



**LAPPING
SERVICE
INNOVATOR**

Company name LSI Co.,Ltd.

President and CEO Yosuke Mizutani

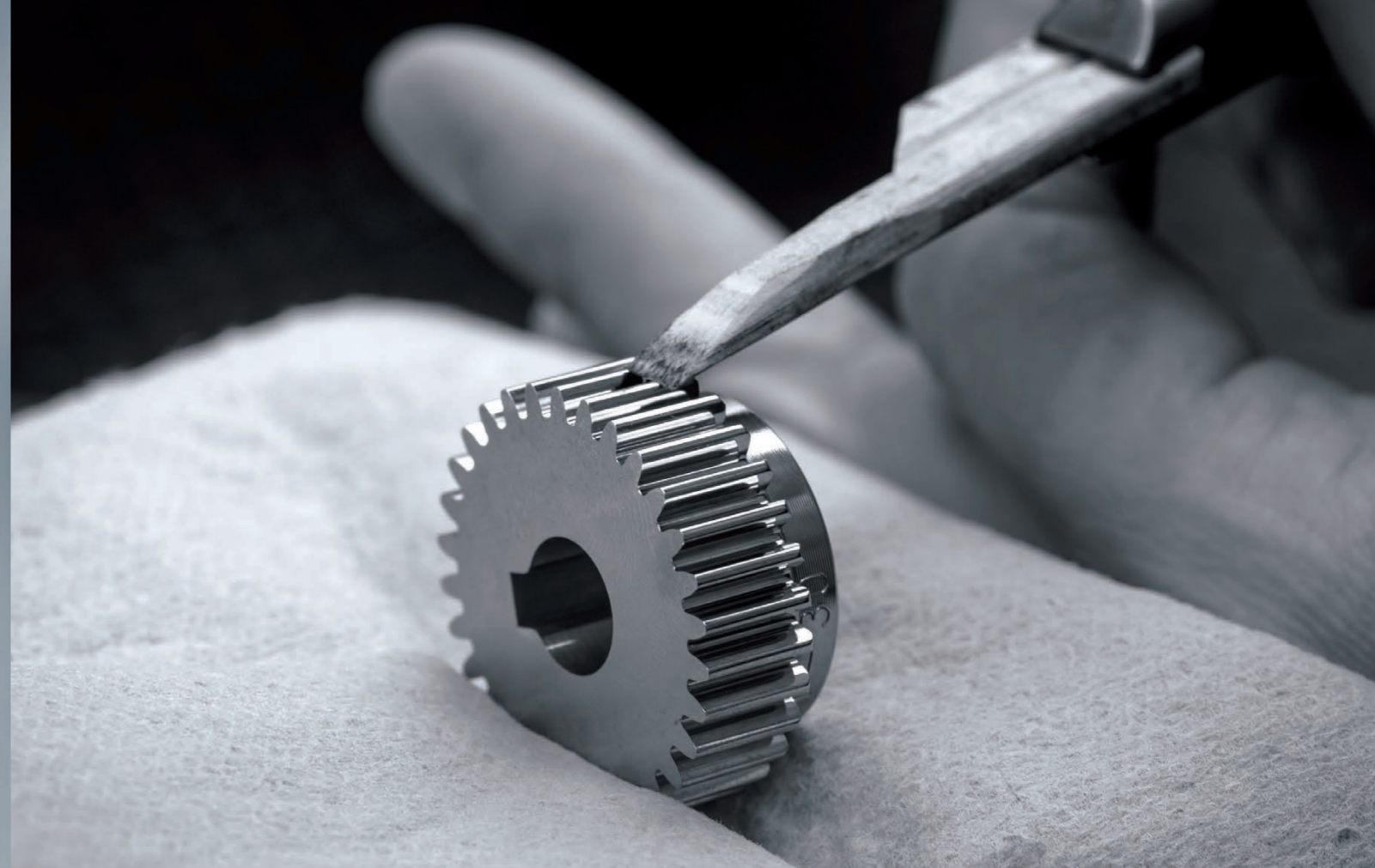
location Head Office And Plant
46-1 Kamishiota Odakacho, Midori-Ku, Nagoya-shi
Aichi 459-8001 JAPAN
TEL +81-52-680-9368 FAX +81-52-680-9369
Tokyo office
1-7-19-604 Morino, Machida-shi, Tokyo-to,
194-0022
TEL +81-42-794-7303 FAX +81-42-794-7304

Capital 10 million yen

Established March 25, 2010

Main Business Mold Lapping/Polishing (Cold forging mold,
Fine blanking mold, Press mold, Die cast mold Plastic
injection mold) with surface coating solution.
Stripping for carbide (round shape)
Manufacturing and Sales of mold parts and fixture
with measurement
Mold repair by welding with Lapping.

<http://www.lsi-lap.co.jp/>



**Let us lengthen the
working life of your die.**



**LAPPING
SERVICE
INNOVATOR**



**INNOVATOR
SERVICE
LAPPING**

Lengthens Die Working Life with "Polishing Skill"

LSI is a group of experts in surface processing, including die and mirror surface polishing.

Based on our comprehensive skill in polishing diverse materials, we are able to lengthen **the working life of dies** by proposing diverse surface improvement measures and support in the creation of the best manufacturing environment for our clients.

LAPPING SERVICE INNOVATOR

Three strengths of LSI

Diverse die hand polishing technology for diverse materials

We offer the polishing method most suitable for the material features and use. Combining know-how that we have independently accumulated, we contribute to improved production efficiency with mirror surface polishing and precision lapping.

Parts sales

Another feature of LSI is that we are able to provide not just surface polishing but also diverse processing technologies. Using our wide-ranging equipment and devices, we offer our services in the production of die parts, and the analysis and testing of trial products.

High precision inspection

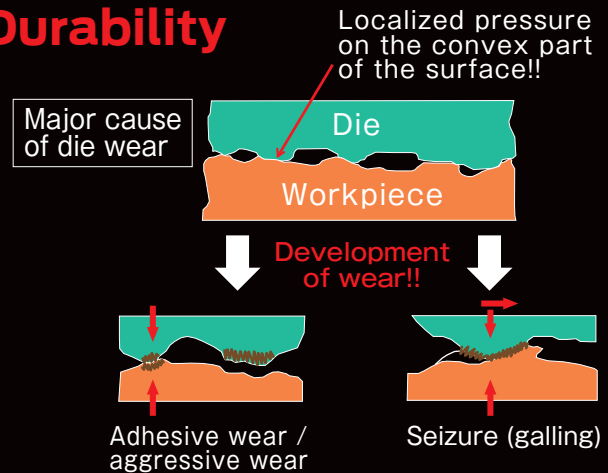
Making the utmost use of high performing measuring equipment, including coordinate measuring machines and contracers, we ensure measurement precision of products after polishing. We offer "polishing at the micron unit" and "guarantees as added value."



Hand-polishing

Mirror Finish = Improved Durability

Wear develops on dies due to an uneven surface when localized pressure is applied, which not only lowers durability but also causes defects such as breakage and chipping. This means that polishing the die surface is an indispensable process for slowing down wear and lengthening working life.



Expert Group on Polishing

LSI has a group of experts with experience in surface processing responding to diverse "polishing orders." We make the utmost use of the know-how and application technologies we have accumulated, and our experts hand polish surfaces suitable for diverse types of steel material. LSI offers "micron unit polishing best suited for each die" using the most advanced measuring devices.

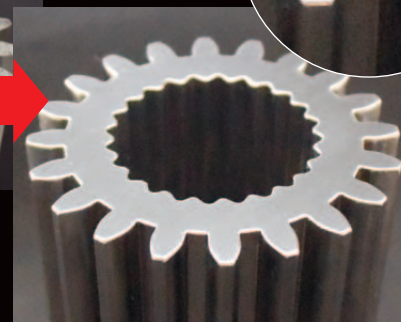


Craftsmen's Skill That Cannot Be Duplicated by a Machine

Surface polishing by hand requires high skill and it is the world of artisans with abundant knowledge and experience that effectively combine abrasives and grindstones. Our expert polishers use their fine skill to remove external burrs and polish the R area of gears to lengthen the working life of dies.



Before processing



After processing

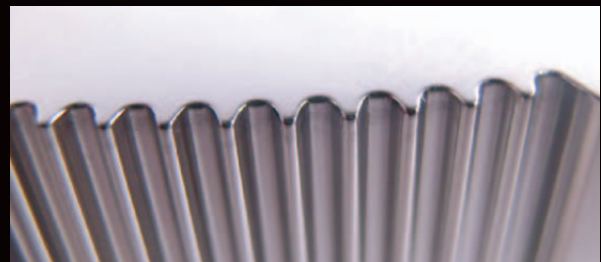


Introduction of Hand Polishing Examples

Example 1 R hand processing of fine blanking die

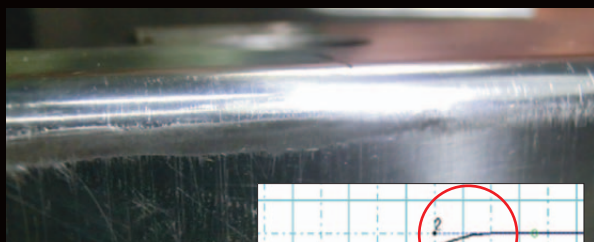


Before processing

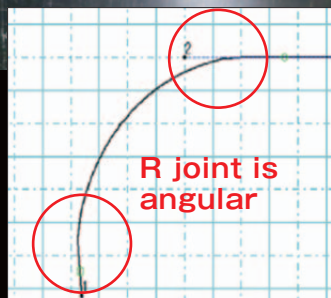


After processing

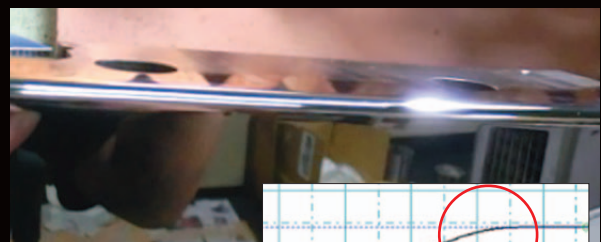
Example 2 R edge area improvement of bending die



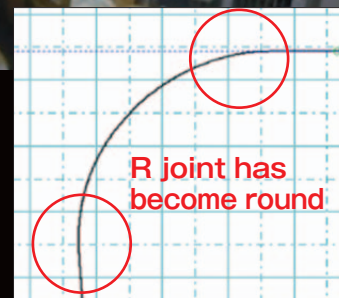
Before processing



●Number of shots:
20,000-30,000


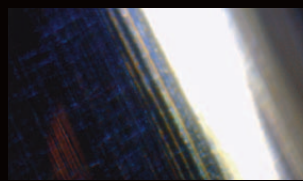


After processing



●Number of shots:
120,000

Example 3 Comparison of die working life by surface roughness

Processing	Unprocessed	Coating only	Coating + polishing
External photograph	→		
Surface roughness (before coating) Rz	1.86 μ m		
Surface roughness (after coating) Rz	—	2.33 μ m	0.32 μ m
Working life (shot)	17,000	50,000	130,000

Example 4 Die repair (welding + polishing)

Reproduced with polishing after welding work



Before processing



After processing

Quality Assurance & Total Support



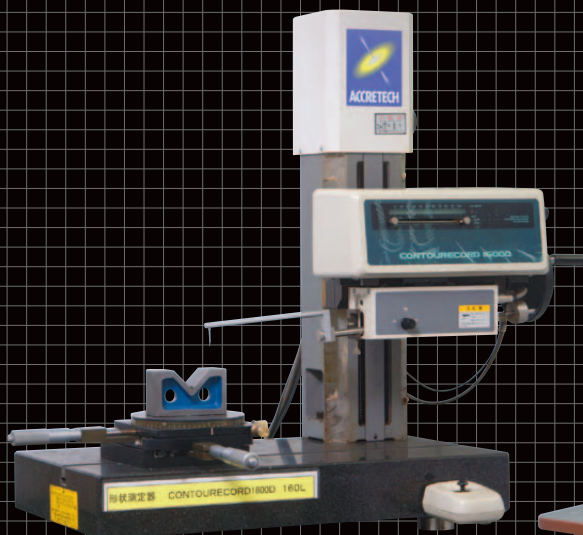
Ensuring Quality with Minute Measurement

LSI's strength is the outstanding polishing skills of our craftsmen and the effort they exert in die measurement requiring micron unit precision. LSI has diverse measuring equipment for surface roughness, hardness, angle, and device to quantify R, as well as high performing cutting-edge equipment such as coordinate measuring machines and contracers that enable us to ensure quality of our service with precision measurement.

Consistent Proposals from Material Selection to Manufacturing

Leave it to LSI for shaping and repair of dies, such as R edge area processing and welding blur repair of bending dies. Our unique technology, know-how and support from wide network of cooperating partners enable us to offer total proposals and consistent service from material selection, polishing processing and die production meeting whatever your demands may be.

[Introduction of Measuring Equipment]



●Contracer (Contour Form Measurement Equipment)

**CONTOURECORD
1600D 160L** (Tokyo Seimitsu)

This is form measuring equipment that can make high-precision contour measurements. Able to measure at Z direction below 1 μ m.



●Coordinate Measuring Machine

DuraMax VAST XXT
(Tokyo Seimitsu/Carl Zeiss series)

This is a coordinate measuring machine with small-sized high-precision scanning probe. The machine is able to take in a large volume of measurement data in short time for stability in measuring data and to reduce operator measurement errors.

Equipment List

■ Processing equipment

Major Equipment		Quantity	Note
Equipment name	Maker		
SMAP	Toyo Kenmazai Kogyo, Ltd.	1	Mirror shot machine
Lathe	LSI Company Limited	2	Hand polishing machine ø280
Minimo	Minitor Co., Ltd.	10	Hand polishing machine
Turbo Lap	UHT Corporation	7	Hand polishing machine
Surface Grinding Machine	Nikkoukikai, Ltd.	1	Size: 600 mm x 300 mm

■ Inspection equipment / devices

Major Equipment		Quantity	Note
Equipment name	Maker		
Coordinate Measuring Machine	Tokyo Seimitsu Co., Ltd.	1	DuraMax VAST XXT 400mm×400mm×450mm
Contour Measuring Instrument	Tokyo Seimitsu Co., Ltd.	1	CONTOURECORD 1600D 160L
Surface Texture Instrument	Tokyo Seimitsu Co., Ltd.	1	SURFCOM FLEX
Rockwell Hardness Tester	Misawa Seiki Seisakusho	1	φ63×100L
Digital Caliper	Mitutoyo Corporation	3	0mm~300mm
High-precision Digimatic Micrometer	Mitutoyo Corporation	8	0mm~200mm
Three-point Internal Micrometer	Mitutoyo Corporation	12	6mm~100mm
Cylinder Gauge	Mitutoyo Corporation	1	50mm~150mm
Right Angle Measuring Instrument	Musashinoseiki Co., Ltd.	1	10mm~360mm
Pin Gauge	Eisen Co., Ltd.	1	φ0.05~φ10.5 0.01mm increment
Block Gauge	Mitutoyo Corporation	1	0.5mm~100mm
Internal Micrometer	Mitutoyo Corporation	1	5mm~50mm
Spherical-flat Anvil Type Micrometer	Mitutoyo Corporation	1	0mm~25mm
Gauges	Eisen Co., Ltd. and others	-	Thread gauges, H7 plug gauge, nuts
Other inspection devices	Mitutoyo Corporation, and others	-	Height gauge, dial depth, dial caliber, etc.