

**KYOEI ENGINEERING**  
COMPANY PROFILE

**Kyoei Engineering Co., Ltd.**



**For a Connected Future.  
Creating new value through technology.**

## **Kyoei Engineering Co., Ltd.**

Our company has a solid reputation in the fields of automobile and optical instrument components with one of the largest ultra-precision machine in Japan.

Our company provides integrated support covering from prototype parts manufacturing to design and manufacturing using mass production molds. Our core technology is cutting, and we are good at machining difficult-to-machine materials and shapes for automobile parts and aircraft parts, as well as ultra-precision micromachining, which is indispensable for the production of lenses and other products.

We have a large number of large 5-axis machining centers and combined lathes.

Our jig manufacturing technology, based on our unique know-how, enables high-precision machining of castings in a short period of time.

In addition, the ultra-precision 6-axis machine is capable of machining fine grooves on free-form surfaces.

We have equipment such as 5-axis micro milling machines up to 25 inches in diameter and ultra-precision 4-axis aspheric milling machines up to 700 mm in diameter.

In the field of resin molding, we provide total solutions to customers through our integrated in-house production system, from mold design to manufacturing and injection molding.



# KYOEI ENGINEERING

## Business contents

We offer integrated manufacturing from prototype development and processing as well as injection molds to molding parts for many industries. These include automobiles, aircraft, space, optical devices, medical care, energy, and cosmetics.

## Industry

Manufacturing

- difficult to machine materials machining
- ultraprecision cutting
- prototype machining
- mold building
- injection molding

## Our strong point

We possess ultra-precision processing technologies that are indispensable for manufacturing products that require a mirror surface and high accuracy in optical fields such as optical lenses and light guides. We can make use of these technologies to provide integrated services from prototype development to mass production. We serve the automotive, aircraft, medical, camera, and OA equipment related markets. We also specialize in highly difficult processing of difficult-to-cut materials as well as precision work and microfabrication of very small articles at the micrometer and nanometer level.

## Authorization/Certification



Certificate Number 8043  
ISO 9001

Scope of application:  
Headquarters factory



JQA-AS0262



MS  
CM009

Scope of Registration:  
PRECISION MACHINING OF  
AEROSPACE RELATED PARTS

## Hard-to-cut material processing technology

### Enables all kinds of processing on all kinds of materials.

We provide high-precision machining for difficult-to-cut materials and difficult-to-form parts in various fields such as automobiles, aviation, space, and medicine.

#### Support for difficult-to-machine shapes

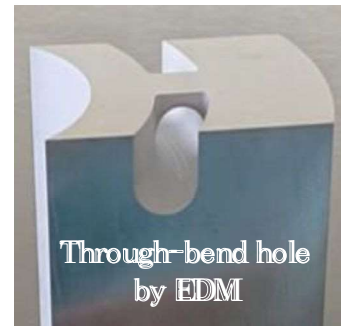
5-axis machining can be used for under-shape, etc. It achieves high precision by machining with a single chuck. Quick delivery is available.

Processable size:  $\phi 830 \times 550\text{mm}$



#### Support by combined processing

For shapes that are difficult to achieve by cutting, we use a variety of combined processing methods, including our own special electrical discharge machining. By using EDM for rough machining, it is possible to reduce machining time and tool costs.



#### Support for various materials

We have a wealth of experience in processing various materials. We can handle everything from material procurement.

|                    |  |
|--------------------|--|
| material           | inconel713C / 718 / 625, Mar-m247, Titanium, Invar, cobalt-chrome, Hastelloy, Waspaloy, Tungsten, carbide etc.   |
| processing         | Material procurement, Full machining, Additional machining on castings   |
| Processing methods | Milling, Turning, Wire EDM, Electrical discharge machining   |
| Machining results  | Internal combustion engine parts, Turbine parts, Housing, etc.   |
| Processable size   | 5-axis machining center: Max $\phi 830\text{mm}$ L=550mm<br>3-axis machining center: XY 1,400mm $\times$ 2,100mm<br>※ The size is limited by the shape of the product. |

## Thin-wall machining of airfoils and micro-texturing of airfoil surfaces

It is possible that high precision machining of thin wing shapes of turbine wheels.

Results) **thinnest part 0.3mm**

**Tolerance of wing thickness  $\pm 0.02\text{mm}$**

It can also be used for corrective machining of the wing shape.

The combination of simultaneous 5-axis machining and micromachining technology enables micro-texturing of blade and hub surfaces.

It can be utilized for processing of rivulets, etc., which are attracting attention for their aerodynamic drag reduction and low-noise effects.



## High-precision addition to castings

We can respond quickly by designing jigs based on our own know-how.

In addition, we provide high precision and high quality by using processing methods that according to shape and accuracy of turning, milling, etc.

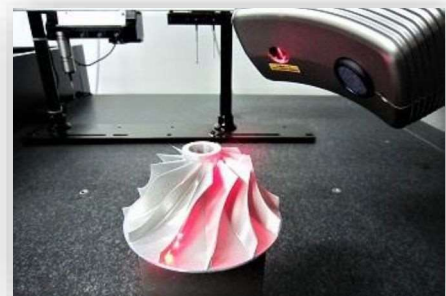


## Quality Assurance

We have a variety of high-precision measuring instruments, including 3D measuring instruments.

High precision measurement with laser probe is possible even for unique shape.

Our quality control system is based on ISO 9001.

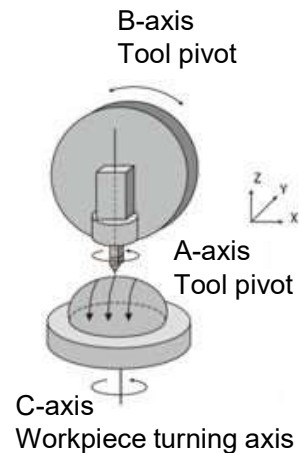
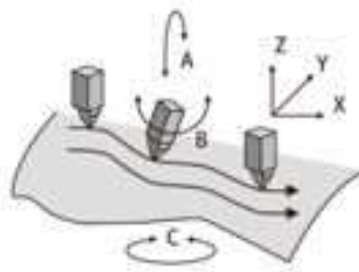


## ultraprecision cutting

### Toward the Next Generation of World-Class Ultra-Precision Microfabrication

We provide unique ultra-precision processing technology for the development of cutting-edge optics and semiconductor components.

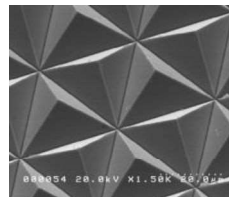
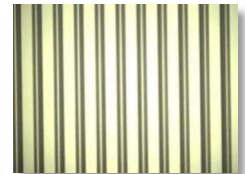
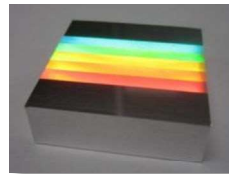
#### Ultra-precision 6-axis machining



We have developed our own ultra-precision 6-axis machining. It has enabled fine grooving on curved and free-form surfaces.

#### Ultra-precision micro-groove processing

High-precision micro-grooving with single crystal diamond tool is possible. It can be used for straight grooves, free curved grooves by 4-axis machining, and pyramidal shapes. We have extensive experience with grooves. For example, V-groove, R-groove, square groove, trapezoidal groove, etc.



#### Fresnel lens machining

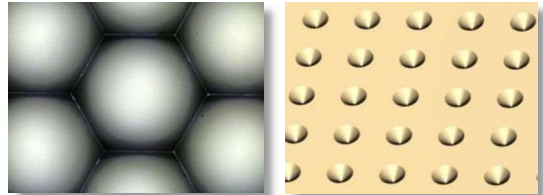
Various types of lens processing are available. For example, Fresnel lens, linear Fresnel lens, aspherical Fresnel lens, DOE lens, etc. We can make molds and prototypes.





## Microdot and Microlens array machining

We have extensive experience in microdot and microlens array processing. Depending on the shape, size, and required accuracy, we can propose the most suitable processing method.



## Aspherical machining and Free-form surface machining

In the area of aspheric surface machining, we have an extensive experience in high-precision lens molds and other applications. And in free-form surface machining, STS (slow tool servo) realizes high-precision machining.



## Elliptic vibration cutting

It enables mirror processing without Ni-P plating. In addition, it can be used for stainless hardened steel, etc.



## Measurement Technology

We use high precision measuring instruments, including Panasonic UA3P, and advanced measurement techniques to ensure quality.



## Mold to injection molding

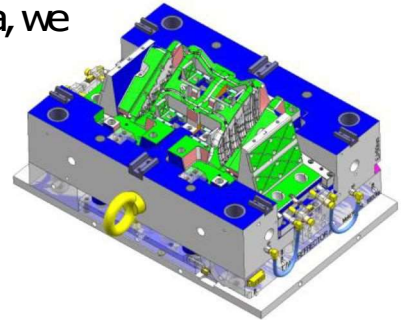
### Integrated support from design to mold manufacturing and injection molding

We provide high-precision products such as automotive interior and exterior parts, medical, camera and OA equipment, and various optical elements quickly and with a wealth of experience

#### Mold design to manufacturing

By providing us with product drawings and 3D data, we can handle everything from design to mold manufacturing in-house.

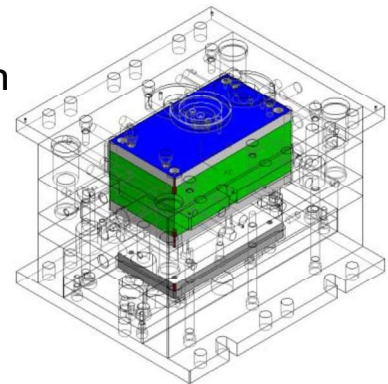
- Manufacturing capacity ( results ): 10 new models/month, 10 modified models/month, 20 total/month
- Manufacturing L/T: 1month~



#### Quick delivery of prototype molds

By using a “cassette mold” for prototyping and manufacturing only the product part CAVITY, we can provide samples with short delivery time and low cost.

- Moldable size: 35 to 650t
- Manufacturing L/T: 2weeks~



Product part CAVITY

#### Injection molding

We handle everything from injection molding trials (prototypes) to mass production molding in-house.

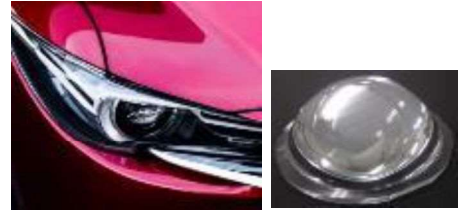
- Owned molding machines :  
18,35,50,100,130,180,230,450,650t Various
- Capacity (results ): molding try 130 molds/month
- We have a dedicated transparent booth. (35t, 350t)  
ISO 8 \*equivalent to USA FED-STD-209E Class 100,000





## Production results (example)

We have a wealth of experience in manufacturing molds. For example, projector headlights, parabolic reflectors that require surface accuracy, inner lens, outer lens, backlights, etc.



Projector headlight



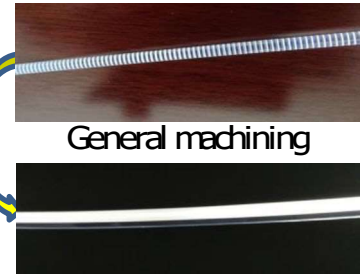
Parabolic reflector

## Micro-step INNER LENS

By incorporating our original microfabrication technology, the inner lens will produce a uniform surface light emission with an unprecedented sense of quality. We can handle a wide range of products from acrylic prototypes.



Inner lens



General machining

Micromachining

## Microdot Light Guide

The high-precision microdot micromachining is also used in light guides for automotive meters.



Light Guide for Meter

## ~ Toward further differentiated products ~

We can process microdots into mirror surfaces. By using this technology, we can create an effect that makes the design visible when illuminated by LEDs.

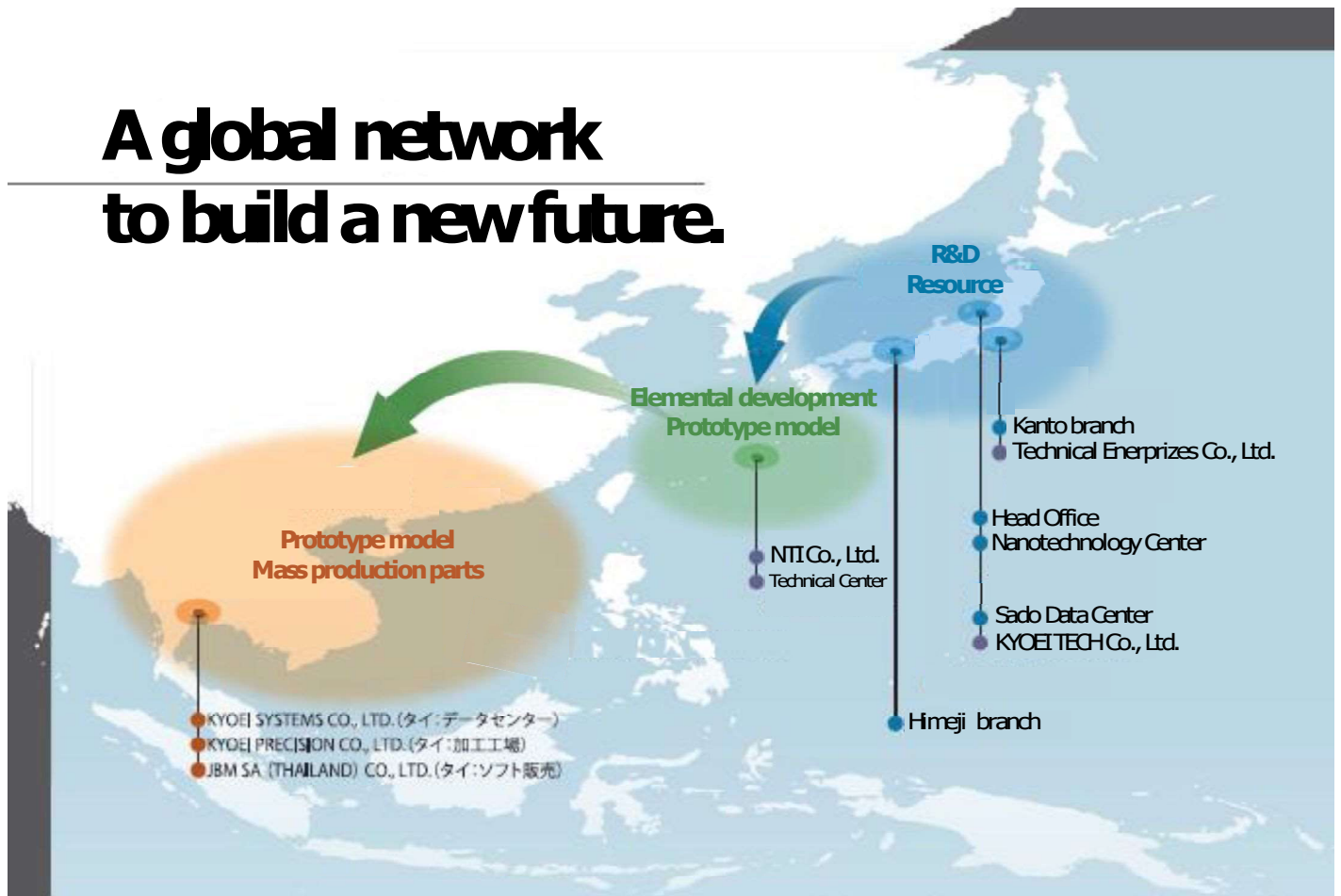


Before LED illumination

Microdot

After LED illumination

# A global network to build a new future.



## ● Kyoei Engineering Co., Ltd.



### Head Office

1912-2 Yamakura  
Agano-shi Niigata  
959-1961 Japan  
Phone: +81-250-61-2400



### Nanotechnology Center

1209-3 Aramachi-kou  
Shibata-shi Niigata  
959-2311 Japan  
Phone: +81-254-28-7575



### Kanto branch

4-6-10 Nishibori Sakura-ku  
Saitama-shi Saitama  
338-0832 Japan  
Phone: +81-48-845-1487



### Himeji branch

652-1 Miikuninocho Kokubunji  
Himeji-shi Hyogo  
671-0234, Japan  
Phone: +81-79-251-2773



### Sado Data Center

1052-1 Kanaishimbo-otsu  
Sado-shi Niigata  
952-1208 Japan  
Phone: +81-259-63-5063

# KYOEI ENGINEERING

## Kyoei Group Companies



**KYOEITECH Co., Ltd.**  
1209-3 Aramachi -kou  
Shibata-shi Niigata  
959-2311 JAPAN  
TEL +81-254-28-7575



**NIT Co., Ltd.**  
5192-10 Katsuren Haebaru  
Uruma-shi Okinawa  
904-2311 JAPAN  
TEL +81-98-989-0390



**NIT Technical Center**  
12-81 Suzaki Uruma-shi  
Okinawa  
904-2234 JAPAN  
TEL +81-98-989-7877



**Technical Enerprizes Co., Ltd.**  
4-6-10 Nishibori Sakura-ku  
Saitama-shi Saitama  
338-0832 JAPAN  
TEL +81-48-845-5600

## Overseas Subsidiaries

### KYOEI SYSTEMS CO., LTD.

9th Flr., 54 B. B. Bldg. No.3913, Sukhumvit 21 (Asoke) Rd.,  
North Klongtoey, Wattana, Bangkok, 10110, Thailand  
TEL.+66-2516-0931 FAX.+66-2902-0426

### KYOEI PRECISION CO., LTD.

9/49 Moo5, Phaholyothin Rd., T. Klong Nueng, A. Klong Luang,  
Pathumthanee, 12120, Thailand  
TEL.+66-2516-0931 FAX.+66-2902-0426

### JBM SA (THAILAND) CO., LTD.

9/49 Moo5, Phaholyothin Rd., T. Klong Nueng, A. Klong Luang,  
Pathumthanee, 12120, Thailand  
TEL.+66-2516-0931 FAX.+66-2902-0426


## Company Overview

|                |   |
|----------------|---|
| Founded        | June 18, 1990.  |
| Capital        | JPY 90,800,000  |
| Sales          | JPY 3,119,250,000   |
| Staff          | Domestic 150, Overseas 60   |
| Representative | Takejiro Ishizaki, President and Representative Director            |
| Contact Person | Takashi Watanabe, Executive Vice President                          |
| Address        | 1912-2, Yamakura, Agano-shi, Niigata, 959-1961, Japan               |
| TEL            | +81-250-61-2400   |
| URL            | <a href="http://www.kyoeieng.co.jp/">http://www.kyoeieng.co.jp/</a> |
| E-mail         | <a href="mailto:info@kyoeieng.co.jp">info@kyoeieng.co.jp</a>        |

## Message from the President

We have been working to become a company that pleases customers under a customer-first corporate philosophy ever since our foundation. Our company was founded thirty years ago, and we now have a comprehensive system to support our customers.

We will enhance our three unrivaled technologies of optical part processing, nanometer-level processing of fine workpieces, and processing of difficult-to-cut materials. All of our staff members will work together to become a company that satisfies customer needs and continues to be needed by customers.



**KYOEI+ENGINEERING**

<http://www.kyoeleng.co.jp/>