

Life Care Business

Health Care

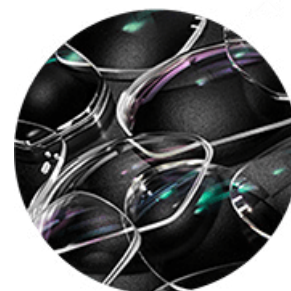
Eyeglass Lenses

> Business Overview

HOYA conducts research and development, manufacturing, and sales of eyeglass lenses.

Our product lineup includes single-vision lenses that possess a single corrective function for each lens; progressive lenses (varifocal lenses) that offer wide visual fields and a seamless transition between near, intermediate, and far distances in a single lens; as well as light-adaptive, photochromic lenses, which darken to a sun tint outdoors and fade back to clear inside.

In terms of sales by region, Europe is the largest market, followed by the Americas and the APAC region. Overseas sales account for approximately 90% of total sales.



> Supply Chain



> Market Conditions

Going forward, demand for eyeglass lenses is expected to continue to increase worldwide, and market growth in the low single digits is expected over the medium to long term. The reasons for this include the global increase in the elderly population, the increase in purchasing power resulting from economic growth in emerging countries, the growing awareness of eye health, and the deterioration of eyesight as people spend more time using digital devices.

With regard to the impact of the new coronavirus, business is normalizing with the progress of vaccinations in various countries and the resumption of economic activities.

As for the conflict in Ukraine, we are operating in Eastern Europe (Russia, Ukraine, and Belarus), and currently our business in Russia is temporarily limited to healthcare-related activities and within the scope of international trade restrictions. In fiscal 2021, revenue from sales of eyeglass products in Eastern Europe accounted for 1% of global revenue.

We provide humanitarian assistance to Ukraine. For more information, please click [here](#).

▶ **HOYA Position and Market Share**

The contribution to global growth varies per region. North America, Europe, and Japan being the mature markets will continue to play a significant role in the overall market; while faster growth is expected from emerging markets from increased availability of vision protection products and growing middle-class populations, such as in the Latin America and Asia-Pacific regions.

HOYA stands at the No. 2 position in the industry, and, in addition to organic growth, has expanded its share of the market through M&A initiatives, including the 2013 acquisition of SEIKO’s eyeglass lens unit, and U.S.-based Performance Optics, LLC. in 2017.

▶ **HOYA Outlook**

Eyeglass lens products account for over 50% of Life Care business sales, and are a growth driver for Life Care business expansion.

We are strengthening sales activities in Asia, with a focus on China, as well as in several growth markets in South America to expand our market share.

Additionally, in the United States, we continue to focus on expanding sales to key accounts and chain stores, on top of the strongly established presence among independent opticians. With these opportunities and focus areas, we aim to achieve low-to-mid single-digit percent growth, which is faster than the market. On top of that, we will also continue to pursue M&A opportunities to boost growth.

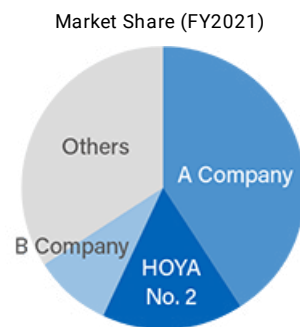
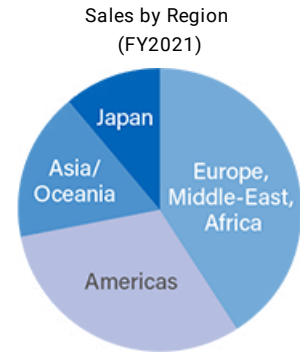
On the production side, we are investing globally to meet growing demand and to diversify our production sites.

The rapid progression of myopia is becoming a global health challenge. An estimated five billion people, or roughly half of the global population, could be affected by shortsightedness by 2050.

Together with the Hong Kong Polytechnic University, HOYA developed “MiYOSMART,” an innovative spectacle lens for myopia control.

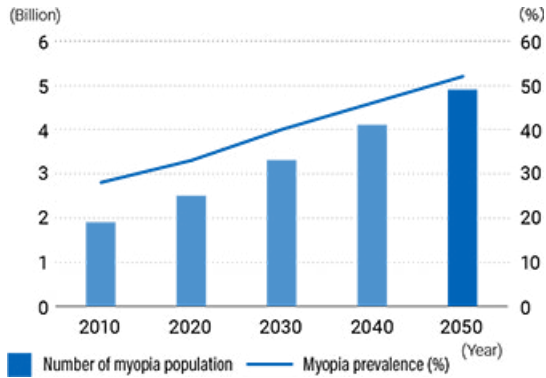
Commercialization of this product started in 2018. MiYOSMART is currently available in several markets, mainly in Asia and Europe, and has been growing rapidly. We plan to gradually obtain approvals and expand our sales footprint.

Note: As of August 2022, MiYOSMART has not received approval in Japan and the United States.



[HOYA estimate on a value basis]

Number of People with Myopia



MiYOSMART



Source: Holden, B. A., et al. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. *Ophthalmology*. 2016 May; 123(5): 1036–1042

Contact Lens Retail

> Business Overview

In Japan, we are expanding Eyecity outlets, HOYA's contact lens specialty retail store chain.

At Eyecity, we offer consulting and sales, making product recommendations ideally suited to the needs of individual customers, and, leveraging our strength, we provide a wide lineup sourced from major manufacturers throughout the world.



Stores are established in convenient locations, in close proximity to train stations, inside shopping centers, and other areas.

> Market Conditions

The contact lens retail market in Japan temporarily shrank as a result of the reduction in the frequency of contact lens use, due to the increase in Work From Home (WFH) and homeschooling opportunities, the decrease in opportunities to go out and other such factors attributable to the impact of COVID-19. While the COVID-19 infection situation has repeatedly been undergoing a cycle of improvement and deterioration and requires caution, sales have been robust due to increased store traffic. (If any restriction on movement, etc., is imposed going forward, it is expected to have a negative impact.)

As for the market's future outlook, the market is expected to continue expanding going forward, albeit slightly, due to such factors as the increase in contact lens demand stemming from the increasing percentage of nearsightedness among the younger generation and the rising age of contact lens users in association with the growing prevalence of multifocal contact lenses, combined with the rise in the average unit sales price attributable to the increase in sales of high-value-added lenses.

By sales channel, the share of Internet shopping is expected to expand, while the share of the contact lens specialty store channel is expected to be steady.

Sales Composition Ratio by Sales Channel (FY2021)



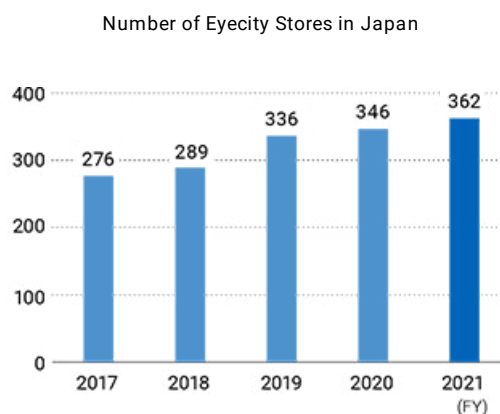
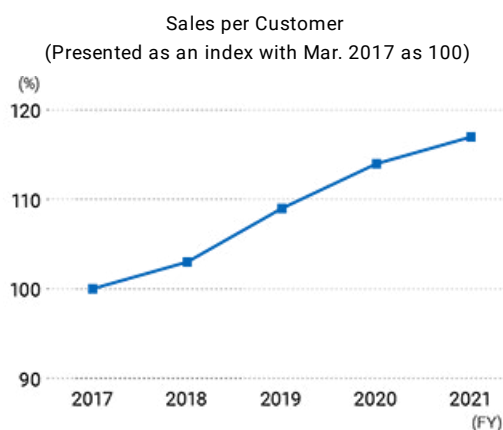
HOYA Market Share at Contact Lens Specialty Stores [HOYA estimate on a value basis]



▶ HOYA Position and Market Share

HOYA holds the top share in the retail channel for sales made through brick-and-mortar stores.

On top of sales growth at existing stores based on, among others, the promotion of high value-added products, we are working to expand sales by opening new stores, including M&A. We also provide online sales services in the form of “Hoshii Toki Bin” (meaning on-demand delivery) and “Otoku Teiki Bin” (meaning money-saving regular delivery) to adapt to Internet shopping, which has been expanding in recent years. These services have been used by many people, especially at the height of the COVID-19 pandemic.



▶ HOYA Outlook

Going forward, HOYA will seek to achieve ongoing sales growth at a rate of around 5% through the growth of sales at existing stores by such means as expanding the sales of high-value-added products and stressing the appeal of delivery services that are in high demand in the market, as well as the opening of new stores, including M&A.

For new stores, HOYA will conduct detailed analyses of an area’s contact lens-wearing population, market growth rate, and competitive situation, and will establish stores mainly in city centers, regional cities, and large shopping centers. We will also strive to increase efficiency by relocating stores within the same marketing area as appropriate. In addition, we will work to accelerate growth by actively exploiting M&A opportunities targeting contact lens specialty stores that have a strong position in their respective local markets.

In response to heightened market demand for Internet shopping, we will highlight the appeal of delivery services that enable consumers to place orders periodically or whenever necessary. We will also look into solutions for Internet shopping channels that are expected to continue growing in terms of share in the future.

Medical

Medical Endoscopes

▶ Business Overview

HOYA conducts research & development, manufacturing, and sales of medical flexible endoscopes used in the examination and treatment of digestive system, ear, nose & throat (ENT), respiratory organ, etc.



▶ Supply Chain



PENTAX
MEDICAL

PENTAX (HOYA)
Endoscope manufacturer



Customer: Medical institution,
joint purchasing organization, agency

▶ Sales by Region

By geographical region, sales in Europe and other overseas markets account for a large portion of total sales.

▶ Market Conditions

Medical expenses are increasing worldwide in line with the aging of society. To keep medical expenses in check, governments in countries across the globe are promoting the early detection of disease and minimally invasive medical procedures.

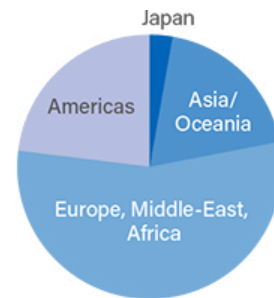
Also, endoscopes are attracting a great deal of attention due to the demand for minimally invasive medical treatment, which does not involve the use of a scalpel on the patient's body and thus minimizes the physical burden on the patient.

The growth of the endoscope market is modest in Japan, the United States, Europe, and other developed countries and regions. However, its growth rate remains high in Asia—especially China—which is at a stage where endoscopes are becoming more prevalent. While our forecast remains unchanged in that the Chinese market is expected to continue serving as the driving force for the global market in the future, Chinese government institutions are promoting policies to give priority to Made-in-China products in the bidding process and medical equipment manufacturers outside China are being required to produce locally in China.

In fiscal 2021, the market continued to grow due to such factors as the recovery in medical institutions' willingness to make investments and the increase in demand after bouncing back from the COVID-19 pandemic. However, the global shortage of electronic components supply has led to a tight supply of endoscopes relative to demand. Although the supply volume of semiconductors is gradually increasing, the situation is unstable.

In the medium/long term, HOYA expects the endoscope equipment market to grow at a rate of around 7% on a global scale.

Sales by Region (FY2021)



PENTAX Medical ONE Pulmo

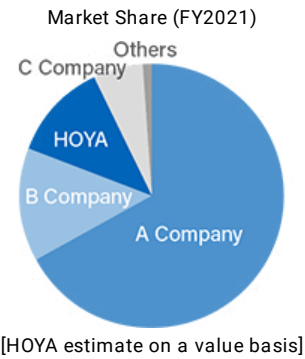
➤ **HOYA Position and Market Share**

HOYA is the second largest group in the industry, with its strengths lying in high image quality, ultrasonic endoscopes, small-diameter endoscopes that strike a balance between image quality, exterior diameter and channel size, and public health-conscious products.

In terms of geographical region, HOYA will strive to achieve growth by enhancing sales activities in Asia and the Americas while securing stable earnings in Europe, which accounts for about 50% of total sales.

In terms of products, we will pursue product differentiation by further developing treatment instruments used in combination with endoscopes as well as disposable endoscopes, while steadily executing initiatives targeted at products for digestive organs, the main battlefield in the flexible endoscope market.

In the field of disposable endoscopes, HOYA's first disposable bronchoscope, "PENTAX Medical ONE Pulmo," obtained CE mark certification in Europe in May 2021. Moving forward, we will expand sales in Europe and obtain approval in other regions. HOYA's strength lies in its ability to propose either conventional endoscopes or disposable endoscopes depending on the purpose and the situation, and in its disposable endoscopes that have also realized high quality, suction power and operability equivalent to conventional endoscopes. Although the presence of disposable endoscopes is not yet strong enough to largely replace conventional endoscopes at this stage, their presence is expected to grow in the medium to long term, so this is regarded as a stepping stone for us.



Intraocular Lenses

➤ **Business Overview**

In this field, we perform research and development, manufacturing, and sales of intraocular lenses (IOLs) for cataract surgeries and ophthalmic medical devices.

With nearly 35 years of experience in designing and producing IOLs, HOYA Surgical Optics' mission is to improve the vision and quality of life for millions of people suffering from cataracts.

A cataract is a condition that becomes more common as we age and is the largest cause of vision loss in people around the world. A cataract is treatable with surgery and it is one of the most performed surgical procedures in the world. A cataract surgery replaces the natural lens that has developed the cataract with a new clear IOL.

The rich HOYA heritage and expertise in developing optical products and technologies coupled with the wealth of knowledge that we have accumulated in developing IOLs and injectors makes us the provider of the world's most trusted fully pre-loaded IOLs* and has allowed us to gain market leadership in the fully pre-loaded IOL category worldwide.

* In a pre-loaded injector, the intraocular lens is pre-installed in the injector, supporting surgeons to perform safer and more reliable surgery.



▶ Supply Chain



▶ Sales by Region

By region, sales in Japan account for approximately half of total sales.

▶ Market Conditions

The market continues to grow roughly 7% per year in the near term, against the backdrop of the global aging population, the spread of medical infrastructure in emerging countries, increasing accessibility to advanced medical technologies, and pent-up demand. On top of that, premium products such as multifocal and deep depth-of-focus types of IOLs are driving market growth.

In fiscal 2021, recovery from the impact of the COVID-19 pandemic has progressed, although there are differences among countries and regions. Going forward, we expect the number of cataract surgeries to recover in Japan, where recovery has been lagging, and the market to return to a growth trajectory.

▶ HOYA Position and Market Share

Driven by the flagship brand, Vivinex™, sales continue to grow at a pace that is above the market. Vivinex™ combines an IOL material that offers unprecedented clarity of vision with multiSert™, our proprietary 4-in-1 injector, which is designed to provide outstanding IOL delivery consistency.

HOYA is steadily increasing its market share and currently holds the global No. 3 position.

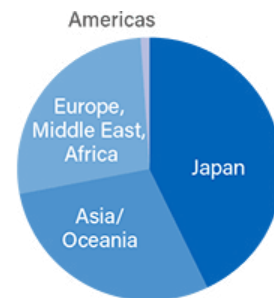
▶ HOYA Outlook

We have further expanded our portfolio with the addition of a family of Trifocal IOLs. This has allowed us to enter the highly profitable segment of presbyopia correcting IOL market. HOYA offers a comprehensive solution to cover any customer need and expectation in the field of cataract surgery.

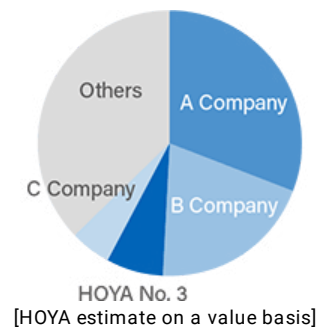
Furthermore, we will expand customer reach by bolstering our sales workforce in regions in which we already have sales bases and entering into new regions one by one, whether directly or indirectly (collaboration with sales agents), in pursuit of higher sales.

In China, where the market is expected to expand in the future, we established a joint venture company with our existing partner and distribution agent GeMax in May 2020, to further increase sales by steadily absorbing demand in China.

Sales Composition of HOYA Surgical Optics by Region (FY2021)



Market Share (FY2021)



Artificial Bones, Metal Orthopedic Implants and Chromatography Media

► Business Overview

HOYA deals in ceramic and metal implants used for filling deficient parts and joining fractured segments of bones, as well as bioceramics used in the development and production of bio-pharmaceutical products and cell culture.

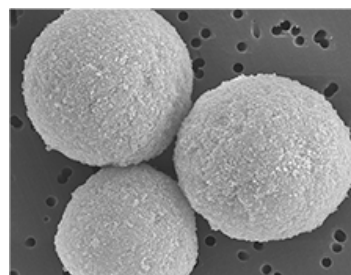
Implants are mainly sold to medical institutions in Japan, while bioceramic chromatography media are sold to pharmaceutical companies and research institutions around the world through distributors.



Bioactive ceramic implant "BIOPEX"



Metal orthopedic implant "HTS Stellar D"



Chromatography media (enlarged image)

► Market Conditions, HOYA Position, and Market Share

The market of implants for neurosurgery/spinal surgery and orthopedic surgery in Japan is expected to grow at a low single-digit rate due to the increasingly aging population. In the market of implants for Neuro-Spine surgery, HOYA is a market leader, having been the first in Japan to manufacture and sell a hydroxyapatite product with more or less the same constituents as a human bone. HOYA entered the market of implants for orthopedic surgery through management integration with Japan Universal Technologies, Inc. in 2012. We are manufacturing and selling metal implants that are optimized to the skeletal structure of Japanese people in terms of shape and size.

The market of separation/purification media (chromatography media) used in the development and production of biopharmaceutical products is expected to grow at a rate of approx. 10% globally in the years ahead, due to the expansion of the biopharmaceuticals market. The media used varies with differences in the separation/purification method; HOYA's spherical ceramic hydroxyapatite media are characterized by their extremely high absorbability of various proteins. HOYA provides the market with a unique product whose strength lies in its superior performance in terms of impurity removal separation in the purification process for biopharmaceutical products.

► HOYA Outlook

We will further accelerate growth by enhancing our product lineup, cultivating new applications and strengthening our marketing capabilities.

In the field of ceramic implants, we will maintain our current position and strive to further expand the market by cultivating new applications, while in the field of metal implants, we will increase our market share by enhancing our product lineup and strengthening our marketing capabilities in an effort to accelerate the growth of implants as a whole. For bioceramic chromatography media, we will not only accelerate the development of products and purification processes in cooperation with our customers and research institutions to meet the diversifying needs for bio-pharmaceutical products such as antibody drugs, vaccines and even gene therapy but also expand our production capacity to meet the growing demand in pursuit of further growth.



Information Technology Business

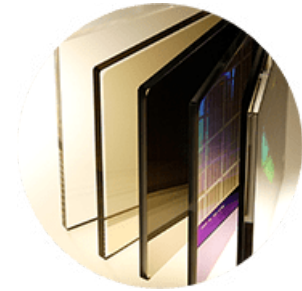
Electronics

Blanks for Semiconductors

Business Overview

In this business, we perform research and development, manufacturing, and sales of mask blanks for semiconductors.

Critical in the semiconductor fabrication process, photomasks are the master plates used to transfer a semiconductor's intricate and complex circuit pattern onto a semiconductor wafer, and mask blanks are the raw material used for photomask manufacturing.



Because photomasks are created for each individual circuit pattern, mask blanks are essential to new products developed by semiconductor manufacturers, foundries, and other HOYA customers, and in the R&D stage of new manufacturing technologies such as those of extreme ultraviolet (EUV) lithography.

Supply Chain

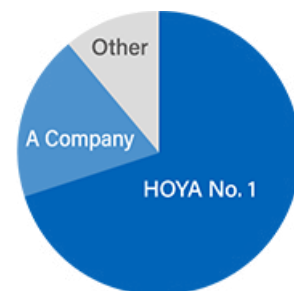


Note: In some cases, product goes via photomask manufacturer

Market Conditions

In 2021, the electronics market experienced an increase in shipment of personal computers, smartphones, servers and other major finished products. This led to higher demand for logic devices, memory, analog semiconductors, etc., translating into 26% growth in the semiconductor market overall. In 2022, the semiconductor market is expected to grow by 16%, driven by logic devices, memory, analog semiconductors, etc. (WSTS estimate)

Market Share (Optical)
(FY2021)



[HOYA estimate on a value basis]

Going forward, the growth of the market for mask blanks is expected to continue, given that semiconductor manufacturers and foundries are briskly conducting research and development activities aimed at the further miniaturization of electronic circuits using extreme ultraviolet (EUV) lithography—a cutting-edge manufacturing

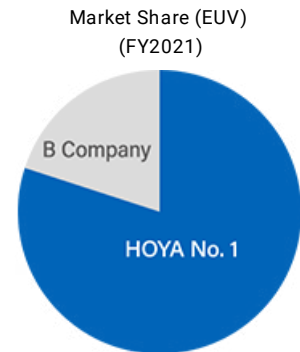
technology—and that customers’ research and development demand is the key driving force for the demand for mask blanks.

➤ **HOYA Position and Market Share**

We have maintained a large share of the market over the long term by leveraging our strength, that is, our position as a leader in boosting semiconductor performance.

Moreover, we have continued to conduct EUV blanks research for nearly 20 years, and have demonstrated a firm presence in this field which has exceptionally high hurdles to clear for entry.

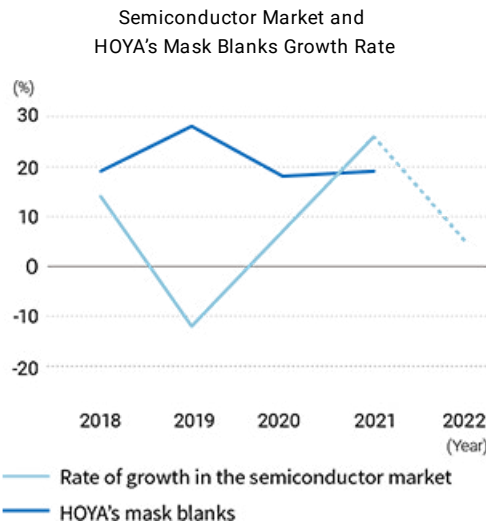
HOYA is enjoying an ever-growing presence as the only manufacturer that has rolled out both EUV and optical (existing non-EUV lithography technology) products.



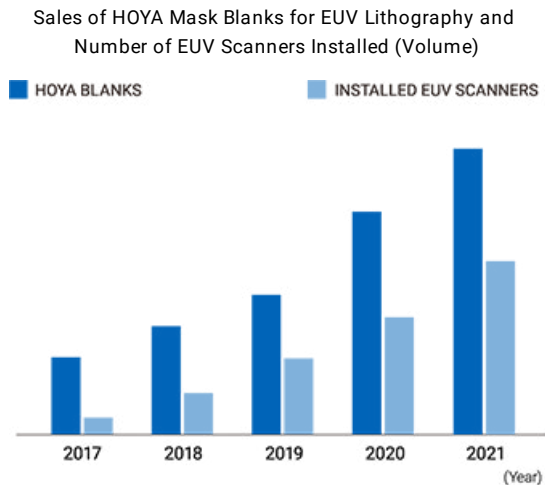
[HOYA estimate on a value basis]

➤ **HOYA Outlook**

Along with the advance of miniaturization in semiconductors, it appears that demand for mask blanks for EUV lithography will continue to be strong in the future.



Reference: WSTS



Mask blank sales are difficult to accurately predict due to the dramatic fluctuations that occur in line with customers’ development speeds, and also because they are not consumables and are not necessarily linked to movements in the semiconductor industry as a whole. However, in regards to products for EUV applications, the cumulative number of EUV lithography machines installed is deemed as one of the indicators of growth of the EUV market.

HOYA expands its manufacturing line as appropriate to meet customer demand. We added a manufacturing line for mask blanks for EUV lithography in 2020 and plan to further expand our production capacity by making additional investments in 2022 and subsequent years. We will continue making investments to expand production in a timely manner to meet the increasing demand in the future.

In the field of High-NA EUV scanners (next-generation EUV scanners), which are slated to be used in production from 2025 onwards in pursuit of further miniaturization, the challenge is to tackle the 3D mask effect, by which the circuit pattern transferred to a semiconductor wafer is deformed as a result of diagonally-incoming light being blocked by the photomask’s absorber. To resolve this, we are carrying out development to make the absorber thinner with our partner in the supply chain of semiconductor production.

Photomasks for FPDs

Business Overview

HOYA conducts research and development, manufacturing, and sales of photomasks used for manufacturing FPDs*1 such as LCD*2 and OLED*3.

When manufacturing FPDs for TVs, smartphones, laptop computers, and other devices, photomasks for FPD manufacturing are used as the master plates to transfer the circuit pattern onto the substrate.

*1 FPD: Flat Panel Display

*2 LCD: Liquid Crystal Display

*3 OLED: Organic Light-Emitting Diode



Supply Chain



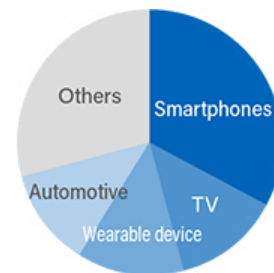
HOYA sources the substrate from raw materials manufacturers, and on that substrate performs polishing, deposition, and resist applications (blanks manufacturing). When the manufacture of the blanks is completed, HOYA conducts circuit pattern drawing, developing, etching, and resist stripping and cleaning, and delivers it to panel manufacturers (photomask manufacturing).

Sales Composition by Application

The ratio of sales by application is stated as follows.

While the ratio of sales of smartphone applications is the highest, in-vehicle, wearable and other new applications are increasing.

Sales Composition by Application (FY2021)



Market Conditions

In fiscal 2021, panel manufacturers briskly engaged in research and development activities aimed at spurring new demand as panel prices settled. This led to higher research and development demand for photomasks, translating into market expansion.

Going forward, the market is expected to grow modestly due to such factors as the increase in demand for photomasks for small- and medium-sized OLEDs used in smartphones, etc. In terms of geographical region, the Chinese market is expected to grow.

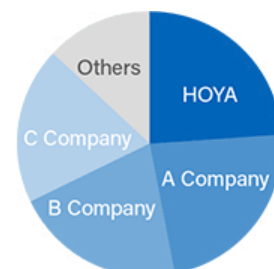
HOYA Position and Market Share

HOYA possesses expertise in high-precision products, and holds the top-class market share.

HOYA Outlook

We will strive for steady business growth focusing on high-precision Gen. 6 products where there are future prospects for growth and on the Chinese market in terms of geographic region.

Market Share (FY2021)



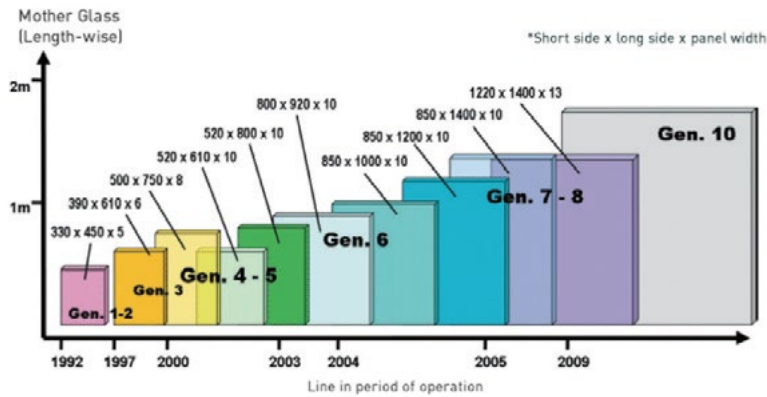
[HOYA estimate on a value basis]

In October 2021, HOYA entered into a merger agreement with the BOE Group—a major panel manufacturer in China—with the aim of enhancing its FPD photomask production capacity in the Chinese market and decided to establish a joint venture company in China.

(The joint venture company will be established after the conclusion of various ancillary contracts and the completion of legal clearance and other procedures in the relevant countries, including China.)

▶ Panel Generations

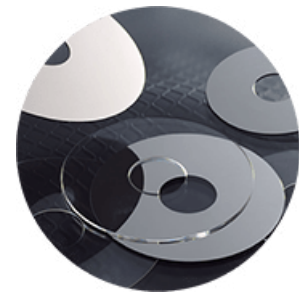
FPD (LCD, OLED, etc.) manufacturing lines are categorized by generation, which corresponds to mother glass size. The size of mother glass has become progressively larger year by year not only because TV screens have become bigger, but also for the purpose of enhancing productivity by increasing the number of panel configurations per sheet. Growth is expected to continue going forward also with respect to small- and medium-sized panels centering on Gen. 6, in which HOYA has an edge, driven mainly by demand for OLEDs for smartphones.



Glass Substrates for HDDs

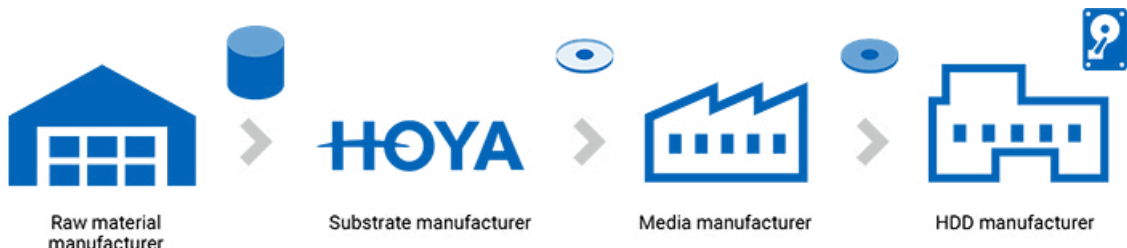
▶ Business Overview

In this area, HOYA conducts research and development, manufacturing, and sales of glass substrates for hard disk drives (HDDs). HDDs are used as internal storage for servers and personal computers, as well as external HDDs for personal computers and TVs.



Since HOYA's full-fledged entry into the market of 3.5-inch substrates for data center servers in 2017, the business has continued to undergo high growth to the extent that it accounted for 60% of the sales of the business segment in terms of amount in fiscal 2021.

▶ Supply Chain



From raw material manufacturers, HOYA sources substrate raw materials, which we process in ways such as making it into a disc shape, enhancing its shock resistance, and polishing. After processing, we deliver this substrate to the media manufacturer where magnetic film is applied, among other film-forming processes, and it undergoes burnishing (final polishing) and other treatments before being shipped. In hard disk manufacturing, the HDD manufacturer assembles the hard disk, head, and other components, tests the completed product, and then ships.

Note: Media production is primarily carried out by HDD manufacturers.

➤ **Finished Products**

HOYA's 3.5-inch substrates are used in nearline (NL) storage used for backup and other purposes, mainly at data centers.

➤ **Market Conditions**

In the 3.5-inch HDD market, NL servers, having a comparatively low access frequency with backup applications, predominantly use HDDs due to their cost advantages over solid state drives (SSDs). Although data center-related investments made by large-scale cloud service vendors fluctuate in the short term, ongoing market expansion is expected in the medium and long term as data generation volumes expand throughout the world.

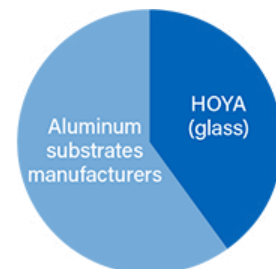
In the fields of laptop computers, external HDDs, and mission-critical servers, the market for 2.5-inch HDDs is shrinking, as they are being replaced by solid state drives (SSDs), which have faster data read/write speeds. In fiscal 2021, the demand for 2.5-inch HDDs was relatively high due to the impact of COVID-19, slowing down market contraction as a whole. This is deemed to have been attributable to the high demand for HDDs and external HDDs for personal computers due to the continuation of high demand for personal computers arising from Work From Home (WFH) and homeschooling, combined with the high demand for HDDs for servers due to the recovery of on-premise expenditures that had plummeted in the previous year.

➤ **HOYA Position and Market Share**

Currently, all 2.5-inch substrates are made of glass. As the sole glass substrate manufacturer in the market, HOYA supports the HDD industry behind the scenes.

In the 3.5-inch substrate segment, products made of aluminum used to completely dominate the market based on their price advantage. However, our glass substrate products are now being adopted for HDDs as they are highly rigid and can increase the number of mounting disks by thinning the disks, and their market share in volume terms has risen to 40%. As the storage capacity of HDDs expands, our market share is also expected to expand.

3.5-Inch Substrate Used for Near Line Servers Market Share (FY2021)



[HOYA estimate on a volume basis]

➤ **HOYA Outlook**

Sales of 3.5-inch substrates are expected growth in line with the continued expansion of the market. In the medium term, growth is expected to accelerate through the acquisition of new customers; we will switch existing manufacturing facilities and utilize the new plant in Laos to meet the increase in demand.

➤ **Potential for Glass Substrates in the 3.5-inch Market**

In response to the expansion of data volume and the storage volume generated worldwide, HDD manufacturers are continually introducing in the market new products with higher data capacity per HDD. The increase in data capacity per HDD has been realized by increasing the recording density or area of the

disk, but, at present, the development of technologies designed to improve recording density is stagnating, and the expansion of the recording area remains key to capacity expansion.

In the 3.5-inch market, the disk material is now mainly aluminum alloy. However, since a further increase in area can be realized by increasing the number of mounting disks by thinning the disks, it is becoming necessary to use glass instead of aluminum alloy as the former has higher rigidity and allows for more thinning.

In the future, if the number of disks mounted in a single HDD increases to 11, the substrate's thickness is expected to become 0.5mm or less, in which case the productivity of aluminum substrates is expected to fall, and from 2024 onwards, substrates for nearline (NL) storage is projected to be in short supply.

In the event that Heat-Assisted Magnetic Recording (HAMR)—a next-generation recording technology for higher recording density—is realized and commercialized, glass substrates with high thermal resistance will be the only option because HAMR requires high temperature in the magnetic film production process (the heatproof temperature of glass is 691 degrees Celsius, whereas that of aluminum alloy is 290 degrees Celsius).

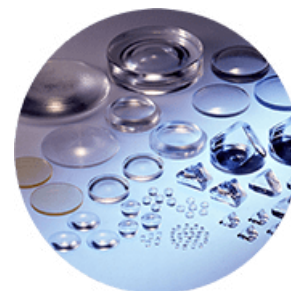
While 2.5-inch substrate products are expected to decrease as more and more HDDs in external HDDs, personal computers and mission-critical servers continue to be replaced with SSDs in the future, we will pursue the growth of the business as a whole by offsetting this with an increase in sales of 3.5-inch substrate products.

Imaging

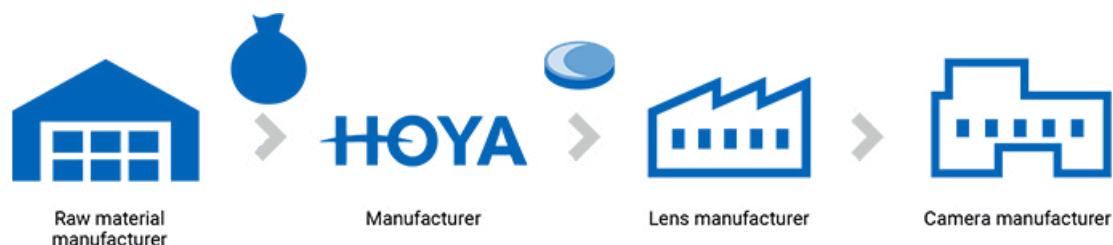
Imaging-related Products (Including optical glass, optical lenses, camera lens units, and lasers)

> Business Overview

In this area, we conduct research and development, manufacturing, and sales of optical lenses for a variety of cameras, as well as for optical glass materials.



> Supply Chain

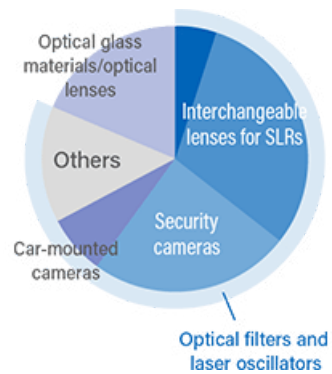


HOYA sources materials from optical glass material manufacturers, conducts compound and solution treatments, manufactures lens materials and lens products, and delivers to lens and camera manufacturers.

▶ **Sales Composition by Application**

The ratio of sales by application is as the right figure. Digital camera-related items for compact digital cameras, interchangeable lenses, etc. that had previously made up the majority of sales are trending down, and now account for approximately 40% of total sales.

Sales Composition by Application (FY2021)



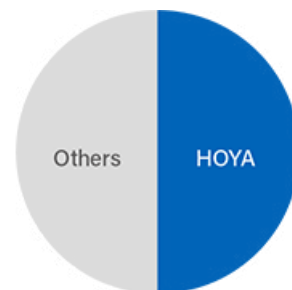
▶ **Market Conditions**

The amount of shipment of interchangeable lenses for single-lens reflex (SLR) cameras and mirrorless cameras substantially increased due to the increase in sales of new products for high-end cameras and the recovery from the previous year when sales had suffered from the impact of COVID-19.

▶ **HOYA Position and Market Share**

From research and development of optical glass composition to manufacturing of finished products of lenses, HOYA takes a consistent approach to its activities while building a structure that makes possible the mass production of an array of products.

Share of Aspherical GMO Lenses (Digital Camera-Related) (FY2020)



HOYA maintains a high market share with its exceptional skills in aspherical glass molded (GMO) lenses.

GMOs are formed by directly pressing optical glass that has been subjected to high temperatures to make it malleable. These are optical lens products that require no polishing, and possess an excellent ability to correct distortions. Enabling a high angle design, the number of lenses used in optical systems can be reduced, and this contributes to compact, lightweight, and highly functional end-product cameras.

[HOYA estimate on a value basis]

▶ **HOYA Outlook**

Applications for interchangeable lenses for SLR cameras are not expected to decrease as drastically as before due to the increase in sales of high-end cameras.

We will steadily expand the sale of optical products for new applications such as car-mounted cameras in an effort to stabilize the business as a whole.

For new applications, we are enhancing our sales activities for the adoption of HOYA products in advanced driver-assistance systems (ADASs), optical zooms for mobile devices and Augmented Reality (AR)/Mixed Reality (MR). In particular, their potential in the market of car-mounted cameras for image recognition in ADASs looks promising; we expect them to make a significant contribution to our business results when the practical application of this technology goes into full swing in a few years' time.