



Surface Modification Technology

〔Management Policy〕 Honesty and sincerity

- * Sincere response to customer needs
- * Sincere technical development
- * Sincere quality control and production management
- * Aiming to be a small elite group who sincere and dedication

Company Profile



Company Name	OXISO CO.,LTD.
Head office	110-1 Shimookata Iwata-shi Shizuoka Japan Tel : 0538-34-6056 Mail: info@oxiso.co.jp
Establishment	November.1971
Paid-in Capital	10,000,000 Jpy
Representative Director	Yoshiko Oishi
Number of Employees	66 (as of April 2025)
Main Banks	Shizuoka Bank, Hamamatsu Iwata Shinkin Bank, Shimizu Bank, Aichi Bank, Chamber of Commerce and Industry Central Bank
Technical Support	Kyoto University, The University of Tokyo, Osaka University, Kyoto Institute of Technology, Shizuoka University of Science and Technology, Meijo University, Tokyo City University



Thailand Factory	OXISO (THAILAND) CO., LTD. Amata City Chonburi Industrial Estate 700/439, Moo 7, Dong Hua Lo, Chonburi 20000
Establishment	January 2015
Paid-in Capital	125,000,000 THB
Representative Director	Yoshiko Oishi
Number of Employees	19 (as of April 2025)
Main Banks	Bangkok Bank, Central Bank of the Chamber of Commerce and Industry
Technical Support	Chulalongkorn University, King Mongkut's University of Technology Thonburi, MTEC



Business Partner (Japan)

A)

RK JAPAN CO., LTD.
ART KINZOKU KOGYO CO., LTD.
IHI CORPORATION
ISK CO., LTD.
AISAN INDUSTRY CO., LTD.
AITEC CO., LTD.
AIZEN CO., LTD.
AOYAMA TOKUSHU-KO CO., LTD.
IO INDUSTRY CO., LTD.
IKEDA RIKA CO., LTD.
ISUZU MOTORS LTD.
ITAKA CO., LTD.
IWAKI DIECAST KOGYO CO., LTD.
UMETOKU CO., LTD.
A.I.S CO., LTD.
EXEDY CORPORATION
NTN CORPORATION
NTN OMAEZAKI SEISAKUSHO CO., LTD.
NTS CO., LTD.
NTT SEIMITSU CO., LTD.
ENUMA CHAIN MFG. CO., LTD.
FCC CO., LTD.
ENKEI CORPORATION
ENKEI ENGINEERING CO., LTD.
ENSHU LTD.
OSAKA STAINLESS CO., LTD.
OGUSU METAL INDUSTRY CO., LTD.

K)

KAWASAKI HEAVY INDUSTRIES, LTD.
KAWASAKI MOTORS, LTD.
KYOEI ENGINEERING CO., LTD.
KYOKUTO CHIKKA KENKYUSHO CO., LTD.
KUBOTA CORPORATION
KORITSU CO., LTD.
KOWA SEIKO CO., LTD.
KOMATSU KOGYO CO., LTD.
KOMATSU LTD.

S)

SATO SHOJI CORPORATION
SANO CO., LTD.
SANWA MANUFACTURING CO., LTD.
SIGMA GIKEN CO., LTD.
SHINWA KOGYO CO., LTD.
SHINWA JIDOSHA CO., LTD.
SUZUKI MOTOR CORPORATION
SUZUKI PARTS MANUFACTURING CO., LTD.
SUMITOMO HEAVY INDUSTRIES, LTD.
SEIKO CO., LTD.
SEST JAPAN CO., LTD.
SOWA CO., LTD.

T)

DAIDO TSUSHO CO., LTD.
DYNAX CORPORATION
DYNAMO CO., LTD.
KISHO SEIKO CO., LTD.
CHIYODA TRADING CO., LTD.
CHUO KOKI CO., LTD.
CHUEN NETSUSHORI GIKEN CO., LTD.
TSUDAKOMA CORP.
TSUKIBOSHI SEISAKUSHO CO., LTD.
TPR PRIMEC CORPORATION
DENSO CORPORATION
TOHMEI GIKEN CO., LTD.
TOYO MACHINERY WORKS CO., LTD.
TOKYO FACILITIES CO., LTD.
TOYOTA SANGYO CO., LTD.
TOYOTA TSUSHO CORPORATION
TOYOTSU MACHINERY CO., LTD.
TOYOTA INDUSTRIES CORPORATION
TENRYU SANGYO CO., LTD.

N)

NABTESCO CORPORATION
NANKAI MOLDIE CO., LTD.
NISSHIN KOGYO CO., LTD.
NISSHIN SEIKO CO., LTD.
NITTO KOGYO CORPORATION
NIPPO SANGYO CO., LTD.
NIHON YUKI CO., LTD.

H)

PARKER KAKO CO., LTD.
HAMAMATSU PHOTONICS K.K.
HAMAMATSU IRON WORKS CO., LTD.
FUKUDA TRADING CO., LTD.
FUJI KIHAN CO., LTD.
FUJITA IRON WORKS CO., LTD.
FUJIFILM CORPORATION
HONDA MOTOR CO., LTD.
POLYMER ENGINEERING CO., LTD.
M)

MITSUBISHI ELECTRIC CORPORATION
MITSUCHI CO., LTD.
MITSUYASU SEISAKUSHO CO., LTD.
MINEBEAMITSUMI INC.

Y)

YAMAHA MOTOR CO., LTD.
YAMAHA MOTOR ENGINEERING CO., LTD.
YAMAHA MOTOR PRECISION PARTS
MANUFACTURING CO., LTD.
UNIVANCE CORPORATION

R)

RIX CORPORATION

W)

WATANABE SEISAKUSHO CO., LTD.

Business Partner (Thai)

DENSO(THAILAND)CO.,LTD.
DENSO INNOVATIVE MANUFACTURING SOLUTION
ASIA CO.,LTD.
DYNA METAL CO.,LTD.
ENKEI THAI MOULDINGS LTD.
EXEDY(THAILAND) LTD.
EXEDY INDIA CO.,LTD.
FCC(THAILAND) CO.,LTD.
FURUYA INDUSTRIES(THAILAND) CO.,LTD.
JATCO(THAILAND) CO.,LTD.
JTEKT COATING(THAILAND) CO.,LTD.
KAWASAKI MOTORSENTERPRISE(THAILAND)CO.,LTD.
KOBAYASHI AUTO PARTS(THAILAND) LTD.
KOBAYASHI INDUSTRIAL(THAILAND) CO.,LTD.
MITANI SIAM TECH CO.,LTD.
MUSASHI AUTO PARTS CO.,LTD.
NIPPO MECHATRONICS(THAILAND) CO.,LTD.
NISSINBO MECHATRONICS(THAILAND) CO.,LTD.
NMB-MINEBEA THAI LIMITED.
NMB-MINEBEA THAI LTD.(BANG PA-IN)
PIOLAX(THAILAND)LTD.
PLASESS(THAILAND) CO.,LTD.
PLASESS HI-TECH CO.,LTD.
RICOH MANUFACTURING (THAILAND)LTD.
SANKO GOSEI TECHNOLOGY(THAILAND) LTD.
SHINBA IRON WORKS(THAILAND) CO.,LTD.
SHIPPO ASAHI MOULDS(THAILAND) CO.,LTD.
SIAM COMPRESSOR INDUSTRY CO.,LTD.
SV NITTAN CO.,LTD.
TAKAHATAPRECISION(THAILAND)LTD.(AYUTTHAYA)
THAI PIGEON CO.,LTD.
THAI TOHKEN THERMO CO.,LTD.
THAI YANAGAWA CO.,LTD.
THAI YAMAHA MOTOR CO.,LTD.
THAI-NICHI INSTITUTE OF TECHNOLOGY
THAI-NIHON SEALS LTD.
TRIUMPH MOTORCYCLES(THAILAND)LIMITED
U.T.T ENGINEERING CO.,LTD.

Business Partner (Other)

TRD (USA)
SEAH (KOR)
TANSTAR (TWN)
VOLVO (SWE)

Oxiso Fine Shot Peening (Trademark Registration)



Oxiso Polish (Trademark Registration)



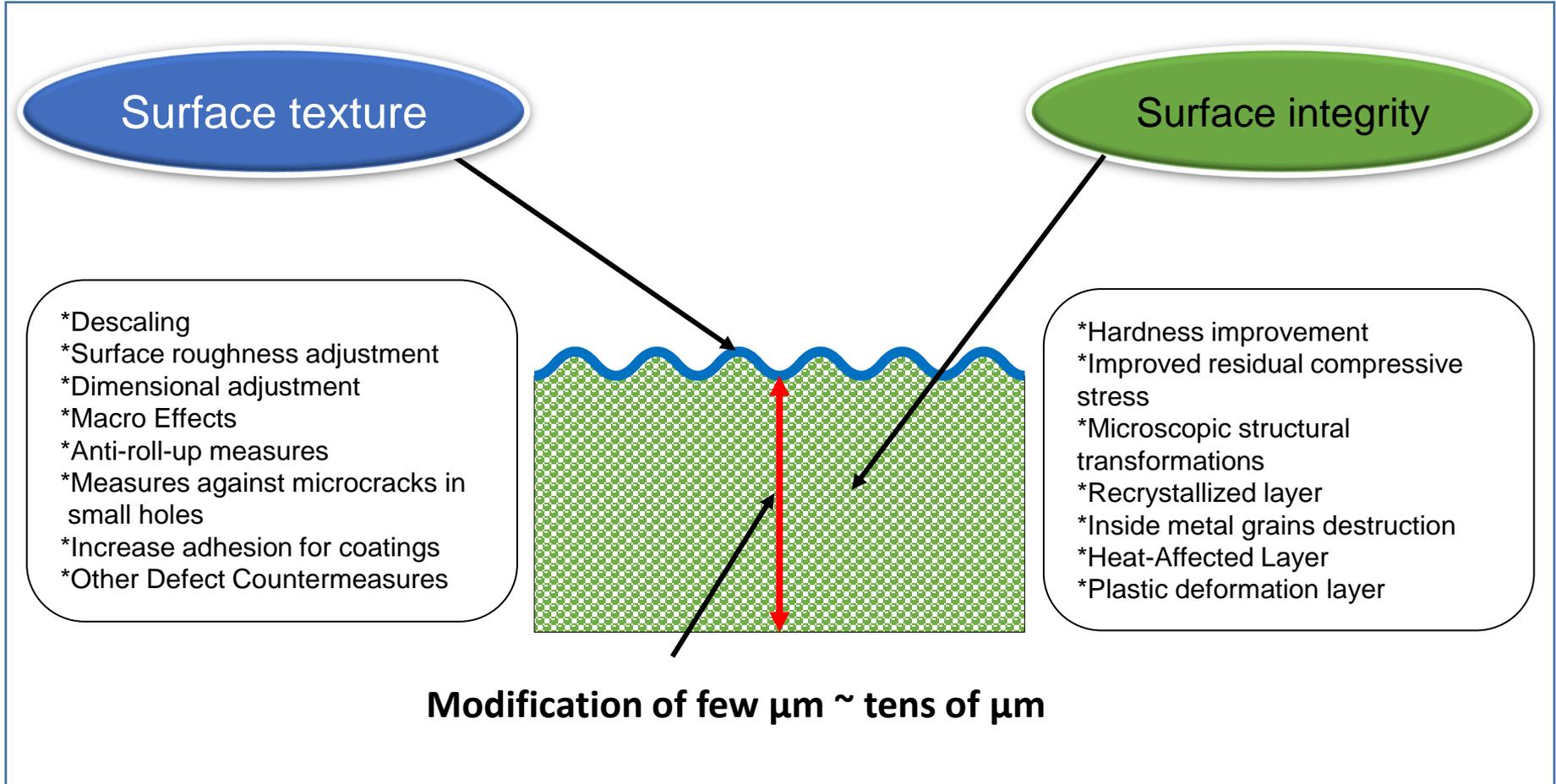
By using original media and using our own construction method giving high fatigue strength and residual compressive stress.
Combined processing of OX-FSP and OX-Polish creation of unique surface structure.

(special plateau structure)(texturing effect and riblet effect)

OX-Polish can reach the surface roughness Ra0.006 as a mirror surface.

OX-FSP is possible to process the inside of holes as small as 50µm.

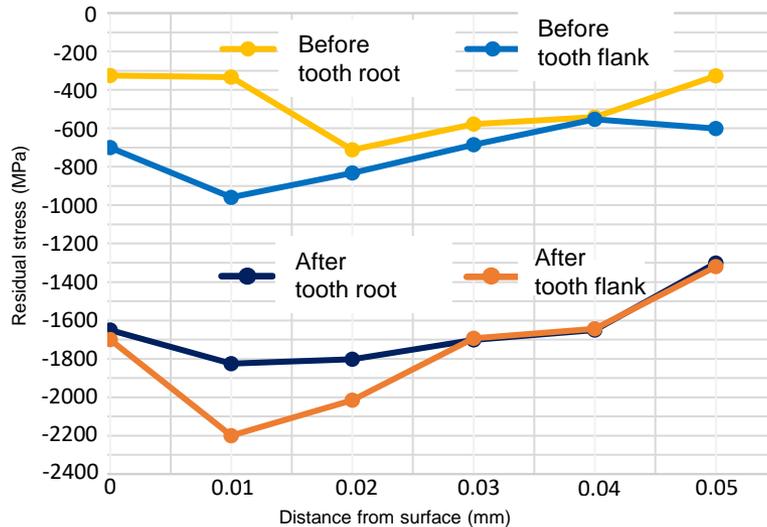
Characteristic value change by OX-Process



Material : SCM420H

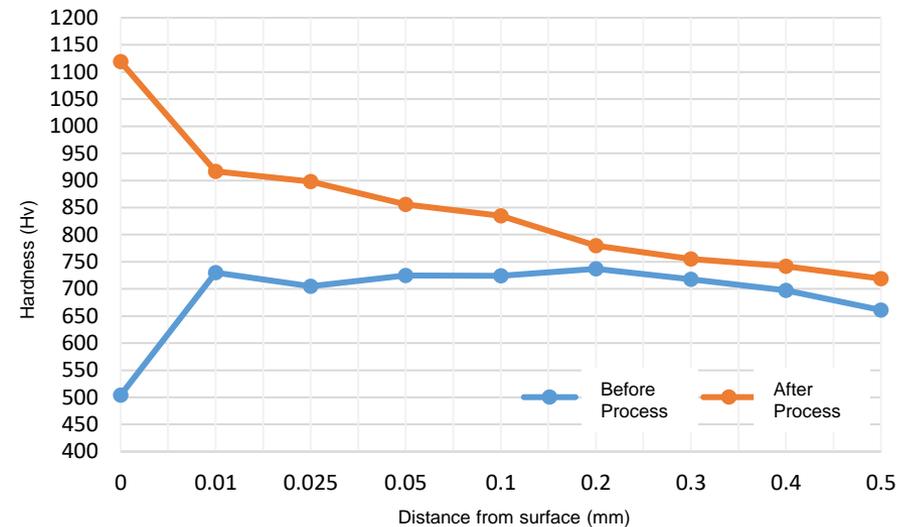
Heat treatment : Carburizing and quenching

Residual compressive stress



	0	0.01	0.02	0.03	0.04	0.05
Before Root	-325	-334	-712	-578	-542	-327
Before Flank	-700	-959	-832	-685	-553	-601
After Root	-1650	-1825	-1802	-1701	-1651	-1301
After Flank	-1700	-2200	-2015	-1694	-1643	-1320

Hardness



	0	0.01	0.025	0.05	0.1	0.2	0.3	0.4	0.5
Before	504	703	705	725	724	737	718	697	661
After	1119	917	898	856	835	780	755	742	719

Compared to other companies, extremely high residual compressive stress and hardness can be applied from the surface to the inside.

【Applicable materials】

Steel, aluminum, carbide, titanium, Inconel, copper alloy, glass, etc.

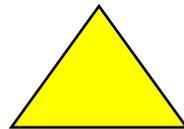
【Effects of OX-FSP】

Improvement fatigue strength (hardness and residual compressive stress)

Sliding properties, and oil retention

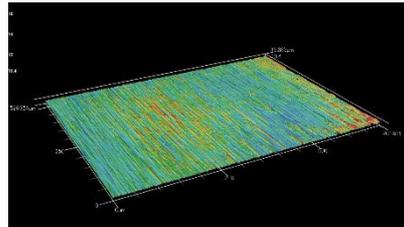
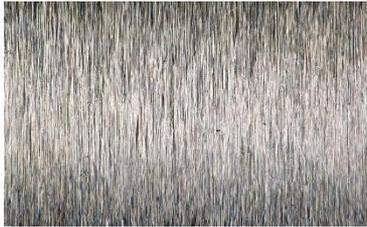
【Advantages of OX-FSP】

- Small media can be control the amount of dimensional change.
- Residual compressive stress of - 800 MPa or more is applied to the bottom of a hole with a depth of $\phi 1.6 / 500$ mm (Stress corrosion countermeasures)
- Mold cooling holes, can be processed into through holes as small as $\Phi 50 \mu\text{m}$

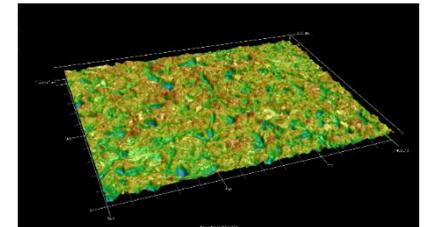


Combined processing with OX-Polish is possible

1. Friction control



Before processing



After processing

The surface texture can be freely adjusted.

2. Surface texturing (plateau structure, riblet structure)

Effect on friction and wear properties of surface texture

Dynamic Pressure Effect

Wear particle trapping effect

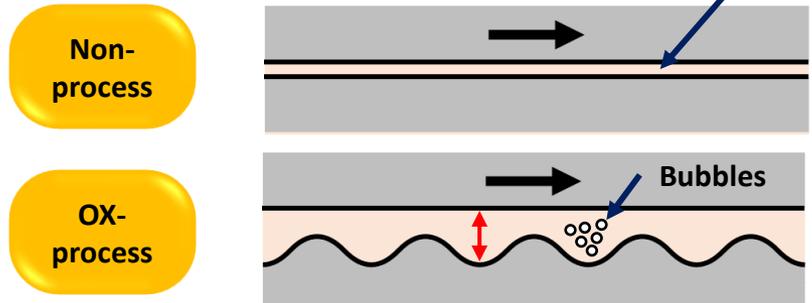
Lubricating oil retention effect

Cooling effect

Effects of OX-FSP + OX-Polish

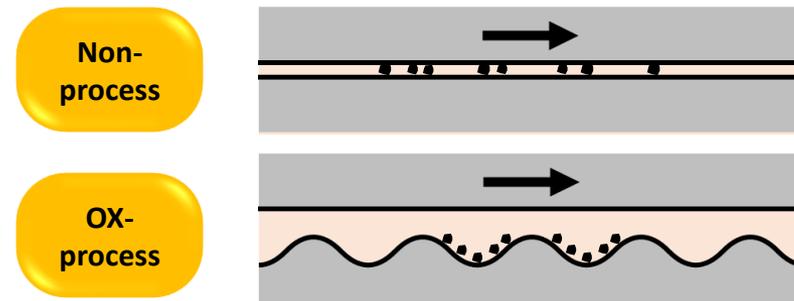


Dynamic Pressure Effect



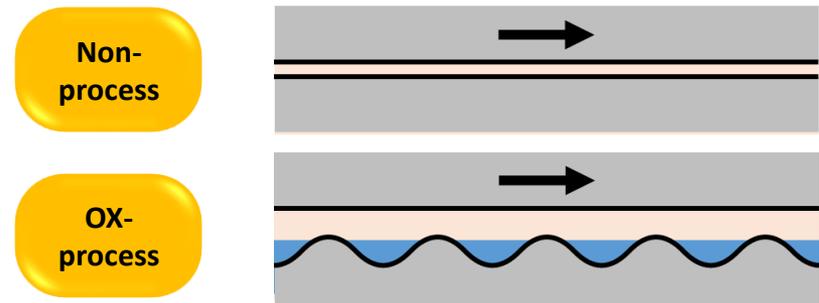
When lubricating oil gets into the dimple
The pressure generated and the sliding surface to float

Wear particle trapping effect



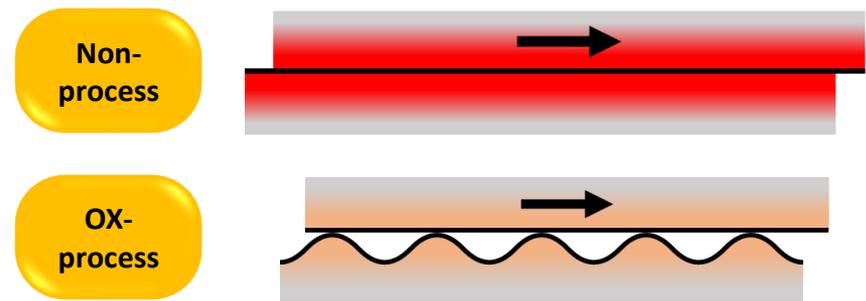
By the dimple collecting wear particles
Reduces friction and wear on sliding surfaces

Lubricating oil retention effect



Dimples accumulate lubricant
Improves lubricant retention and reduces wear

Cooling effect

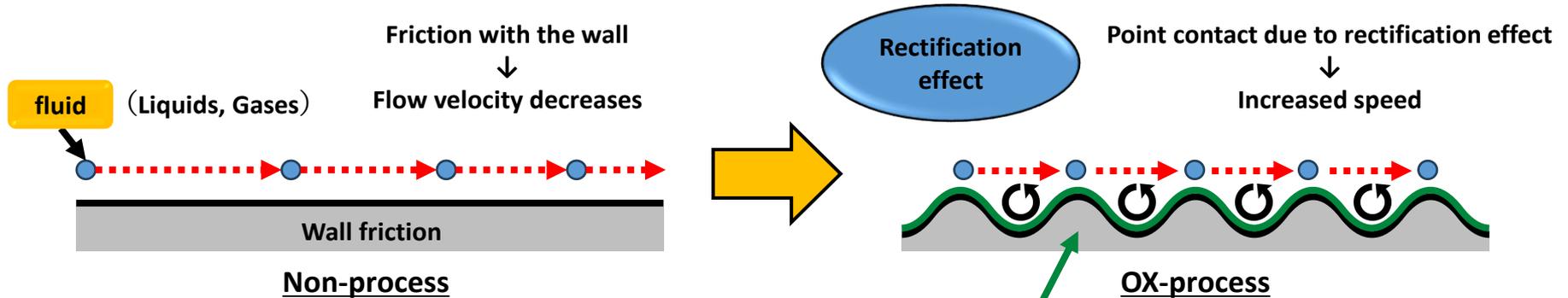


By changing from wide surface contact to point contact
Reduces heat generation due to

Effects of OX-FSP + OX-Polish

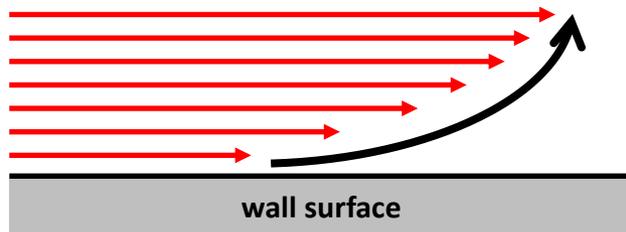


Rectification effect (improvement of the flow of liquids and gases)



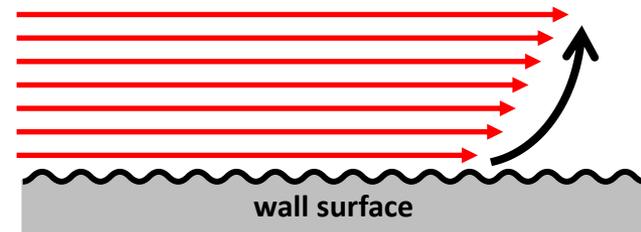
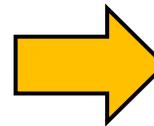
A special dimple creates a rectifying effect between the sliding surface and the fluid. Fluid resistance due to wall friction is reduced, and the velocity of liquids and gases is increased.

Velocity vector of the fluid near the wall



Non-process

High friction with the wall surface = poor flowability

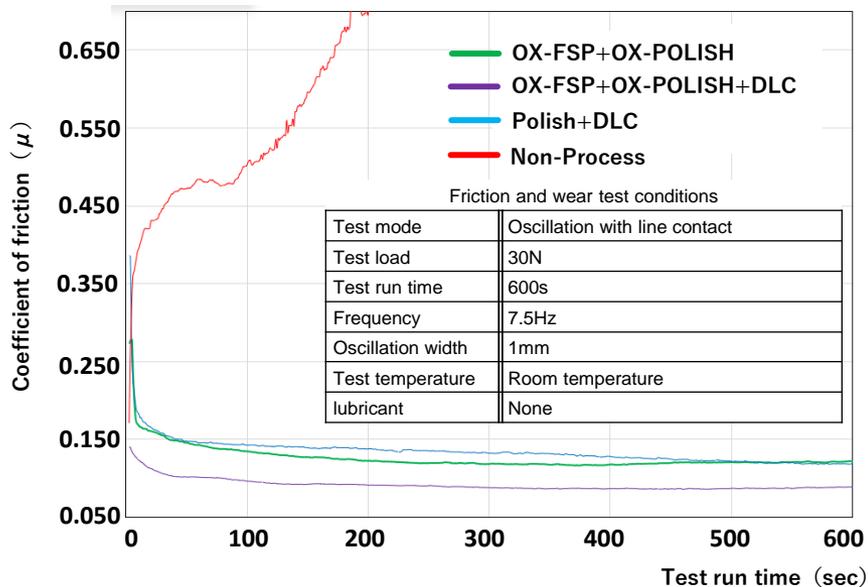


OX-process

Low friction with the wall surface = good flowability

3. Reduced coefficient of friction

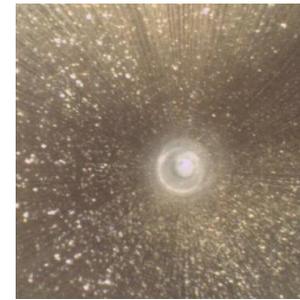
Coefficient of friction equivalent to DLC processing
+
By combining with DLC processing
Even lower coefficient of friction can be achieved



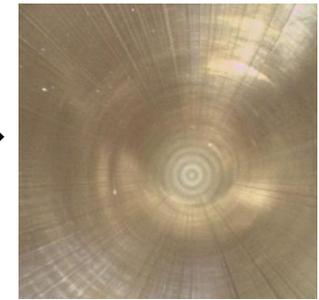
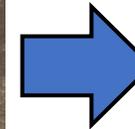
Friction Wear Test Results

4. Processing of the inside of small diameter holes

Drills as small as 50 μm can be constructed.

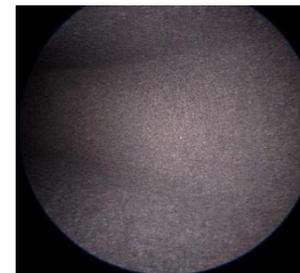


Before processing

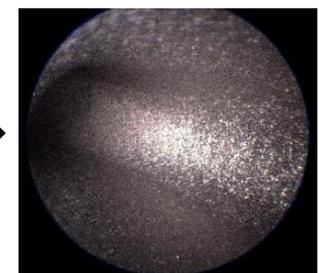
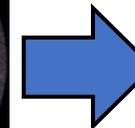


After processing

5. Processing of the inside of Metal 3D parts



Before processing



After processing

【Applicable materials】

Similar OX-FSP

【Effects of OX-FSP+OX-Polish】

- Improvement of fatigue strength (hardness, residual compressive stress), sliding properties and oil retention
- Reduction of frictional resistance (friction control)
- Due to the unique surface structure (plateau structure, riblet structure)
Improved flowability, rectification effect, Mold release performance, hydrophilicity and water repellency

【Advantages of OX-FSP+OX-Polish】

- Coefficient of friction equivalent to DLC due to combine processing
- Improvement of quietness and transmission efficiency of gears
- Improvement of adhesion by anchor treatment such as DLC, coating, and plating
- Improvement of formability by improving the flow of solids, gases, and liquids
- Polishing of the inside of Metal 3D parts

Overview of Facilities Owned



【Headquarters Factory】

Processing equipment

OX-FSP : 31units OX-Polish : 23units

Washing machine

Automatic washing machine : 3units

Ultrasonic washing machine : 2units

Manual washing machine : 2units

Inspection Equipment

X-ray stress measuring device : 1unit (RIGAKU)

Optical microscope (2500x) : 1unit (KEYENCE)

Laser microscope 3D : 1unit (KEYENCE)

3D scanner type CMM : 1unit (KEYENCE)

3D profilometer : 1unit (KEYENCE)

Image dimension measuring EQ : 1unit (KEYENCE)

Surface roughness measuring EQ : 2 units (Kosaka)

Portable surface roughness measuring EQ : 2 units (Mitutoyo)

Vickers hardness measuring EQ : 1 unit (Akasi)

Rockwell hardness measuring EQ : 1 unit (Akashi)

【Thailand Factory】

Processing equipment

OX-FSP : 8units OX-Polish : 1unit

Washing machine

Manual washing machine : 1unit

Inspection Equipment

X-ray stress measuring device : 1unit (Pulstech)

Optical microscope (2500x) : 1unit (KEYENCE)

Surface roughness measuring instrument : 1unit (Mitutoyo)

Vickers hardness measuring instrument : 1unit (Mitutoyo)





株式会社オキソ
OXISO Co.,Ltd

Head office

〒438-0046 静岡県磐田市下岡田110-1

TEL : 0538-34-6056 FAX : 0538-36-7800

110-1 Shimo-okata, Iwata-City, Shizuoka, 438-0046

Phone: +81-538-34-6056 FAX: +81-538-36-7800

<https://oxiso.co.jp/>

OXISO (THILAND) CO.,LTD.

Amata City Chonburi Industrial Estate

700/439,Moo 7, Don Hua Lo Sub-district,

Mueang Chonburi District,

Chonburi Province 20000 Thailand

Phone: +66-3326-5790~92 Fax: +66-3326-5793

<https://oxiso.co.jp/th/>

