

<https://www.toyokoka.com/>



 **TOYOKOKA Co., Ltd.**

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**Finishing Service Suppliers**  
**TOYOKOKA Co., Ltd.**



## Greetings

Toyokoka Co., Ltd. was founded in 1960 originally as Toyokoka Chromium Plating Industries in Aikawamachi, Kurume City, Fukuoka Prefecture. Since the beginning, we have provided Kurume City and other parts of northern Kyushu with hard chromium plating and grinding services for general industrial machinery parts to respond to the needs for improved wear-resistant characteristics for machine parts and restoration of worn parts. In 1972 the company was incorporated and took on its current name. Since then, to meet the needs of customers not only in Kyushu but also throughout Western Japan, we have introduced cylindrical mirror grinders, large scale CNC cylindrical grinders, rotor balancing testers, ion plating equipment, and thermal spraying equipment, and have continued to pursue the restoring and adding high value for cylindrical machine parts that are used in a variety of industries.

Toyoko Koka's high-value-added coating technology is based on the hard chromium plating technology that has been developed since the company's founding, machining technology that achieves precise dimensional tolerances and surface roughness, vacuum coating technology that achieves high hardness and abrasion resistance that is unachievable by wet surface treatment, and thermal spray coating technology, which is essential for the fast development of surface treatment services, have been highly regarded in a wide range of fields to meet the increasingly sophisticated demands of the industrial world.

In Japan's manufacturing industry, where metalworking and metallurgical technologies are becoming more advanced with each day, and under the trend toward higher speeds and greater efficiency that has been advancing in recent years, surface treatment projects for composite materials that combine metals and nonmetals, powder-formed light alloys, and ultra-hard metals approaching diamond hardness have been incessantly introduced. Furthermore, it has been a long time since we were said to be in the age of information technology and globalization. Even small and medium-sized enterprises and local plating companies cannot escape this tidal wave. We will face these major trends as nourishment for us, rather than passively accepting them, and continue to create technologies and services that will truly satisfy our customers throughout the country while striving to be a company that leads the way in surface treatment technology for the future.

Please look forward to it.

Representative Director and President

*Kentaro Ono*



## Greetings

## Company profile & facilities

## Company Profile and List of Facilities



### Company Profile

Trade Name	Toyokoka Co., Ltd. (Kabushikikaisha Toyokoka)
Business description	Industrial chromium plating Pattern chromium plating Electronic nickel plating Various ion plating (TiN, CrN, TiCrN, ZnN, TiAlN, Cr <sub>2</sub> O <sub>3</sub> , etc.) Grinding (cylinder, inner surface, flat surface, cylindrical mirror surface) Honing Cutting Buffing Dry honing Balancing rotors Manufacture and repair of rolls and rods Thermal spraying
Founding History	Founded March 17, 1960 1960 Founded in Aikawa-cho, Kurume City The company was named "Toyo Koka Chromium Plating Industry" 1965 Moved to Chikuho-cho, Mizuma-gun (currently Araki-cho, Kurume City) due to the need to expand facilities 1969 Opened Oita Sales Office 1970 Moved head office and factory to current location 1972 Incorporated as "Toyo Koka Co., Ltd." Capital of 4 million yen at that time 1985 Expanded chromium plating factory 1990 Established rotor balancing department 1991 Established "TKK Sales Co., Ltd." as a separate corporation for sales and outsourcing Capital: 10 million yen 1993 Established ion plating department 1995 Increased capital to 10 million yen 1998 Purchased adjacent land and established a machining factory and ion plating factory for grinding, cutting, etc 2004 Established office, thermal spray factory, and warehouse 2007 Established wastewater treatment facility Established nickel plating factory 2008 Established chromium plating factory 2013 Established machining factory 2014 Opened Kansai sales office (Kusatsu City, Shiga Prefecture) 2014 Introduced HVOF (High velocity flame spraying) equipment 2022 Installed new chromium plating tank 2022 Installed large cylindrical grinding machine 7950 and installed additional electric nickel-plating equipment
Number of employees	90 as of December 2021
Partner Banks	Resona Bank, Kurume Branch, Chikuho Bank, Head Office Sales Department Kitakyushu Bank, Kurume Branch, Howa Bank, Kaku Branch
Property Ownership	Head office and factory: Site area: Approx. 5,000 square meters Building Area: Approx. 3,500 square meters Oita office: Site Area: Approx. 150 square meters Building Area: Approx. 100 square meters

### List of Equipment

●Hard Chromium Plating Equipment	
·Chromium plating tank	
Sargent bath	Maximum L2,000mm×W2,000mm×H2,500mm ..... 4 units
High-speed hard bath	Maximum Φ1,500mm×Φ1,300mm×H6,500mm ..... 7 units
●Electric Nickel plating Equipment	
Φ120mm×740mm	..... 4 units
Φ250mm×800mm	..... 1 unit
Φ250mm×1,000mm	..... 1 unit
Φ230mm×4,000mm	..... 1 unit
●Ion Plating Equipment	
·Arc ion plating equipment (KOBELCO AIP6036 type)	
Maximum length 780mm, maximum diameter 700mm, maximum load 400kg	..... 2 units
·Pretreatment hydrocarbon solvent cleaning equipment	..... 1 unit
·Pretreatment methylene chloride cleaning equipment	..... 1 unit
·Aero Wrap (#3000)	..... 2 units
●Thermal Spraying Equipment	
Wire flame spraying	..... 1 unit
Powder flame spraying	..... 1 unit
Arc spraying	..... 1 unit
High velocity flame spraying	..... 1 unit
●Grinding Equipment	
·Cylindrical grinding machine	
Center distance Max. 7,950mm, Maximum diameter: Φ1,600mm	..... Total 13 units
·Universal grinding machine (internal and external surfaces possible)	
Center distance 1,050mm	..... 2 units
·Crankshaft grinding machine	
Center distance 1,000mm	..... 1 unit
·Internal grinding machine (maximum grip outer diameter: Φ1,200mm)	
Maximum inner diameter 750mm	..... 2 units
·Surface grinding machine (surface type)	
Table 400×800mm	..... 2 units
·Cylindrical mirror grinding machine	
Center distance Max. 6,000mm, Maximum diameter: Φ880mm	..... 7 units
·Honing machine	
Center distance 3,000mm, Machining inner diameter Φ25-Φ650 (outer diameter Φ700)	..... 2 units
●Turning Equipment	
·Lathe	
Center distance, Max. 3,000mm	..... 9 units
●Other Machining Equipment	
Milling machine	Table dimensions 400mm×1,000mm ..... 1 unit
NC milling machine	Table dimensions 300mm×700mm ..... 1 unit
Drill press	..... 4 units
Sawing machine	W300×H250mm ..... 1 unit
Horizontal machining center	W630×L730×H820mm ..... 1 unit
Press brake (bending machine)	..... 1 unit
Maximum bending thickness, 6×1,000mm	..... 1 unit
Shearing machine	..... 1 unit
Maximum plate thickness, 3.2×2,000mm	..... 1 unit
Hydraulic cylinder disassembly and assembly device	..... 1 unit
Maximum outer dimensions, Φ400×2,500mm	..... 1 unit
●Buffing Equipment	
Buff Race	..... 5 units
Automatic inner surface buffing machine	Max. inner diameter, 400mm ..... 1 unit
●Satin finish (blasting) Equipment	
Rotary table type dry honer	Max. diameter 300mm ..... 1 unit
Max. diameter, 900mm	..... 1 unit
Dry honer	..... 4 units
Automatic blast	Φ260×4,250mm ..... 1 unit
●Inspection Equipment	
Hard type balancing tester	Max. 6,000mm (Max. 750kg) ..... 1 unit
Max. 1,300mm	..... 1 unit



## Hard Chromium Plating

Hard chromium plating using our original restoration technology can restore worn parts to new-like condition. Additionally, applying chromium plating to molds and rare and valuable parts can improve mold release and resistance to wear.

Before



After



### Construction Machinery Parts Restoration

Scratches, rust, dents, etc. can cause leaking. Our restoration technology uses hard chromium plating to restore parts to new-like condition.

Before



After



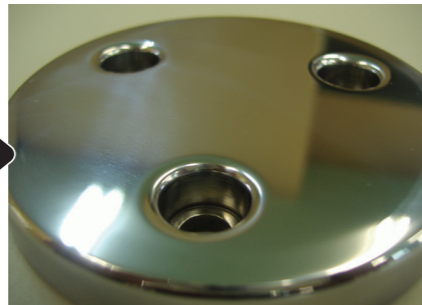
### Internal Surface Restoration

In the same manner as the outer surface, the internal surface can be restored using hard chromium plating.

Before



After



### Flat Surface Restoration

Flat surface grinding is possible for parts that require flat surfaces. Plating may be applied to restore dimension for size in some cases.

Before



After



### Screw Shaft Restoration

We provide everything from hard surfacing of the tight parts to hard chromium plating restoration. We can also reproduce parts based on damaged parts.

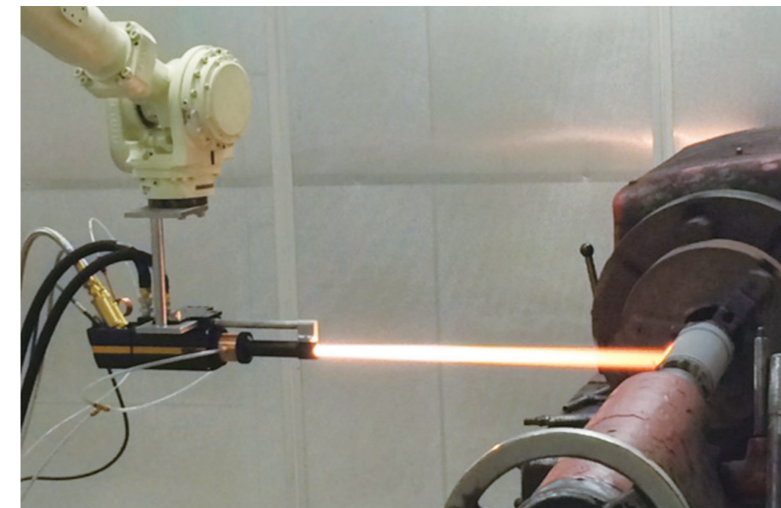


## Hard chromium plating

## Thermal spraying

## Thermal Spraying

Thermal Spraying techniques are coating in which melted materials or near molten state are sprayed onto a surface.



High Velocity Oxygen Fuel Spraying (WC/Co type)

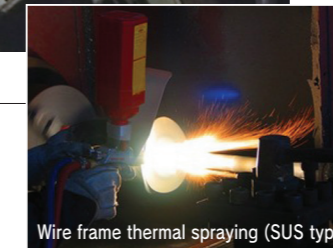
### Restoration by Metal Spraying

Coating repair of parts that are severely corroded or worn is possible.

Before



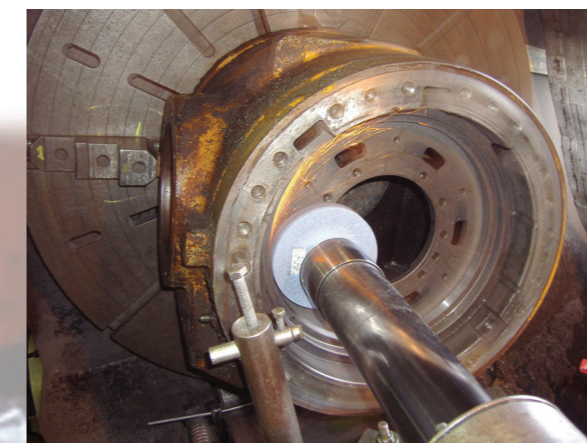
After



Wire frame thermal spraying (SUS type)

### Motor Bracket

Repairing wear on bearing mountings and attachment areas.



Differential Case



### Features

1. Wide selection of spray materials
2. Wide selection of materials
3. Coating can be done while keeping materials at low temperatures, avoiding distortion.

## Arc ion plating process



### Arc Ion Plating Process

The Arc Plating Process uses the tremendous energy of arc discharge to repair with an ultra-hard film with strong adhesion. It is gaining attention as a new generation in ion plating processes such as TiAlN/TiCN, etc.



#### Principle

A metal target (evaporation source) is used as a cathode to generate an arc discharge in a vacuum. The generated electrical energy causes the target to instantly evaporate and at the same time metal ions are discharged into the vacuum. Concurrently, applying a bias voltage (negative pressure) to the object to be coated will accelerate the metal ions and together with the reactive gas particles, adhere to the surface of the target to be coated producing a dense film.

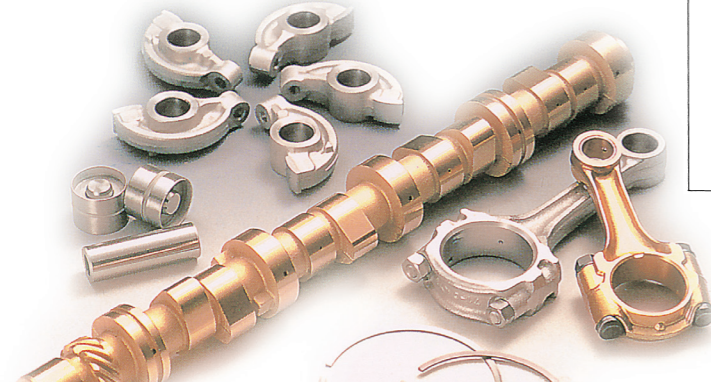
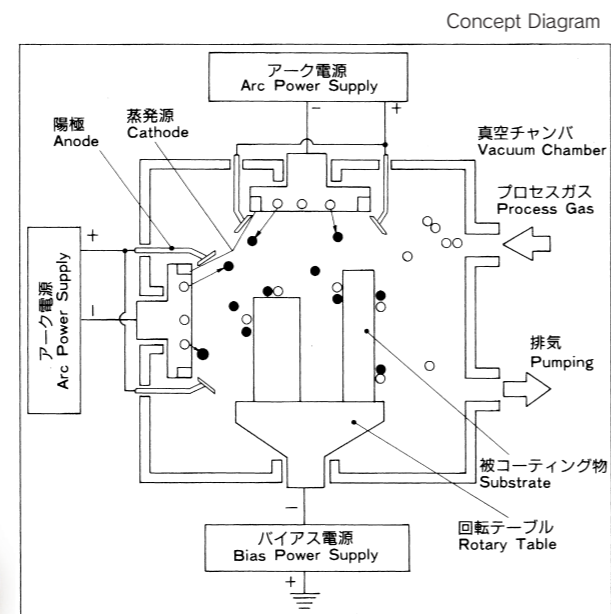
#### Features

##### Low Temperature Process

Coatings are formed while maintaining temperatures below heat treatment temperatures according to the material type of the coating. The properties of the base material are not damaged and reheating treatment is unnecessary.

##### Variety of Coatings

Various ultra-hard coatings such as TiN, TiC, TiCN, ZrN, and Cr-N can be easily produced. Additionally, alloy coatings such as TiAlN are attracting attention as new highly functional coatings. By instantly evaporating solid metal, vapor with the same composition as the target is generated, achieving high composition stability.



Coatings Used in AIP Method

Coating	Vickers hardness (HV)	Application	Coating appearance
TiN	2,500	Wear resistance/decorative	
TiCN	2,800	Wear resistance	
TiC	3,000	Wear resistance	
ZrN	2,200	Decorative	
Cr-N	1,800	Sliding	
TiAlN	3,000	Wear resistance	



#### Coatings for Machine Parts

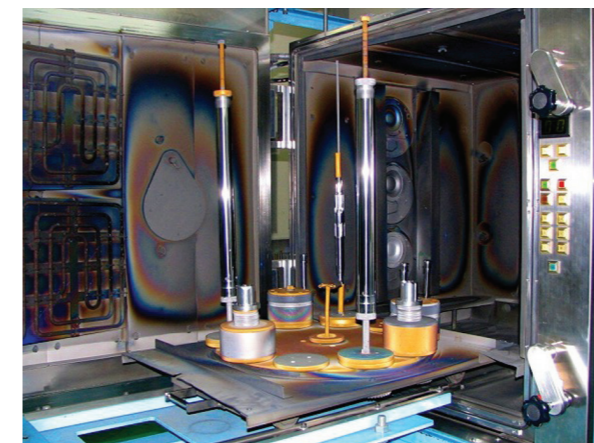
Coatings such as Cr-N meet the year-on-year increasingly stringent demands for wear resistance on sliding parts. The AIP method allows low-temperature processing and provides strong coating adhesion, making it ideal for processing machine parts.

#### Decorative Coatings

TiN, TiCN, ZrN, and ZrCN are highly wear-resistant and corrosion-resistant and have beautiful colors, adding value to products as decorative coatings.

#### Coatings for Punches and Molds

Hard coating processes such as TiN and TiCN can significantly improve the service life of tools. Furthermore, the high temperatures of CVD (800~1100°C) processing are not required and avoid compromising of the dimensional accuracy of the base material.



#### Coating for Cutting Tools

##### Improved Service Life

Hard coatings such as TiN improve the resistance to wear for high-speed steel and carbide tools, significantly improving their service life. With the introduction of new coatings such as TiCN and TiAlN, even higher wear resistance can be achieved.

##### Improved Productivity

Coated tools perform at higher machining speeds, significantly improving productivity.

##### Re-coating

Coating is also possible for tools that have been previously grinded. Re-coating allows tools to maintain the same performance as new tools.





# Dynamic Balance

Balancing of rotating bodies is essential for the production and repair of high-quality industrial products. Shafts and bearings of rotating bodies are repaired with chromium plating and balancing is also carried out. Balancing reduces the bearing load and reduces noise of rotating machinery while in operation and extends the service life of the machinery leading to improved quality and efficiency.



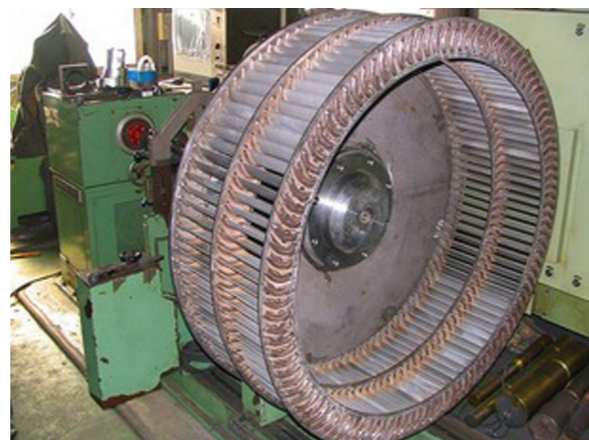
# Machining

Here is a list of the main work we perform. We restore, manufacture, and modify parts.



Rotors

Dynamic balance compensation for 2-point rotors.



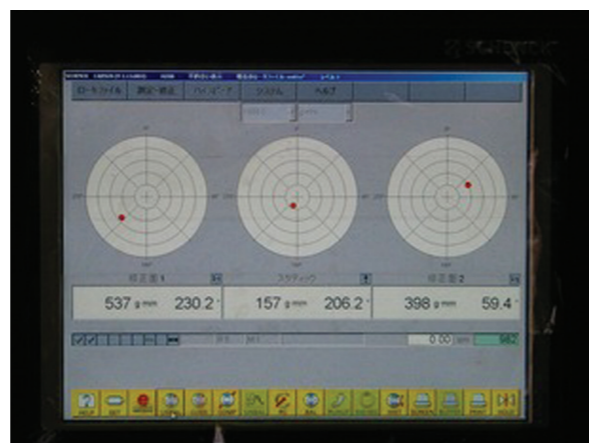
Impellers

Dynamic balance compensation for cantilevered impellers.



Roll Cells

Dynamic balance compensation for industrial machinery roll cells.



Monitors

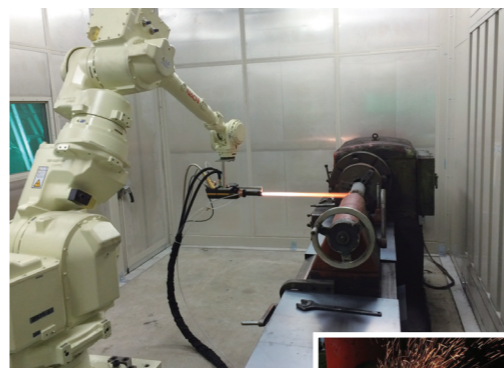
Displays unbalance on monitors.

### Features

- 1. Balancing can reduce bearing loads and reduce noise during operation of rotating machinery and extend the service life of the machine.

### Data size

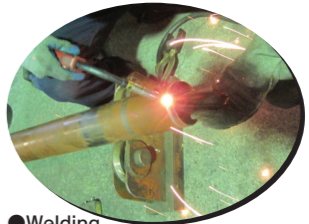
Dynamic unbalance value (g-mm) Static unbalance value (g-mm) Eccentricity (μm) Balancing quality (mm/s) = G grade. Either specification is acceptable.



●High Velocity Oxygen Fuel Spraying



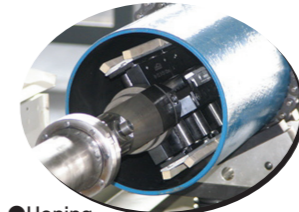
●Grinding machine



●Welding



●Wire frame spraying



●Honing



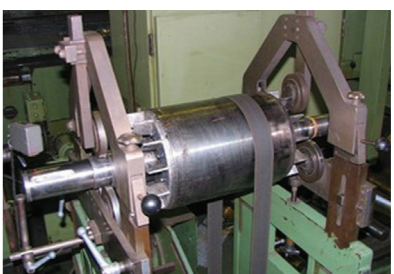
●Internal grinding



●Surface grinding machine



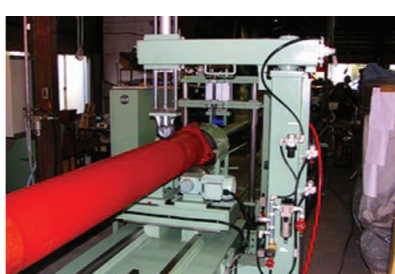
●Plating tank



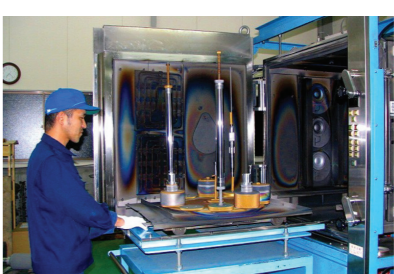
●Dynamic balance



●Lathe



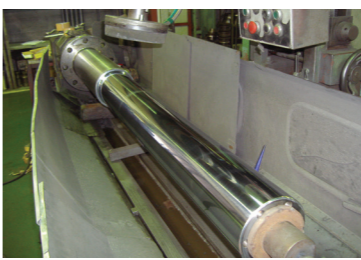
●Automatic internal buffing



●AIP device



●Lapping Machine



●Mirror polishing machine



●Blasting



●Buffing machine

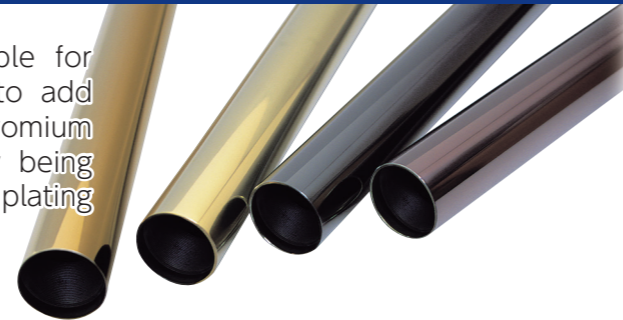
釣合試験成績表		発行主	
試験機名	カナンテック (KANO TECH)	発注主	
試験機型	J1S 100005 G-E1	機 種	
測定動径長さ (mm)	10000	測長	3000
測定動径径差 (mm)	10000	測長公差	±0.05
測定動径公差 (mm)	±0.05	測長公差	±0.05
測定動径公差 (mm)	±0.05	測長公差	±0.05
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●Our Inspection Sheet



Motorcycle Parts

Up until now, only titanium coating was available for coating inner tubes however, it is now possible to add various colors. It is also possible to apply hard chromium plating plus hard coating to inner tubes currently being used. The technology to combine hard chromium plating and ion plating processing is our own technology.



Inner Tubes Hard Chromium Plating Restoration

Corroded inner tubes can be restored to the condition as when they were new. You can reduce costs by restoring parts even when original parts are too expensive or no longer in stock.

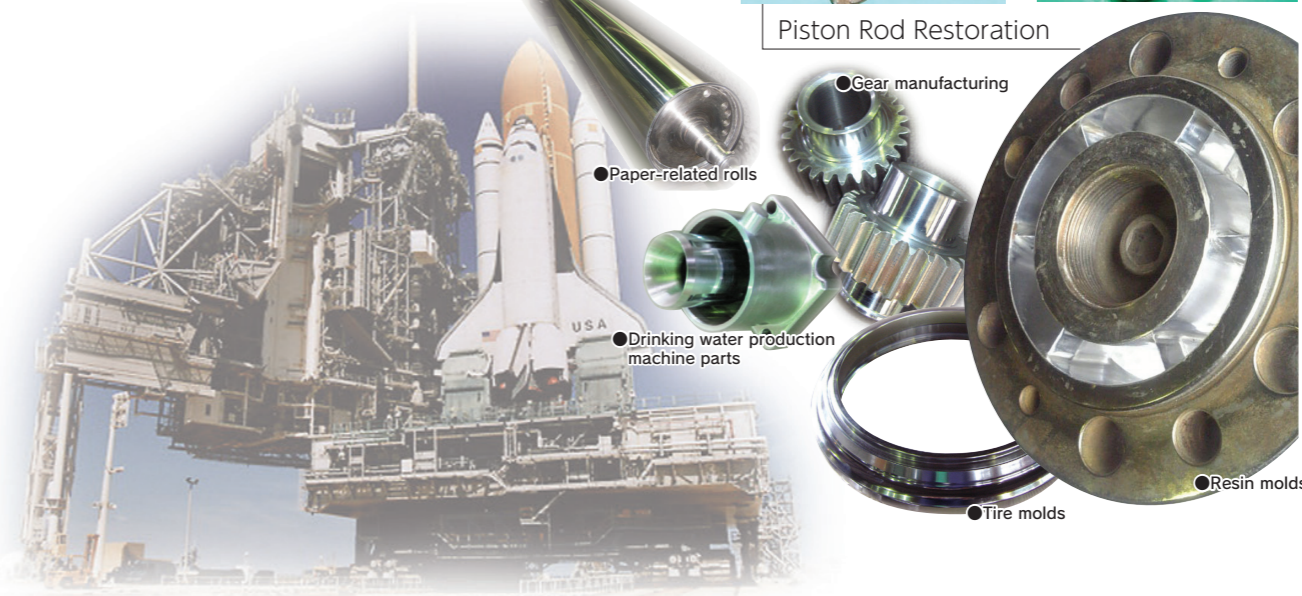


Industrial Machinery

From steel mills and paper mills to food and drinking water companies, our technology is used in a wide range of fields. We can lower running costs by restoring parts and increasing the added value of products.

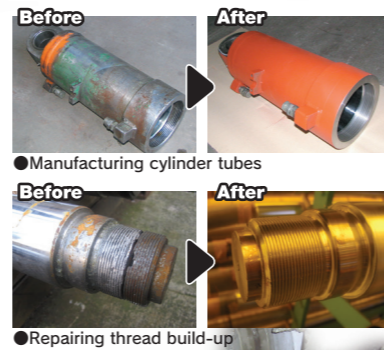
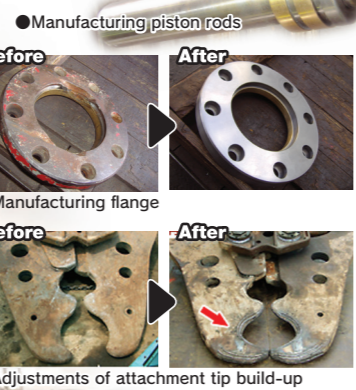


Piston Rod Restoration



Construction Machinery

Construction machinery is used in harsh environments, because of this, parts are heavily damaged. Aftermarket parts can be expensive and delivery times long. We have various methods to restore and manufacture parts to reduce costs and shorted delivery times.



● Manufacturing breaker piston



Environmental Measures

Not only does our company comply with all relevant laws and regulations regarding environmental issues, but we also actively work to recycle and reuse used chemicals and consumables to eliminate waste. As for our waste, after processing at our facilities, it is consigned to designated companies certified to manage it responsibly by each local government.



● Liquid Waste Treatment Equipment

