

Stock Code:1802



TAIWAN GLASS IND. CORP.

Spokesperson: Lin, C M
GM, Finance Dept.

Provide satisfactory products to our customers through advanced technology and Total Quality Management (TQM).

- This brief and the related information issued meanwhile were obtained from internal and external data of the Company and the operation perspectives, it reflected the viewpoints to the future. If there is any change or adjustment in the hereafter, the Company has no responsibility to remind or update.
- The Company did not issue financial forecasts. The financial, business or Q&A explanations may differ from actual result in the future. The reasons of differences may include the changed market demand, unsettled factory and material price, industrial competition, international economic situation, exchange rate fluctuation, suppliers and retailers supply chain, and etc. which can not be controlled by the Company.

- Introduction of Taiwan Glass Group
- Production Facilities
- Product Introduction
- General Operation Situation of 2022
- Situation and Development of the Market
- Q&A

* Introduction of Taiwan Glass Group



Founded in	1964
Capital	NTD\$29.08 billion
Chairman	Mr. Lin, Por Fong
Number of Employee	12,628 (As of 30-Sep-2022)
Date of Listing	Listed in 1973
Main Products	Flat Glass Fiberglass Glassware



Introduction of Taiwan Glass Group



TGI 20th Directors / 3rd Audit Committee (2021-2024)



Lin, P F



Lin, P S



Lin, P C



Lim, H T



Peng, C H



Hsu, L L



Lin, C H



Su, Y T



Lin, C Y



Lin, C M



Tsai, T M



Lien, S W



Lin, S C



Lin, Z Y



Wang, Y C

* Production Facilities - Flat Glass



**Taiwan Taichung
Factory (TF)**

250,068 M²

1 Furnace
140,000 mt/y



**Taiwan Lukang Flat
Glass Factory (TF-4)**

260,343 M²

1 Furnace
200,000 mt/y



**TG Qingdao Glass Co., Ltd.
(QFG)
Qingdao Rolled Glass Co., Ltd.
(QRG)**

429,126 M²

1 Furnace
150,000 mt/y



**TG Changjiang Glass
Co., Ltd. (CFG)**

404,770 M²

2 Furnaces
383,250 mt/y



**TG Chengdu Glass
Co., Ltd. (CDG)**

452,027 M²

2 Furnaces
547,500 mt/y



**TG Huanan Glass
Co., Ltd. (HNG)**

364,907 M²

2 Furnaces
438,000 mt/y



**TG Donghai Glass
Co., Ltd. (DHG)**

398,096 M²

2 Furnaces
400,000 mt/y



**TG Tianjin Glass
Co., Ltd. (TJG)**

300,448 M²

1 Furnace
180,000 mt/y



**TG Xianyang Glass
Co., Ltd. (TXY)**

452,703 M²

1 Furnace
438,000 mt/y



**TG Anhui Glass Co.,
Ltd. (TAH)**

572,643 M²

1 Furnace
438,000 mt/y

* Production Facilities - Low-E Glass



**Taiwan Changpin
Factory (TC)**

272,480 M²

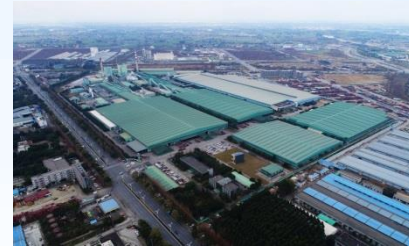
1 Line
4,000,000 m²/y



**TG Changjiang Glass Co.,
Ltd. (CFG)**

404,770 M²

1 Line
4,000,000 m²/y



**TG Chengdu Glass Co., Ltd
(CDG)**

452,027 M²

2 Lines
8,000,000 m²/y



**TG Huanan Glass Co., Ltd.
(HNG)**

364,907 M²

1 Line
4,000,000 m²/y



**TG Tianjin Glass Co.,
Ltd. (TJG)**

300,448 M²

1 Line
4,500,000 m²/y



**TG Xianyang Glass Co.,
Ltd. (TXY)**

452,703 M²

1 Line
7,500,000 m²/y



**TG Taichang Architectural
Glass Co., Ltd. (TTAR)**

199,525 M²

1 Line
5,000,000 m²/y



**TG Wuhan Architectural
Glass Co., Ltd. (TWAR)**

222,000 M²

1 Line
5,000,000 m²/y



Production Facilities – Fiberglass Reinforced / Fiberglass Fabric



Taiwan Taoyuan Factory (TT)

Taiwan Lukang Factory (TL)

Taichia Glass Fiber Co., Ltd. (TGF)

Taichia Chengdu Glass Fiber Co., Ltd. (TCD)

181,181 M²

260,343 M²

323,539 M²

362,668 M²

1 Line for FRP Fiberglass Fabric

1 Line for Electronic Grade FRP Fiberglass Fabric

3 Lines for Electronic Grade FRP Fiberglass Fabric

1 Line for Electronic Grade FRP Fiberglass Fabric

80,000mt/y

20,000 mt/y

30,000 mt/y

30,000 mt/y



370,668M²

1 Line for Electronic Grade FRP Fiberglass Fabric

35,000 mt/y

* Production Facilities - Container & Tableware / Ultra-Thin Glass / Automotive Glass

Container & Tableware



Taiwan Hsinchu Factory (TS)

129,090 M²

6 Lines for Container & Kitchenware
169,000 mt/y

Ultra-Thin Glass



Taiwan Taichung Factory (TF-5)

250,068 M²

1 Line for Ultra-Thin Glass
27,375 mt/y

Automotive Glass



Taiwan Autoglass Ind. Corp. (TAGC)

250,068 M²

1 Line for Automotive Glass
250,000 units



TG Yueda Autoglass Co., Ltd. (TYAU)

132,755 M²

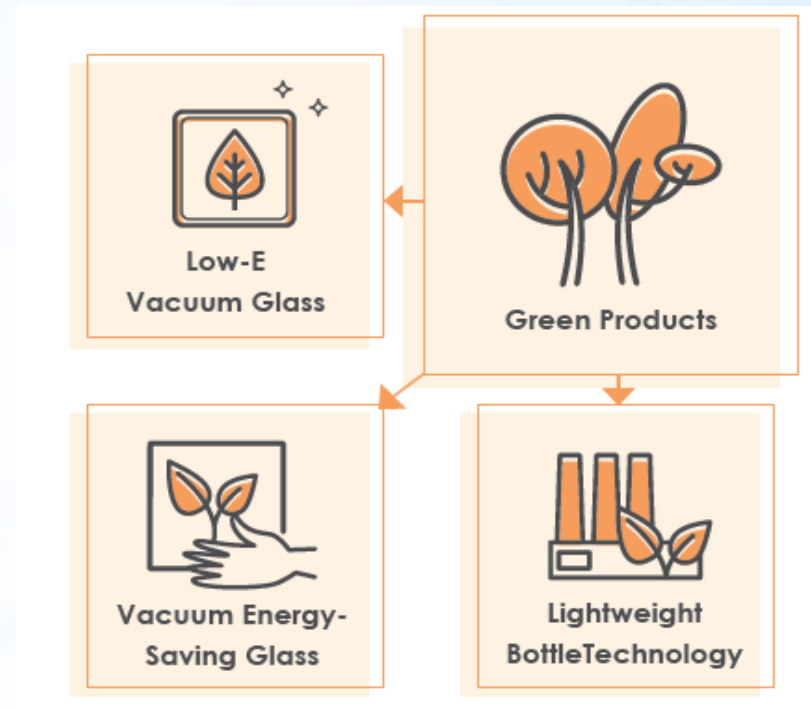
5 Lines for Automotive Glass
9 2,810,000 units

* Main Business and Products

Division	Product Category
Flat Glass Division	<ul style="list-style-type: none"> ● Clear Float Glass ● Tinted Float Glass ● Rolled Glass ● Low-E Glass ● Reflective Glass ● Mirror Glass ● Tempered Glass ● Ceramic Silkscreen/Spandrel Glass ● Heat Strengthened Glass ● Laminated Glass/Sound Control Laminated Glass ● Bent Glass/Bent Tempered Glass
Fiber Glass Business	<ul style="list-style-type: none"> ● Fiberglass Yarn ● Glass Yarn ● Fiberglass Fabric
Container, Tableware & Kitchenware	<ul style="list-style-type: none"> ● Glass Container ● Tableware ● Kitchenware ● Tableware/Kitchenware Glass Processing ● Private Label Products
New Material Business	<ul style="list-style-type: none"> ● Ultra-Thin Glass
Automotive Glass Business	<ul style="list-style-type: none"> ● Auto Glass

TGI Group draws on world-class technology and equipment suppliers and accumulates own R&D experience to make efforts in technology improvement and new product research and development.

In recent years, TG has obtained a number of quality and environmental protection certifications. TG, in response to global green energy issues, has also devoted itself to reducing pollution in the production process to mitigate impacts on the environment, aiming at the development of environmental protection and energy-saving products.

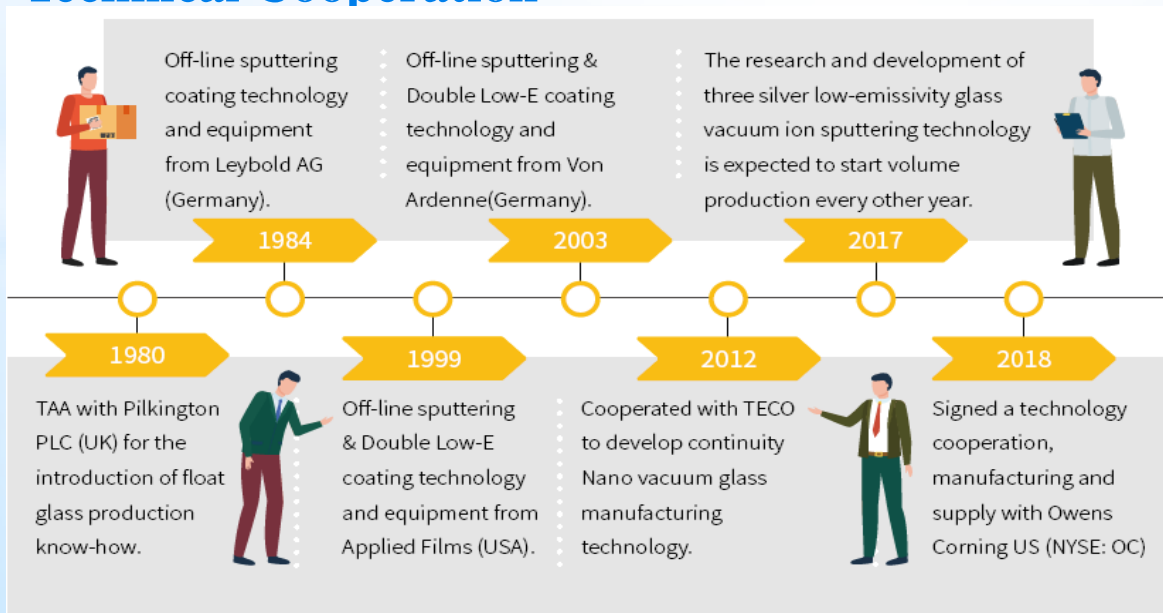


* Product Introduction

Flat Glass

TGI's flat glass has 100% passed the EU CE, US ANSI, Taiwan CNS and other relevant standards. In the production of the flat silver mirror, TGI uses an advanced lead-free copper process to avoid heavy metal pollution. Meanwhile, we actively promote that tempered glass needs to be heat-dipped to reduce the risk of instantaneous glass breakage. Even if it is broken, it will become small pieces to reduce harm. Laminated Glass has the PVB interlayer withstands penetration from an impact. Even if the glass cracks, splinters will adhere to the interlayer and not scatter. In comparison with other kinds of glass, laminated glass has a much higher strength to resist shock, burglary, burst, and bullets. Low-E insulated glass has excellent thermal insulation, and it can effectively block infrared heat from entering the room while maintaining transmittance of visible light, and greatly reducing the energy consumption of air conditioning equipment and creating comfortable indoor spaces.

Technical Cooperation



Green Product - Flat Glass

The new generation of energy-saving Low-E glass products can effectively block the radiation from sunlight while allowing most sunlight to enter, which solves the problem of lighting and heat insulation. This product also significantly reduces energy consumption from air conditioners. TGI's Low-E glass products comply with CNS12681 standard and certified with ISO 9001 standard and IGCC. Currently, the product has been vastly used in buildings.

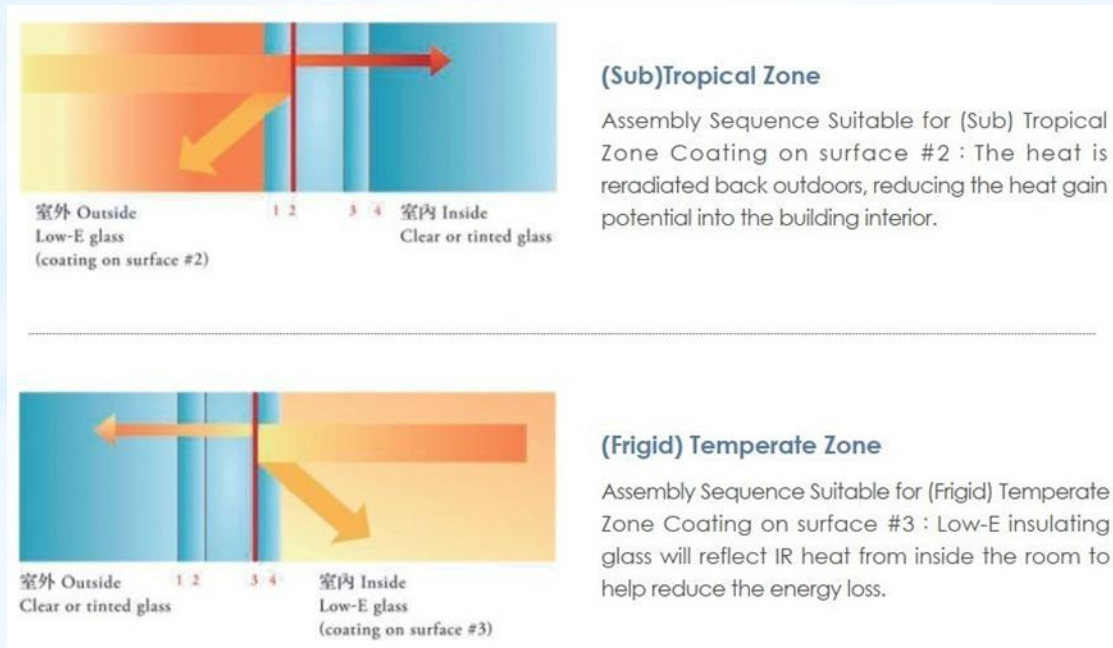
Taiwan Glass Group uses the most advanced coating technology to develop its single-piece Low-E glass: the Jie-Neng (JN) series. Compared to general Low-E coating, the JN series layered structure uses a hard semiconductor nano-glass to greatly reduce the radiance of the glass surface. The JN series has excellent thermal insulation, and the Low-E layer has high hardness, wear resistance, and oxidation resistance for zero oxidation and film deterioration issues when exposed. The creation of the JN series has enhanced the multi-application characteristics for Low-E glass. The JN series is used with sandwich glass for safety glass properties and excellent thermal conductivity. The JN series is used with Low-E insulated glass to further reduce the U value of Low-E insulated glass, and effectively reduce even more energy consumption and improve indoor comfort.

* Product Introduction

What is Low-E Glass ? Low-E (Low-Emissivity) glass is the best building material to reduce heat from sunlight as it can deflect most ultraviolet and infrared radiation, preventing the indoor temperature from rising, conserving energy and reducing carbon emission.

Thermal radiation from the sun mainly contains ultraviolet, visible light and infrared radiation. Emissivity (ϵ value, the lower the value, the higher the effectiveness for heat insulation is) is glass' ability to emit heat radiation from the sun.

Low-E glass utilizes its coating to block the heat radiation from the sun. According to CNS (National Standards of the Republic of China), only coated glass with emissivity (ϵ value) lower than 0.20 can be labeled as Low-E glass.



* Product Introduction

Certifications of Flat Glass



歐盟 CE



美國 ANSI



台灣 CNS



ISO 9001



ISO 14001/SGS



PASMARK



IGCC



Please scan the QR codes for more information about flat glass.

Fiberglass

Compared with metal support materials, fiberglass has excellent corrosion resistance and weather resistance, and at the same time has the advantages of low cost, high strength/weight ratio, and longer service life. According to the different weaving structure and characteristics of fiberglass fabric, it has a wide variation and vastly used for heat preservation, heat insulation, fire prevention, and material reinforcement. All TGI's fiberglass products meet RoHS and REACH requirements. For food contact products, 4 products meet US FDA standards; 8 products meet EU 10/2011 regulation and have Germany's BfR approval; 2 products meet France's requirements for drinking water (CAS). The quality of our products meets CNS (National Standards of the Republic of China). We print the CNS logos on labels according to different customer needs. The packaging labels of fiberglass fabric and fiberglass yarn are marked with RoHS compliant logos.

With the advent of the 5G era in 2020, global information transmission has entered an era of high frequency and high speed. Printed circuit boards (PCB) for netcom equipment must use Low DK materials to meet the 5G high-frequency and high-speed performance requirements. Following the United States and Japan, TGI became the third manufacturer to successfully develop Low DK fiberglass fabric for high-end PCBs and has been certified by domestic and foreign terminal manufacturers to be used in 5G equipment. The 5G boom has been postponed due to the outbreak of COVID-19 in 2020. However, as the 5G infrastructure continues around the world, more and more car manufacturers are adding electric vehicles to their lineups. It is expected that the demand for fiberglass fabric will grow rapidly in 2021. TG will continue to meet customers' needs by increasing the production of Low DK and ultra-thin fabric, and continue to develop thinner and higher value-added products.

* Product Introduction



Please scan the QR codes for more information about fiberglass.



Direct Roving (DR),
Conventional Roving (CR),
Woven Roving (WR),
Chopped Strand Mat (CSM),
Chopped Strand (CS/O-CS)

Glass containers

Glass containers, with excellent transparency, showcase the real color of anything inside containers. Advantages such as easy sealing, long-time storage and suitability for microwave heating make these containers a necessity for modern people. The manufacturing facility of the container, tableware, and kitchenware has received ISO9001 and FSSC 22000 certifications. All products meet Taiwan's sanitation standard for food utensils, containers and packages. TGI can also provide products that meet RoHS and REACH standards based on clients' requests. For our heat-resistant products, all of our baby feeding bottles meet EU's latest EN 14350 standard. Coffee pots come with heat-resistant labeling upon clients' requests. We've worked hard in developing the high-priced special-shaped bottle market, continued to deepen its presence the milk bottle market, and expanded towards new customers for heat-resistant containers.

Taiwan Glass is committed to conserving raw materials and energy, and also contribute towards environmental protection to meet the market demand for green and eco-friendly products while maintaining product strength, and ensure that the products match the future trends of glass containers. TGI began acquiring German NNPB glass-blowing technology in 1983 in order to meet the needs of the market and enhance environmental protection. This technology produces attractive, lightweight bottles of uniform thickness. More recently, TGI has participated in technological cooperation with Germany's Heye-Glass Group, producing more than 200 million bottles per year. The Company has continued optimizing its lightweight bottle blowing technology in recent years as the 750 ml red wine bottle weighs only 415 grams, and has the ability to compete with other counterparts in the global market industry.



Private Brand - TG

TGI's technique to produce glass container and tableware has been able to compete with international recognized brands. Therefore, we established our private brand, TG. TG targets the new customers who pay attention to their own tastes. Besides, in order to create the brand image and build the products style, we invited Fukasawa Naoto, who is a Japanese master of industrial design, to plan and design with the observation of Taiwanese culture. He merged the feelings such as “kindness”, “mild” and “nature” into his design, breathing new life into these glass products.



Please scan the QR code
for more information.

The TG logo, consisting of the letters 'T' and 'G' in a bold, black, sans-serif font.

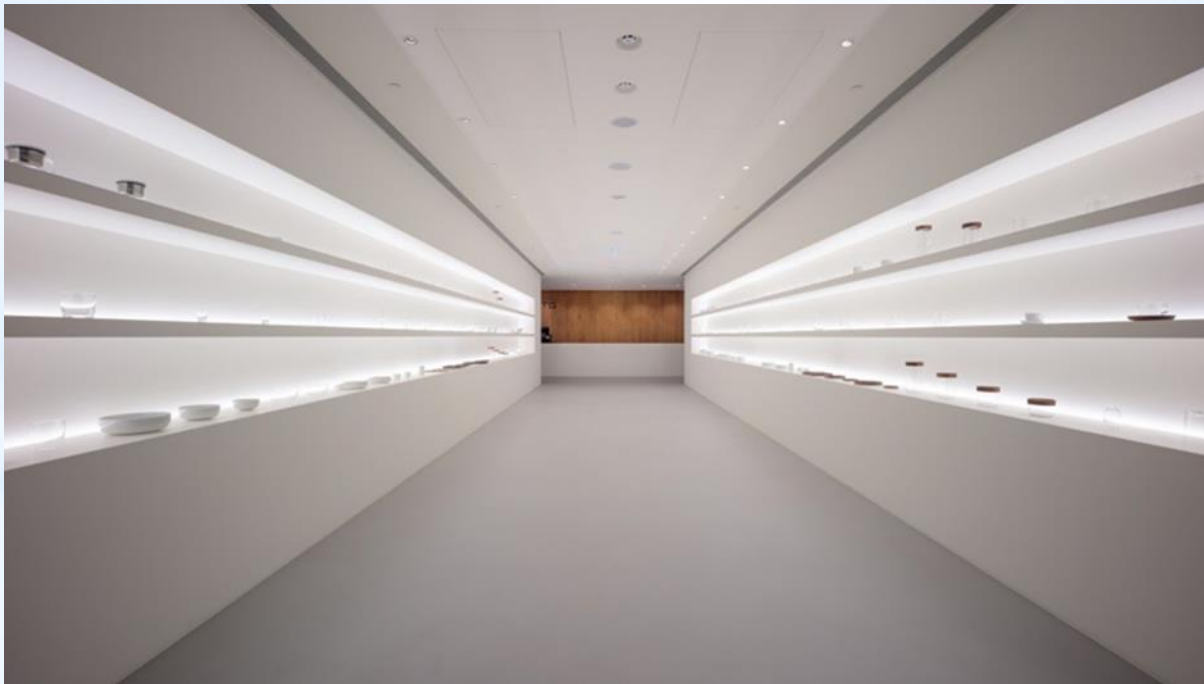
* Product Introduction

The TG brand has won 5 awards during the 2021 30th Taiwan Excellence Awards. Moreover, many of its products were nominated for the “Best 100” Special Award. All of TGI’s utensils and packing used excellent materials and outstanding designs. Winning two Red Dot Design Awards, TGI emphasizes on eco-friendly features, and does not use materials that contain environmental hormones, emit plastic particles, or concealed cladding materials. In 2021, TG was unveiled at Red Dot Design Week and had a permanent exhibition at the Red Dot Design Museum.



* Product Introduction

The TG flagship store was opened on the first floor of the Taiwan Glass Building on Nanjing East Road on 15th December, 2020. The interior space was designed by Naoto Fukasawa and Taiwan's architect Hao, Chen-Sui. It is also the first business space designed by Naoto Fukasawa, including a new series of glass products, logo, package, and interior design. The shop windows display the TG products photographed by Tamotsu Fujii, a famous Japanese commercial photographer.



* Product Introduction

Newly opened in 2021, Loobah Restaurant allows customers to try our TG tableware and offers them aesthetic experiences of glass and tastes of our delicacy.

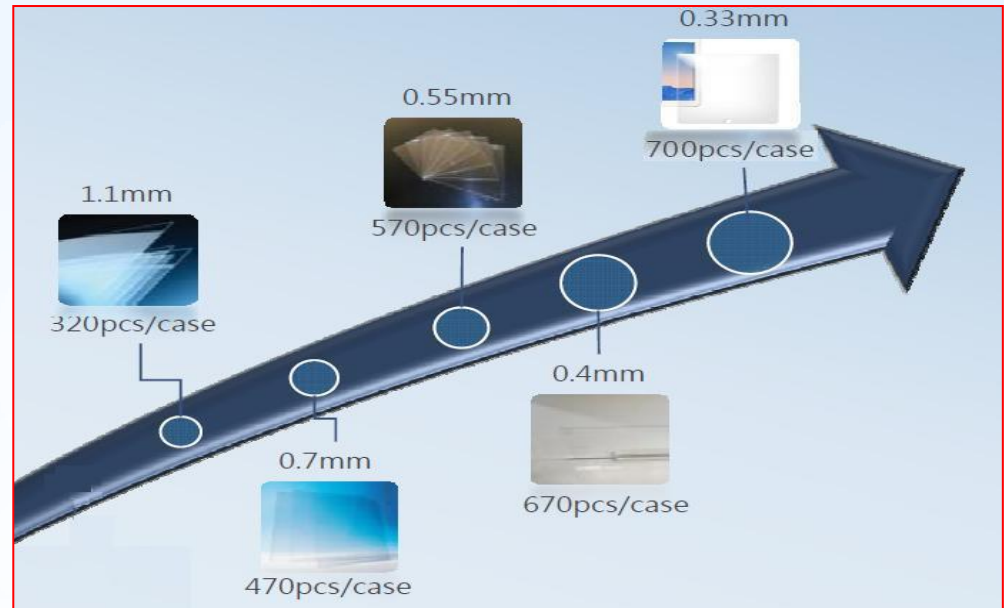
“Enjoy the meal!” is the core concept of the restaurant. We proudly present braised pork rice, a national delicacy of Taiwanese, to our customers. We deep-fried pork lard, shallots, brown sugar and premium soy sauce until they are perfectly done. We serve with Taitung “Chen Xie He” Ikegami Rice, with each of its grains remaining its shape and pleasantly chewy at the same time. This perfect combination is certainly delicious to wow your taste buds. Tableware and space designed collaboratively by TG and Naoto Fukasawa allows a comfortable atmosphere for diners to “enjoy the meal,” bringing the everyday national delicacy into your life aesthetics.



* Product Introduction

Ultra-Thin Glass

The TGI Taichung Factory is a newly established production line for Ultra-thin touch glass. Introducing the installations of Computerized Automated Production Management System, cleanroom and mechanical arms for collecting glass panes, this line started production in November 2014 with mass production for 0.33~1.1mm glass. In 2020, to produce thinner and stronger devices, the goal is set up to 4%.



Taiwan Glass' own AR Coating technology can reduce the reflectivity of the glass to 0.5%~1%, making the visual image clearer and reducing the glare and double shadow phenomena. These products have been used for special medical equipment and display purposes (at art galleries, or department store display windows, etc.). In addition, the 0.55~1.1mm glass product can be applied to the ITO touch panel. The 0.55mm glass products on the other hand sell well in 2020, which mostly go to China and India markets. As for the 0.33~0.4mm glass product, it can be used as a 3C product screen protector. All these products are strictly checked plenty of times to reach high-quality international standards. Then they can be supplied to domestic and foreign electronic manufacturers to produce high-quality products for customers. In 2021, the demand for the 0.33mm glass increases continuously. It is estimated that 0.33mm glass will be produced throughout the year. In the future, despite continue to raise the market share of Mainland China and India, Taiwan Glass will also develop markets in other countries, such as Vietnam, Bangladesh, Malaysia, and Africa.



General Operation Situation of 2022

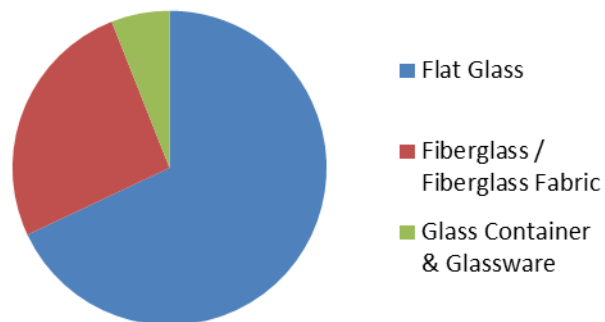
Consolidated Statements of Income		NTD : thousand dollars (Except EPS)			
Items	2021	Q1 of 2022	Q2 of 2022	Q3 of 2022	Q1~Q3 of 2022
Operating Revenues	56,065,737	10,741,864	11,199,420	10,530,358	32,471,642
Gross Profit	17,706,710	2,384,064	1,716,396	327,695	4,428,155
Gross profit margin	32%	22%	15%	3%	14%
Operating Income (Loss)	11,557,967	1,035,223	470,298	(978,986)	526,535
Operating Profit Margin	21%	10%	4%	-10%	2%
Non-operating Income and Expenses	2,185,402	406,225	472,146	147,183	1,025,554
Income (Loss) from Continuing Operations	12,043,514	1,236,813	615,704	(1,532,991)	319,526
Income (Loss) from Discontinued Operations	187,725	(47,472)	20,483	(90,942)	(117,931)
Net Income (Loss)	12,231,239	1,189,341	636,187	(1,623,933)	201,595
Profit margin	21%	11%	6%	-16%	1%
Income (Loss) After Tax Attributable to Stockholders of the Parent	11,476,678	1,145,578	612,282	(1,499,336)	258,524
EPS (NTD)	3.95	0.39	0.21	-0.51	0.09

* General Operation Situation of 2022

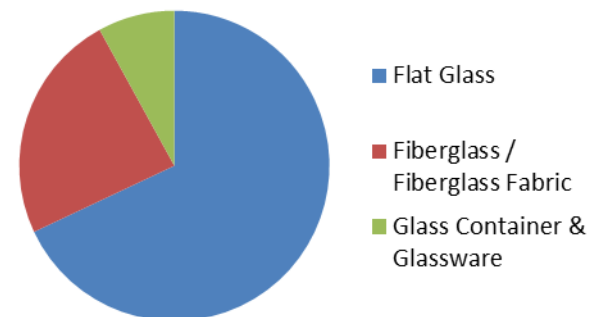
The proportion of major product revenue

Items	2021		Q1 of 2022		Q2 of 2022		Q3 of 2022		Q1~Q3 of 2022	
	NTD000	%	NTD000	%	NTD000	%	NTD000	%	NTD000	%
Flat Glass	38,076,343	68	6,953,905	65	7,599,814	68	7,483,660	71	22,037,379	68
Fiberglass / Fiberglass Fabric	14,620,894	26	2,961,413	27	2,757,203	25	2,235,371	21	7,953,987	24
Glass Container & Glassware	3,367,623	6	826,421	8	842,239	7	811,123	8	2,479,783	8
Others	877	-	125	-	164	-	204	-	493	-
Total	56,065,737	100	10,741,864	100	11,199,420	100	10,530,358	100	32,471,642	100

2021



Q1~Q3 of 2022





General Operation Situation of 2022

Consolidated Balance Sheet								
Items	2021.12.31		2022.03.31		2022.06.30		2022.09.30	
	NTD000	%	NTD000	%	NTD000	%	NTD000	%
Current Assets	45,657,837	46	47,245,241	46	47,369,106	46	48,488,175	47
Noncurrent Assets	53,797,492	54	55,354,342	54	54,810,686	54	53,787,237	53
Total Assets	99,455,329	100	102,599,583	100	102,179,792	100	102,275,412	100
Current Liabilities	26,975,232	27	24,484,344	24	31,495,247	31	32,730,761	32
Noncurrent Liabilities	14,705,602	15	16,925,174	16	15,789,114	15	16,138,104	16
Total Liabilities	41,680,834	42	41,409,518	40	47,284,361	46	48,868,865	48
Capital	29,080,608	30	29,080,608	28	29,080,608	28	29,080,608	28
Additional Paid-in Capital	1,925,218	2	1,925,218	2	1,925,218	2	1,925,218	2
Retained Earnings	26,559,872	26	27,705,450	27	23,025,061	23	21,525,725	21
Other Components of Equity	(3,521,586)	(4)	(1,441,003)	(1)	(2,675,434)	(2)	(2,439,038)	(2)
Non-controlling Interests	3,730,383	4	3,919,792	4	3,539,978	3	3,314,034	3
Total Equity	57,774,495	58	61,190,065	60	54,895,431	54	53,406,547	52



Flat Glass

Flat glass accounts for more than 65% of the operating income of the Taiwan Glass Group, with China being our main market. In 2022, the sluggish real estate industry in China and the government's insistence on dynamic zero-COVID policy led to a weak demand of the market. Besides, the cost of raw materials is affected by factors such as the Ukrainian-Russian War and inflation; the overall profit will not be as good as the same period last year.

With the loosened COVID-19 policies in China and measures taken by the Central Bank of China to revitalize the housing market, Taiwan Glass will look carefully into demand for flat glass in 2023 by adjusting glass inventory in a timely manner. We will also develop high value-added products to break into new markets, and consolidate our position through service and product innovation.



Fiberglass

As for electronic-grade fiberglass fabric, in the first three quarters of 2022, severe COVID-19 situation in China and the authorities' strict implementation on dynamic zero-COVID policy resulted in a reduction in shipments. On top of that, the cost of raw materials soared due to quarantine measures and the imbalance between supply and demand, resulting in a lower profit when compared with the same period last year.

In addition, TGI's low-dielectric fiberglass fabric matches with well-known copper clad laminate (CCL) factories at home and abroad in 2020, and has been recognized among major international terminal manufacturers for use in 5G equipment, high-end servers, automotive devices, high-end graphics cards, etc. The high-frequency and high-speed performance of 5G will increase the demand for upgraded optical communications.

In the first half of 2022, the shipments and profits of fiber-reinforced plastic (FRP) were normal. However, in the third quarter, demands for FRP shrank sharply when the global economy was affected by tightening financial conditions, and the energy crisis hit the European economy. It is expected to return to normal in the middle of 2023 when uncertainties such as inflation, epidemic situation and international political & economic situation vanish.



Glass Containers

Export shipments were affected by warehouse shortage, lack of shipping containers and port congestion in 2021. In the first half of 2022, orders increased for inventory. However, affected by inflation, the purchasing power of end consumers has declined, and foreign clients have given priority to destocking, resulting in a decrease in shipments in the first three quarters of 2022 when compared with the same period last year. Shipments are expected to return to normal in the first half of 2023. Some of the domestic glass manufacturers withdrew from the market due to factors such as suspension of production, poor financial conditions, or capital flow problems. Taiwan Glass can fill the shortage in the export market by increasing bids in the domestic market.

In the fourth quarter of 2021, the production lines of heat-resistant containers and kitchen utensils have been merged into one kiln with two production lines, now producing high value-added products in rotation. The production and sales balanced in 2022.

To sum up, affected by surging global inflationary pressures, the economic outlook is turning bleak. As a result, the profit in the first three quarters of 2022 is not as good as that of the same period last year. Although there are still uncertainties in the overall environment, gradual economic rebound is expected. So, we are optimistic about the operating situation in the second half of 2023.

Q&A

感謝聆聽 謝謝指教

Thanks for your attention.

Have a great day.