

Application Systems

Optics & Optical Coatings

Opto-Mechanics

Manual Positioners

Motion Control Products

01



Light Solutions for Life®

Our manufacturing is shining toward the future.

The manufacturing that gives shape to the “light” that does not have a form;
respond to a request from the future, faster than anyone else.

We will contribute broadly to society through manufacturing.

We offer a variety of Component parts, Units and Systems.

We provide one-stop service with consistent support, from Product planning
and Development, through Prototyping and Evaluation, to Production of
small and OEM volumes.

We meet the challenge to

“FORM WHAT OUR CUSTOMERS WANT”.

The unique technologies of our group companies are fused into one to derive
and put forward a new global standard of quality.

A new global brand is born.

We are OptoSigma.

Light Solutions for Life®



Laser Solution

Sigma koki Group is your global supplier of quality solutions for broad range of applications from R&D to production equipment.

COMPONENTS

Optics
Opto-Mechanics & Manual Positioners
Motorized Stages

From Components to Units

UNITS

Power Supplies
Optical Components
Motion Controls

From Units to Application Systems

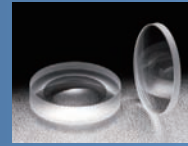
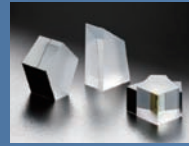
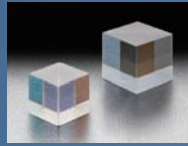
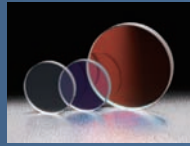
APPLICATION SYSTEMS

Laser Processing Systems
Bio-photonics Products

ENVIRONMENT & SAFETY

**Optics &
Optical Coatings**

Over 10,000 items



**Optical-Mechanics &
Manual Positioners**

Over 2,000 items



Motion Control Products

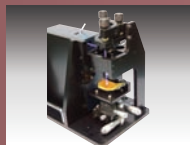
Over 200 items



Power Supplies



Optical Components



Motion Controls



Laser Processing Systems

Bio-photonics Product



**Environments and
Safety Products**





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The world is

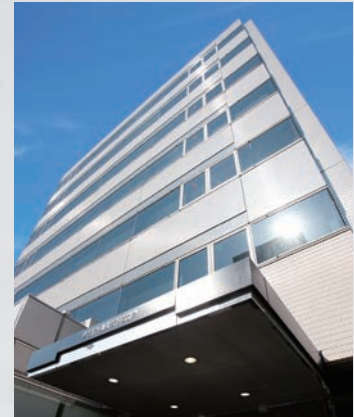
 **SIGMA KOKI CO., LTD.**

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shared



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New Technology Adoption

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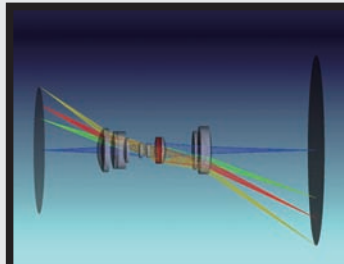
To develop and manufacture the best quality of our optical and mechanical products, we are progressively investing in new equipments and updating our production lines.

DESIGN



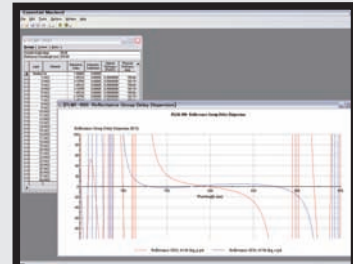
3D CAD Design

Equipment it allows also avoiding interference of parts in static and in operation condition.



Optical Design

Enable to provide optical design with right optical material property of custom requirements optical lens and optical parts.



Coating Design

Enable to select and set the coating condition of custom requirements such as thin-film material, multilayer, thickness of the layer.

PROCESSING & INSPECTION



5-axis Vertical Machining Center Machine

Cleaner Coating Enable to process diverse shapes of product.



LatheNC Polishing Machine Polish

Enable to polish the high precision lenses at a high speed.



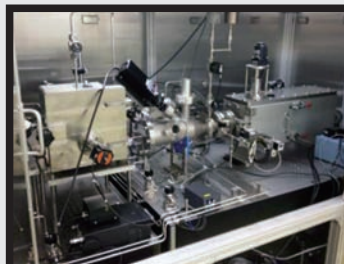
IBS (Ion-Beam-Sputter)

Enable to realize a high precision optics with high reflectivity, high damage threshold and low scattering optics.



Ring Polisher

Machine Polish the flat surface of Mirror, Prism to reach a high surface accuracy.



Near Field Etching system

Using a dry non contact etching system to enable to achieve $Ra < 1 \text{ \AA}$ surface on optics



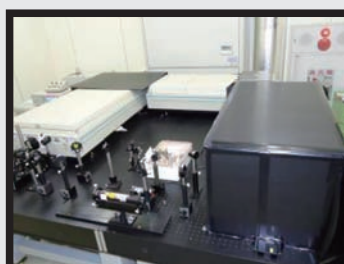
Ion Assisted Deposition Ultrasonic

Design Enable to have the deposited layer with a higher density and a more compact structure.



CNC LatheNC

Center Machine the lens tubes or round shape parts to the center of optical axis ,and possible to machine the hole and angle with high-accuracy positioning at once.



CRD (Cavity Ring-Down)

Measuring the lifetime of photons stored in the Fabry-Perot resonator, and measure the reflection of high-reflective mirror.



Deposition Ultrasonic Cleaner Coating Enable

Wash the substrates before coating.

PROCESSING



Vertical Milling Machining

Used for processing the parts of a wide variety of lots.



Wire Electric Discharge Process

Process the micro shape by wire electric discharging.



Horizontal Milling Machine

Many kinds of machining tools are equipped for various productions and manufacture intricately-shaped mass-production items.

INSPECTION AND EVALUATION



UV-NIR Spectrophotometer

To analyze spectra-characteristics of material in the range from ultraviolet to infrared.



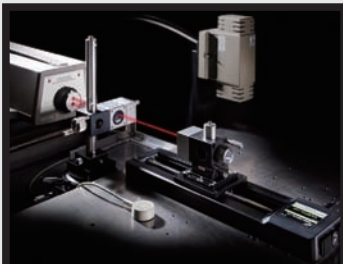
Scanning Electron Microscope

Possible to measure and estimate the surface structure or to run the elemental analysis which covered the weak point of optical microscope.



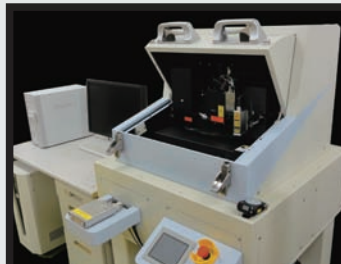
3D Optical Surface Profiler

Characterizing and quantifying the surface roughness and the micro shape of the substrate.



Laser Calibration System

To measure the positional accuracy, the position repeatability and the lost motion of the motorized linear stages.



AFM (Atomic Force Microscope)

It is a type of microscope to detect the atomic force acting on the probe and the sample and it is possible to measure the surface shape of the sub-nanometer.



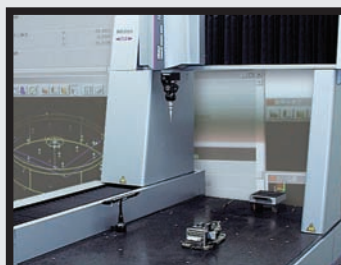
Focometer

To measure the accuracy of the focal length of spherical lens.



Zygo Laser Interferometer

Using ZYGO interferometer system to measure, estimate and guarantee the surface flatness of master optics.



3D Measurement Machine

To measure and estimate the complex 3D shapes of parts and products.



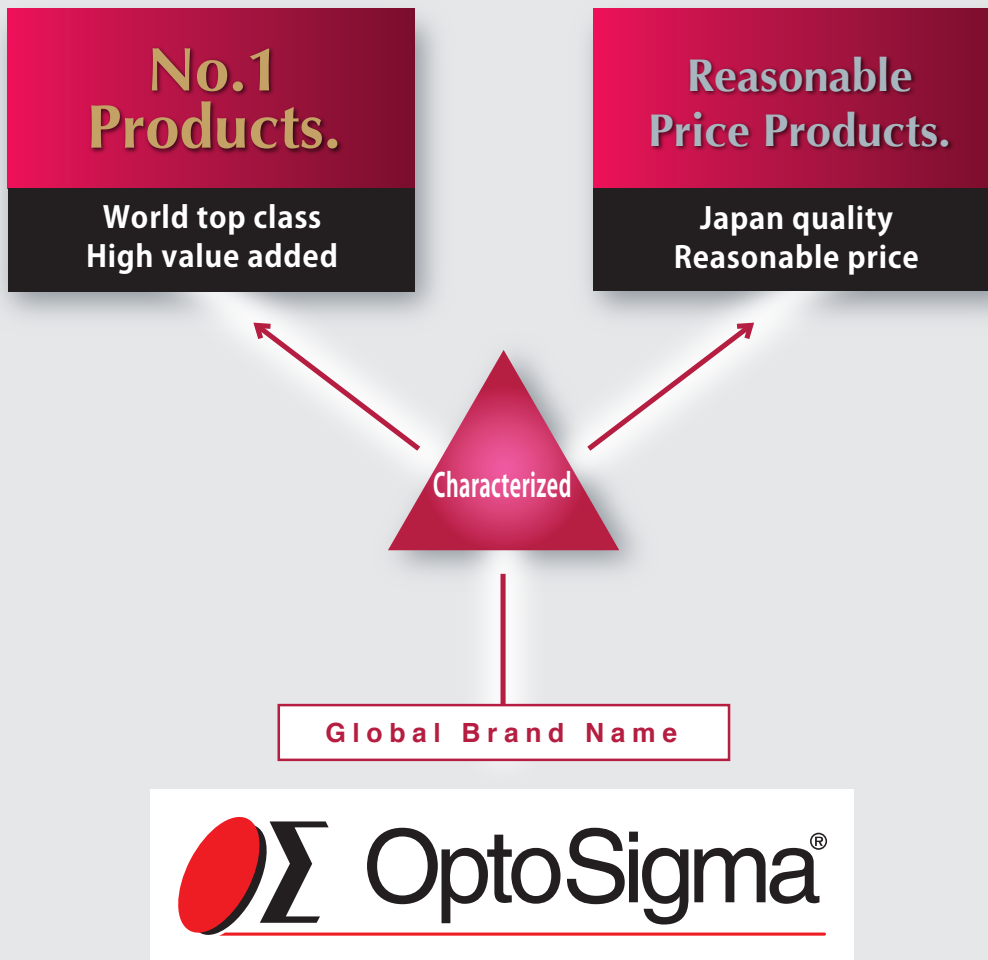
DUV Spectrophotometer

To measure the spectra-characteristics of coating products for UV range which cannot measure by regular spectrophotometer.

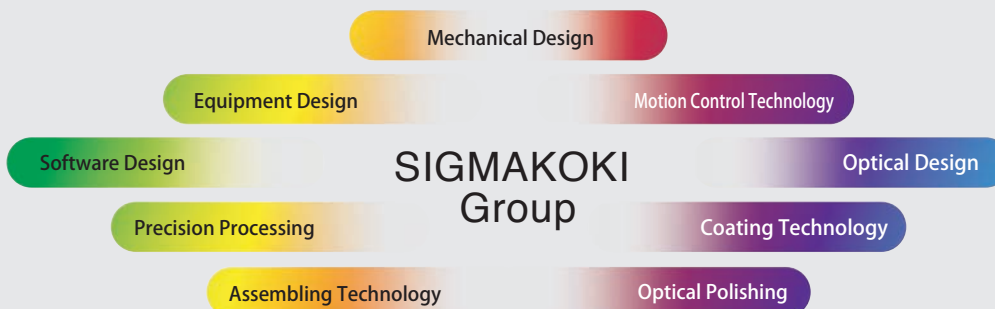


product will backup you in the lineup of a variety of products.

Sigma Koki is promoting two characterized products, “high added value” and “Japan quality” as to customer themselves be able freely chose among the catalog product that match with the situation.



Reliable technology supporting the product of OptoSigma



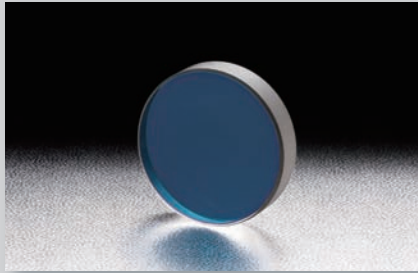
No.1 Products.



Surface Accuracy Guaranteed Mirrors
HTFM series



Ultra Broadband Dielectric Mirrors
TFMS series



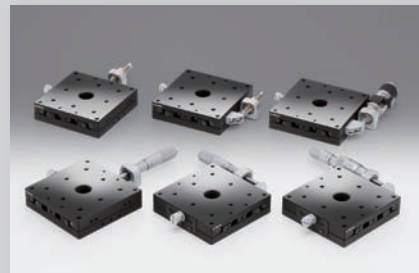
Low Dispersion Mirrors for Femtosecond Laser
FLM/FLMHP series



Dielectric Mirrors for High Power Laser
TFMHP series



NOMI LOCK™ kinematic mirror holder
MHG-NL series



Steel Extended Contact Slide Stages
TSD series

Reasonable Price Products.



Thin type kinematic mirror holder
MHGT series



Aluminum stage
TADC series



"Form What Our Customers Want", a series of product that has been realized based on the voice of the customer



High Performance Stage
HPS series

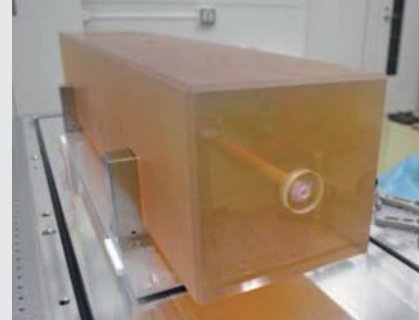
SIGMA KOKI is challenging to the “Global Only 1” technology.

Super Mirror

Sigma Koki supports many researchers in the world, and is always challenging to manufacture very unique product. As one example, we (Sigma Koki) introduce the “Super Mirror” manufactured for Quantum Metrology Laboratory, RIKEN in Japan.

Quantum Metrology Laboratory uses an ultra-stable optical cavity with the “Super Mirror” to make a narrow-line-width laser in their highly-precise atomic clock “optical lattice clock”.

Sigma Koki has cooperated and received an order of manufacturing ultra-high stable optical cavity used in this “new clock”. This optical cavity should be high finesse to accumulate a lot of light in the cavity, so the mirrors with the reflectance as close to “1” (100%) as possible are required. In order to realize such a special mirror, there are severe technical requirements in roughness for surface polishing and defects in the mirror coating. Sigma Koki had achieved the production of this special mirror as “Super Mirror”. Sigma Koki produces the “Super Mirror” with the (following) three special techniques.



Super high quality Optical Coating technology

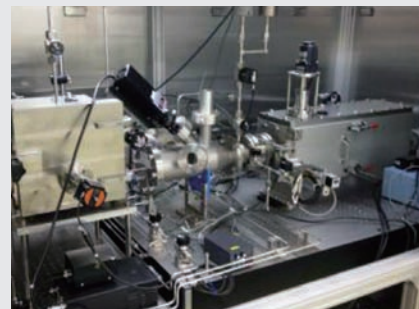
For Super Mirror, a coating with extremely small light scattering loss and high laser damage threshold is required. For this purpose, Sigma Koki has used the IBS (Ion Beam Sputtering) technology and developed a capability of producing a world top class Ultra Low Loss (10ppm or less) coating.



Low Scattering Polishing technique

The glass substrate to be used for the Super Mirror is required to have ultimate surface smoothness. To detect the very small irregularities is difficult, but it becomes a problem even if there is roughness of 0.1nm or less. For this reason, from its superior glass polishing technique, Sigma Koki has established a mass production capability of low-scattering substrate of Ra 0.2nm. Furthermore, in order to achieve Ra 0.1nm or less that can not be reached in the conventional polishing, Sigma Koki has co-developed a Near-field Light Etching method. *1

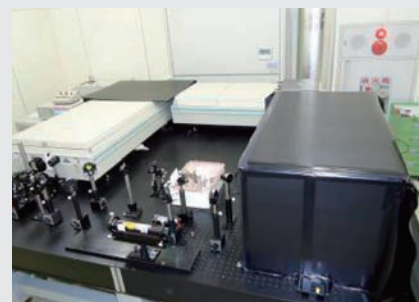
*1 Joint research project with Dr. Motoichi Ohtsu (Professor, Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo)



Evaluation technology for the Super Mirror

Reflectivity of the Super Mirror is extremely close to “1”, and therefore it is not possible to make an accurate measurement with standard apparatus. Sigma Koki has created a CRD (Cavity Ring-Down) system for evaluation of the super mirror by ourselves. With this system, it is possible to evaluate the effective reflectance *2, spectral line width and the finesse.

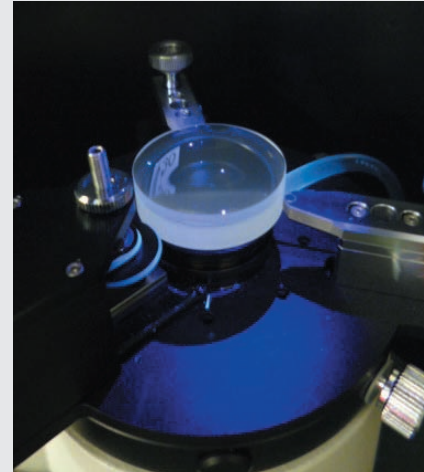
*2 The effective reflectivity is substantive reflectance that contributes to confinement of light into the cavity, and does not contain the scattered component of the coating or the substrate.



Compound lens

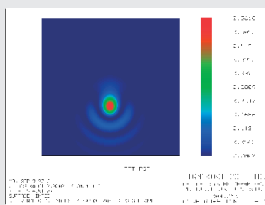
Lens assembly

Assembled lens products, such as objective lens and microscope, have been used several pieces of the bonded lens. The bonding of the lens will be mostly manufactured in a UV-curable adhesive. Lens that is coated with adhesive is cured by the UV lamp after repeated adjustment and confirmation of the eccentricity using the centering microscope. However, the state of the eccentricity is changed under the influence of shrinkage when the adhesive is cured. In anticipation of the impact of the curing effect, the skilled person is conducting the work of curing and adjustment.

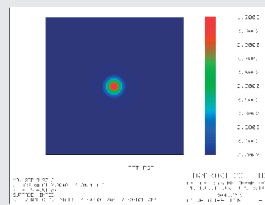


Assembly and Alignment

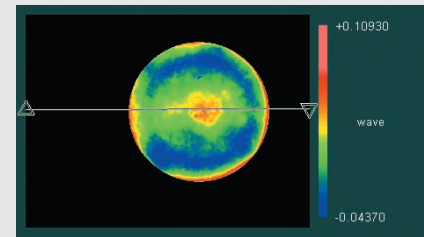
By using a lens with less aberrations and well adjusted, light emitted from a point is focused to one point. Therefore, if you observe a small pinhole, it looks to become a perfect point image. On the other hand, you can see the shape of the point image is lost in the lens of poor adjustment. The assembling technicians have conducted adjustment while observing the point image, so as to become a single point. By comparison the lens design data and transmitted wave front of the lens measured with interferometer, it is possible to make a plan of adjustment: how much and which part of the lens has to be adjusted. By using an interferometer, it is possible to perform an exact adjustment target and more quantified as an aberration coefficient adjustment.



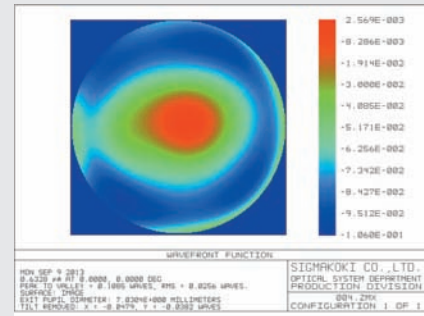
Inspection before Alignment



Inspection after Alignment



Measurement data of the transmitted wavefront (RMS0.022 λ)



Transmitted wavefront which is calculated from the aberration coefficient

Environmental testing

When using the multi-element lens product, a various environmental load will impact on it. It has been conducting environmental testing variously on demand to demonstrate the performance of the prescribed even when the load is applied.

[Temperature] Changes in temperature cause expansion and contraction of the material, which results in the stressing load to the product. Even in such conditions, in order to guarantee the performance, it is made the measurement of the transmitted wavefront at various temperature environment.

[Transport (vibration / drop)] In addition to the load due to vibration, transportation of the product involves a risk of falling. To ensure proper performance after transport, we make the vibration and dropping test in packaged condition in advance.



- **Trading name** SIGMA KOKI CO.,LTD.
- **Established** April 1977
- **Listing** Osaka Securities Exchange JASDAQ
- **Paid-in capital** ¥2,623 million
- **Facilities**

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 - Technology center** 1-1 Yatsukaho, Hakusan-shi, Ishikawa 924-0838
TEL: +81-76-274-6100 / FAX: +81-76-274-6103
- **Directors** President Ryoji Mori and six others
- **Employees** 357 (as of May 31, 2013)
- **Manufacturing equipment**
Machining center, Wire electric discharge machine Grinding machine, NC mold polisher, NC lathe, Five-axis bridge type CNC machining center, NC engraver, Surface generator, Polishing machine (Lenses, Prisms, Laser crystals), Lapping machine, Optical coating machine, Precision slicing machine
- **Testing and measuring equipment**
Zygo laser interferometer, Fujinon laser interferometer, Spectrophotometer, Autocollimator, Focal length measuring device, Laser interferometric measurement equipment, Hardness meter, 3D measuring device
- **Affiliates**
OptoSigma Corporation
OptoSigma Europe S.A.S.
Shanghai Sigma Koki Co.,Ltd.
TAC COAT CO.,Ltd.
- **Company activities**

 - Opto-Mechanics / Manual Stages & Holders** Over 2,000 types
Bases, Holders, Stages, etc.
 - Optics / Coating Products** Over 10,000 types
Mirrors, Beam splitters, Filter, Lenses, Prisms, Polarizers, Laser crystals, Nonlinear crystals, Substrates, etc.
 - Motion Control Application Systems** Over 200 types
Automatic positioning devices, Optical measurement devices, Software for positioning and measurement
 - Laser System Products**
Laser direct lithographic systems,
High-speed laser processing systems for micro-fabrication,
Hybrid laser processing systems, Bio-related Products,
Microabration systems, Micromanipulation systems,
XY motorized stage system for microscope
 - Optical Application System Products**
Laser application system products, Contracted & Custom-made products

Supporting the global Research and Development society with the “Made In Japan”

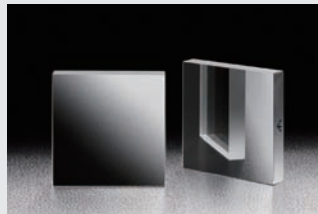
We have two business units; the optical components unit and the system product unit. The know-how in optical components that we have acquired allows us to expand our business to system product. We have an engineering structure that allow us to support our customers from product conception, development, prototyping to evaluating the final product.

Based on the superior manufacturing technique and the wealth of actual performance in the laser application, our laser components have been adopted not only in the filed of R&D but in many production device for supporting Opto-electronics Industry.



Optics / Coating Products

High precision polishing optical products and high-quality coatings used in R&D of laser optical technology. We are able to offer a wide variety of optical elements based on our high production technologies and years of experience.



Opt-mechanics / Manual Stages & Holders

The opto-mechanical hardware used in the industry manufacturing lines and R&D of laser optical technology. Holders, Manual positioning stages, Bases all are the essential parts in Photonics industry.



Motion Control Application Systems

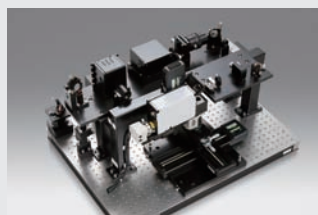
Motorized positioning stages, controllers and software for supporting the equipment automation, application of measurement and inspection.



We are supporting a large range of application system product line up which are used not only in Research and Development but also in measurement, inspection, evaluation, analysis, production and product assembly line. Our High-quality systems and laser components manufacturing technologies have been adopted in various fields of both R&D and Industry.

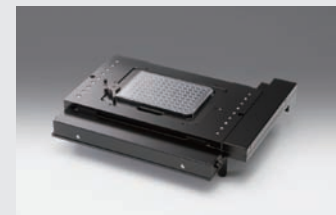
Laser Processing Systems

Sigma Koki offers both the total system applications based on laser optical technology and the components in the systems as a unit product.



Bio Photonics Products

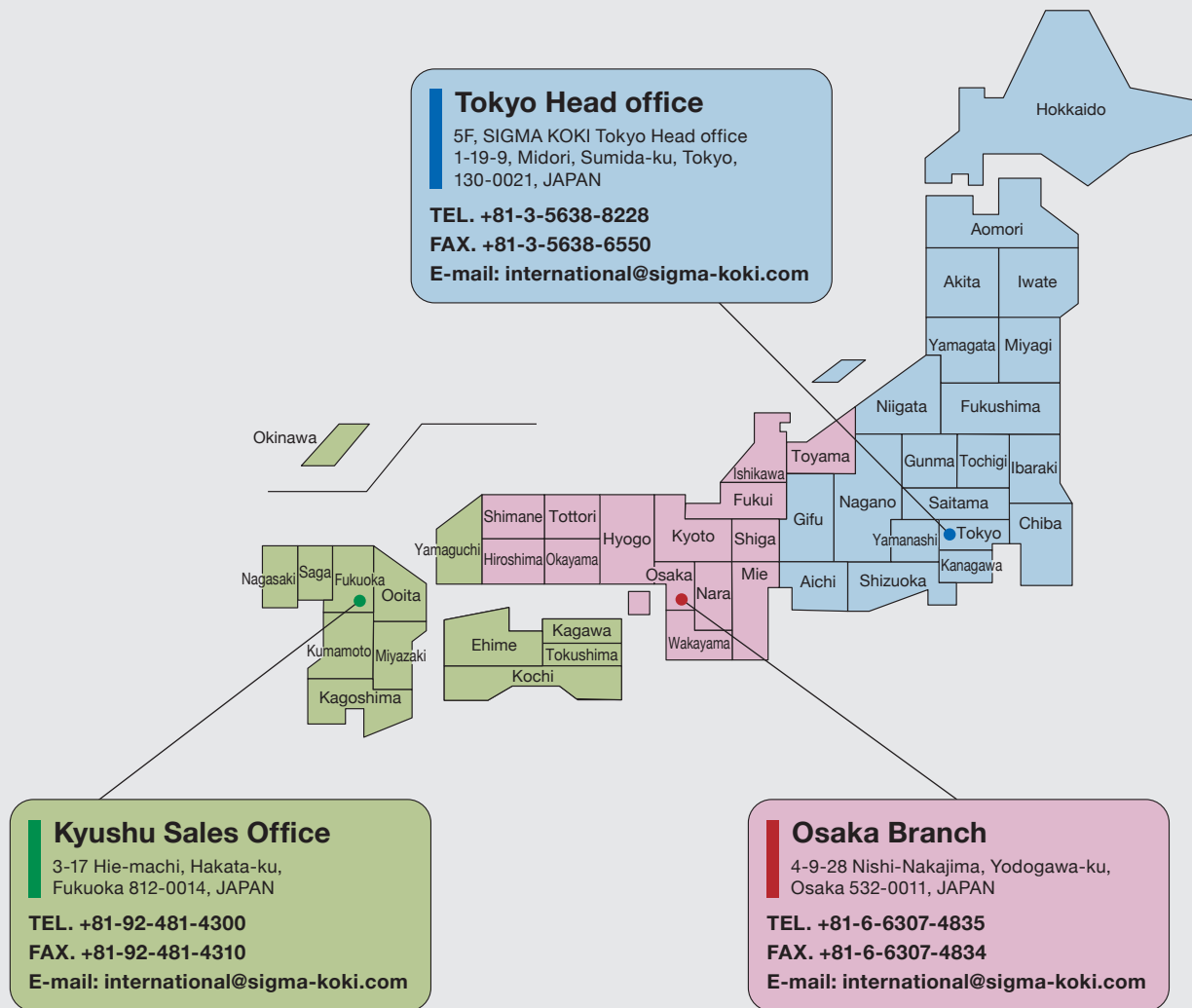
Laser Optical Tweezers, Motorized Stage System for Microscope, are the products which were developed and commercialized based on our high production technologies in optics field.



Measurement Systems

Utilizing our technologies in optical field and precision positioning field, Sigma Koki is able to offer the products which are adaptable to a wide variety of needs for diversified market.





Guide for Website

Customers can get new products information, tradeshow schedules, investor information, upcoming events and other up-to-date information through our website.

The latest catalogs and other technical resources are available upon request from the website.

In addition to the product search from the part number and part name, customer can also download the CAD data, sending RFQs or placing a purchase order through our Web catalog.



Our Website will be renewed on August 2014.

Japan, ASIA & Oceania



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Thank you for Choosing OptoSigma Corporation

Headquartered in Santa Ana, California, OptoSigma continues to provide the photonics industry with the finest laser grade Thin Film Coatings, Optical Components, Opto-Mechanics, Manual and Motorized positioning to the domestic USA and international agents for over 18 years. The keys to their success are global manufacturing, consistent product performance and availability, price and delivery, and good old-fashioned customer service.

An Industry Exclusive

OptoSigma's "premier technology" is its high-performance TSD extended contact stages, used for any precision application, such as positioning components in a laser path. Made of hardened tool steel and with very few moving parts, they are very low-profile, precise and rugged. The vacuum-compatible TSD stages, used in ultraclean environments — are vacuum-ready right out of the box. The micrometers have no paint — they come ready to go in vacuum chambers.

OptoSigma's 'Specialty'

OptoSigma's specialty is its custom optical coatings. Manufactured within a class-1000 cleanroom designed for cleaning, loading, and inspecting optics both catalog or customer supplied, all components are carefully inspected before and after coating. This environment is virtually particulate-free. High performance coatings from 190 nm to 3 microns are provided in Ion-Assist Deposition chambers and Advanced Plasma Source Ion-Assist chambers.

A Focus on Serving You

OptoSigma continues to actively invest in its future in order to provide superior products and service to our domestic US and international customers.

"The philosophy behind the successful growth of our business has been communication. We pride ourselves on listening to what our customers ask for. There are many companies in our industry who think that they know what customers want and manufacture products only to find out that they missed the mark. Our philosophy is ... listen... and provide the customer with products that meet their requirements and needs. By providing people what they are asking for, we create a partnership that is long lasting and mutually beneficial."

OptoSigma Corporation
Your partner in success



Terms and Conditions

Product Ordering

We accept orders by mail, phone, fax or e-mail. Please provide a Purchase Order number and specify the OptoSigma product numbers required as well as full details of any special requirements. If you send a confirmation of your telephone or e-mail order please make sure that it clearly states: "CONFIRMING ORDER." Changes to existing orders must be submitted in writing and may be subject to price and delivery modifications

Quotations

Quotations for non-standard catalog items or special quantities and deliveries are in effect for 30 days after the date issued unless other agreements are made. Prices quoted are based on terms and specifications as stated in the OptoSigma quote. Requested deviations to terms and specifications are subject to revised pricing and delivery.

Prices

Prices for the United States are listed in OptoSigma catalogs and are current at the time of publication but we reserve the right to change them without notice. For orders shipped outside the U.S. simply add 10% to the U.S. price. Prices quoted are normally held for 30 days. Goods are sold FOB Santa Ana, California. Title passes to the customer on shipment. Customers are responsible for outgoing freight charges, insurance (if requested) and any applicable sales taxes.

Method of Shipment

We normally ship to US customers by surface transportation. Shipping and handling charges are prepaid and added to your invoice. Allow 2-4 days for in-stock delivery. However, we will expedite shipment with an increased charge upon your request.

Terms of Payment

Net-30 terms are offered to US customers subject to credit approval. Alternatively we will accept credit card payment or COD. Export orders must be fully prepaid in US currency, by credit card, or by letter of credit issued by a US bank.

Delivery Time

We provide an estimate of the delivery time and do everything in our power to meet our committed shipping dates; however, we cannot be held responsible for any delays in transportation, nor any consequential damage caused by late delivery. Our ability to meet scheduled delivery dates may also be affected by material availability and shop load at the time of order.

Product Specifications

The specifications provided in our literature or with our quotations are intended to be accurate. However, we reserve the right to change specifications if necessary and we make no claim about the suitability of our products for any particular intended purpose.

Warranties and Returns

We want you to be satisfied with the quality of our products and therefore offer a 30-day "no-question-asked" return policy on standard catalog products of incidental quantities. If you wish to return such product within 30 days of date of invoice it will be replaced or refunded without question if returned in undamaged, re-stockable condition. After 30 days these products will be accepted for repair or replacement only if they are found to be defective. A 20% restocking charge will be applied for products accepted beyond the 30-day period, at the discretion of OptoSigma Corporation. Specially manufactured, custom products or motorized products are specifically excluded from the 30-day "no-questions-asked" policy. These products are made and warranted to your written specifications only. All products are warranted to be free from defects for 60 days after date of invoice. Our responsibility under warranty is limited to repair, replacement and/or refund. OptoSigma shall not be liable to the customer or any third party for indirect, incidental or consequential damages related to sale or use of its products. If you need to return a product please call first to obtain a RETURN AUTHORIZATION NUMBER. Then pack the product carefully and return to us freight prepaid. RMA's must be returned to OptoSigma within 10 days of receiving the RMA number. On receipt of the product we will assess the situation and if out of warranty we will inform you of any charges which will be due on repair, replacement or restocking charge.

Cancellations

Orders of special products, or catalog products of non-incidental quantities, may be cancelled only if by written notice 60 days prior to the scheduled delivery date. Differences in price breaks will be billed back where applicable. The customer shall be responsible for all work-in-process in addition to the 60-day obligation.

Business purposes

Sigma Koki Group has been serving its European customers for over 17 years through its American subsidiary company OptoSigma Corporation and its European distributors in Europe and earned the trust and confidence of thousand of customers. We launched the European subsidiary OptoSigma Europe in the surrounding of Paris in France from the 1st of April 2014. Our European distributors will get direct support from this office along with a stock products directly from Japan. Our European distributors will be able to get delivery of catalog, advices on products directly from our European office. We will also be able to shorten our shipment time to get the product shipped directly from Japan to our European distributors. Thank you for continually choosing OptoSigma, a global brand of OptoMechanics, Optics, Motion Control and System products.

Management Policy

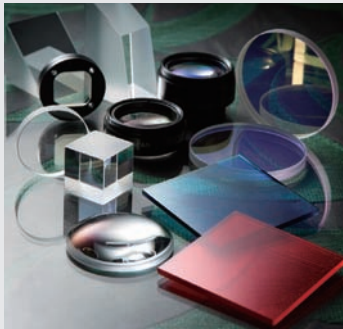
- 1- We build up a corporate culture that can obtain the customer and the society trust.
- 2- We are engaged with all members of the company of promoting strongly the avoid wasting energy, reducing waste and recycling.
- 3- We develop permanently the company by training local staff and promoting local next generation of management.
- 4- We promote strongly a high transparency organizational structure and a collective wisdom.
- 5- We build a company with challenging mind set, creative, bright, fun and healthy management.



Product List

OptoSigma Europe serve you throught our European distributors in Germany, France, United Kongdom, Italy, The netherlands Belgum, Spain, Portugal, Greece, Isareal, the Scandinavian countries and the Eastern Europe.

We visit all our customer all over Europe regularly , we accept to be call off for engineering meetings for any project you may need to discuss with our application engineers or technical support staffs.



Optics & Optical Coatings



Multi-Element Optics



Manual Positioners



Motion Control Products



Holders



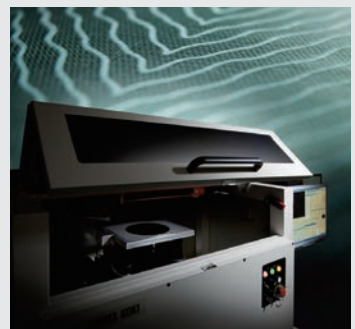
Actuators



Bases



Interferometers



Application Systems

The efforts to improve the customer satisfaction

Our company statement is to improve the customer satisfaction by hearing sincerely the customer opinions and requests in our daily work to push forward the customer satisfaction level.

Based on the customer opinions and requests, our target is to become a 100% customer satisfaction company and obtain the customer confidence by doing our best effort to improve our “Monozukuri” (manufacturing technology) to a higher level.

Leverage the customer opinions

We consider the direct contact with the customer over the telephone with our sales department as a valuable hotline. We take the valuable opinions and requests from the customer seriously and we promise to implement them.

The “Okyaku sama mesen” means literally “the customer eye focus line”

From the top management to the sales department staffs, we are always looking at the “Okyaku sama mesen” to push forward our “Monozukuri”.

The effort for the Quality policies – Environmental policies

Quality policies

- We regard our top management priority to be maintaining and improving customer satisfaction, a goal equal in significance to product quality assurance. Management and employees combine their efforts in order to achieve this goal.
- Management and employees are required to abide by all product-oriented laws, ordinances, and agreements while seeking to fulfill customer requirements.
- We strive to improve customer satisfaction not just by providing high-quality products, but also by offering timely product delivery, attractive pricing, and honest customer service.
- To meet customer requirements, we work hard to design, manufacture and inspect products in the most effective ways available.
- We make effective utilization of employees, funds, establishments and facilities to continually to improve our quality management system.
- Pursuing improvements is a continuing process implemented through management reviews, quality meetings, and internal quality audits.

Environmental policies

- We regard environmental conservation as a central management issue, one to which the combined efforts of management and employees must be directed.
- We adhere to all environmental regulations, ordinances, and agreements, as well as customer requirements, seeking to establish voluntary standards where appropriate to maintain and improve activities involving environmental conservation.
- We seek to implement the pollution prevention, energy conservation, resource conservation and recycling by selecting technically optimal, cost-effective solutions.
- To implement concrete action in line with our environmental policies, we establish environmental objectives and targets, perform voluntary reviews of environmental activities, and promote continuing improvements.
- We seek to increase employee environmental awareness through training, and by disseminating information on pollution prevention, documenting appropriate procedures, and ensuring strict adherence to environmental policies.
- Pursuing improvements is a continuing process implemented through management reviews, environmental management committee, and internal audits.

ISO 9001:2008, ISO 14001:2004 Obtained

We obtained integrated certificate of ISO9001 : 2008 and ISO14001 : 2004 in All facilities.

Efforts for the European RoHS Directive

Environmental protection is one of the most important issues in corporate management for the company. Currently, we are making efforts trying to contribute to the development of a sustainable society while maximizing corporate value.

We are actively promoting the elimination of harmful substances in the product from the RoHS Directive. And at the same time reviewing our manufacturing process, we are also in the elimination of substances RoHS Directive through the promotion of green procurement in material purchasing.

■ What is the European RoHS Directive

The Directive “RoHS” is that of the Directive the restriction of the use of certain chemical substances in electrical and electronic equipment in the (European Union) EU enforcement of July 1, 2006. The lifecycle of the product throughout the production and disposal of waste, are intended to minimize the impact on the natural environment and human health.

Reference: Prohibited Substances Directive RoHS

- ◎ Lead (Lead and its compounds) : Less than 1,000ppm
- ◎ Mercury (Mercury and its compounds) : less than 1,000ppm
- ◎ Cadmium (Cadmium and its compounds) : less than 100ppm
- ◎ Hexavalent chromium (hexavalent chromium compounds) : less than 1,000ppm
- ◎ Polybrominated biphenyls (PBB) : less than 1,000ppm
- ◎ Polybrominated diphenyl ethers (PBDE) : less than 1,000ppm

■ Identification of the goods on the European RoHS directive compliant

The products are considered “RoHS Directive compliant products” that respond to the requirements of the European RoHS directive.

In our catalog and Website, there are displays of the “RoHS” marked on the corresponding products on the listed pages.

Also, it shows the “RoHS” mark (described model No. etc.) that are attached to the identification seal packaging of our products.

RoHS mark of the seal that is attached to the packaging



Identification seal

color of the band
Corresponding products: Green
Non-corresponding products: Purple



Example of
automatic application products

■ About China RoHS Directive

Upper limit of the amount of regulated substances and acceptable content in China RoHS*¹ is the same as the European RoHS.

However, there is no provision for “exemption” to China RoHS, it is regarded as “not applicable” if it contained the substances in excess of the value threshold.

*1 China RoHS: Measures for the Control of Pollution Caused by Electronic Information Products Production (Promulgated February 28, 2006 / Enforcement, March 01, 2007)

[Caution] Please respond at your discretion that you check the official website of the Chinese government and the standard kind original law if it is actually compatible.

For China RoHS, please contact our international sales division.

Common Specifications Easier to see Product specifications and Features.

Product name

Features

Picture of product

Specifications

Catalog Code

Reference data

Applicable product described the mark

Available of 2CAD (dxf), 3CAD (STP, SAT, IGS) downloading from the web site

RoHS or CE marking

CAD data mark

Product specification

Item review and specification table

Drawings

Easier to see drawings by different color of the outline drawing and dimension lines. Drawings in this catalog are listed in the free scale. Please check the actual dimension size.

Please note that due to the improvement of the quality, exchange rate fluctuations and the other reasons, regard to the contents of this catalog may change specifications, the accuracy and the price without prior notice.
Please note that we are not responsible for any damage caused by typographical errors or omissions, although we take greatly care in the production of our catalog.

Available of 2CAD (dxf), 3CAD (STP, SAT, IGS) downloading from the web site

Product name

CAD data mark

Part Number

Inch standard was added

Product specification

Option

Reference Actuators

Part Number	TSD-401	TSD-402	TSD-403	TSD-404	TSD-405
Stage size	40mm	40mm	40mm	40mm	40mm
Lead	0.025	0.025	0.025	0.025	0.025
Lead Error	±0.005	±0.005	±0.005	±0.005	±0.005
Backlash	0.005	0.005	0.005	0.005	0.005
Stiffness	100N/mm	100N/mm	100N/mm	100N/mm	100N/mm
Max. Load	10N	10N	10N	10N	10N
Max. Speed	100mm/min	100mm/min	100mm/min	100mm/min	100mm/min
Max. Accel.	1000mm/s²	1000mm/s²	1000mm/s²	1000mm/s²	1000mm/s²
Max. Temp.	50°C	50°C	50°C	50°C	50°C
Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Weight	0.1kg	0.1kg	0.1kg	0.1kg	0.1kg

Option code (Reference Guide)

Please add an option code as the part number suffix to specify various optional specifications.

Drawings

Easier to see a drawings by different color of the outline drawing and dimension lines. Drawings in this catalog are listed in the free scale. Please check the actual dimension size.

Micrometer control position / feed control

Change the micrometer control position or feed control to suit your purpose

.....Select according to your purpose such as for price reduction and space saving.

Price Reduction

Option code FP

FPSA Fine-pitch Screw Adjusters

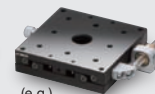
Reference F010



Price of manual stages can be reduced. Ideal for positioning that does not require measurement, and installation in confined spaces.



(e.g.) TSD-601CFP



(e.g.) TSD-601SFP

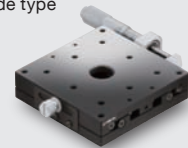
Standard Micrometer Heads

Reference F004

Center type



Side type



High Resolution

Option code DM
MHF2-13 Micrometer Heads

Reference F006



Fine positioning is possible by switching between coarse and fine adjustments.



(e.g.) TSD-601SDM

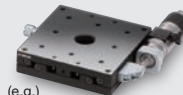
Space Saving

Option code WP
WGP Sub-Micron Differential Micrometers

Reference F007



Offer low price and space saving coarse/fine adjustment micrometer heads. Coarse and fine drive control is possible throughout the full travel.



(e.g.) TSD-601SWP

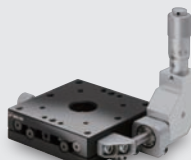
Improving Work Efficiency

Option code DL
MDC-** Angled Micrometer Heads

Reference F008



Unidirectional control units increases work efficiency.



(e.g.) TSD-601SDL

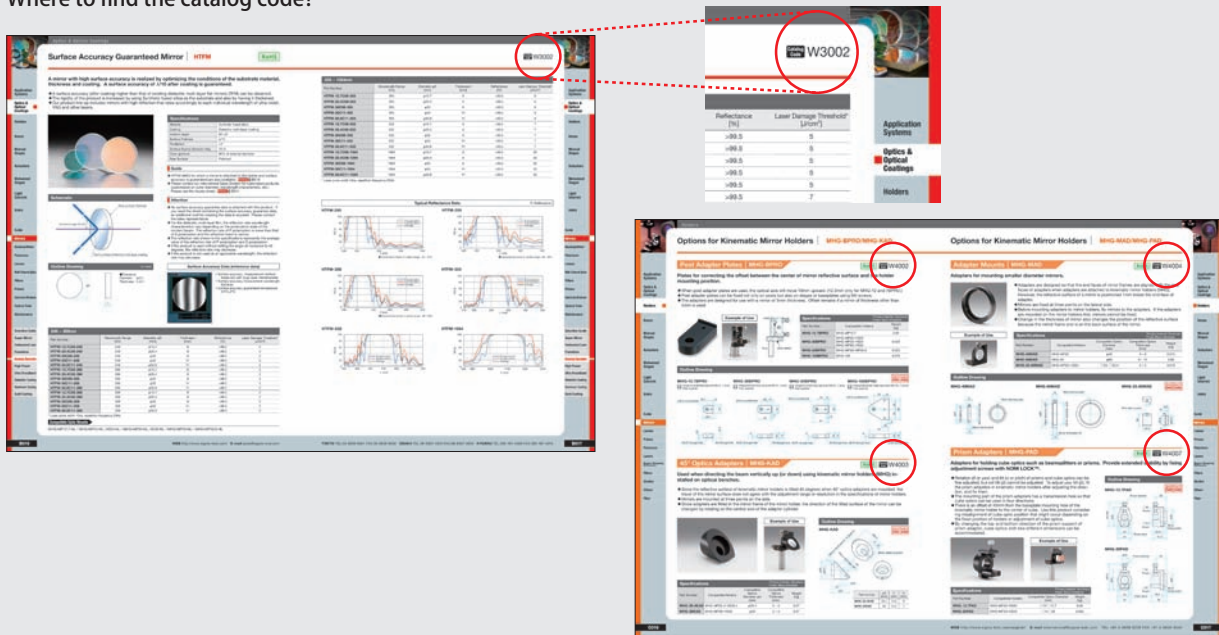
Instruction Introduction of "Catalog Code"

Catalog code listed in this catalog is the original code of Sigma Koki.

You can save your time to look for a same product on our web site which you found in the catalog.

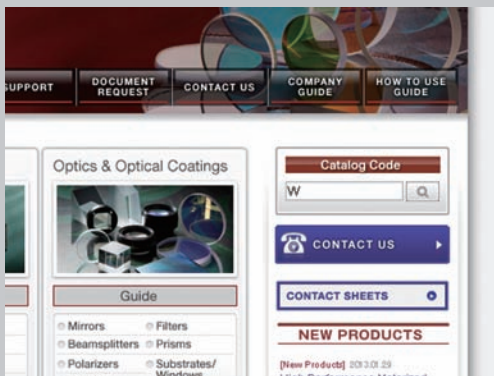
You can jump to the product web page by entering the catalog code described in the catalog in the home page of Sigma Koki.

Where to find the catalog code?



Enter the catalog code on the home page of Sigma Koki.

You can directly access the required page.



You can also view related products.

Example:

You can also check the adaptation of holders by searching of the optics.

From a showroom for “displaying products” to a showroom where customers can “use”, can “see”, can “do simulation” and can “experience” the products.

We have a “Show Room” and a “Garage Lab” in our Tokyo head office, where new products and major products line are shown permanently.

You can move, touch, and see the actual products.

One of the most attractive experience of our showroom is that you can see many of our products in real.

You will be able to manipulate the products and feel the material of the products where you will never feel by only looking at the catalog and the website.

In addition, we are the first in our industry offering a real “GARAGE LAB” space as a research and development room where darkroom, vibration isolated optical table and a wide variety of products are available for you to realize your experimentation.



Where you can see by yourself the features of our new products.

We have a personnel who will be your guide and answer to all your questions from a simple question to a complex technical question about our new products and our main products you may require.

We can help you to select your product and image-building of your need.

Sometime, it is difficult to explain to people about your experiment project that you have in mind. In our show-room, our personnel can assist you in products selection according to your budget and your required specifications.



Contribution to society

Sigma Koki launches Hikari no Terakoya which literally means “temple school of light” to the local elementary school children to familiar with the “light” and “optics”. The mission consists of raising the interest of the children in light by conducting simple experiments of the principle of light such as the refraction and the reflection.

