SEIKOH GIKEN

経営理念

CORPORATE PRINCIPLES

すぐれた技術と独創性で、質の高い商品を供給し、社会の進歩発展に貢献して、
会社の成長と社員の幸福を追求すると同時に、その社会的責任を果たす。

Provide high-quality products based on superior technology and originality,
contribute to the development of the community and society,
pursue the growth of the Company and the welfare of employees, and meet the Company's social responsibilities.

ビジョン

VISION

精密加工を核に、世界の顧客のベストパートナーになる。
〜顧客の成長に必要な唯一無二の存在〜

"Become global customer's best partner centered on precision pressing.
– The one and only partner indispensable for customers' growth –."

A Message from Seikoh Giken

Based on leading-edge precision machining expertise, we work to build a future of comfort and convenience for people around the world

We seek to become customers' best partner sharing in customers' problem solving

We aspire to be the close-by, reliable partner who helps realize customers' envisioned goals. This concept consistently provides that basis for our work at Seikoh Giken. We will continue in our advances to become customers' indispensable best partner in jointly creating environments of comfort and convenience.

Top Message

Seikoh Giken has since its founding in 1972 developed operations centered on its core technology in precision machining, and has consistently offered products required by the markets with special attention to small size, precision, and optics. Today, building on this special attention and based on Seikoh Giken's precision machining expertise, Seikoh Giken's key businesses in precision molds and optical products concentrate Seikoh Giken's management resources on the information industry, displaying steady growth while responding to customer requirements with regard to quality, accuracy, and performance. New fields added of late include product line-ups in optical lenses and photo electric field sensors, which accompany a steady widening of the range of applications of products and services provided by Seikoh Giken.

The information industry is seen to continue expanding in step with the growth in the data circulating through the global Internet and proliferating communications infrastructure. It is true, however, that growth industries, specifically the information industry, are marked by rapid technology innovation, requiring outstanding marketing capabilities and leading-edge technological development prowess capable of appreciably grasping future needs ahead of competitors.

Seikoh Giken will continue to respond swiftly to changes in its environment and through products and services characterized by small size, precision, and optics contribute to a wide range of industrial fields that promise future growth, specifically medical, bio-science, and automotive applications as fields outside the information industry. In this and other ways, Seikoh Giken will continue to establish itself as global customers' best partner.

Seikoh Giken does appreciate your continued association and support.

Masatoshi Ueno
President and CEO

Company Profile

Trade Name
SEIKOH GIKEN Co., Ltd.

Head Office
296-1 Matsuhidai, Matsudo-shi, Chiba 270-2214, Japan

URL
http://www.seikoh-giken.co.jp/en/index.html

Established
June 17, 1972

Capital
6,791,682,700 yen

Exchange Listings
Tokyo Securities Exchange (JASDAQ standard)

Transaction Banks
The Bank of Tokyo-Mitsubishi UFJ, Ltd. / Mizuho Bank, Ltd. / The Chiba Bank, Ltd.

Affiliated Companies

Subsidiaries

- SEIKOH GIKEN USA, INC. (100% owned)
  4405 International Boulevard, Suite B109, Norcross, GA 30093, U.S.A.
- SEIKOH GIKEN EUROPE GmbH (100% owned)
  Siemensstrasse 9, D-63263 Neu-Isenburg, Germany
- Seikoh Giken Hangzhou Co., Ltd. (100% owned)
  526 Binkang Road Binjiang District, Hangzhou, Zhejiang, China 310052, P.R. China
- Seikoh Giken Dalian Co., Ltd. (100% owned)
  No.10 The 2nd. Street of Liaohezhong Economic & Technological Development Area Dalian, 116600 P.R. China
- Milestone Co., Ltd. (50.1% owned)
  296-1 Matsuhidai, Matsudo-shi, Chiba 270-2214, Japan
- FUJI ELECTRONICS INDUSTRIES CO.,LTD (100% owned)
  4-8-1, To-Shinden, Suruga-ku, Shizuoka-Shi, Shizuoka, 421-0112 Japan

Equity-method affiliates

- DATA-PIXEL SAS (France) (49% owned)

Operating Sites

Head Office (factory)
296-1 Matsuhidai, Matsudo-shi, Chiba 270-2214, Japan
TEL: +81-47-311-5111 FAX: +81-47-388-4477
Main products Precision molds, Optical products manufacturing equipments, etc.

No. 2 factory
296-1 Matsuhidai, Matsudo-shi, Chiba 270-2214, Japan
Main products Precision molds, Injection molded articles, Precision polishing, etc.

No. 4 factory
415-2 Matsuhidai, Matsudo-shi, Chiba 270-2214, Japan
Main products Optical communications components, Photo electric field sensors, Injection molded articles

Taiwan Branch
8F-2, 285 Kuang Fu Road, Sec 2, Hsinchu, Taiwan

Global Network

SEIKOH GIKEN EUROPE

DATA-PIXEL

SEIKOH GIKEN USA

Seikoh Giken Hangzhou

Seikoh Giken Dalian

Head Office

FUJI ELECTRONICS INDUSTRIES

Europe

・SEIKOH GIKEN EUROPE GmbH

SEIKOH GIKEN EUROPE GmbH was established in 2002 in Germany as a parts and maintenance vendor for optical disks production molds. In 2005, optical communications components were added to product offerings, resulting in contributing to the application of optical fiber to European communications networks. Covering regions and countries from Eastern Europe to Middle East and Africa, SEIKOH GIKEN EUROPE GmbH has been building partnerships with customers in molds and optical communications products.

・DATA-PIXEL SAS

DATA -PIXEL, based in France, holds the world's top market share in end face geometry measurement equipment for optical communication components. In 2012, Seikoh Giken acquired 49% equity stake in DATA-PIXEL. Through this acquisition Seikoh Giken will in every aspect of sales, product development, and manufacture make effective use of mutual management resources such as technology and expertise, human resources, facilities, and information, and will work to increase the enterprise value of both companies.

America

・SEIKOH GIKEN USA, INC.

In 2000, SEIKOH GIKEN USA, INC. was established in Georgia, USA, as a sales and service base for optical communications components, optical disks production mold parts, and maintenance services for the North and South American regions. SEIKOH GIKEN USA, INC. has been helping to establishing the optical communication infrastructure in the North American region which features the world's largest communication data volume, and contributed to the production of Blu-ray disks and DVDs for movies and games.

Asia

・Seikoh Giken Hangzhou Co., Ltd.
・Seikoh Giken Dalian Co., Ltd.

Against the backdrop of China's rapid economic growth, Seikoh Giken Hangzhou Co., Ltd. and Seikoh Giken Dalian Co., Ltd. were established respectively in 2001 and 2006 as China-based manufacturing sites for optical communications components. The year 2009 saw the production start for highly heat-resistant lenses at Seikoh Giken Hangzhou Co., Ltd. Optimal quality and cost profiles are achieved through local procurement of select materials and thorough stringent quality control. Efforts to sell into the Chinese domestic market have helped to steadily expand the share of the Seikoh Giken brand in this growing field.

・FUJI ELECTRONICS INDUSTRIES CO.,LTD

In 2013, the Seikoh Giken acquired the equity of and added as a consolidated subsidiary Fuji Electronics Industries Co., Ltd., which had been engaged in the development and manufacture of automotive electronic components and precision parts for electronic equipment. Fuji Electronics Industries will fulfill the needs of customers across a wide range of industrial fields by Collaboration the expertise accumulated since its founding in advanced molding technologies such as Composite Precision injection Molding and precision stamping molding, etc., with the precision mold technology of the Seikoh Giken.

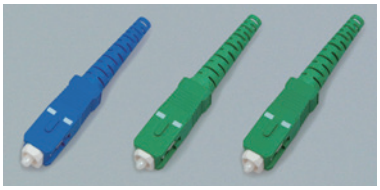
Business domains

From ‘mother’ tooling molds to mass produced molded products. Centering on its core technology, Seikoh Giken is increasing the scope of its product applications.

Optical Communications Components

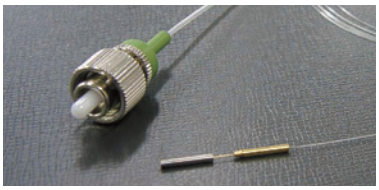
A growing market for optical communications

The volume of data distributed through the Internet is on the rise, backed by factors that include wider use of movie contents, which has the world’s optical communications market on a growth track. Using its proprietary precision polishing and precision assembly technologies, Seikoh Giken manufactures key components for optical communications infrastructure such as optical connectors and optical attenuators.



Customer satisfaction through quality and services

Seikoh Giken has been supplying optical communications components to the markets before the wider adoption of optical broadband. Seikoh Giken is capable of fulfilling customer needs through its wide range of products, from high quality components used in long-distance, intercontinental undersea cables, to highly functional components for FTTH optical connections between bases and individual homes.



Equipment & Device

Defining *de facto* standard for optical connector manufacturing equipment

Using its proprietary engineered composite circular motion mechanism and elastic polishing device, Seikoh Giken has developed optical connector polishing equipment for application in mass production. This resulted in the global premiere of the successful mass production of optical connector endfaces with a convex spherical surface. Today the optical connector polishing equipment developed by Seikoh Giken has become the global *de facto* standard.

Electrical field measurement system and passive optical transmission system

Combining its expertise in optical communications components with technology for freely switching between electrical and optical signals, Seikoh Giken has developed photo electric field sensors capable of accurately measuring high frequency electrical fields. Further product development relates to passive optical transmission systems operable without power supply based on the application of Seikoh Giken’s expertise in RoF (Radio on Fiber) technology, where high frequency radio signals are transported over long distances on optical fibers. These systems are more advanced than existing technologies due to the use of optical fibers instead of cables.

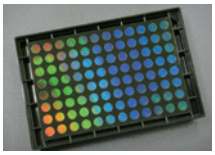
Ultra Precision Molds and Precision Molded Components

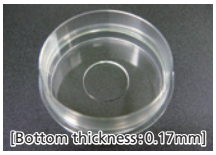
Core technology in action

Over the years since its inception, Seikoh Giken has fostered expertise in ultra precision mold technology. We apply our technical expertise in areas such as low temperature molding technology, thin and flat molding technology, nano level molding technology and using injection molding, we realize our customers’ request that an envisioned object put into tangible shape. We also provides customers with recommendations for improving production efficiency, such as enhancing the yields from molds that customers have in current use or increasing the molding cycle speed.

Pursuing the limits of injection molding

Using ultra-precision mold technology and thin-walled micro transfer technology, Seikoh Giken succeeded in producing thin-walled molded components with wall strengths of less than 0.3mm and mastered the accurate transfer of minute surface configurations at the nanometer-level. These technologies find application in the production of laboratory equipment, such as cell culture plate and micro flow channel chips, and in high-quality molded components used in medical care and biological sciences.





High-Functionality Lenses

High-heat resistant lenses suitable for reflow processing

Backed by its expertise in optical science and precision mold technology, Seikoh Giken started producing lenses in 2007. With lens applications concentrating on smartphone- and tablet-mounted cameras, product offerings include hybrid lenses that combine glass with heat-resistant resin as well as full-resin lenses formed from a heat-resistant resin body. Thanks to their characteristic high-heat resistance, these lenses are suitable for reflow processing, which offers significant productivity gains for our customers.

Ultra-thin micro lenses

The manufacturing methods of Seikoh Giken enable the stable production of hybrid lenses and high-heat-resistant lenses that are ultra-flat at about 0.1mm thickness with diameters of 1mm or less. These tiny dimensions enable applications in future high-growth fields such as wearable devices, medical endoscopes, and micro lens arrays for telecommunications.

History of key products

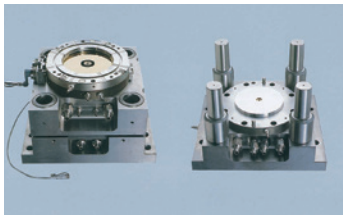
Since its founding, Seikoh Giken has through its commitment to manufacturing and sound technological expertise continued to provide products consistent with the market requirements of their day. In these efforts we will persist also in future.

1972

Backed by rapid economic growth, automobile production increased dramatically. Seikoh Giken started supplying dies and molds to automobile manufacturers who were increasingly switching to in-house production of components. We also provided technical guidance, which helped build the track record of Seikoh Giken and win customers' trust and confidence.

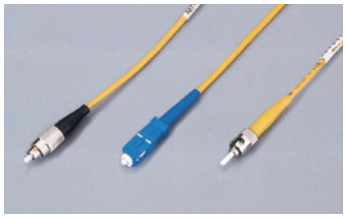
1981

This year marked the development of molds for producing optical disks (MO). Since we succeeded to provide forming accuracy superior to conventional molds, we earned high acclaim from customers. Also, our ability contributed greatly to expanding the optical disk market.



1986

Applying its expertise in metal machining, Seikoh Giken commenced the production of low reflection optical connector cables. Seikoh Giken established its technology for polishing the end surfaces of optical connectors which requires high-precision machining, and expanded its business domains to include the field of optical communications.



1987

Seikoh Giken developed the "SFP-500," the world's first optical connector polishing machine for use in mass production. This machine achieved a polishing performance of minus 50dB, superior by far to the general return loss level of optical connectors at the time.

1989

Seikoh Giken developed the "SFP-510" optical connector polishing machine for use in mass production. This machine achieved to polish the end face of optical connectors into a spherical surface. This development took advantage of a composite circular motion mechanism combining planetary circular motion and rotational motion, with an elastic polishing substrate. This polishing mechanism has become the *de facto* standard for optical connector polishing equipment in use today.

1993

In anticipation of the transition from VTR to DVD, Seikoh Giken started the manufacture of molds for DVD production. The achieved higher density contributed to the growth of the DVD market. Subsequently, Seikoh Giken advanced into molds for Blu-ray Discs.

2003

Seikoh Giken developed "Ferrule Mate™," a cleaner capable of efficiently cleaning the ferrule endface inside the optical connector adaptor. With the use of a tape forwarding mechanism developed uniquely, the endfaces of ferrule are cleaned in a short time with a simple one-step operation, contributing to cost and labor saving at customers' operations.

2007

Seikoh Giken developed jointly with Milestone Co., Ltd. the MSG Lens, which excels in high heat resistance. This lens enables reflow processing (a manufacturing process whereby soldering is completed in a short time in a high temperature furnace) for camera lenses integrated in mobile phones, offering productivity gains for customers.

2008

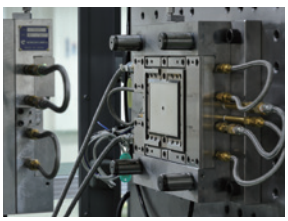
Seikoh Giken developed the "Passive Optical Transmission System" which converts digital terrestrial broadcasting waves to optical signals at receptor sensors that do not require power units and transmits the signals to transmission stations via optical fiber. Resistant against lightning damage, this technology is widely used as a system for delivering digital terrestrial broadcasting waves to low-reception areas such as mountain valleys and remote islands.

2009

Seikoh Giken developed "Ferrule Pro," an automated desk-top cleaner that efficiently cleans optical connector endfaces. Cleaning time per terminal is approximately three seconds, marking a dramatic reduction compared with the usual manual work. Cleaning that is uniformly consistent, unlike in the case of individual manual action, helps realize manpower reduction in inspection processes.

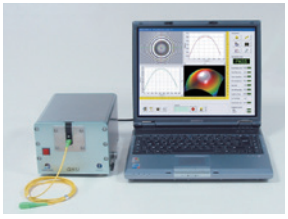
2011

Based on the technology accumulated in optical disk molds, Seikoh Giken developed high-precision mold technologies such as low temperature molding, thin-wall molding and micro transfer technology, and gained the know-how for the forming and injection molding of intricately shaped, extremely thin-walled objects and much higher cycle time than before.



2012

Seikoh Giken acquired 49% equity interest in DATA-PIXEL SAS of France, the global top in the manufacture of end face geometry measurement equipment for optical communication components. Through exhaustive cooperation in sales, technology and manufacture, Seikoh Giken will further strengthen its position in the market for optical communication equipment.



2013

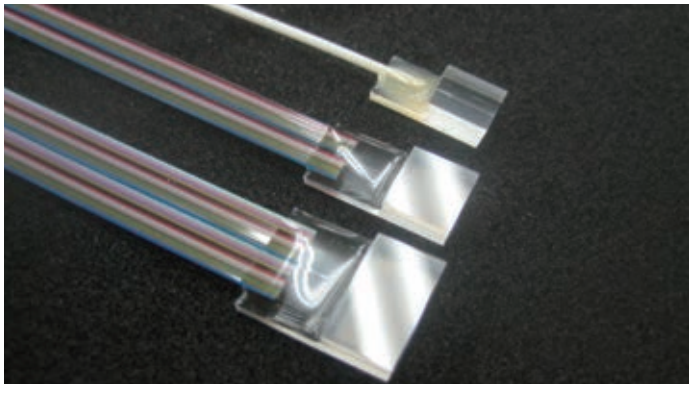
Since joining the Seikoh Giken, Fuji Electronics Industries Co., Ltd., has based on its advanced insert molding technology widened its product line-up to automotive electronic components such as components for high pressure sensors and brake pressure sensors, and through its precision stamping technology also offers components such as dome contacts for electronic equipment.

2014

Seikoh Giken started marketing industrial-use x-ray CT scanners developed by RX Solutions, a DATA-PIXEL group company. Offerings include also non-destructive inspection services. CT scanners provide an accurate opened-up view of the scanned object in a three-dimensional presentation aiding customers in enhancing product quality.

Optical Communications Components

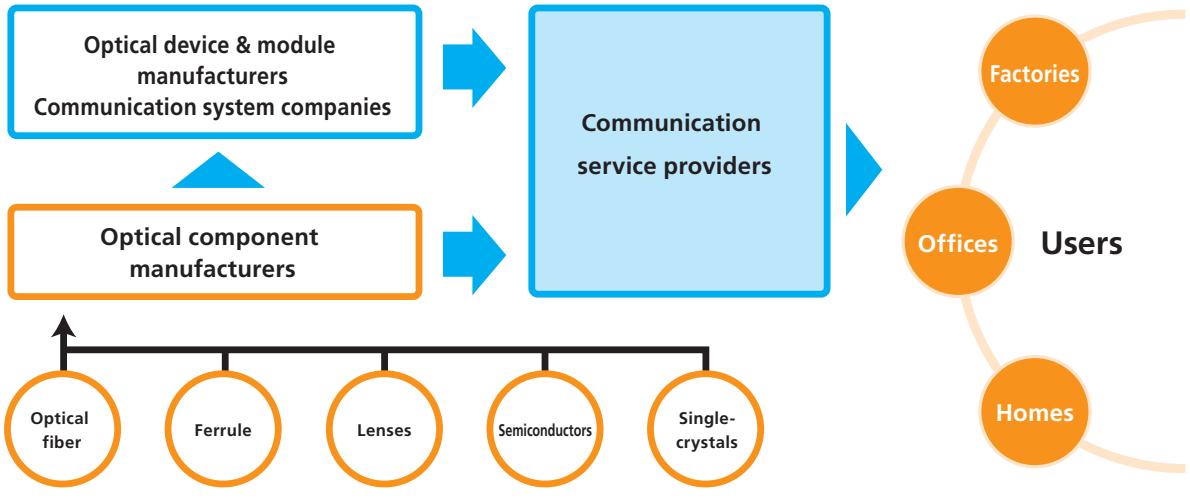
Seikoh Giken provides top-grade precision technology and products supporting the higher speed and larger capacity of optical communication networks



High Quality and Reliability - The Seikoh Giken brand in the optical communications market

Seikoh Giken commenced the development of optical fiber connection components in the 1980s, before communication through “optics” became widespread. Utilizing the sophisticated polishing technologies fostered through precision metal machining, we have been providing high quality optical connection components to the markets and have enjoyed approving feedback from many customers. We are committed to continuing to supply valuable products to the expanding optical communications market and to contribute to the global exchange and distribution of information.

How Seikoh Giken Is Positioned

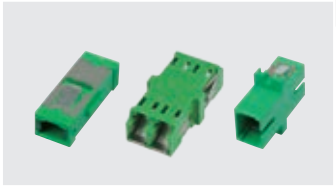


Seikoh Giken manufactures optical communications components for a wide range of applications, using optical fibers, ferrules, and other materials. Optical communications components are used in various locations within the optical communication networks built by communication system companies where they serve their respective functions. Communication service providers who run the optical fiber networks provide comfortable communication environments to end-users through these optical communication networks.

Key components that reliably provide optical connectivity in any environment

A complete line-up of components and tools for optical connections

Creating flawless optical communication environments requires components that reliably connect fiber with fiber and that transmit without loss of information (optical signals) disseminated from the source to the recipient. In this field, Seikoh Giken developed the APC (Angled Physical Contact) connector, a global first, which significantly reduces reflection at the connection surface. This technology was subsequently certified as the common global standard. Today, it continues to be a major strength of Seikoh Giken to provide the full range of components and parts for optical connections, from ferrules, housings, and adapters for all types of SC, LC, FC, and MU connectors as well as jumper cables linking connectors and optical fiber, as well as machinery for polishing connector faces.



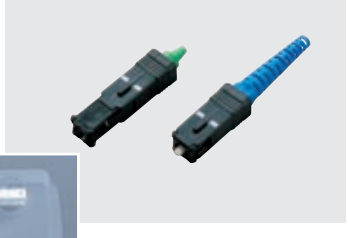
Progress in optical device functionality along with advances in optical communication

Along with advances in optical communication: Higher functionality of optical devices

Optical communication networks consist of many different optical devices that fulfill a variety of functions. With video-on-demand over the internet becoming widespread and with the progressing proliferation of smartphones and tablet terminals, the information volumes transported by optical communication networks have been growing at a quickening pace. In this environment, Seikoh Giken has been developing devices for the many different functions required by the advanced optical communication market, such as polarization maintaining (PM) connectors required for coherent optical communication for effective next-generation high-speed, high-volume data transfers along with the necessary jumper cables and optical attenuators used for reducing light strength to an appropriate level.

New products to be used around end-users

Today, optical fiber extends to virtually every home. Catering to these needs, Seikoh Giken developed an "Optical Connector with Shutter" equipped with a safety device to protect human eyes from optical fiber's strong light rays, as well as an SOC (splice-on connector) optical connector that requires at the FTTH location no gluing and polishing and is quick and simple to assemble. In this way, Seikoh Giken has been releasing new products consistent with proliferating optical fiber applications in end-users environments, designed to meet the changing requirements for optical connectors.



Creating Optimal Supply Chains for Customers

To enable us to efficiently supply Seikoh Giken's products for the proliferation of optical communication networks around the world, we have established distributors in various countries including Europe, USA, and China. Many optical communications components are produced at Seikoh Giken Hangzhou Co., Ltd. and Seikoh Giken Dalian Co., Ltd. in China. Products according to the specifications required by customers are manufactured under strict quality controls using high-grade materials both locally-sourced and Japan-made. Seikoh Giken makes sustained efforts to create supply chains convenient for customers covering the range from ordering to delivery and after-sales servicing.

Equipment & Device

Creating unprecedented devices and equipment for a better future

Developing devices and equipment related to optical fibers technology

"There must be a more efficient way to polish the end faces of optical connectors." "Isn't there a way to accurately measure the electromagnetic interferences emitted by electronic devices?" These and other concerns of customers were resolved by Seikoh Giken through the development of devices and equipment that fully harness the properties of optical fibers.

Optical Connector Polishing Equipment / Field Devices / Measurement Devices

In order to ensure transmission of flowing light without loss of intensity at the connecting points of optical fibers, machining the endfaces of optical connectors to a convex spherical surface is considered the most effective way. This polishing work was traditionally done by hand. However, simultaneously polishing the rigid ceramic ferrule and the flexible glass optical fiber into a convex spherical surface was difficult, raising the issues of consistent polishing accuracy and enhancing production efficiency. Seikoh Giken was first in the world to develop optical connector polishing equipment for use in mass production, utilizing composite circular motion mechanisms combining planetary circular motion with rotational motion and an elastic polishing substrate. This design resolved in one fell swoop the problems posed by manual work and at the same time enabled mass production of high quality optical connectors at a level of return loss far superior to what was common back then.

Optical Electric Field Sensors / Device for RoF (Radio on Fiber) Application

Every electronic device emits electromagnetic waves. Also there are many electronic devices which rely on normal transmission and reception of electromagnetic waves for proper functioning. For measuring electromagnetic waves, it was mainstream to rely on equipment that uses antennae to receive the waves, which were then transmitted to a measuring device such as a spectrum analyzer. However, this set-up came with the problem that also the cables involved pick up electromagnetic waves, in addition to the antennas, thus rendering the measurement results inaccurate. Seikoh Giken resolved this issue by using optical fibers instead of cables. Our Optical electric field sensors have been supplied for applications such as the anechoic chambers of mobile terminal manufacturers and automobile manufacturers.

Global *de facto* standards

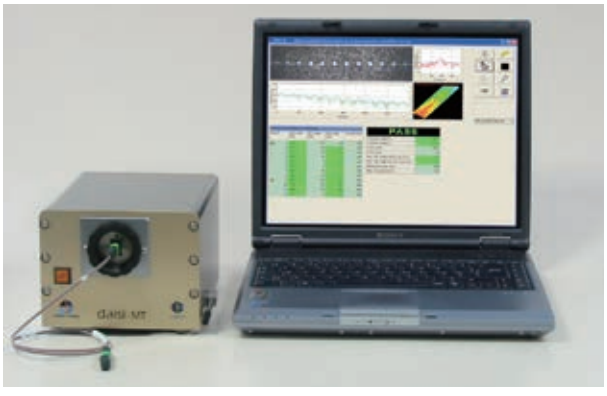
Optical connector polishing equipment brought to market by Seikoh Giken in the second half of the 1980s ahead of everyone else in the world has enjoyed steady good sales growth with positive feedback from customers around the globe, thanks also to tailwinds from the expansion of optical telecommunications market. Today, this equipment enjoys the largest global market share as the world's *de facto* standard. Subsequent enhancements based on inputs from customers resulted in 2012 in the release of the latest model, "SPF-550C," which excels in durability. This model, which was designed to meet customers' calls for lower maintenance requirements, has been finding customers' appreciation for the gains in production efficiency and cost reduction it delivers.

Increasing efficiency at optical fiber installation sites

When connecting optical fibers, any stain or micro-sized dirt on the connecting faces of fiber cables can lead to a loss of light that carries the information. If this is to be prevented, optical connector endfaces must be cleaned at the optical fiber installation site. Seikoh Giken has developed and supplies markets with products that help clean optical connector end faces more efficiently. In addition to our existing optical connector endface cleaner "Ferrule Mate", Seikoh Giken can release "Ferrule Mate 2.0" with improvement of Durability, Reliability, Simplicity and Lower cost in 2014.Cleaner for Multi-fiber Push-On (MPO) connector is also available in "Ferrule Mate 2.0" product family.
Our full product range, favorably received by customers, anticipates every imaginable situation from indoor application at communication companies to outdoor installation work sites of optical communication facilities.

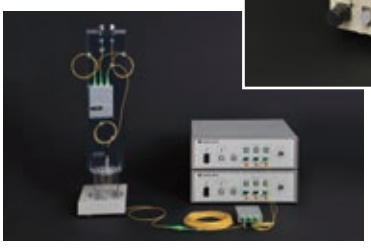
Meeting customer requirements with total solutions for optical communication

In 2012, Seikoh Giken acquired an equity interest in DATA-PIXEL SAS of France, the global top in the manufacture of measurement and inspection equipment for optical communication components.
The DAISI series of DATA-PIXEL optical connector interferometers excels with regard to both price and performance, reflected in 600 systems sold in the aggregate to date in around 30 countries. Strengthening the relationship with DATA-PIXEL means a further enhancement to the full lineup of products spanning the width from optical communication components to optical connector polishing machines, tools for cable-laying sites, and testing equipment. In this way, through total solutions from upstream to downstream, the ability to provide optimal answers to all customer needs remains core strength of Seikoh Giken.



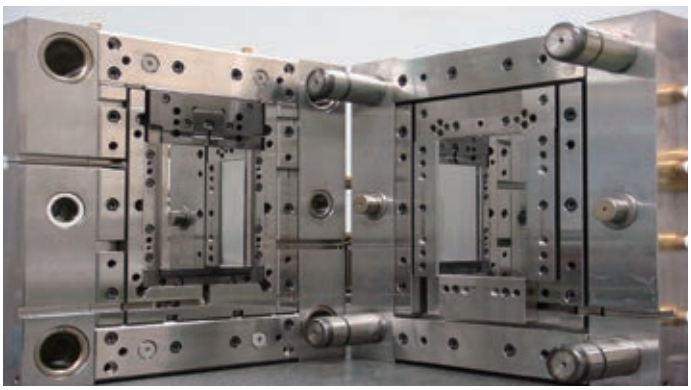
From road race video links to mobile-device performance evaluation

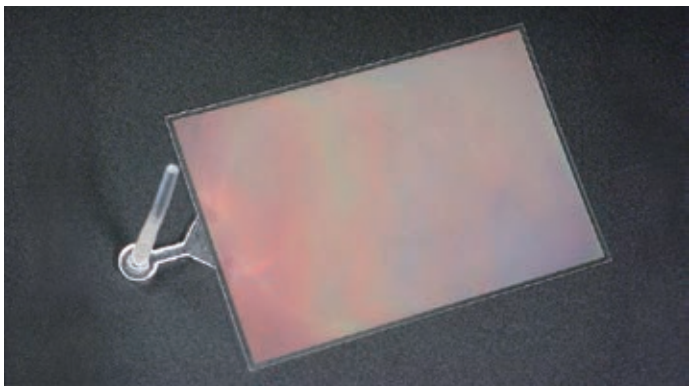
Seikoh Giken developed equipment for transmitting digital broadcasting signals through optical fiber using RoF technology (Radio on Fiber, a method whereby radio signals are transported via optical fibers in their analogue form) and modulators employing optical waveguides (relying on lithium niobate crystal EO effects (Pockels effect)). This technology is deployed for delivering digital terrestrial broadcasting waves to low-reception areas and for video links to marathons and other road races. Seikoh Giken also developed an antenna performance evaluation device that uses optical fiber for measuring the reception performance of antennas mounted on smartphones and other mobile terminals. The antennas being measured are continuously rotated so that accurate measurements of frequency and phases are possible, simulating the same environment as if the mobile terminals were in actual use.

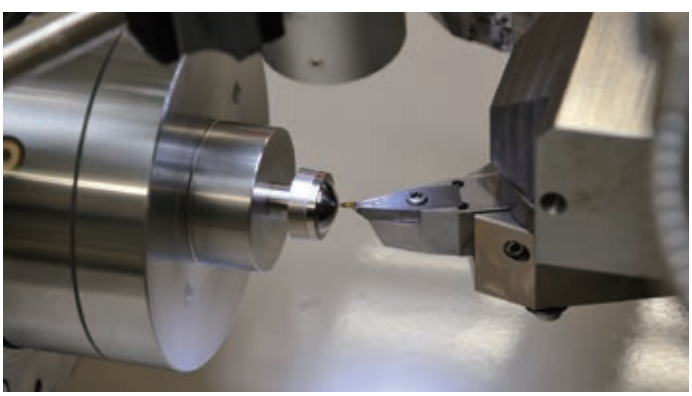


Ultra Precision Molds & Precision Machining

Seikoh Giken contributes to customers' product development and productivity enhancements through industry-leading mold technology and precision machining technology.





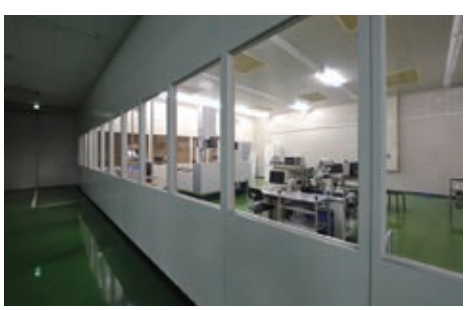


Transforming customers' ideals into tangible reality through core technologies and expertise fostered since the founding of Seikoh Giken

Since its founding in 1972, Seikoh Giken has in its business operations consistently pursued the highest level of precision manufacturing. This basic approach will continue and will not change also in the future. We stand close by its customers in order to capture and respond to customer feedback while assisting customers in transforming their ideals into reality.

Quality Control System

Along with ever smaller and thinner digital home appliances, components tend to become more complicated and micro-sized. This miniaturization requires a yet higher level of accuracy in the machining of molds used to form components, as well as metal parts. In order to respond to the demanding requests of customers, Seikoh Giken has been proactively introducing an array of the latest high precision measuring instruments, specifically 3D measurement bench (Carl Zeiss CARAT ultra) equipment. Furthermore, quality control systems in line with the international standard ISO 9001 have been adding to the trust that Seikoh Giken enjoys among its customers.



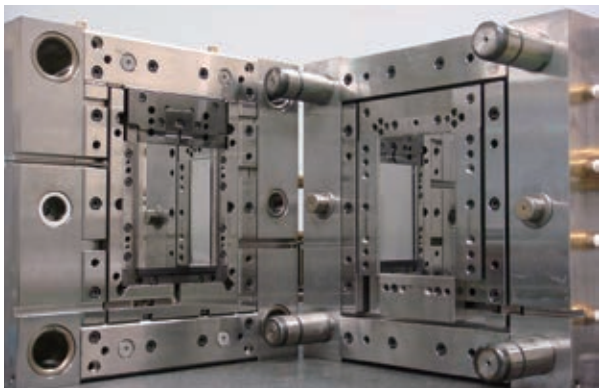
Service Frameworks

Molds used for injection molding complete open-and-close cycles at the rate of once every several seconds, day in and day out, and therefore require regular maintenance and replacement of consumable components. Seikoh Giken has established service bases not only in Japan but also in Taiwan, USA, and Germany, to ensure readily available service capable of meeting the needs of customers around the world. Our service staff regularly visits to customers to identify and fulfill maintenance needs in a timely manner and to better understand customer requirements. These insights are communicated to technical staff as inputs for mold improvements and for new mold development.

Seikoh Giken provides molding dies from the design stage that serve as “mother tools” for precision molded products

Ultra precision molds

Seikoh Giken manufactures wide variety of precision molds using integrated mold manufacturing arrangements spanning the width from material machining and hardening to polishing and assembly. Utilizing technologies such as low temperature molding, thin and flat molding, and nano level molding, we strive to offer molds that provide optimal production efficiency. Moreover, for molds in current use at customers Seikoh Giken offers solutions for enhancing individual parts, with dramatic gains in production efficiency.



An overwhelming global market share through short cycle times and high repeatability

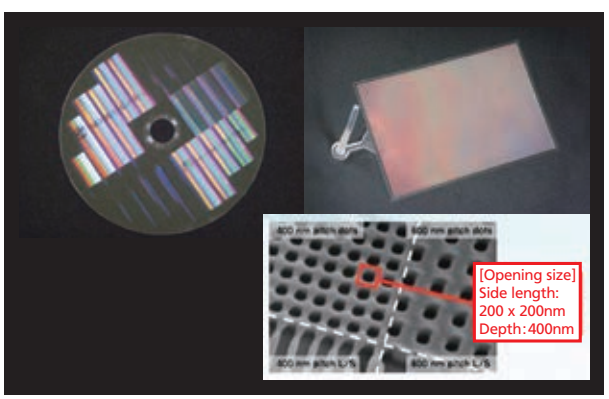
Molds for optical disk production

Molds for CD-R and DVD production is a field where Seikoh Giken is far ahead of all other mold manufacturers, not just in the high quality of manufacture such as transferability, double refraction, and warping, but also in every other aspect including mold repeatability, durability, and shorter molding cycles. Based on these merits, Seikoh Giken has established its solid position as the world’s leading brand. In 2008, Seikoh Giken came to market with molds for Blu-ray disk production. Utilizing our expertise from DVD production resulted in further quality enhancements as well as industry-leading short molding cycles, with products capable of accommodating both single and dual layer disks.

Stable supply of key components required by customer including complex shape components, and thin and flat molded components

Precision molded components

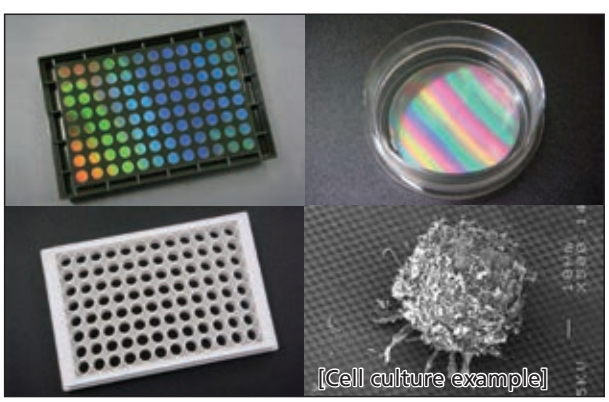
Seikoh Giken mass-produces complex shape components and thin and flat molded components using our in-house made ultra precise molds. Based on the expertise in intra-mold injection compression, we have developed technology that delivers highly precise transfers of minute surface configurations at the nanometer-level with normal mold clamping force and fill pressure. The use of low temperature molding allows for plastic injection moldings of ø120mm×0.3mm thickness. Thanks to its painstaking attention to mold structure to eliminate warping, Seikoh Giken has been successful in establishing manufacturing methods for shapes previously thought unattainable with injection molding.



Thin-walled micro-transfer molded components contributing to next-generation medical care and biological sciences

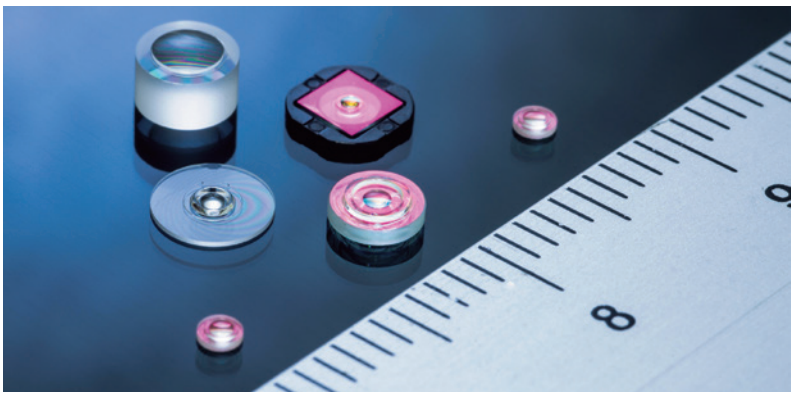
Injection molded components for medical care and bio-science applications

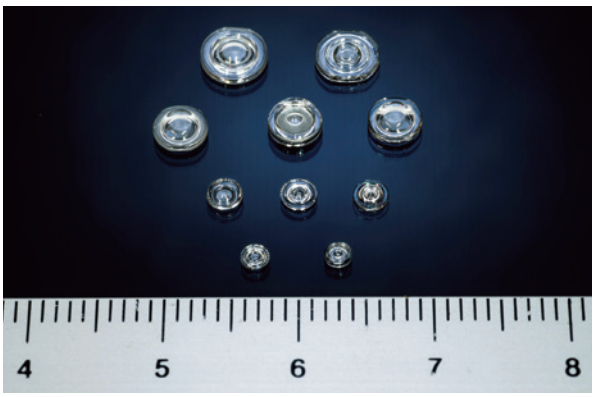
Development at Seikoh Giken surrounding molded components for medical and bio-science applications, such as cell culture plate and micro flow channel chips. These high-quality products provided to markets contribute to advances in the fields of medical care and bio-science.

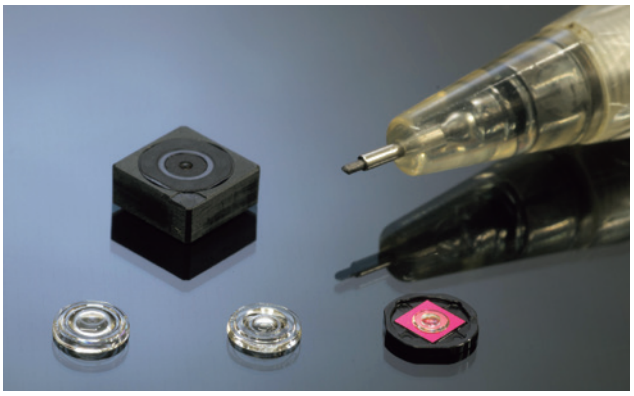


High-Functionality Lenses

The high-functionality lenses of Seikoh Giken have revolutionized the pre-existing concepts of high functionality, costs, and degree of freedom of shape.







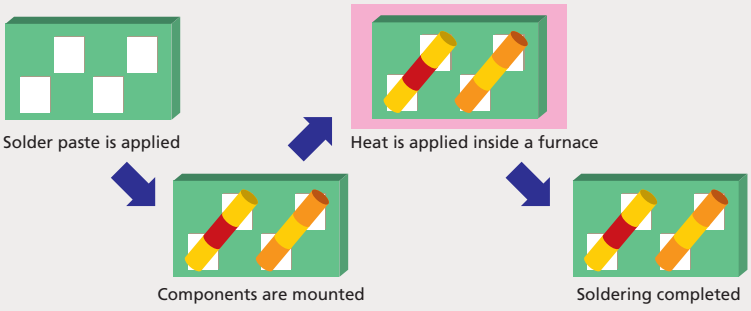
High-heat resistant lenses suitable for reflow processing

Seikoh Giken offers hybrid lenses that combine heat-resistant resin with optical glass, and full-resin lenses formed from a heat-resistant resin body. These lenses are novelties that offer high heat resistance compared with earlier resin lenses and excel in cost performance compared with glass molded lenses.

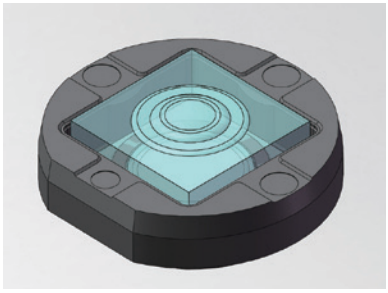
Development Background and Features

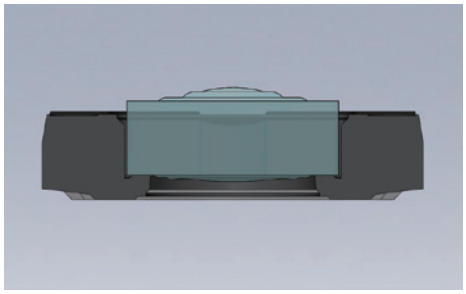
Markets for smart phones and cell phones are expanding around the world. Mobile terminals are quickly replaced by new models, making for short product life cycles, and typically their selling prices erode fast compared with other electronic devices. In this kind of market environment, in order to cut manufacturing cost as much as possible, mobile terminal manufacturers have been shifting to mobile-terminal mounted components that allow reflow processing. In the "Reflow" process all components are soldered and bonded all at once in a high temperature furnace. However, since mobile-terminal camera lenses are commonly made of plastic that is vulnerable to high heat, in the assembly process the lenses needed to be bonded after all other components.

Conceptual sketch of the reflow soldering process



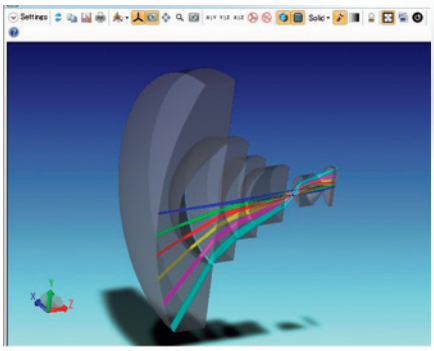
In order to solve the problems of heat resistance and cost, Seikoh Giken developed the heat-resistant resin "MSG lens," a hybrid structure consisting of an optical glass element bonded to a heat-resistant resin element. Compared with the aspherical glass molded lens, the MSG lens offers the same technical performance and overwhelming cost performance.
Seikoh Giken has been successful also in producing heat-resistant full-resin lenses, marketed since 2013 as reflow process-enabled "LIM lenses," which have demonstrated superior performance in applications that are unsuited for hybrid structures and glass molding but require meniscus-shaped lenses.

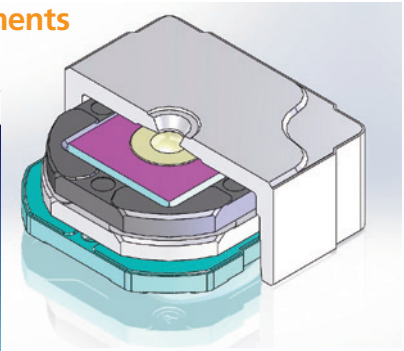




Optimal lens design and development matching customer requirements

Seikoh Giken owns numerous optics patents including patents held by Seikoh Giken group company Milestone Co., Ltd., permitting optimized optical and structural designs matching customers' requirements. R&D facilities comprise the main research and development site at the Matsudo headquarters of Seikoh Giken and the Osaka-based R&D site which concentrates on the development of heat-cured lenses. Both sites are fully equipped with technical research and development staff and facilities.



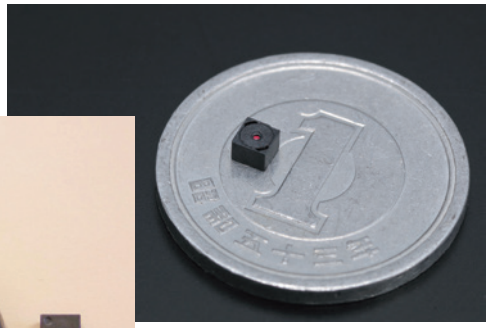


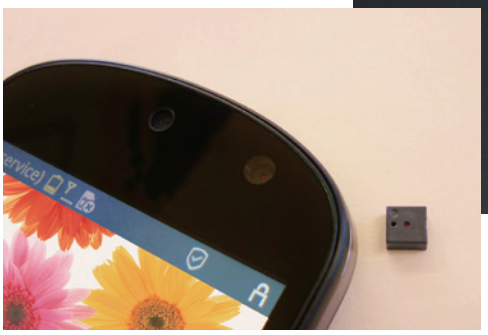
Customer trust through high quality and stable production

MSG and LIM lenses require special manufacturing methods, and volume production was at the beginning beset with multiple issues. Seikoh Giken cleared these issues one after another using its precision mold technology and production technology. Starting in 2009, stable production started at Seikoh Giken Hangzhou Co., Ltd., a China-based group company. Production line improvements have since been continuing constantly, including a shift to in-house manufacture of automated production machinery.

High-resolution enabled lenses for smartphone cameras

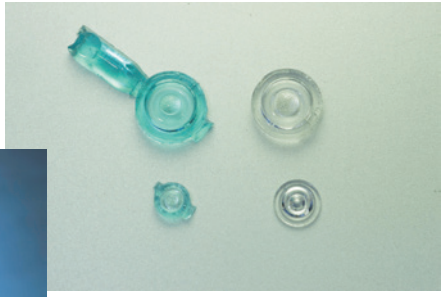
The initial application for heat-resistant lenses suited for reflow processing was the lens-unit of cell phone cameras for self-photography. The mainstream at the time was 300 thousand pixels. The proliferation of smartphones brought cameras for self-photography with increasingly higher resolutions, raising pixel numbers to 1 million and 5 million. Through lens structures combining multiple MSG and LIM lenses, today Seikoh Giken is able to offer fixed-focus camera lenses that accommodate 5 million pixels.





Multiple applications through high-functionality lenses

High-functionality lenses of Seikoh Giken offer features of heat resistance, weather resilience, and hardness unavailable from resin lenses, and excel in the degree of freedom of shape compared with glass lenses. Moreover, high-functionality lenses can be made ultra-flat with tiny diameters, which is impossible with both resin and glass lenses, recommending applications in a wide range of markets currently under consideration at Seikoh Giken, such as automotive parts, medical devices, and wearable terminals.



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