#### USHIO

www.ushio.co.jp/en/



#### Applying Light to Life

The Ushio Group Corporate Brochure

Turning light into energy and illumination

Ushio believes in the almost infinite possibilities that light can illuminate and accomplish. We are pioneering new markets that use light to not only illuminate but also to power modern life, using ultraviolet light to create photochemical energy and infrared light for thermal energy.

Photos: Xenon projector and xenon short arc lamp—a light that has been described as a "miniature sun"



#### Creating a bright future since 1964

#### Lighting up new possibilities

#### A half-century of brilliance.

- A future where development is sustainable and safe for our planet.
- A high-tech future like we've only seen in movies.
- A future where lives we couldn't have saved, can be saved.

With "light," the future can go beyond our imagination. So today, we continue to believe and challenge the endless possibilities of "light." Digital cinemas / 3D

Virtual reality (VR) / simulation

Video display systems for surveillance and control





Medical Application Environmental Hygiene

> Agriculture Security

Industrial Process Ρ4

Life Science P12

Research & Development P16













# Industrial Process

#### Bringing dreams to life with light

The electronics industry has accomplished remarkable things within our lifetime, turning the once-fanciful images of science-fiction fans—computers that fit in the palm of your hand, and cars that run on electricity—into everyday consumer products. Even when the products differ slightly from the original concepts, this progress illustrates the immense power of industrial process. Ushio is also focusing its efforts to develop a multitude of lighting products and applications in an effort to transform today's science-fiction fantasies into reality.

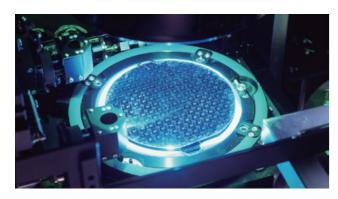
Semiconductors, flat panel displays, precision equipment, photochemistry, printing, electronic components, production equipment



### Industrial Process

As electronic process gadgets continue to get smaller, thinner and more precise, Ushio lighting products help propel this advance

▶ Semiconductors, flat panel displays, precision equipment, photochemistry, printings, electronic components, production equipment



#### LITHOGRAPHY TOOLS

MODIFICATION

removal)

strate surfaces.

**UV CURING** 

(bonding and drying)

rials and application.

Ushio offers a wide range of prod-

ucts that can do everything from

hardening miniature photoresists to

bonding the entire surface of a large

LCD panel or optical film. Ushio can develop optimized UV curing systems tailored to precisely match the mate-

Ushio is the only manufacturer of lithography tools that has the necessary technological expertise-light sources, optical technology, wafer conveyance equipment, alignment, power sources and software—to develop and produce complete lithography tools in-house.

(Photo cleaning and particle

Ushio products use ultraviolet light technology to promote chemical reac-

tions-decomposition, compound

synthesis and polymerization—to





Lithography tools





Atmospheric-pressure plasma reactor



UV-LED irradiation unit



Spot UV irradiation



Light source unit for physicochemical equipment



Light sources for experimental systems







EQUIPMENT Ushio light sources are used in office equipment such as printers and photo copiers. The company is constantly developing new products that match customer requirements while reducing power consumption and providing high resolution and top quality.









#### EXPERIMENTAL SYSTEMS

Ushio can provide optical inspection systems to meet a multitude of requirements, with light sources ranging from infrared to visible light and ultraviolet, photo-responsive testing and the development of new processes and materials.



#### PHOTOHEATING (deposition and diffusion)

Ushio's heating lamps offer characteristics that other heat sources cannot match, including rapid heating/cooling and non-contact heating with precise temperature control. The company offers everything from light sources to full processing lines.





Flash lamp annealing

#### OFFICE AUTOMATION

#### OPTICAL MEASURING

As a company that specializes in optics, Ushio has accumulated extensive experience and know-how in optical measuring equipment. Precise regulation of the light source helps to improve quality.



LED module for document scanners



Lamps to fix toners



mulated UV meter UV intensity meter



Spectro-radiometer UV intensity meter/ spectro-reflectance meter

#### INDUSTRIAL MACHINERY

Ushio offers a variety of engineering systems that help to improve efficiency and quality, including plastic-related products from raw materials to inspection equipment for injection mold machinery and metal molds, food packaging, inspection and robotic systems.

# Visual Imaging

#### What will the future bring to light?

The world is moving toward a new tomorrow, which will merge the traditions, customs and history of each country with the dreams and imaginations of a new generation. Light can not only illuminate, but also illustrate, record and transmit those ideas or accomplishments from the past to the future, and from one person to another. Ushio wants to realize the possibilities that only light can accomplish, illuminating today's world with images of what the future will bring.

Digital cinemas / 3D, virtual reality (VR) / simulation, video display systems for surveillance and control, light sources for projectors, general and commercial lighting, landscape lighting, stage and studio lighting



# Visual Imaging

From entertainment, to light sources, to research and development–Ushio provides imaging and lighting to match your inspiration



#### **DIGITAL CINEMAS / 3D**

Ushio's digital cinema products include the world's most advanced digital projector, with 4K resolution and 3D projection capabilities. The company offers comprehensive support with everything from theatre design and equipment to network operation centers capable of managing multi-screen theatres.

VIRTUAL REALITY (VR) /

Ushio's virtual reality systems offer the

wide field of view and realistic depth

perception that make them suitable

for a multitude of applications, from

automotive design to weather, flood

and landslide simulations. When they

are connected to Ushio's high-resolu-

tion projectors, these systems can be

used for airplane or large shipping

SIMULATION

control simulators.



Digital cinema projector



contor



simulation system

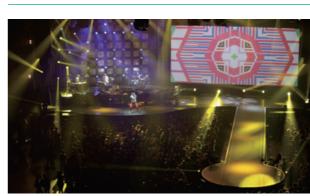


3D video display system for VR

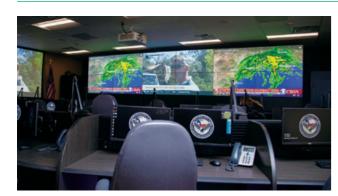


LIGHTING Ushio supplies lighting products ranging from LED bulbs to halogen lamps and metal halide lamps, high-value-added lighting systems and lighting design support. Our products can appropriately illuminate the atmosphere of any living space.





LIGHTING Ushio offers lighting solutions for any venue, whether it be a stage show, concert hall, hotel ballroom or banquet hall. A total package can be developed, including lighting, sound and video projection.



#### VIDEO DISPLAY SYSTEMS FOR SURVEILLANCE AND CONTROL

Ushio's maintenance-free video display systems offer unparalleled video resolution quality. The reliability of these systems makes them ideal for use by police, in control centers of electric power and communications providers, or as digital signage displays on the side of buildings.



Extremely narrow-bezel LCD video wall panel for control room



Small indoor LED tiles that can build your display in virtually any shape or size



Projector lamps for cinema



ductor lasers used in a projection system





#### LIGHT SOURCES FOR PROJECTORS

Thanks to the superior color resolution it offers, Ushio boasts the largest share of the global market for light sources used in video projectors. The company has a full lineup of products with light and power sources suited to various types of lamps for data projectors, LEDs, and lasers, which are used at homes, offices, and schools.

#### GENERAL AND COMMERCIAL





Halogen lamps

#### LANDSCAPE LIGHTING

Whether it is to illuminate the ornate materials in a building, or to provide the dynamic lighting and projection mapping for a live performance, Ushio offers products that meet all customer requirements. We can provide a total package of support including not only light sources and lamps but also projection equipment, sound systems and even software content.

#### STAGE AND STUDIO



Ultra-bright projector



Full-color LED modules



Xenon follow spotlights



# Life Science

#### Promoting a bright future for everyone

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Human beings are constantly reaching for the stars, but they also want to preserve a good environment on this planet for their children, and provide good health and medical care for their families. Light not only helps us in unraveling the mysteries of the universe, but it also powers our ecosystem and facilitates an understanding life itself.

Medical Application, environmental hygiene, optical testing, agriculture, marine/fisheries, security, space exploration

# Life Science

Researching basic technologies and principles of light, and applying them to the needs of the future





Light-based medical equipment is attracting great interest due to its ability to enhance the quality of life. Ushio employs the most advanced technology to develop new products used in medical treatment, diagnosis, testing and sterilization/ hygiene.

ENVIRONMENTAL HYGIENE

Ushio has developed light-based

products for the preservation of

natural environment that help

improve water quality in rivers,

groundwater, water supply and

sewerage systems, prevent air

pollution by reducing gas and

particle emissions, and reduce



UV phototherapy device for dermatological problems "TheraBeam UV 308 mini"



UV-based ozone generator for air purification



Filtered Far UV-C disinfection light



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#### OPTICAL TESTING

virus and bacteria.

Ushio's image-testing equipment, which can be adapted to match the product being tested, makes it easy to identify even minute flaws or precision errors.



Image-testing equipment



endoscope



Light sources and power supplies for plant cultivation



Lamp for plant cultivation

Ushio is a strong parther to space agencies/space business parthers for a long time now. Ushio has developed a solar simulator which allows conditions in space to be recreated on the ground, using a man-made "sun".



#### AGRICULTURE (cultivation and propagation)

Agriculture faces great challenges in our modern world to preserve the safety, quality and stability of our food supply. By developing and optimizing man-made light sources that can be used for cultivation, Ushio hopes to help solve global food supply issues.

14

#### MARINE/FISHERIES

High-quality searchlights and floodlights play an important role in marine safety, disaster prevention and surveillance. In addition to these products, Ushio offers a lineup of lights for luring fish and illuminating boat decks, which help to improve efficiency and create a safer working environment on fishing boats.



LED light for attracting fish



Remote-controlled searchlight

#### SECURITY (hazardous chemicals, surveillance and information security)

Ushio provides products for a variety of purposes including the detection of pesticides and hazardous chemicals, nighttime surveillance and security. Ushio products also are used to prevent data theft and provide information security for computer systems.

#### SPACE EXPLORATION



Laser diode for sensing



Infrared LED flood light



Solar simulator for space exploration



Optical Integrator Tunnel

### Research & Development

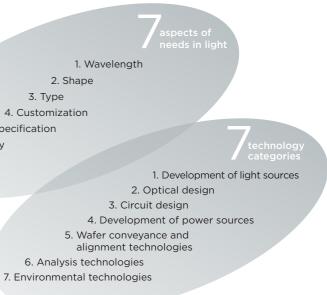
Exploring new uses for light

With a long history as a manufacturer of lighting products, Ushio has acquired an extensive and highly specialized expertise, along with a versatility born of cooperative efforts that transcend the lighting industry. Ushio's technological skill and comprehensive understanding of light are reflected in every product that the company produces and we continue to explore and develop future applications for light. Ushio strives to develop lighting applications that facilitate solutions to the world's problems.

5. Specification 6. Energy 7. Heat

Ushio develops applications for light which can address problems that past technology and techniques were unable to solve. This is the result of Ushio's close cooperation in developing solutions. Before developing a product, information on the client's intended concept, the desired effect and conditions of use, the items to be illuminated, and a host of other details are verified, and if necessary, a new light source is developed for the purpose. Ushio employs its technological and development skills to offer a high value-added, comprehensive solution, covering everything from the light source and equipment to the systems and software. In this way, the company strives to surpass the customer's expectations with every product it makes.

We develop products that can delight and thrill our customers, exceeding their expectations.



# Quality Production

#### As the market leader, Ushio has a responsibility for the highest quality products

Ushio carefully determines the lighting requirements, makes sure that the product fully meets every one of the specifications, and maintains strict quality standards in every stage of development, testing and mass production trials. When a product reaches the production stage, every effort is made to meet companywide standards of quality, cost, speed and efficiency. In this way, Ushio strives to build world-class quality into every product it makes.

#### **Basic Philosophy**

Ushio regards product quality as an overriding priority and will promptly provide global markets with high quality, safe products and services that are highly reliable and economical in order to fulfill the requirements of customers.

#### Action Guidelines

1. We will act rigorously in putting the customer first and putting quality first, and will develop appealing products with cutting-edge technology to fulfill the requirements of customers and earn their trust.

2. We will strive to further improve quality by developing entity-level quality management systems and continually working to improve their effectiveness in order to meet the needs of customers.

3. We will work to share information with customers, make cost improvements, develop new products, pioneer new markets, and promptly provide global markets with high quality, safe products that are highly reliable and economical.

# Global Network

#### Delivering high-quality light to Asia, Europe and the Americas

Today, demand for light products has a strong global character; for example, semiconductor manufacturers have production bases dispersed around the globe, while medical activities frequently transcend international boundaries. Ushio has a network of group companies in 100 countries and regions around the world, all of which draw upon Ushio's expertise in light technology and satisfying the diverse needs of customers. When clients deal directly with Ushio, they can expect to receive the same high quality and service in every part of the world.

to the

Sales and support basesDevelopment and manufacturing bases

# Sustainability

#### All operations dedicated to the Ushio corporate philosophy

Ushio makes good corporate citizenship a cornerstone of all its activities. The company maintains strict compliance standards, is active in environmental preservation, considers the needs of all employees, and pursues an active sustainability program. Moreover, Ushio strives to build good relations with all stakeholders, seeking ways to develop and provide them with value, while contributing to society as a whole. This responsive and responsible attitude has been a central consideration in Ushio's corporate philosophy since the company was founded.



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For further informa Ushio website.

#### Ushio Group Management Philosophy

1.

Build both a prosperous Company and prosperous employees.

2. Deliver products and services that are competitive in the global market. 3.

Contribute to society through superior products and innovative research and development.

4.

Expand profits, corporate responsibility, and competitiveness through open and free-thinking business operations.

For further information about sustainability initiatives at Ushio, please refer to the

#### A future beyond Imagining through Innovation with Light

Since the day of our founding in 1964, we, a company that brings innovation with "light," have created a host of world-first products that have gone on to achieve leading market shares internationally, most notably in fields such as industrial processes, visual imaging, life sciences, and photonics solutions.

The potential of light still today has yet to be fully explored, and Ushio strongly believes that there is much more that light can do.

Determined to embody the thinking and the ideal implied in the corporate slogan "Applying Light to Life" that we developed based on our management philosophy, we will contribute to realizing a future and a culture beyond imagining. At the same time, we will sincerely commit to ESG management and will work harder than ever before to achieve sustainable growth and improve corporate value.

> Takabumi Asahi President and CEO

W/ And

