



TOSHIBA

THIS IS TOSHIBA GLASS
A Story of Ingenuity and Achievement.



What is life?
Everyone—from the world's greatest thinkers to your next door neighbor—has an opinion, but nobody really knows the complete answer.

Toshiba Glass views life as a constant quest; an endless journey in search of new ways and means. This perspective is a basic part of our corporate philosophy. It keeps us a dynamic organization with a deep sense of commitment to progress.

While Toshiba Glass may not have any ultimate answers, we continue to create meaningful technological advances. And we are learning new ways to enhance the quality of life for millions each day. Our discoveries and fine glass products play an ever widening role in the lives of people around the globe. And who knows, maybe someday the advances we pioneer might just help to answer the big question: What is life?

In the interim, Toshiba Glass concentrates on an important goal we set more than 84 years ago—making life better for people with superior product quality and high technology.

Modern lifestyles have given our world an array of ever more complex questions in need of answers. Mastering these challenges takes much more than just high technology. Extraordinary vision and resolve are necessary.

Toshiba Glass stands ready with an appropriate response. Our response is the same as it was when we began—originality and innovation. These are our greatest resources.





In Constant Pursuit of Possibilities From the Start.

Toshiba Glass Co., Ltd., came into being in 1902. We began as a glass factory established by Toshiba Corporation in Shinagawa, Tokyo to manufacture incandescent light bulbs. From this humble start, we have steadily grown into leading specialized manufacturer of high-quality glass products.

Since the start of the 20th century, Toshiba has played a leading role in the development of the Japanese glass industry. Our diverse products span a broad spectrum, ranging from electrical to tinted glass and special-purpose glass. The product line continues to grow in both variety and sophistication.

Following World War II, Toshiba Glass was separated from the Glass Division of Toshiba Corporation into three consolidated subsidiaries—Toshiba Kasei Kogyo Co., Ltd., Showa Glass Kogyo Co., Ltd., and Toshiba Electric Glass Co., Ltd.

Cooperation between Toshiba's Glass Division and the three companies as members of the Toshiba group remained close. Sales, research and production activities were coordinated. These solid working relations contributed to steady growth and original technological development.

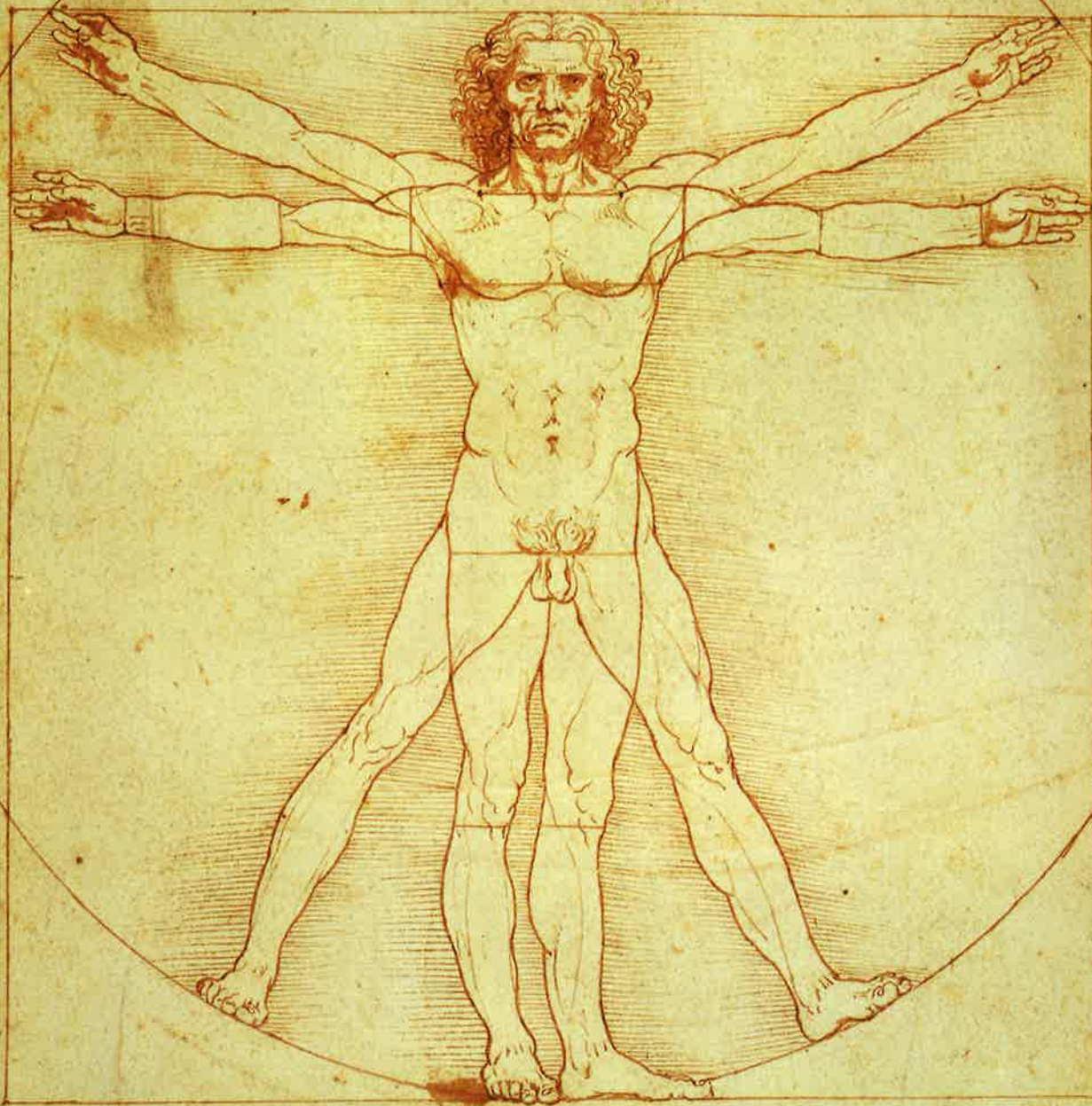
In response to changing market conditions, Toshiba's Glass Division and the three consolidated subsidiaries were combined into Toshiba Glass Co., Ltd. This took place in April, 1978.

As Toshiba Glass, we have steadily strengthened our position in markets worldwide.

Toshiba Glass—A Short History.

- 1902—Established as a glass factory in Shinagawa, Tokyo.
- 1915—Began optical glass and X-ray tube production.
- 1919—Initiated laboratory glass and Terex hard glass production.
- 1927—Launched Danner machine tubing production.
- 1929—Completed glass tank furnace.
- 1939—Began clinical thermometer production.
- 1947—Launched watt-hour meter glass cover production.
- 1949—Introduced basal temperature thermometers for women.
- 1953—Began juicer and blender pressed glass production.
- 1955—Initiated sealed beam head lamp glass production.
- 1958—Began highway illumination globe and bowl production.
- 1960—Developed patented Straight Ribbon Machine for bulb mass-production.
- 1968—Started Dosimeter fluoro-glass production.
- 1969—Introduced microwave oven glass trays.
- 1972—Exported clinical thermometer production machines to Italy.
Exported bulb and tube manufacturing plant to Iran.
- 1973—Started halogen projector lamp tube reflector production.
- 1976—Exported pressed glass manufacturing plant to Hungary.
- 1977—Exported clinical thermometer manufacturing plant to France.
- 1978—Established Toshiba Glass Co., Ltd.
Exported bulb manufacturing plant to Poland.
Exported tube manufacturing plant to Rumania.
- 1979—Exported Straight Ribbon Machine for bulbs and end forming machine for tubes to the DDR.
- 1980—Introduced digital clinical thermometers.
Began rectangular head lamp lens production.
Exported tube manufacturing plant to China.
- 1981—Started deep sea glass sphere production.
Exported tube manufacturing plants to Iraq and Thailand.
- 1982—Exported clinical thermometer manufacturing plant to the USSR.
- 1983—Exported bulb manufacturing plant to China.
- 1984—Exported tube manufacturing plant to China.
Exported pressed glass manufacturing plant to Thailand.

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Handwritten text in a cursive script, likely a Latin or Italian manuscript, located at the bottom of the page. The text is arranged in several lines, with some words appearing to be in a different script or dialect. The ink is dark brown or black, and the paper shows signs of age and wear.

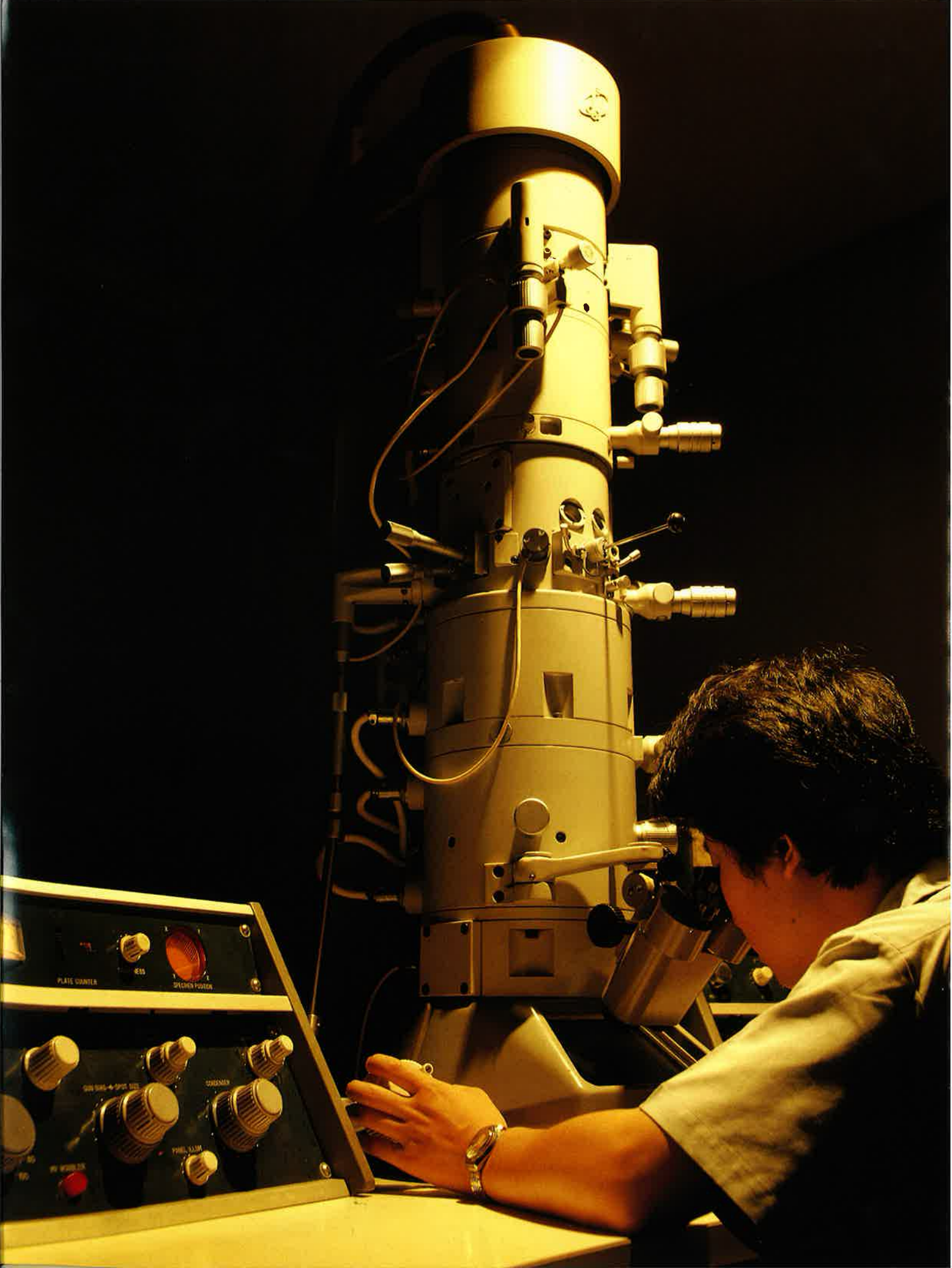
Human potential is limitless. It recognizes no bounds because in mastering each new challenge, human potential increases and it becomes able to solve even greater problems. The process is one of endless growth.

Full development of human potential is a prime Toshiba Glass aim. We move closer to this lofty goal by daring to dream.

Innovative ideas are our starting point. We identify and reach goals through extensive research and development which define desirable potentials. Once the ideal possibilities are defined, we work to turn these revolutionary ideas in practical products for daily life and industry.

The Toshiba Glass quest for new ways and means moves forward in ultramodern research laboratories and production plants. Dedicated scientists, engineers and specialists work as a thoroughly integrated team to maximize their vast human potential. And the results are a foregone conclusion —remarkable technological advances.





High Technology That Reaches Beyond Today.

Even before Toshiba Glass began, Toshiba Corporation was manufacturing glass products for electrical use. If these activities are considered, we have over a century of production experience.

Toshiba Glass also has a wealth of exclusive know-how and production capabilities amassed by delivering consistently high product quality. Extensive research and development, aimed at meeting future customer needs, further help to assure exceptional quality at the lowest possible price.

We take special pride in creating our own exclusive high-tech manufacturing equipment and systems. Toshiba Glass has pioneered many original technological advances.

The equipment delivers superior reliability using components supplied by members of the Toshiba Group. This maximizes quality by making equipment production virtually an all in-house operation. Everything from raw materials to glass melting furnace refractories, instrumentation and state-of-art electronic control systems are produced according to unique Toshiba Glass specifications and high Toshiba Group quality control standards.

Toshiba Glass provides its advanced technology to manufacturers in many countries. Equipment and entire production plants for the cost-efficient manufacture of incandescent and fluorescent lamps as well as clinical thermometers and other glass products are available for export and worldwide delivery.



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Superior Total Quality Born of Ultramodern Facilities.

Toshiba Glass has a large production capacity. Our plants feature highly efficient manufacturing process systems which incorporate the most advanced production and quality control equipment. Skilled specialists, who take pride in their work, supervise these automated operations.

NIIGATA PLANT

Here we manufacture a wide range of glass products for automotive and home appliance use. These include pressed glass head lamps, microwave oven, juicer and mixer components.

HIMEJI PLANT

This facility utilizes a state-of-art computer control system to economically produce electric light tubes and other products of the highest quality.

SHIZUOKA PLANT

The Toshiba Glass head office is located at the Shizuoka Plant along with our Technical Research Department which develops new products and production expertise to meet changing customer demands. This ultramodern facility integrates the most advanced technology and equipment. It produces an extensive range of products, including incandescent light bulbs, fluorescent lamp tubes, optical glass and thermometers.

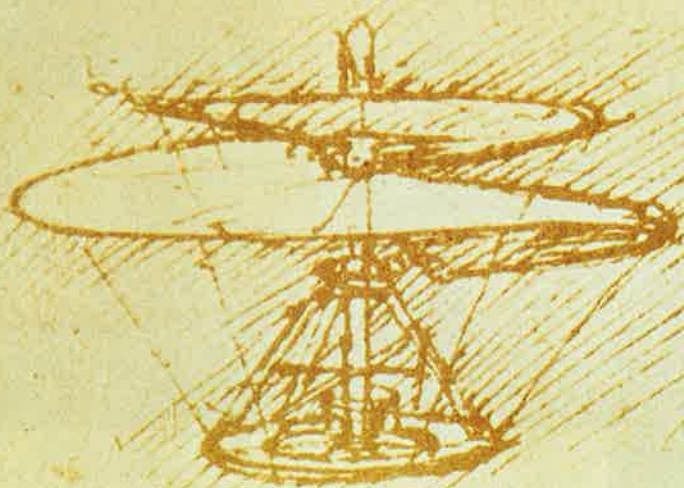
The Technical Research Department explores diverse possibilities in a vigorous effort to develop new-generation glass products capable of increasing the quality of life. It's the goal of every member of the dedicated Toshiba Glass team.





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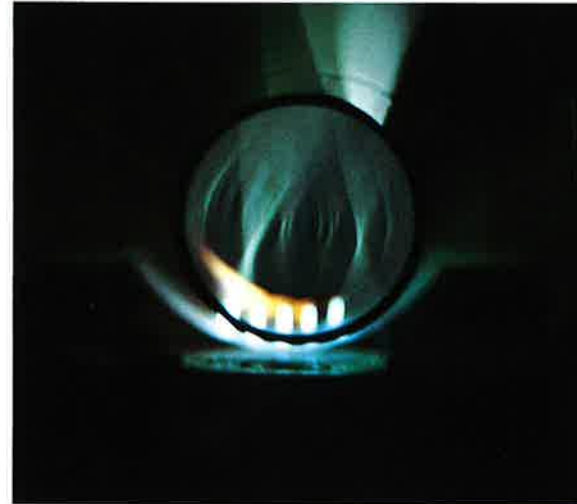
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The future belongs to those who dare to dream. Imagination and vigor tempered by long experience in a highly specialized field are the keys Toshiba Glass uses to unlock the future.

Our products play an ever widening role in all facets of daily life and high-tech industries. The reasons behind this steady growth and diversification are easy to understand.

While we dare to dream, Toshiba Glass concentrates on function and practical application. We are not interested in “pie in the sky” fantasies, but ideas which have a valuable place in today’s world and the future. This dynamic corporate philosophy combines with an absolute refusal to compromise on quality to create the wide range of advanced products which are essential to daily life.

The quest for higher product quality drives Toshiba Glass forward. We believe the best can always be made better.

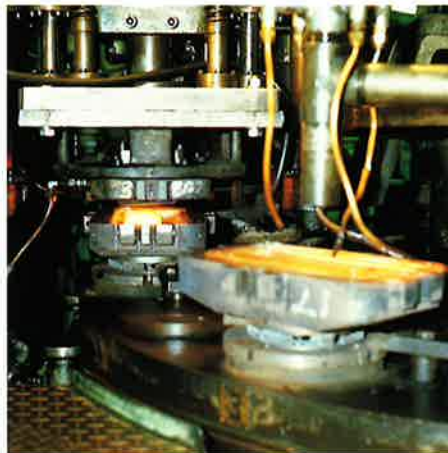




Fine Pressed Glass: Illumination That Excels.

Toshiba Glass makes an extensive array of pressed glass products. These range from small halogen lamp reflectors to large highway illumination bowls. All are manufactured by the continuous press method to assure high shape precision.

Illumination application items are made of borosilicate glass to provide excellent resistance to weather and light source heat. Toshiba Glass pressed glass products meet appropriate JIS (Japanese Industrial Standard) and international standards, including SAE and ECE. High-grade optical characteristics mean accurate light distribution and durability rates as outstanding.



Products

- Lenses and reflectors for sealed beam head lamps.
- Beam lamp lenses and reflectors.
- Globes and bowls for highway and street illumination.
- Globes for airport marker lamps and flood lamps.
- Reflectors for halogen projector lamps.
- Rectangular head lamp lenses.



High-Efficiency Lighting Bulbs and Tubes.

We offer a full range of bulbs, tubings and canes. Advanced Toshiba Glass technology combines with a thoroughly integrated production process and stringent quality control to assure superior results.

These products are specially designed to enhance lighting efficiency while providing high durability. Improved illumination characteristics create healthier living and working environments. End users are also able to reduce lighting power costs.



Products

- Conventional incandescent lamp bulbs (PS-60).
- Christmas decoration bulbs (C-32).
- Reflector lamp bulbs (R-80, R-62).
- Small round lamp bulbs (G-40).
- White ball lamp bulbs (G-95).
- Small automobile lamp bulbs (S-25).
- Fishing lamp bulbs.
- Mercury lamp bulbs.
- Straight and circular fluorescent lamp tubings.
- Flare and exhaust tubings for bulbs and fluorescent lamps.
- Neon lamp, miniature lamps and fuse tubings.



Upgrading the Quality of Health Care.

Toshiba Glass looks back on a long, proud history in the manufacture of clinical thermometers. We developed the world's first basal temperature thermometer for women.

Our thermometers are produced by an integrated straight-line flow process—from tubes and capillaries to assembly—with rigid quality control checks at every production step.

Toshiba Glass offers a full range of types to satisfy any home and hospital need. Aside from a wide choice of standard prismatic and flat types, we provide digital clinical thermometers.

These tough and attractive units are exceptionally easy to use and accurate. No mercury is used, response is fast and sterilization simple.

High accuracy, reliability and economy make Toshiba Glass clinical thermometers popular worldwide. We also provide manufacturers in many countries with advanced thermometer production technology, equipment and plants.



Products

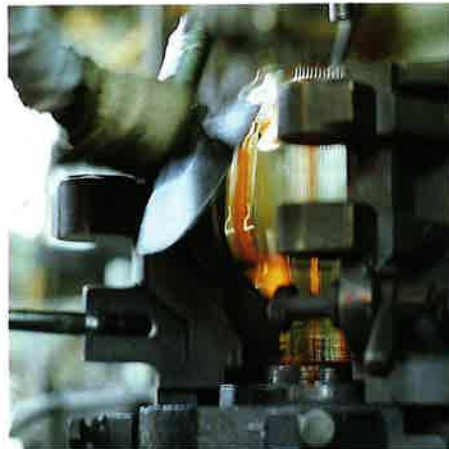
- Digital clinical thermometers.
- Prismatic and flat clinical thermometers.
- Thermometer production equipment and plants.



Excellence for Better Daily Living.

We produce a diverse array of pressed glass products for home appliances. Made of borosilicate glass for high heat and chemical resistance, these items remain new looking much longer than similar plastic products.

Toshiba Glass pressed glass products meet Food Sanitation Act standards and are guaranteed safe. Superior light transmission, cracking and stain resistance make these items a favorite choice among electrical appliance manufacturers in Japan and abroad.



Products

- Microwave oven trays.
- Juicer and blender bottles.
- Heat resistant tableware.
- Watt-hour meter glass covers.





Setting the Pace In Electronics and Optics.

In these fields, high performance and stable characteristics are vital. Our glass provides excellent features including good metal sealing, electrical characteristics and chemical resistance. It is ideal for X-ray, transmission, receiving, microwave, discharge, camera and photo tube applications.

Optical characteristics are equally outstanding. We produce a complete range of high-grade photographic and other filters for physical science and chemical uses. Toshiba Glass makes unique chemically tempered glass watch face covers that enable ultra-thin designs, as well as deep red, green and ultraviolet ray shielding glass for digital watches.

Our THI-2 glass for spectacle use combines a high refraction index and low specific gravity. This enables thinner rims and lighter weight lenses. It also blocks out ultraviolet rays and sharpens color clarity.



Products

- X-ray and betatron tubes.
- Camera tubes.
- Industrial cathode-ray tube bulbs.
- Laser plasma tubes.
- Top-grade optical glass.
- Photographic filters.
- Physical science and chemical filters.
- Watch face covers.
- High reflective index eye-glass lenses.

The Outstanding Toshiba Glass Family.

Here is a brief summary of the thousands of different products we produce and market worldwide. Every member of the family has earned a high reputation for proven quality and performance.

PRESSED GLASS FOR ILLUMINATION

- Lenses and reflectors for sealed beam head lamps.
- Beam lamp lenses and reflectors.
- Globes and bowls for highway and street illumination.
- Globes for airport marker lamps and flood lamps.
- Reflectors for halogen projector lamps.
- Rectangular head lamp lenses.

LIGHTING BULBS AND TUBINGS

- Conventional incandescent lamp bulbs (PS-60).
- Christmas decoration bulbs (C-32).
- Reflector lamp bulbs (R-80, R-62).
- Small round lamp bulbs (G-40).
- White ball lamp bulbs (G-95).
- Small automobile lamp bulbs (S-25).
- Fishing lamp bulbs.
- Mercury lamp bulbs.
- Straight and circular fluorescent lamp tubings.
- Flare and exhaust tubings for bulbs and fluorescent lamps.
- Neon lamp, miniature lamps and fuse tubings.

CLINICAL THERMOMETERS

- Digital clinical thermometers.
- Prismatic and flat clinical thermometers.
- Thermometer production equipment and plants.

PRESSED GLASS FOR HOME APPLIANCES

- Microwave oven trays.
- Juicer and blender bottles.
- Heat resistant tableware.
- Watt-hour meter glass covers.

OPTICAL GLASS PRODUCTS

- Photographic filters.
- Physical science and chemical filters.
- Watch face covers.
- High reflective index eye-glass lenses.

ELECTRONIC BULBS AND TUBINGS

- X-ray and betatron tubes.
- Camera tubes.
- Industrial cathode-ray tube bulbs.
- Laser plasma tubes.

POWER TRANSMISSION AND DISTRIBUTION COMPONENTS

- Power distribution insulators.
- Lightning arrester insulating tubes.
- Insulation plate components.

OTHER SPECIAL-APPLICATION GLASS

A Source of Advanced Glass Manufacturing Equipment and Plants.

Besides fine glass products, Toshiba Glass makes available to manufacturers worldwide its original production technology and equipment. We export unique batch preparation equipment, melting furnaces, forming machines and measuring equipment. Our engineering staff has experience in designing, building and operating plants in several countries.

We provide complete technical advisory services as well as the plant facilities. Here are some of the manufacturing plants we supply:

GLASS BULB

- Batch preparation equipment.
- Melting furnace.
- Forehearth.
- Forming machines (Straight Ribbon and Ivanhoe).

GLASS TUBING

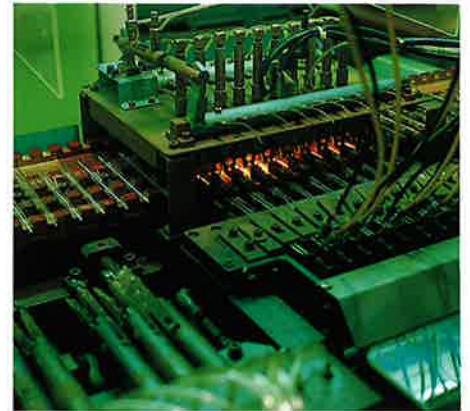
- Batch preparation equipment.
- Melting furnace.
- Forehearth.
- Forming machines (Sleeve Rotating, Drawing, Cutting and End Forming).

PRESSED GLASS

- Batch preparation equipment.
- Melting furnace.
- Forehearth.
- Forming machines (Forming, Press, Punch-Out and Annealing Lehr).

CLINICAL THERMOMETER

- Forming machines (Flaring, Shoulder Forming, Frit Sealing, Capillary Tube Cutting, Mercury Filling and Top Sealing).



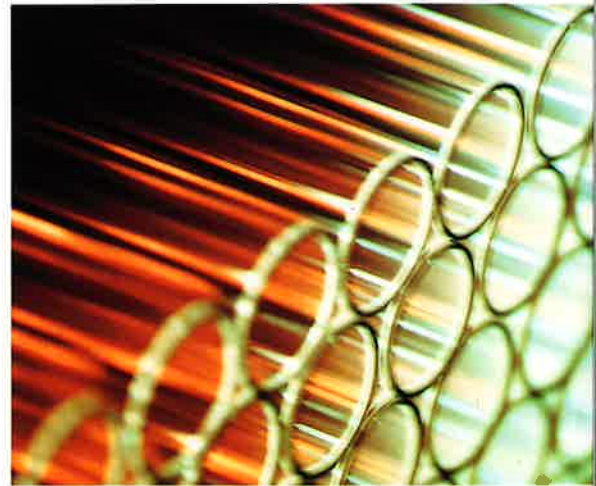




The true test of quality is time. Only lasting quality can be classified as being true.

Toshiba Glass strives to give each and every product we make superior performance, reliability and durability. After all, it is essential to reaching the goal we set out to achieve over 84 years ago—making life better for people with superior product quality and high technology.

We call it life at Toshiba Glass. And the quest goes on!



TOSHIBA

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