

Grinding Machine (SSF-110) 3D Rendering

3D Rendering

Changing the world, One micron at a time



 **ORS KOREA**

Experts in manufacturing and upgrading of Machines, Spindles, Automation, and Turnkey Solution

History of the Korean Bearing Industry

KBC (Korea Bearing Corporation) was founded in 1953 by Hanwha Group as Korea's first domestic bearing producer. Acquired by the Schaeffler Group in 1991, KBC has since expanded globally, gaining a reputation for high-quality automotive and industrial bearings.

1950s



Hanhwa Group established **KBC (Korean Bearing Corporation)** and focused on producing automotive bearings and quickly became a leader in Korea's bearing market.

1960s ~ 1980s



Invested in quality control and production, and began exporting bearings to global market. Adopted modern manufacturing processes like grinding, heat treatment.

1990s ~ 2000s

SCHAEFFLER



German Schaffler Group, knwon for its INA and FAG brands, acquired KBC. Acquisition of KBC was a part of Schaeffler's strategy to strengthen its presence in the Asian market.

Driven by Managing Director Shim Jho-Whoun's Vision since 2000

Leveraging his hands-on expertise in maintenance, line automation, and asset management at Schaeffler Korea (formerly Hanhwa Bearing), he recognized the potential for innovation and embarked on his entrepreneurial journey.



1990

Maintenance & Repair

- Belt-driven wheel spindle repairs
- In-process gauge repairs and self-repair for MARPOSS and Tokyo-Seimitsu gauges
- Hydraulic and lubrication oil management for plant equipment
- Maintained operation, including coolant cooling stations, with system design

Equipment Modernization

- Initiated and led retrofit projects for grinding machines to enhance performance
- Oversaw asset management for Changwon plant equipment, including documentation for FAG asset sales

Production Line Development

- Led Cylindrical bearing grinding line maintenance and automation projects
- Directed the full relocation of production facilities from Incheon to Changwon
- Developed domestic production for tapered roller grinding lines, including single-side grinding machines
- Achieved localization and self-repair capabilities for H.F spindle used in internal grinding machines
- Spearheaded the development of domestic SF process for tapered roller bearing races
- Managed comprehensive maintenance for ball and taper bearing grinding lines at Changwon plant

2000

Overseas Business Trip

- **Japan (Osaka)** Visited a bearing turning company to study machine operation and production
- **Japan (NISSEI)** Conducted inspection and commissioning of vertical double-disc grinding machines
- **Germany (GMN)** Visited to acquire in-house maintenance technology
- **Japan (NSK, Saitama Plant)** Participated technical training focused on improving the taper grinding line.

Resigned from Schaeffler Korea (formerly Hanhwa Bearing) in August 2000

SMSB, Expanding Product Portfolio and Global Reach

During the early 2010s, Mr. Shim successfully developed and supplied high-precision grinding machines, enhancing domestic capabilities for bearing race and superfine grinding in various sizes and applications



2000

Established Private Company (ZIMECS, changed to SMSB)

Developed for Schaeffler Korea

- H.F Spindle max. 120,000 rpm
- Single-Side & External Grinders for Tapered Rollers (SGRB 350, SGRB 250)
- Superfinishing machines for Tapered Rollers (SLR 650, SLR 500)
- Automated assembly line, including multiple torque testing & assembling devices
- Orbital forming machine for wheel bearing production
- Hydro-Static Slide (guide way) units & Hydro-Static Spindle units
- SGS 1000 Thread Grinder for TRB rollers for Schaeffler Korea, Bearing Art



Developed for SKF Korea

- High Frequency spindles for Grinding and Large G/W Spindles for Centerless

Developed for NSK Korea

- Hydro-Static Spindles for Centerless

Developed for THK, ORS, Others

- Built-in motor spindles for Linear Motion guide and block grinding
- Superfinishing machine for Bearing Race Production (External Grinder : SSF 85)
- **Bearing Race Grinding Line, Centerless Grinders** (Lidkoping, Koyo, Nippei Mechanism)
- **SGDV 585, SGDV 760 Vertical Double-Disc grinders** (Nissei Mechanism)

2010

Began Exporting & More..

- **First export to ORS** : High-Frequency spindle developed to replace TOYO

Automotive Parts Grinding Lines

- **CVJ Cage Grinding Line** (SGCW 100 OD/ID & Window), **CVJ Inner Ring Ball Track 2-head** for Korean manufacturers and Hyundai Wia India and Korea
- **Air Conditioner Compressor Sleeve Grinding Line** (SGDV 360 face, OD, & ID) for LG, CHIGO, and Toshiba
- **Flange Ring Grinding Line for Automotive Steering Parts** (Double-Disc, OD, ID) for Woosu AMS
- Conducted numerous overhauls and retrofits of machines

ORSKOREA, 2nd Phase of Growth

Now, ORSKOREA is a joint venture established in 2019, between ORS, and SMSB, after meeting as customers 10 years ago and investing together and developing further to expand our market shares in the global market.



2019

New Joint Venture | ORSKOREA

Superfinishing Machine

- SSF 85 superfinishing developed for ACBB – for Bearing Art
- SSF 150V vertical superfinishing developed for medium-sized bearings – supported by Korean gov., ORS
- SGS 1000 Thread Grinder for TRB rollers – for Schaeffler Korea, Bearing Art

Wheel Hub & Simultaneous Grinding

- SGI 40, SGI 200W & SGE 600W grinders for wheel hub bearings (ID, OD) – for NTP, Wanxiang, Human Plus
- SGEI 100 simultaneous ID/OD grinder developed – supported by Korean gov.
- SGDH 585 & SGDH 510 Horizontal Double-Disc grinders – for ORS, Morgan

Automation & Bearing Testing

- Automated Crack Testing equipment for Bearing Race
- Automated Centerless Grinding Line (SGC 500 K) – for Tenneco

Lathe & Grinders for Bearing

- Developed 4 models of single spindle lathe for bearings (SLB models, available in Hydraulic and CNC types)
- SSF 110 Superfinishing for DGBB 110 phi and SSF 80 RD for CAM Follower Rings
- SGI 150 ID Grinding and SGE 500, SGE 500L OD Grinding for ORS
- SGC 300 Centerless and SGDV 510 Medium Double Disc Grinders for Human Plus

Present

Developed & Ongoing R&D

Large Specialized Grinding Machines

- Developed 4 models of large bearing grinders (SGI 250, SGI 300, SGE 600)
- Developed 2 models of large bearing superfinishing (SSF 300A, SSF 300B)

Centerless & Cylindrical Projects

- Developed small to medium centerless grinders (SGC200) – for SUPAR.
- Developing an export-targeted cylindrical grinder (SGU35-600L)

Developing Internal Thread grinder, Vertical Universal grinder, and 4-slide CNC lathe for rings

Grind with Precision, Build the Future of Motion Together

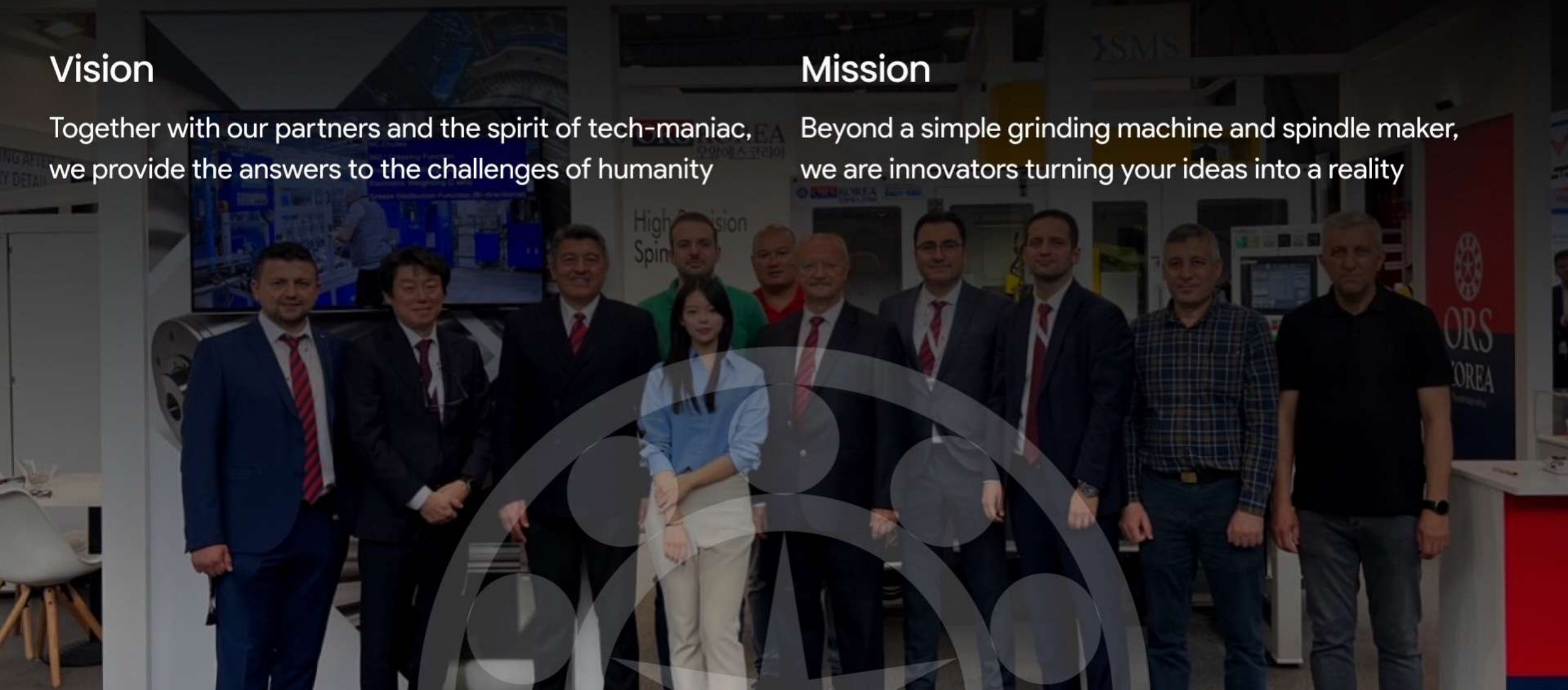
ORSKOREA aims to give the world's leading parts makers the power to mass produce ultra-precision grinding quality

Vision

Together with our partners and the spirit of tech-maniac, we provide the answers to the challenges of humanity

Mission

Beyond a simple grinding machine and spindle maker, we are innovators turning your ideas into a reality



Why ORSKOREA is the Only Choice?

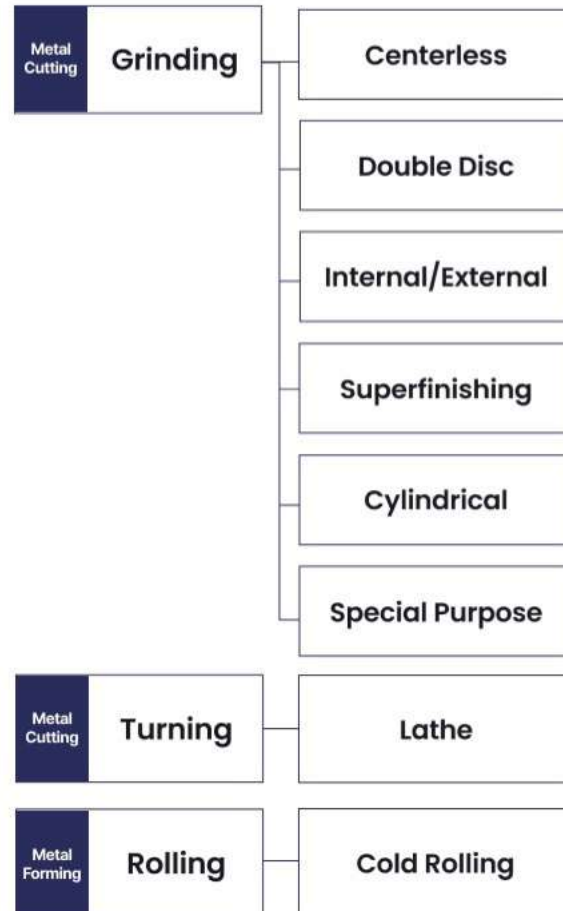
We believe **advancing Quality, minimizing Cost and Delivery** is the key to survive



Four Main Business

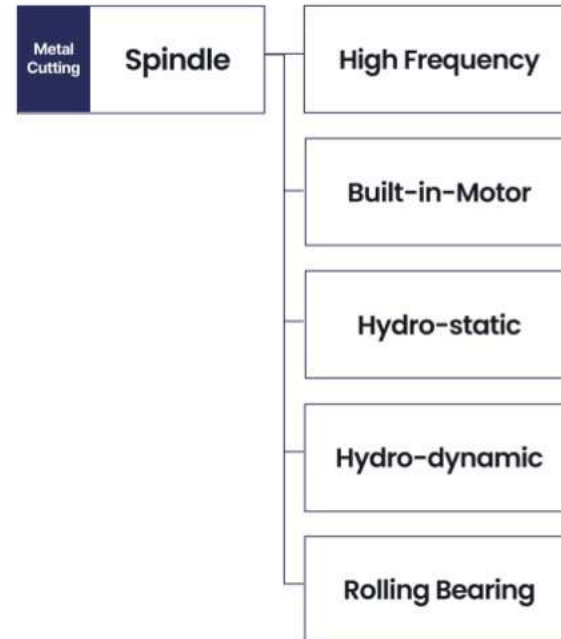
01

Machine Tools



02

Motion Units



03

Solutions

Turnkey Solution

Focus on mass production grinding machine for **Bearings (DGBB, TRB - G1 & G2 line)** and **Automotive Parts** Production Line



Automation Solution

Optimize your operation, offering **Automatic Inspect, Measure, Assembly, Feeding, Loading, Robots** to **reduce costs per part and cycle time**



04

Services

Machine Upgrade & Retrofit

Revitalize old machines and protect your asset by **Repair, Retrofit, and Upgrade** aging machines, integrating them with cutting-edge mechanisms



Spindle Upgrade & Overhaul

Minimize machine downtime by **upgrading old and expensive ones with new tech & affordable price**

Disassembly & Inspection ▶ Repair
▶ Precision Testing ▶ Commissioning ▶ Delivery



Korea x Turkiye Technological Cooperation

Now, **ORSKOREA** is a joint venture established in 2019, between **ORS**, Turkish largest bearing manufacturer, and **SMSB (Smart Machine, Strong Bearing)**, Korea precision machine and spindle maker, after meeting as customers 10 years ago and cooperating together.



Name	ORS (Ortadogu Rulman Sanayi)
Factory Size	100,000 m ²
Since	1982
Branches	Turkiye (Izmir, Istanbul), Germany, USA
Product Line-up	Standard & Special design Radial Ball Bearings, Roller Bearings, Rollers, Rings, and Other Axisymmetric Components.



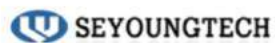
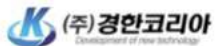
Name	ORSKOREA (오알에스코리아)
Factory Size	4,900 m ²
Since	2019
Address	HQ : 5th Factory, Masan Free Trade Zone, Changwon Office : Chang-dong, Seoul Startup Hub, Korea
Product Line-up	Machine Tools (Grinding, Lathes, Special) and Precision Components (Spindles, Slides) and Automation Machines

Customers across the world

Mostly focus on automotive parts, precision bearings industry and cylindrical shape parts grinding.

Actively expanding our market share in any industry that needs for 24/7 mass production grinding machines and spindles.

Automotive & E-Mobility



Bearing



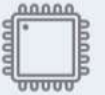
General Machinery & Components



Home Appliance



Semiconductor



Healthcare



Mould



Aerospace



3C



Energy

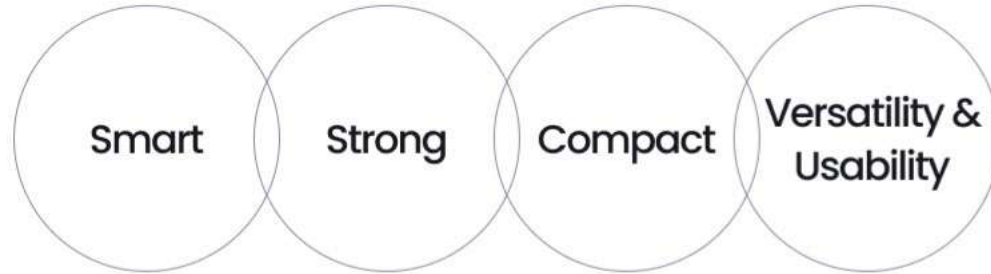


Sales & Service Network

With active operations in major markets such as Turkiye, Asia, and the United States, ORSKOREA has a wide network that ensures the same high level of technical support and parts can be delivered overseas short time with affordable pricingt.



Machines



Smart

Multiple automation can be applied for optimal production and equip cutting-edge tech. to ensure our customers are always ahead

Strong

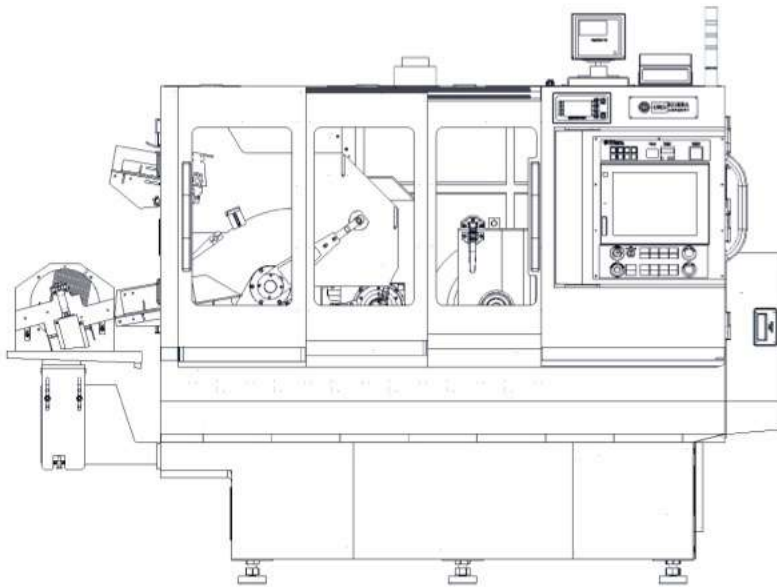
Rigidity is the key in terms of machine's stability and durability, Our goal is to make our machines to operate over 100 years

Compact

We prioritize ergonomic, compact design to optimize your production line efficiency

Versatility & Usability

Each manufacturer faces unique production, challenges, we're always dedicated to providing tailored solutions



Machine Standard Key Features

S G ? 1 0 0

1 2

Smart & Strong
Grinding or Superfinishing
? grinding machine type

Max.
Grinding Wheel Width
or Workable O.D
(mm)

Hydrostatic & Hydrodynamic Tech

- High speed, precision grinding
- Deliver consistent accuracy
- Improved reliability

Automatic High Speed Loading & Unloading

- Specialized in Mass-Production

High Rigid Casting Iron Bed

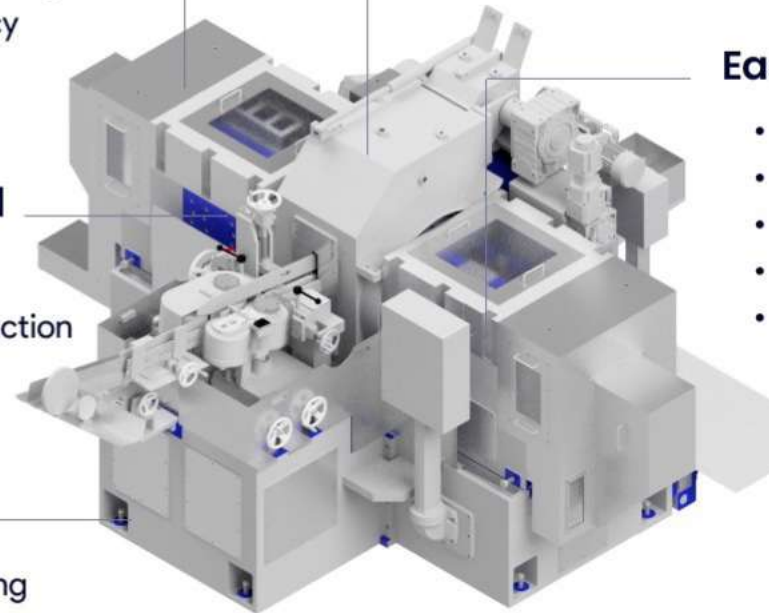
- Excellent vibration damping and thermal stability
- Optimized coolant flow prevents thermal distortion
- Mineral Casting can be applied

Versatile Dressing

- Key device greatly affects grinding quality
- Tailored to different grinding requirements

Easy Control

- CNC or PCNC
- Multilingual Support
- Intuitive Interface
- Simple Menu Structure
- Easy Icon & Text



Universal Grinding Machines

Maximum Grinding Wheel Width Size (mm)

SGC

Centerless

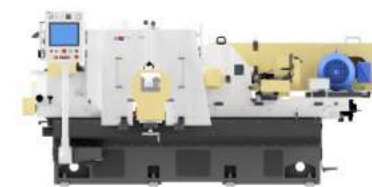
- Work Mounting : **Workrest Support Type**
- Grinding Type : **Through Feed and Infeed**
- **Total 32** Machines Supplied to Turkiye, Korean, Chinese markets



200



300



500



500 K

SGDH

Double Disc Horizontal

- Grinding Type : **Through Feed and Rotary Carrier**
- Applied High-precision Ball Screws and LM Guide
- **Total 15** Machines Supplied to Turkiye, Korean markets



510



585



760

SGDV

Double Disc Vertical

- Grinding Type : **Through Feed, Infeed, and Rotary Carrier**
- Clear superiority over general spindles under long term use
- **Total 17** Machines Supplied to Turkiye, Korean, Chinese markets



360



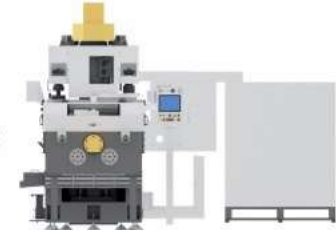
510



585



585 i



760

Bearing Grinding Machines

SGI

Internal

- Grinding Type : **NC Oscillation and Plunge Type**
- Utilized high rigid linear motion guide slide
- **Total 40** Machines Supplied to Turkiye, Korean, Chinese markets



SGE

External

- Work Mounting : **2 Shoe & Magnet Chuck**
- Applied robust LM guide for precision transportation
- **Total 29** Machines Supplied to Turkiye, Korean, Indian, Chinese markets



SSF

Superfinishing

- Applicable Vertical Type and Horizontal Type for Bearing Specifications
- Applied Multiple Heads for enhanced productivity and high speed production
- **Total 42** Machines Supplied to Turkiye, Korean, Chinese markets



Cylindrical Grinding & Bearing Turning Machines

SGU

Cylindrical

- Co-developed with Korean grinding machine maker, TIC
- Hydrodynamic or Hydrostatic Spindle Options
- Versatile Dressing Devices and Flexibility in Centers and Chuck

Mineral Casting Bed
with High Precision Slide



Multi Workhead &
Adjustable Tailstock



High Frequency Spindle
& Hydro-Static Spindle



Hirth Coupling
Type Index



35

Maximum Swing Size (mm)



CNC 35

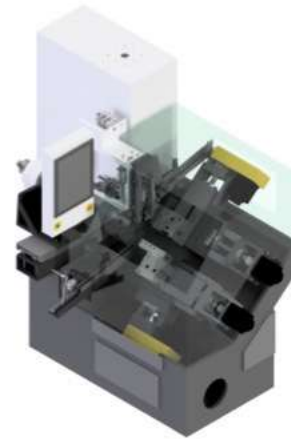
SLB

Turning

- Full cover machines for operator's safety
- Implemented 4 Slides for high productivity
- **Total 47** Machines Supplied to ORS Bearings

**New Concept of
Bearing Turning Machine
Ongoing R&D Project**

- Applied Linear Servo Motor



Maximum Workable Outer Diameter Size (mm)



82 | 91



NC 100 | NC 120

Special Purpose Grinding Machines

Screw/Thread Grinding

SGTE 1000

External Thread Grinding M/C
(max Workable Length | mm)



SGTI 80

Internal Thread Grinding M/C
(max Workable O.D | mm)



Constant Velocity Joint Grinding

SGCW 1000

C.V.J Window Cage Grinding M/C
(max Workable O.D | mm)



SGBT 100

C.V.J Inner Ball Track Grinding M/C
(max Workable O.D | mm)



Bearing & Roller Grinding

SGRB 250 | 350

Tapered Roller Back Face Grinding M/C
(max TRB Back Face R size | mm)



SLR 500 | 600

Bearing Roller Superfinishing/Lapping M/C
(max Suppor Drum width | mm)

SGEI 100

Simultaneous Internal & External Grinding M/C
(max Workable O.D | mm)

Cold Rolling Machines

SCR 70 NC

Cold Rolling

(max Workable O.D | mm)



SCR 120 NC

Cold Rolling

(max Workable O.D | mm)



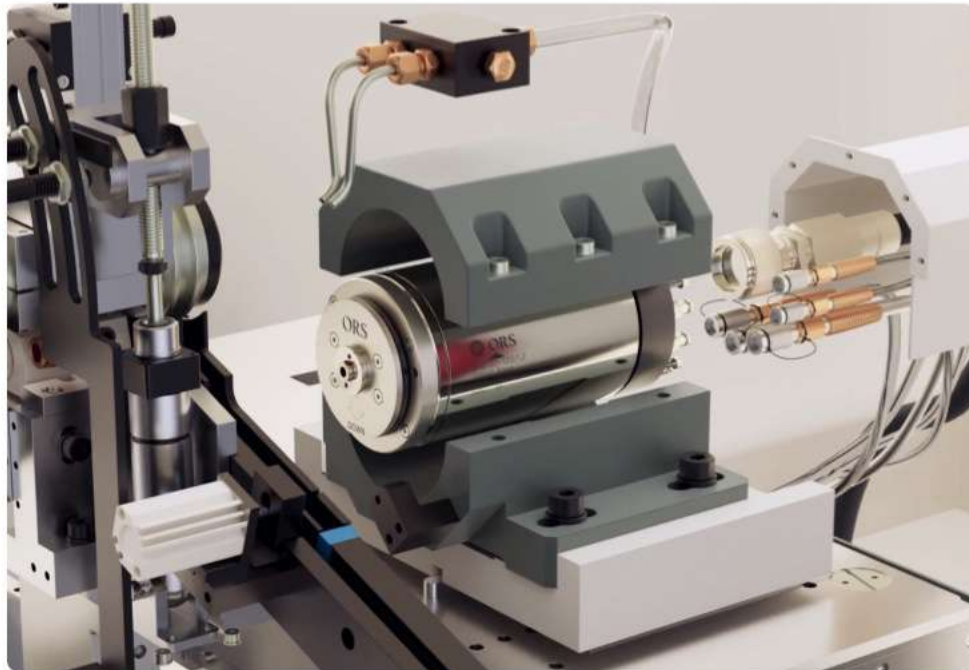
Spindle

High Speed

Custom

Easy

Balance



High Speed 30,000 ~ 180,000 rpm

Wide range of speed options available for optimal operation

Customization

Control desired Size, Speed, Power Output for optimal performance with both ORSKOREA standard and custom-made housings

Easy

Designed with minimum parts for easy replacement & maintenance. Seamless Installation with simple housing swaps

Excellent Balance

Resolved heat and running accuracy issue by Improved cooling, bearing lubrication, shaft balancing backed by own patents

Spindle

SHX	100	105	2
1	2	3	4
Smart & Strong High Frequency X spindle series	Spindle Housing Outer Diameter (mm)	Spindle Speed (x 1,000 rpm)	Power Rating (kW)

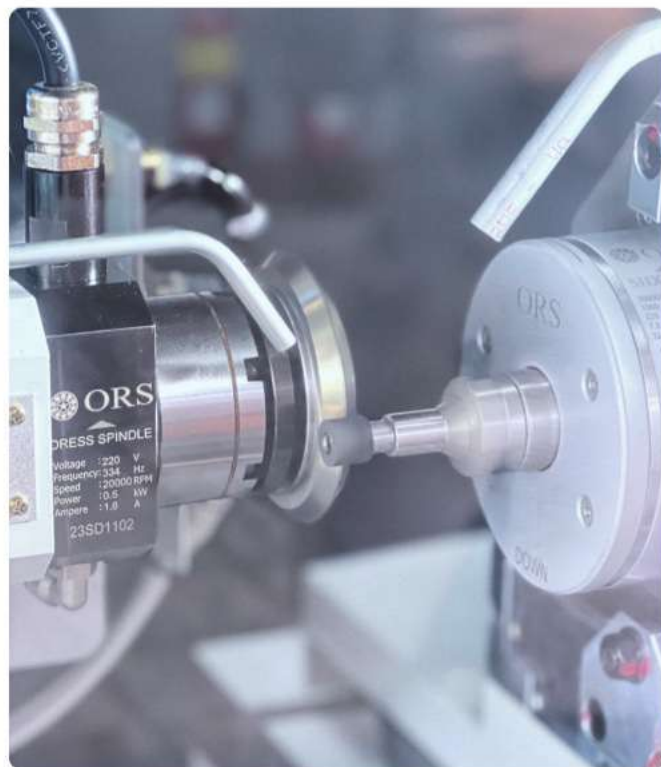
SHS | SHX

High Frequency
Spindle



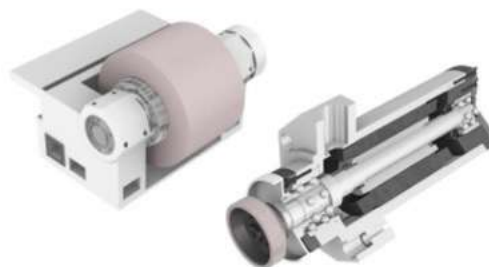
SBA | SBAX | SBI | SBIX | SBM

Belt
Spindle



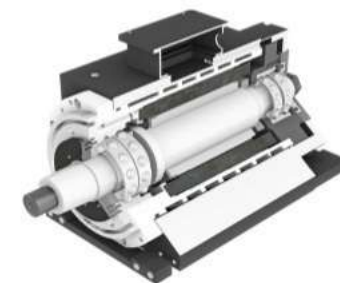
SGR

Rolling Bearing
Spindle



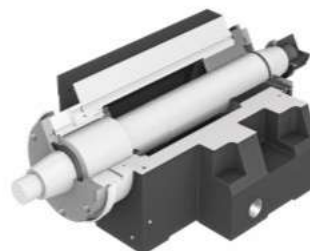
SGR Motor

Rolling Bearing
Built-in-Motor Spindle



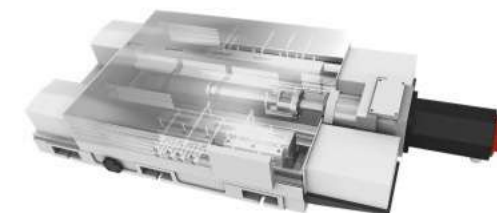
Hydrostatic Hydrodynamic

Spindle



Hydrostatic

Slide



Total 819 + Spindle Development Projects



22 SHS(X) 150-018
 SCHAEFFLER GMBH
 ORS

40 SHS(X) 150-030
 SCHAEFFLER GMBH
 WON KANG METAL ORS

164 SHS(X) 120-042
 SCHAEFFLER GMBH
 tic euratec ORS

131 SHS(X) 120-051
 SCHAEFFLER GMBH
 NSK WINTEC ORS

118 SHS(X) 120-060
 SCHAEFFLER GMBH
 KHNTC ORS

42 SHS(X) 120-075
 SCHAEFFLER GMBH ORS

49 SHS(X) 120-090
 SCHAEFFLER GMBH ORS

29 SHS(X) 120-105
 SCHAEFFLER GMBH ORS

14 SHS(X) 120-120
 SCHAEFFLER GMBH Delphi

100+ Other HF Spindles
 Ongoing Korean customers

130+ Belt Spindles
 Ongoing Korean customers

Spindle Customization Project

High Frequency Spindle

- 60,000 rpm High Frequency Spindle
- Affordable Alternative
- Superior Precision and Performance



Rolling Bearing Spindle

- Application of Centerless Grinding
- Rolling Bearing Spindle and Hydro-Static Spindles can be applied

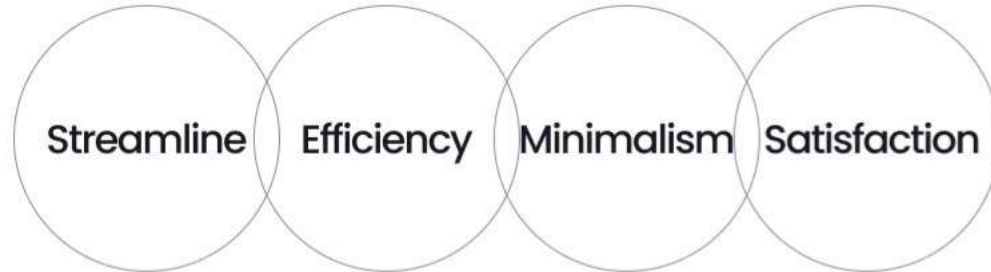


Hydro-Static Slide & Linear Servo Control

- Excellent Position Accuracy
- Low Vibration Sliding Mechanism
- Repetitive spraying of Hydraulic Oil



Total Grinding Solution



Streamline

Streamlined processes to minimize setup time, allowing seamless transitions and higher productivity.

Efficiency

Designed to maximize output with minimal resource consumption, improving yield and reducing defect rates.

Minimalism

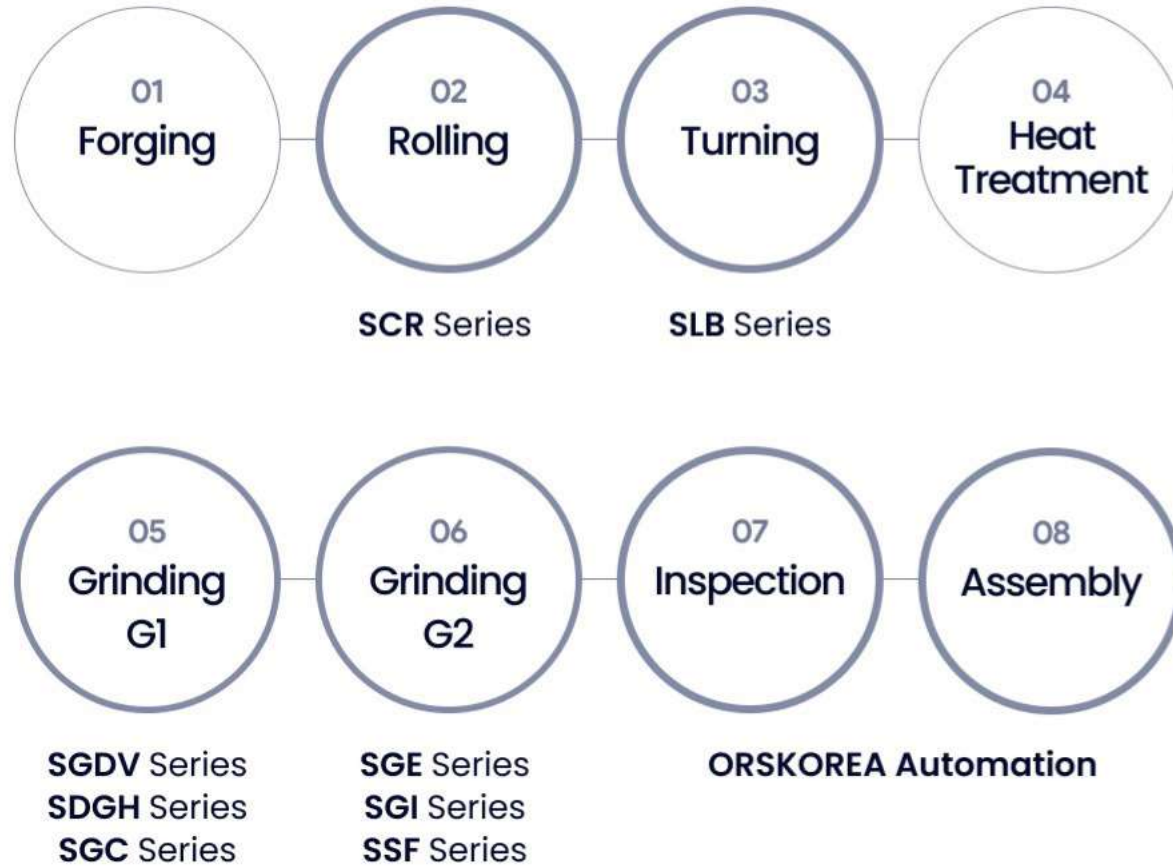
Simplifies complex processes into a single, cohesive system, reducing lead time and increasing factory space utilization

Satisfaction

Tailored solutions ensure that customer needs are met efficiently, delivering high-quality results with every production run

Bearing Grinding Turnkey Solutions

Bearing Production



Turning + G1 line

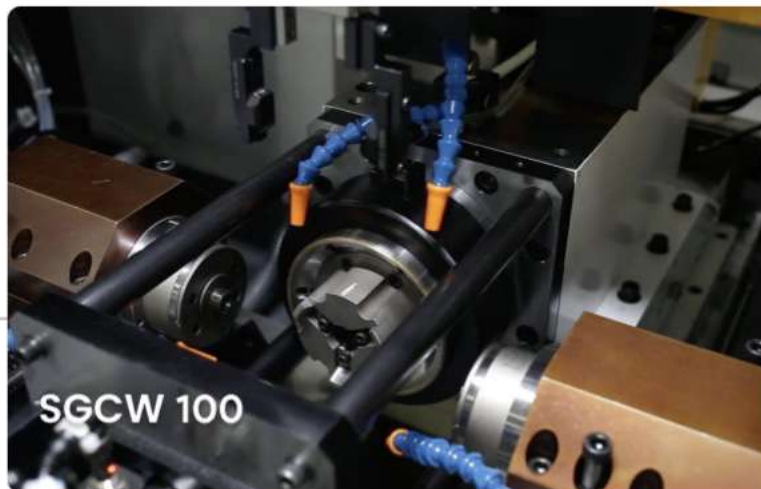


G2 line

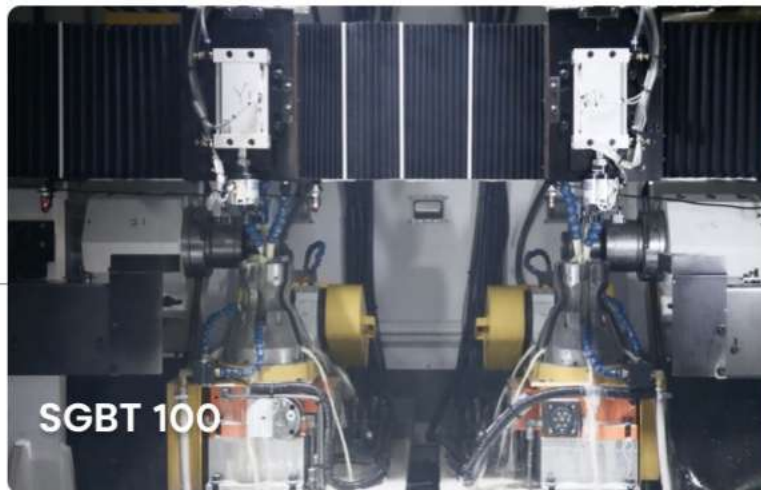


Automotive Parts Grinding Turnkey Solutions

Constant Velocity Joint Parts
External & Internal Grinding

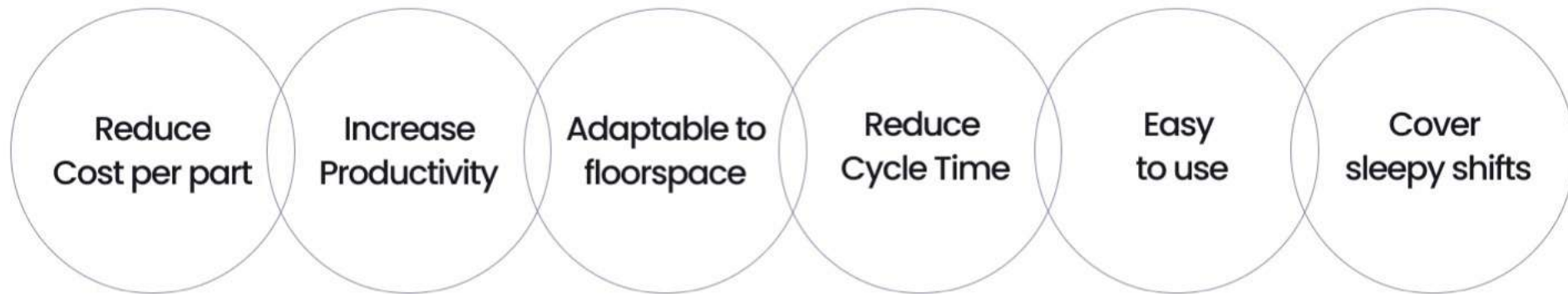


Constant Velocity Joint Inner Raceway
Ball Track 2 Head Grinding



Automation Solutions

Why Automate ? Because Your Time is Money



The saying "**time is money**" exemplifies the significance of efficiency and productivity, particularly in industries where manpower, time, and costs need to be optimized.

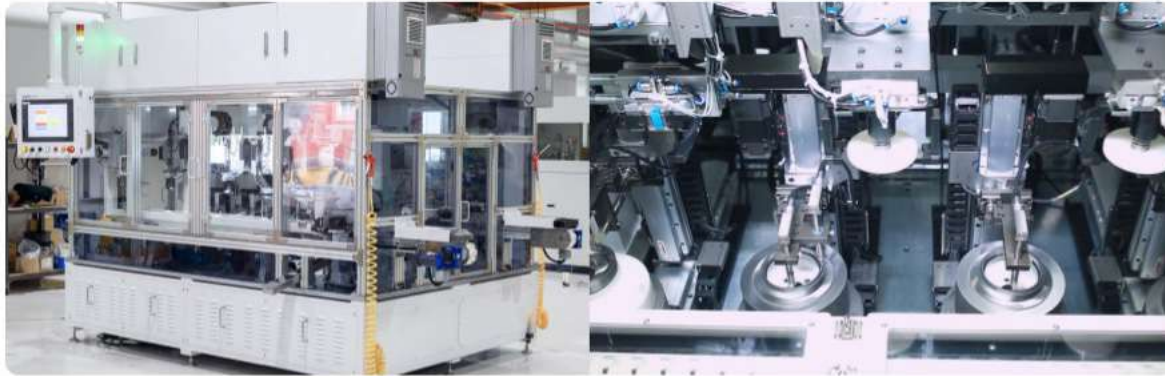
Thus, for manufacturing companies involved in mass production, it's essential to **invest in machinery that operates with minimal issues over 24-hour cycles, ensuring efficiency, user-friendliness for machine operators, and superior performance**



Automation Solutions Project

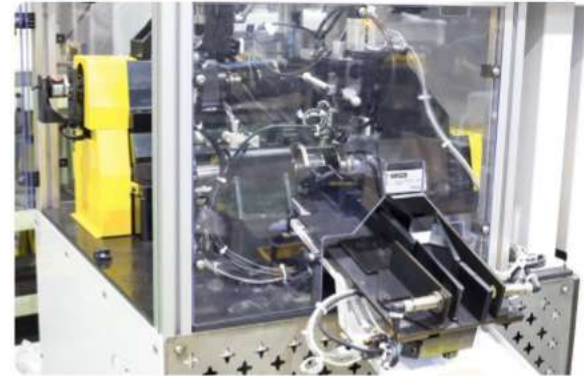
SGBT 90

Eddy Current Crack Testing Machine



SBNV 100

Noise & Vibration Detection Machine



SGMB 120

DAC Bearing Greasing Machine



SBDAM 120-DAC-DR

DAC Bearing Damper Ring Assembly Machine



Upgrade & Repair Service

Mechanism
Upgrade

Optimal
Redesign

Enhanced
Durability

Cost
Effective



Mechanism Upgrade

Upgrading the internal mechanism increases efficiency and reduces vibration, restoring accuracy while elevating overall quality

Optimal Redesign

Customized redesign solutions enhance machine stability, extend lifespan, providing a more robust foundation for demanding tasks

Enhanced Durability

By reinforcing critical components, we ensure that your machine and spindle withstand rigorous, long-term use

Cost-Effective

Provides a cost-effective alternative to purchasing new equipment, spindles, delivering improved performance at a fraction of the cost

Spindle Upgrade & Repair Service

When it comes to spindle repairs, ORSKOREA offers top-tier service you can rely on, regardless of the spindle manufacturing brands.

We focus not only on restoring degraded accuracy but also on extending the lifespan of your spindle, optimizing it for long-term performance.

GMN



Total 171 + Grinding Machines Overhaul Projects



33 Internal
Grinding Machines for
SCHAEFFLER

26 External
Grinding Machines for
SCHAEFFLER

6 TRB Superfinishing
Machines for
SCHAEFFLER

11 BB Superfinishing
Machines for
SCHAEFFLER

38 Centerless
Grinding Machines for
SCHAEFFLER
이원정공 세영산업

7 Cam
Grinding Machines for
이원정공

9 TRB Roller Back Face
Grinding Machines for
SCHAEFFLER

12 TRB Inner Ring RIB
Grinding Machines for
SCHAEFFLER

38 Double Disc
Grinding Machines for
SCHAEFFLER WDN
성일산업 (주)신진기계

7 Screw
Grinding Machines for
SCHAEFFLER KBR

3 Shoe
Grinding Machines for
SCHAEFFLER NSK

8 External Superfinishing
Machines for
SCHAEFFLER

Overhaul Service Project

SGS 1000 Machine

External Thread Grinding Machine Upgrade



GR 200-45 Spindle

Hydro-static Spindle Upgrade



GR 200-45 Machine

Centerless Grinding Machine Upgrade



KM 120-DAC-DR Machine

Superfinishing Machine Upgrade



Certification & Award

ORSKOREA has achieved numerous certifications and awards, including ISO 45001, Inno Biz, CE Certification, and the South Korea Industry Award, showcasing our commitment to quality, innovation, and global standards in centerless grinding and spindle solutions

Certification | Korea

- ISO 45001 (2024)
- AEO (Authorized Economic Operator) (2024)
- Technological Innovation – Inno Biz (2024)
- Root Technology Company (2024)
- Global IP Star Enterprise (2023)
- Global SME 1000+ (2023)
- Promising Export-Oriented SME (2022)
- Venture Enterprise (2022)
- Specialized Enterprise in Materials, Components, and Equipment (2021)
- ISO 9001 (2021)
- Smart Factory Implementation (2021)
- In-House Research Institute (2020)
- CE Certification (2016 ~ 2024)
 - Centerless Grinder • Internal/External • Cold Rolling
 - Spindle • Superfinishing • Lathe



Awards | Korea



Inside of our Quality Control

Inspection | Machines

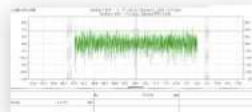
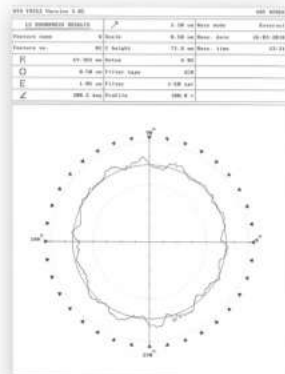


Roundness
Test Result

0.5 μm

Roughness
Test Result

0.12 $\mu\text{m Ra}$



Inspection | Spindles



ORS KOREA

검사 결과 보고서

검사 일자: 2024.11.15

검사 대상: SPINDLE

구분	구분명	단위	결과	비고
1. 외경	외경	mm	50.00	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
2. 내경	내경	mm	25.00	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
3. 길이	길이	mm	100.00	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
4. 무게	무게	kg	0.50	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	

ORS KOREA

검사 결과 보고서

검사 일자: 2024.11.15

검사 대상: SPINDLE

구분	구분명	단위	결과	비고
1. 외경	외경	mm	50.00	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
2. 내경	내경	mm	25.00	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
3. 길이	길이	mm	100.00	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
4. 무게	무게	kg	0.50	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	

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검사 결과 보고서

검사 일자: 2024.11.15

검사 대상: SPINDLE

구분	구분명	단위	결과	비고
1. 외경	외경	mm	50.00	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
	외경 편차	mm	0.02	
2. 내경	내경	mm	25.00	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
	내경 편차	mm	0.02	
3. 길이	길이	mm	100.00	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
	길이 편차	mm	0.02	
4. 무게	무게	kg	0.50	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	
	무게 편차	kg	0.01	

Inside of our Service & Sales Dept.

Service | Machines & Spindles



Sales | Machines & Spindles



Technical Service

- Processing Technology Support Service
- Answering Technical Inquiries
- Technical Data Service

Field Service

- Visiting Service
- Installation and Trial Test
- Preventive Maintenance
- Paid/Free breakdown recovery

Training Service

- Equipment Operation
- Equipment Maintenance
- Application Engineering

Repair Service

- Check & Disassemble
- Repair and retrofit service
- Full Precision Test and Trial Operation

Inside of our headquarter in Changwon

Located in the Masan free trade zone in Changwon-city. With the vision of continually adding new value to our machines, units, and solutions, we have created a pleasant working environment conducive to productivity.

1st Floor | Machine Manufacturing



2nd Floor | Unit Manufacturing & Office

