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TOCALO

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Executive summary

Business overview

TOCALO Co., Ltd. (TOCALO) provides surface treatments that improve the performance of materials used across a range of industries by adding properties such as abrasion and heat resistance, conductivity, insulation, and heat shielding and dissipation. Its core technology is thermal spraying, which involves coating target surfaces by spraying metals or ceramics that have been melted using high temperature heat sources (e.g., plasma and gas). The company particularly excels in functional thermal spraying that provides both growth potential and high added value, and leads the Japanese market for thermal spraying with a share of 40% (Shared Research estimate based on data from Yano Research Institute, Digital Research, and other sources). The company also offers other surface treatments as ancillary services. These include the Toyota diffusion (TD) process, zinc alloy coating (ZAC), plasma transferred arc (PTA) process, and physical vapor deposition (PVD) process. (See the box on the next page for details.)

TOCALO's surface treatments are made to order. Accordingly, selling volume is not a business priority. The company procures coating materials and generates sales by applying surface treatments to goods and parts provided by customers. In FY03/23, it reported a GPM of 36.1%, an SG&A ratio of 14.1%, and an OPM of 21.9%, on a consolidated basis. Over half of the parent company's total manufacturing costs in FY03/23 were labor (29% of the total) and outsourcing costs (24%). Other manufacturing costs included materials (14%), consumables (11%), utilities (5%), depreciation (7%), and other costs (10%). TOCALO's business is labor-intensive, with personnel expenses accounting for about 50% of SG&A expenses.

The thermal spraying industry divides into companies that conduct thermal spraying internally and companies that perform thermal spraying as a contracted service. In 2018, the market for contracted treatment in Japan was worth approximately JPY60.0bn, while the global market was about JPY700.0bn (source: Yano Research Institute). Some overseas competitors sell thermal spraying materials and equipment in addition to providing contracted treatment services, but TOCALO specializes in services. Overseas sales accounted for 23.3% of sales in FY03/23 and mainly came from Japanese companies that have expanded abroad. The company also receives royalty income from licensing agreements with overseas companies, including competitors.

By area of application, 20% of thermal spraying in Japan is associated with industrial equipment, 20% semiconductors and flat panel displays (FPDs), 13% steelmaking, 10% bridges and structures, 10% paper manufacturing, and 27% other uses (2018 actual; Yano Research). At TOCALO, semiconductor/FPD-related sales at the parent made up about 48% of consolidated sales in FY03/23. The bulk of sales are to the Tokyo Electron Limited group (TSE Prime: 8035). Semiconductor-related business is TOCALO's growth driver, and TOCALO and Tokyo Electron have built a close relationship that allows them to conduct joint development.

In September 2004, TOCALO acquired all shares of Japan Coating Center Co., Ltd. (JCC), expanding into the thin coating technology known as the physical vapor disposition (PVD) process. PVD is a surface treatment method in which metals (e.g., titanium and chromium) are ionized with reactive gases in a vacuum to form highly adhesive ceramic coatings that are hard and dense but thin. Applied to surfaces of cutting tools, metallic molds, and other items, these coatings add functionality such as abrasion and corrosion resistance. JCC's profit margin is high (14.6% in FY03/23; before segment profit adjustments), but not as high as that of the Thermal Spraying (Parent) business. Shared Research notes that synergies between the parent and the subsidiary have generated.

By segment, Thermal Spraying (Parent) accounted for 75.2% of sales in FY03/23, Domestic Subsidiary (JCC) for 5.0%, Overseas Subsidiaries for 13.8%, Other Surface Treatments for 5.7% and Royalty Income 0.4%. The segment profit margins (recurring profit basis) were 23.1% in Thermal Spraying, 14.6% in Domestic Subsidiary, 25.0% in Overseas Subsidiaries, and 17.0% in Other Surface Treatments (before segment profit adjustments).

Trends and outlook

- In FY03/23, sales were JPY48.1bn (+9.9% YoY), operating profit JPY10.6bn (+3.0% YoY), recurring profit JPY11.0bn (+4.1% YoY), and net income attributable to owners of the parent JPY7.4bn (+6.4% YoY). On a full-year basis, business in the core semiconductor and FPD fields grew, resulting in record highs the second consecutive year in sales and all forms of profit, including recurring profit. The expected annual dividend is JPY50.0 per share, up from the company's previous forecast of JPY45.0 per share (JPY45.0 per share in FY03/23), and the actual payout ratio was 41.4% (39.6%).

- The company plan for FY03/24 calls for sales of JPY47.0bn (-2.4% YoY), operating profit of JPY8.7bn (-17.6% YoY), recurring profit of JPY8.7bn (-20.9% YoY), net income attributable to owners of the parent of JPY5.8bn (-21.1% YoY), and EPS of JPY96.7. Factoring in the effects from inventory adjustments at customers in the mainstay semiconductor/FPD industries, management forecasts sales and profit declining YoY for the first time in four years. The company is planning an annual dividend of JPY50.0 per share, the same as in FY03/23, and expects a payout ratio of 51.7%. The company has decided to revise its dividend policy and is targeting to increase the dividend payout ratio to about 50%, effective from FY03/24. At the Q1 results announcement (April–June) on July 31, 2023, the company maintained its initial forecast.

- On November 9, 2021, the company publicly announced its medium-term management plan for the first time ever. This medium-term management plan clearly defines the company's vision for 2030 and outlines the growth strategy the company plans to implement over the five-year duration of the plan, which concludes with FY03/26. For FY03/26, the company has set a sales target of JPY53.0bn (versus actual sales of JPY39.3bn in FY03/21) and a recurring profit target of JPY12.0bn (versus actual recurring profit of JPY8.9bn in FY03/21). In addition to maintaining and enhancing its financial strength and profitability, the company also clearly indicated that it would aim to increase shareholder returns. However, the company additionally stated that it would periodically monitor and review expansion associated with its business operations targeting semiconductors (expected to be a major driver of results during this medium-term management plan), as it is highly subject to impact from changes in trends within the semiconductor market.

- In May 2022, the company announced the progress made on its medium-term management plan. Since only half a year had passed since the plan was created, there had basically been no change. However, the company has indicated that both sales and recurring profit are growing faster than originally envisioned. The company suggested that semiconductor-related sales and recurring profit would be revised when the financial results for FY3/23 were announced, but it has maintained a cautious stance to date.

Strengths and weaknesses

Shared Research believes that TOCALO's three main strengths are its portfolio of diverse surface treatments that makes the company the leader in a niche market; its ability to acquire top-class customers in major industries through joint development focused on meeting future needs; and stable earnings due to high domestic repeat demand for technologies with added value.

Shared Research has identified three notable weaknesses: a lack of peripheral technologies and mass production bases necessary to process large orders; lackluster cultivation of overseas markets; and low profitability of the Other Surface Treatments business. (See the "Strengths and weaknesses" section for details.)

Surface treatment technologies offered by TOCALO

Thermal spraying
A surface treatment technology that involves forming coatings on the workpieces by spraying them with molten metals, ceramics, cermet*, and other materials.
*Cermet: a composite material that is created by combining powder from hard compounds (metal carbide, nitride, etc.) with metal bonding materials, then sintering the mixture

Chemically defined zinc alloy coating (CDC-ZAC)
A chemical densification treatment for forming composite ceramic coatings through chemical reactions. It is characterized by excellent corrosion resistance and high degrees of hardness, which are unique properties of ceramics.

Toyota diffusion (TD) process
A surface treatment method that enables the formation of super-hard coatings. It is essential to the metallic mold industry as a surface treatment technology.

Plasma transferred arc (PTA) process
An overlay-welding method that utilizes plasma and produces excellent impact resistance.

Physical vapor deposition (PVD) process
This process minimizes heat deformation of the workpiece because it allows for a wide selection of temperature ranges, enabling treatments that best suit the substrate (the material to which spraying deposit is applied).
Source: Shared Research based on company data

Key financial data

Income statement	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23	FY03/24
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Est.
Orders	**23,097**	**27,137**	**28,343**	**29,506**	**36,851**	**38,915**	**38,011**	**39,021**	**45,394**	**48,419**	
YoY	10.2%	17.5%	4.4%	4.1%	24.9%	5.6%	-2.3%	2.7%	16.3%	6.7%	
Order backlog	**2,774**	**3,843**	**3,440**	**3,983**	**6,725**	**6,081**	**6,195**	**6,143**	**7,896**	**8,349**	
YoY	21.9%	38.5%	-10.5%	15.8%	68.8%	-9.6%	1.9%	-0.8%	28.5%	5.7%	
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,294**	**43,813**	**48,144**	**47,000**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.7%	11.5%	9.9%	-2.4%
Gross profit	**7,564**	**8,964**	**9,727**	**10,536**	**12,646**	**13,761**	**12,780**	**14,814**	**16,585**	**17,365**	
YoY	10.8%	18.5%	8.5%	8.3%	20.0%	8.8%	-7.1%	15.9%	12.0%	4.7%	
Gross profit margin	33.5%	34.4%	33.8%	36.4%	37.1%	34.8%	33.7%	37.7%	37.9%	36.1%	
Operating profit	**3,483**	**4,568**	**4,806**	**5,646**	**7,110**	**7,741**	**6,550**	**8,890**	**10,255**	**10,558**	**8,700**
YoY	19.9%	31.2%	5.2%	17.5%	25.9%	8.9%	-15.4%	35.7%	15.4%	3.0%	-17.6%
Operating profit margin	15.4%	17.5%	16.7%	19.5%	20.8%	19.6%	17.3%	22.6%	23.4%	21.9%	18.5%
Recurring profit	**3,657**	**4,890**	**5,028**	**5,801**	**7,363**	**8,076**	**6,812**	**8,914**	**10,571**	**11,003**	**8,700**
YoY	19.6%	33.7%	2.8%	15.4%	26.9%	9.7%	-15.7%	30.9%	18.6%	4.1%	-20.9%
Recurring profit margin	16.2%	18.8%	17.5%	20.0%	21.6%	20.4%	18.0%	22.7%	24.1%	22.9%	18.5%
Net income	**2,176**	**3,031**	**3,016**	**4,070**	**4,836**	**5,441**	**4,404**	**5,463**	**6,909**	**7,350**	**5,800**
YoY	16.2%	39.3%	-0.5%	34.9%	18.8%	12.5%	-19.1%	24.0%	26.5%	6.4%	-21.1%
Net margin	9.6%	11.6%	10.5%	14.1%	14.2%	13.8%	11.6%	13.9%	15.8%	15.3%	12.3%
Per-share data											
Issued shares FY-end(000 shares)	63,200	63,200	63,200	63,200	63,200	63,200	63,200	63,200	63,200	63,200	
EPS	35.8	49.9	49.6	67.0	79.6	89.5	72.5	89.9	113.6	120.8	96.7
EPS (fully diluted)	-	-	-	-	-	-	-	-	-	-	-
Dividend per share	12.5	15.0	18.8	21.3	26.3	30.0	25.0	35.0	45.0	50.0	50.0
Payout ratio	34.9%	30.1%	37.8%	31.7%	33.0%	33.5%	34.5%	38.9%	39.6%	41.4%	51.7%
DOE	3.3%	3.7%	4.2%	4.4%	4.9%	5.1%	3.9%	5.0%	5.9%	5.9%	
Book value per share	390.2	427.4	456.9	504.1	562.1	617.8	662.3	727.1	807.3	884.8	
Balance sheet (JPYmn)											
Cash and cash equivalents	10,181	8,404	8,197	8,387	9,234	12,660	16,889	16,227	17,110	16,912	
Total current assets	**19,700**	**21,527**	**20,830**	**23,000**	**25,941**	**27,749**	**31,837**	**33,140**	**36,365**	**38,827**	
Tangible fixed assets	12,735	14,055	16,151	20,305	24,589	27,395	26,786	28,594	30,740	33,037	
Investments and other assets	553	597	914	911	1,871	1,838	2,160	2,183	2,180	2,163	
Intangible assets	519	467	97	115	260	295	338	264	231	235	
Total assets	**33,507**	**36,647**	**37,992**	**44,331**	**52,664**	**57,278**	**61,122**	**64,183**	**69,517**	**74,263**	
Accounts payable	2,442	3,189	3,036	1,229	1,434	1,271	1,157	1,194	1,397	1,425	
Short-term debt	1,137	943	511	905	879	1,218	2,153	1,802	1,460	1,490	
Total current liabilities	**7,393**	**8,383**	**7,877**	**8,884**	**14,054**	**13,362**	**11,323**	**12,193**	**13,334**	**14,272**	
Long-term debt	653	284	117	2,419	1,701	3,337	6,045	4,267	2,825	1,449	
Total fixed liabilities	**1,421**	**1,112**	**1,045**	**3,195**	**2,470**	**4,250**	**7,163**	**5,097**	**3,723**	**2,347**	
Total liabilities	**8,814**	**9,495**	**8,922**	**12,079**	**16,524**	**17,613**	**18,487**	**17,291**	**17,058**	**16,620**	
Total liabilities and net assets	**33,507**	**36,647**	**37,992**	**44,331**	**52,664**	**57,278**	**61,122**	**64,183**	**69,517**	**74,263**	
Total interest-bearing debt	1,790	1,227	628	3,324	2,580	4,555	8,198	6,069	4,285	2,939	
Cash flow statement(JPYmn)											
Cash flows from operating activities	3,465	4,546	4,534	5,238	7,611	8,044	6,621	10,588	9,873	9,894	
Cash flows from investing activities	-177	-4,889	-895	-6,537	-4,681	-4,617	-4,217	-4,615	-5,044	-5,094	
Cash flows from financing activities	-165	-1,475	-1,743	1,581	-2,217	40	1,871	-3,798	-4,547	-4,561	
Financial ratios											
ROA (RP-based)	11.5%	13.9%	13.5%	14.1%	15.2%	14.7%	11.5%	14.2%	15.8%	15.3%	11.7%
ROE	9.5%	12.2%	11.2%	13.9%	14.9%	15.2%	11.3%	12.9%	14.8%	14.3%	10.7%
Equity ratio	70.8%	71.5%	73.3%	69.1%	64.9%	65.6%	65.9%	68.9%	70.6%	72.5%	
Capex, other (JPYmn)											
Capital expenditures	2,513	2,678	3,730	5,936	6,361	5,965	2,313	4,822	4,385	4,855	5,000
Depreciation	1,388	1,440	1,560	1,703	1,948	2,658	2,991	2,771	2,783	2,987	3,200
R&D expenses	653	746	862	834	905	1,003	1,159	1,296	1,296	1,400	1,450
R&D ratio	2.9%	2.9%	3.0%	2.9%	2.7%	2.5%	3.1%	3.3%	3.0%	2.9%	3.1%
Employee data (JPYmn)											
No. of employees (ex. temp. workers)	802	824	857	898	955	1,021	1,060	1,121	1,176	1,300	
Temporary workers	242	243	239	245	236	251	263	253	265	164	
Total no. of employees (incl. temp. workers)	1,041	1,056	1,080	1,123	1,163	1,239	1,304	1,344	1,414	1,402	
Sales per employee	21.7	24.7	26.6	25.8	29.3	31.9	29.1	29.2	31.0	34.3	
Operating profit per employee	3.3	4.3	4.5	5.0	6.1	6.2	5.0	6.6	7.3	7.5	

Source: Shared Research based on company data

Notes: Per- share data is adjusted for stock splits. Figures may differ from company materials due to differences in rounding methods.

Citing the application of the accounting standard for revenue recognition from FY03/22, the company has not released YoY growth rates, but Shared Research has provided estimates as the size of the impact appears to be limited.

Trends and outlook

Quarterly trends and results

Cumulative	FY03/23				FY03/24				FY03/24	
Cumulative (JPYmn)	Q1	Q1-Q2	Q1-Q3	Q1-Q4	Q1	Q1-Q2	Q1-Q3	Q1-Q4	% of Est.	FY Est.
Sales	11,906	23,996	36,424	48,144	11,787	-	-	-	25.1%	47,000
YoY	10.9%	13.7%	13.0%	9.9%	-1.0%	-	-	-		-2.4%
Gross profit	4,444	8,931	13,302	17,365	4,112	-	-	-		
YoY	3.1%	8.7%	7.8%	4.7%	-7.5%	-	-	-		
Gross profit margin	37.3%	37.2%	36.5%	36.1%	34.9%	-	-	-		
SG&A expenses	1,720	3,349	5,078	6,807	1,843	-	-	-		
YoY	10.9%	7.8%	6.2%	7.6%	7.2%	-	-	-		
SG&A ratio	14.4%	14.0%	13.9%	14.1%	15.6%	-	-	-		
Operating profit	2,724	5,581	8,224	10,558	2,268	-	-	-	26.1%	8,700
YoY	-1.3%	9.2%	8.9%	3.0%	-16.7%	-	-	-		-17.6%
Operating profit margin	22.9%	23.3%	22.6%	21.9%	19.2%	-	-	-		18.5%
Recurring profit	2,948	6,033	8,678	11,003	2,380	-	-	-	27.4%	8,700
YoY	3.8%	15.5%	12.1%	4.1%	-19.3%	-	-	-		-20.9%
Recurring profit margin	24.8%	25.1%	23.8%	22.9%	20.2%	-	-	-		18.5%
Net income	1,912	3,919	5,669	7,350	1,539	-	-	-	26.5%	5,800
YoY	2.5%	13.7%	13.4%	6.4%	-19.5%	-	-	-		-21.1%
Net margin	16.1%	16.3%	15.6%	15.3%	13.1%	-	-	-		12.3%
Cumulative		**FY03/23**				**FY03/24**			**FY03/24**	
Quarterly (JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**% of Est.**	**1H Est.**
Sales	11,906	12,090	12,428	11,720	11,787				51.2%	23,000
YoY	10.9%	16.7%	11.7%	1.2%	-1.0%					-4.2%
Gross profit	4,444	4,487	4,371	4,063	4,112					
YoY	3.1%	14.8%	6.1%	-4.3%	-7.5%					
Gross profit margin	37.3%	37.1%	35.2%	34.7%	34.9%					
SG&A expenses	1,720	1,629	1,729	1,729	1,843					
YoY	10.9%	4.8%	3.1%	11.8%	7.2%					
SG&A ratio	14.4%	13.5%	13.9%	14.8%	15.6%					
Operating profit	2,724	2,857	2,643	2,334	2,268				54.0%	4,200
YoY	-1.3%	21.5%	8.1%	-13.6%	-16.7%					-24.7%
Operating profit margin	22.9%	23.6%	21.3%	19.9%	19.2%					18.3%
Recurring profit	2,948	3,085	2,645	2,325	2,380				56.7%	4,200
YoY	3.8%	29.5%	5.1%	-17.9%	-19.3%					-30.4%
Recurring profit margin	24.8%	25.5%	21.3%	19.8%	20.2%					18.3%
Net income	1,912	2,007	1,750	1,681	1,539				55.0%	2,800
YoY	2.5%	26.8%	13.0%	-12.1%	-19.5%					-28.6%
Net margin	16.1%	16.6%	14.1%	14.3%	13.1%					12.2%

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

By segment	FY03/23				FY03/24				FY03/24	
Cumulative (JPYmn)	Q1	Q1-Q2	Q1-Q3	Q1-Q4	Q1	Q1-Q2	Q1-Q3	Q1-Q4	% of Est.	FY Est.
Sales	11,906	23,996	36,424	48,144	11,787	-	-	-	25.1%	47,000
YoY	10.9%	13.7%	13.0%	9.9%	-1.0%	-	-	-		-2.4%
Thermal Spraying (Parent)	9,010	18,205	27,615	36,184	8,797	-	-	-	25.8%	34,063
YoY	9.4%	13.8%	13.5%	9.5%	-2.4%	-	-	-		-5.9%
% of total	75.7%	75.9%	75.8%	75.2%	74.6%	-	-	-		72.5%
Domestic Subsidiary	591	1,197	1,820	2,414	623	-	-	-	23.5%	2,656
YoY	-3.3%	-0.7%	0.4%	0.6%	5.4%	-	-	-		10.0%
% of total	5.0%	5.0%	5.0%	5.0%	5.3%	-	-	-		5.7%
Overseas Subsidiaries	1,577	3,140	4,814	6,622	1,607	-	-	-	22.2%	7,254
YoY	24.7%	20.1%	15.0%	16.3%	1.9%	-	-	-		9.5%
% of total	13.2%	13.1%	13.2%	13.8%	13.6%	-	-	-		15.4%
Other Surface Treatments	697	1,367	2,060	2,745	745	-	-	-	25.9%	2,877
YoY	16.8%	14.4%	14.4%	9.7%	6.9%	-	-	-		4.8%
% of total	5.9%	5.7%	5.7%	5.7%	6.3%	-	-	-		6.1%
Royalty income	29	86	113	177	14	-	-	-	9.3%	150
YoY	26.1%	7.5%	8.7%	3.5%	-51.7%	-	-	-		-15.3%
Segment profit (recurring profit)	2,948	6,033	8,678	11,003	2,380	-	-	-	27.4%	8,700
YoY	3.8%	15.5%	12.1%	4.1%	-19.3%	-	-	-		-20.9%
Recurring profit margin	24.8%	25.1%	23.8%	22.9%	20.2%	-	-	-		18.5%
Thermal Spraying (Parent)	2,278	4,463	6,623	8,341	1,787	-	-	-		
YoY	6.1%	12.2%	11.0%	3.2%	-21.6%	-	-	-		
Recurring profit margin	25.3%	24.5%	24.0%	23.1%	20.3%	-	-	-		
Domestic Subsidiary	85	175	276	352	114	-	-	-		
YoY	-44.1%	-28.6%	-21.6%	-25.3%	34.1%	-	-	-		
Recurring profit margin	14.4%	14.6%	15.2%	14.6%	18.3%	-	-	-		
Overseas Subsidiaries	437	885	1,235	1,653	376	-	-	-		
YoY	23.8%	28.4%	8.9%	7.5%	-14.0%	-	-	-		
Recurring profit margin	27.7%	28.2%	25.7%	25.0%	23.4%	-	-	-		
Other Surface Treatments	122	244	359	468	130	-	-	-		
YoY	4.3%	8.9%	8.5%	0.0%	6.6%	-	-	-		
Recurring profit margin	17.5%	17.8%	17.4%	17.0%	17.4%	-	-	-		
Adjustments	23	264	183	188	-	-	-	-		
By segment		**FY03/23**				**FY03/24**				
Quarterly (JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**		
Sales	11,906	12,090	12,428	11,720	11,787					
YoY	10.9%	16.7%	11.7%	1.2%	-1.0%					
Thermal Spraying (Parent)	9,010	9,195	9,410	8,569	8,797					
YoY	9.4%	18.5%	13.1%	-1.7%	-2.4%					
Domestic Subsidiary	591	606	623	594	623					
YoY	-3.3%	1.8%	2.8%	1.2%	5.4%					
Overseas Subsidiaries	1,577	1,563	1,674	1,808	1,607					
YoY	24.7%	15.8%	6.5%	19.9%	1.9%					

Other Surface Treatments	697	670	693	685	745
YoY	16.8%	12.0%	14.4%	-2.3%	6.9%
Royalty income	29	57	27	64	14
YoY	26.1%	0.0%	12.5%	-4.5%	-51.7%
Segment profit (recurring profit)	2,948	3,085	2,645	2,325	2,380
YoY	3.8%	29.5%	5.1%	-17.9%	-19.3%
Recurring profit margin	24.8%	25.5%	21.3%	19.8%	20.2%
Thermal Spraying (Parent)	2,278	2,185	2,160	1,718	1,787
YoY	6.1%	19.4%	8.8%	-19.0%	-21.6%
Recurring profit margin	25.3%	23.8%	23.0%	20.0%	20.3%
Domestic Subsidiary	85	90	101	76	114
YoY	-44.1%	-3.2%	-5.6%	-36.1%	34.1%
Recurring profit margin	14.4%	14.9%	16.2%	12.8%	18.3%
Overseas Subsidiaries	437	448	350	418	376
YoY	23.8%	33.3%	-21.3%	3.7%	-14.0%
Recurring profit margin	27.7%	28.7%	20.9%	23.1%	23.4%
Other Surface Treatments	122	122	115	109	130
YoY	4.3%	14.0%	7.5%	-20.4%	6.6%
Recurring profit margin	17.5%	18.2%	16.6%	15.9%	17.4%
Adjustments	23	241	-81	5	-

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

Orders	**FY03/23**				**FY03/24**			
Cumulative (JPYmn)	**Q1**	**Q1-Q2**	**Q1-Q3**	**Q1-Q4**	**Q1**	**Q1-Q2**	**Q1-Q3**	**Q1-Q4**
Orders	12,627	25,045	37,949	48,419	12,276			
YoY	16.2%	16.6%	12.8%	6.7%	-2.8%	-	-	-
Thermal Spraying (Parent)	9,533	18,779	28,443	36,195	9,057			
YoY	15.3%	16.1%	12.0%	5.8%	-5.0%	-	-	-
Domestic Subsidiary	585	1,206	1,822	2,402	659			
YoY	-1.0%	0.9%	1.2%	0.7%	12.6%	-	-	-
Overseas Subsidiaries	1,864	3,707	5,638	7,115	1,815			
YoY	36.7%	32.3%	25.8%	16.4%	-2.6%	-	-	-
Other Surface Treatments	644	1,351	2,045	2,706	744			
YoY	-0.5%	3.9%	4.1%	0.9%	15.5%	-	-	-
Orders	**FY03/23**				**FY03/24**			
Quarterly (JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Orders	12,627	12,418	12,904	10,470	12,276	-	-	-
YoY	16.2%	17.1%	6.1%	-10.9%	-2.8%	-	-	-
Thermal Spraying (Parent)	9,533	9,246	9,664	7,752	9,057	-	-	-
YoY	15.3%	16.8%	4.8%	-12.1%	-5.0%	-	-	-
Domestic Subsidiary	585	621	616	580	659	-	-	-
YoY	-1.0%	2.8%	1.8%	-1.0%	12.6%	-	-	-
Overseas Subsidiaries	1,864	1,843	1,931	1,477	1,815	-	-	-
YoY	36.7%	28.2%	15.1%	-9.5%	-2.6%	-	-	-
Other Surface Treatments	644	707	694	661	744	-	-	-
YoY	-0.5%	8.3%	4.5%	-8.1%	15.5%	-	-	-

Order backlog	**FY03/23**				**FY03/24**			
(JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Order backlog	8,647	9,031	9,534	8,349	8,852			
YoY	37.3%	36.8%	24.4%	5.7%	2.4%	-	-	-
Thermal Spraying (Parent)	6,527	6,578	6,832	6,016	6,276			
YoY	34.2%	31.2%	15.6%	0.2%	-3.8%	-	-	-
Domestic Subsidiary	40	56	48	34	70			
YoY	2.6%	14.3%	0.0%	-26.1%	75.0%	-	-	-
Overseas Subsidiaries	1,744	2,025	2,283	1,951	2,159			
YoY	53.0%	64.9%	71.1%	33.8%	23.8%	-	-	-
Other Surface Treatments	333	370	370	346	346			
YoY	30.6%	19.4%	0.5%	-10.4%	3.9%	-	-	-

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

Factors affecting RP change	**FY03/23**				**FY03/24**			
Cumulative (JPYmn)	**Q1**	**Q1-Q2**	**Q1-Q3**	**Q1-Q4**	**Q1**	**Q1-Q2**	**Q1-Q3**	**Q1-Q4**
Recurring profit	2,948	6,033	8,678	11,003	2,380			
YoY change	109	811	940	432	-568			
Sales	717	1,775	2,556	2,530	-109			
Variable cost ratio	-65	-90	-338	-520	-280			
Personnel expenses	-336	-721	-959	-1,121	-169			
Depreciation	-76	-116	-137	-160	14			
Forex impact	194	431	430	342	-108			
Other	-325	-468	-611	-638	85			
Factors affecting RP change	**FY03/23**				**FY03/24**			
Quarterly (JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Recurring profit	2,948	3,085	2,645	2,325	2,380			
YoY change	109	702	129	-508	-568			
Sales	717	1,058	781	-26	-109			
Variable cost ratio	-65	-25	-248	-182	-280			
Personnel expenses	-336	-385	-238	-162	-169			
Depreciation	-76	-40	-21	-23	14			
Forex impact	194	237	-1	-88	-108			
Other	-325	-143	-143	-27	85			

Source: Shared Research based on company data

Q1 FY03/24 results (out July 31, 2023)

Q1 (April–June, three months) results summary

Results for Q1 FY03/24 (April–June 2023) were as follows.

- Sales: JPY11.8bn (-1.0% YoY)
- Operating profit: JPY2.3bn (-16.7% YoY)
- Recurring profit: JPY2.4bn (-19.3% YoY)
  - Recurring profit margin: 20.2% (-4.6pp YoY)
- Net income attributable to owners of the parent: JPY1.5bn (-19.5% YoY)

- Orders: JPY12.3bn (-2.8% YoY)
- Order backlog: JPY8.9bn (+2.4% YoY)

Sales

- Thermal Spraying (handled by TOCALO, the parent company) is the company's mainstay business and accounts for about 75% of consolidated sales. In Q1, Thermal Spraying sales decreased 2.4% YoY. This was mainly due to a temporary adjustment phase in the semiconductor market, resulting in a 14.2% decrease in sales for semiconductors and flat panel displays (FPDs). However, the decrease in Thermal Spraying sales was minimized to a 2.4% decline by increased sales for other applications (industrial machinery-related, steelmaking-related, etc.). Sales for Overseas Subsidiaries (mainly China and Taiwan), Domestic Subsidiary, and Other Surface Treatments segments also increased YoY, but were not able to fully offset the decrease in Thermal Spraying.

- As a result, Q1 (April–June) consolidated sales decreased 1.0% to JPY11.8bn, marking the first YoY decline in sales in 14 quarters since the October–December quarter of 2019.

Recurring profit and recurring profit margin

- Segment profit decreased 21.6% YoY for Thermal Spraying (Parent), 14.0% YoY for Overseas Subsidiaries, but increased 34.1% YoY for Domestic Subsidiary, and 6.6% YoY for Other Surface Treatments. Segment profits at the company are linked to recurring profit on the income statement. The mainstay Thermal Spraying segment saw a decline in profit due to a decrease in sales from the high-profit semiconductors and FPDs, and Overseas Subsidiaries also performed poorly due to a decline in demand in the semiconductor market. The increase in profit at Domestic Subsidiary could not fully offset these declines.

- Consequently, the consolidated recurring profit for Q1 (April–June) decreased 19.3% YoY to JPY2.4bn, marking a YoY decrease in profit for the second consecutive quarter. Furthermore, the recurring profit margin fell 4.6pp YoY to 20.2% due to changes in sales share (decrease in sales from semiconductors and FPD) and the impact of rising process material and personnel costs. Net income (net income attributable to owners of the parent) also decreased rather similarly.

Orders

- Q1 (April–June) FY03/24 orders decreased 2.8% YoY to JPY12.3bn. Orders for the Thermal Spraying segment's mainstay semiconductor- and FDP-related products declined due to the adjustment phase in the semiconductor market, which became evident from the latter half of the previous fiscal year (FY03/23). Orders for the Overseas subsidiaries segment declined for the same reason. On the other hand, orders for the Domestic subsidiary segment increased due to the recovery of production in the automobile industry, which is its main customer base, and orders for the Other Surface Treatment segment also increased YoY, but this was not enough to compensate for the decline in semiconductor-related orders. The breakdown of the JPY12.3bn of orders received in Q1 FY03/24 is shown below.

  - Thermal Spraying (parent): JPY9.1bn (-5.0% YoY)
    - Semiconductor/FPD-related: JPY5.1bn (-16.9% YoY)
    - Industrial machinery-related: JPY1.2bn (+34.2% YoY)
    - Steel making-related: JPY1.0bn (-1.3% YoY)
    - Other businesses: JPY1.7bn (+18.5% YoY)
  - Domestic subsidiary: JPY659mn (+12.6% YoY)
  - Overseas subsidiaries: JPY1.8bn (-2.6% YoY)
  - Other Surface Treatments: JPY744mn (+15.5% YoY)

- In the semiconductor/FPD-related markets, orders of the company's mainstay thermal spraying in Q1 declined 16.9% YoY due to inventory adjustments at semiconductor manufacturing equipment manufacturers, the company's largest customers, against the backdrop of a full-scale adjustment phase in the semiconductor market. On a quarterly basis, orders for semiconductor/FPD-related products declined for the first time in 13 quarters (YoY). In Thermal Spraying, orders for industrial machinery-related products saw a 34.2% increase and Other businesses saw an 18.5% increase, but this could not cover the decline in orders for semiconductor/FPD-related products. Thermal Spraying orders declined 5.0% to JPY9.1bn, the first drop in 13 quarters.

- Aside from Thermal Spraying, Domestic Subsidiary orders increased 12.6% YoY as domestic automobile production bottomed out, and Other Surface Treatments orders increased 15.5% YoY, mainly for agricultural machinery. However, Overseas Subsidiaries orders declined 2.6% YoY due to the adjustment phase of the semiconductor market, like Thermal Spraying, marking the second consecutive quarterly decline (YoY).

- As a result, consolidated orders in Q1 (April—June) decreased 2.8% YoY to JPY12.3bn. Consolidated orders decreased for the first time in 13 quarters (YoY) in Q4 of the previous fiscal year (Jan—Mar 2023), and did not recover in Q1, falling for the second consecutive quarter (YoY).

Order backlog

- The order backlog grew 2.4% YoY to JPY8.9bn as of end-Q1 FY03/24 (end-June 2024), marking the ninth consecutive quarterly increase (YoY). The breakdown of the JPY8.9bn order backlog as of end-Q1 is shown below.

  - Thermal Spraying (parent): JPY6.3bn (-3.8% YoY)
    - Semiconductor/FPD-related: JPY4.0bn (-15.2% YoY)
    - Industrial machinery-related: JPY502mn (approx. 2.0x)
    - Steel making-related: JPY1.2bn (+30.5% YoY)
    - Other businesses: JPY622mn (-8.5% YoY)

  - Domestic subsidiary: JPY70mn (+75.0% YoY)
  - Overseas subsidiaries: JPY2.2bn (+23.8% YoY)
  - Other Surface Treatments: JPY346mn (+3.9% YoY)

  - Orders for the mainstay Thermal Spraying fell 3.8% YoY, as a 15.2% YoY decline in orders for semiconductor/FPD-related products failed to be covered by increases in orders for industrial machinery-related and steel making-related products. However, orders other than for Thermal Spraying increased YoY, and the consolidated order backlog grew 2.4% YoY. The increase in the order backlog is basically an indicator of future sales growth, excluding Domestic Subsidiary. However, since the order backlog for TOCALO's mainstay semiconductor/FPD-related products started to decline from Q4 of the previous fiscal year (January—March 2023), the company judges that it is difficult to expect future sales to increase for the time being.

Factors affecting recurring profit

- Recurring profit, which is closely linked to segment profit in each segment, decreased by JPY568mn YoY, from JPY2.9bn in Q1 FY03/23 to JPY2.4bn. Factors contributing to the change are as follows.

  - 1) downward impact of JPY109mn due to a decrease in sales
  - 2) downward impact of JPY280mn due to a rise in the variable cost ratio
  - 3) downward impact of JPY169mn due to an increase in personnel expenses
  - 4) upward impact of JPY14mn due to a decrease in depreciation
  - 5) downward impact of JPY108mn due to foreign exchange effects
  - 6) upward impact of JPY85mn due to other factors

  - In Q1 (April—June), profit decreased by JPY109mn due to a decrease in sales, but the impact of a decrease in sales associated with thermal spraying for semiconductor/FPD-related products was not offset by higher sales in other fields and for other products. However, TOCALO analyzed that the negative factors caused by the decrease in sales have been reduced by partially compensating by the price revision (price increase). The impact of the increase in the variable cost ratio includes a rise in process material costs and outsourcing costs, as well as a deterioration in the sales mix due to a decline in semiconductor/FPD-related sales.

- The increase in labor costs was mainly attributable to wage increases, including an increase in base pay, and an increase in the number of regular employees (from non-regular to regular employees, in addition to an increase in new hires). These factors could not be fully offset by a reduction in overtime pay due to decreased operations. The decrease in profit of JPY108mn due to foreign exchange effects was attributable to a JPY124mn decrease in foreign exchange gains recorded in non-operating income and a positive JPY16mn in exchange rate differences at overseas subsidiaries. According to the company, these factors behind the decline in profit were generally within the expected range, excluding the foreign exchange impact.

- The last one, other factors, includes various factors, of which the decline in profit due to higher electricity costs was only a small amount. This was due to the fact that electricity costs had already risen significantly as of Q1 of the previous fiscal year (April–June 2022), so the change (amount of increase) was limited if making a YoY comparison. The main factor behind the decrease in profit other than electricity expenses was an increase in R&D expenses, but on the other hand, the loss on valuation of inventory recorded in Q1 FY03/23 decreased significantly. As a result, other factors turned to an increase in profit of JPY85mn YoY.

Results by segment

- The results by business segment are as follows. The sales share of each segment is the share of Q1 consolidated sales of JPY11.8bn. We note that the total of segment sales share does not equal 100%, because royalty income is also included under sales as well as segment sales. Profit of each business is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company; 74.6% sales share)

- Sales: JPY8.8bn (- 2.4% YoY)
- Segment profit: JPY1.8bn (-21.6% YoY)
- Segment profit margin: 20.3% (-5.0pp YoY)

- Orders: JPY9.1bn (-5.0% YoY)
- Order backlog: JPY6.3bn (-3.8% YoY)

Sales

- The Thermal Spraying segment (parent only) is TOCALO's largest segment, accounting for 74.6% of its consolidated net sales (Q1 result). Thermal Spraying (parent) sales decreased 2.4% YoY to JPY8.8bn, as the sales of mainstay semiconductor/FPD-related products declined due to inventory adjustments by major customers, which could not be offset by increases in sales of industrial machinery-related and steel making-related products. The JPY8.8bn in sales generated through this segment breaks down as follows.

- Semiconductors and Flat Panel Displays (FPDs): JPY5.1bn (-14.2% YoY)
  - Of which, thermal spraying for semiconductors: JPY4.7bn (-13.5% YoY)
  - Of which, thermal spraying for FPDs: JPY329mn (-23.5% YoY)
- Industrial machinery-related: JPY1.1bn (+11.4% YoY)
- Steel making-related: JPY844mn (+11.8% YoY)
- Other Purposes: JPY1.8bn (+30.9% YoY)

Trends in semiconductors and FPDs

- Relatively high-margin semiconductor- and FPD-related sales decreased to 14.2% YoY, which was the main factor behind the overall decline in Thermal Spraying sales. In addition, 93.5% of sales are for semiconductor/FPD-related products (Q1 result), and the percentage of FPD sales is on a declining trend.

  - The decrease in sales from semiconductor/FPD-related products was mainly due to a global decrease in demand for semiconductors, which became noticeable from the latter half of the previous fiscal year (FY03/23). In particular, the semiconductor manufacturing equipment industry, which has been subject to export restrictions to China related to the US–China trade friction issue, has been severely affected by the decline in demand. The company's largest customers—major semiconductor manufacturing equipment manufacturers, and other related companies have been carrying out inventory adjustments (production adjustments), leading to a decrease in orders (see the previous section) and shipments for the company. Sales of semiconductor/FPD-related products decreased 3.8% YoY in Q4 of

- the previous fiscal year (January–March 2023), marking the first decline in 13 quarters. Q1 (April–June) also marks two consecutive quarters of decline (YoY) without recovery, but the rate of decline widened to 14.2% YoY.

- In Q2 of the previous fiscal year (July–September 2022), since there had been no adjustment in the semiconductor market yet, the company's sales for semiconductor/FPD-related products were also at a high level, setting record highs throughout all quarters. Therefore, taking into account the recent decline in orders and shipment adjustments, the company does not expect that the rate of decline in sales of semiconductor/FPD-related products will be reduced (improved) in Q2 (July–September 2023).

No change in business plan for semiconductors and FPDs

- In order to keep up with robust thermal spraying demand for semiconductor/FPD-related products, the company has been increasing capacity in stages since FY03/22, and the improved ability to fill the large volume of orders received resulted in it booking over JPY6.0bn in sales in a quarter for semiconductor/FPD-related products. Working closely with its customers, the company has been able to avoid a sudden expansion in production capacity that would directly increase costs and lower productivity, and has continued to increase sales while at the same time leveling operations. As a result, it achieved record-high consolidated results for the second consecutive year in FY03/23. However, due to a decrease in sales of the company's mainstay semiconductor/FPD-related products, it expects to see a decline in sales and profit for the first time in four fiscal years in FY03/24.

- However, the company believes that the adjustment phase in the semiconductor market is temporary and that demand for semiconductor manufacturing equipment will gradually recover. Even before the adjustment began, the company had planned to continue expanding production capacity while pursuing operational leveling, while keeping an eye on orders and demand trends in the semiconductor market, as a medium- to long-term strategy, and the direction remains basically the same. While continuing to increase production capacity, it aims for a production structure that can achieve quarterly sales of JPY6.5bn while ensuring that operations do not come under too much stress. It is placing greater emphasis on operational leveling, and once the adjustment phase of the semiconductor market ends, its first priority will be to maintain operations at cruising speed while working with major customers.

Trends in businesses other than other than semiconductors and FPDs

Steel-making related

- In areas other than the semiconductor/FPD-related business, steel making-related sales grew 11.8% YoY to JPY844mn in Q1 FY03/24. This was due to the company's aggressive efforts to win orders to minimize the impact of the decline in sales of semiconductor/FPD-related products, as well as the bottoming out of domestic production in the automobile industry (a major customer for the steel making-related products industry). However, due to the continuing decline in domestic crude steel production, the company has judged that there has not yet been a sufficient recovery. In fact, although steel making-related sales were up YoY, they did not reach the JPY876mn recorded in Q1 FY03/22 (April–June 2021).

- Even so, many of the orders that were not recorded in sales were carried over to Q2 (July–September) and beyond, and the order backlog at end-Q1 rose 30.5% YoY to JPY1.2bn. The order backlog of JPY1.2bn reached a record high for all quarters since FY03/18, so the company expects further sales growth from Q2 onward.

Industrial machinery-related

- Industrial machinery-related sales rose 11.4% to JPY1.1bn in Q1 (April–June). As with steel making-related products, this was due to the success of the company's aggressive efforts to win orders to minimize the impact of the decline in sales for semiconductor/FPD-related products. According to the company's analysis, in addition to the existing orders from the bearing industry and the industrial machinery-related industry, the acquisition of orders from the energy industry also contributed. Industrial machinery-related sales are still fluctuating significantly from quarter to quarter, but the company expects that sales will remain solid in Q2 (July–September) and beyond based on recent orders trends.

Segment profit, segment profit margins

- Thermal Spraying segment profit (segment profit is linked to recurring profit in consolidated income statements) in Q1 (April–June) decreased 21.6% YoY to JPY1.8bn, marking the second consecutive quarterly decrease, due to the impact of the decrease in sales of semiconductor/FPD-related products, which are highly profitable in the Thermal Spraying segment. The segment profit margin also declined 5.0pp to 20.3%. However, in addition to the impact of lower sales,

- higher labor costs and energy costs, including electricity costs, were negative factors, but the segment profit margin remained above 20% due to cost reductions such as improved productivity. Although the segment profit declined 21.6% YoY, the company believes this was generally within the expected range because orders for semiconductor/FPD-related products had already declined significantly from Q4 of the previous fiscal year (January—March 2023).

- However, since the company does not expect a sales recovery for semiconductors until at least 1H FY03/24 (April—September), it is concerned that segment profits will inevitably struggle.

Domestic Subsidiary (5.3% sales share)

- Sales: JPY623mn (+5.4% YoY)
- Segment profit: JPY114mn (+34.1% YoY)
- Segment profit margin: 18.3% (+3.9pp YoY)

- Orders: JPY659mn (+12.6% YoY)
- Order backlog: JPY70mn (+75.0% YoY)

Sales

- The company's domestic subsidiary (Japan Coating Center Co., Ltd.) mainly conducts physical vapor deposition (PVD) processing (a surface modification process for cutting tools, knives, and molds) and primarily serves clients in the automotive industry. In Q1 (April—June), sales increased 5.4% YoY to JPY623mn due to an increase in orders following the bottoming out of domestic automobile production (domestic automobile production in April—May 2023 increased 32.9% YoY; June results not yet announced), and on a quarterly basis, sales increased for the fourth consecutive quarter. However, the company recognizes that sales in Domestic Subsidiary in Q1 have not reached the level expected compared to the level to which automobile production has bottomed out, and it expects growth from Q2 (July—September) onward. The company also sees it that Q1 automobile production was slightly below expectations.

Segment profit, segment profit margin

- While sales only increased by a 5.4% YoY, segment profit increased by 34.1% to JPY114mn, and the segment profit margin improved by 3.9pp to 18.3%. This was due to the effect of cost reductions such as a review of personnel allocation and productivity improvement, as well as the effects of price revisions, while the effect of the increase in sales was limited. Another factor was a decrease in the depreciation burden for new production equipment introduced with the establishment of a new factory in FY03/22. While the new plant is small compared to facilities in the Thermal Spraying segment, and its impact on overall earnings is therefore limited, it has had some effect on the Domestic Subsidiary segment.

Overseas Subsidiaries (13.6% sales share)

- Sales: JPY1.6bn (+1.9% YoY)
- Segment profit: JPY376mn (-14.0% YoY)
    - Segment profit margin: 23.4% (-4.3pp YoY)

- Orders: JPY1.8bn (-2.6% YoY)
- Order backlog: JPY2.2bn (+23.8% YoY, JPY2.0bn at end-Q4 FY03/23)

Sales

- This segment includes two subsidiaries in China, one in Taiwan, and one in the US, but essentially consists of subsidiaries in China and Taiwan, as the US business is not fully operational. Also, because China and Taiwan have a December 31 year-end, the company's Q1 (April—June) financial results include the financial results of Overseas Subsidiaries for the January—March period. Overseas Subsidiaries in Q1 were also affected by inventory adjustments by customers due to the adjustment phase of the global semiconductor market, and sales increased only 1.9% YoY to JPY1.6bn. On a quarterly basis, the company maintained 10 consecutive quarters of sales growth (YoY), but it believes the boost came from foreign exchange effects (increase in conversion due to yen depreciation) and judged that sales in real terms (local currency terms) were lower YoY.

Segment profit, segment profit margin

- Segment profit in Q1 (April–June) decreased 14.0% to JPY376mn. In addition to the substantial impact of the sales decline, deterioration in the sales composition, such as a decrease in semiconductor/FPD-related re-coating, was a factor in the decline. The Q1 financial results include the January–March period in China and Taiwan, and the decline in demand and seasonal factors (such as the Chinese New Year in Greater China) also affected operations. Under these circumstances, the segment profit margin deteriorated by 4.3pp YoY to 23.4%. Nonetheless, the Overseas Subsidiaries segment profit margin remains higher than that of the Thermal Spraying segment (parent).

Other Surface Treatments (6.3% sales share)

- Sales: JPY745mn (+6.9% YoY)
- Segment profit: JPY130mn (+6.6% YoY)
- Segment profit margin: 17.4% (-0.1pp YoY)

- Orders: JPY744mn (+15.5% YoY)
- Order backlog: JPY346mn (+3.9% YoY, JPY346mn at end-Q4 FY03/23)

Sales, segment profit, segment profit margin

- Segment sales increased YoY amid generally strong order bookings, and profit also absorbed the increase in costs to secure an increase in profit (YoY). The Toyota diffusion (TD) process for agricultural equipment parts (a surface modification method that forms a functional film by immersing the target workpiece in a high-temperature molten salt bath and allowing vanadium and other carbides to diffusely permeate the surface of the base material) grew and contributed to sales growth. TOCALO applies surface treatments (Toyota diffusion process) to agricultural equipment parts and supplies these to Japanese agricultural equipment makers. Agricultural equipment makers sell their products in the US and other locations, and TOCALO believes that they have benefitted from the expansion of the agricultural industry in North America.

- The company expects to expand its business related to agricultural equipment parts in the future. However, the contribution to profit is not yet significant, and segment profit remained flat, resulting in a 0.1pp YoY deterioration in the segment profit margin to 17.4%.

Company forecast for FY03/24

FY03/24 company plan (out May 10, 2023)

	FY03/22			FY03/23			FY03/24		
(JPYmn)	1H	2H	Full year	1H	2H	Full year	1H Est.	2H Est.	FY Est.
Sales	**21,098**	**22,715**	**43,813**	**23,996**	**24,148**	**48,144**	**23,000**	**24,000**	**47,000**
YoY	9.9%	13.1%	11.5%	13.7%	6.3%	9.9%	-4.2%	-0.6%	-2.4%
Thermal Spraying (Parent)	16,000	17,043	33,043	18,205	17,979	36,184	-		34,063
Semiconductor and FPD equipment parts	9,938	10,705	20,643	12,100	11,160	23,260	-		20,700
Semiconductor equipment	9,119	9,871	18,990	11,195	10,544	21,739	-		19,400
FPD equipment	819	834	1,653	905	615	1,520	-		1,300
Industrial machinery	1,757	1,950	3,707	1,739	2,063	3,802	-		3,956
Steelmaking machinery	1,623	1,827	3,450	1,775	1,807	3,582	-		3,734
Other applications	2,680	2,562	5,242	2,588	2,951	5,539	-		5,672
Other Surface Treatments	1,195	1,307	2,502	1,367	1,378	2,745	-		2,877
Domestic Subsidiary	1,206	1,193	2,399	1,197	1,217	2,414	-		2,656
Overseas Subsidiaries	2,615	3,080	5,695	3,140	3,482	6,622	-		7,254
Royalty income	80	91	171	86	91	177	-		150
Cost of sales	12,880	14,348	27,227	15,065	15,714	30,778	-		-
Gross profit	**8,218**	**8,367**	**16,585**	**8,931**	**8,434**	**17,365**	**-**		**-**
YoY	15.2%	8.9%	12.0%	8.7%	0.8%	4.7%	-		-
Gross profit margin	39.0%	36.8%	37.9%	37.2%	34.9%	36.1%	-		-
SG&A expenses	3,106	3,223	6,329	3,349	3,457	6,807	-		-
YoY	6.1%	7.6%	6.8%	7.8%	7.3%	7.6%	-		-
SG&A ratio	14.7%	14.2%	14.4%	14.0%	14.3%	14.1%	-		-
Operating profit	**5,111**	**5,144**	**10,255**	**5,581**	**4,977**	**10,558**	**4,200**	**4,500**	**8,700**
YoY	21.6%	9.8%	15.4%	9.2%	-3.2%	3.0%	-24.7%	-9.6%	-17.6%
Operating profit margin	24.2%	22.6%	23.4%	23.3%	20.6%	21.9%	18.3%	18.8%	18.5%
Recurring profit	**5,222**	**5,349**	**10,571**	**6,033**	**4,970**	**11,003**	**4,200**	**4,500**	**8,700**
YoY	25.1%	12.8%	18.6%	15.5%	-7.1%	4.1%	-30.4%	-9.5%	-20.9%
Recurring profit margin	24.8%	23.5%	24.1%	25.1%	20.6%	22.9%	18.3%	18.8%	18.5%
Net income	**3,448**	**3,461**	**6,909**	**3,919**	**3,431**	**7,350**	**2,800**	**3,000**	**5,800**
YoY	28.3%	24.7%	26.5%	13.7%	-0.9%	6.4%	-28.6%	-12.6%	-21.1%
Net margin	16.3%	15.2%	15.8%	16.3%	14.2%	15.3%	12.2%	12.5%	12.3%

Source: Shared Research based on company data

Notes: Figures may differ from company materials due to differences in rounding methods.

Citing the application of the accounting standard for revenue recognition from FY03/22, the company has not released YoY growth rates, but Shared Research has provided estimates as the size of the impact appears to be limited.

Progress against forecast as of Q1 (April–June)

- The progress rates of the Q1 results against the company's forecast for FY03/24 are 25.1% for sales, 26.1% for operating profit, 27.4% for recurring profit, and 26.5% for net income (net income attributable to owners of the parent). The progress rate for recurring profit is already over 25%, which is something TOCALO targets, but according to the company, the progress is generally in line with its forecast.

- Meanwhile, the progress rates of the Q1 results compared to the company forecast for 1H (April–September) announced at the beginning of FY03/24 were 51.2% for sales, 54.0% for operating profit, 56.7% for recurring profit, and 55.0% for net income (net income attributable to owners of the parent). Sales and profit items such as recurring profit exceeded 50%, which is one of the company targets. However, the company is carefully monitoring the progress of semiconductor/FPD-related sales, which are expected to recover from 2H (October 2023 to March 2024), as the adjustment in the semiconductor market may be somewhat prolonged. Therefore, even if the progress exceeds the company's forecast for 1H, the company judges that it is not in a position to raise its forecast for FY03/24.

At the Q1 (April–June) results announcement on July 31, 2023, TOCALO maintained its initial forecast for FY03/24. The following description was written by Shared Research in May 2023 based on the company's initial forecast published on May 10, 2023. As there have been no changes to the company's forecast, there are basically no changes to the following description (Note: only the status of share buybacks has been updated). The company plans to closely review its forecast for FY03/24 at the time of the 1H financial results, while assessing the bottoming out of demand in the semiconductor market, and Shared Research will update its description after that.

Overview of the company's forecast (initial forecast, May 2023)

The company's announced forecasts for FY03/24 are as follows.

- Sales: JPY47.0bn (-2.4% YoY)
- Operating profit: JPY8.7bn (-17.6% YoY)
- Recurring profit: JPY8.7bn (-20.9% YoY)
  - Recurring profit margin: 18.5% (down 4.4pp YoY)
- Net income attributable to owners of the parent: JPY5.8bn (-21.1% YoY)

- The EPS forecast is JPY96.7. The annual dividend forecast is JPY50.0 per share (JPY50.0 per share is expected in FY03/23). Based on the company's forecast, the dividend payout ratio will be 51.7% (vs. 41.4% in FY03/23).

Sales

- The company expects a decline in orders and sales in the semiconductor- and FPD-related field in the mainstay Thermal Spraying (Parent) segment on the belief that the semiconductor market will remain in an adjustment phase. The company plans to increase sales of thermal spraying for applications other than semiconductors and FPDs, such as industrial machinery and steel making, but does not expect this to be sufficient to offset the decline in sales for semiconductors and FPDs. The company expects sales of its Domestic Subsidy, Overseas Subsidiaries, and Other Surface Treatments segments to exceed those of the previous year, which should mitigate the decline in sales of Thermal Spraying (Parent) to some extent.

- Based on the above, the company plans consolidated sales of JPY47.0bn for FY03/24, down 2.4% YoY and the first YoY decline in sales in four fiscal years. However, its forecast of JPY47.0bn in sales, while lower than the previous year's result, will remain the second highest on record. See "Sales forecasts by segment" and "Breakdown of sales forecasts for the Thermal Spraying (Parent) segment" below.

Recurring profit and RPM

- The company forecasts a 20.9% YoY decline in recurring profit to JPY8.7bn in FY03/24, mainly a result of lower semiconductor- and FPD-related sales. The company's forecast has recurring profit, as with sales, declining for the first time in four fiscal years. However, sales are still expected to remain at the second-highest level in the company's history, while the recurring profit forecast of JPY8.7bn—despite being short of the JPY8.9bn achieved in FY03/21—if achieved would mark the fourth-highest recurring profit in the company's history. The recurring profit forecast is the result of an expected decline in semiconductor- and FPD-related sales, as well as a trend of rising raw material prices, energy costs, and labor costs continued from FY03/23.

- The company also expects its RPM, one of its key management indicators, to deteriorate 4.4pp YoY to 18.5% in FY03/24. This forecast, if accurate, would mark the first time in four fiscal years that RPM has fallen below 20% since hitting 18.0% in FY03/20. The target is 5.6pp below the record high of 24.1% in FY03/22. See "Breakdown of recurring profit projections in the company's forecast and factors affecting change in recurring profit" below.

Company forecast for 1H and 2H

- The company forecasts lower sales and profits in FY03/24, with 1H (April–September) expected to be particularly challenging. This is in line with the FY03/24 company forecast of its largest customer, Tokyo Electron (TSE Prime: 8035), which shows a 23.0% YoY decline in sales (-33.2% YoY) and a 36.4% YoY decline in operating profit (-54.0% YoY) in 1H, followed by a recovery in 2H.

- Although the company anticipates that results will bottom out in 1H, it does not expect a so-called V-shaped recovery in 2H (October–March) and does not forecast a YoY growth from 2H of the previous year (October 2022 to March 2023). In particular, it sees recurring profit declining a little under 10% YoY in 2H, suggesting that it will take time for earnings to recover. The company's 1H plan is published in its financial results, while Shared Research has calculated a plan for 2H by subtracting the 1H figures from the full-year targets (TOCALO has not published an official plan for 2H specifically).

  - FY03/24 sales: JPY47.0bn (-2.4% YoY)
    - 1H (April–September): JPY23.0bn (-4.2% YoY)
    - 2H (October–March): JPY24.0bn (-0.6% YoY)

  - FY03/24 recurring profit: JPY8.7bn (-20.9% YoY)
    - 1H (April–September): JPY4.2bn (-30.7% YoY)
    - 2H (October–March): JPY4.5bn (-9.5% YoY)

  - The company forecast for 1H FY03/24 is as follows.

  - Sales: JPY23.0bn (-4.2% YoY)
  - Operating profit: JPY4.2bn (-24.8% YoY)
  - Recurring profit: JPY4.2bn (-30.4% YoY)

- RPM: 18.3% (-6.8pp YoY)
- Net income attributable to owners of the parent: JPY2.8bn (-28.6% YoY)

Decision to revise dividend policy (raise dividend payout ratio target, May 2023)

- TOCALO plans to change its existing dividend policy in FY03/24 to strengthen shareholder returns. The dividend policy stated in the company's annual securities report for FY03/22 called for "emphasizing the continuation of stable dividends with a target of more than one-third of profits." However, the company decided to raise the dividend payout ratio target to about 50% beginning in FY03/24. It said that the change in dividend policy (raising the dividend payout ratio target) is the reason it plans an annual dividend forecast of JPY50.0 per share for FY03/24 (forecast of JPY50.0 per share in FY03/23) and a dividend payout ratio of 51.7% (41.4%).

Announcement of share buybacks and retirements (May 2023)

- The company announced a share buyback and a share retirement scheme in line with its efforts to enhance shareholder returns through the implementation of a flexible capital policy. The company will repurchase up to 2.0mn shares, equivalent to 3.3% of outstanding shares, for a maximum of JPY2.0bn, with the buyback period extending through December 22, 2023. As of July 31, 2023, the company repurchased 631,000 shares for JPY882mn. The company also retired 2.0mn shares of held treasury stock on May 31, 2023 (figures are rounded to the nearest thousand shares and JPYmn).

Sales forecasts by segment

- The company releases sales projections for its individual reporting segments. Effective from FY03/22, the company has established a royalty income segment in addition to its previously existing four segments: thermal spraying (parent company), domestic subsidiaries, overseas subsidiaries, and other surface modification. However, the company projects that the royalty income segment will account for only 0.3% of net sales in FY03/24.

- The company's sales projections for each segment (overall sales forecast of JPY47.0bn) are as follows.

  - Thermal Spraying (parent) JPY34.1bn (-5.9% YoY)
  - Domestic Subsidiary: JPY2.7bn (+10.0% YoY)
  - Overseas Subsidiaries: JPY7.3bn (+9.5% YoY)
  - Other Surface Treatments: JPY2.9bn (+4.8% YoY)
  - Royalty Income: JPY150mn (-15.3% YoY)

  - In the mainstay Thermal Spraying (parent only) segment, TOCALO expects semiconductor/FPD-related sales to continue to fall, at least in 1H (April–September), due to a decline in orders accompanying inventory adjustments at customers, so it sees sales declining 5.9% YoY to JPY34.1bn. Of this total, the company expects semiconductor/FPD-related sales to decline 11.0% YoY to JPY20.7bn. While the company expects the adjustment phase in global semiconductor demand to continue at least through 1H (April–September), it also believes, based on past experience, that once a recovery begins, demand will increase to the point where normal production increases will not be sufficient. On the other hand, it also expects the demand adjustment phase to be drawn out, and will be watching semiconductor demand trends more closely than usual.

  - As in the Thermal Spraying (parent) segment, the semiconductor/FPD-related business is also the mainstay of the Overseas Subsidiaries segment. The company forecasts Overseas Subsidiaries sales increasing 9.5% YoY to JPY7.3bn. The forecast reflects a recovery in the company's Chinese and Taiwanese subsidiaries, the former of which is expected to recover in 2H after being affected to some extent by the adjustment in the semiconductor market. The sales forecast is premised on an exchange rate of JPY131/USD, the same as the exchange rate of FY03/23, and the company does not expect any forex impact (i.e., a boost to sales due to the exchange rate difference resulting from the depreciation of the yen) in FY03/24.

  - On the other hand, the company forecasts the highest gain of any segment (+10.0% YoY) for Domestic Subsidiary segment, which had been impacted by reduced automobile production. TOCALO continues to take a cautious view about the timing of a rebound in automobile production in Japan, but the business environment is improving, as tightness in the procurement of semiconductors and other parts, which was the primary factor in the automobile

- production cutback, has begun to ease. The company also expects non-automotive related products (e.g., construction equipment parts) to remain firm, and projects double-digit sales growth YoY.

- Based on these segment sales plans, the company has set the consolidated sales target for FY03/24 at JPY47.0bn, down 2.4% YoY. However, it is inevitable that Thermal Spraying sales for semiconductor- and FPD-related applications, which account for about 44% of consolidated sales, will fluctuate depending on when the semiconductor demand adjustment phase is expected to end. The company also expects a certain amount of fluctuation in the sales forecast for the Overseas Subsidiaries segment. Therefore, it has indicated that it will review its sales forecasts flexibly, keeping a close eye on the semiconductor market and its customers' inventory adjustments on a quarterly basis.

Breakdown of sales forecasts for the Thermal Spraying (parent) segment

- The company's sales forecast for its mainstay Thermal Spraying (parent) segment breaks down as follows.

  - Thermal spraying for:
  - Semiconductors and FPDs: JPY20.7bn (-11.0% YoY)
    - Semiconductor-related thermal spraying: JPY19.4bn (-10.8% YoY)
    - FPD-related thermal spraying: JPY1.3bn (-14.5% YoY)
  - Industrial Machinery: JPY4.0bn (+4.1% YoY)
  - Iron and Steel: JPY3.7bn (+4.2% YoY)
  - Other purposes: JPY5.7bn (+2.4% YoY)

  - The company's forecast for mainstay semiconductor- and FPD-related sales is JPY20.7bn, down 11.0% YoY. This forecast is based on the decline in semiconductor- and FPD-related orders in Q4 FY03/23 (January—March 2023) and a decrease in the order backlog. The forecast is lower than the record high achieved in FY03/23, but roughly the same level as the JPY20.6bn recorded in FY03/22. The company therefore assumed at the time that it formulated the initial plan that the decline in sales resulting from the adjustment in the semiconductor market would have only a limited impact.

  - Although the company has not disclosed a breakdown of the JPY20.7bn forecast by half, the weighting of semiconductor- and FPD-related sales by half should generally follow the pattern of consolidated sales forecast. This means that semiconductor- and FPD-related sales are likely to be on the low side in 1H (April—September). Meanwhile, steel making-related, industrial machinery-related, and other sales are expected to exceed the previous year's levels.

Breakdown of recurring profit projections in the company's forecast and factors affecting change in recurring profit

- The company has not disclosed by-segment breakdowns of its recurring profit forecast (JPY8.7bn). Recurring profit is expected to decrease by approximately JPY2.3bn from JPY11.0bn in FY03/23 to JPY8.7bn, affected by the following factors.

  - 1) downward impact of JPY760mn due to a decline in sales
  - 2) downward impact of JPY423mn due to a higher variable cost ratio
  - 3) downward impact of JPY350mn due to an increase in personnel expenses
  - 4) downward impact of JPY212mn due to an increase in depreciation
  - 5) downward impact of JPY366mn due to forex effects
  - 6) downward impact of JPY192mn due to other factors

  - The company expects four of these items 2) a higher variable cost ratio, 3) an increase in personnel expenses, 4) an increase in depreciation, and 6) others factors to have a downward impact on recurring profit as they did in FY03/23, but to a lesser degree. The downward impact of 5) forex effects is due to an anticipated decrease in forex gains (non-operating income), since the assumed exchange rate is JPY131/USD, the same as the actual exchange rate for FY03/23.

  - However, the company thinks that the impact of 1) the change in sales will be the key factor affecting recurring profit in FY03/24. The amount of this impact (forecast downward impact of JPY760mn) will depend on trends in sales from semiconductor and FPD manufacturers, which are relatively profitable.

Capital expenditures, depreciation, and R&D expenses

Plans for FY03/24 are as follows.

- Capital expenditures: JPY5.0bn (actual expenditures for FY03/23: JPY4.9bn)
- Depreciation: JPY3.2bn (actual depreciation for FY03/23: JPY3.0bn)
- R&D: JPY1.5bn (actual R&D for FY03/23: JPY1.4bn)

Breakdown of FY03/23 capital expenditures

- Capital expenditures for FY03/23 were JPY4.9bn (JPY4.4bn in FY03/22). At the time of its cumulative Q3 (April–December 2022) results briefing, the company had planned capital expenditures of JPY5.5bn for FY03/23 (+25.4% YoY), the highest level in four years. However, due to a shortage of materials and equipment procurement and delays in construction progress, the amount came short of JPY5.5bn.

- The JPY4.9bn in capital expenditures in FY03/23 broadly broke down into JPY3.4bn for Thermal Spraying (Parent), JPY182mn for Domestic Subsidiary, and JPY1.2bn for Overseas Subsidiaries. The JPY3.4bn in Thermal Spraying consisted mainly of 1) approximately JPY1.6bn for the acquisition of factory sites at the Tokyo and Kobe plants, and 2) the introduction of facilities at each factory (semiconductor-related facilities, next-generation coating development facilities). Meanwhile, the JPY1.2bn for Overseas Subsidiaries was mainly related to new plants in the semiconductor and FPD fields at the Taiwan subsidiary.

Breakdown of capital expenditures in the FY03/24 plan

- The company plans JPY5.0bn in capital expenditures for FY03/24, of which JPY2.6bn are for Thermal Spraying (Parent), JPY300mn for Domestic Subsidiary, and JPY2.1bn for Overseas Subsidiaries. The amount for Thermal Spraying (Parent), the largest, is mainly to strengthen the production system and improve efficiency, mainly at the Tokyo, Akashi, and Kitakyushu plants. The JPY300mn for Domestic Subsidiary is to increase production capacity, while most of the amount for Overseas Subsidiaries are for the construction of a new plant in Taiwan. The company expects its semiconductor- and FPD-related sales to decline in FY03/24, mainly in 1H (April–September), due to the impact of declining demand in the semiconductor market. However, from a cyclical perspective, the company plans to proactively make capital expenditures (e.g., to improve production efficiency and increase production capacity) to prepare for the next recovery in demand for semiconductors.

- In this context, the company will focus on increasing the production capacity of Overseas Subsidiaries (new plant in Taiwan), along with Thermal Spraying. The company has not disclosed the total investment for the new Taiwanese plant, but based on FY03/23 results and FY03/24 plans, the company seems to indicate that the investment will be more than JPY4.0bn (including deliveries of machinery and equipment). The company plans to complete the new plant in Taiwan, which is under construction, by the end of 2023, and to bring it online in 2024. It plans to increase production capacity (Taiwan) by 70–80% in the future after the new plant is fully operational. While Taiwan is the only overseas region where the company has major capital expenditure plans, including the construction of a new plant, it intends to steadily invest in increasing production capacity at its subsidiaries in China and the US, although not to the same extent as in Taiwan.

Depreciation outlook

- Meanwhile, the depreciation cost forecast of JPY3.2bn in FY03/24 will be the highest ever, narrowly exceeding the JPY3.0bn of FY03/20. This would represent an increase of JPY212mn YoY, causing a drop in profits, but this has already been factored into the company's forecast. Additionally, as capital expenditures are on the rise (see previous section), the company has indicated that depreciation costs will also remain high in FY03/25 and beyond. On the other hand, the forecast R&D expenses of JPY1.5bn represents a R&D expenses-to-sales ratio of 3.1%, the same level as FY03/23.

Initial company forecast and results

Results vs. Initial Est.	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23	FY03/24
(JPYmn)	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	
Sales (Initial Est.)	23,000	27,500	28,000	30,000	39,000	36,000	36,500	41,000	47,500	47,000
Sales (Results)	26,068	28,746	28,964	34,109	39,558	37,896	39,294	43,813	48,144	
Results vs. Initial Est.	**13.3%**	**4.5%**	**3.4%**	**13.7%**	**1.4%**	**5.3%**	**7.7%**	**6.9%**	**1.4%**	
Operating profit (Initial Est.)	3,500	4,866	4,440	5,900	7,900	5,200	5,800	9,000	11,000	8,700
Operating profit (Results)	4,568	4,806	5,646	7,110	7,741	6,550	8,890	10,255	10,558	
Results vs. Initial Est.	**30.5%**	**-1.2%**	**27.2%**	**20.5%**	**-2.0%**	**26.0%**	**53.3%**	**13.9%**	**-4.0%**	
Recurring profit (Initial Est.)	3,600	5,000	4,600	6,000	8,200	5,500	6,000	9,000	11,000	8,700
Recurring profit (Results)	4,890	5,028	5,801	7,363	8,076	6,812	8,914	10,571	11,003	
Results vs. Initial Est.	**35.8%**	**0.6%**	**26.1%**	**22.7%**	**-1.5%**	**23.9%**	**48.6%**	**17.5%**	**0.0%**	
Net income (Initial Est.)	2,178	3,222	2,978	4,000	5,400	3,520	3,880	5,800	7,184	5,800
Net income (Results)	3,031	3,016	4,070	4,836	5,441	4,404	5,463	6,909	7,350	
Results vs. Initial Est.	**39.2%**	**-6.4%**	**36.7%**	**20.9%**	**0.8%**	**25.1%**	**40.8%**	**19.1%**	**2.3%**	

Source: Shared Research based on company data
Notes: Figures may differ from company materials due to differences in rounding methods

Medium-term management plan

Medium-term management plan

Medium-term management plan	FY03/21	FY03/22	FY03/23	FY03/24	FY03/26	5-year	
(JPYmn)	**Act.**	**Act.**	**Act.**	**Est.**	**MTP**	**CAGR**	
Sales	**39,294**	**43,813**	**48,144**	**47,000**	**53,000**	**6.2%**	
YoY	3.7%	11.5%	9.9%	-2.4%			
semiconductors	18,176	20,643	23,260	20,700	26,000	7.4%	
YoY	28.9%	13.6%	12.7%	-11.0%			
% of total	46.3%	47.1%	48.3%	44.0%	49.1%		
iron/steel industrial machinery	21,118	23,170	24,884	26,300	27,000	5.0%	
YoY	-11.2%	9.7%	7.4%	5.7%			
% of total	53.7%	52.9%	51.7%	56.0%	50.9%		
Recurring profit	**8,914**	**10,571**	**11,003**	**8,700**	**12,000**	**6.1%**	
YoY	30.9%	18.6%	4.1%	-20.9%			
Recurring profit margin	22.7%	24.1%	22.9%	18.5%	22.6%		
Equity ratio	68.9%	70.6%	72.5%	73.5%	about 70%		
ROE	12.9%	14.8%	14.3%	10.7%	15.0%		
DOE	5.0%	5.9%	5.9%	5.5%	about 5%		
Capital expenditures	4,822	4,385	4,855	5,000	25,000 - 35,000 in total		5,000 - 7,000mn /Year
Depreciation	2,771	2,783	2,987	3,200			
R&D expenses	1,296	1,296	1,400	1,450	1,590		
R&D ratio	3.3%	3.0%	2.9%	3.1%	about 3%		

Source: Shared Research based on company data.
*Figures may differ from company materials due to differences in rounding methods. Please note that sales generated through thermal spraying for purposes not involving semiconductors (iron and steel, industrial machinery, etc.) in FY03/21 (JPY21.1bn) include JPY20.9bn in sales categorized according to the company's previous reporting segment structure and JPY221mn in sales stemming from the Royalty Income segment. Accordingly, this JPY21.1bn figure differs from the figure of approximately JPY20.9bn indicated by data from the company.

Shared Research wrote the following section based on the medium-term management plan announced by the company in November 2021. Updates have been made based on FY03/23 results and the company's FY03/24 forecasts announced in May 2023. Each time TOCALO updates its medium-term management plan, Shared Research will also make an update.

Medium-term management plan progress report (last updated in May 2023)

- In May 2023, the company provided an update on the progress being made on its first medium-term management plan announced the previous year (November 2021). This is presented below. The medium-term management plan (comparison of numerical targets) began with actual results for FY03/21. CAGR indicates the average annual growth rate.

Sales

- **Target for FY03/26: JPY53.0bn**
- Company forecast for FY03/24: JPY47.0bn
- Five-year CAGR forecast set forth in the medium-term management plan: 6.2%
- CAGR forecast for the three year-period up until FY03/24: 6.2%

- In its May 2022 progress briefing, the company indicated that sales through FY03/23 were growing at a pace that exceeded the target as indicated in the medium-term management plan, and that the JPY53.0bn target may be realized in FY03/25. However, the company needs to assess the situation for a little while, and has not revised the medium-term management plan (upward) at this time.

- However, given the decline in demand (adjustment phase) in the semiconductor market, which became noticeable from 2H FY03/23, there is no forecast for sales to be brought forward, and the company maintained its forecast as initially planned. In fact, sales of JPY47.0bn for FY03/24 are in line with the CAGR of 6.2% set in the initial plan.

Semiconductor-related sales

- **Target for FY03/26: JPY26.0bn**
- Company forecast for FY03/24: JPY20.7bn
- Five-year CAGR forecast set forth in the medium-term management plan: 7.4%
- CAGR forecast for the three year-period up until FY03/24: 4.4%

- In its May 2022 progress briefing, semiconductor-related sales were expanding at a rate of just under twice the target specified in the medium-term management plan. However, the company emphasized its stance that it will be difficult to figure out when to adjust semiconductor-related sales.

- However, given the decline in demand (adjustment phase) in the semiconductor market that became noticeable from 2H FY03/23, the CAGR through FY03/24 is expected to fall short of the initial plan. Still, the company maintained its initial forecast, having judged that the adjustment in the semiconductor market is only temporary.

Sales related to steel-making, industrial machinery and other non-semiconductor items

- **Target for FY03/26: JPY27.0bn**
- Company forecast for FY03/24: JPY26.2bn
- Five-year CAGR forecast set forth in the medium-term management plan: 5.0%
- CAGR forecast for the three year-period up until FY03/24: 7.4%

- The company also states that sales other than semiconductor-related are also progressing over the targets of the medium-term management plan.

Recurring profit

- Target for FY03/26: JPY12.0bn
- Company forecast for FY03/24: JPY8.7bn
- Five-year CAGR forecast set forth in the medium-term management plan: 6.1%
- CAGR forecast for the three years until FY03/24: -0.8%

- Through FY03/23, the pace of growth in recurring profit, like sales, also exceeded the target set out in the medium-term management plan. At the May 2022 progress briefing, the company said it was nearing the point of being likely to achieve the target (JPY12.0bn) in FY03/24, and it was looking to make an upward revision by the time the financial results for FY03/23 were announced. However, the company also mentioned that it would assess the future transition.

- However, in light of the decline in demand in the semiconductor market (adjustment phase) that became noticeable from 2H FY03/23, recurring profit was not brought forward, and the company left the forecast as initially planned. In fact, the recurring profit of JPY8.7bn for FY03/24 was -0.8% CAGR, behind the CAGR of 6.1% set in the initial plan. Still, the company maintained its initial forecast, having judged that the adjustment in the semiconductor market is only temporary.

Finances/shareholder returns

- The company has noted that it is making steady progress with respect to each of the goals (maintaining an equity ratio of around 70%, maintaining ROE and its 15% target, a recurring profit margin of 20%, stable dividends with a dividend payout ratio of 33% or more, DOE target of 5%, etc.) set forth in the medium-term management plan.

- In May 2023, the company announced a change to its dividend policy to enhance the return of profits to shareholders. From FY03/24, the company aims for a consolidated dividend payout ratio of about 50% (previously, it had set a target of about one-third).

Capital expenditures, R&D expenses

- The company recognizes that it has transitioned to the following plan as indicated in the medium-term management plan.

- Capital expenditures: A total of JPY25bn to JPY35bn over the five years of the medium-term management plan
- R&D expenses: Maintained at about 3% of consolidated sales

Summary of medium-term management plan (last updated in May 2023)

- On November 9, 2021, the company announced its medium-term management plan. The plan covers the five-year period extending from FY03/22 through FY03/26 (comparisons have been made using FY03/21 results as a point of reference), but the company also views it as a process toward achieving its long-term vision, which is based upon ideal circumstances the company aims to establish by 2030. This medium-term management plan is the first that the company has announced to the public. TOCALO is using the occasion of its 70th anniversary to present its vision for the future to its stakeholders.

- The company has identified 10 issues based on analyses of its surrounding business environment and major changes affecting this environment. Having identified these issues, the company established its vision of becoming a company that "contributes to a prosperous future for people and nature" by 2030 through its surface treatments, which primarily consist of thermal spraying. As a part of this process, the company has set the following performance targets for FY03/26 (five years after the beginning of the plan) using FY03/21 results as a launch pad (basis of comparison). The company will aim to achieve the targets in this plan by expanding existing businesses and by branching into new business areas.

  - Sales: JPY53.0bn (versus JPY39.2bn in FY03/21)
  - JPY26.0bn of this total to be generated through thermal spraying for semiconductors (versus JPY18.2bn in FY03/21)
  - JPY27.0bn of this total to be generated through thermal spraying for non-semiconductor-related purposes, such as iron and steel and industrial machinery (versus JPY21.1bn in FY03/21)
  - Recurring profit: JPY12.0bn (versus JPY8.9bn in FY03/21)

  - Sales generated through thermal spraying for purposes not involving semiconductors (iron and steel, industrial machinery, etc.) in FY03/21 (JPY21.1bn) include JPY20.9bn in sales categorized according to the company's previous reporting segment structure and JPY221mn in sales stemming from the Royalty Income segment. Accordingly, this JPY21.1bn figure differs from the figure of approximately JPY20.9bn indicated by data from the company.

- In addition these earnings target, the company also aims to maintain or exceed current levels associated with financial strength, ROE and other measurements of earning power, and dividend payout ratio.

Awareness of current circumstances (business environment, etc.)

Awareness of issues (10 issues)

- In formulating this medium-term management plan, which is the first that has been announced to the public, the company first examined its surrounding earnings environment. Then, the company identified the following 10 issues with the goals of further expanding the business domain associated with its core thermal spraying technologies and enhancing its four strengths (development of advanced functional coatings, flexible production support, capacity for providing solutions in response to customer needs, and robust financial strength capable of supporting development investment).

- When identifying these 10 issues, the company established a table in which the horizontal X-axis consisted of four customer categories (semiconductors and FPDs, iron and steel, energy and environment, and industrial machinery and others) and one additional category that applies to all of these customer categories (management and operation). Meanwhile, the vertical Y-axis included three categories: market development, development, and manufacturing (production). Then, the issues were mapped out across this table using a cross-functional format that compares the five categories on the X-axis and the three categories on the Y-axis. The 10 issues identified by the company in this way are shown below.

  - (1) Conversion of customers into partners
  - (2) Targeting of markets aimed at diversifying sources of revenue
  - (3) Enhancement of service system
  - (4) Global expansion
  - (5) Establishment of technological superiority
  - (6) Enhancement of manufacturing processes
  - (7) Further enhancement of quality control systems

- (8) Reduction of environmental impact
- (9) Creation of comfortable working environments
- (10) Enhancement of internal controls

TOCALO's medium-term management plan was formulated and is being executed based on the company's goal of addressing these 10 issues.

Renewed awareness concerning the company's management philosophy and vision and formulation of a corporate mission

- While formulating its medium-term management plan, the company reaffirmed its management philosophy and vision and defined its corporate mission. Then, based on changes in the global earnings environment (which the company refers to as "megatrends"), the company decided upon the future direction of its growth strategy. In order to solidify this growth strategy, the company has decided to further develop its current business model.

Management philosophy and long-term vision

- The company's management philosophy is to "contribute to society as a specialized manufacturer of surface treatment processes centered on thermal processing and establish ourselves as a corporate group with advanced technologies and a highly profitable structure." Shared Research has selected some of its key points and summarized them below.

- When formulating its medium-term management plan, the company established a new long-term vision for 2030: "contribute to a prosperous future for people and nature." In terms of content, this vision is essentially the same as the company's current corporate philosophy. However, by making it clearer and more concise than the latter, the company has reaffirmed its commitment to both the ideals it has always held and the achievement of its future goals.

Mission

- The company has established a mission to facilitate the realization of its renewed management philosophy and vision of contributing to a "prosperous future for people and nature." The mission of TOCALO's corporate group is "to enhance corporate value through continuous growth with an emphasis on ESG." In addition, the company has adopted to the following four initiatives to facilitate the execution of this essential mission.

  1. Create high-quality and high value-added products (films) and provide them to our customers
  2. Contribute to technologies that help in the preservation of the global environment
  3. Make employees and their families proud to work energetically and safely at TOCALO
  4. Be trusted by customers, shareholders, business partners, and local communities
     forever

  - By implementing these four initiatives, the company aims to achieve its absolute mission of enhancing "corporate value through continuous growth with an emphasis on ESG."

Advantageous future direction and three keys to growth as observed from the perspective of megatrends

- In formulating its medium-term management plan, the company deeply analyzed changes affecting the global earnings environment ("megatrends"), including the launch of efforts targeting the achievement of carbon neutrality by 2050. Based on these analyses, the company has identified the following three megatrends as keys to future growth and identified the most advantageous direction it should take moving forward.

  - Rising seriousness of environmental issues
  - Technological shift toward information & communication technology (ICT) and digitalization
  - Resource and food shortages and population growth

In response to these three megatrends, the company plans to actively implement growth strategies, develop new products, and cultivate new markets. In addition, the company has identified specific themes for each of these three megatrends.

- With regard to the rising seriousness of environmental issues, the company identified the following three themes: adopting the use of non-fossil fuels, generating renewable energy, and establishing smart grids (dispersed power sources).

- The three themes the company selected for the technological shift toward ICT and digitalization were the arrival of the big data era, high-speed communication, and the spread of electric vehicles (EVs).
- In addition, the company chose the development of smart agriculture, the improvement of medical technology, and the diversification and expansion of recycling technology as its three themes for resource and food shortages and population growth.

Two initiatives of particular focus (growth strategies)

- Finally, the company says that it will focus on "People and the Environment (Nature)" as two core initiatives (growth strategies) on which its corporate group will place particular emphasis. In the area of "people," the company plans to develop applications for the semiconductor and FPD industries, and in the area of "environment (nature)," it plans to develop applications in the fields of energy and materials. However, these two growth strategies will be difficult to implement successfully within a short period of time. Accordingly, the company has stated that it is not attempting to achieve concrete results through these strategies by FY03/26; rather, it has presented them with the intention of indicating its future direction.

- The company also stated that it would work on "further developing its business model." In accordance with this intention, the company has grouped the 10 issues identified above into several thematic categories. "Conversion of customers into partners" and "targeting of markets aimed at diversifying sources of revenue" have been left to stand as separate and independent themes. "Enhancement of service system" and "global expansion" have been grouped under the theme "enhancement of market development." "Establishment of technological superiority" has been placed under its own theme, "strengthen technology development systems." Meanwhile, the company grouped "enhancement of manufacturing processes," "further enhancement of quality control systems," and "reduction of environmental impact" under the theme "advancement of manufacturing." Finally, "creation of comfortable working environments" and "enhancement of internal controls" were included under the theme "sustainable growth toward a 100-year company."

Numerical targets associated with the company's medium-term management plan

- Within its medium-term management plan, the company has set earnings targets for FY03/26, which is a key point in the the course the company will take to achieve its long-term vision for 2030. The launch pad (basis for comparison) will be results generated in FY03/21.

Earnings targets for FY03/26

- Sales: JPY53.0bn (versus JPY39.0bn in FY03/21; growth of 35.8% over five years)
- Recurring profit: JPY12.0bn (versus JPY8.9bn in FY03/21; growth of 34.6% over five years)
- Recurring profit margin: 22.6% (versus 22.8% in FY03/21; decrease of 0.2pp over five years)

Breakdown of JPY53.0bn sales target

- Semiconductor-related sales: JPY26.0bn (versus JPY18.2bn in FY03/21; growth of 43.0% over five years)
- Other sales (related to iron and steel, industrial machinery, etc.): JPY27.0bn (versus JPY21.1bn in FY03/21; growth of 27.9% over five years)

- The basis for comparison the company is using to calculate rates of change in business performance over the five-year duration of its medium-term management plan is results generated in FY03/21 (the launch pad year). However, in FY03/2021, a decrease in retirement benefit expenses stemming from one-time factors boosted recurring profit by the same amount (approximately JPY358mn). Therefore, the company believes that its recurring profit in FY03/21 was effectively about JPY8.6bn, and maintains that this figure should be used as a basis for comparison. Using this JPY8.6bn figure as a comparative launch pad, Shared Research estimates that recurring profit will grow at a rate of 40.4% over the course of the five-year plan. The company projects that its recurring profit margin in FY03/26 will decline by 0.2pp compared to FY03/2021, but as discussed later on in this report, this prediction was made because the company expects a temporary increase in its depreciation burden due to ongoing high levels of capital investment. This projected recurring profit margin is still commensurate with the benchmark of 20% set by the company as a profitability target.

- Although the company did not disclose specific figures, it established sales targets for new businesses in fields such as agriculture and medical care in FY03/26. Fundamentally, these new businesses do not constitute a part of the company's

- current (existing) businesses. The company has also indicated that it will divide its existing businesses into three categories: businesses to be expanded (semiconductor, FPD, and environment and energy-related operations), businesses to be downsized, and businesses to be maintained. The TOCALO did not specifically indicate which businesses it plans to downsize or maintain.

- TOCALO does not, however, view these earnings targets as goals that it is fully committed to achieving, but rather as benchmarks for sustainable growth. The company maintains this viewpoint because results generated through its semiconductor-related operations, which will drive its performance moving forward, are highly dependent on market trends. Currently, the company's semiconductor-related sales are growing in line with expansion in the market for wafer fab equipment used in front-end processes associated with semiconductor manufacturing equipment. However, past trends have proven that performance within the semiconductor market varies greatly between periods of expansion and contraction, and the company has accordingly decided to closely monitor market trends and revise its forecasts on a regular basis.

Capital expenditures and research and development expenses

Capital expenditures

- In order to generate this expansion in earnings, the company will continue to make high levels of capital investment: over the five years ending with FY03/26, the company plans to invest between JPY25.0bn and JPY35.0bn (between JPY5.0bn and JPY7.0bn per year) to maintain and improve its technological superiority. Listed below is a summary of the company's most recent capital expenditures.

  - FY03/16: JPY3.7bn
  - FY03/17: JPY5.9bn
  - FY03/18: JPY6.4bn
  - FY03/19: JPY6.0bn
  - FY03/20: JPY2.3bn
  - FY03/21: JPY4.8bn
  - FY03/22: JPY4.4bn
  - FY03/23: JPY4.9bn
  - FY03/24 (projected): JPY5.0bn

In its medium-term management plan, the company projects that capital expenditures will remain at roughly the same peak level at which trended during the period spanning from FY03/17 through FY03/19 for the next five years (including FY3/2022).

These high levels of capital expenditure are mainly related to efforts aimed at increasing semiconductor production, new technological processes, and production efficiency. The company has indicated how total capital expenditure will divided among these categories, but Shared Research assumes that the largest share of this total will be allocated to efforts aimed at increasing semiconductor production for at least the first two to three years of the plan (which include FY03/22).

Research and development expenses

- Additionally, the company has indicated that it will maintain R&D expenses at a rate of about 3% of consolidated sales. Included below is a summary of the company's most recent research and development expenses.

  - FY03/20: JPY1.2bn (3.0% of sales)
  - FY03/21: JPY1.3bn (3.3% of sales)
  - FY03/22: JPY1.3bn (3.0% of sales)
  - FY03/23: JPY1.4bn (2.9% of sales)
  - FY03/24 (projected): JPY1.5bn (3.1% of sales)

If we were to calculate projected research and development expenses in FY03/26 (the final year of the five-year medium-term management plan) using this ratio of 3%, they would amount to approximately JPY1.6bn.

Establishment of financial targets and shareholder return goals

In its medium-term management plan, the company has also set financial targets and shareholder return goals.

Maintenance of a strong financial position

- The company aims to maintain an equity ratio of about 70% and continue to conduct effectively debt-free management.
- Most recently, the company reported equity ratios of 65.9% in FY03/20, 68.9% in FY03/21, 70.6% in FY03/22, and 72.5% in FY03/23.

Maintenance of earning power (ROE, recurring profit margin, etc.)

- Target the achievement and maintenance of an ROE of 15%
- Most recently, the company reported ROEs of 11.3% in FY03/20, 12.9% in FY03/21, 14.8% in FY03/22, and 14.3% in FY03/23.

- Target the achievement and maintenance of a recurring profit margin of 20%
- Most recently, the company reported recurring profit margins of 17.9% in FY03/20, 22.8% in FY03/21, 24.1% in FY03/22, and 22.9% in FY03/23, and forecast 18.5% in FY03/24.

- Maintain and improve EPS

Dividend payout ratio

- **Issue stable dividends equivalent to at least one-third of its net income (Note: In May 2023, the company announced a change to its dividend policy to enhance the return of profits to shareholders. It aims for the consolidated payout ratio of about 50% starting in FY03/24.)**
- Most recently, the company generated dividend payout ratios of 34.5% in FY03/20, 38.9% in FY03/21, 39.6% in FY03/22, and 41.4% in FY03/23. It projects a dividend payout ratio of 51.7% in FY03/24.

- Target the achievement and maintenance of **DOE of 5%.**
  Most recently, the company reported DOE of 3.9% in FY03/20, 5.0% in FY03/21, 5.9% in FY03/22, and 5.9% in FY03/23.

Initiatives aimed at reducing environmental impact

At the end of its medium-term management plan, the company outlined two initiatives aimed at reducing its environmental impact: an initiative consisting of measures targeting the elimination of greenhouse gas emissions and another initiative comprising measures designed to prevent water and air pollution.

Measures targeting the elimination of greenhouse gas emissions

- Exploration of thermal spraying methods that do not use fossil fuels
- Reduction of electricity consumption through the improvement of treatment processes
- Application of renewable energy

As a broader target that includes the implementation of these initiatives, the company is aiming to reduce greenhouse gas emissions in FY2030 by 46% compared to levels in FY2013. This rate of reduction is the same as the rate specified in targets issued by the government of Japan. However, the company has designated 2021 and 2022 as a period during which it will prepare for the implementation of these initiatives.

Measures designed to prevent water and air pollution

Situational awareness and improvement efforts to be applied to all processes associated with the company's business activities

As mentioned above, the medium-term management plan that the company announced on November 9, 2021 along with its long-term vision for 2030 is the first that the company has every publicly announced. Accordingly, comparing or contrasting it with a previous plan is impossible. However, Shared Research had previously included the following description of the company's medium-term strategy in this report. For the time being, the section below will remain in the report for purposes of reference and comparison with the company's newly announced medium-term management plan. This section will be removed from the report at roughly the same time at which the company announces its financial results for FY03/22.

Overview: Achieving sustainable growth

TOCALO does not release a medium-term business plan or numerical targets, but defines its strategy for sustainable growth as the development of new products and markets. The company focuses on five target markets: semiconductor and FPD; energy and environment; advanced materials (high-performance iron and steel materials, highly functional film, paper/nonwoven fabrics, etc.); transportation (high-speed railway, aircraft, etc.); and medical care.

TOCALO's action plan toward sustainable growth includes the following three points:

1. Diversification of earnings sources: Product development in target markets and expanded applications in existing markets
2. Deep cultivation of business within the semiconductor and FPD sectors: Increase production capacity in preparation for market expansion and develop next-generation film technologies
3. Global expansion: Strengthen maintenance businesses, localize operations (subsidiaries and affiliates) and license technologies (licensing business)

Building on success

Made progress in the semiconductor and FPD fields—the largest pillar among TOCALO's target markets

TOCALO's first encounter with a semiconductor equipment maker dates back to the winter of 1994. Before dawn on January 17, 1995, the Great Hanshin earthquake caused the company's headquarters to collapse and also damaged the company's factories in Kobe and Akashi. Despite this tragedy, TOCALO achieved fast recovery through its efforts in the semiconductor and FPD fields. The company then pushed forward with its development of thermal spraying technologies for semiconductor equipment, and in 1997, was awarded an order to apply thermal spraying to etching chamber parts. The company calls 1997 the first year of its semiconductor era. In 2000, TOCALO began mass producing new ceramic coatings through thermal spraying and began applying its thermal spraying technology to the mass production of chamber parts in etching equipment for 300mm wafers. These moves spurred steady progress for the company. The feature size of state-of-the-art semiconductors (very large-scale integrated circuits) is becoming miniaturized and the structure of these semiconductors multi-layered; and the trend toward using dry etching processes (use of plasmas or etchant gases to remove portions of substrate layers based on specific patterns defined by photoresist masks) is becoming increasingly more common. Moving forward, TOCALO will further strengthen its production capacity and enhance its development of next-generation coating technology.

Diversified revenue sources by offering a range of coatings from thick to thin

In September 2004, the company acquired all shares of Japan Coating Center Co., Ltd. (JCC) to enter the field of physical vapor disposition (PVD), which enables the formation of a thin coating. The PVD process adds functionality, such as abrasion and corrosion resistance, to the workpieces (cutting tools, metallic molds, etc.) by forming hard, dense, thin, and highly adhesive ceramic coatings on their surfaces. These coatings are generated by ionizing metals, including titanium and chromium, in a vacuum with reactive gases. Through the acquisition of JCC, the company began covering a wide range of coating technologies from thick coating created by thermal spraying and other surface treatments to thin coating made by the PVD process. This setup will give the company more breadth and depth in target market areas.

Business

Business overview

Surface treatment centered on thermal spraying

TOCALO comprises a parent company, five consolidated subsidiaries, one non-consolidated subsidiary, and one affiliated company. It primarily conducts thermal spraying but also provides peripheral services, including the Toyota diffusion (TD) process, zinc-allow coating (ZAC), plasma transferred arc (PTA) process, and physical vapor deposition (PVD) process. These are all surface treatments that improve the performance of the workpiece through the application of coatings that have different properties from the substrate (the material to which spraying deposit is applied).
The company's strength is in R&D aimed at finding possibilities for new coatings. TOCALO is also proficient in solution-based marketing that resolves customers' worksite issues. Rather than just providing simple proposals, the company actively works with customers to develop new applications, as seen in its partnership with Tokyo Electron, and this approach has propelled it to gain top market share in the industry. The company emphasizes three-pronged management involving "manufacturing, marketing, and technological development."

Segments

By segment, Thermal Spraying (Parent) accounted for 75.2% of sales in FY03/23, while Domestic Subsidiary (JCC) accounted for 5.0%, Overseas Subsidiaries 13.8%, Other Surface Treatments 5.7%, and Royalty Income 0.4%. Segment profit margins (recurring profit basis) were 23.1% for Thermal Spraying (Parent), 14.6% for Domestic Subsidiary, 25.0% for Overseas Subsidiaries, and 17.0% for Other Surface Treatments. Overseas sales, which comprised 23.3% of total sales in FY03/23, primarily came from Japanese companies that have expanded abroad. While some overseas competitors sell thermal spraying materials and equipment in addition to providing contracted treatment services, TOCALO specializes in services. The company has licensing agreements with a number of overseas companies including competitors and receives royalty income (JPY177mn in FY03/23).

Breakdown of sales by segment

By segment	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,073**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.1%	12.1%	9.9%
Thermal Spraying (Parent)	16,324	19,176	21,933	22,309	26,183	30,400	28,221	30,141	33,043	36,184
YoY	2.6%	17.5%	14.4%	1.7%	17.4%	16.1%	-7.2%	6.8%	9.6%	9.5%
% of total	72.2%	73.6%	76.3%	77.0%	76.8%	76.8%	74.5%	77.1%	75.4%	75.2%
Domestic Subsidiary (PVD process)	1,826	1,949	1,978	2,111	2,312	2,493	2,364	2,018	2,399	2,414
YoY	7.6%	6.7%	1.5%	6.8%	9.5%	7.8%	-5.2%	-14.6%	18.9%	0.6%
% of total	8.1%	7.5%	6.9%	7.3%	6.8%	6.3%	6.2%	5.2%	5.5%	5.0%
Overseas Subsidiaries	2,658	3,185	3,262	2,806	3,642	4,460	4,925	4,800	5,695	6,622
YoY	-	19.8%	2.4%	-14.0%	29.8%	22.5%	10.4%	-2.5%	18.6%	16.3%
% of total	11.8%	12.2%	11.3%	9.7%	10.7%	11.3%	13.0%	12.3%	13.0%	13.8%
Other Surface Treatments	1,790	1,758	1,572	1,736	1,971	2,204	2,384	2,112	2,502	2,745
YoY	-	-1.8%	-10.6%	10.4%	13.5%	11.8%	8.2%	-11.4%	18.5%	9.7%
% of total	7.9%	6.7%	5.5%	6.0%	5.8%	5.6%	6.3%	5.4%	5.7%	5.7%
Royalty income	-	-	-	-	-	-	-	-	171	177
YoY	-	-	-	-	-	-	-	-	-	3.5%
% of total	-	-	-	-	-	-	-	-	0.4%	0.4%

Source: Shared Research based on company data

Breakdown of sales by region

By region	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,073**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.1%	12.1%	9.9%
Domestic	18,835	21,609	23,678	24,407	28,206	32,155	30,543	30,350	34,568	36,942
YoY	0.6%	14.7%	9.6%	3.1%	15.6%	14.0%	-5.0%	-0.6%	13.9%	6.9%
% of total	83.3%	82.9%	82.4%	84.3%	82.7%	81.3%	80.6%	77.7%	78.9%	76.7%
Overseas	3,764	4,459	5,068	4,557	5,903	7,403	7,352	8,722	9,245	11,202
YoY	69.9%	18.5%	13.7%	-10.1%	29.5%	25.4%	-0.7%	18.6%	6.0%	21.2%
% of total	16.7%	17.1%	17.6%	15.7%	17.3%	18.7%	19.4%	22.3%	21.1%	23.3%

Source: Shared Research based on company data

Business model

Focus on functional thermal spraying

One of TOCALO's strengths is its ability to handle a wide variety of surface treatments, ranging from thick coating (e.g., thermal spraying, TD process, ZAC, and PTA process) to thin coating (e.g., PVD process). Of the different categories in thermal spraying (metalized contact thermal spraying, maintenance thermal spraying, and functional thermal spraying), the company excels in functional thermal spraying, which is high value-added and has strong growth potential. It has captured more than 40% of the thermal spraying market in Japan (scale of about JPY60.0bn in 2018; source: Yano Research Institute) and holds the top share.

Key phrases that describe TOCALO

- A coating shop: The company's sales come from coating treatment fees. Although it is a manufacturer, it does not make original products. Workpieces inside of the company's factories belong to its customers.

- Niche business in a niche market: TOCALO's coating treatments are mainly applied to goods and manufacturing equipment components. The customers are manufacturers spanning a wide range of sectors from industrial to lifestyle-related, resulting in a customer mix that helps TOCALO navigate through changing economic climates.

- Made-to-order production: The company's coating technology is both important and essential to customer production lines and products. Accordingly, the company develops coatings that are specially adjusted for each customer.

- R&D driven: By responding to advanced technological demand, the company targets further growth that will enable it to meet diverse customer needs.

Characteristics of thermal spraying

Thermal spraying is a surface coating treatment that uses thermal energy to create molten or semi-molten materials, which—through the addition of kinetic energy—are simultaneously atomized into fine droplets that are emitted at high speeds (spraying). These droplets then make contact with and accumulate on the workpieces, creating a coating. Since thermal spraying can accommodate broad ranges of temperatures and speeds generated from thermal and kinetic energy, it allows for the application of various spraying materials as long as they can be turned to a molten or semi-molten state. Furthermore, there are relatively few limitations on substrates (the material to which spraying deposit is applied), allowing for a high degree of freedom when choosing which spraying and substrate materials to use together. Compared to surface treatments such as plating or physical vapor deposition, coating layers created through thermal spraying do not excel in terms of structural control and density. However, the technology allows for broad selection of materials and is characterized by its high speed and capacity to be applied to large surfaces.

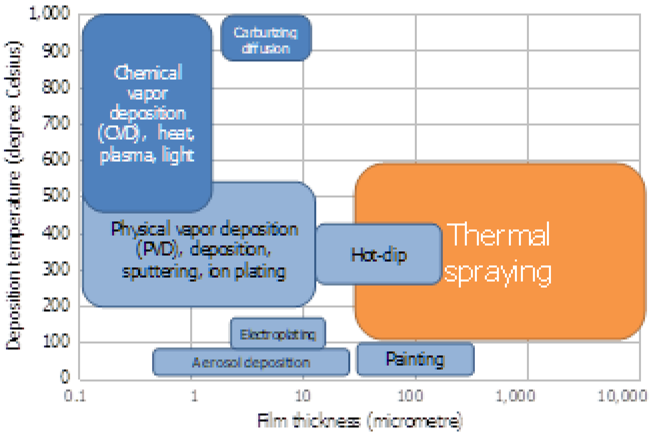
Coating technologies

Method	Coating material	Substrate material	Adhesion	Deposition rate (mm/h)	Principle	Film thickness
Thermal spraying	Metal, alloy, ceramics, plastics, glass	Metal, ceramics, plastics, wood, paper product	Excellent	Flame: 15kg/h Arc: 25kg/h	Thermal spraying; spraying; stacking	Thick
Plating	Metal, alloy	Materials resistant to corrosion by plating liquid	Relatively good	0.01–0.25	Wet plating; reduction of ion; precipitation	Thin, thick
Chemical vapor deposition (CVD)	Heat-resistant metal, sulfide, ceramics, selenium compound	Materials resistant to heat (500–2000 degree Celsius) and chemical corrosion by evaporation materials	Relatively good	0.01–2.00	Chemical reaction of gases; precipitation	Thin
Vacuum deposition	Pure metal, alloy, compound	Surface without gas emission	Good with substrate heating; Excellent when substrate is cleaned with sputtering	0.015–4.500	Vaporization; precipitation	Thin
Ion plating	Pure metal, alloy, carbide, nitride, oxide	Surface without gas emission	Excellent	0.005–1.500	Dry plating; reduction of ion; precipitation	Thin

Source: Shared Research based on data from the Japan Thermal Spray Society

Coating technologies can be divided into thick coating, which includes thermal spraying and plating, and thin coating, which includes chemical vapor deposition (CVD), vacuum deposition, and ion plating. Plating has long been used as a coating technique because it is inexpensive and produces relatively high adhesive properties. However, when compared with thermal spraying, plating takes more time, only allows for metals and alloys to be used as coating materials, and has an extremely large impact on the environment. Thermal spraying, on the other hand, is widely used as a coating technology in industrial circles despite its higher costs compared to plating, because the method coats quickly and is applicable to a wide range of coating materials, including metals, ceramics, plastics, and glass.

Coating thickness and film formation temperatures by type of surface treatment



Source: Shared Research based on company data

Comparison between electroplating and thermal spraying

Category	Method	
	Electroplating (hard chrome plating)	Thermal spraying (WC/12Co cermet)
Process	Wet	Dry
Coating characteristics	Difficult with complex shape	Difficult with complex shape
Deposition rate	Low	High
Coating material selection	Extremely limited	Very wide
Film adhesion	High	High
Film hardness	Hv800–900	Hv1100 or higher
Hydrogen embrittlement	Highly susceptible	None
Environmental impact	Very large	Small

Source: Shared Research based on data from the Japan Thermal Spray Society

Thermal spraying applications

Purpose	Sprayed material	Application
Corrosion resistance	Zinc, aluminum, aluminum-zinc alloy, plastics, stainless steel	Chemical plants, steel structures, marine structures
Abrasion resistance	Cemented carbide (WC/Co), self-fluxing alloy, Co-Cr-Al alloy, Al2O3-TiO2, stainless steel)	Hot-rolling hearth roll, press mold, hot-extrusion dies, pump shaft sleeves and seals, water wheel paddles, printer dampening rollers, various mechanical parts
Gap adjustment	Si-Al-polyester, Ni-C	Jet engine compressor sliding units, housing for turbo charger compressor
Heat resistance	Zirconia (ZrO2-Y2O3, ZrO2-CaO, ZrO2-MgO), M-Cr-Al-Y alloy, Ni-Cr alloy	Gas turbine blades, jet engine combustion chamber wall, rocket engine nozzles
Insulation property	Al2O3	Electric parts
Conductive property	Cu, Al, Ni-Cr alloy	Electric heaters
Decoration	Brass, various types of ceramics	Furniture, manhole covers
Biocompatibility	Pure titan, hydroxyapatite	Artificial bones, artificial hip prostheses, artificial tooth roots
Other	Zirconia	Oxygen sensors, electrolytes for solid oxide fuel cell

Source: Shared Research based on data from the Japan Thermal Spray Society

Thermal spraying equipment is categorized by the heat source it uses, which includes combustion gas, electricity, and laser. Based on the types of spraying material and gas pressure levels applied, equipment using combustion gas can be further broken down into wire, rod, or powder flame spraying equipment, high velocity flame spraying equipment (for high velocity oxy fuel [HVOF] and high velocity air fuel [HVAF] processes), and detonation spraying equipment (for D-gun treatment). Equipment using electricity as the heat source includes arc spraying equipment (for wire spraying that utilizes arc discharge) and plasma spraying equipment (for atmospheric plasma spraying, low-pressure plasma spraying, high-pressure plasma spraying, and underwater plasma spraying among others). Compared to atmospheric plasma spraying, low-pressure plasma spraying allows for faster spraying of molten particles, and can form a coating with higher density and bonding strength. It is widely used as an indispensable thermal spraying method in advanced fields such as high-performance coating for components of semiconductor and FPD manufacturing equipment.

Heat source	Spraying method		Material
Combustion gas	Flame spraying	Wire flame	Metal wire, ceramic-filled plastic tube
		Rod flame	Ceramic rod
		Powder flame	Metal, ceramics, plastic
	High velocity flame spraying	High velocity oxy fuel (HVOF)	Metal, cermet
		High velocity air fuel (HVAF)	Metal, cermet
	Detonation spraying	Detonation gun process	Metal, ceramics
Electric	Arc spraying		Metal wire, ceramic-filled metal tube
	Plasma spraying (direct current [D.C.])	Atmospheric	Oxide ceramics
		Low-pressure	Metal, cermet
		High-pressure	Ceramics, intermetallic compound
		Underwater	
		Water-stabilized	Oxide ceramics
	Radio frequency induction plasma spraying		Ceramics, metal
	Electromagnetic acceleration plasma spraying		Ceramic rod, metal rod
	Wire explosion spraying		Metal wire
	Electrothermally exploded power spray		Conductive ceramic powder, metal powder
Laser beam	Laser spraying		Metal wire, ceramics
Other	Laser plasma hybrid spraying		Ceramics, metal
	Cold spray		Metal, cermet, some ceramics

Source: Shared Research based on material from Japan Thermal Spray Society

Wire flame spraying method: Main characteristics are as follows (the same characteristics also apply to arc spraying):
1) The workpiece can be held at a low temperature during spraying, preventing undesirable thermal impact such as dimensional changes, deformation, cracking, or deterioration of strength.
2) Allows for a wide selection of coating thickness (normally 0.1–5.0 mm)
3) Produces a coating with excellent abrasion resistance because the particles that form the coating via this method achieve hardness beyond that of their raw material state. Hard materials, such as metallic oxide, nitride, and carbide are also interpositioned and dispersed within the coating for added strength.

Arc spraying method: Advantages over flame spraying that uses combustion gas are as below:
1) Thermal spraying capacity is more than twice as high and is more efficient when applied to articles with large surface areas
2) Has a higher degree of sectional adhesion, leading to stronger overall adhesiveness
3) Offers higher compressive strength, enabling use under heavy loads

Plasma spraying method: "Plasma" refers to ionized gases that form when gases are heated and their molecules separate into atoms and further break down into electrons and positive ions (electrolytic dissociation). Plasma spraying is a thermal spraying treatment that utilizes a high-temperature and high-speed gas jet, or "plasma jet," that gathers these gases and uses them to melt and spray out metals, alloys, and refractory materials including various types of ceramics, or cermet, which is a combination between ceramics and metals or alloys. Plasma spraying methods include atmospheric plasma spraying (APS), which is conducted in normal atmospheric air, and vacuum plasma spraying (VPS), which is conducted within a chamber with atmosphere and pressure controls.

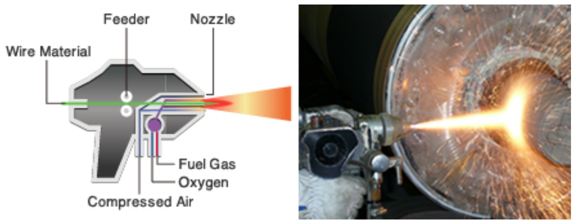
Wire flame spraying: A thermal spraying treatment in which metal or alloy wire is melted by an oxy acetylene (propane) flame, atomized to form a fine spray, and propelled to the substrate to form a coating. Both wire flame spraying and arc spraying are categorized as wire treatments. A wide range of wires can be used, including materials with low melting points such as aluminum, zinc, and babbit metals, as well as metals and alloys such as copper, bronze, monel, carbon steel, stainless steel, and molybdenum.

Rod flame spraying: A thermal spraying treatment in which ceramic rods molten by a combustion gas flame (primarily oxy acetylene) is atomized into particles and sprayed onto the substrate. Only particles that have been completely melted are propelled to the substrate using compressed air, forming a ceramic coating that is high density and highly adhesive.

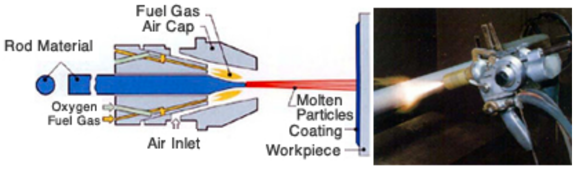
Powder flame spraying: A thermal spraying treatment in which self-fluxing alloys* in powder form are molten by an oxy acetylene (propane) flame. Particles of the molten material are then sprayed onto the substrate. The method also involves a fusing treatment performed after spraying (heating the applied coating to its melting point), which strengthens the bond between the coating and the substrate, forming a nearly nonporous coating that offers high degrees of adhesion and excellent corrosion resistance. In the fusing and solidifying process, the coating deposits a solid layer of boride and carbide, also adding high abrasion resistance to the coating. The treatment is also characterized by excellent resistance to corrosion from most chemical solutions, erosion resistance, cavitation erosion resistance, and hot hardness.
*Self-fluxing alloy: any alloy used in thermal spraying which does not require the addition of a flux in order to wet the substrate and coalesce when heated.

High velocity flame spraying: In high velocity oxy fuel (HVOF) spraying, a type of high velocity thermal spraying, the pressure inside the spray gun combustion chamber is raised to generate a high velocity flame that is comparable to a flame produced through explosive, detonative combustion. Spraying material in powder form, fed into the center of the jet stream generated by this flame, achieves a molten or semi-molten state; the resulting particles are then continuously sprayed onto the substrate at a high velocity. This method allows for the creation of an extremely dense and adhesive coating because it forces the sprayed particles to collide with the substrate at supersonic speeds. The true value of HVOF spraying lies in its capacity to form a carbide cermet coating that is particularly resistant to abrasion. This method produces coatings of more uniform quality than detonation spraying because it forms coatings continuously.
Source: Shared Research based on company data

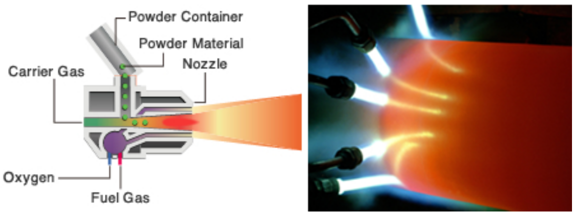
Wire flame spraying (combustion gas)



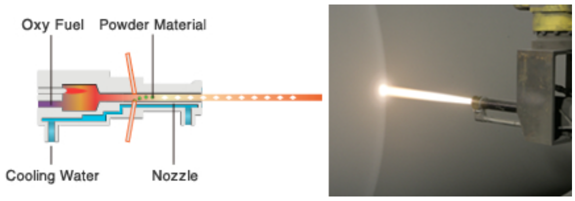
Rod flame spraying (combustion gas)



Powder flame spraying (combustion gas)



High velocity flame spraying (combustion gas)



Source: Company data

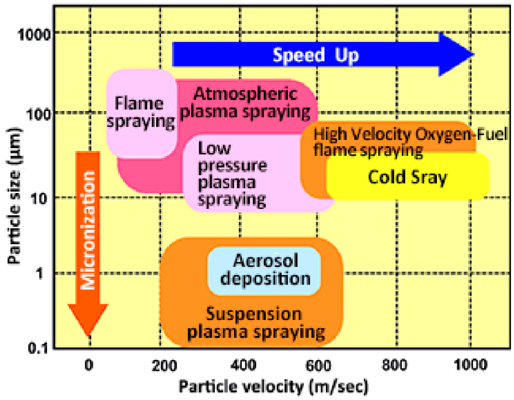
Arc spraying: This is a method that involves feeding two conductive wires (one positive and one negative) through to the gun head of a thermal spraying gun. The two wires meet at the tip of the gun (the nozzle), arc against each other, and create a molten material, which is then atomized into fine spray and propelled to the substrate using compressed air. Along with the wire flame spraying method, it is generally known as a wire treatment. All metals and alloys that can be processed into wires are compatible with electric arc spraying.

Plasma spraying: "Plasma" refers to ionized gases that form when gases are heated, and their molecules separate into atoms and then break down further into electrons and positive ions (electrolytic dissociation). A "plasma jet" is a high-speed gas jet formed by a convergence of plasma-state gases. "Plasma spraying" is a thermal spraying method that involves using a plasma jet with extremely high energy density and a temperature of over 10,000° Celsius to melt pulverized metals and alloys, ceramics that are refractory materials, or cermets (a combination between ceramics and metals or alloys). After being melted, these materials are sprayed onto the substrate. This method allows a high degree of freedom when selecting spraying materials and is characterized by the sprayed coating that is highly adhesive to the substrate.

Atmospheric plasma spraying (APS): a type of plasma spraying conducted under normal atmospheric pressure. APS coatings are a product of optimal material selection (i.e., studying the usage environment of the substrate and choosing the right material from a range of ceramics with varying characteristics), appropriate coating design, and stringent execution management, and are actively used in a variety of capacities. APS can also be simply referred to as "plasma spraying."

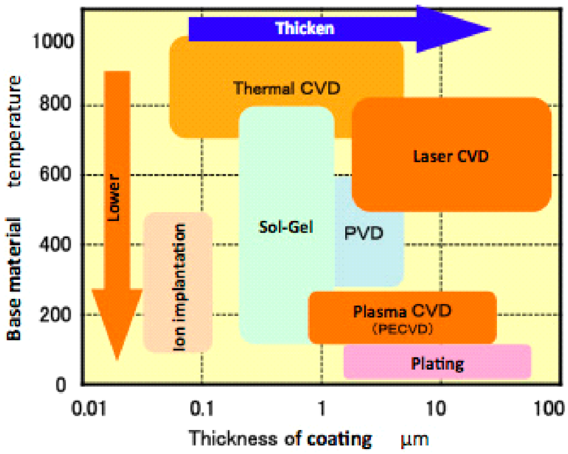
Low-pressure plasma spraying: A plasma spraying treatment that is conducted in an atmosphere- and pressure-controlled chamber. Prior to the spraying, the chamber is first evacuated, then filled with inert gas at a low pressure. The procedure is also referred to as vacuum plasma spraying (VPS). This thermal spraying method has three main characteristics: it does not damage material properties, and thus produces a coating with functionalities that are exactly as designed; active metals such as titanium can be used as coating material; and the molten particles that fly at a higher velocity than APS allow for a very dense coating with high bonding strength. This method is regarded as essential for the formation of high-performance coatings applied in advanced fields.
Source: Shared Research based on company data

Types of thermal spraying technology

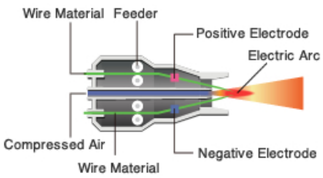


Source: Company data

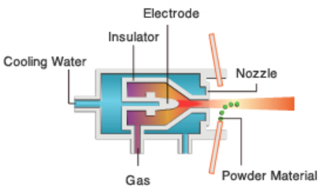
Types of coating technology

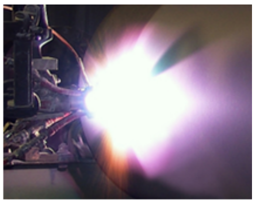


Arc spraying (electricity)

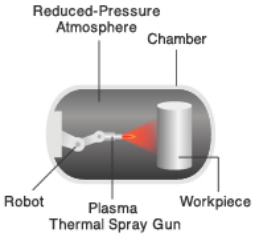


Atmospheric plasma spraying (electricity)



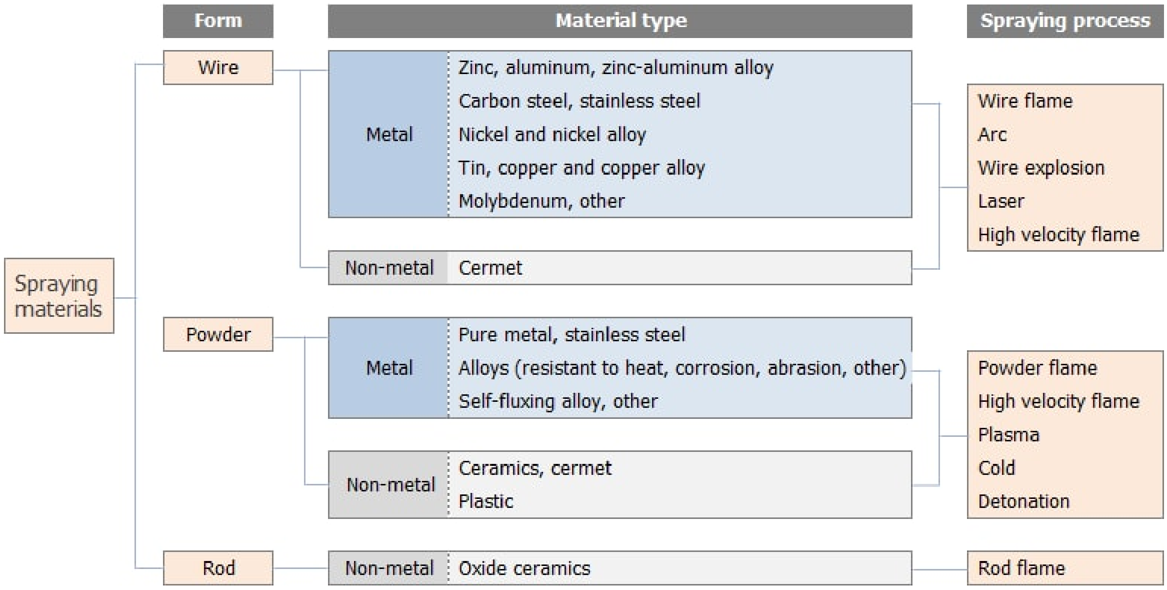


Low-pressure plasma spraying (electricity)



Source: Company data

Spraying materials—types and corresponding treatment methods



Source: Shared Research based on data from the Japan Thermal Spray Society

Surface treatments customized to individual orders

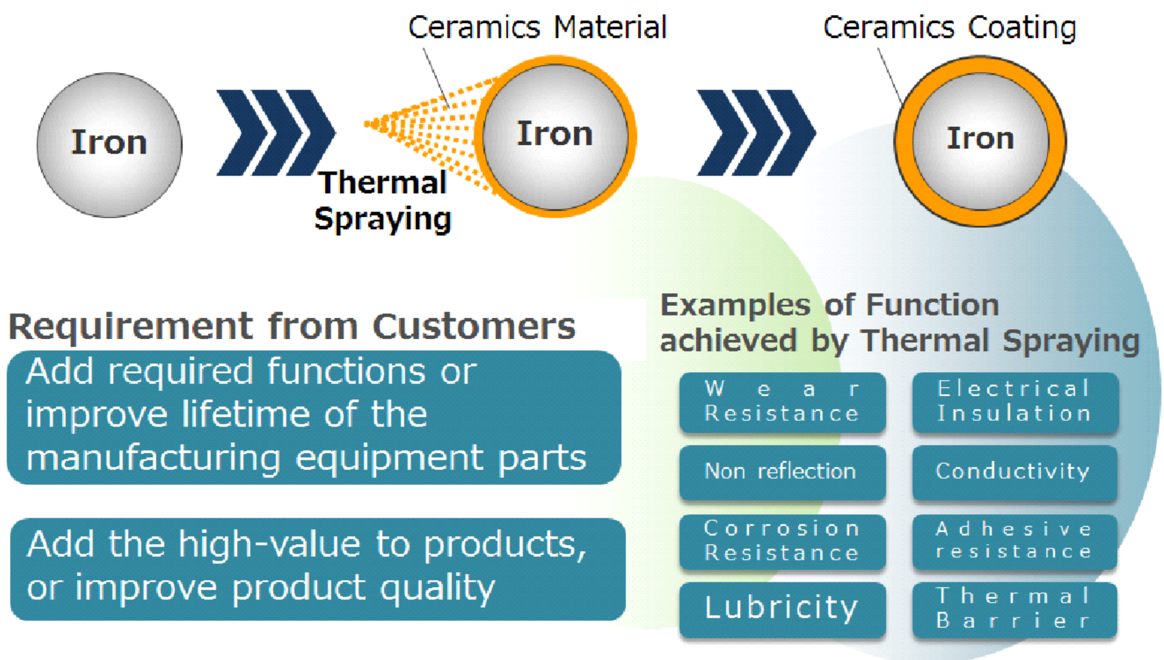
TOCALO conducts all of its surface treatments through a made-to-order production system. Accordingly, quantity is not a business priority. Once it receives an order from a customer, TOCALO has the workpieces (e.g., customers' goods and components of their manufacturing equipment) delivered to its factory, where they are kept while surface treatment is applied. The company procures the coating materials and generates sales by providing coating services. When the workpieces are too large to be removed from customer factories, as is the case with a yankee cylinder used in tissue paper production, TOCALO employees visit these factories to perform coating operations. As of end-FY03/23, the company had 1,300 full-time and directly hired temporary employees on a consolidated basis. When including temporary employees received on dispatch, staff totals are between 1,500 and 1,600 employees.

The company's operations include a mixture of semiautomated treatments, such as plasma spraying, and treatments that require human labor, such as flame spraying. Even the semiautomated treatments are considerably labor-intensive because the orders entail a wide variety of workpieces, each in small volume and requiring pretreatment, setting modification, and inspection processes done manually.

TOCALO specializes in surface treatments for industrial manufacturing equipment. Its surface treatment lines, mainly for thermal spraying, are designed to suit workpieces that have relatively large surface areas. Even in the case of handling small workpieces, the company responds to customer specifications that are becoming more diverse such as treatment on just specific parts of a component.

Among specific customer needs is the improvement of functionality and durability of the manufacturing equipment in their factories. For example, applying coatings to production line rolls in steel mills helps extend the lives of these rolls and raises the quality of the steel plates they produce. Customers also express the need to add value and enhance the qualities of their products through the application of functional coatings. Treatments of this nature include the coating for parts used in semiconductor equipment and gas turbine components. Cermet (ceramic metal) is a representative coating material. "Cermet" is a coined word that expresses both the hardness of ceramics and toughness of metal. The material's main components are titanium and tungsten, which give it excellent resistance to corrosion, make adhesion less likely, and allow for a clean finish of the surfaces. Thermal spraying treatment adds functional properties, such as abrasion resistance, seize resistance, corrosion resistance, lubricity, electric insulation, non-adhesiveness, water resistance, and heat resistance, in a relatively efficient manner.

Principle and effects of surface treatments



Source: Company data

Cost structure

In FY03/23, TOCALO reported a GPM of 36%, an SG&A ratio of 14%, and an OPM of 22%, on a consolidated basis. Labor cost and outsourcing cost accounted for 29% and 24% of total manufacturing costs at the parent respectively, while materials accounted for 14%, consumables 11%, utilities 5%, depreciation 7%, and other costs 10%. TOCALO's business is labor-intensive, with personnel expenses also accounting for 50% of SG&A expenses. We understand that full operational automation in the surface treatment business is difficult to attain because specifications are different for each customer and workpiece.

Cost of sales

Cost of sales (parent, JPYmn)	FY03/16 Parent	FY03/17 Parent	FY03/18 Parent	FY03/19 Parent	FY03/20 Parent	FY03/21 Parent	FY03/22 Parent	FY03/23 Parent
Materials costs	2,404	2,178	2,542	3,110	2,794	2,844	3,249	3,781
% of total	15.0%	13.8%	13.3%	13.9%	13.0%	13.3%	13.7%	14.2%
Labor costs	4,310	4,212	5,015	6,158	6,066	6,227	6,806	7,629
% of total	26.9%	26.6%	26.2%	27.6%	28.2%	29.1%	28.8%	28.6%
Outsourcing costs	4,658	4,622	5,407	5,916	5,653	5,353	5,833	6,488
% of total	29.1%	29.2%	28.3%	26.5%	26.3%	25.0%	24.7%	24.3%
Other costs	4,657	4,802	6,153	7,139	6,971	7,000	7,742	8,797
% of total	29.1%	30.4%	32.2%	32.0%	32.4%	32.7%	32.8%	33.0%
Utility	780	734	890	1,006	995	899	1,051	1,388
% of total	4.9%	4.6%	4.7%	4.5%	4.6%	4.2%	4.4%	5.2%
Consumables	1,404	1,518	1,931	2,149	1,936	2,130	2,539	3,013
% of total	8.8%	9.6%	10.1%	9.6%	9.0%	9.9%	10.7%	11.3%
Depreciation	967	1,094	1,225	1,804	2,020	1,864	1,851	1,851
% of total	6.0%	6.9%	6.4%	8.1%	9.4%	8.7%	7.8%	6.9%
Other	1,506	1,456	2,107	2,180	2,020	2,107	2,301	2,545
% of total	9.4%	9.2%	11.0%	9.8%	9.4%	9.8%	9.7%	9.5%
Total cost of manufacturing	16,029	15,814	19,118	22,325	21,486	21,425	23,632	26,697

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

Changes in SG&A (consolidated)

SG&A expenses (cons., JPYmn)	FY03/16 Cons.	FY03/17 Cons.	FY03/18 Cons.	FY03/19 Cons.	FY03/20 Cons.	FY03/21 Cons.	FY03/22 Cons.	FY03/23 Cons.
Directors' compensations	306	328	362	421	378	338	295	315
% of total	6.2%	6.7%	6.5%	7.0%	6.1%	5.7%	4.7%	4.6%
Personnel expenses	2,311	2,290	2,504	2,660	2,791	2,788	3,036	3,257
% of total	47.0%	46.8%	45.2%	44.2%	44.8%	47.1%	48.0%	47.8%
Personnel expenses	1,857	1,974	2,135	2,257	2,360	2,448	2,541	2,769
% of total	37.7%	40.4%	38.6%	37.5%	37.9%	41.3%	40.1%	40.7%
Provision for bonuses	279	298	323	326	318	402	444	437
% of total	5.7%	6.1%	5.8%	5.4%	5.1%	6.8%	7.0%	6.4%
Retirement benefit expenses	175	18	46	77	113	-62	51	51
% of total	3.6%	0.4%	0.8%	1.3%	1.8%	-1.0%	0.8%	0.7%
Transportation and communication expenses	352	352	355	365	342	206	217	270
% of total	7.2%	7.2%	6.4%	6.1%	5.5%	3.5%	3.4%	4.0%
Depreciation	52	60	138	224	273	273	209	247
% of total	1.1%	1.2%	2.5%	3.7%	4.4%	4.6%	3.3%	3.6%
R&D expenses	740	719	771	844	974	1,068	1,080	1,143
% of total	15.0%	14.7%	13.9%	14.0%	15.6%	18.0%	17.1%	16.8%
Other	1,160	1,141	1,406	1,505	1,471	1,251	1,492	1,575
% of total	23.6%	23.3%	25.4%	25.0%	23.6%	21.1%	23.6%	23.1%
Total	4,921	4,890	5,536	6,019	6,229	5,924	6,329	6,807

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

Group structure

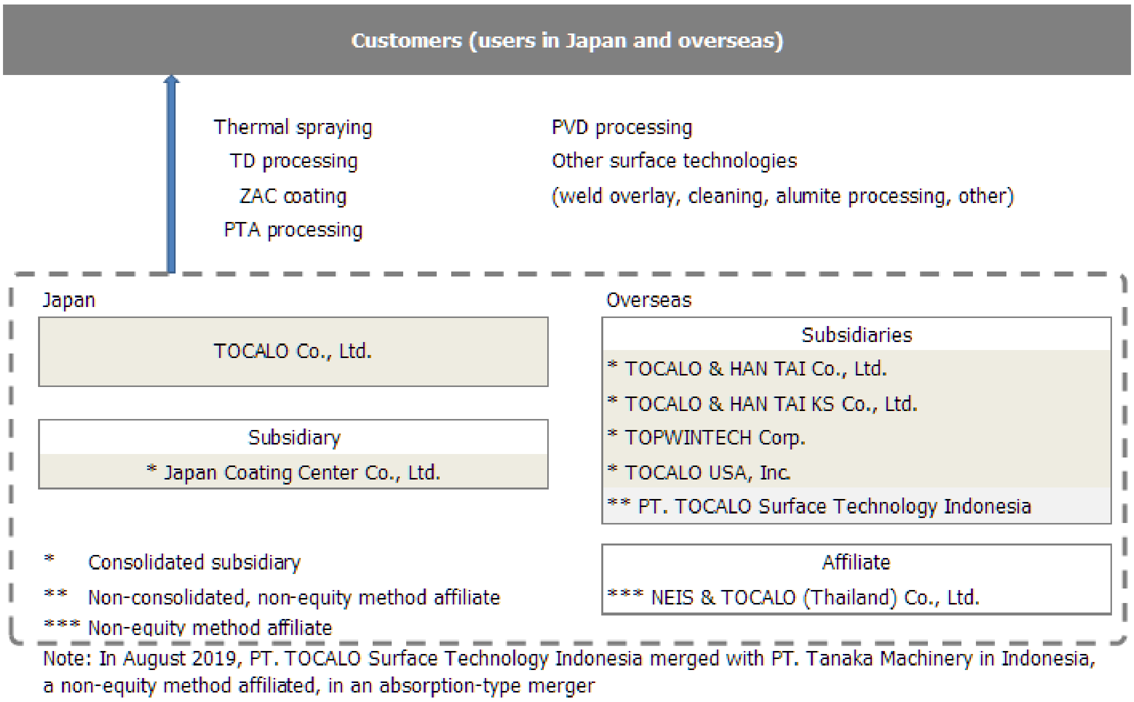
Overview

TOCALO includes a parent company, five consolidated subsidiaries, one unconsolidated subsidiary, and one affiliated company. It primarily conducts thermal spraying treatments but also performs services in peripheral fields, including the Toyota diffusion (TD) process, zinc alloy coating (ZAC), plasma transferred arc (PTA) process, and physical vapor deposition (PVD) process. All of these processes are types of surface treatments, which involve providing new functionality to workpieces by forming coatings on their surfaces that have different properties from their substrates (the material to which spraying deposit is applied).

In September 2004, the company entered the field of PVD process, a technique to form thin coatings, by acquiring all shares of Japan Coating Center Co., Ltd. (JCC).

Overseas sales accounted for 23.3% of the company's overall sales in FY03/23 and primarily came from Japanese companies that have expanded abroad. The company has concluded many licensing agreements with overseas companies but does not work to acquire customers locally overseas. Some competitors overseas sell thermal spraying materials and equipment in addition to providing contracted treatment services, but TOCALO only provides services.

Group companies



Source: Shared Research based on company data

International network (licensees)

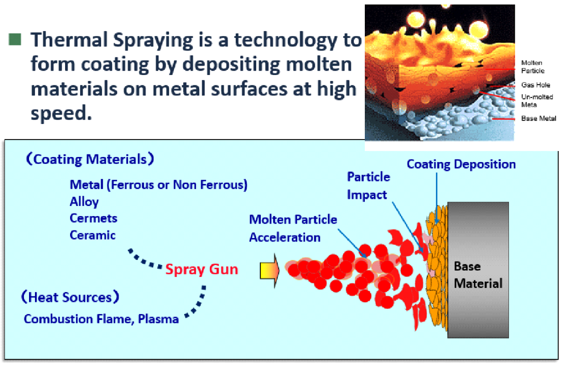
	Company	Fields of technology licenses
People's Republic of China	TOCALO & HAN TAI Co., Ltd.	Thermal spraying (steel, other)
	TOCALO & HAN TAI (KUNSHAN) Co., Ltd.	Thermal spraying(semiconductor and FPDs)
	BAOSTEEL Engineering & Technology Group Co., Ltd.	Thermal spraying (steel, other)
	High Shine Limited	TD process(steel, other)
	SMS Siemag Technology (Tianjin) Co., Ltd.	Thermal spraying (steel, other)
Taiwan	TOPWINTECH Co., Ltd.	Thermal spraying(semiconductor and FPDs)
	HAN TAI TECHNOLOGY Co., Ltd.	Thermal spraying (steel, other)
South Korea	DAE SHIN METALLIZING Co., Ltd.	Thermal spraying (steel, other)
	TOPWINTECH Corp.	Thermal spraying(semiconductor and FPDs)
ASEAN	NEIS & TOCALO (Thailand) Co., Ltd.	Thermal spraying (steel, other)
	PT. TOCALO Surface Technology Indonesia	Thermal spraying (steel, other)
	HAN TAI VIETNAM CO., LTD	Thermal spraying (steel, other)
India	ATS Techno Pvt. ltd	Thermal spraying (steel, other)
EU	Oerlikon Surface Solutions AG	Thermal spraying (steel, other)
	Duma-BandZink GmbH	Thermal spraying (steel, other)
United States	TOCALO USA,Inc.	Thermal spraying (semiconductor, other)
	SMS group Inc.	Thermal spraying (steel, other)
	NxEdge	Thermal spraying(semiconductor)
Russia	SMS GROUP LLC	Thermal spraying (steel, other)
Brazil	SMS group Metalurgia do Brasil Ltda.	Thermal spraying (steel, other)

Source: Shared Research based on company data

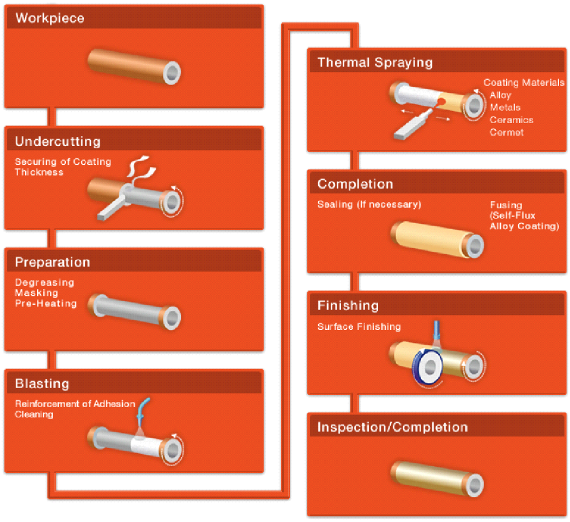
Thermal Spraying (Parent)

Thermal spraying treatment is a surface treatment method used to form coatings on industrial product parts such as components of semiconductor and FPD manufacturing equipment; power generating gas turbines; batteries used for power storage; a variety of bearings; factory machine pieces including rolls used in steel and paper mills; and parts used in chemical plants. It involves melting coating materials (e.g., metals, ceramics, and cermet) using high temperature heat sources (plasma or gas-based flames) and then spraying the molten material onto the target surface. Thermal spraying adds a variety of functions to the workpiece, including improved durability through higher abrasion and heat resistance; electrical characteristics such as conductivity and electric insulation; and thermal properties, including heat insulation and heat dissipation. A wide variety of thermal spraying treatment methods exist, but TOCALO primarily utilizes atmospheric plasma spraying and low-pressure plasma spraying, which both use plasma as a heat source; and high velocity flame spraying, wire flame spraying, and powder flame spraying which use combustion flame as a heat source. The company chooses which method is appropriate for any given workpiece.

Principle of thermal spraying technology



Thermal spraying process



Source: Company data

Surface treatment centered around thermal spraying has become a standard technology in a wide variety of fields, ranging from manufacturing to medical care, and its demand has been on the rise year by year. TOCALO has built a diverse customer base across many sectors, creating a customer mix that helps it navigate through changing economic climates. In particular, it has managed to acquire customers that are top-class companies in major growth industries. Breaking down the company's sales in FY03/23, 48% came from treatments on semiconductor and FPD manufacturing equipment parts; 8% industrial machinery parts; 7% furnishings and equipment used in the steel industry; 12% from other thermal spraying treatments; 6% from other types of surface treatments; 5% domestic subsidiary; and 14% overseas subsidiaries. In the past, most demand came from the steel and paper and pulp industries, but sales to customers in the semiconductor and FPD manufacturing equipment industries currently account for nearly 50% of sales. The company's most prominent customer is Tokyo Electron Limited, which accounted for 33.1% of consolidated sales in FY03/23.

Even in past cases in which profit fell short of initial forecasts or dropped YoY, TOCALO has maintained a stable, profitable structure with relatively few fluctuations in earnings, despite its high degree of reliance on semiconductor- and FPD-related sales. Shared Research believes that this stable, profitable structure is underpinned by TOCALO's robust customer base in the semiconductor and FPD fields as well as other industries, and repeat orders for functional surface treatments that offer high added value.

Sales to the Tokyo Electron group

Sales to large lot customers	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Tokyo Electron group	2,804	4,794	5,004	7,867	10,719	13,291	11,615	13,543	15,631	15,946
Sales dependence	12.4%	18.4%	17.4%	27.2%	31.4%	33.6%	30.6%	34.7%	35.7%	33.1%
Semiconductor equipment (parent)	5,030	7,270	8,628	8,519	11,273	14,895	12,497	16,030	18,990	21,739
Tokyo Electron group as % of semis	55.7%	65.9%	58.0%	92.3%	95.1%	89.2%	92.9%	84.5%	82.3%	73.4%

Source: Shared Research based on company data
Note: Figures for the Tokyo Electron Group include both parent company and overseas subsidiary sales.

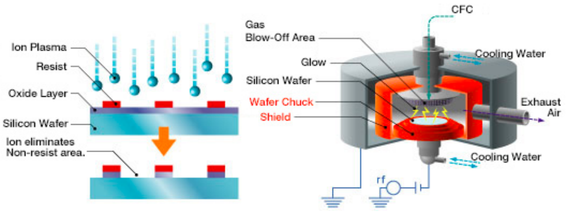
Surface treatment for semiconductor equipment parts

Thermal spraying is applied to parts of equipment used in silicon wafer processing (orange-colored components in the following diagrams). The procedure is utilized to achieve a range of objectives such as improving the components' resistance to plasma corrosion or giving electrical properties to the electrostatic chuck that holds the wafer during processing.
In the past, semiconductor equipment makers faced an urgent need to eliminate deposits inside their etching equipment chambers (making sure that particles scraped away during the etching process did not adhere to the chamber wall). In particular, chamber walls treated by aluminum alloy, alumite, or alumina were subject to corrosion in the plasma etching process, producing chemical compound particles, which became a significant cause of chip defects. TOCALO proposed a ceramic-based thermal spray coating for chamber walls that proved to be highly plasma resistant. The coating was quickly adopted as a standard for mass production in the semiconductor equipment industry accompanying its shift to 300mm wafers

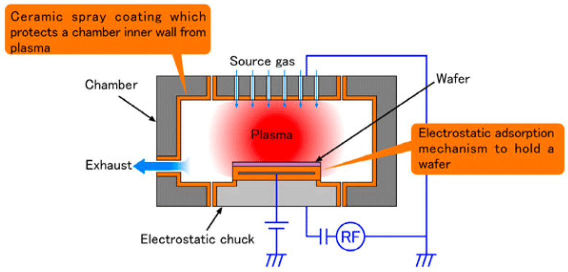
(the company also licenses technology to competitors).

The feature size of the most advanced semiconductors (very large-scale integrated circuits [VLSI circuits]) is becoming miniaturized, and the structure of these semiconductors multi-layered. Along with this trend, dry etching processes (use of plasmas or etchant gases to remove portions of substrate layers based on specific patterns defined by photoresist masks) are becoming increasingly more common. We understand more than half of the company's surface treatment on semiconductor equipment components is for dry etching equipment. TOCALO provides services to major semiconductor equipment makers in Japan and abroad, including Tokyo Electron, with which it has built a particularly close relationship and conducts joint development.

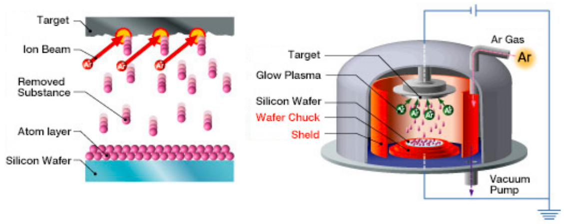
Dry etching equipment components



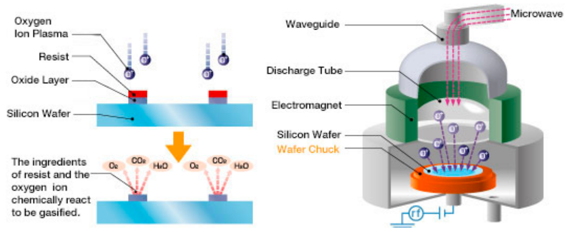
Dry etching equipment schematics



Sputtering equipment components



Ashing equipment components



Source: Company data

Surface treatment outside of the semiconductor and FPD fields (industrial equipment, steel, paper and pulp, energy, transportation, petrochemical, resins/films sectors)

The thermal spraying business for the steel and paper industries supported TOCALO's rapid progress during the 1980s and 1990s. The steelmaking industry was a standout driver of growth. Increased orders for thermal spraying on in-sink and processing rolls (tension bridles, deflector rolls, etc.) of continuous galvanizing lines (CGL) and hearth rolls of continuous annealing lines (CAL), continuous annealing and processing lines (CAPL), and CGL helped expand the company's earnings.

In the paper industry, TOCALO reached a technical cooperation agreement in 1989 with Vendor Machine Co., Ltd., which had a strong track record in Europe and the US, and began offering thermal spraying and polishing treatments for yankee dryer rolls. The yankee dryer roll is a core machine for paper manufacturers and determines the quality of paper products such as tissue paper and newspaper. The company's coating technology has been widely adopted as a standard thermal spraying treatment for rolls used by many paper manufacturers because of its excellent reputation for quality.

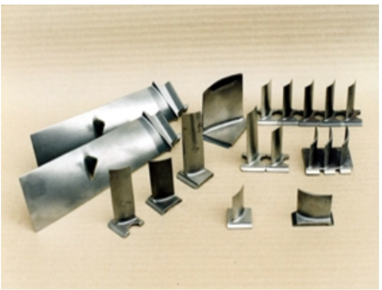
In industrial equipment, particularly noteworthy is the use of TOCALO's thermal spraying technology to insulate the bearings utilized in drive motors for bullet train cars (delivered by the company in 2001). Sometimes, minute electrical currents can leak from motors and generators attached to the surface of bearings, causing electrical discharge. This can cause (electrolytic) corrosion, which leads to early bearing deterioration. TOCALO was able to add insulation properties to the surface of these bearings and prevent the corrosion caused by electrical discharge. Leveraging the safety knowhow nurtured through the bullet train project, TOCALO developed low-cost, thermal-sprayed insulated bearings that are currently being widely utilized as industry standards in both Chinese railways and in the New York subway system. These bearings are also receiving attention for their application in wind power generators and are being progressively adopted in this capacity.

Thermal spraying is also essential for gas turbines that are powered by fossil fuels such as coal and oil. It is applied to vital components used in these gas turbines, including their blades, which must provide stable performance in harsh environments near combustor outlets that can reach temperatures of 1,500° C.

Surface treatment technology is also important in the automotive and aviation equipment industries. However, TOCALO's opportunities to provide contracted thermal spraying services in these industries are limited by major hurdles, such as restrictions aimed at meeting safety standards and capacity for mass production work. The company conducts the Toyota diffusion (TD) process, a surface treatment method developed by Toyota Central R&D Labs, Inc., on press molds used for automobiles.

In the aircraft industry, TOCALO had performed thermal spraying (recoating) on engine parts for ANA (TSE Prime: 9202) but was forced to pull out after about one year as ANA began performing this treatment internally. The company also works on components of the Mitsubishi SpaceJet passenger planes being developed by Mitsubishi Heavy Industries, Ltd. (TSE Prime: 7011) and wing flap components made by Embraer S.A. in Brazil, but these endeavors have apparently not achieved notable progress when compared to initial plan.

Gas turbines (industrial equipment, transportation equipment)

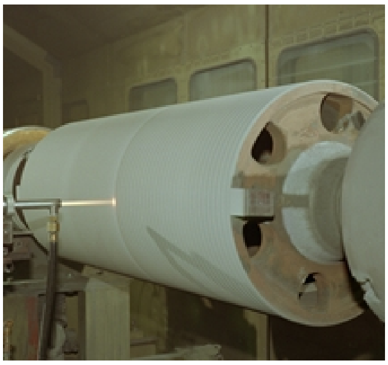


Bearings (industrial equipment)

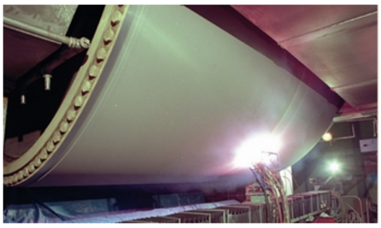
Boilers (energy, petrochemical)

Hearth rolls (steel industry, in-furnace rolls)

Sink rolls (steel industry, in-sink rolls)



Yankee dryer rolls (paper manufacturing)



Source: Company data

Primary business locations (parent)

TOCALO's main factories for the semiconductor and FPD fields are the Akashi Harima, Kitakyushu, and Tokyo factories. The company has also located its Miyagi Technical Service Center nearby the Miyagi factory of Tokyo Electron, a major customer. Its Nagoya and Mizushima factories focus primarily on the steel industry while its Kobe factory performs miscellaneous surface treatments, such as the TD process and ZAC coating.

Main business bases (non-consolidated)

List of offices and plants	Plant
Headquarters(Kobe, Hyogo prefecture)	Tokyo Plant Gyoda Workshop
Thermal Spraying Technology R&D Laboratories(Akashi, Hyogo prefecture)	Tokyo Plant Suzumi Workshop
	Miyagi Technical Service Center
Ofiice	Nagoya Plant
Kitakanto Office	Kobe Plant
Kanagawa Office	Akashi Plant
Yamanashi Office	Akashi No.2 Plant
Shizuoka Office	Akashi No.4 Plant
	Akashiharima Plant
	Kurashiki Plant
	Kitakyushu Plant

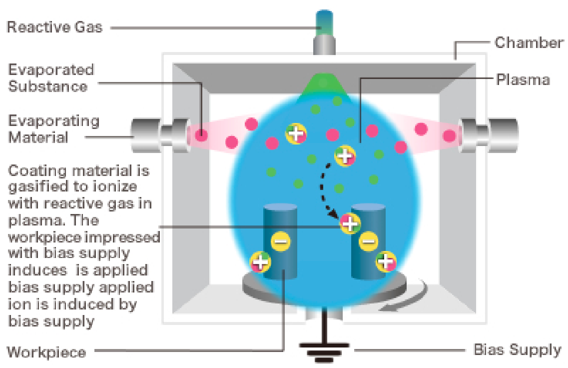
Source: Shared Research based on company data

Domestic Subsidiary

Domestic consolidated subsidiary Japan Coating Center Co., Ltd. (JCC) primarily performs physical vapor deposition (PVD) on cutting tools, edged tools, metallic molds, and other similar materials. The PVD process adds functionality, such as abrasion and corrosion resistance, to the workpieces by forming hard, dense, thin, and highly adhesive ceramic coatings on their surfaces. These coatings are generated by ionizing metals, including titanium and chromium, in a vacuum with reactive gases.

Among the various types of **PVD processes**, JCC utilizes the ion plating method, which stands out in deposition and adhesive properties. This process minimizes heat deformation of the workpiece because it allows for a wide selection of temperature ranges, enabling optimal treatment based on the type of substrate. It is also suitable for mass produced goods. The Mercury Coat offered by JCC is a new coating with high hardness, oxidation resistance, and abrasion resistance. An example of its application is the high-performance coating for hob cutters (components of hobbing machines to cut gears) that suit the changing specifications in gear cutting technology, which is shifting toward dry machining and high-speed/high-feed equipment.
Source: Shared Research based on company data

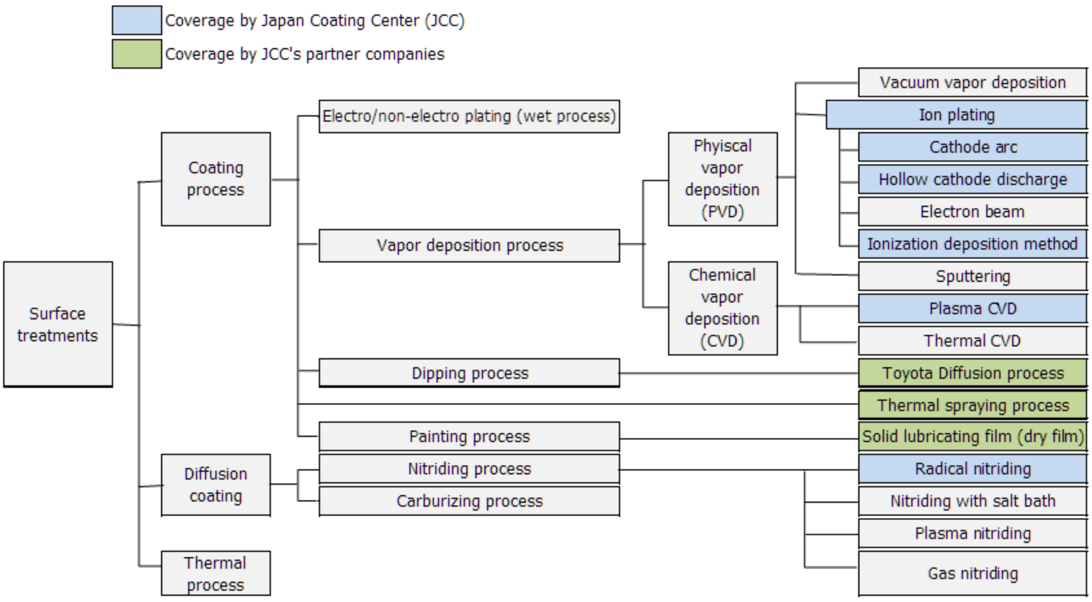
PVD process diagram



Application example: Cutting tools (hob cutters)

Source: Company data

Surface treatment technologies offered at Japan Coating Center Co., Ltd. (JCC)



Source: Shared Research based on company data

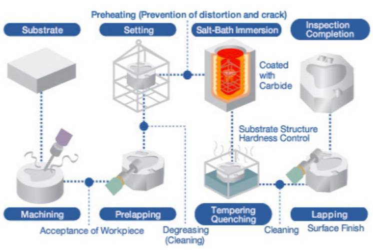
Other Surface Treatments

Toyota diffusion (TD) process (external sales of JPY803mn [2.8% of total sales] in FY03/16)

The TD process is a surface treatment method that forms extremely hard and thin carbide layer by immersing workpieces, such as molds for automobiles, components used in steelworking, and extruder parts, into molten salt baths, causing the diffusion and osmosis of substances such as vanadium and niobium. This carbide layer adds abrasion resistance and seize resistance to target surfaces.

TD- vanadium carbide (VC) coating is an extremely hard coating that can be produced using TD treatment, a type of high-temperature salt bath treatment. It has a cross-sectional hardness of between 3,200 and 3,800 Hv, which protects workpiece surfaces from abrasion and seizing. TD-VC coating also significantly improves the durability of components and is now highly regarded as an indispensable surface treatment technology in the die making industry. Furthermore, the salt bath treatment can be performed regardless of the shape of the subject, enabling uniform coating formation, even on unseen interior surfaces. The TD process has been used to add abrasion resistance and seize resistance properties to press molds used for automobiles, raising productivity and extending the lives of these metallic molds.
Source: Shared Research based on company data

TD process



TD-VC coating

Application example: molds used for automobiles

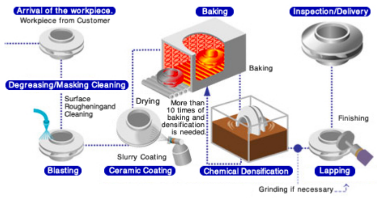
Source: Company data

Zinc alloy coating (ZAC) (external sales of JPY406mn [1.4% of total sales] in FY03/16)

ZAC treatment is a surface treatment method that forms extremely dense composite ceramic coatings whose main component is chromium oxide. The treatment is often applied to parts of equipment such as pumps, textile machinery, and wiredrawing machines, giving them corrosion and abrasion resistance properties.

> **ZAC coating** uses chemical reaction to form composite ceramic coatings primarily composed of chromium oxide (Cr2O3). The coating is characterized by properties such as high density, hardness, and adhesiveness, as well as a low frictional coefficient. It is extraordinarily powerful when used to enhance machine parts that require abrasion and corrosion resistance. ZAC coating treatment has been applied to a variety of pump components, forming ceramic coatings with superior corrosion resistance that extend their useful lives and eliminate the need for maintenance.
> Source: Shared Research based on company data

CDC-ZAC coating process



Furnace combustion treatment

Application example: pump components

Source: Company data

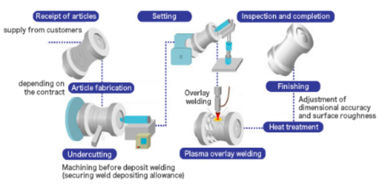
Plasma transferred arc (PTA) process (external sales of JPY364mn [1.3% of total sales] in FY03/16)

The PTA process, a type of overlay welding, is a surface treatment method that uses a high-energy plasma arc to melt a wide variety of pulverized materials and welds them onto the surfaces of equipment that requires high degrees of reliability, including pump and valve components and devices such as steelworking rolls. It provides the equipment with abrasion and corrosion resistance properties.

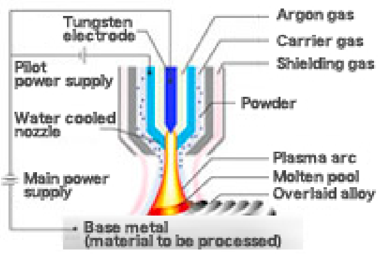
PTA process: A surface treatment technology that uses a high-energy transferred plasma arc to perform overlay welding. Since the overlay material can be applied in powder form, materials that cannot be processed into wires or rods, such as hard materials and ceramics, can be used in this treatment. Coatings that best suit the intended use of the workpiece are achieved by mixing a wide variety of powdered metal alloys and ceramics at controlled ratios. It is also possible to convert the coating created through this process into cermet after it has been overlaid onto the target surface. The bond between the coating and the substrate is metallurgic, causing superior peeling resistance. Since the PTA treatment uses overlay welding, it is quite capable of forming thicker coatings than other methods. In addition to these characteristics, the PTA coating maintains a high degree of hardness even when exposed to high temperatures, and sports superior abrasion, seize, and corrosion resistance. Its application is poised to expand to an increasingly large variety of equipment requiring first-class quality control, including petroleum-related equipment, ships, aircraft, transportation equipment, and nuclear power generation equipment.

Principle of PTA technology: The next figure (center) illustrates how overlay welding via the PTA process works. First, a pilot power supply is used to start an arc in an argon gas-filled space between a tungsten electrode and a water-cooled nozzle. Argon gas passing through this electric arc is ionized to form a hot plasma gas, which is then constricted through a thermal pinch effect produced by the water-cooled constrictor nozzle and discharged against the workpiece as a plasma arc with high energy density. Once this arc reaches the workpiece, the main power supply is activated to maintain contact between the arc and the substrate. The arc current flows through the substrate, forming a molten pool on its surface. Meanwhile, the powdered overlay material is pumped into a carrier gas, such as helium or argon gas, and fed into the plasma arc. It is thrown into the molten pool on the surface of the substrate in a melted state, forming an overlay. The figure (RHS) below compares the convergence properties of plasma arcs and gas tungsten arcs based on the differences between their temperature distributions. The plasma arc is narrowly constricted by the water-cooled nozzle, giving it high energy density. This is why the PTA process even allows for powders with high melting points to be used as overlay materials.
Source: Shared Research based on company data

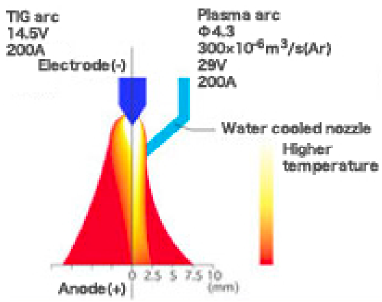
PTA overlay welding process



Principle of PTA technology



Temperature distribution of gas tungsten (TIG) arc and plasma arc



Source: Company data

Overseas Subsidiaries

Consolidated subsidiary TOCALO & HAN TAI Co., Ltd. (Guangzhou, Guangdong, China; established in April 2005) primarily performs thermal spraying and overlay welding within China.

TOCALO & HAN TAI KS Co., Ltd. (Kunshan, Jiangsu, China; established in May 2011) and TOCALO & HAN TAI TW Co., Ltd. (Tainan, Taiwan; established in June 2011), both consolidated subsidiaries, serve as bases for expanding the maintenance business for semiconductor and FPD manufacturing equipment in Chinese and Taiwanese markets. They perform surface treatments, including thermal spraying, cleaning, and anodizing treatment, on equipment components.

Consolidated subsidiary TOCALO USA, Inc. (California, USA; established in November 2015) was established to set up a service base for the maintenance of semiconductor equipment components in the US, which houses a number of prominent end users. However, operating rates remained low as the launch of operations was delayed because permits and approvals from state authorities took longer than expected to obtain. In FY03/21, the company booked an impairment loss on fixed assets of JPY349mn as an extraordinary loss as part of a sweeping overhaul, including dealing with prior-year losses all at once. The company decided to revamp its structure in anticipation of semiconductor growth from 2024 onward as major US semiconductor companies start operations at new factories.

Non-consolidated subsidiary PT. TOCALO Surface Technology Indonesia (established in June 2017) and affiliate NEIS & TOCALO (Thailand) Co., Ltd. (not subject to equity method; established in October 2012) perform surface treatments, such as thermal spraying and welding, primarily for Japanese steel manufacturers operating locally.

Group companies

Company	Established	Headquarters	Stake	Business
Consolidated subsidiaries				
Japan Coating Center Co., Ltd.	Apr. 1985	Kanagawa	100%	PVD processing
TOCALO & HAN TAI Co., Ltd.	Apr. 2005	Guangzhou, China	70%	Thermal spraying (steel, other)
TOCALO & HAN TAI KS Co., Ltd.	Nov. 2011	Jiangsu, China	90%	Thermal spraying (steel, semiconductor, FPD, other)
TOPWINTECH Co., Ltd.	Jun. 2011	Tainan, Taiwan	50%	Thermal spraying (steel, semiconductor, FPD, other)
TOCALO USA, Inc.	Jun. 2011	California, US	100%	Thermal spraying (semiconductor, other)
Other (non-cons., non-equity method)	One in Indonesia, another in Thailand			Thermal spraying (steel, other)

Source: Shared Research based on company data

Segment summary

By segment, Thermal Spraying (Parent) accounted for 5.2% of sales in FY03/23, while Domestic Subsidiary (JCC) made up 5.0%, Overseas Subsidiaries 13.8%, Other Surface Treatments 5.7%, and royalty income 0.4%. The segment profit margins (recurring profit basis) were 23.1% in Thermal Spraying (Parent), 14.6% in Domestic Subsidiary, 25.0% in Overseas Subsidiaries, and 17.0% in Other Surface Treatments. The company's segment profit margins are showing relatively stable improvement, despite being prone to the silicon cycle. Profitability in the Domestic Subsidiary segment (comprising Japan Coating Center Co., Ltd. [JCC]) is lower than in the Thermal Spraying (Parent) segment but has been improving notably. JCC managed itself independently for about ten years after becoming a TOCALO subsidiary in September 2004, but Shared Research observes JCC has produced synergy with the parent company over the past several years. However, JCC has been susceptible to the impact of trade friction and other macroeconomic factors because many of its transactions are in the automotive parts industry.

By region	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,073**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.1%	12.1%	9.9%
Domestic	18,835	21,609	23,678	24,407	28,206	32,155	30,543	30,350	34,568	36,942
YoY	0.6%	14.7%	9.6%	3.1%	15.6%	14.0%	-5.0%	-0.6%	13.9%	6.9%
% of total	83.3%	82.9%	82.4%	84.3%	82.7%	81.3%	80.6%	77.7%	78.9%	76.7%
Overseas	3,764	4,459	5,068	4,557	5,903	7,403	7,352	8,722	9,245	11,202
YoY	69.9%	18.5%	13.7%	-10.1%	29.5%	25.4%	-0.7%	18.6%	6.0%	21.2%
% of total	16.7%	17.1%	17.6%	15.7%	17.3%	18.7%	19.4%	22.3%	21.1%	23.3%

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

By segment	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,073**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.1%	12.1%	9.9%
Thermal Spraying (Parent)	16,324	19,176	21,933	22,309	26,183	30,400	28,221	30,141	33,043	36,184
YoY	2.6%	17.5%	14.4%	1.7%	17.4%	16.1%	-7.2%	6.8%	9.6%	9.5%
% of total	72.2%	73.6%	76.3%	77.0%	76.8%	76.8%	74.5%	77.1%	75.4%	75.2%
Domestic Subsidiary (PVD process)	1,826	1,949	1,978	2,111	2,312	2,493	2,364	2,018	2,399	2,414
YoY	7.6%	6.7%	1.5%	6.8%	9.5%	7.8%	-5.2%	-14.6%	18.9%	0.6%
% of total	8.1%	7.5%	6.9%	7.3%	6.8%	6.3%	6.2%	5.2%	5.5%	5.0%
Overseas Subsidiaries	2,658	3,185	3,262	2,806	3,642	4,460	4,925	4,800	5,695	6,622
YoY	-	19.8%	2.4%	-14.0%	29.8%	22.5%	10.4%	-2.5%	18.6%	16.3%
% of total	11.8%	12.2%	11.3%	9.7%	10.7%	11.3%	13.0%	12.3%	13.0%	13.8%
Other Surface Treatments	1,790	1,758	1,572	1,736	1,971	2,204	2,384	2,112	2,502	2,745
YoY	-	-1.8%	-10.6%	10.4%	13.5%	11.8%	8.2%	-11.4%	18.5%	9.7%
% of total	7.9%	6.7%	5.5%	6.0%	5.8%	5.6%	6.3%	5.4%	5.7%	5.7%
Royalty income	-	-	-	-	-	-	-	-	171	177
YoY	-	-	-	-	-	-	-	-	-	3.5%
% of total	-	-	-	-	-	-	-	-	0.4%	0.4%
Segment profit (recurring profit)	**3,657**	**4,890**	**5,028**	**5,801**	**7,363**	**8,076**	**6,812**	**8,914**	**10,571**	**11,003**
YoY	19.6%	33.7%	2.8%	15.4%	26.9%	9.7%	-15.7%	30.9%	18.6%	4.1%
Recurring profit margin	16.2%	18.8%	17.5%	20.0%	21.6%	20.4%	18.0%	22.8%	24.1%	22.9%
Thermal Spraying (Parent)	2,666	3,822	4,520	4,889	6,009	6,515	5,273	6,760	8,086	8,341
YoY	9.7%	43.4%	18.3%	8.2%	22.9%	8.4%	-19.1%	28.2%	19.6%	3.2%
Recurring profit margin	16.3%	19.9%	20.6%	21.9%	23.0%	21.4%	18.7%	22.4%	24.5%	23.1%
% of total	76.5%	80.1%	84.1%	82.8%	78.9%	78.7%	74.4%	78.6%	76.5%	77.1%
Domestic Subsidiary (PVD process)	232	324	272	402	502	545	491	406	471	352
YoY	38.9%	39.7%	-16.0%	47.8%	24.9%	8.6%	-9.9%	-17.3%	16.0%	-25.3%
Recurring profit margin	12.7%	16.6%	13.8%	19.0%	21.7%	21.9%	20.8%	20.1%	19.6%	14.6%
% of total	6.7%	6.8%	5.1%	6.8%	6.6%	6.6%	6.9%	4.7%	4.5%	3.3%
Overseas Subsidiaries	297	542	589	491	974	1,064	1,056	1,297	1,537	1,653
YoY	-	82.5%	8.7%	-16.6%	98.4%	9.2%	-0.8%	22.8%	18.5%	7.5%
Recurring profit margin	11.2%	17.0%	18.1%	17.5%	26.7%	23.9%	21.4%	27.0%	27.0%	25.0%
% of total	8.5%	11.4%	11.0%	8.3%	12.8%	12.9%	14.9%	15.1%	14.5%	15.3%
Other Surface Treatments	290	81	-4	122	126	152	266	135	468	468
YoY	-	-72.1%	-	-	3.3%	20.6%	75.0%	-49.2%	246.7%	0.0%
Recurring profit margin	16.2%	4.6%	-0.3%	7.0%	6.4%	6.9%	11.2%	6.4%	18.7%	17.0%
% of total	8.3%	1.7%	-	2.1%	1.7%	1.8%	3.8%	1.6%	4.4%	4.3%
Adjustments	171	120	-349	-103	-249	-201	-275	314	7	188

Source: Shared Research based on company data

Note: Figures may differ from company materials due to differences in rounding methods.

Subsegment sales	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,294**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.7%	11.5%	9.9%
Thermal Spraying (Parent)	16,324	19,176	21,933	22,309	26,183	30,400	28,221	30,141	33,043	36,184
YoY	2.6%	17.5%	14.4%	1.7%	17.4%	16.1%	-7.2%	6.8%	9.6%	9.5%
% of total	72.2%	73.6%	76.3%	77.0%	76.8%	76.8%	74.5%	76.7%	75.4%	75.2%
Semiconductor and FPD equipment parts	6,054	8,380	10,069	10,003	13,474	17,134	14,102	18,176	20,643	23,260
YoY	7.1%	38.4%	20.2%	-0.7%	34.7%	27.2%	-17.7%	28.9%	13.6%	12.7%
% of total	26.8%	32.1%	35.0%	34.5%	39.5%	43.3%	37.2%	46.3%	47.1%	48.3%
Semiconductor equipment	5,030	7,270	8,628	8,519	11,273	14,895	12,497	16,030	18,990	21,739
YoY	-0.3%	44.5%	18.7%	-1.3%	32.3%	32.1%	-16.1%	28.3%	18.5%	14.5%
% of total	22.3%	27.9%	30.0%	29.4%	33.0%	37.7%	33.0%	40.8%	43.3%	45.2%
FPD equipment	1,023	1,110	1,441	1,484	2,201	2,238	1,604	2,145	1,653	1,520
YoY	69.1%	8.5%	29.8%	3.0%	48.3%	1.7%	-28.3%	33.7%	-22.9%	-8.0%
% of total	4.5%	4.3%	5.0%	5.1%	6.5%	5.7%	4.2%	5.5%	3.8%	3.2%
Industrial machinery	3,369	3,752	4,072	4,050	4,218	4,154	4,782	3,965	3,707	3,802
YoY	3.3%	11.4%	8.5%	-0.5%	4.1%	-1.5%	15.1%	-17.1%	-6.5%	2.6%
% of total	14.9%	14.4%	14.2%	14.0%	12.4%	10.5%	12.6%	10.1%	8.5%	7.9%
Steelmaking machinery	2,989	3,041	3,438	3,497	3,697	3,662	3,899	3,166	3,450	3,582
YoY	8.0%	1.7%	13.1%	1.7%	5.7%	-0.9%	6.5%	-18.8%	9.0%	3.8%
% of total	13.2%	11.7%	12.0%	12.1%	10.8%	9.3%	10.3%	8.1%	7.9%	7.4%
Other applications	3,912	4,001	4,353	4,758	4,793	5,449	5,437	4,832	5,242	5,539
YoY	-7.4%	2.3%	8.8%	9.3%	0.7%	13.7%	-0.2%	-11.1%	8.5%	5.7%
% of total	17.3%	15.3%	15.1%	16.4%	14.1%	13.8%	14.3%	12.3%	12.0%	11.5%
Other Surface Treatments	1,790	1,758	1,572	1,736	1,971	2,204	2,384	2,112	2,502	2,745
YoY	-	-1.8%	-10.6%	10.4%	13.5%	11.8%	8.2%	-11.4%	18.5%	9.7%
% of total	7.9%	6.7%	5.5%	6.0%	5.8%	5.6%	6.3%	5.4%	5.7%	5.7%
Domestic Subsidiary	1,826	1,949	1,978	2,111	2,312	2,493	2,364	2,018	2,399	2,414
YoY	7.6%	6.7%	1.5%	6.8%	9.5%	7.8%	-5.2%	-14.6%	18.9%	0.6%
% of total	8.1%	7.5%	6.9%	7.3%	6.8%	6.3%	6.2%	5.1%	5.5%	5.0%
Overseas Subsidiaries	2,658	3,185	3,262	2,806	3,642	4,460	4,925	4,800	5,695	6,622
YoY	-	19.8%	2.4%	-14.0%	29.8%	22.5%	10.4%	-2.5%	18.6%	16.3%
% of total	11.8%	12.2%	11.3%	9.7%	10.7%	11.3%	13.0%	12.2%	13.0%	13.8%
Royalty income	-	-	-	-	-	-	-	-	171	177
YoY	-	-	-	-	-	-	-	-	-	3.5%
% of total	-	-	-	-	-	-	-	-	0.4%	0.4%
Physical vapor deposition (PVD) process	1,826	1,949	1,978	2,111	2,312	2,493	2,364	2,018	2,399	2,414
YoY	7.5%	6.7%	1.5%	6.7%	9.5%	7.8%	-5.2%	-14.6%	18.9%	0.6%
% of total	8.1%	7.5%	6.9%	7.3%	6.8%	6.3%	6.2%	5.1%	5.5%	5.0%
Toyota Diffusion (TD) process	936	881	803							
YoY	10.4%	-5.9%	-8.9%	-	-	-	-	-		
% of total	4.1%	3.4%	2.8%	-	-	-	-	-		
Zinc-alloy coating (ZAC) process	456	449	406							
YoY	19.7%	-1.5%	-9.6%	-	-	-	-	-		
% of total	2.0%	1.7%	1.4%	-	-	-	-	-		
Plasma transferred arc (PTA) process	397	428	364							
YoY	-9.4%	7.8%	-15.0%	-	-	-	-	-		

% of total	1.8%	1.6%	1.3%	-	-	-	-	-
Other	2,659	3,186	3,263					
YoY	60.2%	19.8%	2.4%	-	-	-	-	-
% of total	11.8%	12.2%	11.4%	-	-	-		

Source: Shared Research based on company data

Notes: Figures may differ from company materials due to differences in rounding methods.

PVD treatment is performed by domestic subsidiary JCC

Stability of earnings supported by repeat demand from domestic customers

In the past, even when profit has fallen below forecast or decreased YoY, the company has maintained stable profitability with relatively little deviation in terms of earnings, despite its high degree of reliance on semiconductor and FPD sales. Shared Research believes that these stable earnings are underpinned by a thick customer base in industries other than semiconductors and FPDs and repeat demand for functional surface treatments that provide high added value. Shared Research also holds the view that TOCALO has successfully gained customer loyalty by successively launching high-end products in response to customer needs.

Capital expenditures, depreciation, and R&D expenses

TOCALO made significant capital expenditures of around JPY6.0bn in each year over the FY03/17—FY03/19 accounting periods. The purpose of these investments was to respond to heightened production in the semiconductor and FPD fields as well as to increase the production capacity of its domestic subsidiary. In FY03/23, capital expenditures were JPY4.9bn (+10.7% YoY). Its FY03/24 plan calls for capital expenditures of JPY5.0bn. This includes JPY2.6bn to strengthen the production system and improve efficiency at the Tokyo, Akashi, and Kitakyushu plants and put in place equipment to deal with anticipated robust semiconductor demand in Japan. Overseas, it earmarked JPY2.1bn for the construction of a new plant in Taiwan. The company generally targets an R&D expenses-to-sales ratio of about 3%, but is looking for 3.1% in FY03/24.

	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Capital expenditures	2,513	2,678	3,730	5,936	6,361	5,965	2,313	4,822	4,385	4,855
Depreciation	1,388	1,440	1,560	1,703	1,948	2,658	2,991	2,771	2,783	2,987
R&D expenses	653	746	862	834	905	1,003	1,159	1,296	1,296	1,400
R&D ratio	2.9%	2.9%	3.0%	2.9%	2.7%	2.5%	3.1%	3.3%	3.0%	2.9%

Source: Shared Research based on company data

R&D structure

TOCALO's R&D is supported by two pillars: preemptive research and product development in response to customer need. The company has also identified three priority areas for R&D: thermal spraying technology development (development of components for general industrial machinery and equipment, thermal spraying treatment development); semiconductor component technology (development of components used in semiconductor and FPD manufacturing equipment through thermal spraying and other technologies); and coating method development (laser application, PVD, CVD, DLC, TD, ZAC) and organic coating.

The group's R&D lab for thermal spraying technology is central to its R&D activities. While working to develop new treatments and coating films, improve understanding of technological trends, and strengthen industrial and academic collaboration, TOCALO aims to improve its R&D by raising its academic sensitivity by selecting and applying elemental technologies and gathering technical information. Meanwhile, the sales, manufacturing, and production technology departments at each of its factories and the R&D lab are collaborating to swiftly develop products that provide an immediate response to diversifying customer need and to resolve issues concerning production technology.

Furthermore, consolidated subsidiary Japan Coating Center Co., Ltd. is also lending its cooperation to R&D concerning physical vapor deposition (PVD), diamond-like carbon (DLC), and other thin coating treatments. In FY03/23, total R&D expenses for the entire group were JPY1.4bn. Details for each segment are indicated below (a segment-by-segment breakdown of the group's R&D expenses has not been included due to difficulty determining amounts that should be allocated to each segment).

(1) Thermal Spraying (Parent)

In pursuit of sustainable growth, the company is promoting the development of applications for surface treatment technology on high-performance components, focusing on fields such as semiconductors and FPD; new materials; environment and energy; transport aircraft; and medical care. In the semiconductor field, TOCALO is conducting ongoing development of electrostatic chucks and plasma-resistant coating technology for manufacturing equipment components. In particular, the company focuses on new coating materials and methods for the treatment of plasma etching equipment parts, as well as related evaluation technologies. Against a backdrop of active application of IoT and big data, this focus addresses the need for high-performance coating that can respond to production of integrated circuits with nano-level linewidth.

In the area of new materials, TOCALO helps blast furnace manufacturers by developing antifriction sprayed coatings for components that undergo severe stress from impact or other causes. The company is also developing a non-adhesive coating for conveyor rolls used by film manufacturers and the paper and pulp industry. In the environment and energy field, the company developed a high-performance, heat-shielding ceramic coating that protects high-temperature components in gas turbine generators and other equipment. This thermal spraying method is receiving worldwide attention, and the company is pursuing further development.

TOCALO is also actively working on developing a coating treatment that combines thermal spraying and laser technology. Thanks to these efforts, the company was able to trial manufacture a coating that offered dramatically improved adhesiveness and abrasion/corrosion resistance compared with the conventional thermal spray coating. The company began offering this coating to specific customers, and plans to conduct relevant product development while simultaneously evaluating its performance.

(2) Domestic Subsidiary

Through its domestic subsidiary, Japan Coating Center Co., Ltd., the company primarily develops PVD and DLC coatings. In FY03/20, it focused on developing a coating for semiconductor manufacturing equipment parts, which it has begun delivering to some customers. In addition, in the area of DLC coatings, it refined its existing Neo Slick series. In terms of production techniques, it installed automatic testing equipment, worked to automate in-process work, and began initiatives to improve quality and efficiency.

(3) Other businesses

Aside from thermal spraying, TOCALO conducts ongoing product development related to functional coatings produced through the TD process, ZAC, PTA process, and other methods. In terms of developing organic and inorganic coatings, the company is testing the application of functional thin coatings in the areas of medical care and food. Projects include the development of coatings that prevent adhesion with living organisms and blood; the application of coatings to both water-resistant and hydrophilic medical devices; and the development and evaluation of corrosion-resistant coatings. Additionally, in the area of laser cladding technology (a new coating method), aiming to establish it as repair technology for general industrial machinery, the company evaluated the electrochemical characteristics and residual stress of the coatings. It plans to continue the active development of coatings utilizing laser technology.

(4) Patents

The group actively submits patent applications to secure the rights to its technology and coating products. In FY03/23, it held 140 patents in Japan and 122 patents overseas. The company submitted 33 patent applications in FY03/23 and had 22 patents registered.

Profitability analysis

Profit margins	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Gross profit	7,564	8,964	9,727	10,536	12,646	13,761	12,780	14,814	16,585	17,365
Gross profit margin	33.5%	34.4%	33.8%	36.4%	37.1%	34.8%	33.7%	37.7%	37.9%	36.1%
Operating profit	3,483	4,568	4,806	5,646	7,110	7,741	6,550	8,890	10,255	10,558
Operating profit margin	15.4%	17.5%	16.7%	19.5%	20.8%	19.6%	17.3%	22.6%	23.4%	21.9%
EBITDA	4,923	6,064	6,423	7,361	9,058	10,399	9,541	11,661	13,038	13,545
EBITDA margin	21.8%	23.3%	22.3%	25.4%	26.6%	26.3%	25.2%	29.7%	29.8%	28.1%
Net margin	9.6%	11.6%	10.5%	14.1%	14.2%	13.8%	11.6%	13.9%	15.8%	15.3%
Financial ratios										
ROA (RP-based)	11.5%	13.9%	13.5%	14.1%	15.2%	14.7%	11.5%	14.2%	15.8%	15.3%
ROE	9.5%	12.2%	11.2%	13.9%	14.9%	15.2%	11.3%	12.9%	14.8%	14.3%
Total asset turnover	0.71	0.74	0.77	0.70	0.70	0.72	0.64	0.63	0.66	0.67
Inventory turnover	10.1	9.8	10.1	9.7	8.9	8.5	8.7	9.0	8.5	7.4
Days in inventory	36.1	37.3	36.2	37.5	41.1	43.1	42.0	40.4	42.7	49.1
Working capital	6,531	7,329	7,953	10,694	13,113	13,647	13,136	12,218	14,310	15,808
Current ratio	266.5%	256.8%	264.4%	258.9%	184.6%	207.7%	281.2%	271.8%	272.7%	272.1%
Quick ratio	240.0%	228.8%	235.6%	232.0%	164.4%	184.1%	258.6%	248.6%	246.3%	238.9%
OCF / Current liabilities	0.50	0.58	0.56	0.63	0.66	0.59	0.54	0.90	0.77	0.72
Net debt / Equity	-34.0%	-26.4%	-26.0%	-15.7%	-18.4%	-20.4%	-20.4%	-21.7%	-24.4%	-24.2%
OCF / Total liabilities	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.6	0.6	0.6
Cash conversion cycle (days)	90.8	89.2	89.1	n.a.	56.4	54.0	74.2	70.4	62.7	69.0
Change in working capital	828	798	624	2,741	2,419	534	-511	-918	2,092	1,498

Cash conversion cycle	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Accounts receivable turnover	3.2	3.3	3.2	3.0	3.2	3.4	3.2	3.5	3.9	3.9
Days in accounts receivable	114.8	112.0	112.6	120.5	115.8	107.8	112.8	103.5	94.8	93.4
Inventory turnover	10.1	9.8	10.1	9.7	8.9	8.5	8.7	9.0	8.5	7.4
Days in inventory	36.1	37.3	36.2	37.5	41.1	43.1	42.0	40.4	42.7	49.1
Accounts payable turnover	6.1	6.1	6.1	n.a.	3.6	3.8	4.5	5.0	4.9	5.0
Days in accounts payable	60.1	60.1	59.7	n.a.	100.4	96.9	80.6	73.5	74.8	73.6
Cash conversion cycle (days)	90.8	89.2	89.1	n.a.	56.4	54.0	74.2	70.4	62.7	69.0

Note: Accounts payable turnover is calculated using the previous method (not including electronically recorded monetary obligations) through FY03/16 and the current method (including electronically recorded monetary obligations) from FY03/18.

Assets	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Total current assets	19,700	21,527	20,830	23,000	25,941	27,749	31,837	33,140	36,365	38,827
(% of total assets)	58.8%	58.7%	54.8%	51.9%	49.3%	48.4%	52.1%	51.6%	52.3%	52.3%
Accounts receivable	7,405	8,593	9,138	9,986	11,654	11,716	11,712	10,571	12,176	12,476
(% of total assets)	22.1%	23.4%	24.1%	22.5%	22.1%	20.5%	19.2%	16.5%	17.5%	16.8%
Total fixed assets	13,807	15,120	17,163	21,332	26,722	29,529	29,285	31,043	33,152	35,436
(% of total assets)	41.2%	41.3%	45.2%	48.1%	50.7%	51.6%	47.9%	48.4%	47.7%	47.7%
Investment securities	202	240	682	684	1,015	886	1,317	1,322	1,324	1,325
(% of total assets)	0.6%	0.7%	1.8%	1.5%	1.9%	1.5%	2.2%	2.1%	1.9%	1.8%
Total assets	33,507	36,647	37,992	44,331	52,664	57,278	61,122	64,183	69,517	74,263
Total asset turnover (times/year)	0.71	0.74	0.77	0.70	0.70	0.72	0.64	0.63	0.66	0.67
Liabilities	**FY03/14**	**FY03/15**	**FY03/16**	**FY03/17**	**FY03/18**	**FY03/19**	**FY03/20**	**FY03/21**	**FY03/22**	**FY03/23**
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Total current liabilities	7,393	8,383	7,877	8,884	14,054	13,362	11,323	12,193	13,334	14,272
Accounts payable	2,442	3,189	3,036	1,229	1,434	1,271	1,157	1,194	1,397	1,425
Short-term debt	1,137	943	511	905	879	1,218	2,153	1,802	1,460	1,490
Accounts payable turnover (times/year)	6.1	6.1	6.1	n.a.	3.6	3.8	4.5	5.0	4.9	5.0
Current ratio	266.5%	256.8%	264.4%	258.9%	184.6%	207.7%	281.2%	271.8%	272.7%	272.1%
Total liabilities	8,814	9,495	8,922	12,079	16,524	17,613	18,487	17,291	17,058	16,620
Total interest-bearing debt	1,790	1,227	628	3,324	2,580	4,555	8,198	6,069	4,285	2,939
Dependence on interest-bearing debt	5.3%	3.3%	1.7%	7.5%	4.9%	8.0%	13.4%	9.5%	6.2%	4.0%
Net debt	-8,391	-7,177	-7,569	-5,063	-6,654	-8,105	-8,691	-10,158	-12,825	-13,973
Dependence on net interest-bearing debt	-25.0%	-19.6%	-19.9%	-11.4%	-12.6%	-14.2%	-14.2%	-15.8%	-18.4%	-18.8%
Total liabilities and net assets	33,507	36,647	37,992	44,331	52,664	57,278	61,122	64,183	69,517	74,263
Shareholders' equity	**FY03/14**	**FY03/15**	**FY03/16**	**FY03/17**	**FY03/18**	**FY03/19**	**FY03/20**	**FY03/21**	**FY03/22**	**FY03/23**
	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Shareholders' equity (JPYmn)	23,722	25,982	27,779	30,647	34,174	37,560	40,263	44,201	49,099	53,839
Equity ratio	70.8%	71.5%	73.3%	69.1%	64.9%	65.6%	65.9%	68.9%	70.6%	72.5%
Net interest-bearing debt (JPYmn)	1,790	1,227	628	3,324	2,580	4,555	8,198	6,069	4,285	2,939
Net debt / Equity ratio	0.08	0.05	0.02	0.11	0.08	0.12	0.20	0.14	0.09	0.05

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

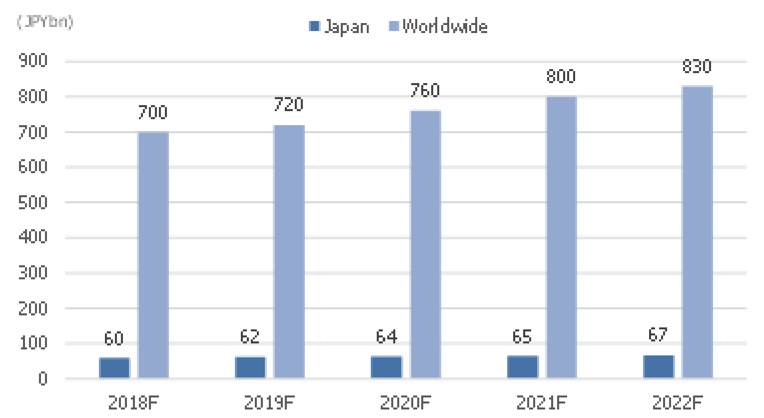
Market and value chain

Scale of thermal spraying market

The thermal spraying industry broadly divides into companies that conduct thermal spraying internally and companies that perform thermal spraying as a contracted service. The market for contracted treatment in Japan was worth an estimated JPY60.0bn in 2018, while the global market was valued at about JPY700.0bn (Source: Yano Research Institute). We understand the company holds the top market share in Japan, at more than 40%.

Some competitors overseas sell thermal spraying materials and equipment in addition to providing contracted treatment services, but TOCALO specializes in services. Overseas sales accounted for 23.3% of the company's overall sales in FY03/23, primarily coming from Japanese companies that have expanded abroad. The company has concluded a number of licensing agreements with companies overseas.

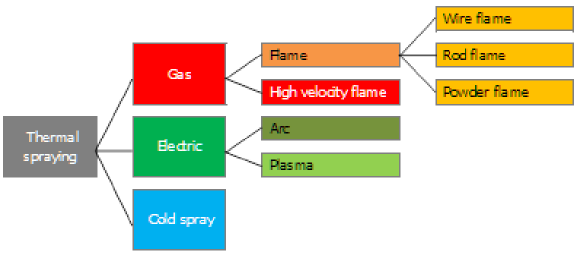
Thermal spraying market forecasts (Japan, worldwide)



Source: Shared Research based on data from the 2019 edition of *Thermal Spraying Market* from Yano Research Institute Ltd.

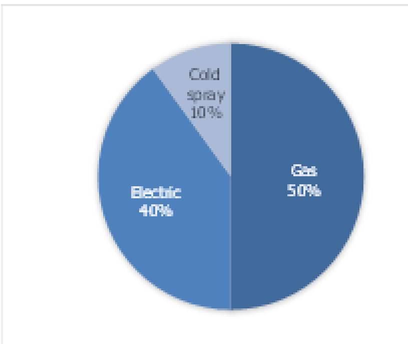
In 2018, gas-based thermal spraying methods accounted for 50% of the Japanese thermal spraying market, while electricity-based methods accounted for 40%, and cold-spray methods accounted for 10% (Source: Yano Research Institute).

Classification of thermal spraying methods



Source: Shared Research based on data obtained from the Japan Thermal Sprayers Association

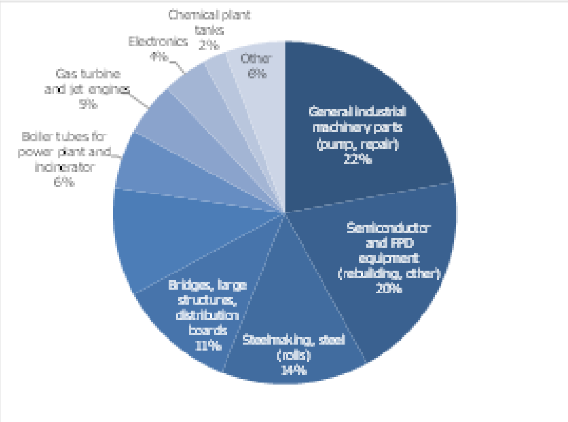
Breakdown of thermal spraying market (JPY60.0bn in FY2018) by method



Source: Shared Research based on data from the 2019 edition of Thermal Sprayers Association
Thermal Spraying Market from Yano Research Institut

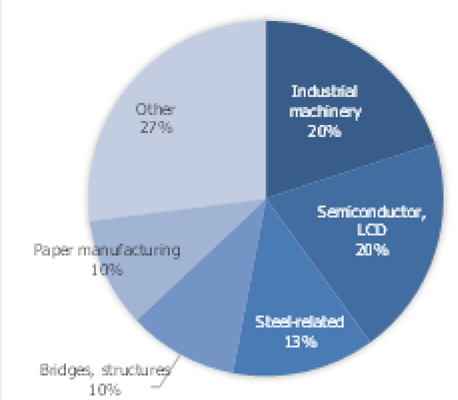
By areas of application, 20% of thermal spraying in Japan is associated with industrial equipment, 20% semiconductors and flat panel displays (FPDs), 13% steelmaking, 10% bridges and structures, 10% paper manufacturing, and 27% other uses (2018 actual; Yano Research).

Breakdown of FY2012 thermal spraying market (JPY43.5bn) by field of demand



Source: Shared Research based on data obtained from the 2013 edition of Status and Outlook of the *Thermal Spraying Market* from Digital Research, Inc.

Breakdown of FY2018 thermal spraying market (JPY60.0bn) by field of demand



Source: Shared Research based on data from the 2019 edition of *Thermal Spraying Market* from Yano Research Institute Ltd.

Sales of semiconductor equipment by Japan-based manufacturers (Source: Semiconductor Equipment Association of Japan [SEAJ]) are highly linked with TOCALO's sales in the semiconductor field. According to the SEAJ forecast announced in January 2022, sales of Japanese semiconductor equipment in FY2020 totaled JPY2.3tn (+7.9% YoY) and sales of Japanese FPD manufacturing equipment totaled JPY420.0bn (-11.7% YoY), for a total of JPY2.8tn (+7.9% YoY). At TOCALO (parent), sales in the semiconductor and FPD fields were JPY18.2bn (+28.9% YoY).

Japan-based manufacturing equipment sales (JPYmn)										Forecast		
(JPYmn)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Semiconductor	1,127,800	1,292,100	1,308,900	1,564,200	2,043,600	2,247,900	2,073,000	2,383,500	3,443,000	3,684,000	3,499,800	4,199,700
YoY	9.7%	14.6%	1.3%	19.5%	30.6%	10.0%	-7.8%	15.0%	44.5%	7.0%	-5.0%	20.0%
FPD	348,500	271,700	299,300	485,700	491,600	536,400	475,800	463,800	480,900	452,000	361,600	542,500
YoY	66.8%	-22.0%	10.2%	62.3%	1.2%	9.1%	-11.3%	-2.5%	3.7%	-6.0%	-20.0%	50.0%
Total	1,476,300	1,563,800	1,608,200	2,049,900	2,535,200	2,784,300	2,548,800	2,847,300	3,923,900	4,136,000	3,861,400	4,742,200
YoY	19.3%	5.9%	2.8%	27.5%	23.7%	9.8%	-8.5%	11.7%	37.8%	5.4%	-6.6%	22.8%

TOCALO sales (JPYmn)	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23	FY03/24
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Est.
Semiconductor	5,030	7,270	8,628	8,519	11,273	14,895	12,497	16,030	18,990	21,739	19,400
YoY	-0.3%	44.5%	18.7%	-1.3%	32.3%	32.1%	-16.1%	28.3%	18.5%	14.5%	-10.8%
FPD	1,023	1,110	1,441	1,484	2,201	2,238	1,604	2,145	1,653	1,520	1,300
YoY	69.1%	8.5%	29.8%	3.0%	48.3%	1.7%	-28.3%	33.7%	-22.9%	-8.0%	-14.5%
Total	6,054	8,380	10,069	10,003	13,474	17,134	14,102	18,176	20,643	23,260	20,700
YoY	7.1%	38.4%	20.2%	-0.7%	34.7%	27.2%	-17.7%	28.9%	13.6%	12.7%	-11.0%

Source: Shared Research based on data obtained from the company and the Semiconductor Equipment Association of Japan

Competitive landscape

Domestic competitors

TOCALO is the sole listed company in the Japanese thermal spraying market, and boasts a share over 40%. The rest of the market is crowded with small- and medium-sized companies that each hold shares of just a few percent. The market includes some affiliates of major listed companies such as Nippon Steel Hardfacing Corporation, but it also houses a large number of independent companies like TOCALO that provide contracted treatment services.

Praxair Surface Technologies K.K.

Praxair Surface Technologies K.K. was established in Japan in 1960. It is a Japanese subsidiary of Praxair Surface Technologies, Inc. in the United States, which is expanding on a global scale. Praxair's thermal spraying and surface treatment technologies cover a variety of fields, including aerospace, nuclear power, steelworking, petrochemical, plastics, electronics, and industries related to printing.

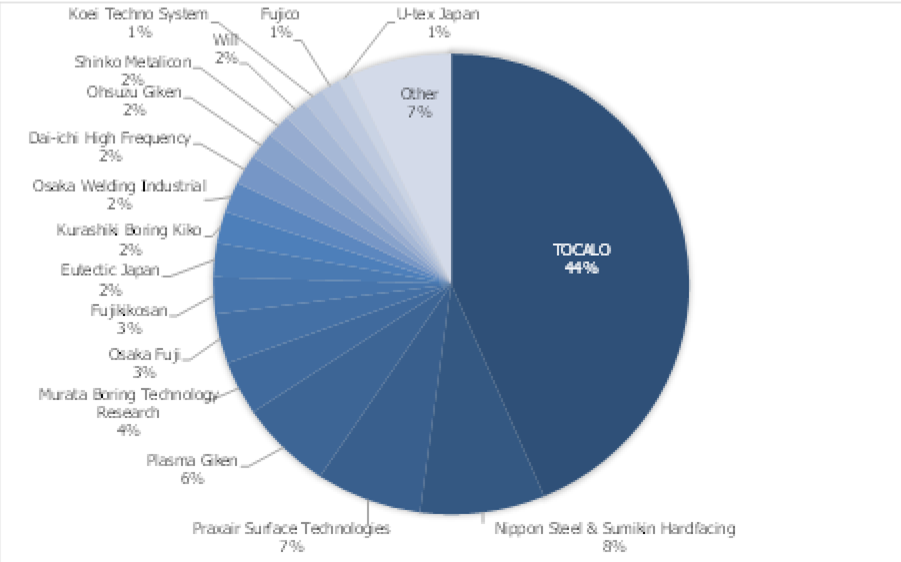
Nippon Steel Hardfacing Corporation (former name: Nippon Steel and Sumikin Hardfacing Co., Ltd.)

Nippon Steel Hardfacing Corporation came into existence in 1960 as the Nippon Hardfacing Co., Ltd., which was originally a part of the Yawata Iron & Steel Co., Ltd. (currently, the Nippon Steel Corporation [TSE Prime: 5401]) and specialized in surface hardening technology. Later, as the sole surface treatment provider in the Nippon Steel group, it worked to minimize lifecycle costs for rolls (excluding rolling mill rolls) and peripheral devices mainly used in the steel industry, with a core focus on the development of materials for welding and thermal spraying and relevant application techniques. In addition to its business activities in Japan, Nippon Steel Hardfacing began expanding globally in the 1990s, starting with North and South America. It is working to establish global supply systems primarily targeting the worldwide steel industry through a variety of efforts, including its 2012 establishment of a subsidiary in Thailand as a supply base for East Asia.

Plasma Giken Co., Ltd.

Established in 1980, Plasma Giken Co., Ltd. specializes in thermal spraying treatment. It principally provides contracted treatment services ranging from thermal spraying (plasma spraying, arc spraying, high velocity flame spraying, and detonation spraying) to cold spraying, from development to trial manufacturing, and from small- and medium-sized lots to mass production.

Shares of FY2012 cermet spraying market (JPY9.5bn)



Source: Shared Research based on data obtained from the 2013 edition of *Status and Outlook of the Thermal Spraying Market* from Digital Research, Inc.

Strengths and weaknesses

Strengths

A portfolio of diverse surface treatments that makes the company the leader in a niche market: One of TOCALO's strengths is its ability to handle a wide variety of surface treatments, ranging from thick coating (e.g., thermal spraying, TD process, ZAC coating, and PTA process) to thin coating (e.g., PVD process). Of the different categories in thermal spraying (metalized contact thermal spraying, maintenance thermal spraying, and functional thermal spraying), the company excels in functional thermal spraying, which is high value-added and has strong growth potential. It has captured more than 40% of the thermal spraying market in Japan (scale of about JPY60.0bn in 2018; source: Yano Research Institute) and holds the top share, whereas its competitors are all small- and medium-sized companies with market shares of 10% or less. These companies specialize in specific fields, and thus, are unable to handle a wide range of surface treatments that span from thick to thin coatings, as TOCALO can.

Ability to acquire top-class customers in major industries through joint development focused on meeting future needs: Surface treatment centered around thermal spraying has become a standard technology in a wide variety of fields, ranging from steel to semiconductors, and its demand has been on the rise year by year. One of TOCALO's strengths is that it has acquired top-class customers in major industries through joint development focused on needs of the future. In the past, most demand came from the steel and paper and pulp industries, but sales from the semiconductor and FPD equipment industries currently account for nearly 48% of the company's sales in FY03/23. One of the largest drivers of its semiconductor-related business is Tokyo Electron, which accounted for 35.7% of consolidated sales in FY03/22. TOCALO and Tokyo Electron have established a close relationship through which they conduct joint development to further improve surface treatments in the semiconductor and FPD fields, both areas of intense technological innovation. The company's engineers make frequent visits to customer sites to uncover hidden needs, and work with the customers to jointly discover solutions.

Stable earnings due to high domestic repeat demand for technologies with added value: In the past, even when profit has fallen below forecast or decreased YoY, the company has maintained stable profitability with relatively little deviation in terms of earnings, despite its high degree of reliance on semiconductor and FPD-related sales. Shared Research believes that these stable earnings are underpinned by a thick customer base in industries other than semiconductors and FPDs and repeat demand for functional surface treatments that provide high added value. Recoating demand is generated when components and parts that have undergone thermal spraying or other types of surface treatments become worn or deteriorate over time. The company does not merely provide maintenance through its recoating services; it also captures repeat demand for higher added value by proposing and providing products and services with heightened functionality.

Weaknesses

A lack of peripheral technologies and mass production bases necessary to process large orders: TOCALO has adopted a labor-intensive, made-to-order production system through which it customizes all surface treatments to fit the specifications of individual customers. Some of the company's competitors overseas develop, manufacture, and sell thermal spraying materials and equipment in addition to providing contracted treatment services, but TOCALO specializes in services. TOCALO's surface treatment lines, mainly thermal spraying, are designed to suit workpieces that have relatively large surface areas, and are not geared toward mass processing of small components. Accordingly, the company is currently unable to handle high volume components such as automobile parts, which are generally processed in quantities as large as one million units per year. We think the company lacks the peripheral technologies (including internal production of thermal spraying materials and equipment) and mass production bases necessary to handle high volume orders.

Lackluster cultivation of overseas markets: The global thermal spraying market was valued at about JPY700.0bn in 2018 (Source: Yano Research Institute). Although TOCALO has the top market share in Japan, it has not yet cultivated much of the overseas market, which is at least ten times the size of Japan's market. In FY03/22, overseas sales only accounted for 21.1% of the company's sales, and mainly came from Japanese companies that had expanded overseas. The company has concluded many licensing agreements with overseas companies but rarely cultivates local customers on its own. Shared Research believes the company's market development abroad is somewhat lackluster compared with that of the many Japanese industrial machinery makers that have ventured overseas. Anticipating growth in its recoating business abroad, the company has expanded its overseas bases, primarily in Asia. However, it often misses out on repeat demand as recoating is often handled by local companies, particularly for low-end technologies where there is a large number of new market entrants (high-end technologies also apply in the case of South Korea). Shared Research surmises that TOCALO's strategy of obtaining royalty revenue through technological licensing is one factor lowering the barrier of entry for local companies.

Low profitability of the Other Surface Treatments business: The recurring profit margin (before segment adjustments) in Other Surface Treatments, which was 17.0% in FY03/23, paled in comparison to the 23.1% profit margin in Thermal Spraying, 14.6% in Domestic Subsidiary (Japan Coating Center), and 25.0% in Overseas Subsidiaries. Although Other Surface Treatments offers a variety of treatments (TD process, ZAC, and PTA process), their sales are only a few hundred million yen each. Despite this segment's involvement with the industrial equipment industry, it has not received enough orders to be able to demonstrate any volume efficiency. Shared Research believes that all of these treatment technologies are gradually becoming legacy technologies, which causes them to remain niche markets, inhibiting market expansion.

Historical results and financial statements

Income statement

Income statement	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Sales	**22,599**	**26,068**	**28,746**	**28,964**	**34,109**	**39,558**	**37,896**	**39,294**	**43,813**	**48,144**
YoY	8.0%	15.4%	10.3%	0.8%	17.8%	16.0%	-4.2%	3.7%	11.5%	9.9%
Cost of sales	15,034	17,104	19,020	18,428	21,462	25,797	25,116	24,479	27,227	30,778
Gross profit	**7,564**	**8,964**	**9,727**	**10,536**	**12,646**	**13,761**	**12,780**	**14,814**	**16,585**	**17,365**
YoY	10.8%	18.5%	8.5%	8.3%	20.0%	8.8%	-7.1%	15.9%	12.0%	4.7%
Gross profit margin	33.5%	34.4%	33.8%	36.4%	37.1%	34.8%	33.7%	37.7%	37.9%	36.1%
SG&A expenses	4,081	4,396	4,921	4,890	5,536	6,019	6,229	5,924	6,329	6,807
YoY	4.0%	7.7%	11.9%	-0.6%	13.2%	8.7%	3.5%	-4.9%	6.8%	7.6%
SG&A ratio	18.1%	16.9%	17.1%	16.9%	16.2%	15.2%	16.4%	15.1%	14.4%	14.1%
Operating profit	**3,483**	**4,568**	**4,806**	**5,646**	**7,110**	**7,741**	**6,550**	**8,890**	**10,255**	**10,558**
YoY	19.9%	31.2%	5.2%	17.5%	25.9%	8.9%	-15.4%	35.7%	15.4%	3.0%
Operating profit margin	15.4%	17.5%	16.7%	19.5%	20.8%	19.6%	17.3%	22.6%	23.4%	21.9%
Non-operating income	231	376	294	211	283	386	367	72	337	475
Non-operating expenses	57	54	71	55	30	52	105	48	21	29
Recurring profit	**3,657**	**4,890**	**5,028**	**5,801**	**7,363**	**8,076**	**6,812**	**8,914**	**10,571**	**11,003**
YoY	19.6%	33.7%	2.8%	15.4%	26.9%	9.7%	-15.7%	30.9%	18.6%	4.1%
Recurring profit margin	16.2%	18.8%	17.5%	20.0%	21.6%	20.4%	18.0%	22.7%	24.1%	22.9%
Extraordinary gains	28	3	3	5	2	85	0	13	1	4
Extraordinary losses	11	51	342	3	198	83	17	361	124	18
Income taxes	1,392	1,646	1,467	1,540	2,008	2,273	2,038	2,675	3,091	3,150
Implied tax rate	37.9%	34.0%	31.3%	26.5%	28.0%	28.1%	30.0%	31.2%	29.6%	28.7%
Net income attributable to non-controlling interests	106	164	206	193	322	363	351	428	447	487
Net income	**2,176**	**3,031**	**3,016**	**4,070**	**4,836**	**5,441**	**4,404**	**5,463**	**6,909**	**7,350**
YoY	16.2%	39.3%	-0.5%	34.9%	18.8%	12.5%	-19.1%	24.0%	26.5%	6.4%
Net margin	9.6%	11.6%	10.5%	14.1%	14.2%	13.8%	11.6%	13.9%	15.8%	15.3%

Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods.

Non-operating income and expenditures

- Non-operating income and expenditures for FY03/23 were a plus JPY446mn, an increase of JPY130mn from the plus JPY316mn of the previous year (FY03/22). Major factors in this improvement were an increase in foreign exchange gains (from JPY208mn in FY03/22 to JPY366mn) and improved financial account balance (from a plus JPY18mn to a plus JPY30mn). The company's average non-operating income and expenditures for the ten-year period of FY03/13 to FY03/22 was plus JPY222mn, with FY03/23 thus representing an approximately JPY224mn improvement.

Extraordinary profit and loss

- Extraordinary profit and loss for FY03/23 was a minus JPY14mn, an improvement of JPY109mn over the minus JPY123mn of FY03/22. A major factor in this turn of events was a decrease in loss on sales of fixed assets, which was recorded as an extraordinary loss. The company's average extraordinary gains and losses for the ten-year period of FY03/13 to FY03/22 were minus JPY107mn. The minus JPY14mn for FY03/23 was a JPY93mn improvement from the average, but did not prove to have any particular impact on final profit and loss.

Balance sheet

were

Balance sheet	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Assets										
Cash and deposits	10,181	8,404	8,197	8,387	9,234	12,660	16,889	16,227	17,110	16,912
Notes and accounts receivable	7,405	8,593	9,138	9,986	11,654	11,716	11,712	10,571	12,176	12,476
Operational investment securities	0	2,000	1,000	2,000	2,000	0	0	3,000	3,000	4,000
Inventories	1,568	1,925	1,851	1,937	2,893	3,202	2,581	2,841	3,531	4,757
Deferred tax assets	458	486	489	499	0	0	0	0	0	0
Allowance for doubtful accounts	-70	-67	-72	-50	-54	-48	-20	-10	-4	-19
Other	158	186	227	241	214	219	675	511	552	701
Total current assets	**19,700**	**21,527**	**20,830**	**23,000**	**25,941**	**27,749**	**31,837**	**33,140**	**36,365**	**38,827**
Buildings and structures	4,460	5,433	6,325	6,247	9,871	12,974	12,416	12,273	14,866	14,210
Machinery, equipment and vehicles	1,871	2,275	2,321	2,484	3,941	4,476	4,207	3,644	3,815	3,559
Land	4,996	4,982	6,003	7,305	8,246	8,652	8,648	9,050	10,189	11,918
Lease assets	31	14	21	110	88	72	50	36	33	24
Construction in progress	1,140	1,038	1,200	3,828	2,014	670	742	2,849	866	2,223
Other fixed assets	238	313	281	332	426	548	720	739	969	1,100
Total tangible fixed assets	**12,735**	**14,055**	**16,151**	**20,305**	**24,589**	**27,395**	**26,786**	**28,594**	**30,740**	**33,037**

Total intangible assets	**519**	**467**	**97**	**115**	**260**	**295**	**338**	**264**	**231**	**235**
Investment securities	202	240	682	684	1,015	886	1,317	1,322	1,324	1,325
Deferred tax assets	105	92	100	112	712	819	668	606	592	557
Allowance for doubtful accounts	0	0	0	0	-28	-14	0	-5	0	0
Other	246	265	132	115	172	147	175	260	264	280
Investments and other assets	**553**	**597**	**914**	**911**	**1,871**	**1,838**	**2,160**	**2,183**	**2,180**	**2,163**
Total fixed assets	**13,807**	**15,120**	**17,163**	**21,332**	**26,722**	**29,529**	**29,285**	**31,043**	**33,152**	**35,436**
Total deferred assets	**563**	**578**	**589**	**611**	**712**	**819**	**668**	**606**	**592**	**557**
Total assets	**33,507**	**36,647**	**37,992**	**44,331**	**52,664**	**57,278**	**61,122**	**64,183**	**69,517**	**74,263**
Liabilities										
Notes and accounts payable	2,442	3,189	3,036	1,229	1,434	1,271	1,157	1,194	1,397	1,425
Electronically recorded monetary obligations	0	0	0	3,157	5,991	5,004	3,660	3,849	4,721	4,869
Short-term debt	1,137	943	511	905	879	1,218	2,153	1,802	1,460	1,490
Short-term borrowings	555	571	165	151	155	112	47	15	0	0
Current portion of bonds	563	364	339	730	702	1,082	2,083	1,765	1,447	1,447
Lease obligations	19	8	7	24	22	24	23	22	13	43
Income taxes payable	846	1,043	922	965	1,353	1,361	737	1,722	1,816	1,726
Accounts payable-other, and accrued expenses	2,067	1,966	2,131	2,745	2,555	2,755	1,854	1,970	2,170	2,497
Provision for bonuses	694	768	836	891	993	1,084	1,018	1,277	1,366	1,488
Other	207	474	441	-1,007	849	669	744	379	404	777
Total current liabilities	**7,393**	**8,383**	**7,877**	**8,884**	**14,054**	**13,362**	**11,323**	**12,193**	**13,334**	**14,272**
Long-term debt	653	284	117	2,419	1,701	3,337	6,045	4,267	2,825	1,449
Long-term borrowings	635	273	100	2,324	1,628	3,282	6,015	4,249	2,802	1,355
Lease obligations	18	11	17	95	73	55	30	18	23	94
Deferred tax assets	356	297	116	29	0	0	0	0	0	0
Provision for directors' retirement benefits	383	502	0	0	0	0	0	0	0	0
Reserve for retirement benefits	0	0	790	724	745	876	1,085	789	853	839
Other	29	29	22	23	24	37	33	41	45	59
Total fixed liabilities	**1,421**	**1,112**	**1,045**	**3,195**	**2,470**	**4,250**	**7,163**	**5,097**	**3,723**	**2,347**
Total liabilities	**8,814**	**9,495**	**8,922**	**12,079**	**16,524**	**17,613**	**18,487**	**17,291**	**17,058**	**16,620**
Net assets										
Capital stock	2,659	2,659	2,659	2,659	2,659	2,659	2,658	2,658	2,658	2,658
Capital surplus	2,294	2,294	2,294	2,294	2,294	2,294	2,293	2,293	2,317	2,345
Retained earnings	19,181	21,273	23,187	26,117	29,547	33,165	35,898	39,841	44,166	48,628
Treasury stock	-773	-773	-773	-774	-774	-774	-773	-773	-766	-757
Shareholders' equity	23,361	25,453	27,365	30,296	33,726	37,343	40,076	44,020	48,377	52,874
Other	361	529	414	351	448	217	187	181	722	965
Non-controlling interests	972	1,170	1,291	1,606	1,965	2,105	2,371	2,690	3,360	3,804
Total net assets	**24,694**	**27,152**	**29,070**	**32,253**	**36,139**	**39,665**	**42,634**	**46,891**	**52,459**	**57,643**
Total liabilities and net assets	**33,507**	**36,647**	**37,992**	**44,331**	**52,664**	**57,278**	**61,122**	**64,183**	**69,517**	**74,263**
Working capital	6,531	7,329	7,953	10,694	13,113	13,647	13,136	12,218	14,310	15,808
Total interest-bearing debt	1,790	1,227	628	3,324	2,580	4,555	8,198	6,069	4,285	2,939
Net debt	-8,391	-7,177	-7,569	-5,063	-6,654	-8,105	-8,691	-10,158	-12,825	-13,973

Source: Shared Research based on company dataNote: Figures may differ from company materials due to differences in rounding methods.

Assets

- The company's total assets for FY03/23 were JPY74.3bn, an increase of JPY4.7bn from the JPY69.5bn of FY03/22. Broken down, liquid assets increased by JPY2.5bn and fixed assets increased by JPY2.3bn. Major reasons for the increase in liquid assets were an increase in inventories (JPY1.2bn) and an increase in securities (JPY1.0bn). The increase in fixed assets was mainly due to an increase in tangible fixed assets (JPY2.3bn).

- In addition, cash deposits for FY03/23 were JPY16.9bn, a decrease of JPY198mn from JPY17.1bn at end-FY03/22. Cash deposits accounted for 22.8% of total assets, down 1.8pp from 24.6% in FY03/22. The company's average for the ten-year period of FY03/13 to FY03/22 was 24.0%, with the 22.8% for FY03/23, 1.2pp below the average. The ratio of cash and deposits has declined from 27.6% in FY03/20, with an average for the five years from FY03/15 to FY03/19 of 20.6%.

Liabilities

- Liabilities for FY03/23 were JPY16.6bn, a decrease of JPY438mn from JPY17.1bn in FY03/22, but generally flat YoY. A breakdown of this shows that current liabilities were up by JPY938mn while fixed liabilities fell by JPY1.4bn. A major reason for this decline was a JPY1.3bn decrease in interest-bearing debt.

- Interest-bearing debt (including lease obligations) stood at JPY2.9bn as of FY03/23, a decrease of JPY1.3bn from the JPY4.2bn of FY03/22. This was mainly due to a decline in borrowings. With cash-on-hand (cash and deposits, and securities of liquid assets) of JPY20.9bn, management is virtually debt-free with no NET interest-bearing debt.

Capital

- The company's equity ratio for FY03/23 was 72.5%, an increase of 1.9pp from 70.6% in FY03/22. Equity capital increased by JPY4.7bn to JPY53.8bn, while total assets increased by JPY4.7bn, and the equity ratio increased by 1.9pp. The company's average equity ratio for the ten-year period of FY03/13 to FY03/22 was 69.4%, with the 72.5% in FY03/23 exceeding this average by 3.1pp.

Cash flow statement

Cash flow statement	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**	**Cons.**
Cash flows from operating activities(1)	3,465	4,546	4,534	5,238	7,611	8,044	6,621	10,588	9,873	9,894
Pre-tax profit	3,674	4,841	4,689	5,803	7,167	8,078	6,794	8,566	10,448	10,989
Depreciation	1,388	1,440	1,561	1,703	1,948	2,658	2,991	2,771	2,783	2,987
Amortization of goodwill	52	56	56	12	0	0	0	0	0	0
Change in accounts receivable	-478	-1,103	-586	-888	-1,607	-131	0	1,149	-1,418	-270
Change in inventories	-161	-318	54	-107	-925	-357	604	-252	-607	-1,191
Change in accounts payable	-67	733	-146	173	1,228	-24	-961	-70	812	202
Cash flows from investing activities (2)	-177	-4,889	-895	-6,537	-4,681	-4,617	-4,217	-4,615	-5,044	-5,094
Purchase of tangible fixed assets	-2,076	-2,957	-3,588	-5,512	-4,312	-6,943	-3,641	-4,348	-4,562	-4,610
Purchase of intangible assets	-34	-18	-4	-55	-137	-135	-152	-25	-66	-93
Purchase, sale, and redemption of investment securities	0	-2,000	-1,360	30	-333	114	-435	0	0	-500
Increase in investments affecting scope of consolidation	0	0	0	0	0	0	0	0	0	0
Free cash flow (1+2)	**3,288**	**-343**	**3,639**	**-1,299**	**2,930**	**3,427**	**2,404**	**5,973**	**4,829**	**4,800**
Cash flows from financing activities	-165	-1,475	-1,743	1,581	-2,217	40	1,871	-3,798	-4,547	-4,561
Change in short-term borrowings	54	-48	-394	0	0	-33	-63	-30	-17	0
Change in long-term borrowings	527	-564	-189	2,620	-730	2,042	3,734	-2,083	-1,766	-1,447
Acquisition of treasury stock	0	0	0	0	0	0	0	0	0	0
Dividends paid	-645	-797	-1,101	-1,142	-1,405	-1,822	-1,670	-1,520	-2,583	-2,888
Depreciation and amortization (A)	1,440	1,496	1,617	1,715	1,948	2,658	2,991	2,771	2,783	2,987
Capital expenditures (B)	-2,076	-2,957	-3,588	-5,512	-4,312	-6,943	-3,641	-4,348	-4,562	-4,610
Change in working capital (C)	828	798	624	2,741	2,419	534	-511	-918	2,092	1,498
Simple FCF (NI + A + B - C)	**712**	**772**	**421**	**-2,468**	**53**	**622**	**4,265**	**4,804**	**3,038**	**4,229**

Source: Shared Research based on company dataNote: Figures may differ from company materials due to differences in rounding methods.

Cash flow from operating activities

- Cash flow from operating activities in FY03/23 amounted to JPY9.9bn, the same level as actual inflows of JPY9.9bn in FY03/22. Major factors include change in accounts receivable (decrease in outflows of JPY1.1bn), change in accounts payable (decrease in inflows of JPY610mn), an increase in inventories (increase in outflows of JPY584mn).

Cash flow from investment activities

- Cash flow from investment activities in FY03/23 amounted to an outflow of JPY5.1bn, the same level as the actual outflow of JPY5.0bn in FY03/22. The purchase of tangible fixed assets resulting from the implementation of capital expenditures (outflows of JPY4.6bn) was also the same level YoY.

Cash flow from financial activities

- Cash flow from financial activities in FY03/23 amounted to JPY4.6bn, the same level as the actual outflow of JPY4.5bn in FY03/22. Major factors included larger dividend payments due to an increase in dividends (increase in outflow of JPY305mn) and repayment of long-term borrowings (decrease in outflows of JPY319mn).

Historical performance

Full-year FY03/23 results (out May 10, 2023)

FY03/23 (12 months, April—March) performance overview

Results for FY03/23 (April 2022—March 2023) were as follows.

- Sales: JPY48.1bn (+9.9% YoY, previous forecast was JPY48.2bn)
- Operating profit: JPY10.6bn (+3.0% YoY, JPY11.2bn)
- Recurring profit: JPY11.0bn (+4.1% YoY, JPY11.4bn)
  - Recurring profit margin: 22.9% (down 1.2pp YoY, 23.7%)
- Net income attributable to owners of the parent: JPY7.4bn (+6.4% YoY, JPY7.4bn)

- Orders: JPY48.4bn (+6.7% YoY)
- Order backlog: JPY8.3bn (+5.7% YoY)

- EPS was JPY120.8. Targeting an end-year dividend of JPY27.5 per share, the company forecasts an annual dividend of JPY50.0 per share. The annual dividend in FY03/22 was JPY45.0 per share. Based on the company plan, the payout ratio is expected to be 41.4% (39.6% in FY03/22).

Sales

- Thermal Spraying (handled by TOCALO, the parent company) is the company's mainstay business and accounts for about 75% of consolidated sales. On a full-year basis, revenue from it increased 9.5% YoY, driven by growth in semiconductor and flat panel display (FPD) applications against a backdrop of high semiconductor demand. Overseas Subsidiaries (mainly in China and Taiwan) also posted a 16.3% YoY increase in sales as a result of growth in semiconductor and steel industry business. This offset the sluggish growth of 0.6% in sales at Domestic Subsidiary, which was impacted by the decline in automobile production. Other Surface Treatments also grew 9.7% YoY. As a result of these factors, FY03/23 consolidated sales increased 9.9% YoY to JPY48.1bn, reaching a record high for a second consecutive year. Sales were generally in line with the company's previous forecast.

Recurring profit and recurring profit margin

- Segment profit grew 3.2% YoY for Thermal Spraying (Parent), 7.5% YoY for Overseas Subsidiaries, but remained flat YoY for Other Surface Treatments and declined 25.3% YoY for Domestic Subsidiary. Segment profit at the company is linked to recurring profit on the income statement. Thermal Spraying segment profit, which accounts for about 76% of consolidated recurring profit, maintained an upward trend looking at the fiscal year as a whole due to growth in sales for semiconductors and FPDs, and profit at Overseas Subsidiaries also increased, absorbing the profit decline at Domestic Subsidiary. As a result of these factors, consolidated recurring profit in FY03/23 increased 4.1% YoY to JPY11.0bn, marking a new record high for the third consecutive year. However, profit fell roughly JPY400mn short of the company's previous forecast on a downturn in profit in Q4 (January–March) in the Thermal Spraying (Parent) segment due to inventory adjustments in the semiconductor field.

- The RPM also declined 1.2pp YoY to 22.9% due to higher electricity and other energy costs and labor costs. This was roughly at the same level as in FY03/21, when the RPM was 22.8%.

Orders, order backlog

- FY03/23 orders rose 6.7% YoY to JPY48.4bn, a new record. Looking at the FY03/23 (12 months) as a whole, orders for the Thermal Spraying segment's mainstay semiconductor- and FDP-related products continued to increase, and orders at overseas subsidiaries also rose as semiconductor demand grew. On the other hand, orders at its domestic subsidiary were flat YoY due to the impact of production cuts in the automobile industry, which is its main customer base, as were orders for other surface treatments. The breakdown of the JPY48.4bn of orders received in full-year FY03/23 is shown below.

    - Thermal Spraying (parent): JPY36.2bn (+5.8% YoY)
        - Semiconductor/FPD-related: JPY22.7bn (+4.0% YoY)
        - Industrial machinery-related: JPY3.9bn (+3.2% YoY)
        - Steel making-related: JPY4.0bn (+17.9% YoY)
        - Other businesses: JPY5.6bn (+7.3% YoY)
    - Domestic subsidiary: JPY2.4bn (+0.7% YoY)
    - Overseas subsidiaries: JPY7.1bn (+16.4% YoY)
    - Other Surface Treatments: JPY2.7bn (+0.9% YoY)

- The order backlog grew 5.7% to JPY8.3bn as of end-Q4 FY03/23 (end-March 2023). The breakdown of the JPY8.3bn order backlog as of end-Q4 is shown below.

    - Thermal Spraying (parent): JPY6.0bn (+0.2% YoY)
        - Semiconductor/FPD-related: JPY4.0bn (-11.6% YoY)
        - Industrial machinery-related: JPY412mn (+17.7% YoY)
        - Steel making-related: JPY968mn (+62.4% YoY)
        - Other businesses: JPY681mn (-16.0% YoY)
    - Domestic subsidiary: JPY32mn (-26.1% YoY)
    - Overseas subsidiaries: JPY2.0bn (+33.8% YoY)
    - Other Surface Treatments: JPY346mn (-10.4% YoY)

- We note that although orders marked a record high, a change in trends was observed toward the end of Q3 (October–December) in the mainstay semiconductor/FPD-related business, and the orders in Q4 were down YoY. The company is increasingly concerned about this change and at the very least does not see a very high likelihood of orders improving in 1H FY03/24 (April–September 2023).

Results by segment

- The results by business segment are as follows. The sales share of each segment is the share of full-year consolidated sales of JPY48.1bn. We note that the total of segment sales share does not equal 100%, because royalty income is also included under sales as well as segment sales. Profit of each business is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company; 75.2% sales share)

- Sales: JPY36.2bn (+9.5% YoY)
- Segment profit: JPY8.3bn (+3.2% YoY)
- Segment profit margin: 23.1% (-1.4pp YoY)

- Orders: JPY36.2bn (+5.8% YoY)
- Order backlog: JPY6.0bn (+0.2% YoY)

Sales

- The Thermal Spraying segment (parent only) is TOCALO's largest segment, accounting for 75.2% of its consolidated net sales (full-year FY03/23). Sales in the Thermal Spraying (parent) segment achieved a record high for the year, driving the growth in consolidated sales. The JPY36.2bn in sales generated through this segment breaks down as follows.

- Semiconductors and Flat Panel Displays (FPDs): JPY23.3bn (+12.7% YoY)
  - Of which, thermal spraying for semiconductors: JPY21.7bn (+14.5% YoY)
  - Of which, thermal spraying for FPDs: JPY1.5bn (-8.0% YoY)
- Industrial machinery-related: JPY3.8bn (+2.6% YoY)
- Steel making-related: JPY3.6bn (+3.8% YoY)
- Other Purposes: JPY5.5bn (+5.7% YoY)

- **Trends in Semiconductors and FPDs**

  - Relatively high-margin semiconductor- and FPD-related sales continued to grow, up 12.7% YoY. Other businesses such as Industrial machinery-related, Steel making-related sales, and Other Purposes were also up YoY. Semiconductors accounted for 93.5% of thermal spraying sales for semiconductors and FPDs (FY03/23), with sales for FPDs continuing to decline.

  - In order to keep up with robust thermal spraying demand for semiconductors and FPDs, the company has been increasing capacity in stages since FY03/22, and the improved ability to fill the large volume of orders received resulted in it booking over JPY6.0bn in sales in a quarter. Working closely with its customers, the company has been able to avoid a sudden expansion in production capacity that would directly increase costs and lower productivity, while at the same time leveling operations.

  - In the longer term, the company aims to further expand production capacity as it continues to pursue operational leveling while keeping an eye on orders and demand trends in the semiconductor market. It plans to keep increasing production capacity while ensuring that operations do not come under too much stress, targeting quarterly sales of JPY6.5bn. The company noted that its production capacity is already at a level where quarterly sales of JPY6.5bn are possible, but will prioritize continued steady operation based on working closely with customers, because it considers leveling operations to be even more important. This approach has proved successful, with semiconductor- and FPD-related sales reaching JPY23.3bn in FY03/23, which is on close to an average of JPY6.0bn per quarter.

A three-year streak of growth in orders comes to an end

  - That being said, although the company's orders increased YoY through 1H (April–September), it remained mostly flat YoY in Q3 (October–December) and declined 21.9% YoY in Q4 (January–March), indicating that the expansionary trend that has continued for about three years is coming to an end. This is due to moves to cut back on investment in semiconductor production equipment amid a semiconductor market downturn and US restrictions on exports to China. One of TOCALO's customers, a major semiconductor production equipment manufacturer, is moving forward with inventory adjustments, which will unavoidably impact the company's business.

  - In fact, this semiconductor equipment manufacturer has announced a grim forecast for FY03/24, with sales down approximately 23% YoY, operating profit down approximately 36% YoY, and 1H (April–September) operating profit

- down approximately 54% YoY. This trend of inventory adjustment (production cutbacks) on the part of customers has already affected the company's orders. The company intends to adjust the pitch at which it processes the order backlog in order to level operations, but there should at least be a significant decline in orders in 1H (April—September), and the company believes this will make it difficult to level operations.

- **Trends in other businesses**

Steel-making related

- In areas other than the semiconductor/FPD-related business, steel making-related sales grew 3.8% YoY in FY03/23. Lower crude steel production resulting from a reduction in automobile industry (a major customer for the steel industry) output affected TOCALO's earnings, but sales were up YoY in the full year as a result of an uptick in orders related to steel companies' energy saving and decarbonization needs. Steel-making related sales have not yet recovered to pre-pandemic levels (JPY3.9bn in FY03/20) as automobile production has not yet fully recovered, but the company thinks they may have bottomed out, because orders are picking up (FY03/23 orders from the steel industry recovered to the same level as in FY03/20).

Industrial machinery-related

- Industrial machinery-related sales were up 2.6% YoY in FY03/23. Although 1H (April—September) sales declined YoY, TOCALO explained that this was due to an increase in work-in-process as of end-Q2, not ready to book sales. However, the company made progress in booking sales from these orders in Q3 (October—December), resulting in YoY sales growth in the full year, despite losing steam in Q4 (January—March). As a result, the company saw a YoY increase in Industrial machinery-related sales for the first time in three years in FY03/23 to JPY3.8bn, although this still fell short of the JPY4.0bn in sales achieved in FY03/21.

- The company says that sales from the bearing industry, its mainstay customer base, have been stable, but that sales from the energy industry have fluctuated widely based on the scale of construction projects. The company also understands that industrial machinery-related sales have not yet fully recovered, as the recovery has been lackluster in industries other than bearings and energy.

Segment profit, segment profit margins

- Backed mainly by an increase in semiconductor- and FPD-related sales, in FY03/23, Thermal Spraying segment profit (segment profit is linked to recurring profit in consolidated income statement) rose 3.2% YoY to JPY8.3bn, hitting a record high for the third consecutive year. However, the segment profit margin dipped 1.4pp YoY to 23.1%. The decline in the segment profit margin was mainly due to higher labor costs and energy costs, including electricity costs, but inventory adjustments by customers in the semiconductor market from Q3 (October—December) was another major factor. That said, the company at the beginning of the fiscal year expected energy and labor costs to rise, and noted that results remained largely within its expectations, albeit with some minor deviations.

  - However, the impact of a change in semiconductor-related sales trends (including inventory adjustment by customers) has emerged since Q3 (October—December). In particular, the company did not anticipate the YoY sales decline in Q4 (January—March) at the beginning of the period. The company does not expect a recovery in semiconductor-related sales until at least 1H FY03/24 (April—September), and believes that segment profits will inevitably suffer as well.

Semiconductor- and FPD-related orders and order backlog

- FY03/23 orders and order backlog of the mainstay semiconductor- and FPD-related business at end-March 2023 in the Thermal Spraying segment are as follows.

  - Orders: JPY22.7bn (+4.0% YoY)
  - Order backlog: JPY4.0bn (-11.6% YoY, JPY4.8bn at end-Q3 FY03/23)

  - Semiconductor- and FPD-related orders accounted for about 62.8% of thermal spraying orders (FY03/23). Semiconductor- and FPD-related orders are considered a key leading indicator for earnings, with the company prioritizing them over industrial machinery, iron and steel, and other orders. Orders received for FY03/23, totaled JPY22.7bn, a record high for the third consecutive year. This was the result of a 22.5% YoY increase in orders received in 1H (April—September), which offset a slowdown in 2H, especially in Q4 (January—March), to maintain a YoY increase for the full year.

- Reflecting the slowdown in orders, the order backlog at end-FY03/23 was JPY4.0bn, down from the all-time high of JPY4.8bn at end-Q3 (end-December 2022), and also below the level at end-FY03/22.

Domestic Subsidiary (5.0% sales share)

- Sales: JPY2.4bn (+0.6% YoY)
- Segment profit: JPY352mn (-25.3% YoY)
- Segment profit margin: 14.6% (-5.0pp YoY)

- Orders: JPY2.4bn (+0.7% YoY)
- Order backlog: JPY34mn (-26.1% YoY)

Sales

- The company's domestic subsidiary (Japan Coating Center Co., Ltd.) mainly conducts physical vapor deposition (PVD) processing (a surface modification process for cutting tools, knives, and molds) and primarily serves clients in the automotive industry. Sales in FY03/23 were roughly flat YoY, increasing a slight 0.6% to JPY2.4bn thanks to healthy sales of non-automotive related products (construction machinery parts and others), despite being impacted by production cuts by Japanese automakers. However, a full-fledged recovery in domestic automobile production, which the company had hoped for, has been delayed, and the company did not achieve its initial target of JPY2.53bn nor did it achieve the revised target (revised at the time of the 1H results briefing) of JPY2.46bn.

- Domestic automobile production volume for FY03/23, which affects the sales of domestic subsidiaries, was 8.1mn units, up 7.4% YoY. Although this exceeded the FY03/22 figure, it was not enough to boost sales because the previous year's results were at a low level (below 8.0mn units for the first time in 13 years since the 2007–2008 financial crisis), and even though it recovered in FY03/23, this was to barely above the 8.0mn unit level.

Segment profit, segment profit margin

- While sales were mostly flat, increasing by just 0.6% YoY, segment profit remained weak. This was mainly due to the YoY drop in auto production up to July, as well as a bigger than usual costs, such as higher depreciation, as the company started up new production facilities at a new factory that was built the previous year (FY03/22). The new plant is rather small compared to facilities in the Thermal Spraying segment, and while its impact on overall earnings is therefore relatively limited, it had a certain impact on the Domestic Subsidiary segment. Within this environment, segment profit fell 25.3% YoY to JPY352mn, with the segment profit margin dropping 5.0pp YoY to 14.6%.

- The segment profit margin of 14.6% was the lowest profit margin for the full year since the current segment classification was adopted in FY03/18 (including FY03/17 with retroactive adjustments). However, it was higher than the 13.8% recorded in FY03/16 under the former segmentation, though this is merely a figure for reference.

Overseas Subsidiaries (13.8% sales share)

- Sales: JPY6.6bn (+16.3% YoY)
- Segment profit: JPY1.7bn (+7.5% YoY)
    - Segment profit margin: 25.0% (-2.0pp YoY)

- Orders: JPY7.1bn (+16.4% YoY)
- Order backlog: JPY2.0bn (+33.8% YoY, JPY2.3bn at end-Q3 FY03/23)

Sales

- This segment includes two subsidiaries in China, one in Taiwan, and one in the US, but essentially consists of subsidiaries in China and Taiwan, as the US business is not fully operational. Sales in FY03/23 expanded 16.3% YoY on forex gains in line with yen depreciation, improved iron and steel-related sales in China, and semiconductor- and FPD-related re-coating sales. Sales were JPY6.6bn, the highest level recorded for the second consecutive year. Sales and segment profit declined on a local currency basis in Q3 (October–December) due to the impact of inventory adjustment of semiconductor-related products, but regained steam in Q4 (January–March). Further, since China and Taiwan have a December 31 year-end, their January–December results are included in the full-year results (their Q4 corresponds to October–December).

  Thus, the rate of YoY sales growth slowed from 20.1% in 1H to 15.0% in cumulative Q3.

Segment profit, segment profit margin

- Segment profit grew 7.5% YoY to JPY1.7bn in FY03/23 thanks to a recovery in iron and steel-related sales in China and semiconductor- and FPD-related re-coating sales. Segment profit of JPY1.7bn was the highest ever for the third consecutive year. The segment profit margin deteriorated 2.0% to 25.0%. Nonetheless, the Overseas Subsidiaries segment profit margin remains higher than that of the Thermal Spraying business of TOCALO (parent).

Other Surface Treatments (5.7% sales share)

- Sales: JPY2.7bn (+9.7% YoY)
- Segment profit: JPY468mn (flat YoY)
- Segment profit margin: 17.0% (-1.7pp YoY)

- Orders: JPY2.7bn (+0.9% YoY)
- Order backlog: JPY346mn (-10.4% YoY, JPY370mn at end-Q3 FY03/23)

Sales, segment profit, segment profit margin

- Segment sales increased YoY amid generally strong order bookings, while profit was flat due to an increase in costs. The Toyota diffusion (TD) process for agricultural equipment parts (a surface modification method that forms a functional film by immersing the target workpiece in a high-temperature molten salt bath and allowing vanadium and other carbides to diffusely permeate the surface of the base material) grew and contributed to sales growth. TOCALO applies surface treatments (Toyota diffusion process) to agricultural equipment parts and supplies these to Japanese agricultural equipment makers. Agricultural equipment makers sell their products in the US and other locations, and TOCALO believes that they have benefitted from the expansion of the agricultural industry in North America.

- The company expects to expand its business related to agricultural equipment parts in the future. However, the contribution to profit is not yet significant, and segment profit remained flat, resulting in a 1.7pp YoY deterioration in the segment profit margin to 17.0%. Other Surface Treatments segment sales reached a record high for the third consecutive year since the current segment classification was adopted in FY03/18.

Factors affecting change in recurring profit

- Recurring profit, which is closely linked to segment profit in each segment, increased by JPY432mn YoY, from JPY10.6bn in FY03/22 to JPY11.0bn. Factors contributing to the increase are as follows.

  - 1) upward impact of JPY2.5bn stemming from growth in sales
  - 2) downward impact of JPY520mn owing to an increase in the variable cost ratio
  - 3) downward impact of JPY1.1bn due to an increase in personnel expenses
  - 4) downward impact of JPY160mn on an increase in depreciation
  - 5) upward impact of JPY342mn due to forex effects
  - 6) downward impact of JPY638mn owing to other factors

  - Looking at the fiscal year as a whole, the largest positive factor was the effect of higher sales (increase in marginal profit due to higher sales). The increase in the variable cost ratio (a factor depressing profit) was mainly due to higher raw material prices. However, the company also made efforts to level operations, which limited the impact of the rise in the variable cost ratio.

  - The JPY1.1bn increase in labor costs was due to an expansion in headcount (about 90 workers) and improved compensation (pay raises including base pay hikes) so that the company could better take on the increase in orders. The company believes this increase in costs are reasonable and generally in line with the expansion in sales. The JPY638mn increase in other factors was due to higher R&D costs, increased costs associated with sales activities, including business trips, and the hike in energy costs. The increase in electricity costs, which accounts for the majority of energy costs, depressed profit by JPY375mn, more than the company had forecast in its initial plan.

  - Forex impacts increased profits by JPY342mn, and about JPY158mn of this amount was due to the difference in valuation gains on foreign currency-denominated bonds (compared to the previous period), which were booked as non-operating income. The remaining amount of approximately JPY184mn was due to difference in the conversion rates for consolidated subsidiaries.

Q4 performance overview (January–March 2023, three months)

Results for Q4 FY03/23 (January–March) were as follows.

- Sales: JPY11.7bn (+1.2% YoY)
- Operating profit: JPY2.3bn (-13.6% YoY)
- Recurring profit: JPY2.3bn (-17.9% YoY)
    - Recurring profit margin: 19.8% (down 4.7pp YoY)
- Net income attributable to owners of the parent: JPY1.7bn (-12.1% YoY)

Summary

- In Q4 (January–March) FY03/23, consolidated sales continued to increase, rising 1.2% YoY, but operating profit fell 13.6% YoY and recurring profit dropped 17.9% YoY due to the impact from inventory adjustments by customers in the semiconductor field due to a decrease in demand. The recurring profit margin—which TOCALO considers a key management indicator—declined 4.7pp YoY to 19.8%. Quarterly sales improved YoY for a 13th consecutive quarter, though recurring profit dipped for the first time in as many quarters.

Results by segment

- Q4 results by segment are as follows. The sales share of each segment is the share of consolidated sales of JPY11.7bn in Q4 (January–March). We note that the total of segment sales share does not equal 100%, because royalty income is also included under sales as well as segment sales. Each business's segment profit is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company; 73.1% sales share)

- Sales: JPY8.6bn (-1.7% YoY)
- Segment profit: JPY1.7bn (-19.0% YoY)
- Segment profit margin: 20.0% (-4.3pp YoY)

- Orders: JPY7.8bn (-12.1% YoY)

Sales

- In Q4 (January–March), semiconductor- and FPD-related sales, which account for about 64% of Thermal Spraying sales, declined YoY on a quarterly basis for the first time in 13 quarters, as did sales in the Thermal Spraying segment, which fell 1.7% YoY to JPY8.6bn. Although steel making-related sales were up YoY, industrial machinery-related sales fell, and the company was unable to offset the decline in semiconductor- and FPD-related sales. Sales came in above the JPY9.0bn mark for three consecutive quarters, with actual sales of JPY9.0bn in Q1 (April–June), JPY9.2bn in Q2 (July–September), and JPY9.4bn in Q3 (October–December), but dipped below this level in Q4. The breakdown of the JPY8.6bn in sales is as follows.

- Sales generated by thermal spraying for:
- Semiconductors and Flat Panel Displays (FPDs): JPY5.5bn (-3.8% YoY)
- Industrial Machinery: JPY852mn (-10.2% YoY)
- Iron and Steel: JPY976mn (+8.1% YoY)
- Other Purposes: JPY1.3bn (+7.1% YoY)

    - Sales generated by thermal spraying for semiconductors and flat-panel displays (FPDs), the company's mainstay business, fell for the first time in 13 quarters, mainly because customers adjusted their inventories in response to deteriorating semiconductor market conditions, and the company also saw a decline in orders and adjusted shipments to customers. The Q4 (Jan–Mar) decline in semiconductor- and FPD-related sales was limited to 3.8% YoY, but the company is concerned that sales will decline further in Q1 (April–June) and Q2 (July–September) of FY03/24.

    - Other than Semiconductors and FPDs, sales were up 8.1% YoY to JPY976mn for Iron and Steel and down 10.2% YoY for Industrial Machinery. The company understands that the decrease in Industrial Machinery sales is due to fluctuations in construction projects in the energy industry, while the increase in orders for or Iron and Steel is due to the bottoming out of crude steel production.

Orders

- Q4 (January–March) orders in the Thermal Spraying segment fell 12.1% YoY to JPY7.8bn. Orders of JPY7.8bn broke down as follows.

    - Semiconductor and FPDs: JPY4.6bn (-21.9% YoY)
    - Industrial Machinery: JPY878mn (-6.2% YoY)
    - Iron and Steel: JPY818mn (+8.3% YoY)
    - Other Purposes: JPY1.4bn (+19.5% YoY)

    - While the Thermal Spraying segment posted orders of JPY9.7bn in Q3 (October–December 2022), a quarterly record, results were weak in Q4 (January–March 2023). This was mainly the result of semiconductor- and FPD-related orders falling 21.9% YoY to JPY4.6bn.

    - The JPY4.6bn in semiconductor- and FPD-related orders in Q4 was not a low level compared to past trends. However, the company recognizes that the Q4 results represent a larger drop than the numbers indicate, as it had obtained semiconductor- and FPD-related orders around the JPY6.0bn level for five consecutive quarters from Q3 FY03/22 to Q3 FY03/23. The company thinks that it will be difficult to see a real recovery in orders, especially for mass-produced products (excluding prototypes and newly developed products), until 1H FY03/24. Further, the order backlog as of end-March 2023 was also declining, and the company believes that it will be difficult to continue leveling operations as it did through FY03/23, at least in 1H, as it will adjust shipments after discussions with its customers.

Segment profit

- In Q4 (January–March), segment profit fell 19.0% YoY to JPY1.7bn in the Thermal Spraying segment, mainly due to the decrease in semiconductor- and FPD-related sales, the main source of earnings. As with sales, the segment profit margin deteriorated 4.3pp to 20.0%. In addition to lower semiconductor- and FPD-related sales, higher electricity and other energy costs and higher labor costs also contributed to lower profits. Still, the company was able to maintain a profit margin of 20% through productivity improvements and other cost reductions.

Domestic Subsidiary (5.1% sales share)

- Sales: JPY594mn (+1.2% YoY)
- Segment profit: JPY76mn (-36.1% YoY)
- Segment profit margin: 12.8% (-7.5pp YoY)

- Orders: JPY661mn (-8.1% YoY)

Sales

- In Q4 (January–March), sales of the Domestic Subsidiary segment rose 1.2% YoY to JPY594mn as automobile production rose in Japan (+13.5% YoY in January–March 2023). However, orders did not reach the company's expectations (Q4 orders were down 1.0% YoY), and sales growth was smaller than the increase in domestic automobile production. The company believes that the 13.5% YoY increase in domestic automobile production was not enough to offset the low level of production in Q4 FY03/22 (January–March 2022). It does not expect a full sales recovery of the domestic subsidiary until 2H FY03/24.

Segment profit

- Despite the increase in sales, segment profit in Q4 (January–March) declined 36.1% YoY to JPY76mn, the sixth straight decline (YoY) on a quarterly basis. Reasons for the decline include sales not having fully recovered and an increase in costs such as depreciation. The cost increase is associated with a new plant built in FY03/22 and installing new production equipment. The segment profit margin deteriorated 7.5pp to 12.8%, the lowest quarterly level since 12.1% in the July–September 2020 period, which was directly affected by the COVID-19 pandemic.

Overseas Subsidiaries (15.4% sales share)

- Sales: JPY1.8bn (+19.9% YoY)
- Segment profit: JPY418mn (+3.7% YoY)
    - Segment profit margin: 23.1% (-3.6pp YoY)

- Orders: JPY1.5bn (-9.5% YoY)

Sales

- This segment encompasses two subsidiaries in China, one in Taiwan, and one in the US, but it effectively consists of just the subsidiaries in China and Taiwan (three companies) because the US subsidiary is not yet fully operational. Sales of the Overseas Subsidiaries segment in Q4 (January—March) grew 19.9% YoY to JPY1.8bn

- Sales on a quarterly basis were up YoY nine quarters in a row, marking a record in every quarter. The growth was in the single digits in Q3 FY03/23 (October—December 2022), but regained speed to 20% growth in Q4 (January—March 2023). According to the company, the single-digit sales growth in Q3 was mainly due to the impact of inventory adjustments by local customers of the semiconductor/FPD-related recoating business in Taiwan and sluggish growth of steel-related sales in China. The company believes that the increase in sales in Q4 was due in part to the fact that the impact of the above factors was largely mitigated in Q4. Subsidiaries in China and Taiwan have fiscal years ending in December, which means their results for October—December are reflected in Q4 (January—March) results.

Segment profit

- Segment profit in Q4 (January—March) increased 3.7% YoY to JPY418mn and the segment profit margin declined 7.4pp to 23.1%. The segment profit margin declined to 20.9% in Q3 (October—December) due to the impact of inventory adjustments by local customers of the semiconductor/FPD-related recoating business in Taiwan, but recovered slightly in Q4 (January—March). Still, the segment profit margin was 7.4pp lower than in Q4 FY03/22, and the company indicated that this was due in part to the lingering effects of semiconductor-related inventory adjustments in its overseas operations. The Q4 (January—March) results include the October—December period for China and Taiwan, and the company will closely monitor performance trends in April—June 2023, which will include the January—March period for China and Taiwan.

Other Surface Treatments (5.8% sales share)

- Sales: JPY685mn (-2.3% YoY)
- Segment profit: JPY109mn (-20.4% YoY)
    - Segment profit margin: 15.9% (-3.6pp YoY)

- Orders: JPY661mn (-8.1% YoY)

Sales and segment profit

- Sales fell 2.3% YoY to JPY685mn in Q4 (January—March). Segment profit in Q4 (January—March) was JPY109mn, down 20.4% YoY. According to the company, although sales from surface treatments for agricultural equipment parts were firm, they were unable to fully absorb cost increases, resulting in segment profit about 20% lower than in Q4 FY03/22, and a segment profit margin 3.6pp lower (15.9%). The segment profit margin in this segment had varied widely until FY03/21 (from segment losses to a high of 13.9%), but has stabilized in the 16.6%—19.6% range since April—June 2021. From this perspective, the Q4 result of 15.9% fell below the lower end of this range.

Q3 FY03/23 results (out October 31, 2022)

Q3 FY03/23 (Nine months, April—December) performance overview

Results for Q3 FY03/23 (April—December) were as follows.

- Sales: JPY36.4bn (+13.0% YoY)
- Operating profit: JPY8.2bn (+8.9% YoY)
- Recurring profit: JPY8.7bn (+12.1% YoY)
- Recurring profit margin: 23.8% (down 0.2pp YoY)
- Net income attributable to owners of the parent: JPY5.7bn (+13.4% YoY)

- Orders: JPY37.9bn (+12.8% YoY)
- Order backlog: JPY9.5bn (+24.4% YoY)

Sales

- Thermal Spraying (handled by TOCALO, the parent company) is the company's mainstay business and accounts for about 76% of consolidated sales. Revenue from it increased 13.5% YoY, driven by growth in semiconductor and flat panel display (FPD) applications against a backdrop of high semiconductor demand. Overseas Subsidiaries (mainly in China and Taiwan) also posted a 15.0% YoY increase in sales as a result of growth in semiconductor and steel industry business. Other Surface Treatments also grew 14.4% YoY. As a result of these factors, cumulative Q3 consolidated sales increased 13.0% YoY to JPY36.4bn, a record high for cumulative Q3 (April–December).

Recurring profit and recurring profit margin

- Segment profit grew 11.0% YoY for Thermal Spraying (Parent), 8.9% YoY for Overseas Subsidiaries, and 8.5% YoY for Other Surface Treatments while it declined 21.6% YoY for Domestic Subsidiary. Segment profit at the company is linked to recurring profit on the income statement. Thermal Spraying segment profit, which accounts for about 76% of consolidated recurring profit, maintained an upward trend due to growth in sales for semiconductors and FPDs and profit at Overseas Subsidiaries also increased, absorbing the profit decline at Domestic Subsidiary. As a result of these factors, consolidated recurring profit increased 12.1% YoY to JPY8.7bn. Like sales, this was a record high for Q3 (April-December). However, the recurring profit margin fell 0.2pp YoY to 23.8% due to higher electricity and other energy costs and labor costs.

Orders, order backlog

- Cumulative Q3 (April–December) orders rose 12.8% YoY to JPY37.9bn, a new cumulative Q3 record. Orders for Thermal Spraying segment's mainstay semiconductor- and FDP-related products continued to increase, and orders at overseas subsidiaries also rose 25.8% as semiconductor demand grew. On the other hand, orders at its domestic subsidiary only increased 1.2% YoY due to the impact of production cuts in the automobile industry, which is its main customer base. The breakdown of the JPY37.9bn of orders received in cumulative Q3 is shown below.

  - Thermal Spraying (parent): JPY28.4bn (+12.0% YoY)
    - Semiconductor/FPD-related: JPY18.1bn (+13.7% YoY)
    - Industrial machinery-related: JPY3.0bn (+6.4% YoY)
    - Steel making-related: JPY3.1bn (+20.6% YoY)
    - Other businesses: JPY4.2bn (+3.7% YoY)
  - Domestic subsidiary: JPY1.8bn (+1.2% YoY)
  - Overseas subsidiaries: JPY5.6bn (+25.8% YoY)
  - Other Surface Treatments: JPY2.0bn (+4.1% YoY)

- In conjunction with this increase in orders, the order backlog grew 24.4% to JPY9.5bn as of end-Q3 (end-December 2022), the highest figure ever for any quarterly closing. The breakdown of the JPY9.5bn order backlog as of end-Q3 is shown below.

  - Thermal Spraying (parent): JPY6.8bn (+15.6% YoY)
    - Semiconductor/FPD-related: JPY4.8bn (+13.6% YoY)
    - Industrial machinery-related: JPY386mn (+6.3% YoY)
    - Steel making-related: JPY1.1bn (+51.2% YoY)
    - Other businesses: JPY553mn (-8.6% YoY)

  - Domestic subsidiary: JPY48mn (flat YoY)
  - Overseas subsidiaries: JPY2.3bn (+71.1% YoY)
  - Other Surface Treatments: JPY370mn (+0.5% YoY)

- We note that although orders and order backlog marked record highs for cumulative Q3, a change in trends was observed toward the end of Q3 (October–December) in the mainstay semiconductor/FPD-related business. The company is increasingly concerned about this change and taking a cautious outlook for Q4 (January–March) and 1H FY03/24 despite the strong performance in cumulative Q3.

Results by segment

- The results by business segment are as follows. The sales share of each segment is the share of cumulative Q3 consolidated sales of JPY36.4bn. We note that the total of segment sales share does not equal 100%, because royalty

- income is also included under sales as well as segment sales. Profit of each business is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company; 75.8% sales share)

- Sales: JPY27.6bn (+13.5% YoY)
- Segment profit: JPY6.6bn (+11.0% YoY)
- Segment profit margin: 24.0% (-0.5pp YoY)

- Orders: JPY28.4bn (+12.0% YoY)
- Order backlog: JPY6.8bn (+15.6% YoY)

Sales

- The Thermal Spraying segment (parent only) is TOCALO's largest segment, accounting for 75.8% of its consolidated net sales (cumulative Q3 FY03/23). Sales in the Thermal Spraying (parent) segment grew, driving the increase in overall consolidated earnings. The JPY27.6bn in sales generated through this segment breaks down as follows.

- Semiconductors and Flat Panel Displays (FPDs): JPY17.8bn (+18.9% YoY)
    - Of which, thermal spraying for semiconductors: JPY16.6bn (+20.6% YoY)
    - Of which, thermal spraying for FPDs: JPY1.2bn (-0.8% YoY)
- Industrial machinery-related: JPY3.0bn (+7.0% YoY)
- Steel making-related: JPY2.6bn (+2.3% YoY)
- Other Purposes: JPY4.2bn (+5.2% YoY)

- **Trends in Semiconductors and FPDs**

    - Relatively high-margin semiconductor- and FPD-related sales continued to grow, up 18.9% YoY. Other businesses such as Industrial machinery-related, Steel making-related sales, and Other Purposes were also up YoY. Semiconductors account for more than 90% of thermal spraying sales for semiconductors and FPDs (93.4% in Q3), with sales for FPDs continuing to decline.

    - In order to keep up with robust thermal spraying demand for semiconductors and FPDs, the company has been increasing capacity in stages since FY03/22, and the improved ability to fill the large volume of orders received resulted in it booking over JPY6.0bn in sales in a quarter. Working closely with its customers, the company has been able to avoid a sudden expansion in production capacity that would directly increase costs and lower productivity, while at the same time leveling operations.

    - In the longer term, the company aims to further expand production capacity as it continues to pursue operational leveling while keeping an eye on orders. It plans to keep increasing production capacity while ensuring that operations do not come under too much stress, targeting quarterly sales of JPY6.5bn. The company noted that its production capacity is already at a level where quarterly sales of JPY6.5bn are possible, but will prioritize steady operation based on working closely with customers, because it considers leveling operations to be important. This approach has proved successful, with semiconductor- and FPD-related sales reaching JPY17.8bn in cumulative Q3 (April—December), which is roughly JPY6.0bn per quarter.

    - That being said, the company is aware that although orders were at a high level in Q3 (October—December), order trends are beginning to change from a period of expansion through 1H (April—September) due to moves to cut back on investment in semiconductor production equipment amid a semiconductor market downturn and US restrictions on exports to China. The company has seen signs of inventory adjustment among customers, i.e., major semiconductor production equipment manufacturers. These companies revised down their initial full-year forecasts when announcing 1H (April—September) results in November 2022. Although customers' inventory adjustment is changing TOCALO's order trends, the company plans to minimize any negative impact on earnings by strictly leveling operations.

- **Trends in other businesses**

    - In areas other than the semiconductor/FPD-related business, steel making-related sales grew 2.3% YoY. The automobile industry (a major customer for the steel industry) continued to reduce output, which led to lower crude steel production and impacted on TOCALO's earnings, but sales were up YoY in cumulative Q3 as a result of an uptick in orders related to steel companies' energy saving and decarbonization needs. Sales have not yet recovered to pre-

- pandemic levels (JPY2.8bn in April–December 2019) as automobile production has not fully recovered yet, but the company thinks they may have bottomed out, because orders are picking up (cumulative Q3 orders from the steel industry grew 20.6% YoY).

- Industrial machinery-related sales were up 7.0% YoY. Although 1H (April–September) sales declined YoY, TOCALO explained that this was due to an increase in work-in-process as of end-Q2, not ready to book sales. The company made progress in booking sales from these orders in Q3 (October–December), resulting in YoY sales growth in cumulative Q3. It was not concerned about the YoY sales decline in 1H because there was a specific reason for it, and the recovery in Q3 was as expected. The company forecasts an increase in Industrial machinery-related sales for the first time in three years in FY03/23, because it has seen an increase in orders from key customers in the bearing and energy industries.

Segment profit, segment profit margins

- Backed mainly by an increase in semiconductor- and FPD-related sales, in cumulative Q3 (April–December), Thermal Spraying segment profit (segment profit is linked to consolidated recurring profit) rose 11.0% YoY to JPY6.6bn. However, the segment profit margin dipped 0.5pp YoY to 24.0%. The decline in the segment profit margin was mainly due to higher labor costs and energy costs, including electricity costs. That said, the company at the beginning of the fiscal year expected these costs to rise, and noted that progress remained in line with its expectations.

  - However, the impact of a change in semiconductor-related sales trends (including inventory adjustment by customers) has emerged since Q3 (October–December), showing a difference from the situation through 1H. One reason for the drop in profit margins in cumulative Q3 is a reflection of the adjustment in the semiconductor market. The company is therefore cautious about a possible earnings slowdown in Q4 (January–March) and 1H FY03/24 (April–September).

  - TOCALO intends to maintain leveling of operations, which has contributed to earnings expansion since FY03/21, amid changing trends in semiconductors. From past experience, the company is keenly aware of the impact of fluctuations in operations (large swings in operating rate, greater differences between peak season and off season) on profitability (profit margins). In 1H (April–September 2022), the company aimed to level operations amid an increasing workload, but in Q4 (January–March 2023) it will be leveling operations amid a declining workload. Its aim is to maintain level operations as much as possible to minimize the drop in profitability so that it can resume a steady pace once the market picks up (i.e., customers' inventory adjustment comes to an end).

Semiconductor- and FPD-related orders and order backlog

- Cumulative Q3 (April–December) orders and order backlog of the mainstay semiconductor- and FPD-related business at end-December 2022 in the Thermal Spraying segment are as follows.

  - Orders: JPY18.1bn (+13.7% YoY)
  - Order backlog: JPY4.8bn (+13.6% YoY, JPY4.5bn at end-1H FY03/23)

  - Semiconductor- and FPD-related orders account for about 63.7% of thermal spraying orders. Semiconductor- and FPD-related orders are considered a key leading indicator for earnings, with the company prioritizing them over industrial machinery, iron and steel, and other orders. Orders in cumulative Q3 FY03/23 (April–December) totaled JPY18.1bn, the highest level recorded for cumulative Q3 to date. As well, the order backlog at end-December 2022 of JPY4.8bn was a record high for the end of any quarter.

  - The company's usual pattern is to book sales by clearing its order backlog (including orders won in Q4 [January–March]). However, it is working with customers to slow the pace of clearing its order backlog in light of the impact of customers' inventory adjustment and the market correction in the semiconductor industry. Clearing its order backlog more slowly, i.e., production adjustment, will impact earnings in Q4 and 1H FY03/24, but TOCALO aims to minimize the negative impact by leveling operations to the best of its ability.

Domestic Subsidiary (5.0% sales share)

- Sales: JPY1.8bn (+0.4% YoY)
- Segment profit: JPY276mn (-21.6% YoY)
- Segment profit margin: 15.2% (-4.2pp YoY)

- Orders: JPY1.8bn (+1.2% YoY)

- Order backlog: JPY48mn (flat YoY, JPY56mn as of end-1H FY03/23)

Sales

- The company's domestic subsidiary (Japan Coating Center Co., Ltd.) mainly conducts physical vapor deposition (PVD) processing (a surface modification process for cutting tools, knives, and molds) and primarily serves clients in the automotive industry. Sales in cumulative Q3 FY03/23 (April–December) were up 0.4% YoY to JPY1.8bn despite being impacted by production adjustment (production cuts) by Japanese automakers.

- Sales were down 0.7% YoY in 1H (April–December), but recovered in Q3 (October–December) for a YoY increase in cumulative Q3. The main reasons for the recovery are the robust performance of non-auto businesses such as construction equipment parts and the recovery in domestic automobile production from summer 2022 onward. Automobile production volume in Japan was up 14.9% YoY in October and November 2022 (note: data for December have not been released), contributing to the sales recovery of TOCALO's domestic subsidiary. That being said, domestic automobile production was up YoY because the year-ago level was low (domestic automobile production in October–December 2021 was down 16.4% YoY). The company therefore thinks that the pace of production recovery is slow, and production is not yet sufficient to compensate for year-ago weakness. Nonetheless, the company commented that it has seen some signs of domestic automobile production bottoming out and expects recovery from Q4 onward and a strong recovery in FY03/24.

Segment profit, segment profit margin

- While sales was mostly flat, increasing by just 0.4% YoY, segment profit remained weak. This was mainly due to the YoY drop in auto production up to July, as well as a bigger than usual costs, such as higher depreciation, as the company started up new production facilities at a new factory that was built the previous year (FY03/22). The new plant is rather small compared to facilities in the Thermal Spraying segment, and while its impact on overall earnings is therefore relatively limited, its impact on the Domestic Subsidiary segment is rather large. Within this environment, segment profit fell 21.6% YoY to JPY276mn, with the segment profit margin dropping 4.2pp YoY to 15.2%. This figure is the lowest profit margin for cumulative Q3 since the company adopted the current business segments in FY03/18 (including FY03/17 figures to which the current business segments have been applied). The company thinks that the weak profit margin was due to sluggish recovery in Q3 (October–December).

Overseas Subsidiaries (13.2% sales share)

- Sales: JPY4.8bn (+15.0% YoY)
- Segment profit: JPY1.2bn (+8.9% YoY)
    - Segment profit margin: 25.7% (-1.4pp YoY)

- Orders: JPY5.6bn (+25.8% YoY)
- Order backlog: JPY2.3bn (+71.1% YoY, JPY2.0bn at end-1H FY03/23)

Sales

- This segment includes two subsidiaries in China, one in Taiwan, and one in the US, but essentially consists of subsidiaries in China and Taiwan, as the US business is not fully operational. Sales in cumulative Q3 (April–December) expanded 15.0% YoY on forex gains in line with yen depreciation, improved iron and steel-related sales in China, and semiconductor- and FPD-related re-coating sales. Sales were JPY4.8bn, the highest level recorded for cumulative Q3(April–December). However, sales and segment profit declined on a local currency basis in Q3 (October–December) due to the impact of inventory adjustment of semiconductor-related products. Thus, the rate of YoY sales growth slowed from 20.1% in 1H to 15.0% in cumulative Q3.

- Subsidiaries in China and Taiwan have fiscal years ending in December, which means their results for January–September are reflected in cumulative Q3 results (their Q3 is July–September). The company thinks that inventory adjustment of semiconductor-related products has impacted its earnings overseas ahead of Japan.

Segment profit, segment profit margin

- Segment profit grew 8.9% YoY to JPY1.2bn in cumulative Q3 (April–December) thanks to a recovery in iron and steel-related sales in China and semiconductor- and FPD-related re-coating sales. Segment profit of JPY1.2bn was the highest ever for cumulative Q3 (April–December). The segment profit growth rate was 8.9% in cumulative Q3 due to weak performance in Q3 (October–December), dropping almost 20pp from 28.4% in 1H (April–September). The segment profit margin also worsened 1.4pp to 25.7%. The profit margin decline in Q3, reflecting overseas

- subsidiaries' July–September results, had a negative impact. Nonetheless, their segment profit margin remains higher than that of the Thermal Spraying business of TOCALO (parent).

Other Surface Treatments (5.7% sales share)

- Sales: JPY2.1bn (+14.4% YoY)
- Segment profit: JPY359mn (+8.5% YoY)
- Segment profit margin: 17.4% (-1.0pp YoY)

- Orders: JPY2.0bn (+4.1% YoY)
- Order backlog: JPY370mn (+0.5% YoY, JPY370mn at end-1H FY03/23)

Sales, segment profit, segment profit margin

- Both segment sales and profit increased YoY amid generally strong order bookings. In particular, orders for surface treatments used on agricultural equipment parts grew, contributing to the rise in sales. TOCALO applies surface treatments to agricultural equipment parts and supplies these to Japanese agricultural equipment makers. Agricultural equipment makers sell their products in the US and other locations, and TOCALO believes that they have benefitted from the expansion of the agricultural industry in North America. It expects the agricultural equipment part business to continue to expand in the future. However, it still does not significantly contribute to profits, and segment profits are not growing as fast as sales. As a result, the segment profit margin decreased 1.0pp to 17.4%.
  Sales and segment profit of Other Surface Treatments was a record high for cumulative Q3 since the company adopted its current business segments in FY03/18.

Factors affecting change in recurring profit

- Recurring profit, which is closely linked to segment profit, increased by JPY939mn YoY, from JPY7.7bn in cumulative Q3 FY03/22 to JPY8.7bn. Factors contributing to the increase included upward impacts of JPY2.6bn stemming from growth in sales and JPY430mn from forex factors. On the other hand, profit was depressed by JPY338mn due to a higher variable cost ratio, JPY959mn on an uptick in labor costs, JPY137mn on an increase in depreciation, and JPY611mn on other factors.

  - Given the sales boost, the company managed to limit the increase in its variable cost ratio (which is a factor for decreases in profits). The main reason behind this was the maintenance in its marginal profit ratio that stemmed primarily from the aforementioned leveling of operations. While there were a number of factors contributing to higher costs in cumulative Q3 (April–December), the company was able to maintain the marginal profit margin at the prior year level.

  - The JPY959mn increase in labor costs was due to an expansion in headcount (about 90 workers) and improved compensation (increased bonuses and base pay hikes) so that the company could better take on the increase in orders. The company believes this increase in costs are reasonable in line with the expansion in sales. The JPY611mn increase in other factors was due to higher R&D costs, increased costs associated with sales activities, including business trips, and the hike in energy costs. The increase in electricity costs, which accounts for the majority of energy costs, depressed profit by JPY287mn, and an increase in the valuation loss on inventories also depressed profit by JPY95mn. While the increase in electricity costs was a negative factor, it was in line with the company's initial forecast.

  - Forex impacts increased profits by JPY430mn, and about JPY284mn of this amount was due to valuation gains on foreign currency-denominated bonds, which were booked as non-operating income. The remaining amount of approximately JPY146mn was due to difference in the conversion rates for consolidated subsidiaries.

Q3 performance overview (October–December)

Results for Q3 FY03/23 (October–December) were as follows.

- Sales: JPY12.4bn (+11.7% YoY)
- Operating profit: JPY2.6bn (+8.1% YoY)
- Recurring profit: JPY2.6bn (+5.1% YoY)
- Recurring profit margin: 21.3% (down 1.3pp YoY)
- Net income attributable to owners of the parent: JPY1.8bn (+13.0% YoY)

- Orders: JPY12.9bn (+6.1% YoY)

Sales

- Consolidated sales grew 11.7% YoY in Q3 (October–December) to JPY12.4bn, because sales were up in all segments (Thermal Spraying, Domestic Subsidiary, Overseas Subsidiaries, and Other Surface Treatments) to post a quarterly record.

Recurring profit, RPM, other

- In Q1 (April–June) FY03/23, operating profit fell by 1.3% YoY while recurring profit increased only 3.8% YoY, weighed down by higher manufacturing costs. In Q2 (July–September), the rates of both operating and recurring profit resumed their growth, and this continued in Q3 (October-December). However, recurring profit margin—which TOCALO considers a key management indicator—declined 1.3pp YoY to 21.3% due to increased costs and other factors. Q3 Sales were a record high for any quarter. Operating profit, recurring profit and net income attributable to owners of the parent were also record highs for Q3. On a quarterly basis (3 months), sales and recurring profit both increased YoY for the 12th consecutive quarter.

Results by segment

- Q3 results by segment are as follows. The sales share of each segment is the share of consolidated sales of JPY12.4bn in Q3 (October–December). We note that the total of segment sales share does not equal 100%, because royalty income is also included under sales as well as segment sales. Each business's segment profit is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company; 75.7% sales share)

- Sales: JPY9.4bn (+13.1% YoY)
- Segment profit: JPY2.2bn (+8.8% YoY)
- Segment profit margin: 23.0% (-0.9pp YoY)

- Orders: JPY9.7bn (+4.8% YoY)

Sales

- Thanks to growth in semiconductor-related sales and a rebound in industrial machinery-related sales, Thermal Spraying segment sales in Q3 (October–December) rose 13.1% YoY to JPY9.4bn, a record level for any quarter. This was the third straight quarter that sales exceeded JPY9.0bn, after the JPY9.0bn reported for Q1 (April–June) and JPY9.2bn in Q2 (July–September). Sales of JPY9.4bn breaks down as follows.

- Sales generated by thermal spraying for:
- Semiconductors and Flat Panel Displays (FPDs): JPY5.7bn (+13.3% YoY)
- Industrial Machinery: JPY1.2bn (+21.0% YoY)
- Iron and Steel: JPY831mn (-10.1% YoY)
- Other Purposes: JPY1.7bn (+22.3% YoY)

  - Sales generated by thermal spraying for semiconductors and flat-panel displays (FPDs), the company's mainstay business, rose 13.3% to JPY5.7bn, showing the effects of the increase in production capacity in stages from FY03/22. However, sales for semiconductors and FPDs of JPY5.7bn in Q3 were lower than JPY5.9bn in Q1 (April–June) and JPY6.2bn in Q2 (July–September). One reason for this is the start of shipment adjustment to customers. When announcing 1H (April–September) results in October 2022, TOCALO had set its sights on achieving quarterly basis semiconductor/FPD-related sales of JPY6.5bn in Q3 (October–December) and beyond while leveling operations, but the company now thinks business conditions have changed (see below).

  - Other than Semiconductors and FPDs, sales were down 10.1% YoY to JPY831mn for Iron and Steel and up 21.0% YoY for Industrial Machinery. Industrial Machinery sales increased as a result of a delay in shipment timing (i.e., delay in booking sales due to an increase of work in process) in Q2 (July–September) being resolved.

Orders

- Q3 (October–December) orders in the Thermal Spraying segment grew 4.8% YoY to JPY9.7bn, a record for all quarters. Orders of JPY9.7bn broke down as follows.

- Semiconductor and FPDs: JPY6.0bn (-0.6% YoY)
- Industrial Machinery: JPY1.1bn (+10.7% YoY)
- Iron and Steel: JPY1.1bn (+30.4% YoY)
- Other Purposes: JPY1.4bn (+8.8% YoY)

- Although orders in the Thermal Spraying segment reached a record high on a quarterly basis, orders for the mainstay Semiconductor and FPDs were down YoY for the first time in three years (since October–December 2019). The company also noted that although orders surpassed JPY6.0bn, signs of a slowdown are evident. Semiconductor and FPDs orders of approximately JPY6.0bn show an increase in orders for newly developed products and prototypes from semiconductor production equipment manufacturers (customers). Put another way, the company thinks orders for volume production items were weak, and that order recovery in real terms (i.e., volume production items) may not happen until 2H FY03/24. However, with a substantial order backlog, TOCALO intends to work with customers to continue leveling operations through shipment adjustments, which started around the end of Q3.

Segment profit

- In Q3 (October–December), segment profit rose 8.8% YoY to JPY2.2bn (a record for Q3) in the Thermal Spraying segment, mainly due to the increase in sales and lower costs thanks to productivity improvements which helped to absorb higher costs such as labor and electricity costs. However, as with sales, segment profit of JPY2.2bn was lower than JPY2.3bn booked in Q1 (April–June) and JPY2.2bn in Q2 (July–September). Segment profit margin also worsened 0.9pp to reach 23.0%.

Domestic Subsidiary (5.0% sales share)

- Sales: JPY623mn (+2.8% YoY)
- Segment profit: JPY101mn (-5.6% YoY)
- Segment profit margin: 16.2% (-1.5pp YoY)

- Orders: JPY616mn (+1.8% YoY)

Sales

- In Q3 (October–December), sales of the Domestic Subsidiary segment rose 2.8% YoY to JPY623mn as automobile production rose in Japan (+14.9% YoY in October and November) and sales for industrial machinery and other non-automotive uses grew. Sales were second highest for Q3 after JPY644mn in October–December 2018. The company thinks sales only recorded 2.8% YoY growth, because automobile production did not increase as much as expected. Given that orders only increased by 1.8% YoY, the company does not expect a full sales recovery of the domestic subsidiary until some time in FY03/24.

Segment profit

- Despite the increase in sales, segment profit in Q3 (October–December) declined 5.6% YoY to JPY101mn, the fifth straight decline (YoY) on a quarterly basis. Reasons for the decline include sales not having fully recovered and an increase in costs such as depreciation. The cost increase is associated with a new plant built in FY03/22 and installing new production equipment. The company thinks that segment profit may have bottomed out, because the rate of decline slowed from 44.1% YoY in Q1 (April–June) to 3.2% in Q2 (July–September) and stayed in the single digit range(5.6%) in Q3. Segment profit margin deteriorated 1.5pp to 16.2%, but this was better than the 14.4% figure for Q1 and the 14.9% for Q2.

Overseas Subsidiaries (13.5% sales share)

- Sales: JPY1.7bn (+6.5% YoY)
- Segment profit: JPY350mn (-21.3% YoY)
    - Segment profit margin: 20.9% (-7.4pp YoY)

- Orders: JPY1.9bn (+15.1% YoY)

Sales

- This segment encompasses two subsidiaries in China, one in Taiwan, and one in the US, but it effectively consists of just the subsidiaries in China and Taiwan (three companies) because the US subsidiary is not yet fully operational. Sales of the Overseas Subsidiaries segment in Q3 (October–December) grew 6.5% YoY to JPY1.7bn

- Sales on a quarterly basis were up YoY eight quarters in a row, marking a record in every quarter, but Q3 FY03/23 was the first single-digit increase in eight quarters. This is mainly due to the impact of inventory adjustment by local customers of the semiconductor/FPD-related recoating business in Taiwan and sluggish growth of steel-related sales in China, especially the faster-than-expected pace of inventory adjustment in Taiwan. The company commented that sales were down YoY in China and Taiwan on a local currency basis, but maintained sales growth due to the forex impact of the weaker yen on conversions. Subsidiaries in China and Taiwan have fiscal years ending in December, which means their results for January—September are reflected in cumulative Q3 results (their Q3 is July—September).

Segment profit

- Segment profit in Q3 (October—December) declined 21.3% YoY to JPY350mn and the segment profit margin declined 7.4pp to 20.9%. Segment profit contracted more than 20% YoY because of the impact of semiconductor-related inventory adjustment. Although segment profit of JPY448mn in Q2 (July—September) was a record for any quarter, the company thinks business conditions turned down sharply in Q3. That being said, the company sees the downturn in Taiwan as temporary, because it is seeing a recovery trend since October 2022.

Other Surface Treatments (5.6% sales share)

- Sales: JPY693mn (+14.4% YoY)
- Segment profit: JPY115mn (+7.5% YoY)
    - Segment profit margin: 16.6% (-1.1pp YoY)

- Orders: JPY694mn (+4.5% YoY)

Sales

- Sales rose 14.4% YoY to JPY693mn in Q3 (October—December) thanks to growth in orders for surface treatments for agricultural equipment parts and a general increase in other orders. Besides agricultural equipment parts, there was also growth in surface treatments for semiconductor manufacturing equipment parts, but according TOCALO, this made only a limited contribution. Sales of JPY693mn were a record for Q3, but lower than JPY697mn in Q1 (April—June).

Segment profit

- Thanks to the growth in sales, mainly in the area of agricultural equipment parts, segment profit in Q3 (October—December) rose 7.5% YoY to JPY115mn, but segment profit margin declined 1.1pp to 16.6%. The segment profit margin had fluctuated up until FY03/21 (including a negative margin and a profit magin as high as 13.9%), but it became more stable from the April—June 2021 quarter onward, and has ranged from 16.6% to 19.6%.

1H FY03/23 results (out October 31, 2022)

1H FY03/23 (April—September) performance overview

Results for 1H FY03/23 (April—September) were as follows.

- Sales: JPY24.0bn (+13.7% YoY, company forecast JPY23.6bn)
- Operating profit: JPY5.6bn (+9.2% YoY, JPY5.4bn)
- Recurring profit: JPY6.0bn (+15.5% YoY, JPY5.6bn)
- Recurring profit margin: 25.1% (up 0.3pp YoY, 23.7%)
- Net income attributable to owners of the parent: JPY3.9bn (+13.7% YoY, JPY3.7bn)

- Orders: JPY25.0bn (+16.6% YoY)
- Order backlog: JPY9.0bn (+36.8% YoY)

- The company upwardly revised its initial forecast at the time of the release of its Q1 (April—June) results on July 29, 2022.

Sales

- Thermal Spraying (handled by TOCALO, the parent company) is the company's mainstay business and accounts for about 76% of consolidated sales. Revenue from it increased 13.8% YoY, driven by growth in semiconductor and flat panel

- display (FPD) applications against a backdrop of high semiconductor demand. Overseas Subsidiaries (mainly in China and Taiwan) also posted a 20.1% YoY increase in sales as a result of growth in semiconductor and steel industry business. This offset the 0.7% YoY decline in sales at Domestic Subsidiary, which was affected by a decline in automobile production. Other Surface Treatments also grew 14.4% YoY. As a result of these factors, consolidated sales increased 13.7% YoY to JPY24.0bn, a record high for cumulative 1H (April–September). Sales also exceeded the company's revised forecast.

Recurring profit and recurring profit margin

- Segment profit grew 12.2% YoY for Thermal Spraying (Parent), 28.4% YoY for Overseas Subsidiaries, 28.6% YoY for Domestic Subsidiary, and 8.9% YoY for Other Surface Treatments. Segment profit at the company is linked to recurring profit on the income statement. Thermal Spraying segment profit, which accounts for about 74% of consolidated recurring profit, maintained an upward trend due to growth in sales for semiconductors and FPDs. Profit at Overseas Subsidiaries also increased, absorbing the decline at Domestic Subsidiary. As a result of these factors, consolidated recurring profit increased 15.5% YoY to JPY6.0bn. Like sales, this was a record high for 1H. The recurring profit margin also increased 0.3pp to 25.1%, which also marked the highest ever for 1H. Both recurring profit and the recurring profit margin exceeded the company's revised forecast.

- The contributing factors for recurring profit to surpass the company's forecast were higher operating profit and non-operating income, largely thanks to forex gains from the weaker yen.

Orders, order backlog

- 1H (April–September) orders rose 16.6% YoY to JPY25.0bn, a new 1H record. Orders for Thermal Spraying segment's mainstay semiconductor- and FDP-related products continued to increase, and orders at overseas subsidiaries also rose 32.3%. On the other hand, orders at its domestic subsidiary were roughly flat due to the impact of production cuts in the automobile industry, which is its main customer base. The breakdown of the JPY25.0bn of orders received in 1H is shown below.

  - Thermal Spraying (parent): JPY18.8bn (+16.1% YoY)
    - Semiconductor/FPD-related: JPY12.1bn (+22.5% YoY)
    - Industrial machinery-related: JPY1.9bn (+4.0% YoY)
    - Steel making-related: JPY2.0bn (+15.8% YoY)
    - Other businesses: JPY2.8bn (+1.3% YoY)
  - Domestic subsidiary: JPY1.2bn (+0.9% YoY)
  - Overseas subsidiaries: JPY3.7bn (+32.3% YoY)
  - Other Surface Treatments: JPY1.4bn (+3.9% YoY)

- In conjunction with this increase in orders, the order backlog grew 36.8% to JPY9.0bn as of end-Q2 (end-September 2022), the highest figure ever for any quarterly closing. The breakdown of the JPY9.0bn order backlog as of end-Q2 is shown below.

  - Thermal Spraying (parent): JPY6.6bn (+31.2% YoY)
    - Semiconductor/FPD-related: JPY4.5bn (+39.9% YoY)
    - Industrial machinery-related: JPY476mn (+35.6% YoY)
    - Steel making-related: JPY837mn (+3.6% YoY)
    - Other businesses: JPY803mn (+20.6% YoY)

  - Domestic subsidiary: JPY56mn (+14.3% YoY)
  - Overseas subsidiaries: JPY2.0bn (+64.9% YoY)
  - Other Surface Treatments: JPY370mn (+19.4% YoY)

Results by segment

- The results by business segment are as follows. The segment profit of each business is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company)

- Sales: JPY18.2bn (+13.8% YoY)
- Segment profit: JPY4.5bn (+12.2% YoY)

- Segment profit margin: 24.5% (-0.4pp YoY)

Sales

- The Thermal Spraying segment (parent only) is TOCALO's largest segment, accounting for 75.9% of its consolidated net sales (1H FY03/23). Sales in the Thermal Spraying (parent) segment grew, driving the increase in overall consolidated earnings. The JPY18.2bn in sales generated through this segment breaks down as follows.

- Semiconductors and Flat Panel Displays (FPDs): JPY12.1bn (+21.8% YoY)
  - Of which, thermal spraying for semiconductors: JPY11.2bn (+22.8% YoY)
  - Of which, thermal spraying for FPDs: JPY905mn (+10.5% YoY)
- Industrial machinery-related: JPY1.7bn (-1.0% YoY)
- Steel making-related: JPY1.8bn (+9.4% YoY)
- Other Purposes: JPY2.6bn (-3.4% YoY)

- Driving overall growth in thermal spraying sales and offsetting the decline in industrial machinery-related and other thermal spraying sales, high-margin semiconductor- and FPD-related thermal spraying sales were up 21.8% YoY. Steel making-related sales were also up from 1H FY03/22. Semiconductors account for more than 90% of thermal spraying sales for semiconductors and FPDs (92.5% in Q2), with sales for FPDs continuing to decline.

- In order to keep up with robust thermal spraying demand for semiconductors and FPDs, the company has been increasing capacity in stages since FY03/22, and its ability to fill the large volume of orders received resulted in it booking over JPY6.0bn in sales in Q1. Working closely with its customers, the company has been able to avoid a sudden expansion in production capacity that would directly increase costs and lower productivity, while at the same time leveling operations. As such, it has been able to expand sales on the back of enhanced production capacity. Management noted that while keeping an eye on orders in Q3 (October–December) onward, it aims to further expand production capacity as it continues to pursue operational leveling.

- As it continues to expand production capacity, the company targets quarterly sales of JPY6.5bn without overburdening operations. According to the company, it believes that it already has the means to achieve quarterly sales of JPY6.5bn. However, in line with its emphasis on operational leveling, the company is prioritizing steady operations as it works with its leading customers.

- In areas other than the semiconductor/FPD-related business, steel making-related sales grew 9.4% YoY, marking the first 1H increase in three years. Sales decreased YoY in Q1 (April–June), but the Q2 (July–September) gain in sales made up for this. The automobile industry (a major customer for the steel industry) continued to reduce output, but a rebound in crude steel production destined for other industries contributed to the gain in sales. However, TOCALO is not overly optimistic because sales have not yet recovered to pre-pandemic levels (JPY2.0bn in April–September 2019).

- On the other hand, industrial machinery-related sales were somewhat weak, declining 1.0% YoY. Although sales were up 21.2% YoY in Q1 (April–June), the Q2 (July–September) decline had an impact. However, according to TOCALO, this is because there was an increase in work-in-process as of end-Q2, not ready to book sales. It has seen an increase in orders from key customers in the bearing and energy industries, so it does not see a reason to be concerned about the 1H decrease in sales. In fact, industrial machinery-related orders have been recovering, along with the order backlog, and the company expects to book these orders as sales in Q3 (October–December) and beyond. Sales to other types of businesses were lower than 1H FY03/22, but this was because they fell back after a major project was booked in Q1 (April–June) FY03/22. Q2 (July–September) is already ahead of the Q2 FY03/22 level.

Segment profit, segment profit margins

- Backed mainly by an increase in semiconductor- and FPD-related sales, Thermal Spraying segment profit (segment profit is linked to consolidated recurring profit) rose 12.2% YoY. However, the segment profit margin dipped 0.4pp YoY to 24.5%. The decline in the segment profit margin was mainly due to higher labor costs and energy costs, including electricity costs. That said, the company at the beginning of the fiscal year expected these costs to rise, and noted that progress remained in line with its expectations. In fact, the segment profit margin of 23.8% in Q2 (July–September) was higher than the 23.6% of a year earlier. TOCALO believes that the fact that the profit margin was 24.5% in 1H (April–September), when costs were noticeably increasing, indicates that profitability is on the upswing.

- The company believes it was able to produce a segment profit margin of 24.5%, even amid rising costs, thanks to an increase in thermal spraying sales for semiconductors and FPDs and progress in operational leveling. In the past, the

- company's semiconductor-related business activities were often affected by inconsistency in factory operations during busy periods, which would result in lower production efficiency. However, since Q1 FY03/22 (April–June 2021) the company has become increasingly adept at leveling order sizes from each of its customers during peak periods (about JPY6.0bn from October-December 2021), including its largest customer Tokyo Electron Limited (TSE Prime: 8035), which are disclosed in the company's annual securities report.

- By smoothing orders, the company has been able to increase its number of factory personnel and reduce overtime work, thereby ensuring stable operations with higher production efficiency, even when orders are running high. The company believes this has contributed to growing earnings and improving profitability. According to TOCALO, by leveling operations while it boosts production capacity in stages, it will continue to enhance profitability thanks to the effect of increased sales. Therefore, it expects that the impact of higher electricity and other energy costs will be limited because it will be covered by the effect of higher sales.

Semiconductor- and FPD-related orders and order backlog

- Mainstay semiconductor- and FPD-related orders and order backlog (as of end-Q1) in the Thermal Spraying segment are as follows.

- Orders: JPY12.1bn (+22.5% YoY)
- Order backlog: JPY4.5bn (+39.9% YoY, JPY4.7bn at end-Q1 FY03/23)

- Semiconductor- and FPD-related orders account for about 64.4% of thermal spraying orders. Semiconductor- and FPD-related orders are considered a key leading indicator for earnings, with the company prioritizing them over industrial machinery, iron and steel, and other orders. Orders in 1H FY03/23 (April–September) totaled JPY12.1bn, the highest level recorded for any 1H to date. The order backlog of 4.5bn as of end-September 2022 was also the highest for any Q2 to date. The order backlog decreased slightly from end-Q1 (end-June 2022), but it was still close to a record high. However, in view of the gradual expansion of the company's production capacity, the company expects that the semiconductor/FPD-related order backlog will clear gradually and return to normal levels.

Domestic Subsidiary

- Sales: JPY1.2bn (-0.7% YoY)
- Segment profit: JPY175mn (-28.6% YoY)
- Segment profit margin: 14.6% (-5.7pp YoY)

- Orders: JPY1.2bn (+0.9% YoY)
- Order backlog: JPY56mn (+14.3% YoY, JPY40mn as of end-Q1 FY03/23)

Sales

- The company's domestic subsidiary (Japan Coating Center Co., Ltd.) mainly conducts physical vapor deposition (PVD) processing (a surface modification process for cutting tools, knives, and molds) and primarily serves clients in the automotive industry. Sales in 1H FY03/23 (April–September) were down 0.7% YoY, or roughly flat, as strength in construction machinery components was insufficient to offset the negative impact from reduced production among domestic automakers. The subsidiary had a rocky road up to Q1 due to the impact of automobile production cuts, but in August–September 2022 domestic automobile production turned upwards (+21.6% YoY in August and +76.0% in September), so there are signs that the sales of Domestic Subsidiary segment has also begun to bottom out. In the company's analysis, sales ended up at roughly the same level as the previous year, thanks to the Q2 (July–September) rebound in automobile-related sales and sales growth in other non-automobile related areas.

Segment profit, segment profit margin

- While sales declined by just 0.7% YoY, segment profit declined more than the decrease in sales. This was mainly due to the auto production cutbacks up to July, as well as a bigger than usual costs, such as higher depreciation, as the company started up new production facilities at a new factory that was built the previous year (FY03/22). The new plant is rather small compared to facilities in the Thermal Spraying segment, and while its impact on overall earnings is therefore relatively limited, its impact on the Domestic Subsidiary segment is rather large. Within this environment, segment profit fell 28.6% YoY to JPY175mn, with the segment profit margin dropping 5.7pp YoY to 14.6%. While this was lower than a year earlier, it was above the 13.7% figure recorded in April–June 2020, when COVID-19 was rapidly spreading.

Overseas Subsidiaries

- Sales: JPY3.1bn (+20.1% YoY)
- Segment profit: JPY885mn (+28.4% YoY)
    - Segment profit margin: 28.2% (+1.9pp YoY)

- Orders: JPY3.7bn (+32.3% YoY)
- Order backlog: JPY2.0bn (+64.9% YoY, JPY1.7bn at end-Q1 FY03/23)

Sales

- This segment includes two subsidiaries in China, one in Taiwan, and one in the US, but essentially consists of subsidiaries in China and Taiwan, as the US business is not fully operational. Sales expanded 20.1% YoY on forex gains in line with yen depreciation, improved iron and steel-related sales in China, and semiconductor- and FPD-related re-coating sales. Sales were JPY3.1bn, the highest level recorded for any 1H (April–September) to date. The company noted the improvement in sales was due not only to the weaker yen, as sales also rose on a local currency basis.

Segment profit, segment profit margin

- Segment profit grew 28.4% YoY to JPY885mn thanks to yen depreciation and enhanced sales on a local currency basis. Sales also benefitted from a recovery in iron and steel-related sales in China and semiconductor- and FPD-related re-coating sales. Segment profit of JPY885mn was the highest ever for a 1H (April–September). The segment OPM for Overseas Subsidiaries has been higher than that for Thermal Spraying (parent only). This is because semiconductor/FPD-related activities represent the majority of business in the Overseas Subsidiaries segment, and the investment burden is not as heavy as the burden in Japan (Thermal Spraying). However, the company plans to increase capital investment overseas as well (mainly to boost production capacity), so it will be unable to maintain the current segment OPM (roughly 28%)unless sales continue to increase.

Other Surface Treatments

- Sales: JPY1.4bn (+14.4% YoY)
- Segment profit: JPY244mn (+8.9% YoY)
- Segment profit margin: 17.8% (-0.9pp YoY)

- Orders: JPY1.4bn (+3.9% YoY)
- Order backlog: JPY370mn (+19.4% YoY, JPY333mn at end-Q1 FY03/23)

Sales, segment profit, segment profit margin

- Both segment sales and profit increased YoY amid generally strong order bookings. Orders for surface treatments used on agricultural equipment parts grew, contributing to the rise in sales. TOCALO applies surface treatments to agricultural equipment parts and supplies these to Japanese agricultural equipment makers. Agricultural equipment makers sell their products in the US and other locations, and TOCALO believes that they have benefitted from the expansion of the agricultural industry in North America. It expects the agricultural equipment part business to continue to expand in the future. However, it still does not significantly contribute to profits, and segment profits are not growing as fast as sales. As a result, the segment OPM decreased 0.9pp to 17.8%.

Factors affecting change in recurring profit

- Recurring profit, which is closely linked to segment profit, increased by JPY811mn YoY, from 5.2bn in 1H FY03/22 to JPY6.0bn. Factors contributing to the increase included upward impacts of JPY1.8bn stemming from growth in sales and JPY431mn from forex factors. On the other hand, profit was depressed by JPY90mn due to a higher variable cost ratio, JPY721mn on an uptick in labor costs, JPY116mn on an increase in depreciation, and JPY468mn on other factors.

    - Given the sales boost, the company managed to limit the increase in its variable cost ratio (which is a factor for decreases in profits). The main reason behind this was the maintenance in its marginal profit ratio that stemmed primarily from the aforementioned leveling of operations. While there were a number of factors contributing to higher costs in 1H (April–September), the company was able to maintain the marginal profit margin at the prior year level.

    - The JPY721mn increase in labor costs was due to an expansion in headcount (about 50 workers, including temporary hires) and improved compensation (increased bonuses and base pay hikes) so that the company could better take on

- the increase in orders. The company believes this increase in costs are reasonable in line with the expansion in sales. The JPY468mn increase in other factors was due to higher R&D costs, increased costs associated with sales activities, including business trips, and the hike in energy costs. The increase in electricity costs, which accounts for the majority of energy costs, depressed profit by JPY176mn, and an increase in the valuation loss on inventories also depressed profit by JPY131mn.

- Forex impacts increased profits by JPY431mn, and about JPY330mn of this amount was due to valuation gains on foreign currency-denominated bonds, which were booked as non-operating income. The remaining amount of approximately JPY100mn was due to the conversion rates for consolidated subsidiaries.

Q2 performance overview (July–September)

Results for Q2 FY03/23 (July–September) were as follows.

- Sales: JPY12.0bn (+16.7% YoY)
- Operating profit: JPY2.9bn (+21.5% YoY)
- Recurring profit: JPY3.1bn (+29.5% YoY)
- Recurring profit margin: 25.5% (up 2.5pp YoY)
- Net income attributable to owners of the parent: JPY2.0bn (+26.8% YoY)

- In Q1 (April–June) FY03/23, operating profit fell by 1.3% YoY while recurring profit increased only 3.8% YoY, weighed down by higher manufacturing costs. In Q2 (July–September), the rates of both operating and recurring profit resumed their growth. Recurring profit margin—which TOCALO considers a key management indicator—rose 2.5pp YoY to 25.5%. Sales, recurring profit, and recurring profit margin all posted record highs, regardless of quarter. Moreover, both sales and recurring profit rose YoY for the 11th consecutive quarter.

Results by segment

- Q2 results by segment are as follows. Please note that each business's segment profits are linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company)

- Sales: JPY9.2bn (+18.5% YoY)
- Segment profit: JPY2.2bn (+19.4% YoY)
- Segment profit margin: 23.8% (+0.2pp YoY)

Sales

- Thanks to growth in semiconductor-related sales and a rebound in steel making-related sales, sales rose 18.5% YoY to JPY9.2bn, a record level for any quarter, not just Q2 (July–September). This was the second straight quarter that sales exceeded JPY9.0bn, after the JPY9.0bn reported for Q1 (April–June).

- Breakdown of sales of JPY9.2bn is as follows.

- Sales generated by thermal spraying for:
- Semiconductors and Flat Panel Displays (FPDs): JPY6.2bn (+25.7% YoY)
- Industrial Machinery: JPY745mn (-20.5% YoY)
- Iron and Steel: JPY1.0bn (+36.5% YoY)
- Other Purposes: JPY1.2bn (+7.0% YoY)

- Sales generated by thermal spraying for semiconductors and flat-panel displays (FPDs), the company's mainstay business, rose 25.7% to JPY6.2bn, exceeding JPY6.0bn on a quarterly basis for the first time thanks to the production capacity that was increased in FY03/22. While leveling operations, TOCALO has set its sights on achieving quarterly basis semiconductor/FPD-related sales of JPY6.5bn in Q3 (October–December) and beyond. Against the backdrop of a rebound in crude steel production, steel making-related sales also rose 36.5% to JPY1.0bn. This was the first time that steel making-related sales exceeded JPY1.0bn on a quarterly basis since the JPY1.1bn booked in Q4 FY03/20 (January–March 2020). Industrial machinery-related sales fell 20.5% YoY due to shipping delays at the end of the quarter (resulting in a delay in booking sales due to the increase in work-in-progress), and TOCALO views this as a transitory phenomenon.

Segment profit

- Segment profit rose 19.4% YoY to JPY2.2bn, mainly due to the increase in sales and lower costs thanks to productivity improvements which helped to absorb higher costs such as labor and electricity costs. The segment profit of JPY2.2bn was the second highest ever, after the JPY2.3bn booked in Q1 (April–June). Segment OPM improved 0.2pp to reach 23.8%, a new record for Q2 (July–September). Segment OPM was lower than the 25.3% figure for Q1 (April–June), but the Q2 (July–September) tends to be lower than Q1 due to the lower number of operating days. TOCALO believes that it was able to achieve a higher profit margin than Q2 FY03/22, even amid rising costs, because it has continued to improve profitability by leveling its operations.

Domestic Subsidiary

- Sales: JPY606mn (+1.8% YoY)
- Segment profit: JPY90mn (-3.2% YoY)
- Segment profit margin: 17.9% (-0.7pp YoY)

Sales

- In Q2 (July–September), sales rose 1.8% YoY to JPY606mn as automobile production rose in Japan (+24.4% YoY) and sales for industrial machinery and other non-automotive uses grew. This was the highest figure for Q2 sales since July–September 2018, when the segment booked JPY613mn in sales.

Segment profit

- Despite the increase in sales, segment profit declined 3.2% YoY to JPY90mn, the fourth straight decline (YoY) on a quarterly basis. Nevertheless, the decline was narrower than the 44.1% YoY drop posted in Q1 (April–June). Segment OPM deteriorated 0.7pp to 14.9%, but this was better than the 14.4% figure for Q1.

Overseas Subsidiaries

- Sales: JPY1.6bn (+15.8% YoY)
- Segment profit: JPY448mn (+33.3% YoY)
    - Segment profit margin: 28.7% (+3.8pp YoY)

Sales

- This segment encompasses two subsidiaries in China, one in Taiwan, and one in the US, but it effectively consists of just the subsidiaries in China and Taiwan (three companies) because the US subsidiary is not yet fully operational. Sales grew 15.8% YoY to JPY1.6bn thanks to growth areas such as steel-related services in China and semiconductor/FPD-related re-coating, as well as the forex impact of the weaker yen on conversions. This represents new all-time record sales for a Q2 (July–September), and the second highest sales for any quarter.

Segment profit

- Segment profit increased 33.3% YoY to JPY448mn, mainly due to higher sales. The segment profit margin grew 3.8pp to 28.7%. These were both record highs for any quarter, not just Q2 (July–September). According to TOCALO, besides higher sales, the forex impact of the weaker yen also contributed, but profits grew even on a local currency basis.

Other Surface Treatments

- Sales: JPY670mn (+12.0% YoY)
- Segment profit: JPY122mn (+14.0% YoY)
    - Segment profit margin: 18.2% (+0.3pp YoY)

Sales

- Sales rose 12.0% YoY to JPY670mn thanks to growth in orders for surface treatments for agricultural equipment parts. Besides agricultural equipment parts, there was also growth in surface treatments for semiconductor manufacturing equipment parts, but according TOCALO, this made only a limited contribution. Sales were a record level for Q2 (July–September), but came up short of the JPY697mn booked in Q1 (April–June).

Segment profit

- Thanks to the growth in orders, mainly in the area of agricultural equipment parts, segment profit rose 14.0% YoY to JPY122mn, and segment OPM improved 0.3pp to 18.2%. The segment OPM had fluctuated up until FY03/21 (including a negative margin and an OPM as high as 13.9%), but it became more stable from the April—June 2021 quarter onwards, and has ranged from 17.5% to 19.6%.

Q1 FY03/23 results (out July 29, 2022)

Q1 performance overview (April - June, 3 months)

Results for Q1 FY03/23 (April - June 2022) were as follows.

- Sales: JPY11.9bn (+10.9% YoY)
- Operating profit: JPY2.7bn (-1.3% YoY)
    - Operating margin: 22.9% (down 2.8pp)
- Recurring profit: JPY2.9bn (+3.8% YoY)
    - Recurring profit margin: 24.8% (down 1.6pp)
- Net income attributable to owners of the parent: JPY1.9bn (+2.5% YoY)

- Orders: JPY12.6bn (+16.2% YoY)
- Order backlog: JPY8.6bn (+37.3% YoY, JPY7.9bn as of end-Q4 FY03/22)

Sales

- Sales rose 10.9% YoY, a double-digit increase, due to 1) thermal spraying sales growth in semiconductors and flat panel displays (FPD), the company's core business, and 2) overseas subsidiaries' sales growth. Reaching a record high for not only for the April-June quarter (Q1), but for any quarter, sales came in at JPY11.9bn. Sales were also up YoY for a 10th consecutive quarter.

Recurring profit, recurring profit margin, others

- The positive effects from increased sales were not enough to offset the negative impact from rising personnel costs and energy costs, including electricity costs. As a result, operating profit declined 1.3% YoY and the operating profit margin fell 2.8pp YoY to 22.9%. However, recurring profit, a key management indicator, continued to rise, increasing 3.8% YoY on an improvement in non-operating income and expenses, thanks largely to increased foreign exchange gains due to yen depreciation. As with sales, recurring profit reached the highest level recorded for any quarter to date. However, the company was unable to absorb the decline in profitability due to higher energy costs and other factors, and the recurring profit margin declined 1.6pp YoY to 24.8%. That being said, the decline was rather limited and the recurring profit margin of 24.8% was still the second highest ever recorded in Q1. While operating profit in Q1 declined YoY for the first time in ten quarters, recurring profit was up for the tenth consecutive quarter.

Orders, order backlog

- With mainstay semiconductor- and FDP-related orders in the Thermal Spraying segment continuing to rise, Q1 orders reached JPY12.6bn, the highest level recorded for any quarter to date. While the company still appears to have additional semiconductor- and FDP-related production capacity, delays in some customer substrate deliveries resulted in the orders backlog at the company reaching a record-high of JPY8.6bn as of end-June 2022.

Results by segment

The results by business segment are as follows. The segment profit of each business is linked to the company's consolidated recurring profit.

Thermal Spraying (handled by TOCALO, the parent company)

- Sales: JPY9.0bn (+9.4% YoY)
- Segment profit: JPY2.3bn (+6.1% YoY)
- Segment profit margin: 25.3% (-0.8pp YoY)

Sales

- This is the company's largest segment, accounting for 75.7% of its consolidated net sales in Q1 FY03/23. Sales in the Thermal Spraying (parent) segment grew, driving the increase in overall consolidated earnings. The JPY9.0bn in sales generated through this segment breaks down as follows.

- Sales generated by thermal spraying for:
- Semiconductors and Flat Panel Displays (FPDs): JPY5.9bn (+17.8% YoY). Thermal spraying for semiconductors made up JPY5.5bn (+19.0% YoY) of this, with the remaining JPY430mn (+5.1% YoY) going towards thermal spraying for FPDs.
- Industrial Machinery: JPY994mn (+21.2% YoY)
- Iron and Steel: JPY755mn (-13.8% YoY)
- Other Purposes: JPY1.4bn (-11.2% YoY)

- Driving overall growth in thermal spraying sales and offsetting the decline in iron and steel-related thermal spraying sales, high-margin semiconductor- and FPD-related thermal spraying sales were up 17.8% YoY. Semiconductors account for more than 90% of thermal spraying sales (92.7% in Q1) for semiconductors and FPDs, with sales for FPDs continuing to decline.

- In order to keep up with robust thermal spraying demand for semiconductors and FPDs, the company has been steadily expanding capacity since FY03/22, and its ability to fill the large volume of orders received resulted in it booking over JPY6.0bn in sales in Q1. Working closely with its customers, the company has been able to avoid a sudden expansion in production capacity that would directly increase costs, while at the same time leveling operations. As such, it has been able to expand sales on the back of enhanced production capacity. Management noted that with an eye on Q2 (July—September) orders, it aims to further expand production capacity as it continues to pursue operational leveling.

- As it continues to expand production capacity, the company targets quarterly sales of JPY6.5bn without overburdening operations. According to the company in June 2022, it believes it can achieve quarterly sales of JPY6.5bn if it pushes itself to take on an increased workload. However, in line with its emphasis on operational leveling, the company is prioritizing steady operations as it works with its leading customers.

- In other areas, industrial machinery-related sales recovered, rising 21.2% YoY, thanks mainly to a gradual recovery in sales related to bearings, which account for roughly 30% of industrial machinery-related sales and slumped in FY03/22 due to adjustments in 1H of that year. Sales related to energy, which account for roughly half of industrial machinery-related sales, were flat YoY. As a result, while industrial machinery-related sales improved YoY, they were down from JPY1.2bn in Q1 FY03/21 (April-June 2020), leading the company to acknowledge that the recovery still lacked real strength.

- In contrast, iron and steel-related sales dropped 13.8% YoY, reflecting the weakness of production in Japan. The company does not expect a strong increase in iron and steel-related sales moving forward, but believes the impact of reduced sales on overall earnings to be relatively limited. Management noted that the decline in sales in the other purposes category was in reaction to the booking of a large project last year and was therefore not particularly concerning.

Segment profit, segment profit margins

- Backed mainly by an increase in semiconductor- and FPD-related sales, Thermal Spraying segment profit (segment profit is linked to consolidated recurring profit) improved 6.1% YoY. However, the segment profit margin dipped 0.8pp YoY to 25.3%. The decline in the segment profit margin was mainly due to higher labor costs and energy costs, including electricity costs. That said, the company at the beginning of the fiscal year expected these costs to rise, and noted that progress remained in line with its expectations. In fact, management indicated that the segment profit margin of 25.3% recorded in Q1 FY03/23, while down from 26.1% in Q1 FY03/22 (a record high for Q1), was achieved despite a sharp increase in costs and accordingly spoke to the company's ongoing improvements in profitability. At 25.3%, segment profit margin in Q1 FY03/23 exceeded showings of 23.6% in Q2 FY03/22 (July-September 2021), 23.9% in Q3 (October-December), and 24.3% in Q4 (January-March 2022).

- The company believes it was able to produce a recurring profit margin of over 25%, even amid rising costs, thanks to an increase in thermal spraying sales for semiconductors and FPDs and progress in leveling operation. In the past, the company's semiconductor-related business activities were often affected by inconsistency in factory operations during busy periods, which would result in lower production efficiency. However, the company has become increasingly adept at leveling order sizes from each of its customers during peak periods (generally JPY5.0bn per quarter, but

- about JPY6.0bn from October-December 2021), including its largest customer Tokyo Electron Limited (TSE Prime: 8035) and its group companies, which are disclosed in the company's annual securities report. By leveling these order sizes, the company has been able to increase its number of factory personnel and reduce overtime work, thereby ensuring stable operations with higher production efficiency, even when facing large order levels. The company believes this has contributed to growing earnings and improving profitability.

- Stability in operations has led to improved productivity, and the profit margin in the Thermal Spraying segment amounted to a record high of 24.5% in FY03/22, up 2.1pp from 22.4% in FY03/21 (the previous record high had been 23.0% in FY03/18). As noted earlier, while the segment profit margin in Q1 FY03/23 was down YoY, the company noted that operational leveling had contributed to an ongoing improvement in profitability. Management also expects enhanced production capacity to contribute to an increase in sales from Q2 (July-September), limiting the adverse impact on segment profit margin from higher electricity and other energy costs, and increased labor costs.

Semiconductor- and FPD-related orders and order backlog

- Mainstay semiconductor- and FPD-related orders and order backlog (as of end-Q1) in the Thermal Spraying segment are as follows.

- Orders: JPY6.1bn (+25.4% YoY)
- Order backlog: JPY4.7bn (+49.9% YoY, JPY4.5bn at end-Q4 FY03/22)

- Semiconductor- and FPD-related orders account for about 64.3% of thermal spraying orders. Semiconductor- and FPD-related orders are considered a key leading indicator for earnings, with the company prioritizing them over industrial machinery, iron and steel, and other orders. Orders in Q1 FY03/23 expanded 25.4% YoY to JPY6.1bn, the highest level recorded for any quarter to date. Order backlog continued to rise, topping the level seen at the end of FY03/22 and reaching a record high of JPY4.7bn as of end-June 2022. With signs of an improvement in customer substrate deliveries and the company increasing capacity, management expects a gradual clearing of the semiconductor- and FPD-related order backlog moving forward.

Domestic Subsidiary

- Sales: JPY591mn (-3.3% YoY)
- Segment profit: JPY85mn (-44.1% YoY)
- Segment profit margin: 14.4% (-10.5pp YoY)

- Orders: JPY585mn (-1.0% YoY)
- Order backlog: JPY40mn (+2.6% YoY, JPY46mn as of end-Q4 FY03/22)

Sales

- The company's domestic subsidiary (Japan Coating Center Co., Ltd.) mainly conducts physical vapor deposition (PVD) processing (a surface modification process for cutting tools, knives, and molds) and primarily serves clients in the automotive industry. Sales in Q1 FY03/23 (April-June) were down 3.3% YoY as strength in construction machinery components was insufficient to offset the negative impact from reduced production among domestic automakers. However, with sales topping the JPY462mn amount booked in Q1 FY03/21 (April-June 2020), management did not view the YoY decline as particularly concerning.

Segment profit, segment profit margin

- While sales declined by just 3.3% YoY, the effects on earnings from production cuts at automakers were greater than the impact from reduced sales. In the field of automotive applications, the company launched new production facilities alongside the establishment of a new plant in FY03/22, and cost increases, including a higher depreciation burden in line with the downturn in sales, put stronger-than-usual downward pressure on earnings. The new plant is rather small compared to facilities in the Thermal Spraying segment, and while its impact on overall earnings is therefore relatively limited, its impact on the Domestic Subsidiary segment is rather large. Within this environment, segment profit fell 44.1% YoY, with the segment profit margin dropping 10.5pp YoY to 14.4%, which was lower than the 15.2% figure recorded in April-June 2020, when COVID-19 was rapidly spreading.

Overseas Subsidiaries

Sales: JPY1.6bn (+24.7% YoY)
- Segment profit: JPY437mn (+23.8% YoY)
- Segment profit margin: 27.7% (-0.2pp YoY)

- Orders: JPY1.9bn (+36.7% YoY)
- Order backlog: JPY1.7bn (+53.0% YoY, JPY1.5bn at end-Q4 FY03/22)

Sales

- This segment includes two subsidiaries in China, one in Taiwan, and one in the US, but essentially consists of subsidiaries in China and Taiwan, as the US business is not fully operational. Sales expanded 24.7% YoY on forex gains in line with yen depreciation, improved iron and steel-related sales in China, and semiconductor- and FPD-related re-coating sales. Sales were JPY1.6bn, the highest level recorded for any quarter to date. The company noted the improvement in sales was due not only to forex factors, as some businesses expanded sales on a local currency basis by as much as 10% YoY.

Segment profit, segment profit margin

- Segment profit grew 23.8% YoY thanks to yen depreciation and enhanced sales on a local currency basis. Sales also benefitted from a recovery in iron and steel-related sales in China and semiconductor- and FPD-related re-coating sales. Segment profit of JPY437mn was the highest ever for Q1 and the second-highest ever for any quarter. However, despite record-high sales and segment profit, the segment profit margin deteriorated 0.2pp YoY to 27.7%, largely due to the fact that the depreciation burden on equipment secured in line with the company increasing production capacity at the overseas subsidiaries has not yet been eased. However, the company expects profitability at its overseas subsidiaries to improve as the depreciation burden is reduced.

Other Surface Treatments

- Sales: JPY697mn (+16.8% YoY)
- Segment profit: JPY122mn (+4.3% YoY)
- Segment profit margin: 17.5% (-2.1pp YoY)

- Orders: JPY644mn (-0.5% YoY)
- Order backlog: JPY333mn (+30.6% YoY, JPY386mn at end-Q4 FY03/22)

Sales, segment profit, segment profit margin

- Both segment sales and profit increased YoY amid generally strong order bookings. However, the rate of increase in segment profit was smaller than the rate of increase in sales, due in part to a substantial level of capex. As a result, the segment profit margin dipped 2.1pp YoY.

Factors affecting change in recurring profit

- Recurring profit, which is closely linked to segment profit, increased by JPY109mn YoY, from 2.8bn in Q1 FY03/22 to JPY2.9bn. Factors contributing to the increase included upward impacts of JPY717mn stemming from growth in sales and JPY194mn from forex factors. On the other hand, profit was depressed by JPY65mn due to a higher variable cost ratio, JPY336mn on an uptick in labor costs, JPY76mn on an increase in depreciation, and JPY325mn on other factors.

- Given the sales boost, the company managed to limit the increase in its variable cost ratio (which is a factor for decreases in profits). The main reason behind this was the maintenance in its marginal profit ratio that stemmed primarily from the aforementioned leveling of operations. While there were a number of factors contributing to higher costs in Q1, the company was able to maintain the marginal profit margin at the prior year level.

- The JPY336mn increase in labor costs was due to an expansion in headcount (about 50 workers, including temporary hires) and improved compensation (increased bonuses and base pay hikes) so that the company could better take on the increase in orders. The company believes this increase in costs are reasonable in line with the expansion in sales. The JPY325mn increase in other factors was due to higher R&D costs, increased costs associated with sales activities, including business trips, and the hike in energy costs. The increase in electricity and other energy costs was due in part to the company making a partial switch to renewable energy sources.

Other information

History

Date	Description
June 1973	Established as Kizai Service Co., Ltd. in Yokohama, Kanagawa, with a capital of JPY10mn; started marketing industrial chemicals and chemical machinery equipment, offering related technical services
July 2000	Stopped operation, and became a dormant company
January 2001	Became wholly owned by JAFCO Buyout Number One Investment Limited Partnership operated by JAFCO Co., Ltd.; renamed to JAFCO SIG Co., Ltd; changed the registered location of head office to Chiyoda, Tokyo; started tender offer of shares in TOCALO Co., Ltd. as a part of management buyout by the management of the substantial surviving company (TOCALO Co., Ltd., a OTC company)
March 2001	Completed tender offer of TOCALO Co., Ltd., making it a 97.9% subsidiary of JAFCO SIG.; changed registered location of the head office to Kobe, Hyogo
August 2001	Merged with TOCALO Co., Ltd. in an absorption-type merger, and renamed the new company as TOCALO Co., Ltd.
December 2003	Listed shares on the Second Section of the Tokyo Stock Exchange
September 2004	Acquired all shares in Japan Coating Center Co., Ltd. (now a consolidated subsidiary) and made it a subsidiary
March 2005	Listed shares on the First Section of the Tokyo Stock Exchange

Former TOCALO Co., Ltd.

Date	Description
July 1951	Toyo Calorizing Industry Co., Ltd. established in Kobe, Hyogo, with a capital of JPY1mn; established Kobe Plant and started marketing calorize processing
March 1958	Started research on metal thermal spraying
November 1959	Established Tokyo Plant in Funabashi, Chiba
October 1960	Started full-scale operation of metal thermal spraying
September 1981	Changed name to TOCALO Co., Ltd.
February 1996	New head office building completed
October 1996	Registered shares as an Over-The-Counter stock at Japan Securities Dealers Association
August 2001	Absorbed by JAFCO SIG Co., Ltd. in an absorption-type merger and delisted the OTC shares

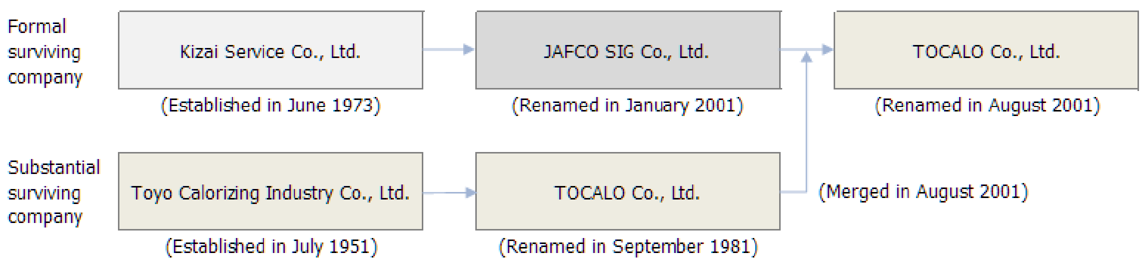
Source: Shared Research based on company data

MBO history

TOCALO Co., Ltd. (the formal surviving company) was founded in June 1973 as Kizai Service Co., Ltd., a company that sold chemical machinery and provided associated technical services. Kizai Service suspended its business activities in July 2000. In January 2001, JAFCO Buyout No. 1 Investment Limited Partnership (operated by JAFCO Co., Ltd. [now, JAFCO Group Co., Ltd.; TSE Prime: 8595]) acquired 100% of the outstanding shares in Kizai Service and changed its name to JAFCO SIG Co., Ltd. Between late January and early March of 2001, JAFCO SIG made a tender offer to the former TOCALO Co., Ltd. (the substantial surviving company), and acquired 97.9% of its outstanding shares. In August 2001, JAFCO SIG absorbed this new subsidiary and renamed itself TOCALO Co., Ltd.

The tender offer and the absorption-type merger were part of an MBO the management team of the former TOCALO Co., Ltd. conducted in a bid to maintain its independence from a potential takeover by an overseas heavy machinery manufacturer (Sulzer Metco). The shares of former TOCALO Co., Ltd. were mainly acquired from the then parent, Nittetsu Shoji Co., Ltd. (currently, Nippon Streel Trading Corporation [TSE Prime: 9810]).

MBO overview



Source: Shared Research based on company data

Corporate governance and top management

Top management

Noriyuki Mifune, Chairman and Representative Director (born May 1955)

Apr. 1978	Joined the company
Apr. 2001	Plant manager, Kitakyushu Plant
June 2007	Director, and plant manager, Akashi Plant
June 2009	Director, and deputy general manager of manufacturing
June 2012	Managing director, general manager of manufacturing
Jun. 2013	President and representative director
June 2021	President and representative director
June 2023	Chairman and representative director (current)

Kazuya Kobayashi, Representative Director, President and CEO (born December 24, 1964)

April 1989	Joined the company
April 2014	Plant manager, Kitakyushu Plant
April 2017	General manager, Quality Control Department
April 2018	Plant manager, Akashi Plant
June 2019	Director, Plant manager, Kitakyushu Plant
April 2020	Director, Deputy general manager, Manufacturing Department
June 2021	Senior executive officer, General manager, Manufacturing Department
June 2023	Representative Director, President and CEO (current)

Source: Shared Research based on company data

Corporate governance

Form of organization and capital structure	
Form of organization	Company with Audit and Supervisory Board
Foreign shareholding	30% or more
Controlling shareholder	None
Directors and Audit & Supervisory Board members	
Number of directors under Articles of Incorporation	15
Number of directors	9
Directors' term of office under Articles of Incorporation	2 years
Chairperson of the Board of Directors	President
Number of outside directors	4
Number of independent outside directors	4
Number of members of Audit & Supervisory Board	4
Number of outside members of Audit & Supervisory Board	2
Other	
Participation in electronic voting platform	Yes
Providing convocation notice in English	Yes
Implementation of measures regarding director incentives	Performance-linked compensation
Eligible for stock option	None
Disclosure of directors' compensation	None
Policy to determine amount and calculation method of remuneration	Yes
Corporate takeover defenses	None

Source: Shared Research based on company data

Dividend policy

TOCALO considers returning profit to shareholders an important management policy. The company intends to actively improve shareholder returns while placing an emphasis on ensuring continuously stable dividends grounded in distribution that is backed by business results. The company's policy until FY03/23 was to pay a stable dividend, aiming for dividends equivalent to about one third of net income (net income attributable to owners of the parent). However, in order to further enhance the return of profits to shareholders, it changed its policy to aim for a dividend payout ratio of around 50% from FY03/24. In FY03/24, the company expects to pay dividends of JPY50 per share (versus JPY50 per share in FY03/23), including an interim dividend of JPY25.0 per share (versus JPY22.5 per share in FY03/23), for a consolidated payout ratio of 51.7%.

	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPY)	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Dividend per share	12.5	15.0	18.8	21.3	26.3	30.0	25.0	35.0	45.0	50.0
Payout ratio	34.9%	30.1%	37.8%	31.7%	33.0%	33.5%	34.5%	38.9%	39.6%	41.4%
DOE	3.3%	3.7%	4.2%	4.4%	4.9%	5.1%	3.9%	5.0%	5.9%	5.9%
ROE	9.5%	12.2%	11.2%	13.9%	14.9%	15.2%	11.3%	12.9%	14.8%	14.3%

Source: Shared Research based on company data

Major shareholders

Top shareholders	Shares held(000 shares)	Shareholding ratio
The Master Trust Bank of Japan, Ltd.	10,048	16.51%
Custody Bank of Japan, Ltd.	6,722	11.05%
BBH FOR FIDELITY LOW-PRICED STOCK FUND (PRINCIPAL ALL SECTOR SUBPORTFOLIO) (Standing proxy: MUFG Bank, Ltd.)	2,943	4.84%
TOCALO Employees Shareholding Association	2,719	4.47%
NORTHERN TRUST CO.(AVFC) RE FIDELITY FUNDS (Standing proxy: The Hongkong and Shanghai Banking Corporation, Ltd. Tokyo Branch)	2,075	3.41%
GOVERNMENT OF NORWAY (Standing proxy: Citibank Japan, Ltd., N.A Tokyo Branch)	1,544	2.54%
NORTHERN TRUST CO.(AVFC) RE HCROO THE HIGHCLERE INTERNATIONAL INVESTORS SMALLER COMPANIES FUND	1,295	2.13%
Kumiko Saijo	1,036	1.70%
STATE STREET BANK WEST CLIENT - TREATY 505234	897	1.48%
KIA FUND F149	858	1.41%
SUM	30,137	49.54%

Source: Shared Research based on company data
*As of end-March 2023

Employees

Number of employees, other	FY03/14	FY03/15	FY03/16	FY03/17	FY03/18	FY03/19	FY03/20	FY03/21	FY03/22	FY03/23
(JPYmn)	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.	Act.
No. of employees (ex. temp. employees)	**802**	**824**	**857**	**898**	**955**	**1,021**	**1,060**	**1,121**	**1,176**	**1,300**
Thermal Spraying (Parent)	405	418	430	449	504	538	553	569	611	683
Domestic Subsidiary (PVD process)	88	88	100	112	113	120	125	142	156	163
Other	247	256	263	265	275	292	309	328	327	376
Adjustments	62	62	64	72	63	71	73	82	82	78
Avg. number of temporary employees	**242**	**243**	**239**	**245**	**236**	**251**	**263**	**253**	**265**	**164**
Thermal Spraying (Parent)	116	115	117	111	108	114	128	139	147	127
Domestic Subsidiary (PVD process)	65	67	65	71	70	67	62	43	34	26
Other	53	54	50	56	52	60	61	60	71	4
Adjustments	8	7	7	7	6	10	12	11	13	7
Segment sales per employee	**21.6**	**24.4**	**26.2**	**25.3**	**28.6**	**31.1**	**28.6**	**28.4**	**30.4**	**32.9**
Thermal Spraying (Parent)	31.7	36.5	40.6	40.3	43.3	47.3	42.3	43.4	44.4	45.8
Domestic Subsidiary (PVD process)	12.7	13.4	13.2	13.0	14.5	15.2	14.7	13.2	14.8	15.2
Other	14.9	16.1	15.6	14.3	17.4	19.2	20.0	17.9	21.0	25.0
Segment profit per employee	**3.5**	**4.6**	**4.6**	**5.1**	**6.2**	**6.3**	**5.1**	**6.5**	**7.3**	**7.5**
Thermal Spraying (Parent)	5.1	7.2	8.3	8.7	9.8	10.0	7.7	9.5	10.7	10.3
Domestic Subsidiary (PVD process)	1.5	2.1	1.6	2.2	2.7	2.9	2.6	2.2	2.5	1.9
Other	2.0	2.0	1.9	1.9	3.4	3.5	3.6	3.7	5.0	5.6
No. of employees (parent	505	517	534	560	605	648	667	695	752	811
Avg. number of temporary employees	134	132	137	131	123	132	148	158	165	138
Average age	38.1	38.5	38.7	38.7	38.3	38.1	38.3	38.4	38.2	39.2
Average years of service	13.1	13.2	13.4	13.4	12.7	12.5	12.3	13.1	13.2	12.7
Average annual salary (JPY'000)	6,705	6,890	7,068	6,992	7,104	7,264	7,389	7,164	7,499	7,493

Source: Shared Research based on company data
Note: Sales and operating profit per employee figures are reference values calculated based on the combined total of full-time employees and the average number of temporary workers (not including temporary workers received on dispatch)

News and topics

Change in representative director

2023-03-24

TOCALO Co., Ltd. announced a change in its representative director (a change in president).

The company announced a change in its representative director, specifically a change in president. Effective June 23, 2023, current Representative Director, President, and Executive Officer Noriyuki Mifune will assume the position of Chairman of the Board, while current Managing Executive Officer Kazuya Kobayashi will be appointed Representative Director, President, and Executive Officer. The company cited "the need for agile and swift response to changes in the business environment surrounding the group and the desire to achieve sustainable growth through further strengthening and development of the management structure" as the reason for the change in representative director. This marks the first change in company president in exactly 10 years since June 2013.

Profile

Company Name

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Listed On

Tokyo Stock Exchange, Prime Market

Established

1951-07-01

Exchange Listing

2003-12-19

IR Contact

https://www.tocalo.co.jp/contact/ir.html

Fiscal Year-End

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About Shared Research Inc.

We offer corporate clients comprehensive report coverage, a service that allows them to better inform investors and other stakeholders by presenting a continuously updated third-party view of business fundamentals, independent of investment biases. Shared Research can be found on the web at https://sharedresearch.jp.

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