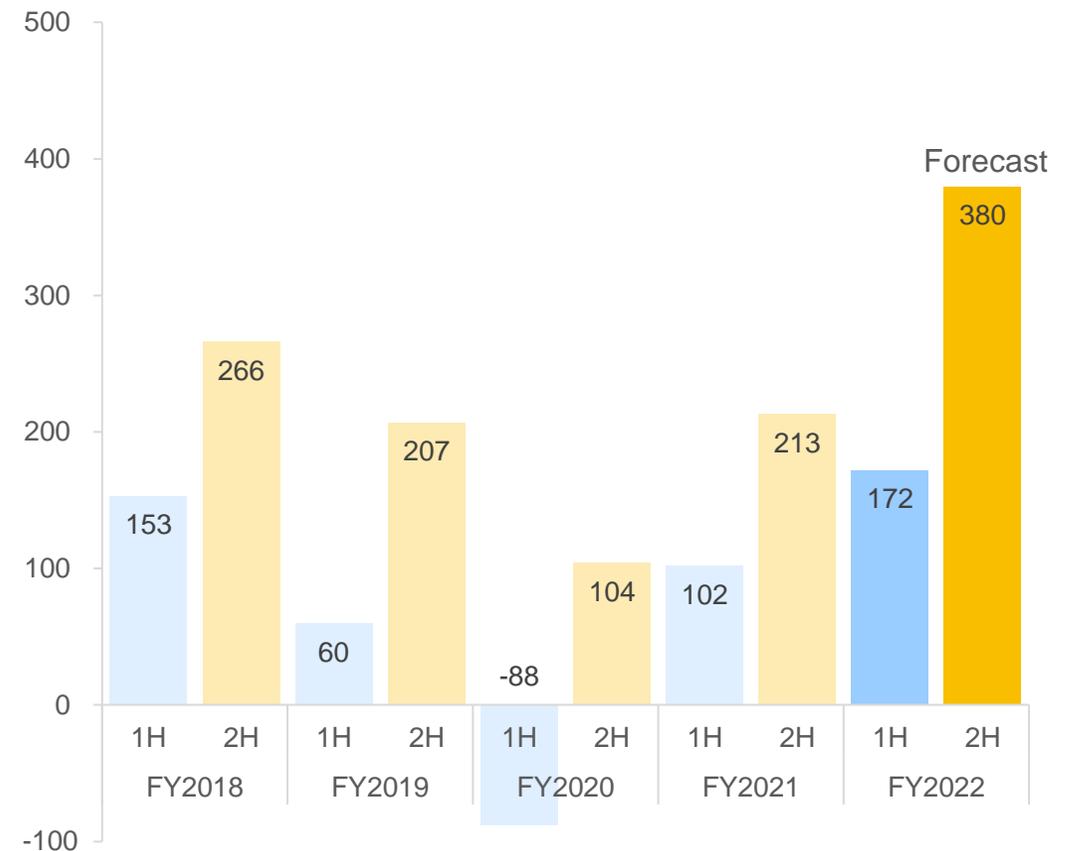
(100 million Yen)



As a result of the adoption of the "Accounting Standard for Revenue Recognition (Revised ASBJ Statement No.29)", the amount paid by customers, which was previously recorded as net sales, is offset against the cost of sales from the fiscal year ended March 31, 2022.

Operating Income

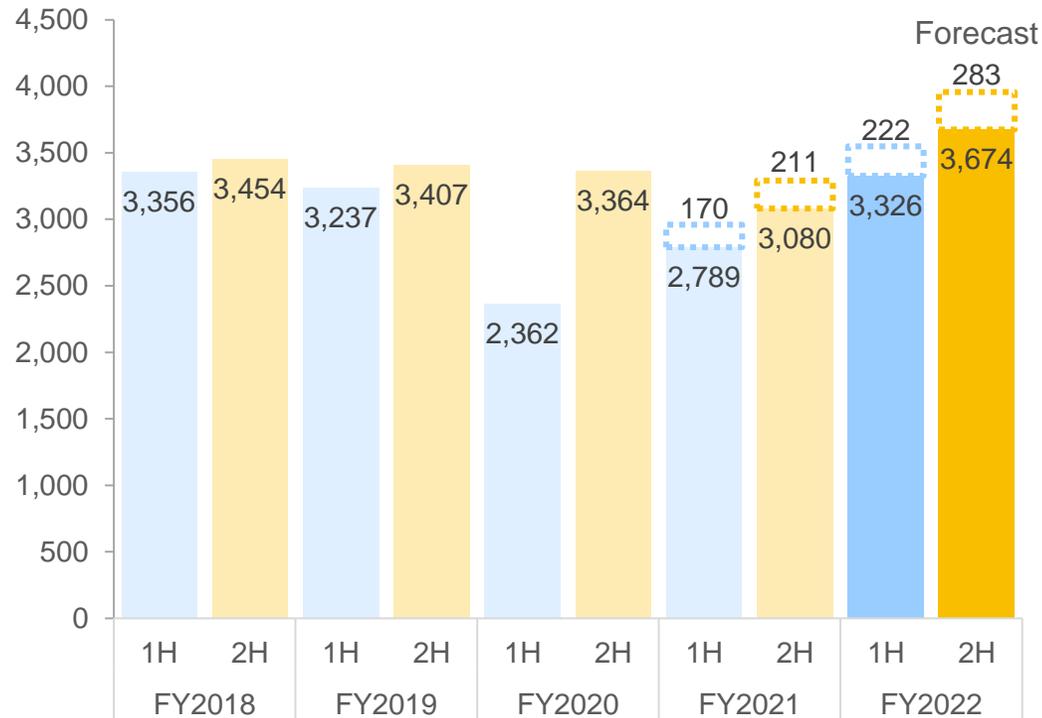
(100 million Yen)



Result Trends in each half-year period

Net Sales

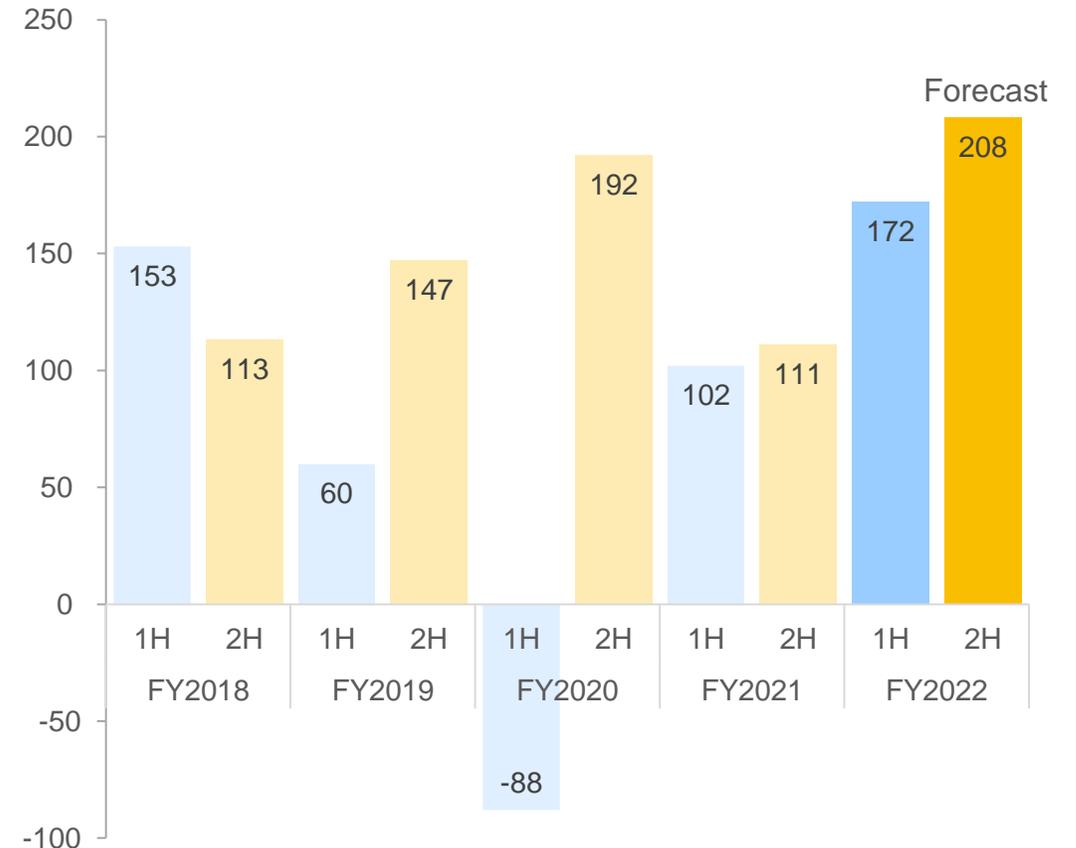
(100 million Yen)



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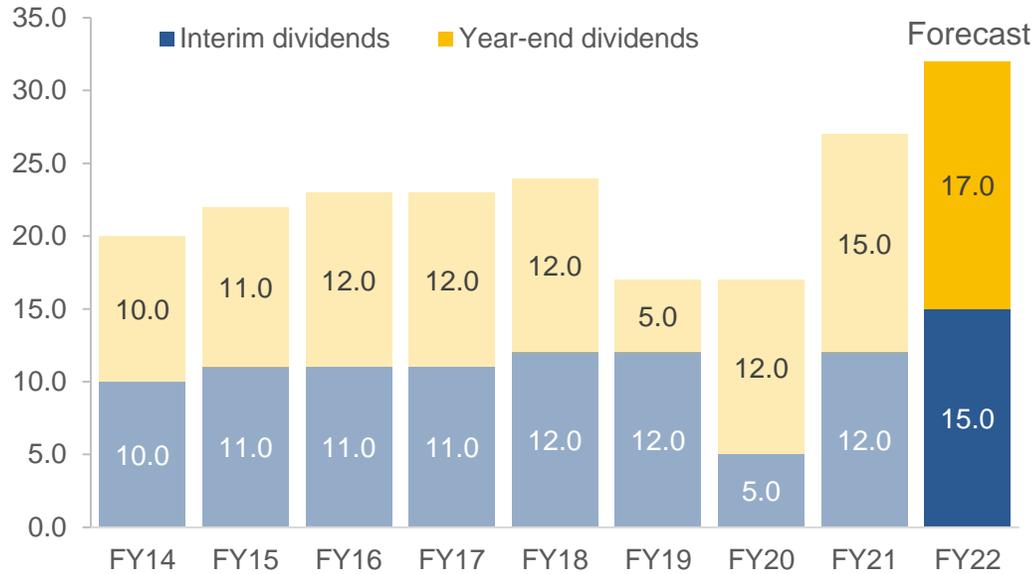
Operating Income

(100 million Yen)

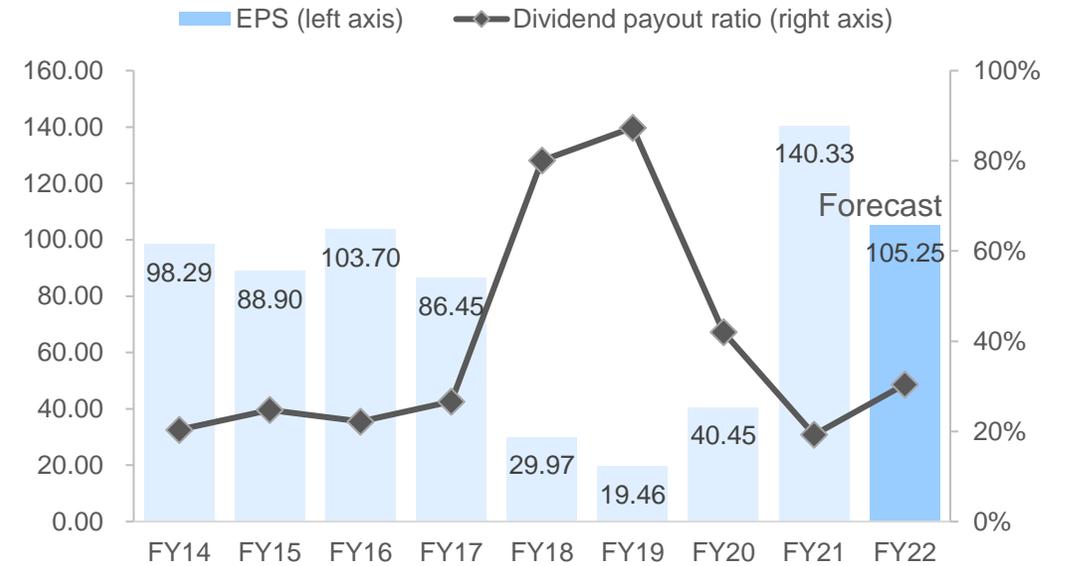


Dividends

Dividend Per Share (DPS)



Earnings Per Share (EPS)



	End of Q2	Year end	Total	Dividend payout ratio
Result for the year ended Mar.2022	12.0 yen	15.0 yen	27.0 yen	19.2%
Forecast for the year ending Mar.2023	15.0 yen	17.0 yen	32.0 yen	30.4%

Details of the Financial Results
for 1st half of the Year Ending March 2023

Details of the Financial Forecast
for the Year Ending March 2023

Senior Corporate Officer
Director, Accounting & Financing Dept.

Osamu Ikejiri

Details of the Financial Results
for 1st half of the Year Ending March 2023

Results for 1st half of the year ending March 2023

(100 million yen)

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			Forecast	Results			
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Extraordinary profits/losses		-2	-	-	2	-	
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		previous year	110.7	-	122.4	11.7	-
	Thai Baht	this year	3.4	3.5	3.9	0.4	0.4
		previous year	3.4	-	3.4	-0.0	-

Net Sales / Operating Income by Business Segment

(100 million yen)

		FY2021 1st half	FY2022 1st half		Vs. Previous year	Vs. Forecast
			Forecast	Results		
A utomotive Suspension Spring	Net Sales	543	590	681	138	91
	Operating Income	-15	-1	-17	-1	-16
	Ratio	-2.9%	-0.2%	-2.6%	0.3%	-2.4%
A utomotive Seating	Net Sales	983	1,100	1,247	263	147
	Operating Income	-18	20	25	44	5
	Ratio	-1.9%	1.8%	2.1%	4.0%	0.3%
P recision Springs & Components	Net Sales	773	840	840	66	0
	Operating Income	86	85	98	11	13
	Ratio	11.2%	10.1%	11.7%	0.5%	1.6%
I ndustrial Machinery & Others	Net Sales	488	550	556	67	6
	Operating Income	50	53	66	15	13
	Ratio	10.4%	9.6%	11.9%	1.5%	2.3%
Total	Net Sales	2,789	3,080	3,326	536	246
	Operating Income	102	157	172	69	15
	Ratio	3.7%	5.1%	5.2%	1.5%	0.1%

Automotive Suspension Springs

Sales increased due to volume growth accompanying the recovery in automotive production and the impact of the weaker yen, but earnings were affected by price hikes in various expenses.

Automotive Seating

Sales increased for the same reason as above. Earnings at the U.S. also improved significantly from the same period last year.

Precision Springs & Components

Automotive-related parts were strongly affected by production cutbacks due to semiconductor supply shortages and the lockdown in Shanghai.

HDD-related parts performed well, boosted by the weaker yen.

Industrial Machinery & Others

Both sales and earnings increased mainly due to strong sales of semiconductor process components and the effect of the weaker yen.

Net Sales / Operating Income by Region

(100 million yen)

	FY2021 1st half	FY2022 1st half		Vs. Previous year	Vs. Forecast	
		Forecast	Results			
Japan	Net Sales	1,600	1,780	1,842	241	62
	Operating Income	86	112	123	37	11
	Ratio	5.4%	6.3%	6.7%	1.3%	0.4%
Asia	Net Sales	838	820	948	109	128
	Operating Income	61	60	74	13	14
	Ratio	7.3%	7.3%	7.9%	0.6%	0.6%
America & Europe & Others	Net Sales	349	480	534	185	54
	Operating Income	-44	-15	-25	18	-10
	Ratio	-12.8%	-3.1%	-4.8%	8.0%	-1.7%
Total	Net Sales	2,789	3,080	3,326	536	246
	Operating Income	102	157	172	69	15
	Ratio	3.7%	5.1%	5.2%	1.5%	0.1%

Japan

Although affected by soaring raw material prices, volume increased due to the recovery of automotive production. HDD-related parts and semiconductor process components also performed well, resulting in an increase in overall sales and earnings.

Asia

Although automotive-related parts were affected by the lockdown in Shanghai, sales of HDD-related parts were benefitted by the weaker yen, resulting in an increase in sales and earnings.

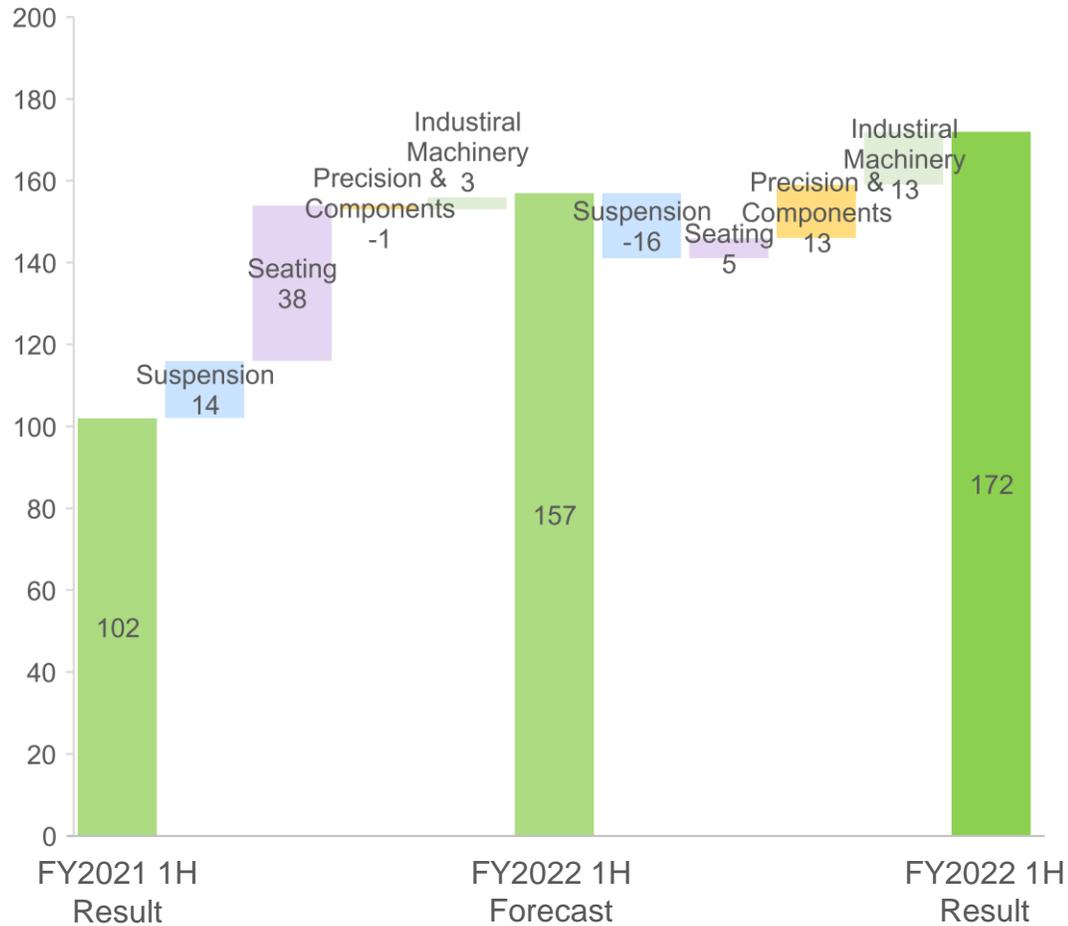
America, Europe & Others

Although earnings fell short of the plan due to price hikes in logistics, power, utilities, and other costs, as well as higher labor costs, sales increased due to volume growth accompanying the recovery in automotive production. As compared to the same period last year, earnings is improving due to the weaker yen and the progress made in passing on higher raw material costs to selling prices.

Operating Income Trends by Segment

By Business Segment

(100 million Yen)



By Region

(100 million Yen)



Automotive Suspension Spring

(100 Million Yen)

	FY2021	FY2022 1st half		Vs. Previous year	Vs. Forecast
	1st half Results	Forecast	Results		
Net Sales	543	590	681	138	91
Operating Income	-15	-1	-17	-1	-16
Ratio	-2.9%	-0.2%	-2.6%	0.3%	-2.4%

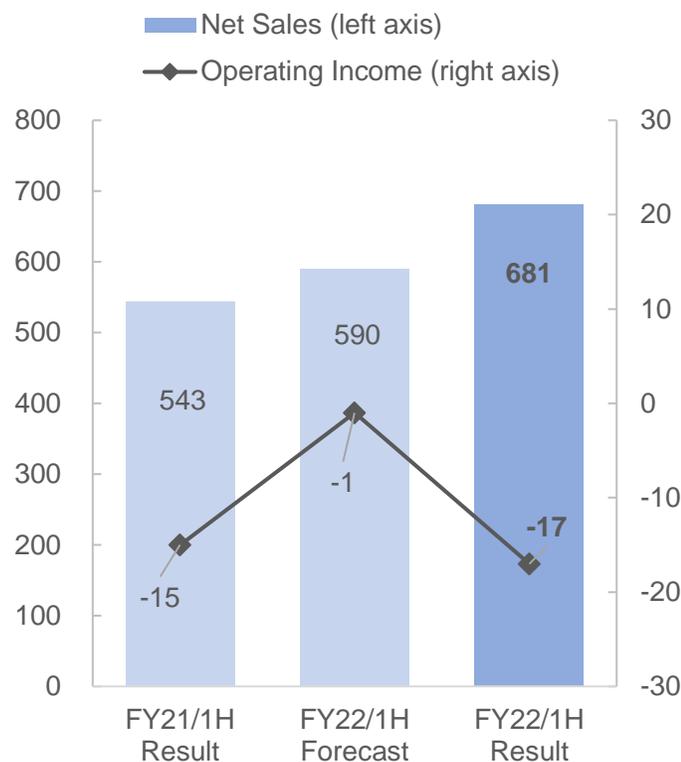
vs. Forecast

Sales increased compared to the initial forecast, partly due to an increase in the yen value of overseas subsidiaries.

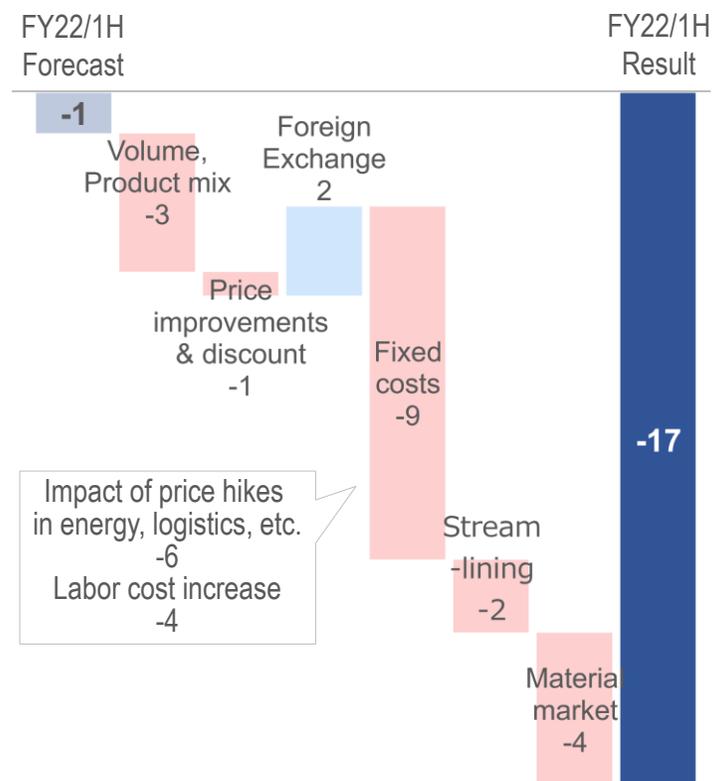
On the earnings side, some domestic businesses benefited from the weaker yen through export transactions but were significantly affected by changes in the external environment, including fluctuations in orders received due to semiconductor supply shortages, delays in the progress made in passing on higher raw material costs to selling prices, and price hikes in various expenses.

In addition, higher labor costs, mainly in the U.S., contributed to higher sales and lower earnings.

Results Trends



Variable Factor Analysis for Operating Income



Automotive Seating

(100 Million Yen)

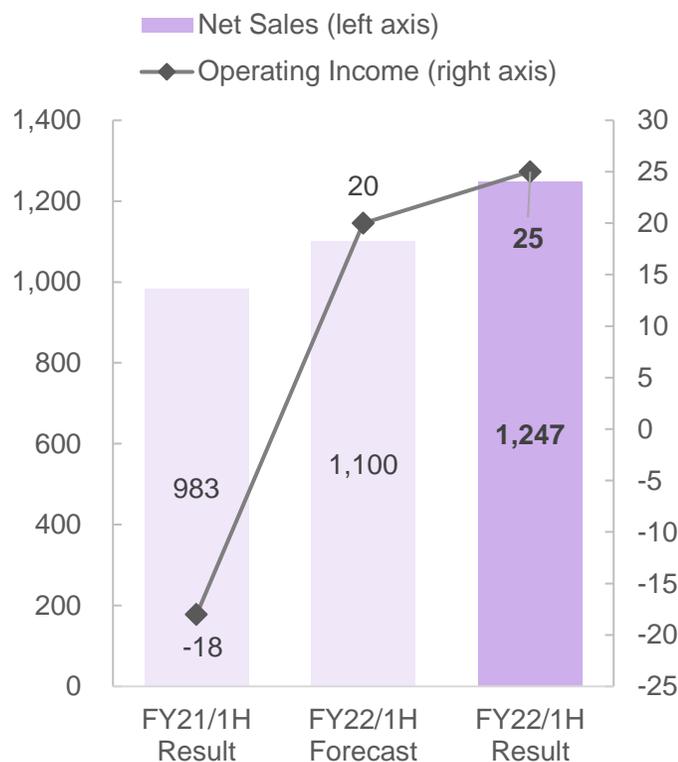
	FY2021	FY2022 1st half		Vs. Previous year	Vs. Forecast
	1st half Results	Forecast	Results		
Net Sales	983	1,100	1,247	263	147
Operating Income	-18	20	25	44	5
Ratio	-1.9%	1.8%	2.1%	4.0%	0.3%

vs. Forecast

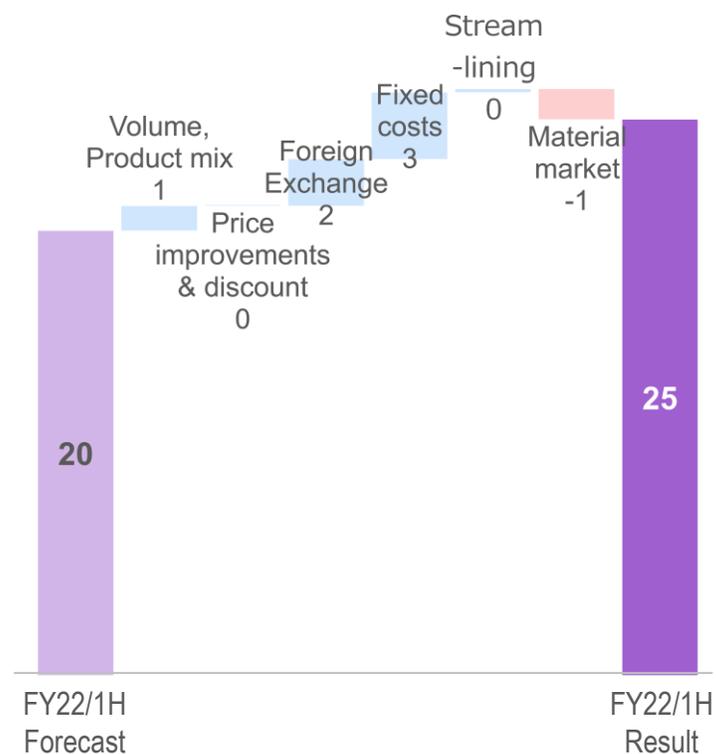
Production volume increased mainly in the U.S., although it fluctuated depending on the customer.

Despite some delays in the progress made in passing on higher raw material costs to selling prices, strong performance by the Subaru business, increased earnings at overseas subsidiaries due to the weaker yen, and efforts to control fixed costs contributed to the increase in both sales and earnings.

Results Trends



Variable Factor Analysis for Operating Income



Precision Springs & Components

(100 Million Yen)

	FY2021	FY2022 1st half		Vs. Previous year	Vs. Forecast
	1st half Results	Forecast	Results		
Net Sales	773	840	840	66	0
Operating Income	86	85	98	11	13
Ratio	11.2%	10.1%	11.7%	0.5%	1.6%

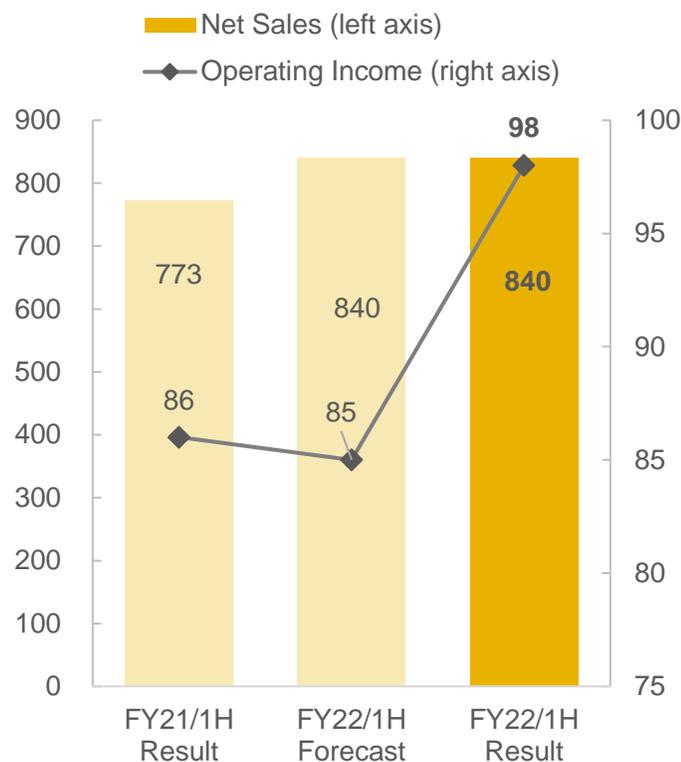
vs. Forecast

Sales of automotive-related parts dropped sharply due to customers' production cutbacks caused by semiconductor supply shortages and the impact of the Shanghai lockdown.

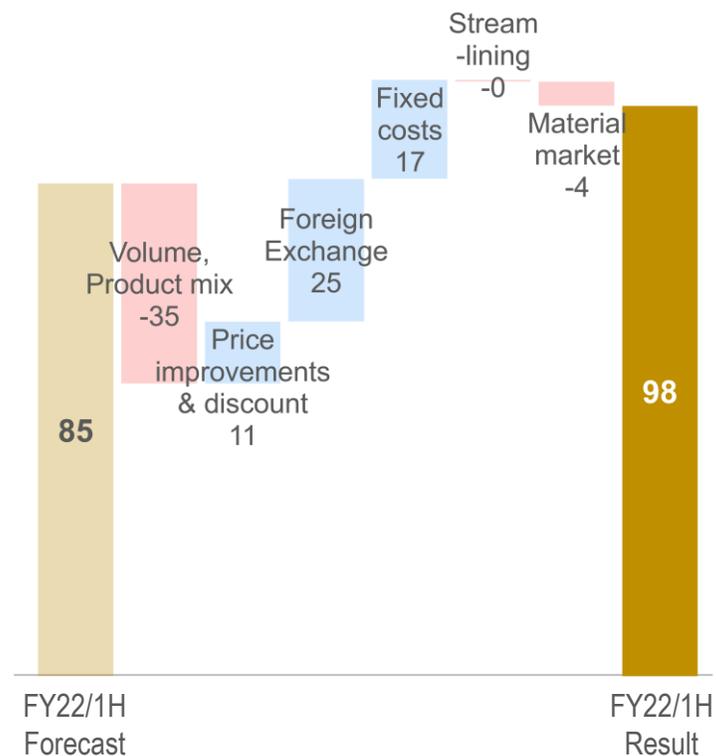
In terms of earnings, despite efforts to control fixed costs, the impact of lower volume and delays in the progress made in passing on higher raw material costs to selling prices pushed down profits.

On the other hand, HDD-related parts business saw an increase in profit due to the difference in product mix, higher earnings from prototype products, and the effect of the weaker yen.

Results Trends



Variable Factor Analysis for Operating Income



Results for 1st half of the year ending March 2023: Analysis by Business Segment

Industrial Machinery & Others

(100 Million Yen)

	FY2021	FY2022 1st half		Vs. Previous year	Vs. Forecast
	1st half Results	Forecast	Results		
Net Sales	488	550	556	67	6
Operating Income	50	53	66	15	13
Ratio	10.4%	9.6%	11.9%	1.5%	2.3%

vs. Forecast

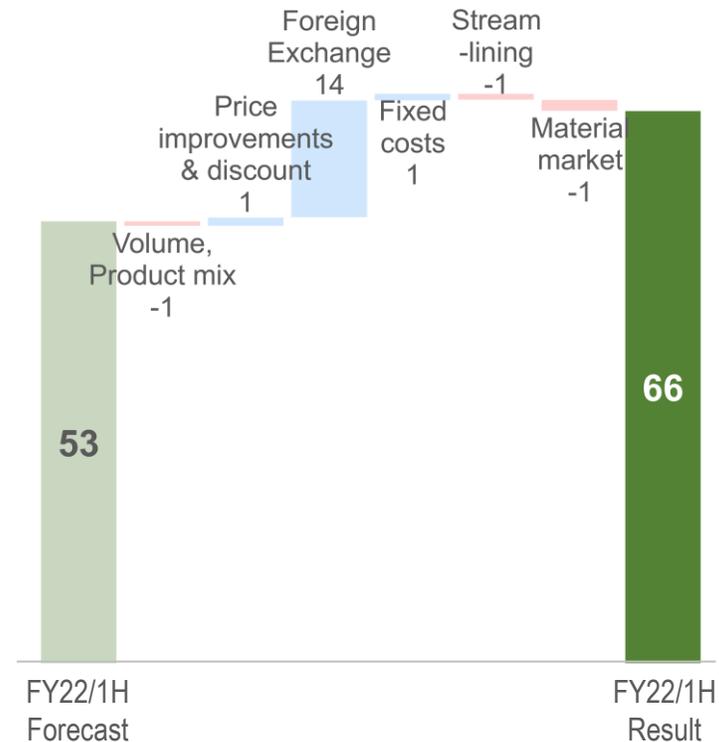
Although metal substrates for automotive applications fell below the initial volume forecast, orders for semiconductor process components, golf shafts, marine products, and other products remained strong.

In terms of earnings, the weaker yen contributed significantly to the increase in sales and earnings.

Results Trends



Variable Factor Analysis for Operating Income



Details of the Financial Forecast
for the Year Ending March 2023

Forecast for the year ending March 2023

(100 million yen)

		FY2021 Results	FY2022		Vs. FY2021	Vs. Initial Forecast	
			Initial Forecast	Latest Forecast			
Net Sales		5,869	6,350	7,000	1,130	650	
Operating Income		213	380	380	166	—	
Ratio		3.6%	6.0%	5.4%	1.8%	-0.6%	
Ordinary Income		306	400	400	93	—	
Ratio		5.2%	6.3%	5.7%	0.5%	-0.6%	
Profit Attribute to Owners of Parent		319	240	240	-79	—	
Extraordinary profits/losses		194	—	—	-194	—	
Average Rate	US\$	112.9	118.0	136.5	23.6	18.5	
	Thai Baht	3.4	3.5	3.7	0.3	0.2	
Current Rate	US\$	this year	122.4	115.0	140.0	17.6	25.0
		previous year	110.7	122.4	122.4	11.7	—
	Thai Baht	this year	3.4	3.5	3.7	0.3	0.2
		previous year	3.4	3.4	3.4	-0.0	—

Net Sales / Operating Income by Business Segment

(100 million yen)

		FY2021 Results	FY2022		Vs. FY2021 Results	Vs. Initial Forecast
			Initial Forecast	Latest Forecast		
A utomotive Suspension Spring	Net Sales	1,129	1,200	1,500	370	300
	Operating Income	-43	10	-20	23	-30
	Ratio	-3.9%	0.8%	-1.3%	2.5%	-2.2%
A utomotive Seating	Net Sales	2,084	2,290	2,670	585	380
	Operating Income	-28	57	90	118	33
	Ratio	-1.4%	2.5%	3.4%	4.7%	0.9%
P recision Springs & Components	Net Sales	1,622	1,720	1,680	57	-40
	Operating Income	178	188	170	-8	-18
	Ratio	11.0%	10.9%	10.1%	-0.9%	-0.8%
I ndustrial Machinery & Others	Net Sales	1,031	1,140	1,150	118	10
	Operating Income	107	125	140	32	15
	Ratio	10.4%	11.0%	12.2%	1.7%	1.2%
Total	Net Sales	5,869	6,350	7,000	1,130	650
	Operating Income	213	380	380	166	—
	Ratio	3.6%	6.0%	5.4%	1.8%	-0.6%

Automotive Suspension Springs

Sales volume is expected to recover to a certain degree in the second half. Earnings is expected to fall short of the plan due to price hikes in various expenses.

Automotive Seating

Sales volume forecast is the same as for Automotive Suspension Spring business. Earnings is also expected to exceed the plan due to the increase in volume.

Precision Springs & Components

Sales volume forecast is the same as for Automotive Suspension Spring business. Both sales and earnings of HDD-related parts are expected to decrease due to the sharp slowdown in the market.

Industrial Machinery & Others

Both sales and earnings are expected to increase due to strong orders for semiconductor process components.

Net Sales / Operating Income by Region

(100 million yen)

	FY2021 Results	FY2022		Vs. FY2021 Results	Vs. Initial Forecast	
		Initial Forecast	Latest Forecast			
Japan	Net Sales	3,413	3,630	3,967	553	337
	Operating Income	201	262	274	72	12
	Ratio	5.9%	7.2%	6.9%	1.0%	-0.3%
Asia	Net Sales	1,665	1,690	1,858	192	168
	Operating Income	102	130	123	20	-7
	Ratio	6.1%	7.7%	6.6%	0.5%	-1.1%
America & Europe & Others	Net Sales	790	1,030	1,175	384	145
	Operating Income	-90	-12	-17	73	-5
	Ratio	-11.4%	-1.2%	-1.4%	10.0%	-0.3%
Total	Net Sales	5,869	6,350	7,000	1,130	650
	Operating Income	213	380	380	166	—
	Ratio	3.6%	6.0%	5.4%	1.8%	-0.6%

Japan

A sharp decline in demand for suspensions is expected due to a sharp slowdown in the HDD market, overall sales and earnings are expected to increase due to a recovery in the volume of automotive parts and the effect of the weaker yen.

Asia

The Company expects sales and profits to increase and decrease because orders for HDD suspensions in Thailand and China are expected to decline due to the rapid slowdown in the HDD market.

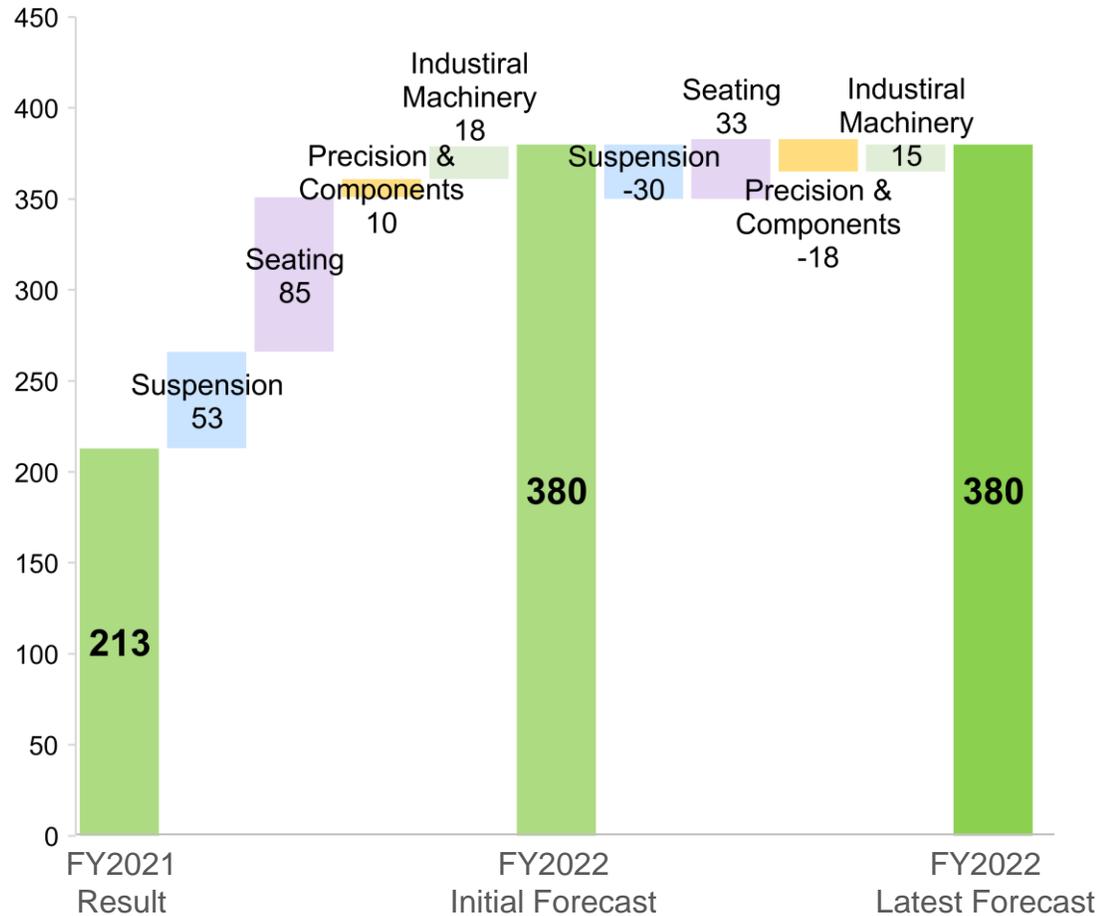
America, Europe & Others

Although automotive production is expected to recover to some extent, the increase in fixed costs will not be covered, and operating profit is expected to fall short of the plan.

Variable Factor Analysis for Operating Income

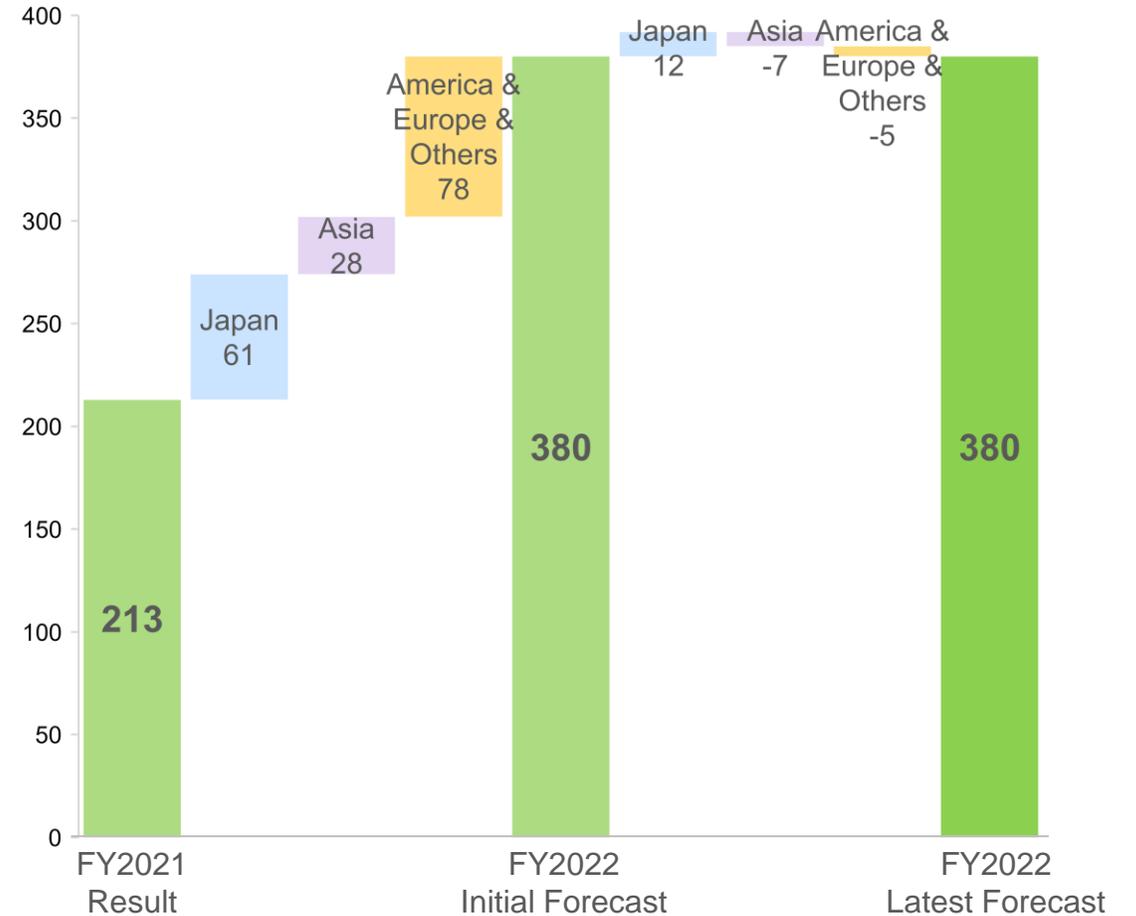
By Business Segment

(100 million Yen)



By Region

(100 million Yen)



Forecast for the year ending March 2023: Analysis by Business Segment

Automotive Suspension Spring

(100 Million Yen)

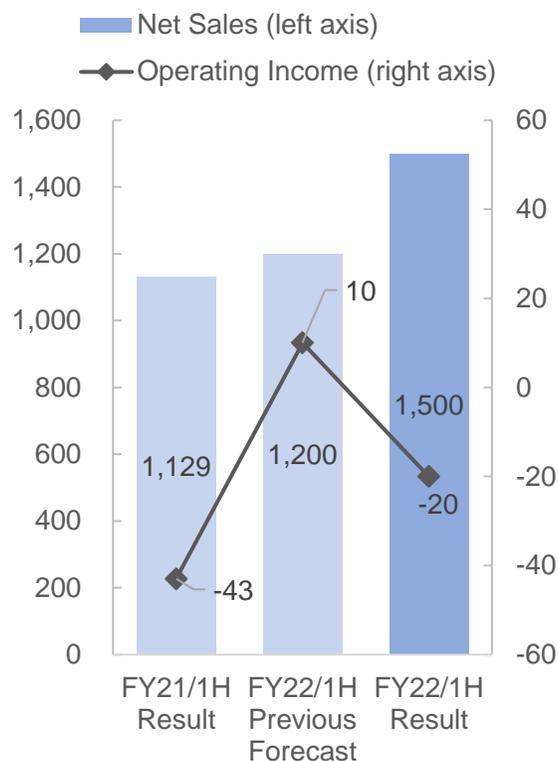
	FY2021 Results	FY2022		Vs. FY2021 Results	Vs. Initial Forecast
		Initial Forecast	Latest Forecast		
Net Sales	1,129	1,200	1,500	370	300
Operating Income	-43	10	-20	23	-30
Ratio	-3.9%	0.8%	-1.3%	2.5%	-2.2%

vs. Initial Forecast

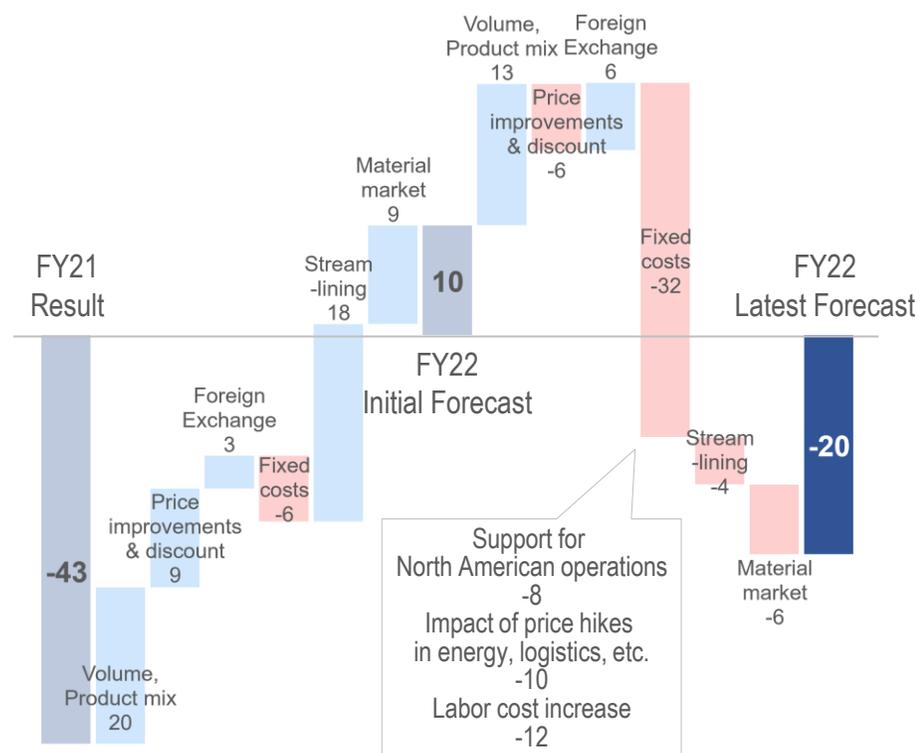
Although it is still unclear when the effects of customers' production cutbacks due to semiconductor supply shortages will be resolved, sales volume is expected to recover to a certain degree both domestically and overseas in the second half.

On the other hand, the company expects to post a profit decline for the full year due to a delay in the progress made in passing on higher raw material costs to selling prices, changes in the external environment such as price hikes in various expenses, and increased labor costs mainly in the U.S.

Results Comparison



Variable Factor Analysis for Operating Income



Automotive Seating

(100 Million Yen)

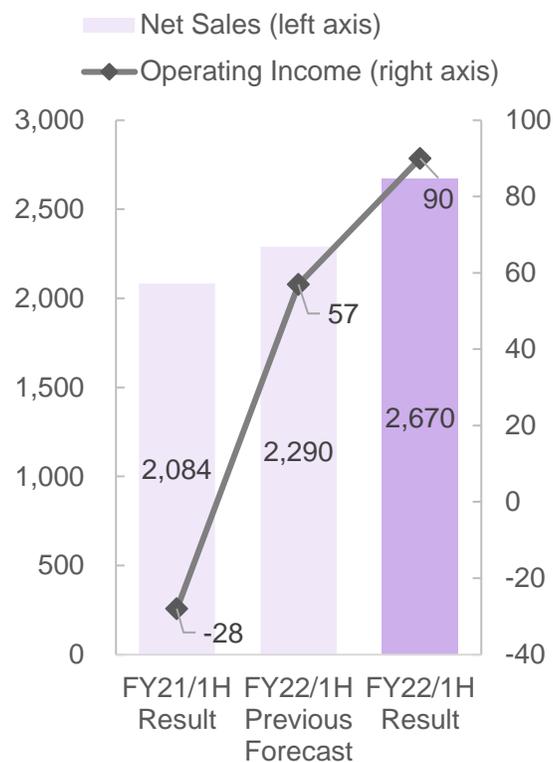
	FY2021 Results	FY2022		Vs. FY2021 Results	Vs. Initial Forecast
		Initial Forecast	Latest Forecast		
Net Sales	2,084	2,290	2,670	585	380
Operating Income	-28	57	90	118	33
Ratio	-1.4%	2.5%	3.4%	4.7%	0.9%

vs. Initial Forecast

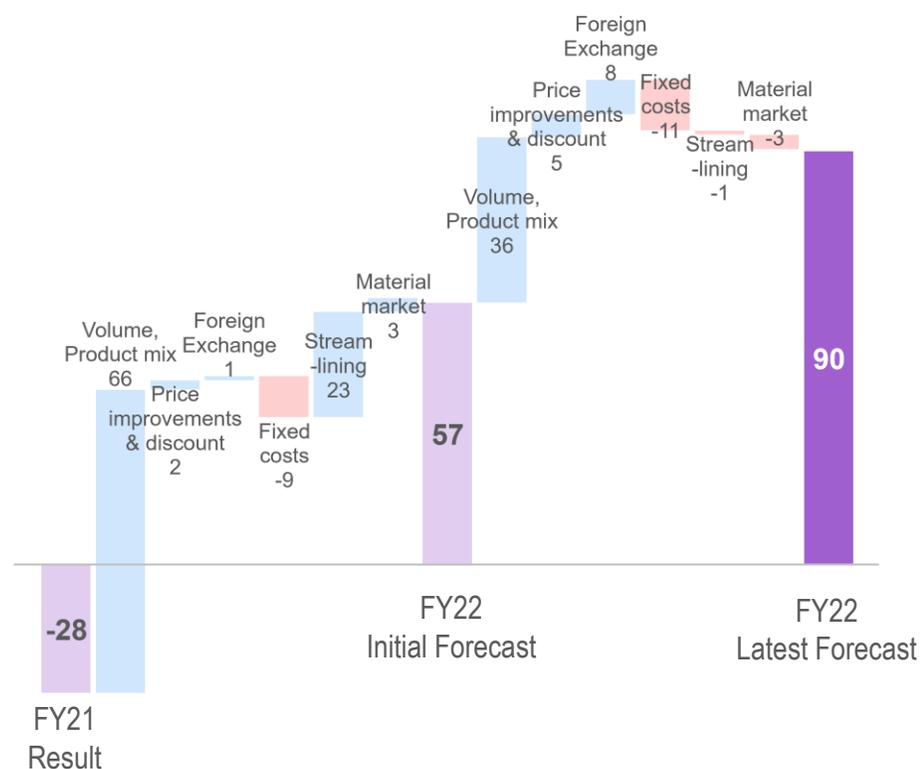
Although it is still unclear when the impact of customers' production cutbacks due to semiconductor supply shortages and other factors will be resolved, sales volume is expected to recover to a certain degree both in Japan and overseas in the second half.

Overseas, sales and earnings are expected to increase due to volume growth in the U.S., Thailand and China, and the weaker yen.

Results Comparison



Variable Factor Analysis for Operating Income



Precision Springs & Components

(100 Million Yen)

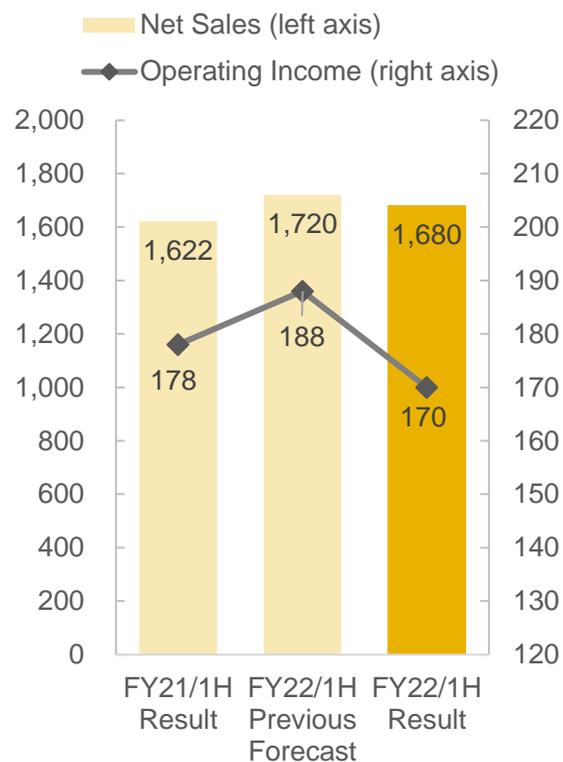
	FY2021 Results	FY2022		Vs. FY2021 Results	Vs. Initial Forecast
		Initial Forecast	Latest Forecast		
Net Sales	1,622	1,720	1,680	57	-40
Operating Income	178	188	170	-8	-18
Ratio	11.0%	10.9%	10.1%	-0.9%	-0.8%

vs. Initial Forecast

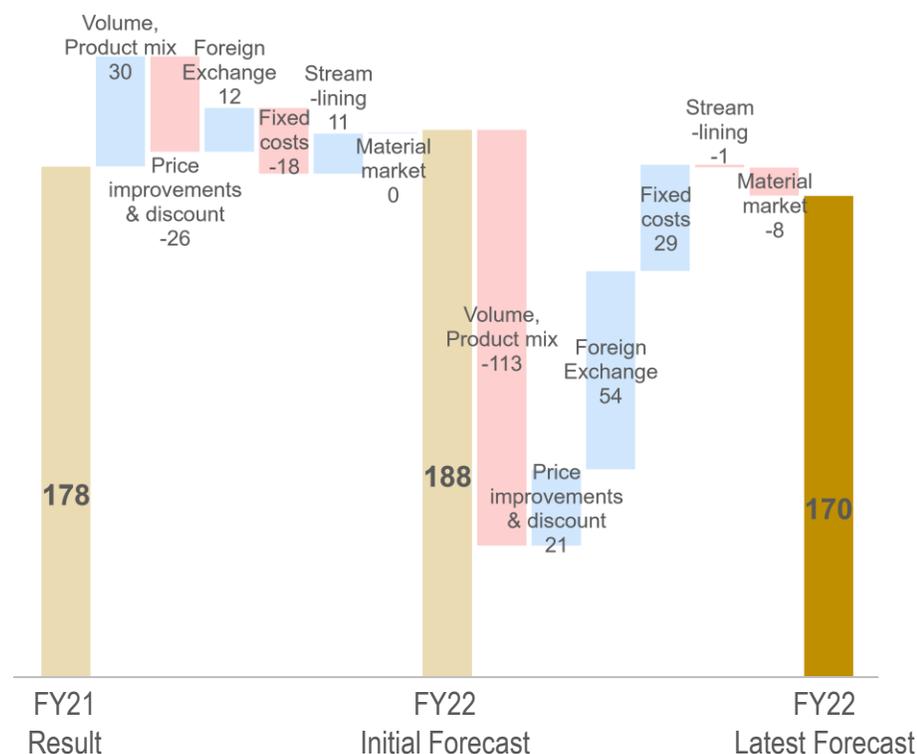
In the second half, a sharp decline is expected in demand for HDD suspensions against the backdrop of a sharp slowdown in the HDD market.

Although the yen's depreciation will boost earnings and that it will make efforts to control of fixed costs, it expects to post lower sales and earnings for the full year.

Results Comparison



Variable Factor Analysis for Operating Income



Forecast for the year ending March 2023: Analysis by Business Segment

Industrial Machinery & Others

(100 Million Yen)

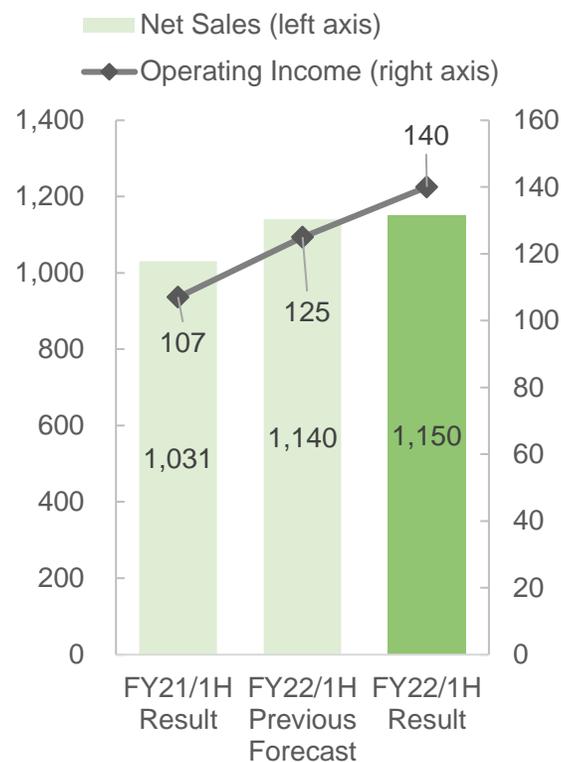
	FY2021	FY2022		Vs. FY2021	Vs. Initial Forecast
	Results	Initial Forecast	Latest Forecast	Results	Forecast
Net Sales	1,031	1,140	1,150	118	10
Operating Income	107	125	140	32	15
Ratio	10.4%	11.0%	12.2%	1.7%	1.2%

vs. Initial Forecast

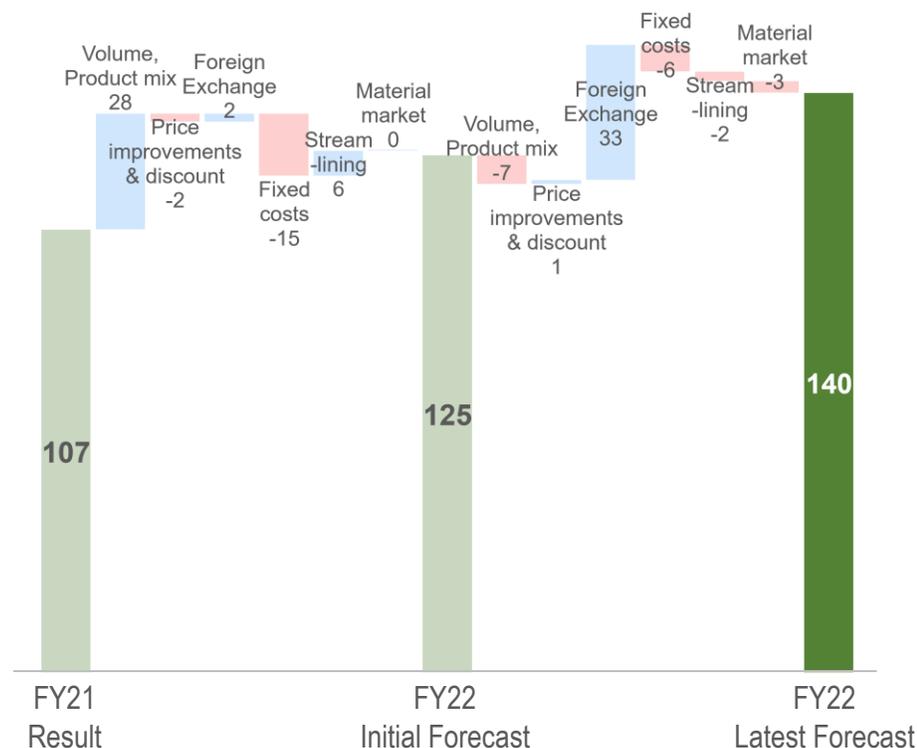
Although some automotive parts business will see a decline in orders, semiconductor process components and golf shafts are expected to remain strong, covering the overall earnings.

In addition, the weaker yen is expected to have a positive effect through the second half, and the Company anticipates higher sales and earnings for the full year.

Results Comparison



Variable Factor Analysis for Operating Income



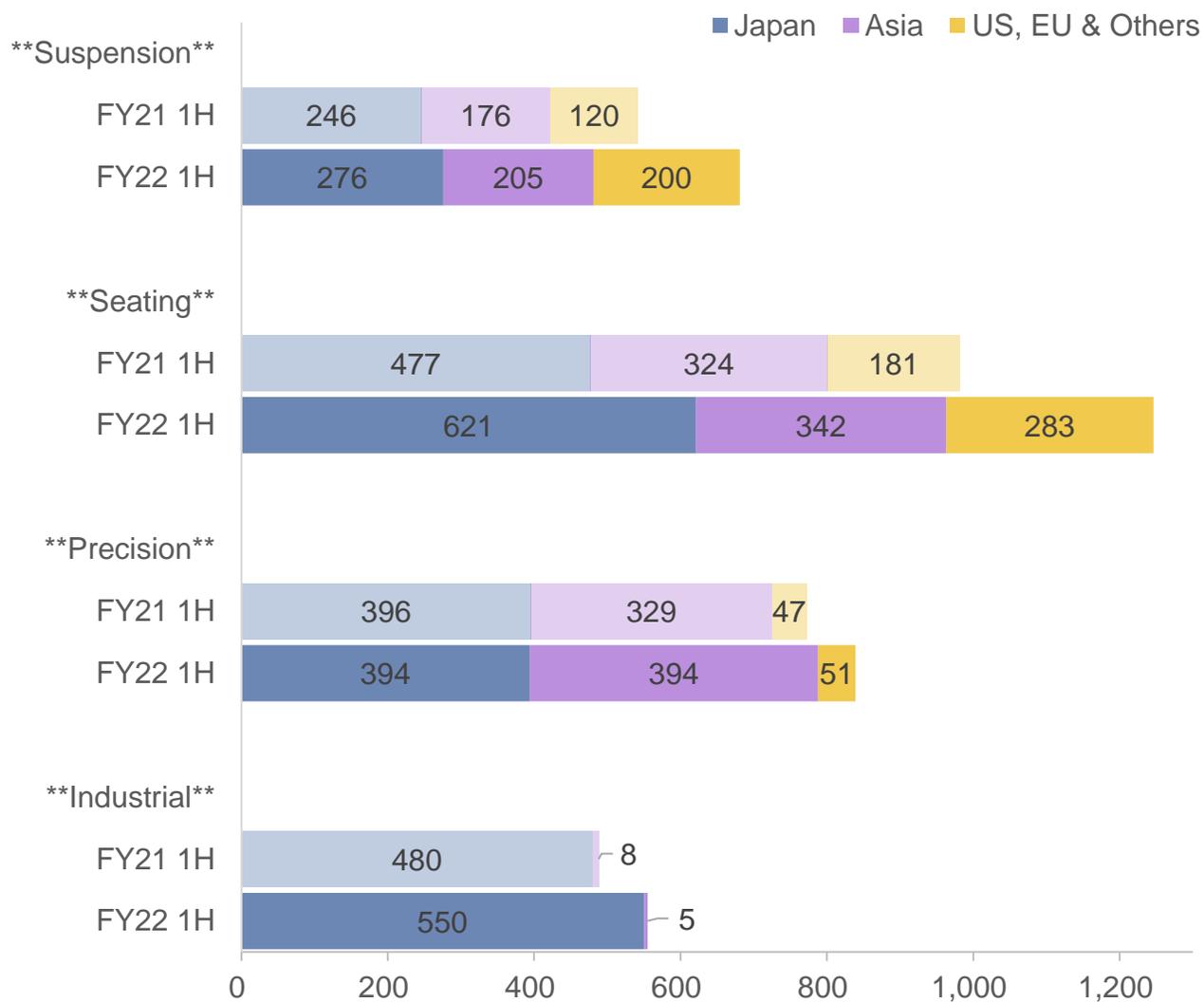
Supplementary Materials

Supplementary Materials: Overseas Expansion

Major Overseas Operations



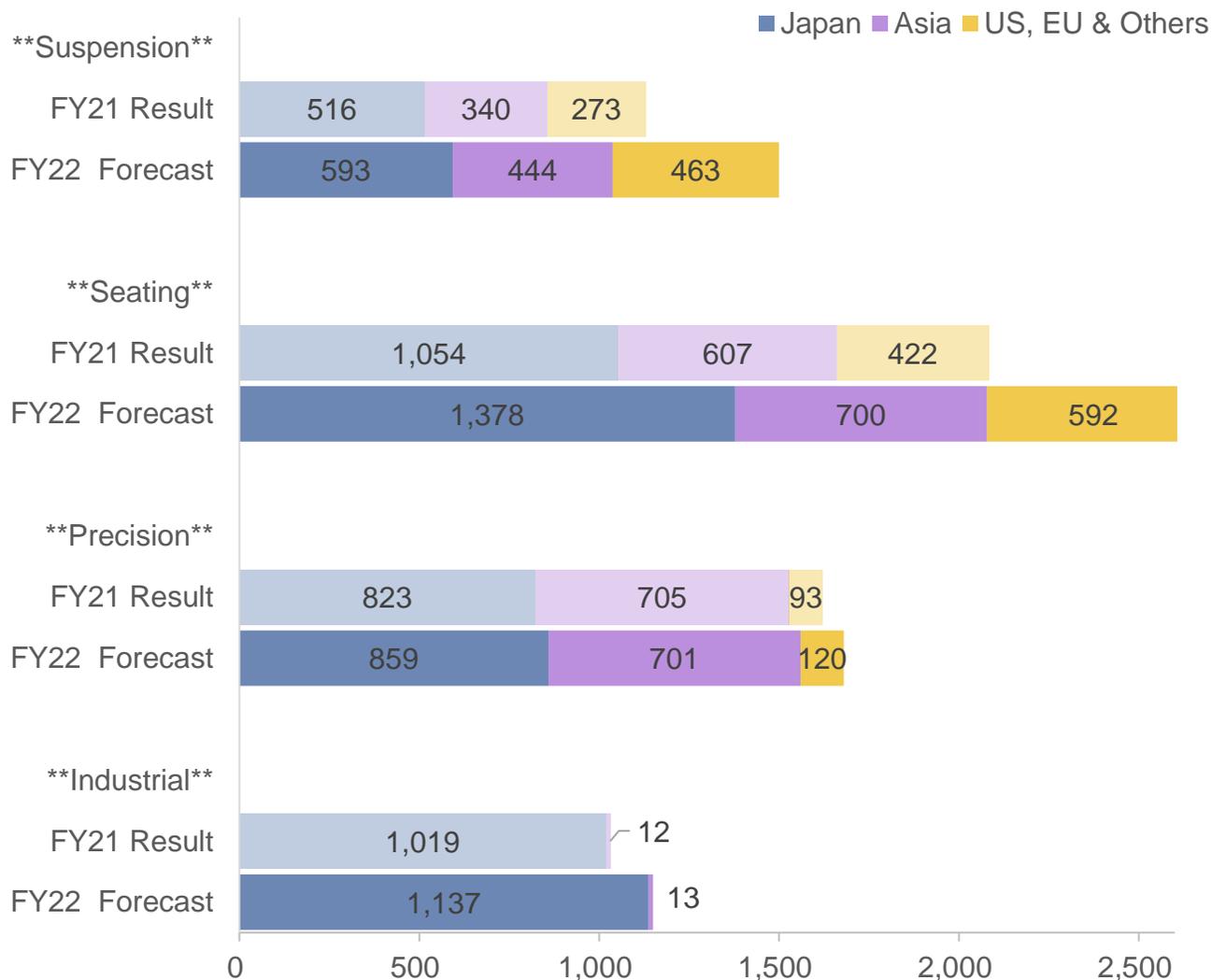
Details of Net Sales (half-year)



(100 million Yen)

		Japan	Asia	America & Europe & Others	Total
Automotive Suspension Springs	FY21 1H	246	176	120	543
	FY22 1H	276	205	200	681
Automotive Seating	FY21 1H	477	324	181	983
	FY22 1H	621	342	283	1,247
Precision Springs & Components	FY21 1H	396	329	47	773
	FY22 1H	394	394	51	840
Industrial Machinery & Others	FY21 1H	480	8	-	488
	FY22 1H	550	5	-	556
Total	FY21 1H	1,600	838	349	2,789
	FY22 1H	1,842	948	534	3,326

Details of Net Sales (full-year)



(100 million Yen)

		Japan	Asia	America & Europe & Others	Total
Automotive Suspension Springs	FY21 Result	516	340	273	1,129
	FY22 Forecast	593	444	463	1,500
Automotive Seating	FY21 Result	1,054	607	422	2,084
	FY22 Forecast	1,378	700	592	2,670
Precision Springs & Components	FY21 Result	823	705	93	1,622
	FY22 Forecast	859	701	120	1,680
Industrial Machinery & Others	FY21 Result	1,019	12	-	1,031
	FY22 Forecast	1,137	13	-	1,150
Total	FY21 Result	3,413	1,665	790	5,869
	FY22 Forecast	3,967	1,858	1,175	7,000

Supplementary Materials
Assets Status

(100 million yen)

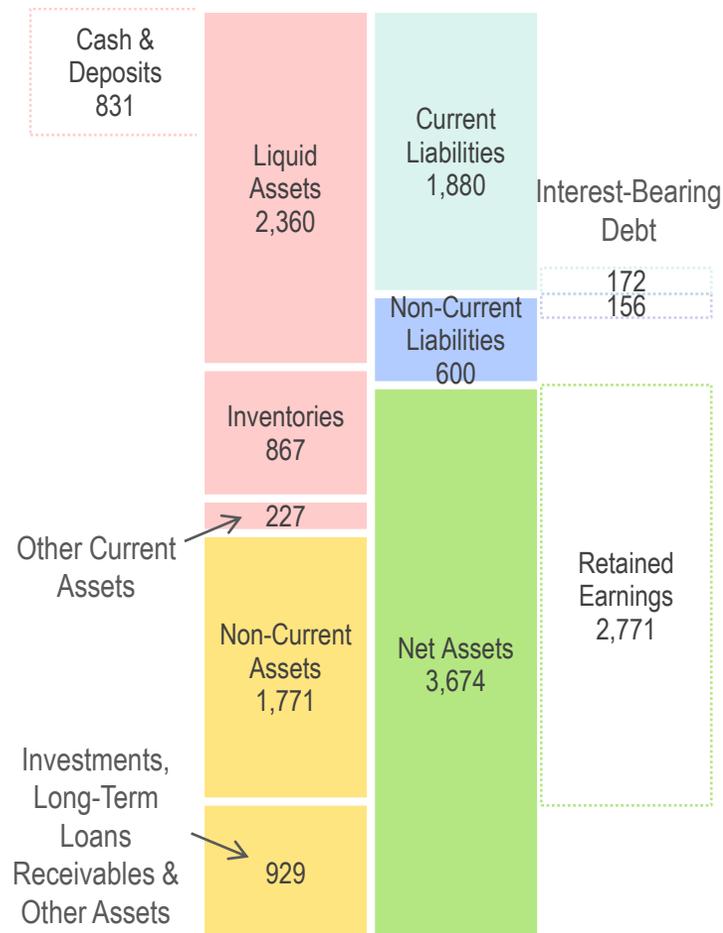
	FY2018	FY2019	FY2020	FY2021	FY2022 1st half	Increase /Decrease
Total Assets	5,731	5,326	5,607	5,880	6,154	274
Stockholder's Equity	2,811	2,709	2,839	3,226	3,495	268
Stockholder's Equity to Total Assets Ratio	49.0%	50.9%	50.6%	54.9%	56.8%	1.9%
Cash and Bank Deposits	985	745	793	921	831	-89
Interest Bearing Debt	682	575	692	497	328	-169
Net Cash	303	170	100	423	503	79

Supplementary Materials

Balance Sheet Status

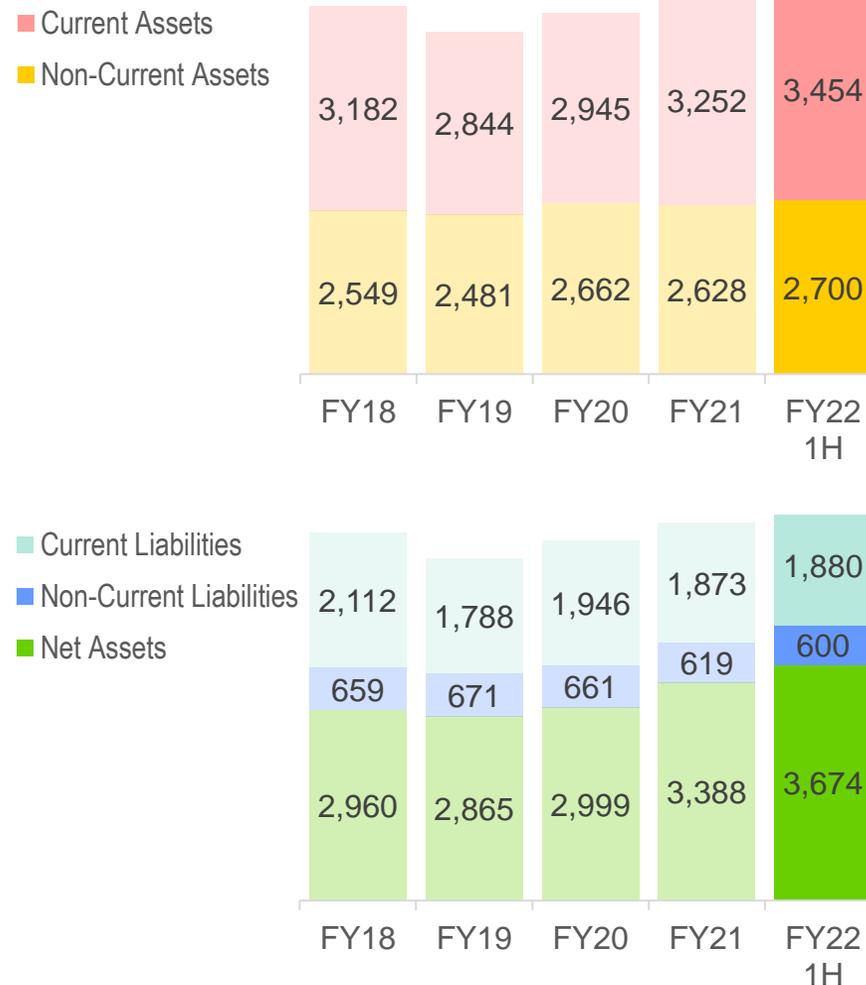
Balance Sheet as of 9/2022

(100 million yen)



Balance Sheet Trends

(100 million yen)



Assets

Cash decreased due to payments of dividends and repayments of borrowings.

Liabilities

Trade payables increased due to a recovery in operating transactions and foreign currency translation.

Non-current liabilities decreased due to repayment of borrowings.

Net Assets

Foreign currency translation adjustments increased. Retained earnings increased due to net profit for the quarter.

Capital Investment / Depreciation & Amortization

by Business Segment

(100 million Yen)

		FY2020 Results	FY2021 Results	FY2022		
				Initial Forecast	Latest Forecast	Variance
Capital Investments	Automotive Suspension Springs	49	30	83	70	-13
	Automotive Seating	62	50	74	50	-24
	Precision Springs & Components	105	113	212	120	-92
	Industrial Machinery & Others	24	30	69	68	-1
	Company-wide sharing	7	7	16	13	-3
	Total	249	232	456	321	-135
	Vs. Previous year	-37.3%	-6.9%	96.4%	38.0%	
Depreciation & Amortization	Automotive Suspension Springs	59	66	69	68	-1
	Automotive Seating	51	48	51	53	1
	Precision Springs & Components	109	114	119	113	-6
	Industrial Machinery & Others	37	36	39	37	-2
	Company-wide sharing	16	17	18	15	-3
	Total	274	283	297	286	-11
	Vs. Previous year	4.1%	2.9%	5.2%	1.1%	

Capital Investment / Depreciation & Amortization Cont'd

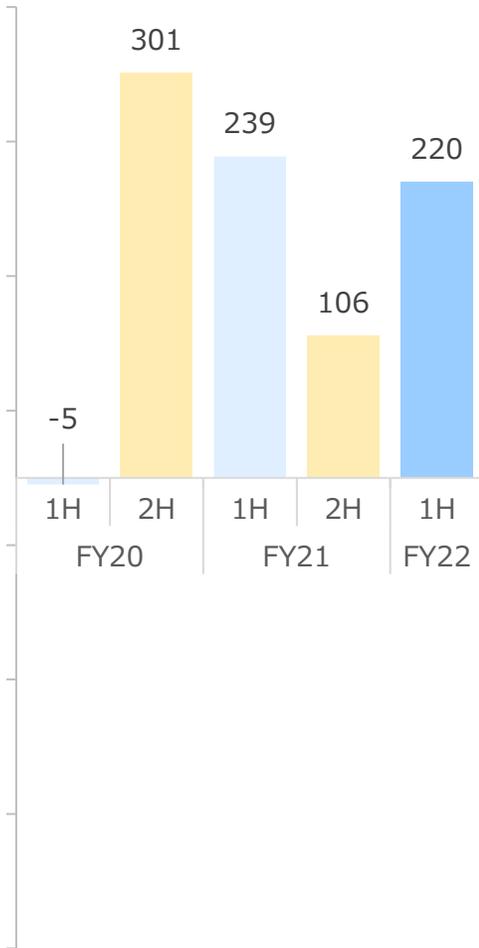
(100 million Yen)

by Region

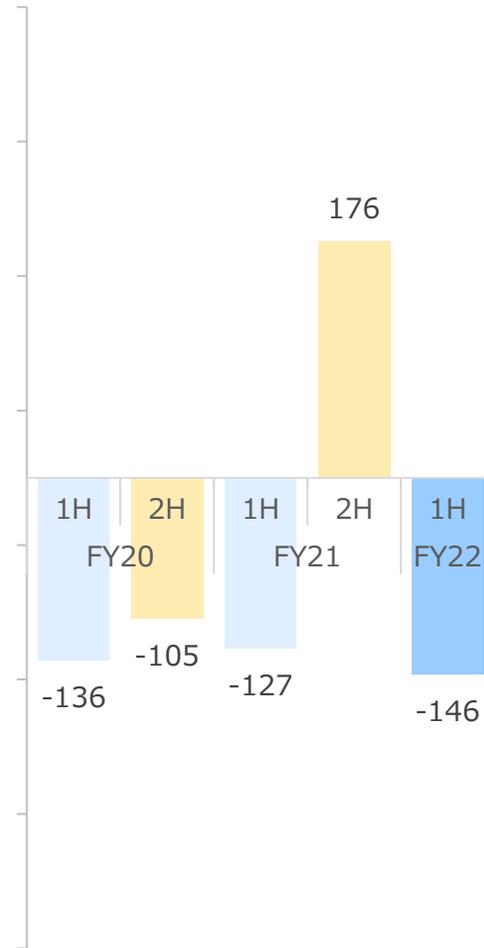
		FY2020 Results	FY2021 Results	FY2022		
				Initial Forecast	Latest Forecast	Variance
Capital Investments	Japan	138	130	234	209	-25
	Asia	63	73	138	56	-82
	America, Europe & Others	48	28	83	56	-27
	Overseas total	111	102	222	112	-110
	Total	249	232	456	321	-135
Depreciation	Japan	164	165	167	151	-16
& Amortization	Asia	71	73	83	83	0
	America, Europe & Others	39	44	46	52	5
	Overseas total	110	117	130	135	5
	Total	274	283	297	286	-11

Cash Flow Status in each half-year period

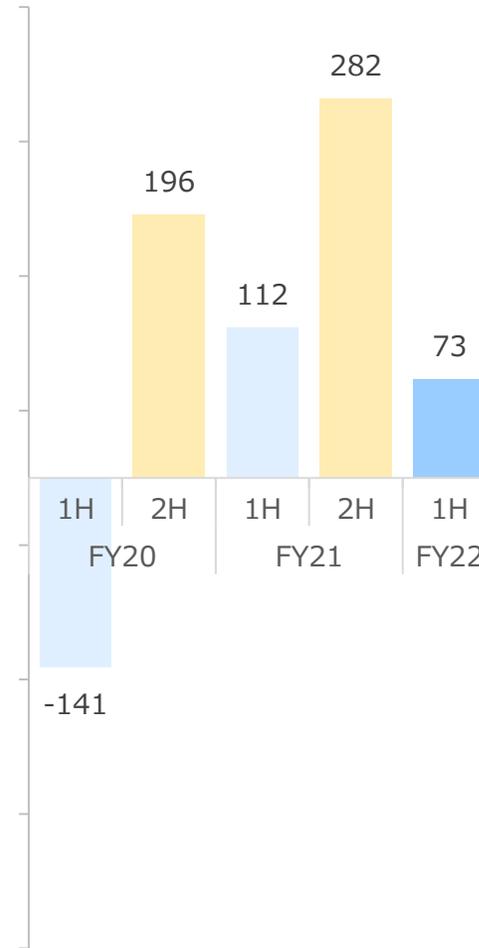
Operating CF



Investment CF

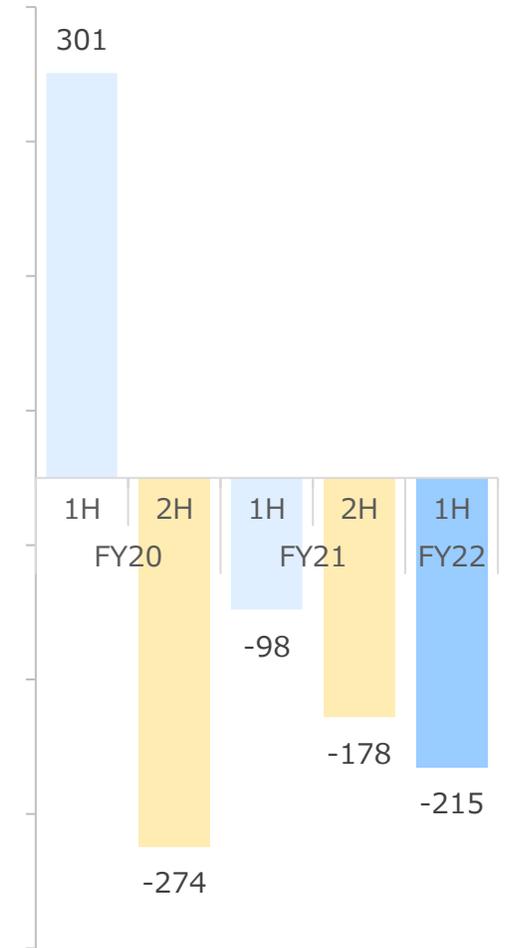


Free CF



Financial CF

(100 million Yen)



Answers to Frequently Asked Questions

Question

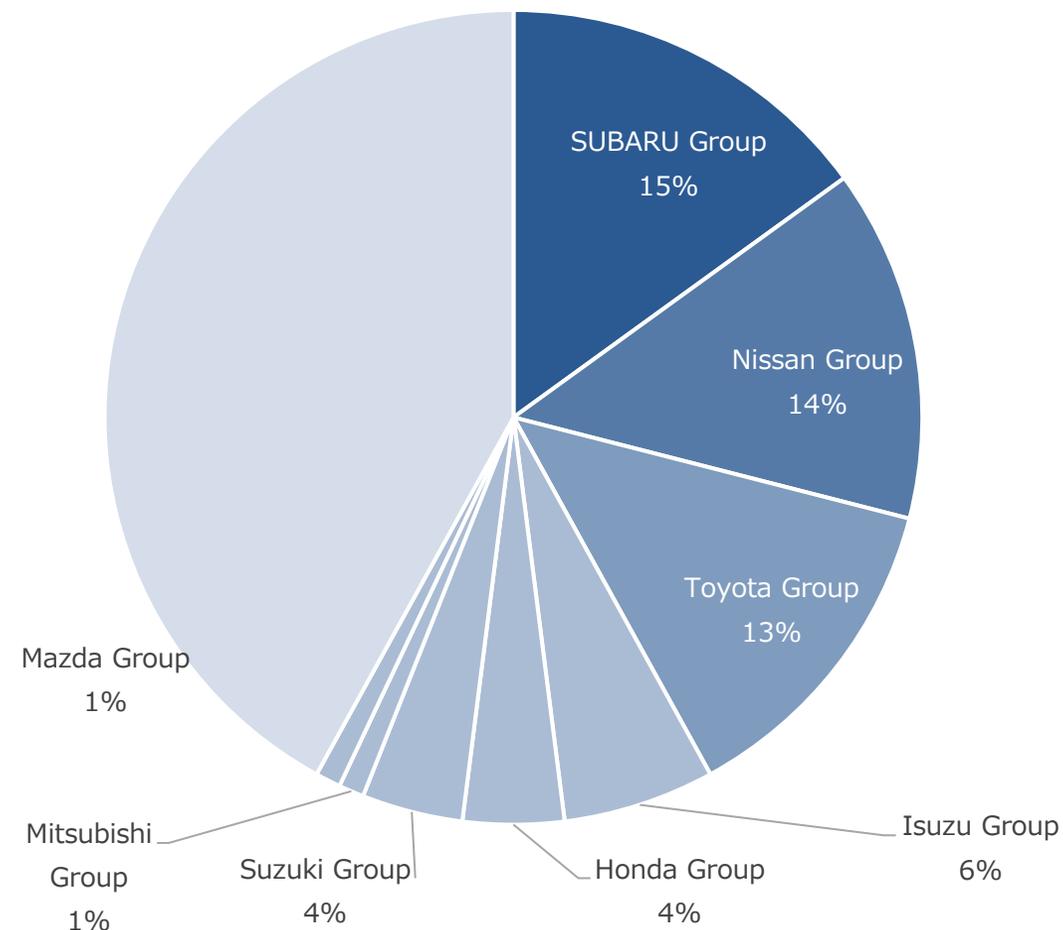
: What is your sales breakdown to each of the major car makers?

Answer

: Our results for the year ended March 2022 are shown in the table below.

Major car makers	FY2020	FY2021
SUBARU Group	16%	15%
Nissan Group	17%	14%
Toyota Group	12%	13%
Isuzu Group	5%	6%
Honda Group	4%	4%
Suzuki Group	4%	4%
Mitsubishi Group	1%	1%
Mazda Group	1%	1%
Top 3 Companies	45%	42%

(Note) The percentages show share versus total net sales.



Motor Core

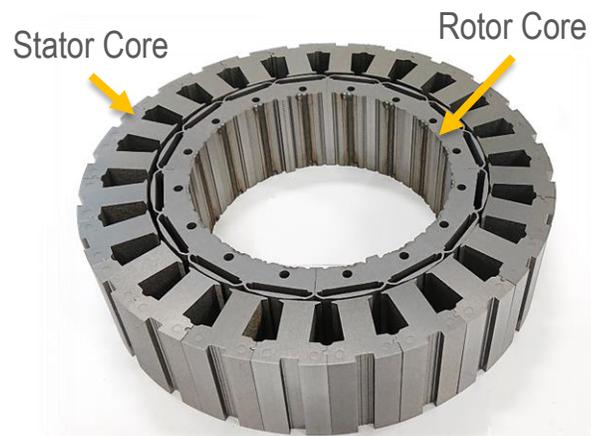
NHK produce Motor Cores, which are laminated iron cores used in the motors -- drive motors and/or power generators-- for EV and HV vehicles. They are made by some hundred layers of 0.25-0.35 mm thickness electromagnetic steel sheets which are stamped out one by one, and are fastened together by caulking or welding.

The motor core consists of the Rotor Core, which has a magnet inserted and serves as the rotating part of the motor, and the Stator Core, which is the fixed winding part. Electric power from battery is supplied to the motors through inverters, and Rotor Cores --which contains magnets-- are pulled and repelled by rotating magnetic field generated in the Stator Cores-- which are wound with coils--, causing Rotor Cores high speed rotation. Thin plate laminated iron cores can easily pass through magnetic field lines, and have ability to generate stronger magnetic force.

NHK Motor Cores are diameter of around 200mm and height of around 150mm, which is a relatively large size for the precision stamped products that NHK produce; but NHK has built up an ability over the many years, to produce dimensional accuracy as micron level, through our production of automotive parts and HDD (hard disk drive) parts, to be able to produce this kind of large, ultra-high precision stamped products.

The press dies --which is the key to the production of Motor Core-- are manufactured in-house, from designing, production to maintenance. In addition to our Atsugi Plant in Japan, NHK is able to produce the same quality motor cores, at our global operations in Mexico and China.

Motor Core



Suspension for HDD (Hard Disk Drive) Read-Write Head



Suspensions for HDD are unique spring products, holding read-write head in Hard Disk Drive devices.

In these days, there are much more HDDs in the Data Center in the companies ,who operates SNS and/or Video sharing sites --rather than used in Personal computers--; In these Data Centers, Ultra-large capacity HDDs line up with unit of hundreds of thousands.

A lot of CLA type suspensions (Refer Note 1. :hereinafter CLA) are used in these kind of HDDs; for example, in the picture (left), 18 pieces of CLA are used in 1 HDD equipment. The CLA is an Ultra-small actuator, built into the tip of the suspension, which moves read-write head. The CLA types can make finer movement at higher speed, rather than DSA type suspensions (Refer Note 2. :hereinafter DSA), a conventional product with a small actuator built into the center.

If you compare it to a human part, DSAs use up to the wrist, and CLAs use up to the fingertips; It has become an indispensable product for ultra-large capacity HDDs, by improving positioning accuracy and speed, with speedy & fine movements.

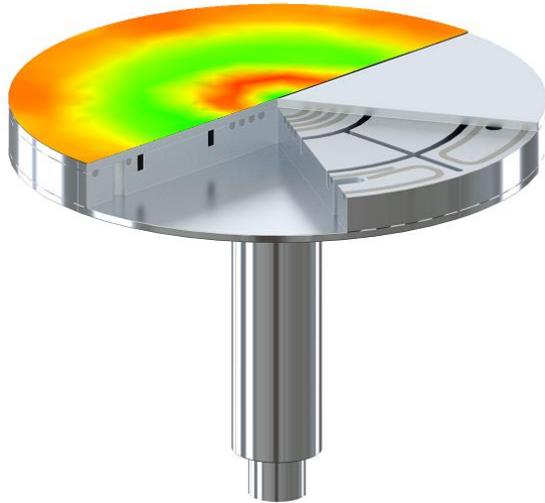
NHK Spring had started CLA mass-production from January 2016 --first in the world-- and have top share of the world.

*Note 1 : CLA stands for "Co-Located Actuators"

*Note 2 : DSA stands for "Dual Stage Actuators"



Stage heater with multi-zone temperature distribution control function for film deposition equipment



Ceramics spray-coated cooling plate for etching equipment



In semiconductors, conductors and insulators are drawn in a fine and complicated pattern on a silicon substrate to form a circuit.

Our stage heaters, which are mainly made of metal such as aluminum alloy and stainless steel, are broadly adopted in film deposition processes such as CVD and ALD*, and they make it possible to realize a complicated internal structure by the advanced bonding technology that we have cultivated over many years.

*CVD stands for Chemical Vapor Deposition

*ALD stands for Atomic Layer Deposition

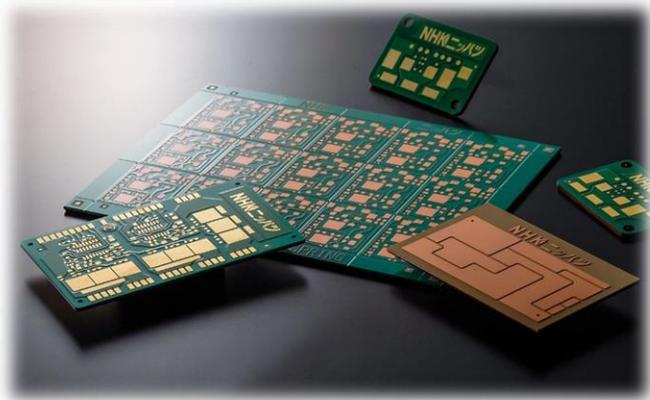
In making full use of our own heater element design technology and analysis technology for simulation, it is possible to arrange multiple heater elements, refrigerant channels, and heat insulating space, which enables to realize not only equalize temperature distribution, but also active temperature distribution control, that partially generates a difference in the range of several tens of degrees.

Regarding to etching equipment, we are manufacturing important stage parts called cooling plates, on which silicon wafers are loaded during process. Most of them are made from aluminum alloy ; NHK have the strength of integrated production --from material procurement to precision processing and ceramic spray coating--, and applying our advanced bonding technology, common to the heater manufacturing.

In these years, in addition to the parts at the bottom of the chamber -- heater and cooling plate which support work in process wafers--, we have also focused on developing the parts of the upper side of the chamber -- called shower heads, for the purpose of supplying required gas in the process --, and this sales are also increasing.

IMS (Integrated Metal Substrate)

IMS with high heat dissipation and high reliability insulation layer



Integrated Metal Substrates (IMS) are circuit plates, circuits are formed via an insulating layer on metal base, such as aluminum or copper, and their excellent heat dissipation are characteristic of IMS. Taking advantage of this heat-radiating performance, IMS is used in the fields of automotive, industrial, and consumer applications, to efficiently dissipate the heat generated by semiconductor components mounted on IMS.

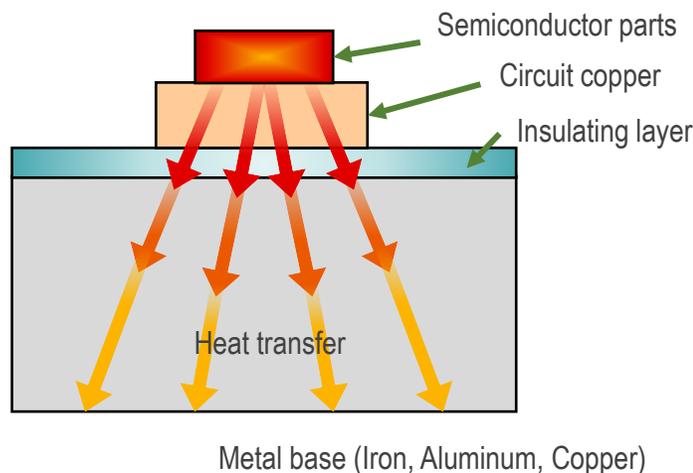
In the automotive field, our products are increasingly used in DC-DC converters and charger modules for electric and hybrid vehicles, and we are aiming to use them in drive inverter circuits in their future. In industrial applications, in addition to general-purpose inverters and inverter circuits for air conditioners, our IMS are widely used as power modules inside power conditioners for renewable energy.

Our IMS is specialized in the development and manufacturing of high heat radiation and highly reliable insulating layers.

Our IMS is characterized by our strength in integrated production, from the development of high heat-dissipating and highly reliable insulating layers, to manufacturing and finishing into IMS.

We have been developing IMS since 1980s, and have been leading the industry by introducing high heat dissipation insulating materials to the market successively.

Cross-sectional structure of IMS





NHK SPRING CO.,LTD.

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