Overseas companies invitation seminar

Company information

Manufacturing and consulting company
specialized in metal stamping

Nogamigiken Co. Ltd.

Dies are not just equipment for mass production.
They are important tools for earning a profit.

Nogamigiken Corporate profile

◆ Scope of business
- Production of precision parts
- Production of precision stamping parts
- Design and production of stamping dies and jigs

◆ Address

Headquarters	5-9-3, Meguro-honcho, Meguro-ku, Tokyo, Japan
Ibaraki Plant	1136-3, Izumi, Hitachiomiya City, Ibaraki, Japan

◆ Employees

Headquarters:	3
Ibaraki Plant:	56 (as of September 2013)

◆ President & CEO Ryota Nogami

◆ Capital 10 million yen

Corporate history

Aril 1970	Nogami Seiken established by Shinryo Nogami.
March 1986	Changed the company name to Nogamigiken Co., Ltd.
July 1987	Built Number 1 factory and started operation in Ibaraki Pref.
July 1989	Built Number 2 factory in Ibaraki Pref.
January 1992	Started the stamping products and stamping die design and production business.
May 1997	Built Number 3 factory in Ibaraki Pref.
September 1999	Obtained ISO 9002 certification.
March 2001	Started the unitary jigs and services (design & manufacture in-house).
October 2004	Obtained ISO 9001 certification.
May 2009	Selected by METI as one of the "300 of Japan's Vibrant Monodzukuri (an art of making goods) small and medium enterprises" (SMEs).
October 2009	Adopted by METI as a company to receive a subsidy for product development of Monodzukuri SMEs.
July 2010	Adopted by JETRO as a company to receive the support service to export hopeful products as exportation.
October 2010	Adopted by METI as a company to receive a subsidy for SME's R & D to develop new technology.
March 2011	Registered on the IGES as certificate of Eco Action 21.
November 2011	Won an award of "Grand Prize for Excellent Manufacturer" in the mechanical parts field by Nikkan Kogyo Shimbun.
October 2012	Obtained approval for our "Business Innovation Plan" under the Act on Support for Management Innovation by Small and Medium Enterprises.
April 2013	Won an encouragement prize of "The 25th SME Excellent New Technologies and Products".

ISO 9001

明日の日本を支える
元気なモノ作り
中小企業300社
経済産業省
2009年選定企業

Supporting the future of Japan
300 of Japan's Vibrant Monodzukuri small and medium enterprises
Selected by the Ministry of Economy, Trade and Industry in 2009

エコアクション21
認証・登録番号 0006747
Eco Action 21
Certification and registration number: 0006747

Core technologies ~Ultraprecision grinding~

Nogamigiken has worked on research in ultraprecision grinding technologies for more than 40 years.

Our core technology is a precision of only five ten-thousandths of a millimeter in parallel and squareness.

We realized a level that none of the most advanced machines in existence can deliver by pursuing forming technologies of grindstones.

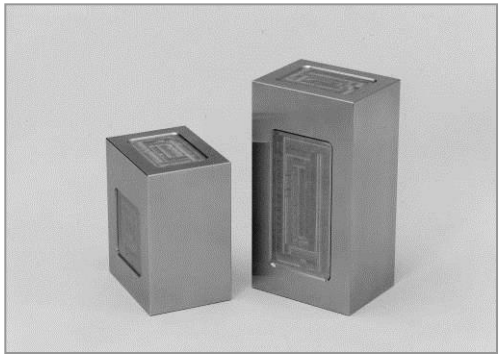
Core technologies

~Performance of NOGAMI brand~

- We offer “precision jigs” with the highest precision of parallelism and squareness in Japan serving as a reference for measurement and processing work.

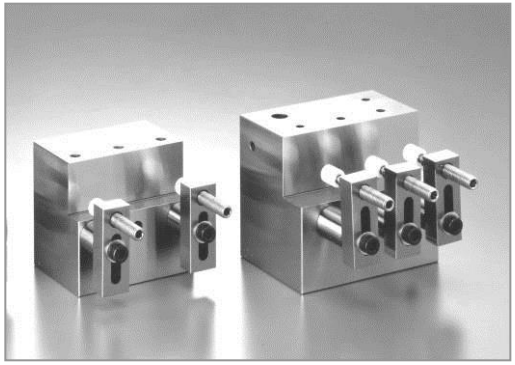
⟨⟨**Master blocks**⟩⟩

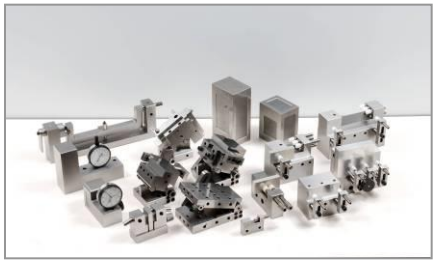
Precision of squareness: < 0.0005 mm per 100 mm



⟨⟨**Square blocks**⟩⟩

Precision of the entire edge: Squareness < 0.0015 mm, Parallelism > 0.001 mm





<<SNG Tooling series>>

We obtained 13 patents for 27 types of SNG Tooling products. Our unique measurement technologies allow for a guaranteed range that cannot be achieved by ordinary three-dimensional measuring systems.

⟨⟨**Customers**⟩⟩

Okamoto 株式会社岡本工作機械製作所 KURODA

Okamoto Machine Tool Works, Ltd.

Scope of business

Precision parts (blades and parts)

Precision stamping

Three business fields centered on precision grinding

Design and production of **unitary** stamping dies

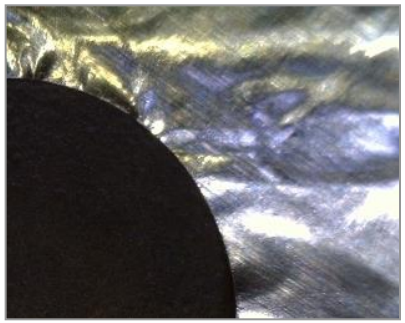
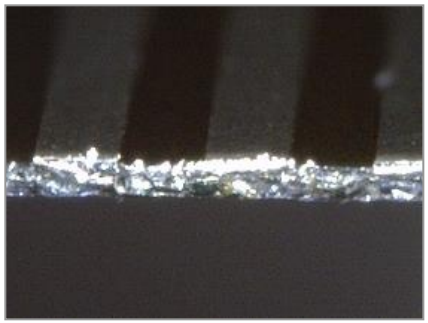
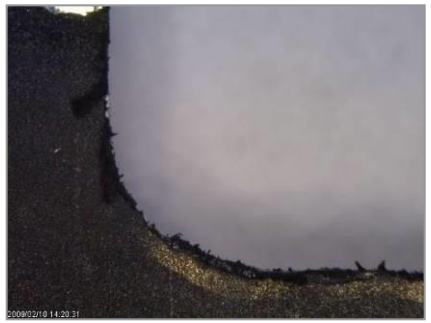
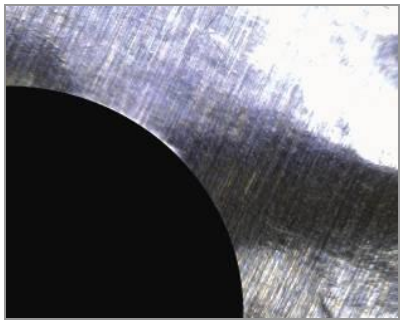
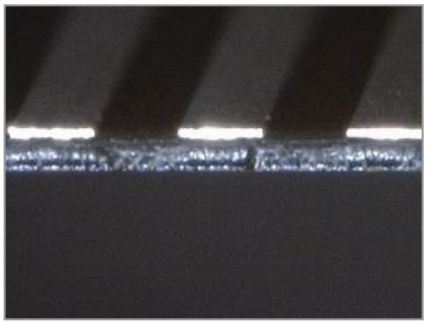
Main business 3: Precision stamping dies and jigs

~Design & Production~

From jigs for use in research and development to stamping dies for mass production

- **Minimizes contamination and aluminum adhesion to dies.**
- **Maintains a smooth cut-surface free of burrs and deformation for a long period.**

~Precisely stamping material with a minimum thickness of 0.005 mm~

	⟨⟨Aluminum sheet, t = 0.015 mm⟩⟩	⟨⟨TCP film, t = 0.12 mm⟩⟩	⟨⟨Lithium-ion electrode, t = 0.12mm⟩⟩
[Conventional dies]			
[Nogami dies]			

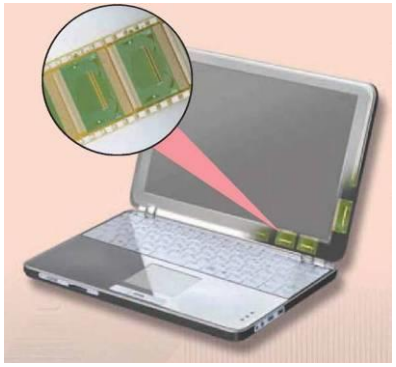
Research and development activities (1)

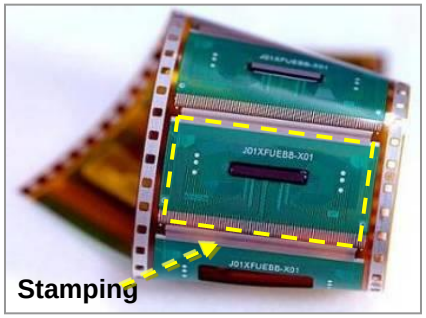
In 2009

Subsidy program for supporting prototyping and product development of Monodzukuri SMEs (METI)

Project name: Prototyping and development of high-functionality dies for ultraprecision stamping of hard-to-process flexible circuit boards

Period: From October 2009 to June 2010

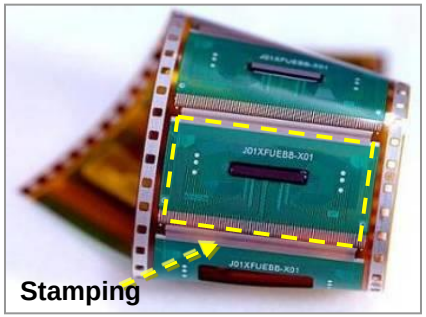




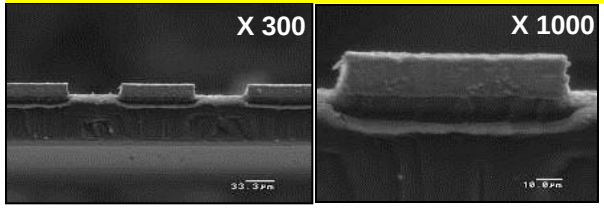
Research and development activities (1)

■ Comparison of cross-section images of stamped film substrates for liquid crystal devices

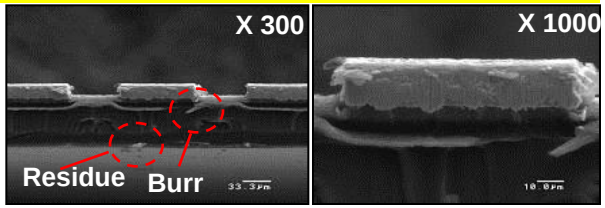
In the substrate industry that requires increasingly smaller pitches, micron-sized fine burrs, contamination and microcracks caused by deformation during stamping are the biggest cause of device malfunctions.



Competitor's die: Initial state

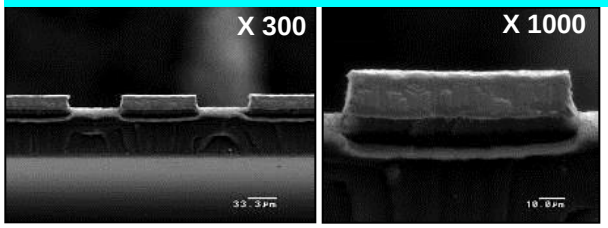


After 300,000 shots

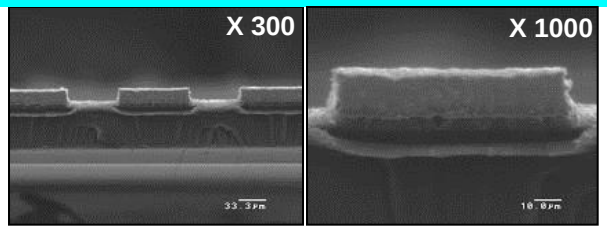


Requires re-polishing and maintenance

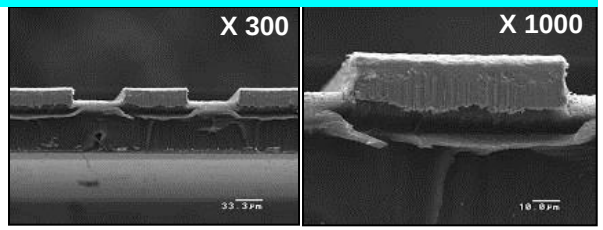
Nogami: Initial state



After a million shots



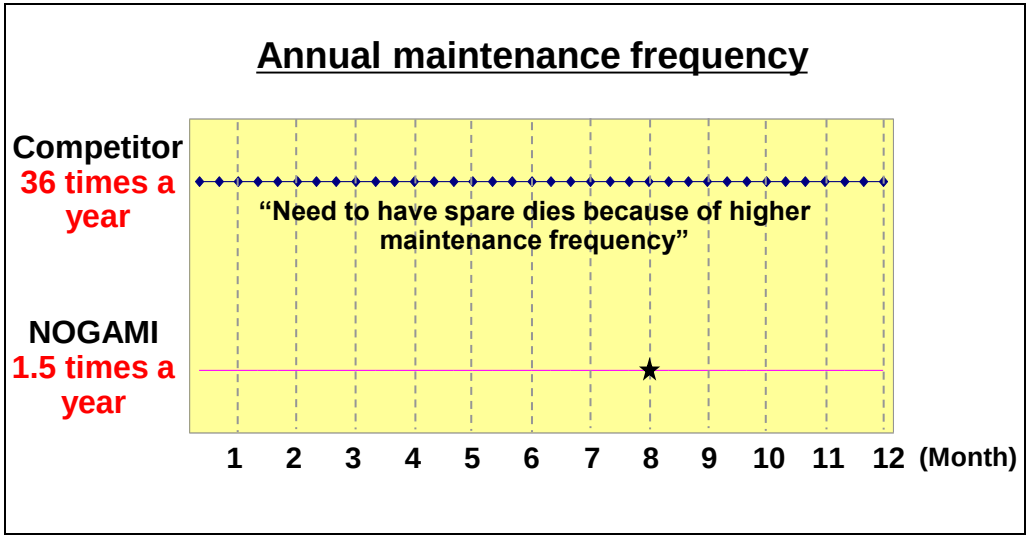
After 7.2 million shots

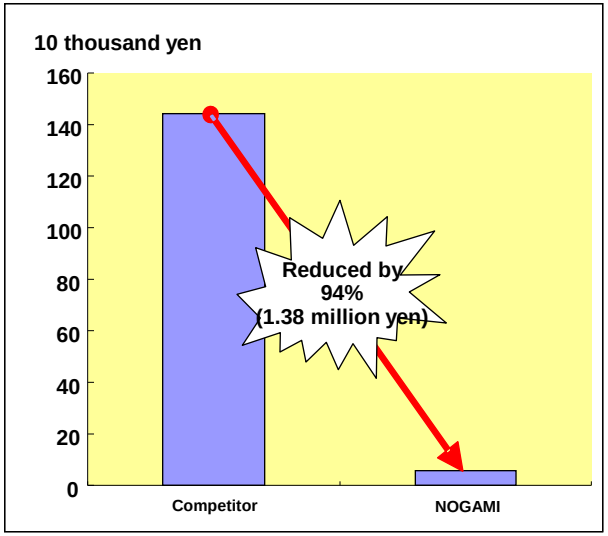


Research and development activities (1)

For a single die -
Monthly output: 900,000 shots
Annual output: 10,800,000 shots (900,000 shots x 12 months)

	Maintenance frequency	Frequency per month	Frequency per year	Single maintenance costs	Annual maintenance costs
Competitor	Per 0.3 million shots	3 times	36.0 times	40,000 yen	1,440,000 yen
NOGAMI	Per 7.2 million shots	0.125 times	1.5 times (1/24)	40,000 yen	60,000 yen





NOGAMI

Nikkan Kogyo Shimbun

List of awarded parts

部品一覧（各賞とも応募受け付け順）

モノづくり部品大賞	
ラフィン系潜熱蓄熱材エコジュール」	JX日鉱日石エネルギー
づくり日本会議　共同議長賞	
ェライトICタグ（MBT-1003）」	戸田工業
づくり生命文明機構　理事長賞	
泉水電解除菌装置」	竹中工務店
	東京ドーム・リゾートオペレーションズ
	ナカボーテック
力（にっぽんぶらんど）賞	
定着ベルト及び感温磁性合金」	富士ゼロックス
微細ねじ加工用エンドミル　マイクロねじ切り工具MMTS」	日進工具
部品賞　Mechanical Part Prize	
上型微細塗布装置」	NTN
ピッチ液晶デバイスフィルム個片打ち抜き金型」	野上技研
Vアーバ（防振アーバ）」	日立ツール
	日立製作所
バイラルPCD（多結晶ダイヤモンド）ボールエンドミル」	協和精工
容量　低速・高トルクサーボモータ装置」	アイダエンジニアリング
空チャック機能および非接触による浮上搬送機能を持つ	ナノテム
孔質セラミックス製テーブル『エアロフィックス』」	
・電子部品賞	
ルストランスALT4532シリーズ」	TDK
揮発性磁気メモリーパッケージ用シールドメタル」	大日本印刷
ンテリジェント型電力変換・調整素子内蔵『Sodick LED灯 SL-1200』」	ソディックLED
車部品賞	
燃費タイヤ "SUPER ECO WALKER"」	東洋ゴム工業
間成形ハブユニット軸受」	日本精工
動車部品用超軽量筐体『ECU BOX』」	大成プラス
関連部品賞	
IPE,TURBO OIL No1　PIPE,TURBO OIL No2」	國本工業
場式省エネ型アルミリサイクル炉―エコカバリー」	日本ルツボ
・医療機器部品賞	
レミキシンPMX-01R」	東レ
関連部品賞	
し丁番（アーチ　ステルス丁番）」	ニシムラ
統木造建築用超塑性亜鉛アルミ合金制震ダンパー」	竹中工務店
賞	
硬油穴付きWDOドリルシリーズ」	OSG
ストース」	プラモール精工

日刊工業新聞
Business & Technology

超モノづくり部品大賞

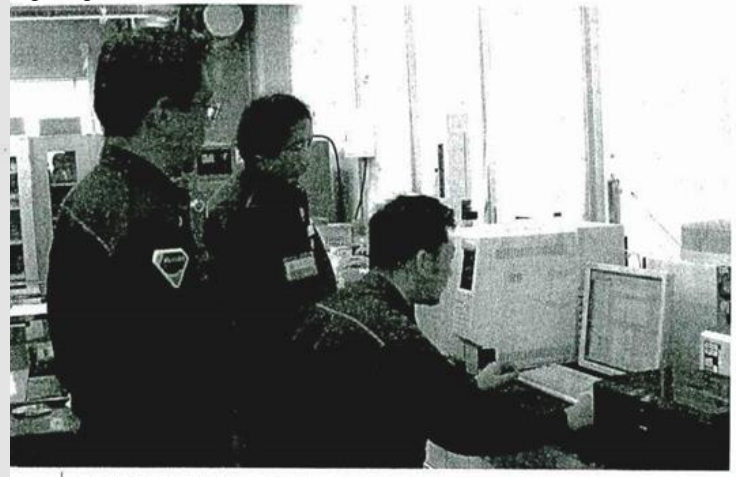
第２部　2011年(平成23年) 12月6日（火曜日）　1

（第3種郵便物認可）

2011年

超モノづくり部品大賞

“A die for individually stamping films for liquid crystal devices with small pitches”
Nogamigiken



地球環境との共生を図ることが社会的責任と日々研究開発に取り組む（ＪＸ日鉱日石エネルギー中央技術研究所）

モノづくり日本会議と日刊工業新聞社は「2011年 超モノづくり部品大賞」（経済産業省、日本商工会議所後援）の各賞を決定した。JX日鉱日石エネルギーの「パラフィン系潜熱蓄熱材エコジュール」が「部品大賞」に輝いた。同部品はノルマルパラフィンの熱吸収・放出性能を利用した蓄熱材で、各種空調の熱エネルギーの有効活用につながることが高い評価を得た。このほか、「モノづくり日本会議共同議長賞」と「ものづくり生命文明機構理事賞」を各1件、「日本力（にっぽんぶらんど）賞」を2件、各部品賞17件、奨励賞7件を選んだ。本賞はモノづくりの競争力の源泉で、縁の下の力持ちである部品・部材にスポットを当てた顕彰制度。通算8回目。受賞部品はいずれもわが国の産業・社会を支える重要な役割を果たしている。

2011 Grand Prize for Excellent Manufacturer

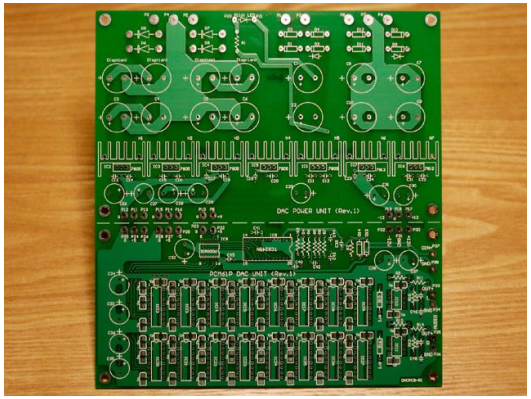
Research and development activities (2)

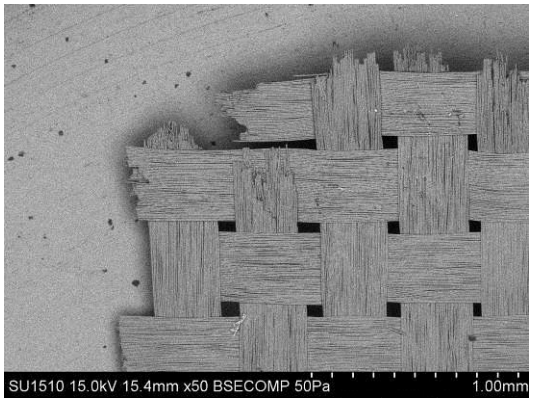
In 2010
“Supporting Industry” program
(a grant provided by METI)

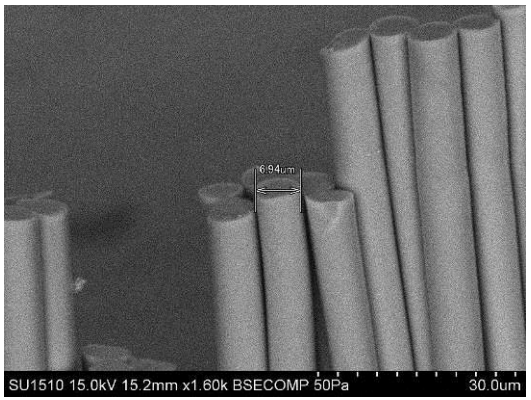
Project name: “Development of innovative stamping technologies contributing to higher efficiency and lower costs for forming glass epoxy substrates”

Supporting body: Hitachi Regional Technical Support Center

Period: From October 2010 to September 2011

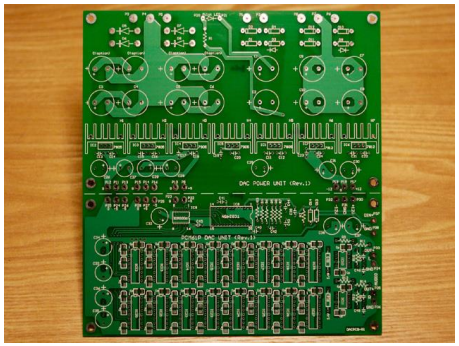






Research and development activities (2)

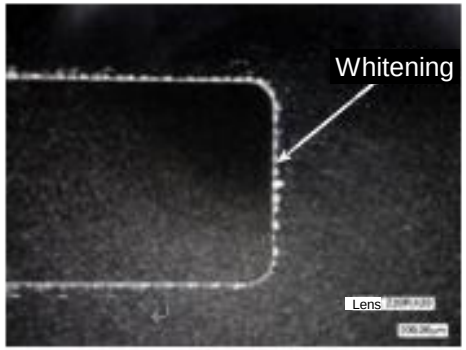
“Development of innovative stamping technologies contributing to higher efficiency and lower costs for forming glass epoxy substrates”



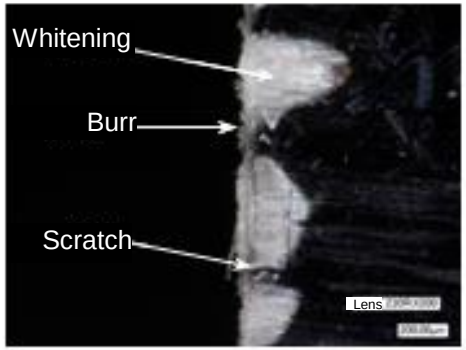
◇ Problems in forming glass epoxy substrates

Processed area	Processing methods	Problems
Areas requiring less precision and quality	Stamping with dies	Whitening, burr, scratch and residue
Lead terminals and other parts requiring high precision	Cutting with routers	Decline in processing efficiency resulting in higher costs

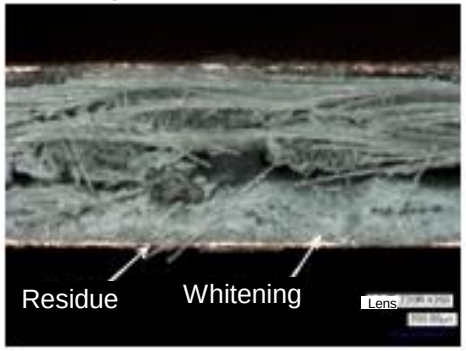
(1) Whitening



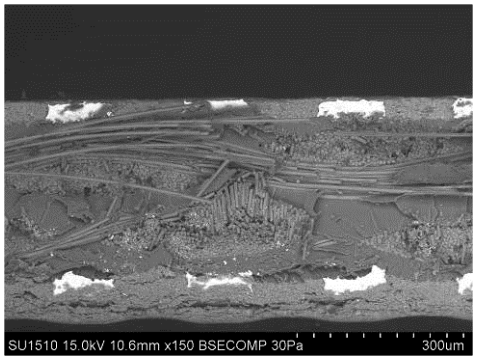
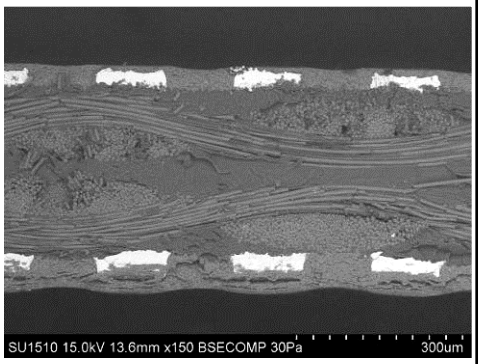
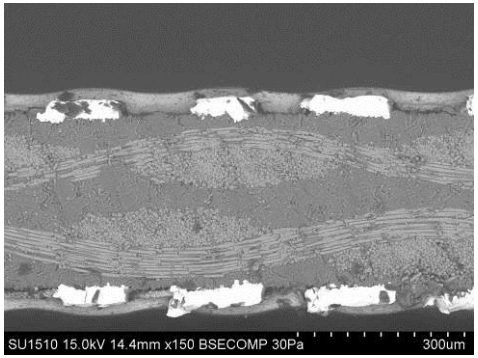
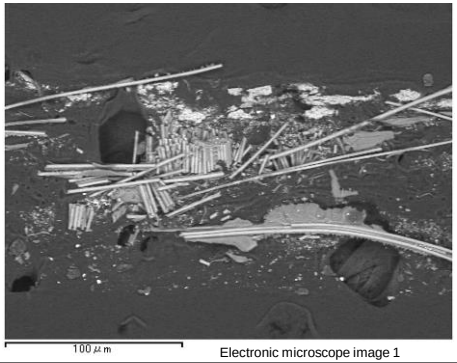
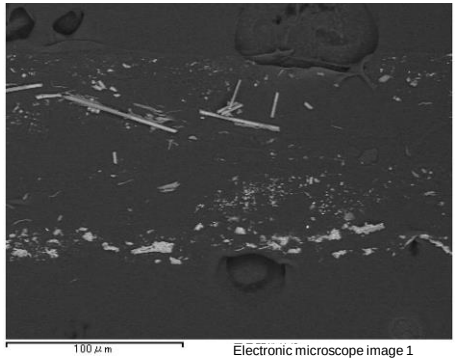
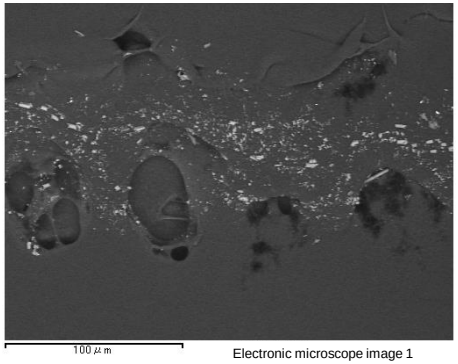
(2) Whitening (enlarged view)



(3) Enlarged view of a shear surface



Research and development activities (2)

Conditions	Ordinary die	Optimum conditions	Cutting with routers
Image 1 (cross-section)			
Image 2 (adherents)	 Electronic microscope image 1	 Electronic microscope image 1	 Electronic microscope image 1
Residual silicon ratio	1.13 %	0.19 %	0.22 %

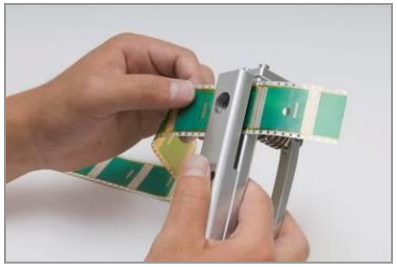
We pressed a cross-section of just-stamped material on conductive adhesive tape and analyzed the constituents of contaminants adhering to the tape to compare the residual ratio of silicon (a main constituent of glass) as shown in the images above. In cutting with routers, the ratio of contaminants is the same as that in processing under optimum conditions, while being reduced to approximately one-sixth of that with an ordinary die.

Examples of our products R&D
~Handheld punch~

Popular

The world's smallest ultraprecision die

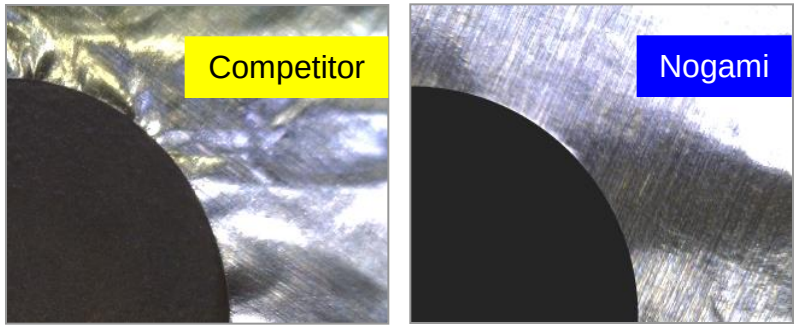
Handheld punch (with visual check function)



⟨⟨Uses⟩⟩

- Prototyping coin-type batteries
- Quality control of electrode material

- Long-life, sharp cutting edge
- High rigidity
- Lightweight, compact design
- Thorough measures against contamination due to abrasion



Aluminum substrate for electrode (t = 0.015 mm)

Examples of our products

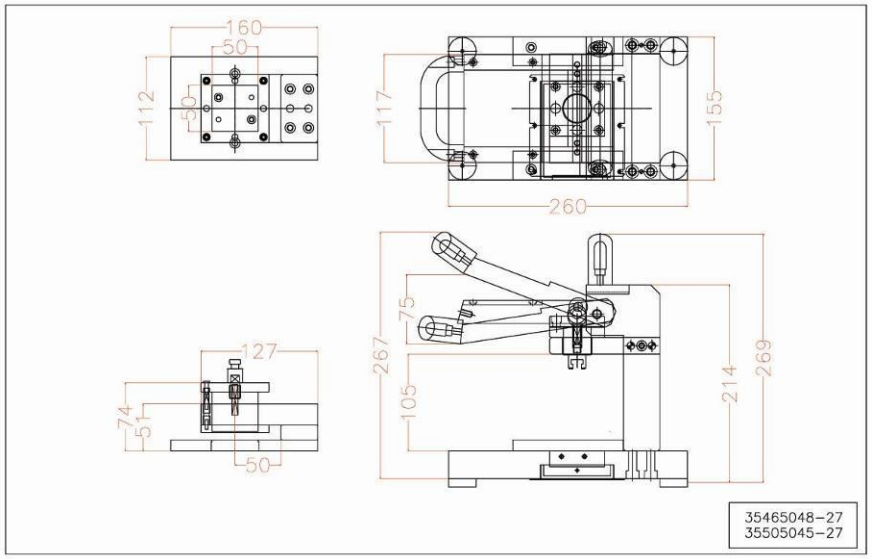
Prototyping & low-volume production

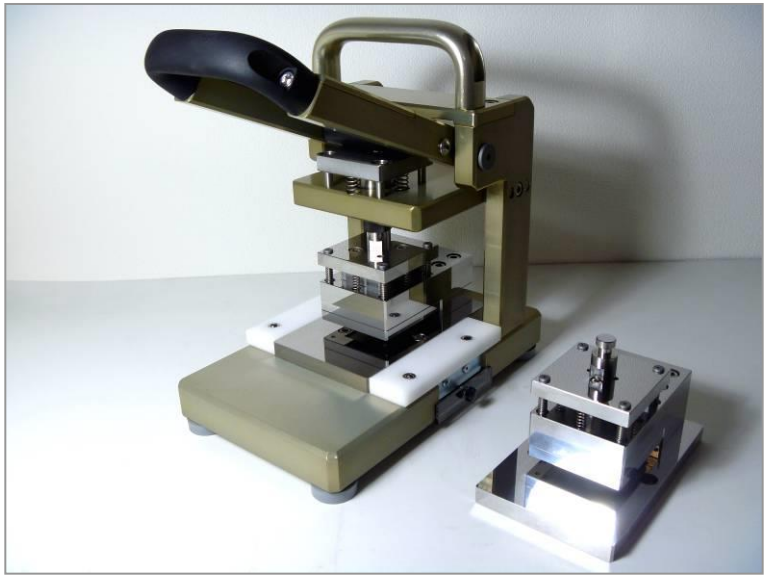
~Tabletop jigs~

New product

Best-suited for work in a glove box

Ultraprecision electrode material punch





Cassette-type die accommodating a wide variety of products

Punching shape:
With a 0.2 mm radius or more within a square of 50 mm

Punching force: Approx. 200 kg

Total weight: Approx. 10 kg

Dimensions: W 155 mm x D 260 mm x H 269 mm

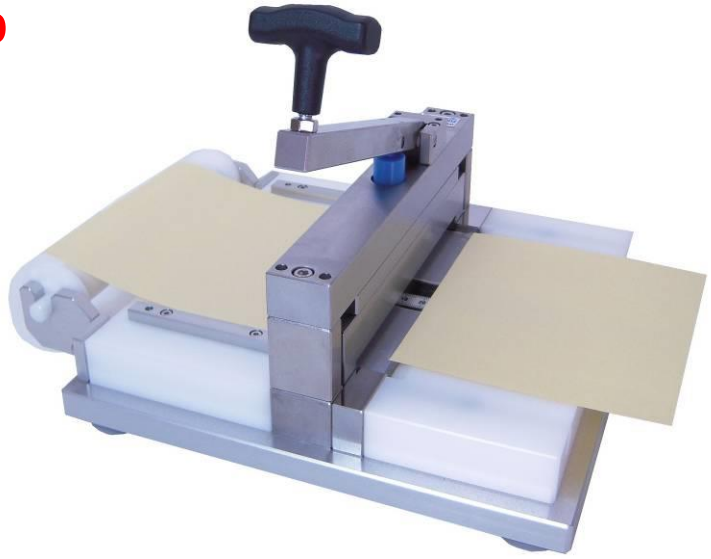
Examples of our products

~Cutting jig~

New product

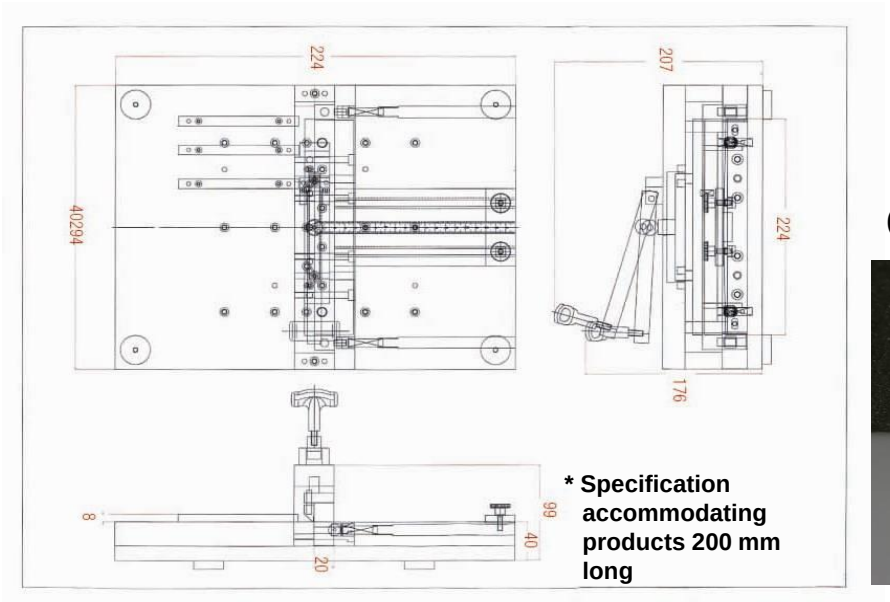
Accommodating products up to 600 mm wide

Best-suited for prototyping.



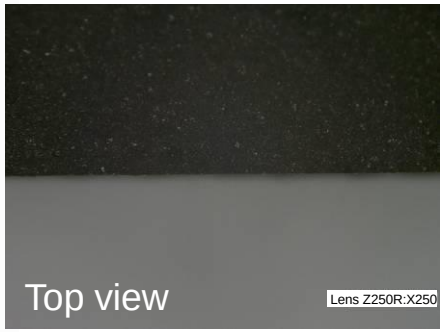
Ultraprecision cutting jig

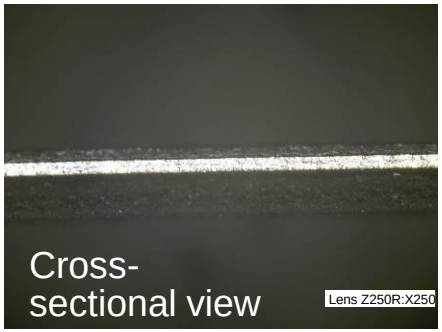
Equipped with a guide ruler and scale



*** Specification accommodating products 200 mm long**

Cut surface of positive-electrode material

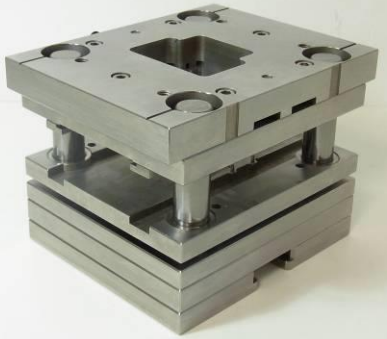




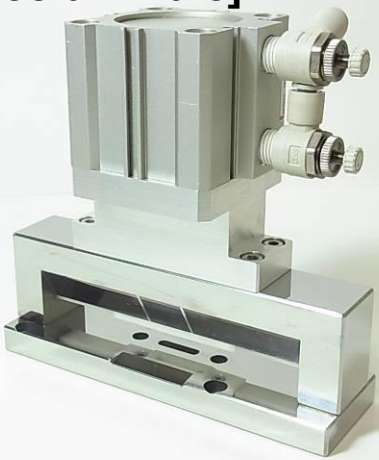
Examples of our products Mass production

~Stamping dies designed for production lines~

[Four-post die]

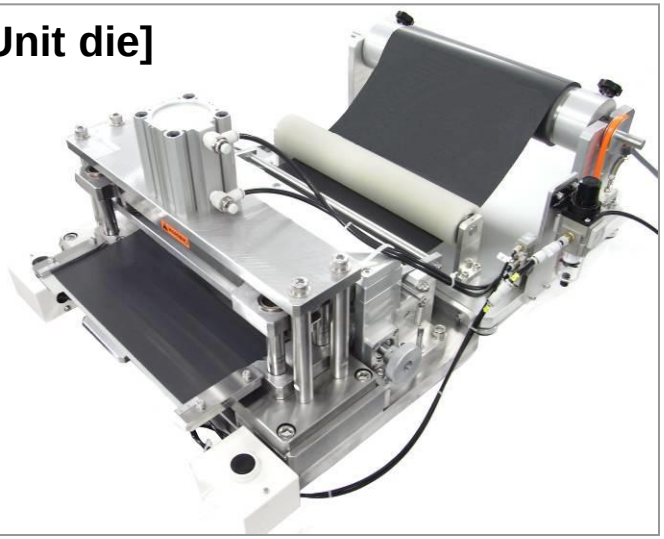


[Double column die]



[Die set]

[Unit die]



~Evaluation and analysis~

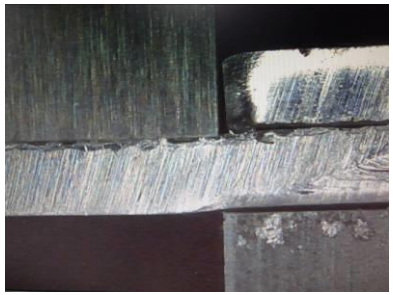
We offer “observation,” “evaluation” and “analysis” services by use of a variety of in-house equipment

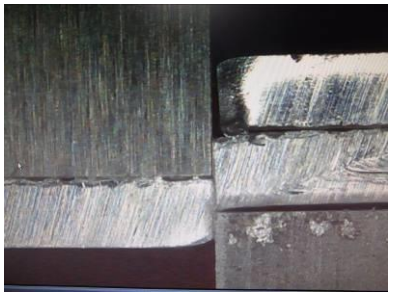
- **Microscope with 2500-fold magnification**

正常なプラスチック表面

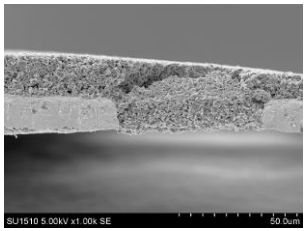
Normal plastic surface

- **High-speed camera (recording fast-moving phenomena)**

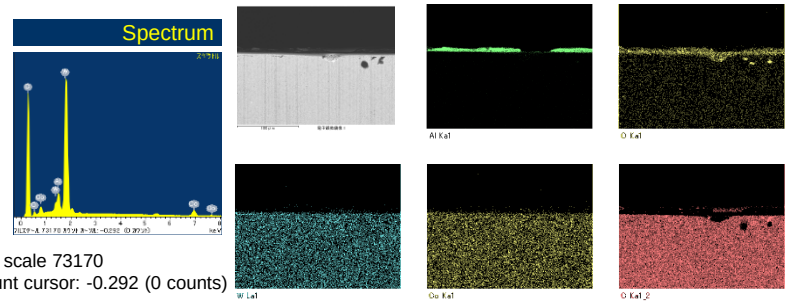




- **Scanning electron microscope (SEM) with 0.3-million fold magnification**

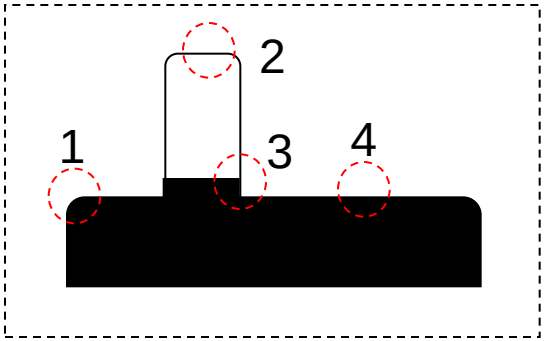


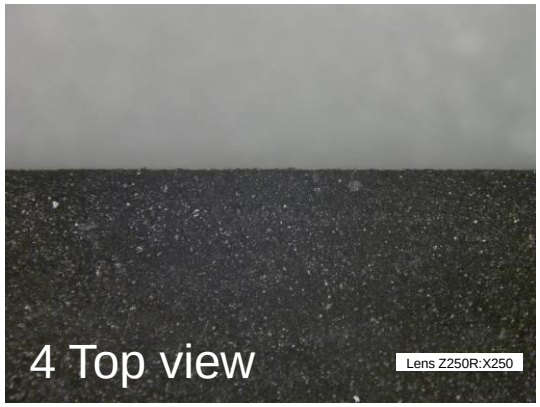
- **Elemental analysis (by energy dispersive X-ray spectrometry: EDS)**

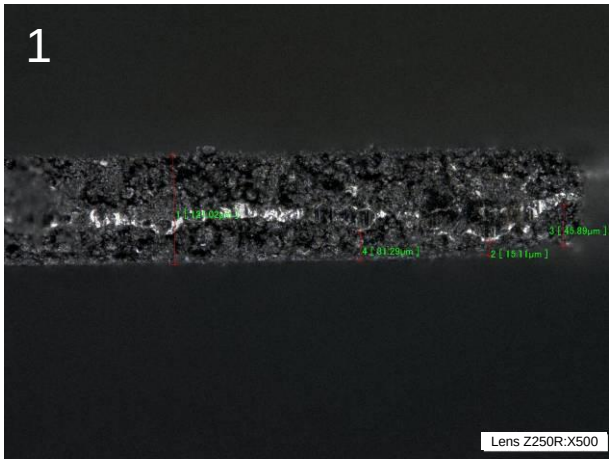


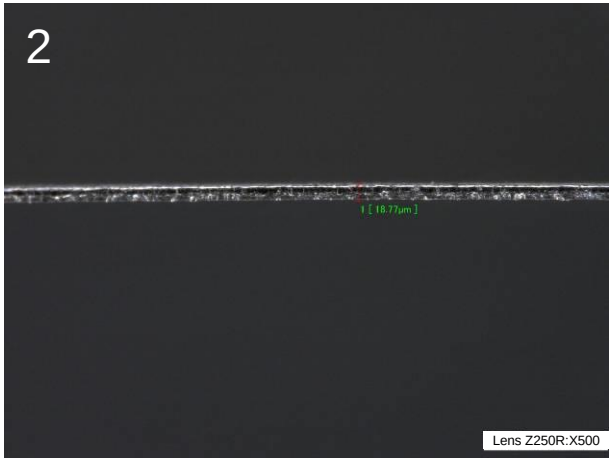
Full scale 73170
Count cursor: -0.292 (0 counts)

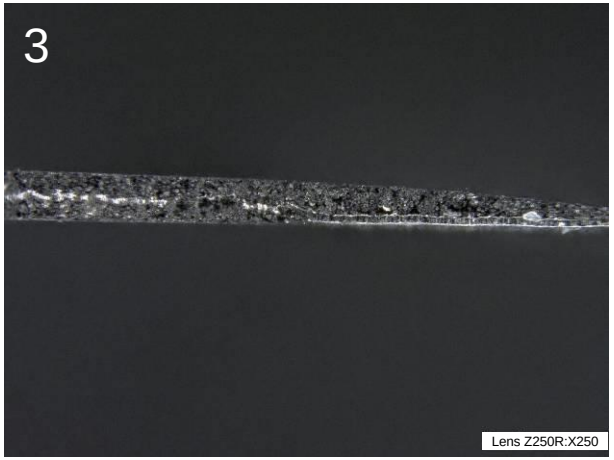
Evaluation of stamping quality of positive-electrode material

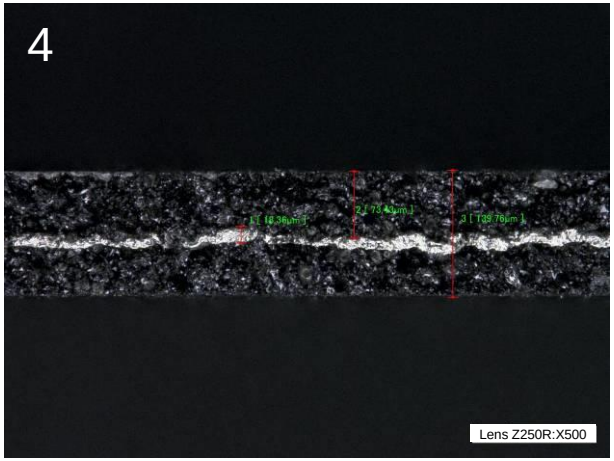












Reference:
- Material: Positive-electrode material for lithium-ion batteries
- Thickness: Aluminum sheet 15 µm
  Total thickness 130 µm

Differentiating points from competitors

1. Ultraprecision grinding technologies

In-house production of jigs that are used as master jigs even by competitors

2. Technologies for production of precision blades

(41 years of experience since our foundation)

A wealth of expertise in material selection, thermal treatment, blade edge shape and surface treatment

3. Development and design capabilities

Proposal and production of more than 3,000 tailor-made jigs and dies

4. Ultraprecision assembly technologies

Assembly to an accuracy of 1 micron by using the five human senses developed through grinding work

5. Production engineering capabilities

Suggestion of an optimum production system by utilizing our expertise in metal stamping and die production

Services

1. Design and production of jigs and stamping dies
2. Mass-volume stamping of products (metal stamping)
3. Lending jigs free of charge

Feel free to contact us at:

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