

CORPORATE  
PROFILE

**I-PEX**

# I-PEX

## Innovative Product development & Engineering solutions eXpert

This is what we aim for. With our keen sensitivity, it is the sharpest tip that opens the way to the next generation in order to create a brighter future. We bring surprise, joy and excitement to the world by creating new values that reflect society, reflect tomorrow, and stay one step ahead of the needs of the times. A group of people who creates things that previously didn't exist or that no one could create. That is I-PEX.

**"Why"**  
Significance of existence

Open up a new field that constantly generates excitement for the world

**"How"**

Capabilities and values

Open and enlarge the "sharpest tip" by connecting people, wisdom, and technology

**"What"**

Business development

Surpassing expectations through inspired manufacturing and creativity



# Our Products

I-PEX technology that supports today, and builds tomorrow.

I-PEX products support convenience and comfort in a variety of everyday situations. I-PEX will create the future through the development of innovative products that enable a richer way of living.

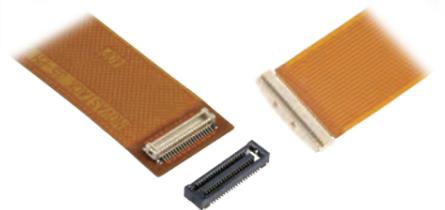
**HDDs (Hard Disk Drives)**  
HDD-related parts



**Smartphones and wearable devices**  
Micro RF coaxial connectors



**TVs and digital cameras**  
Board-to-board connectors / FPC connectors



**Automotive components**  
Sensors / Automotive connectors / Smart entry keys



**Laptops and tablets**  
Micro-coaxial connectors



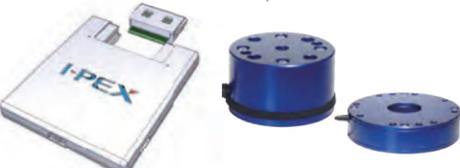
**All-in-one copy machines and printers**  
FFC connectors



**Electronic and automotive semiconductors**  
Semiconductor manufacturing equipment



**Robots, medical care and industrial manufacturing, etc.**  
Smell sensors / Torque sensors



# Connectors

Correctly, promptly, and precisely.  
Connect to open up the future.

We carry out in-house development and manufacturing of small connectors for high-performance electronic devices used in personal computers and smartphones, for example, and automotive connectors for automotive lighting and electronic control devices. We have expanded our business all over the world.

## Achieved a consistent production system on a global scale

We adopted an integrated production system on a global scale, through product planning, design, equipment manufacturing, and finally mass-production. We respond quickly to the rapid development of technology and meet the stringent quality needs of our customers.



## In-house development of high-performance connectors to meet a wide variety of needs

We develop high-performance connectors to meet the higher levels of complexity, sophistication, and various needs of electronic devices as they increase in performance and variety.



## Contributing to the standardization of the latest standards through rapid development.

We are leading the market as a top supplier in the industry by quickly developing connectors suitable for 5G applications, as well as those that meet standards such as Thunderbolt™3 and USB 3.1 Type-C.

### Connectors for high-end electronic devices

#### Micro-coaxial connectors

These connectors are used to connect LCD displays and PC boards for laptops, etc. They provide high-speed and high-capacity transmission, to meet the trend of small and thin electronic devices that have high performance.

#### Micro RF coaxial connectors

Cable connectors for high-speed radio communications antennas. They are used in many mobile devices, such as smartphones and wearables.

#### FPC/FFC connectors

These connectors are used to connect flexible printed circuit boards or flexible flat cables to main printed circuit boards. They are widely used in digital appliances and touch panel modules, etc.

#### Board-to-board connectors

These connectors are used to connect boards inside equipment. They have 360 degree fully-shielded feature, and contribute to the space-saving designs and high-speed transmission of mobile devices.

### Automotive connectors

#### SMT connectors

Ultra-small, thin SMT (surface mount) connectors for automotive applications that are resistant to heat and vibration. They are widely used in applications that require high connection reliability, such as inverters and LED headlights.

#### PCB connectors

Connectors for electronic control units (ECUs) that combine multiple PCB connectors in accordance with industry standards (USCAR/EWCAP) and are used for seat memory control and more.

# Semiconductor Molding Machines

Contributing to the accuracy and quality stability of evolving semiconductors.

By developing and providing semiconductor manufacturing-related equipment, including fully automatic semiconductor resin sealing equipment, we have contributed to the automation of manufacturing and to quality stabilization.

In the semiconductor manufacturing sector, which is ever evolving towards the future, we will continue to take on challenges for further labor-saving, efficiency and quality improvements.

## Meeting increasingly sophisticated high-quality needs



Since the development of the world's first fully automatic semiconductor resin sealing equipment, we have made upgrades over the past 40 years to provide equipment that can meet diversifying needs concerning enlargement of products, along with thin-type high-density products, etc.

◀ Exhibition at SEMICON Japan 81

## Custom responsiveness to meet a wide range of needs



To meet customer specifications we make proposals for optimal production equipment which is then customized using molds and automatic machine technology cultivated at the manufacturing site. In addition to in-vehicle semiconductors, we are highly regarded by a wide range of customers for products including automotive and consumer semiconductors, power modules, passive components, ECUs, and sensors.



## Building a global local support system

We have established a local support system in each country that enables us to respond to customer needs quickly and in detail.

## Semiconductor manufacturing equipment



GP-PRO SP170

Fully automatic semiconductor resin sealing equipment suitable for mass production.



GP-PRO sf

Fully automatic semiconductor resin sealing equipment suitable for various kinds of small quantity production. A small and lightweight design with a simple structure. It is highly maintainable and cost-effective, making it ideal for small volume production.



S•Pot

Small bench-top molding machine suitable for prototype molding. Prototype molding using small molds, can be achieved at a low cost in a short period of time, providing flexibility for new package development.



TS-PRO

A taping machine is necessary to prevent resin leakage that occurs when performing thin/single-sided resin molding. This contributes to significant cost reductions and improvements in lowering failure rates.

# Sensors

Opening up new markets for the next generation.

We are taking on challenges for the creation of new markets through the development of sensors with unique design concepts based on new perspectives and ideas. With innovative ideas and research independent of existing technologies and creative collaboration with excellent partners, sensors are expected to expand beyond the existing business to a wide range of applications.

## Smell sensor "nose@MEMS"

A smell sensor that recognizes and identifies the pattern of odor molecules detected by multiple sensing elements.

"Visible smell" helps to find a variety of potential uses that have not yet been realized. Such needs may include detecting odors in the following applications: checking the quality of agricultural products, acting as a nursing care monitoring system, confirming the quality of daily necessities such as aromatic products, identifying and controlling quality for food products, and identifying odors for medical purposes. The applications for this sensor are endless.

## nose@MEMS



## Electrostatic capacitance torque sensor "ESTORQ"

ESTORQ is a sensor for detecting and controlling the torque generated during the rotation of various robots and automatic assembly equipment. The simple structure adopting the electrostatic capacitance system realizes a dramatic improvement in mass production and cost compared to conventional strain-gauge torque sensors. It is flexible in terms of its design as required by customers and is expected to play an active role in a wide range of situations where torque detection is required.

## ESTORQ



# Contract Manufacturing

I-PEX quality that goes beyond the required needs.

In-house development of an automated production system that combines the fundamental technologies cultivated by I-PEX such as molds and molding, presses, plating, and assembling, according to the each individual customer's product concepts. We provide a stable supply of various high-quality automotive parts and precision mechanical parts using a high-precision production process.

## Ultra-high precision mold manufacturing and multi-molding technology

We supply high quality and stable products with our core technologies that have been continuously developed since our company's establishment. These technologies include ultra-high precision mold manufacturing and complex molding focusing on efficiency.

## Realization of design optimization from the product concept stage

We respond to all matters quickly using our worldwide network. Starting from the product concept stage, we can optimize customers' productivity with technology proposals that are made for mass production.

## A long-term reliable support system with a track record that spans more than 50 years

We offer high quality products and a post-production after-sales service backed by our long-standing supply track record in the automotive parts market.

### Fully-automated insert molding system —Up to the completed sensor—

#### System preparation process

##### Tool design and preparation

To ensure high productivity and quality, high precision molds and molding machines (keystones of the manufacturing process) are designed and manufactured in-house.



##### Stamping/plating

During the stamping and plating process, in which a metallic plate is stamped at high accuracy using a high precision mold, then plated, the terminal (the metallic part which will form the electrical connection) is made.



#### Fully automated insert molding system

##### Pre-processing

Cutting of terminals, electric welding, bending processes, core cylinder welding, and assembly of relevant parts are carried out to manufacture the core part of the sensor.



##### Insert molding

The parts and metallic components manufactured in pre-processing are set in a mold, and then are insert-molded together with resin.



##### Post-processing

The mechanism elements are assembled, and once various tests, marking and vision inspections have been performed, the sensor is completed.



### Automotive parts



Wheel speed sensors

Wheel speed sensors detect the speed of the wheel rotation and are used in anti-lock brake systems (ABS), which electronically control the locking of wheels by sudden braking, requiring high reliability in harsh operating environments.



Angle sensors

These sensors detect the rotation angle and speed of an engine's crank and cam. They enable control of ignition timing and the injection of fuel, contributing to the suppression of CO<sub>2</sub> emissions and improved fuel economy.

### Others



Smart entry keys

Card-type smart keys are developed in collaboration with leading automotive parts manufacturers. They take advantage of the semiconductor resin sealing technology and mass production technology that we have cultivated in-house, and have high elasticity and water resistance.



HDD-related parts

We manufacture a variety of mechanical parts, including precision resin parts, which play an important role in the protection mechanism of the disk, which is the main component inside hard disk drives.



Water meters

From the design stage through assembly, we take on contract manufacturing for precision resin parts meeting customer needs. This is based on the in-depth knowledge we have cultivated in the mass production of various products, and in manufacturing our own equipment.

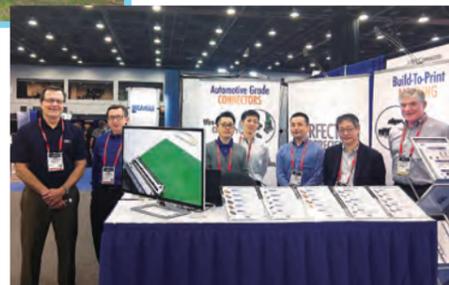
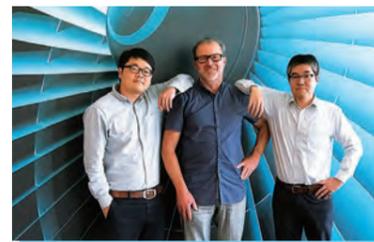
# Creating New Value, All Over the World

Manufacturing that spans across the globe—I-PEX manufacturing.



## *To be the Sharpest*

By creating original value that surpasses the imagination of customers,  
we will become a partner that is the first choice for people.  
This passion, which is alive in each of us as we work around the world,  
will help us to open up the next generation.



## Top Message

We will contribute to progress toward the next era as an Innovative Product development & Engineering solutions eXpert.

Takaharu Tsuchiyama  
President



Founded as an expert precision mold manufacturer, we have always striven to create value that only we can achieve. In our pursuit of this, we have never accepted anything less than extremely precise and stable quality. Our potential is ever-growing through taking on unlimited challenges without end—even for unknown issues—amidst the vigorous advance of technological innovation. This unwavering spirit of challenge is always nurtured by and resonant with every employee of our company. It is a value that is essential to us, and is continuously being passed on I-PEX.

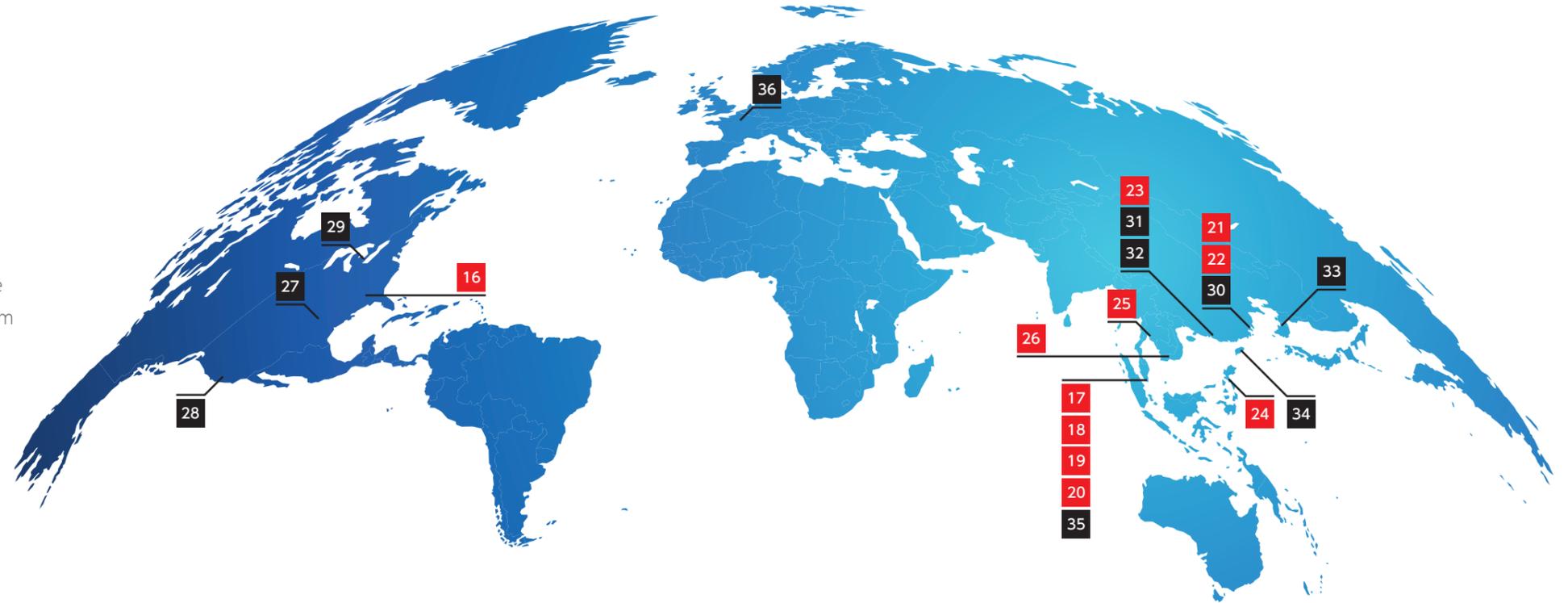
I-PEX is a company that possesses the capabilities both of a manufacturer that makes contracted components and of one that proposes solutions. We manufacture components to order through a vertically integrated production system that covers everything from design to mass production, and achieves high quality and stable production. Moreover, we proactively press forward with the planning and development of products of our own that will lead the market and contribute to the development of cutting-edge industry. Together with capabilities such as these, we have been accumulating a diverse range of skills and resources, while making leaps forward as a business entity.

Going forward, we will take the DNA for pursuing perfection in precision in manufacturing that we have fostered up to now, and use it as a basis for promoting lifestyle innovation as an "Innovative Product development & Engineering solutions eXpert" that ventures a step beyond the needs of the times to create new value. We will ensure our sustainable growth by driving ever forward with manufacturing that brings together passion, wisdom, and technology, while always picturing the lives that lie beyond the components and products we make.

# Global Network

## Meeting diverse global needs.

Since our first overseas expansion, which by established a base in Singapore in 1971, we have expanded our plants, sales offices, and development centers throughout Asia, the United States and Europe. We will continue to focus our efforts on the production system, service system and human resources development in each region to strengthen our ability to respond appropriately to global needs.



Head Office / Kyoto Plant



Tokyo Branch



Tokyo Machida Office



Shizuoka Office



Heiwa Laboratory



Osaka Branch



I-PEX Campus



Ogori Plant



Onojo Plant



Tachiarai Plant



Yamanashi Plant



Okinawa Plant



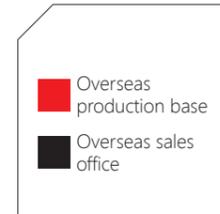
I-PEX Shimane Inc.



DJ Precision Co., Ltd.



I-PEX Global Operations, Inc.



Alabama Plant, USA



Yishun Plant, Singapore



Woodlands Plant, Singapore



Johor Bahru Plant, Malaysia



Bintan Plant, Indonesia



Shanghai Plant 1, China



Shanghai Plant 2, China



Dong Guan Plant, China



Laguna Plant, Philippines



Chonburi Plant, Thailand



Ho Chi Minh Plant, Vietnam

- 27 Austin, USA
- 28 San Jose, USA
- 29 Detroit, USA
- 30 Shanghai, China
- 31 Hong Kong, China
- 32 Shenzhen, China
- 33 South Korea
- 34 Taiwan
- 35 Singapore
- 36 France