

Creative Solution Company with Advanced Technology

# SBB TECH



# Content

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## 1) Company Overview

**Company Name**

SBB TECH Co., Ltd.

**Founded**

November 18, 2000

**Co-CEOs**

Jae-wan Ryu,  
Jin-woong Song

**Listed**

October 17, 2022

**Capital**

KRW 3.08 billion

**Employees**

91 (as of May 2025)



### Head Office / Factory

22, Gimpo-daero 2918beon-gil,  
Wolgot-myeon, Gimpo-si,  
Gyeonggi-do, Korea

### R&D Center

#1210-1215, Leader's Tower,  
228 Gonghang-daero,  
Gangseo-gu, Seoul, Korea

### Actuator Plant

Ipjang-myeon, Cheonan-si,  
Chungcheongnam-do, Korea



### Actuator

A drive module that functions as a robot joint

Core component used across various types of robots

Composed of reducer, driver, encoder, brake, and motor



### Reducer

Developed Korea's first domestically produced robot reducer in 2009

Proprietary core technology at a global top-tier level

Applications: semiconductors, displays, defense, service/transport robots



### Bearing

Flexible slim bearing manufacturing technology

Cross roller bearing manufacturing technology

Localized production of ultra-thin bearings

## 2) About SBB TECH

### Global Top3

A precision robot drive  
module specialist



Leading the  
market  
through  
innovative  
technology

A people-  
centered  
company

Driving  
sustainable  
growth

## CEO

### Jae-wan Ryu | CEO

B.S. in Mechanical Design Engineering,  
Seoul National University  
Former: Daewoo Heavy Industries  
Developer of reducers and robotic systems  
Former: Naotech Co., Ltd.  
Developed LCD transfer robots  
Developed vacuum robots for  
semiconductor production  
Former CEO, Gidan Tech Co., Ltd.  
Developed automotive fuel pumps  
Mass-produced motor components for fuel  
pumps  
Former CEO, Inoswell Co., Ltd.  
Developed robots for extreme  
environments  
Developed maintenance robots for nuclear  
power plants

### Jin-woong Song | CEO

B.A. in Business Administration, Yonsei University  
Former: SK C&C  
Former: SK Telecom / SK China  
Former COO, GlowOne Co., Ltd.  
Former COO, SBB TECH Co., Ltd.

## Key Executives

### Laegeun Lee | Head of TC Center

- B.S. in Industrial Engineering, Soongsil University
- Former: Project Manager, Myunghwa Industrial Co.
- Expert in process improvement and quality control

### Sangkyu Jung | Head of PC Center

- B.S. in Industrial Engineering, Pusan National University
- Former: Sungjin ENG
- Oversaw harmonic reducer production
- Expert in process design

### Jungho Lee | Deputy Head of TC Center

- M.S. in Materials Science, Korea Polytechnic University
- Former CEO, RST
- Key contributor to localization of harmonic reducers
- Expert in custom structural design

## 3) About songhyun

### Connecting Technology and Tomorrow



Founded in 1991,  
we took our first step into the world with the  
enduring vitality of the evergreen tree and the  
morning sunlight that brings all things to life—  
driven by a vision to build a better world.

Songhyun Group  
continues its commitment to a brighter future  
for humanity,  
realizing its core values under the slogan:  
"Connecting Technology and Tomorrow."

## CEO



### Moohyun Song

Chairman, Songhyun Group (2012–Present)  
CEO, KPF Co., Ltd. (2008–Present)  
CEO, TMC Co., Ltd. (Founded in 1991)

## Management Philosophy

### VISION

Creative Solution  
Company with  
Advanced Technology

### MISSION

Creating and Providing  
Future Value for Our  
Customers Through  
Core Component  
Technologies

### Core Value

Challenge Innovation  
Harmony

### Slogan

Connecting  
Technology  
and Tomorrow

## 4) Major Affiliates Overview

Industrial fasteners and  
automotive components



**KOSDAQ-listed**

**Revenue:** KRW 782 billion

**Total Assets:** KRW 662.3 billion

**Total Equity:** KRW 255.9 billion  
(Consolidated Financial Statements)

Automotive Electronics & LED  
Lighting



**Revenue:** KRW 24.1 billion

**Total Assets:** KRW 14.8 billion

**Total Equity:** KRW 100 million  
(Consolidated Financial Statements)



Develop and expand core  
technologies based on key  
components for ships and  
robots—shaping the future  
through innovation.

Marine & Optical Cable



**Revenue:** KRW 375.6 billion

**Total Assets:** KRW 235.9 billion

**Total Equity:** KRW 76.8 billion  
(Consolidated Financial Statements)

Drive modules and reducers



**KOSDAQ-listed**

**Revenue:** KRW 5.5 billion (2024)

**Market Cap:** KRW 133.7 billion (as of April 2025)

## 5) Corporate Identity

### A Global-Standard Drive Module Company Leading the Localization of Robotics Technology

1

#### Korea's first localization of harmonic reducers

Successfully developed harmonic reducer in 2013

2

#### A technology-innovative SME in harmonic reducers

Achieved world-class performance through  
proprietary tooth profile design

3

#### Accelerating sales growth in reducer segment

Expanding applications and product portfolio through  
differentiated positioning

4

#### Smart Actuators & Smart Movers

Preparing for Future Markets with Integrated Design  
and High Cost-Efficiency



## 6) Product Line-up

### Comprehensive drive module portfolio from high-precision reducers and semiconductor bearings to actuators

#### Drive Modules

##### Actuator Robots



ACTUATOR



Customized robots

##### Reducers



Harmonic type



RV type



Long-neck worm type



Planetary type

#### Semiconductor Bearings

##### Semiconductor robot modules



WRIST



CMP

##### Precision bearings



Ultra-thin semiconductor bearings

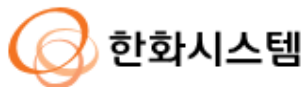
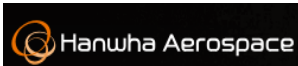


Hybrid (special type) bearings

## 7) Key Clients



### Defense



### Industrial (Collaborative) Robots



### Service Robots / Precision Machining



### Semiconductor



## 8) Major Milestones

Established core technology in ball and bearing manufacturing		Successfully localized harmonic reducers		Toward Becoming a Global Top-Tier Reducer Manufacturer	
<b>2000</b>	Incorporated as a legal entity	<b>2010</b>	Developed compact reducers	<b>2018</b>	<b>Joined the Songhyun Group</b>
<b>2005</b>	Accredited as an R&D institute	<b>2011</b>	Developed RV reducers	<b>2019</b>	<b>Recognized as an Excellent SME in Materials &amp; Components; Presidential visit</b> Signed Smart Factory Partnership with Samsung Electronics as a Promising Materials & Components Company, Developed compact collaborative robots
<b>2008</b>	Developed ceramic balls and bearings for extreme environments Received USD 1 Million Export Tower Award Began mass production of ceramic balls and bearings Localized ROBO bearings and supplied to Samsung Electronics & SK Hynix	<b>2013</b>	<b>Successfully developed ROBO Drive harmonic reducers</b>	<b>2020</b>	Awarded Korea Technology Grand Prize (Minister's Award)
		<b>2014</b>	Completed patented design and commercialization plan for harmonic reducers	<b>2021</b>	<b>Selected as a Top Materials &amp; Components Company</b> (Ultra-Precision Drive Components) Expanded product line-up including RV reducers Developed ultra-low-cost drive modules for small manufacturing robots
		<b>2015</b>	Selected by Defense Agency for Technology and Quality (DTaQ) as a defense venture (Gumi)	<b>2022</b>	<b>Listed on KOSDAQ</b> Developed hollow reducers for multi-joint robots
		<b>2017</b>	Began mass production and sales of reducers Developed MR actuators for collaborative robots Selected as Korea Robot Company of the Year (Robot Components Category)	<b>2023</b>	Named Korea Robot Company of the Year (Robot Components Category)
				<b>2024</b>	Named Korea Robot Company of the Year (Robot Components Category)

## 9) Key Production Facilities

### Hobbing Machine

100H Hobbing Machine



### Power Skiving Machine



### Hobbing Machine



### Shaper Machine



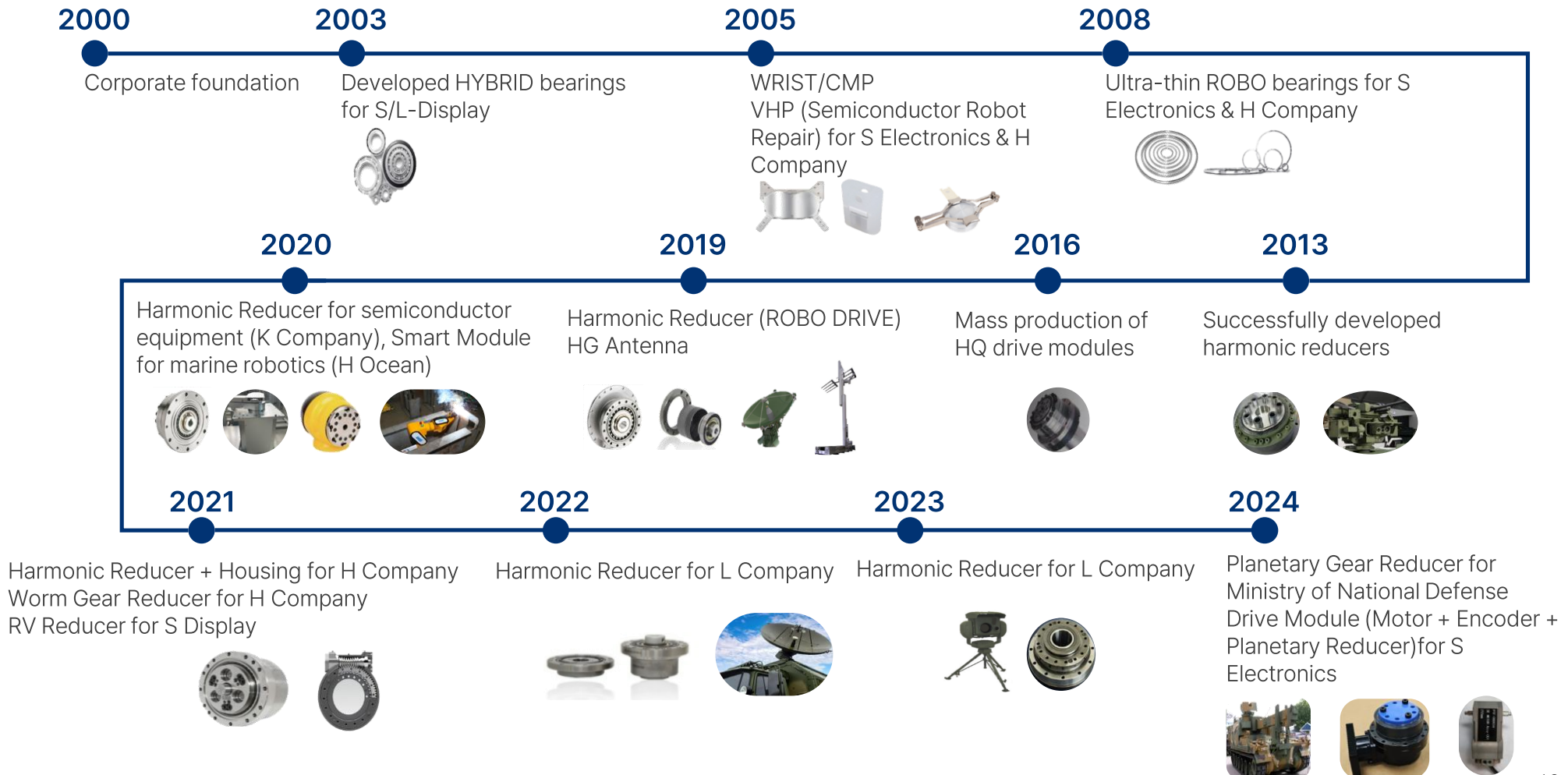
### Shaper Machine



### CNC Lathe



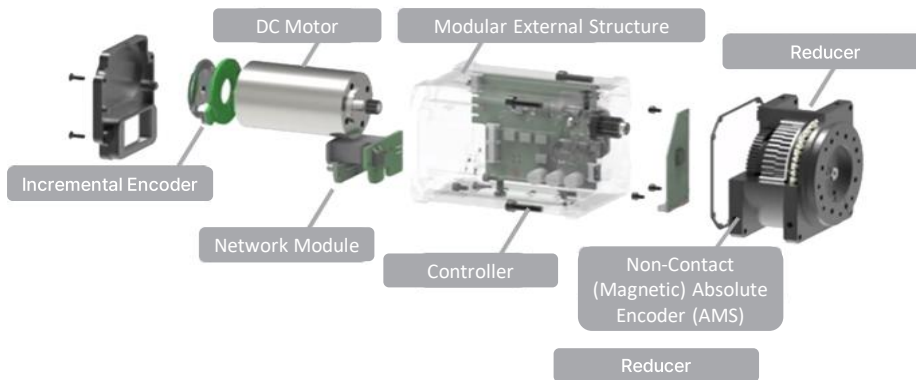
## Extensive and Unmatched Track Record in Precision Reducers and Drive Components



### Smart Actuators

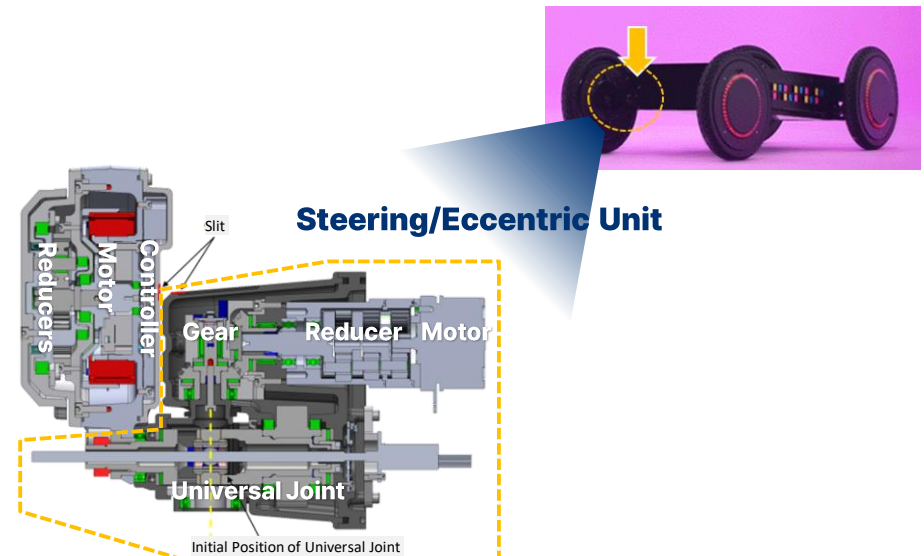
#### Actuators for robotics and mobility applications

- 1) Drive modules that function as robotic joints
- 2) Core components across various robot systems
- 3) Composed of reducer, driver, encoder, brake, and motor



#### Development Projects

- Compact Mobility Platform (Mobile Eccentric Droid)
- DnL Steering Eccentric Module – under development



# Drive Module Mass Production Project

Development Stages  
(5 Steps)

Product  
Planning

Product  
Design

Process  
Design

Validation

Mass Production  
Management

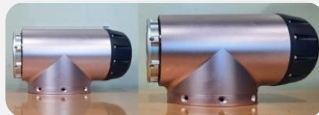
## Actuator Development Projects (From design to mass production to reliability testing)

Full development of smart modules and  
robotic systems (mechanical + control)

Customized welding  
robots for shipyards



3-axis substrate  
transfer robots



Drive Module with Driver

OHT Turntable Unit, Solar Cell  
Production Line



Reducer + Housing

Remote Controlled Weapon  
Stations (RCWS)



# II. Key Products & Projects

## 1) Applications of Precision Reducers

1



### Industrial Robots

Multi-joint robot arms  
Precise positioning control  
Excellent repeatability

2



### Collaborative Robots

Compact structure, Low noise, High control accuracy

3



### Semiconductor / Display Equipment

Wafer processing systems  
LCD panel manufacturing equipment  
Precision positioning axes

4



### Aerospace Industry

Satellite antenna control systems, Space robotic arms, Altitude control systems

5



### Medical Devices

Surgical robots, Rehabilitation robots, Medical imaging systems

6



### Defense Industry

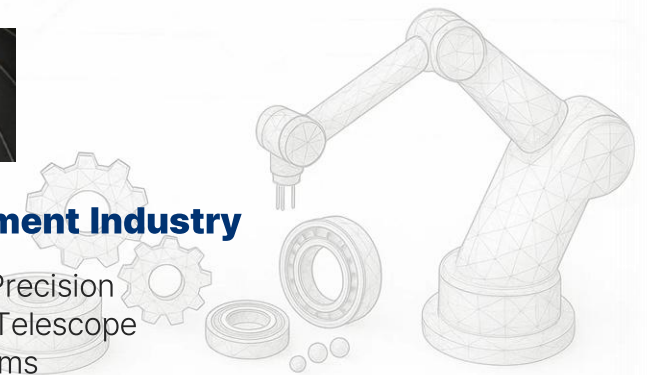
Drones, Autonomous military robots, Radar tracking systems

7



### Optical Equipment Industry

Pan/tilt systems, Precision tracking devices, Telescope rotation mechanisms



### A Leading Korean Company in Commercializing Harmonic Reducers

**Expanded sales of harmonic reducers for collaborative, SCARA, and TR robots**



현대로보틱스



(주)티로보틱스  
T-ROBOTICS CO., LTD.

(주)한화/기계



**Robotics**



**Defense**

**Expanded supply of harmonic reducers for the 29-axis K9 self-propelled howitzer, remote weapon stations, and bomb disposal robots, alongside rising demand for domestic production.**

Hanwha Aerospace

HYUNDAI  
**WIA**



High Gain Antenna

HYUNDAI  
**Rotem**

**Increased supply of reducers for semiconductor and display production robots**



LG 디스플레이

**SAMSUNG DISPLAY**



**Semiconductor & Display**



**Shipbuilding**

**Growing sales of components and modules for large-scale mobile welding robots and portable welding robots**



한화오션



현대중공업

### Expanding References in Precision Reducers

1

#### Defense Industry

Sole domestic supplier of  
localized precision reducers

RCWS system integration project  
**Hanwha Aerospace**

High-Capacity Tactical Radio (HCTR)  
**Hunee Technologies**

K10 Ammunition Resupply Vehicle  
**Ministry of National Defense  
Maintenance Depot**

Thermal Observation Device (TOD)  
**LIG Nex1**

2

#### Industrial & Collaborative Robots

Industrial Supply, Product Expansion  
into Collaborative Robots

**Domestic collaborative robot**  
manufacturers (Company A, Company B)

Three-point reducer for semiconductor  
equipment  
**sample testing in progress with  
Laontech**

Semiconductor transfer equipment **CORO**

Customized welding robot for  
shipyards  
**Hanwha Ocean**

Automatic welding system  
**Romax Technology**

3

#### Service Robots

Specialized service robots

Medical imaging & equipment  
**KOYOUNG Technology**

Dental CAD/CAM robots  
**DIO & Probotics**

Material handling robots **ANP**

Developing standardized reducers  
for service robots

### Semiconductor Bearings & Localization of Specialized Types

HP+/VHP+ ROBOT PIVOT & BEARING  
: SBB3S8T4TA10LR



HP/VHP PIVOT BEARING((4.75T)  
: 4S-A10Si-3N4



VHP/VHP+/PRODUCER ROBOT HUB BEARING  
: S2-X080PTP-3N4



HP+/VHP/VHP+ ARM UPPER BEARING  
: 4S-R6PKN-3N4



HP+/VHP/VHP+ ARM LOWER BEARING  
: 4S-F4PKN-3N4



Dual Blade Linkage w/  
Individually Leveled Arms

Magnetic Couplings

Improved VHP+ Wrist

Direct Drive  
Servo Motors



### Expanding Bearing References

#### Semiconductor Clients

Company  
A

Applied to AMAT equipment (VHP, Robo-Bearing, WRIST)

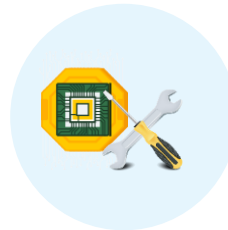
Company  
B

Applied to EBARA equipment (CMP parts)

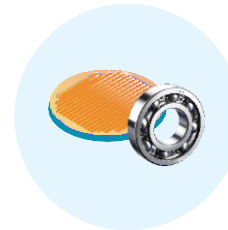
Company  
C

Expanding supply of hub bearings for 300mm wafers

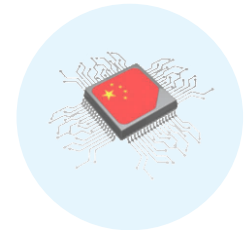
#### Market Trend



Segmentation of component manufacturers and equipment repair providers in the semiconductor industry



Increasing bearing demand in the 300mm wafer market



Growing demand for high-quality bearings from Greater China semiconductor and display companies

#### Defense Clients



- Rising demand for ultra-thin hybrid bearings
- Localization project with D Company
  - Supplied for K2 Black Panther (Poland project).
  - Currently developing for K21 and K30W

#### Expanding engagement with other defense contractors



## Developing compact actuators for robotic hand applications



Possesses core technology for planetary gear reducers



Small-module gear design capable of multi-stage transmission and low backlash

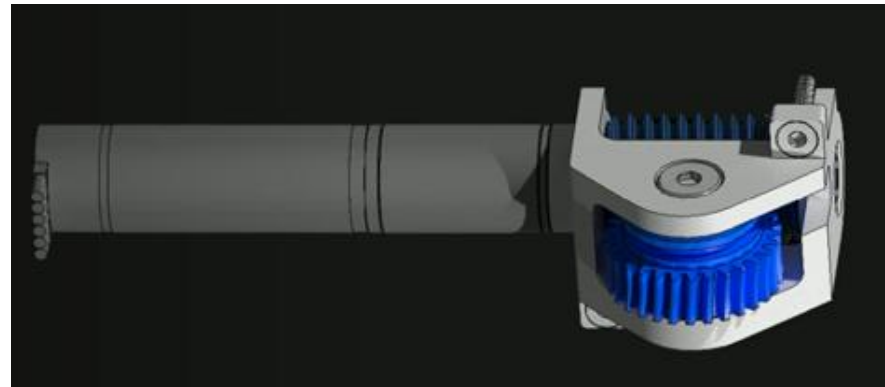


Established dedicated production equipment for small-module gears



Product development currently in progress

### Example: Hand-Type Actuator



## Development of Linear Actuators



Proprietary technology in planetary roller screws, leveraging planetary gear design expertise



Small-module gear design enabling multi-stage configuration and low backlash

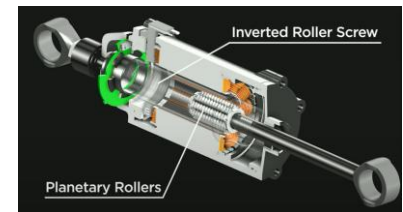
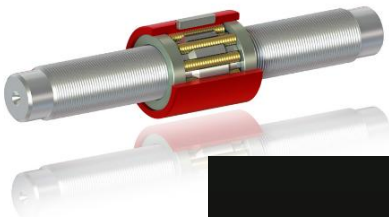


Established dedicated production equipment for small-module gears



Product development under review

### Example: Linear Actuator



## Harmonic Reducer

**Components and internal structure  
of precision reducers**



**Example of operating principles  
in precision reduction systems**



## Core Technologies in Precision Reducers

### Core Technologies

#### Advanced design capabilities

- Proprietary tooth profile design with multiple patents
- Structural design enabling high-efficiency torque output

#### Ultra-Precision Machining

- Machining technology for lightweight, flexible cups
- High-precision tooth profile processing

#### In-house bearing production

- Production, including elastic deformation bearings

#### Measurement Technology

- Designed and built Korea's only in-house test equipment for reducers

### Intellectual Property Portfolio

Patents  
**31**

Design  
**1**

Utility  
model  
**1**

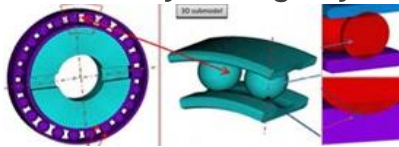
Trademarks  
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Copyright  
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## Secured top-tier reducer technology

### Flexible slim bearing manufacturing technology

Bearing design technology balancing flexibility and rigidity



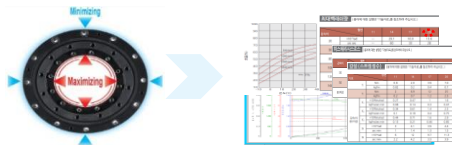
### Cross roller bearing manufacturing technology

Support bearing design technology for structural optimization



### Product customizing technology

Adjusting standard specifications while balancing product performance



### Core source technology

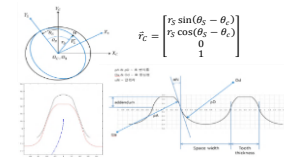


**ROBO Drive**

### Productization technology

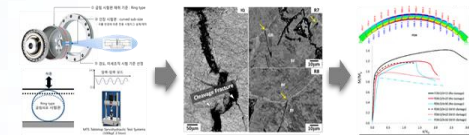
### Tooth profile design technology

Tooth profile design technology for optimized gear meshing



### Material & heat treatment technology

Forging and heat treatment process technology for improved fatigue life



### Reducer performance evaluation technology

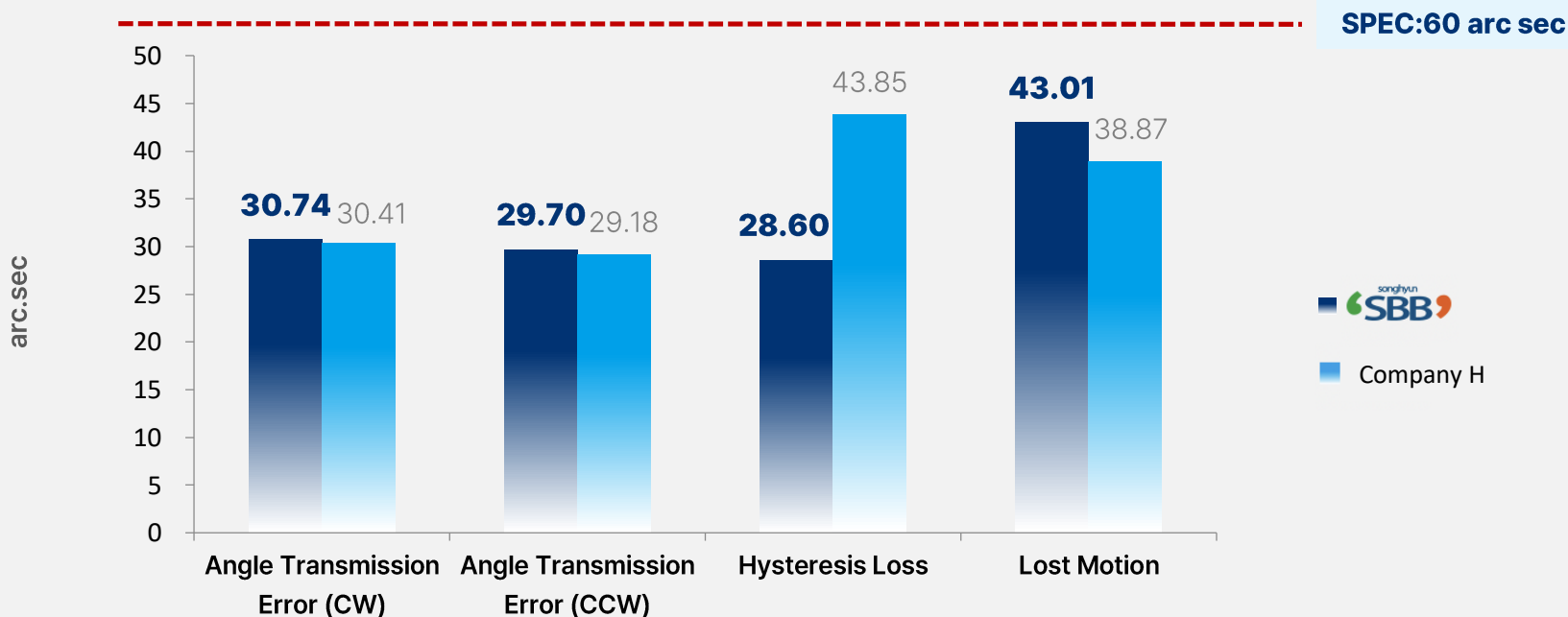
Database for basic performance and reliability of reducers



## Secured top-tier reducer technology

Achieved higher precision levels compared to H Company  
(leading Japanese manufacturer)

Internal comparative test result on reduction ratio:  
SSHG-25-100



## Development of Low Reduction Ratio ROBO Drive (Harmonic Type)



Minimum standard  
reduction ratio: 50:1  
→ Developed Robo  
Drive (low-ratio  
version: 30:1)



Implemented low  
reduction ratio  
through 3-point  
contact method



Achieved stable angle  
transmission error, high  
rigidity (150%), and  
30% performance  
improvement



Prototype  
development and  
performance/dur  
ability testing  
completed

SSHG-25-30-2UJ-3P



SSHG-32-30-2UJ-3P



SSHG-32-30-2UH-3P



## Development of Slim-Type ROBO Drive (Harmonic Reducer)



Ongoing lineup of  
slim-type reducers  
(CSD, SHD types)



Secured performance  
and durability equal  
to or exceeding  
competitors

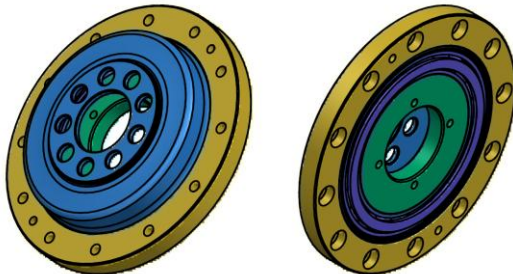


CSD and SHD types  
Mass production  
tooling secured



Prototype  
development and  
performance/dur-  
ability testing  
completed

CSD Type: Cup-type



SHD Type: Hollow-shaft type



## Development of Lightweight Harmonic Reducer



Targeting over 40%  
weight reduction  
compared to  
standard models



Secured performance  
and durability equal  
to or better than  
competitors

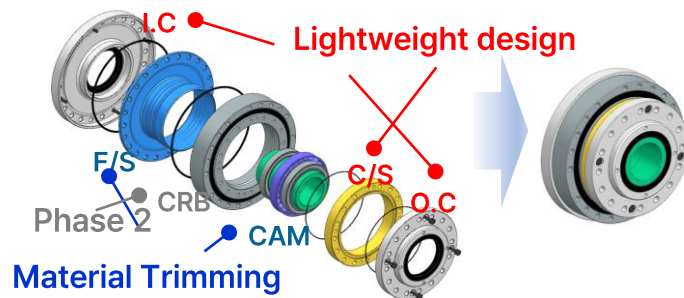


Obtained key  
technology patents



Prototype development  
and performance/durability  
testing completed

### Component Weight Reduction



### CRB (Cross Roller Bearing) weight reduction



## Development of Planetary Gear Reducer for QDD

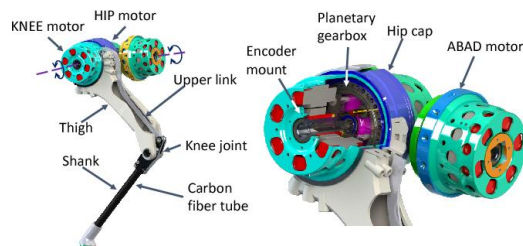
### QDD Planetary Gear

#### Technology Development

Development of planetary gear reducer for QDD (Quasi Direct Drive)

#### Key Details

1. Possesses core technology for planetary gear reducer development
2. Optimization of back driving torque
3. Established dedicated production equipment for small gear manufacturing
4. Prototype development in progress



### Multi-Stage Planetary Gear Reducer

#### Technology Development

Development of multi-stage planetary gear reducer

#### Key Details

1. Possesses core technology for planetary gear reducer development
2. Small-module gear design enabling multi-stage & low-backlash performance
3. Utilized harmonic reducer production equipment  
→ Established dedicated production equipment for small (low-module) gears
4. Prototype development completed and mass production initiated at SBB Plant in Ipjang



## Bearing Technology

### Ultra-Thin Ball Bearing

#### Precision machining of flexible components



#### Features

- Ultra-thin bearing with inner and outer ring thickness of 1.2–2.5 mm, width of 2.5 mm, and shaft diameter of  $\Phi 1.061$  mm
- Radial, 4-point contact, angular contact types
- Precision ceramic balls
- Thin metal sea

#### Applications

- Ultra-compact, slim, lightweight
- Vacuum/cleanroom environments
- Robot hub drives
- Semiconductor manufacturing equipment

### WGB Bearing

#### Core component for the lifespan of harmonic reducers

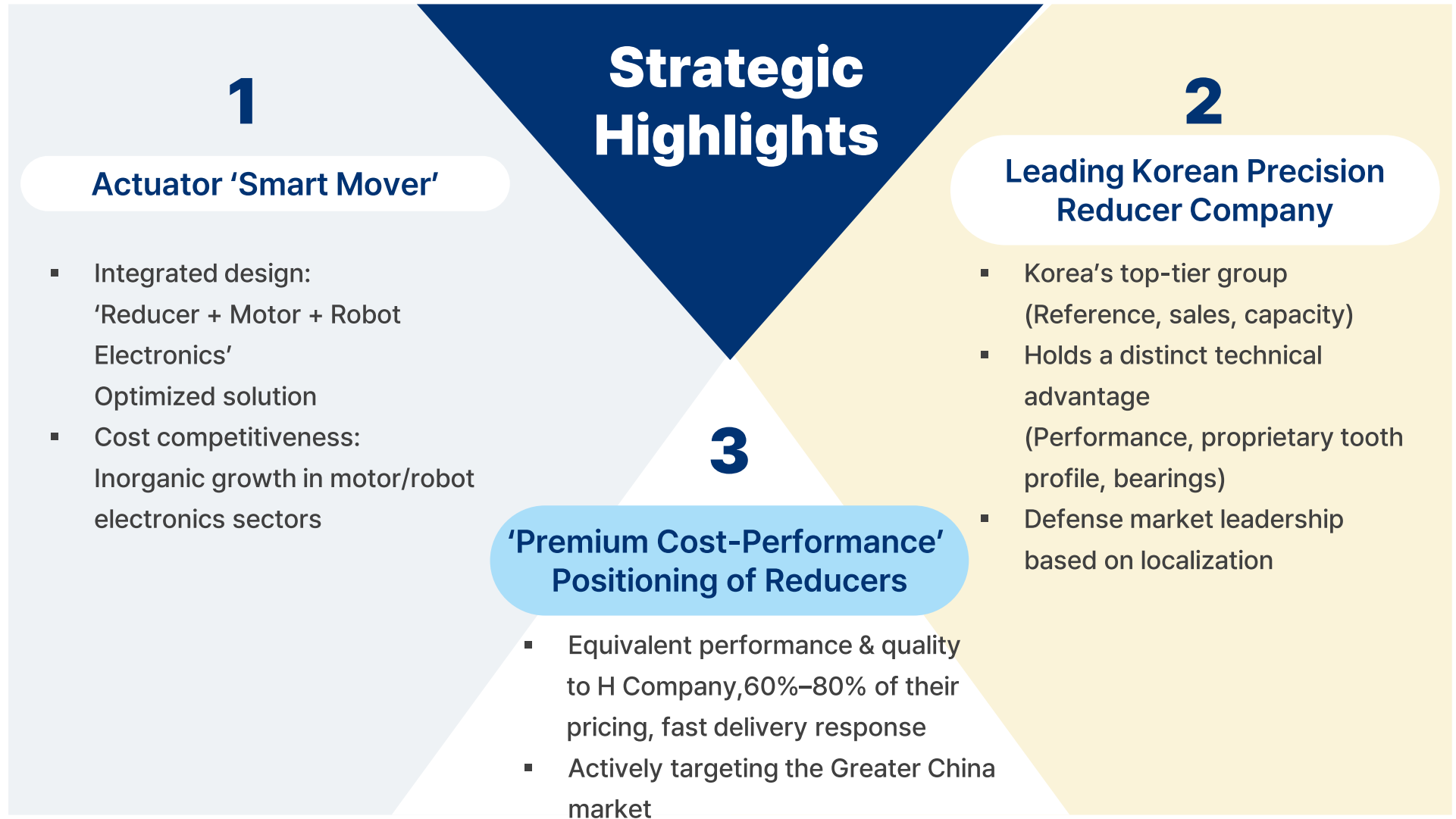


#### Features

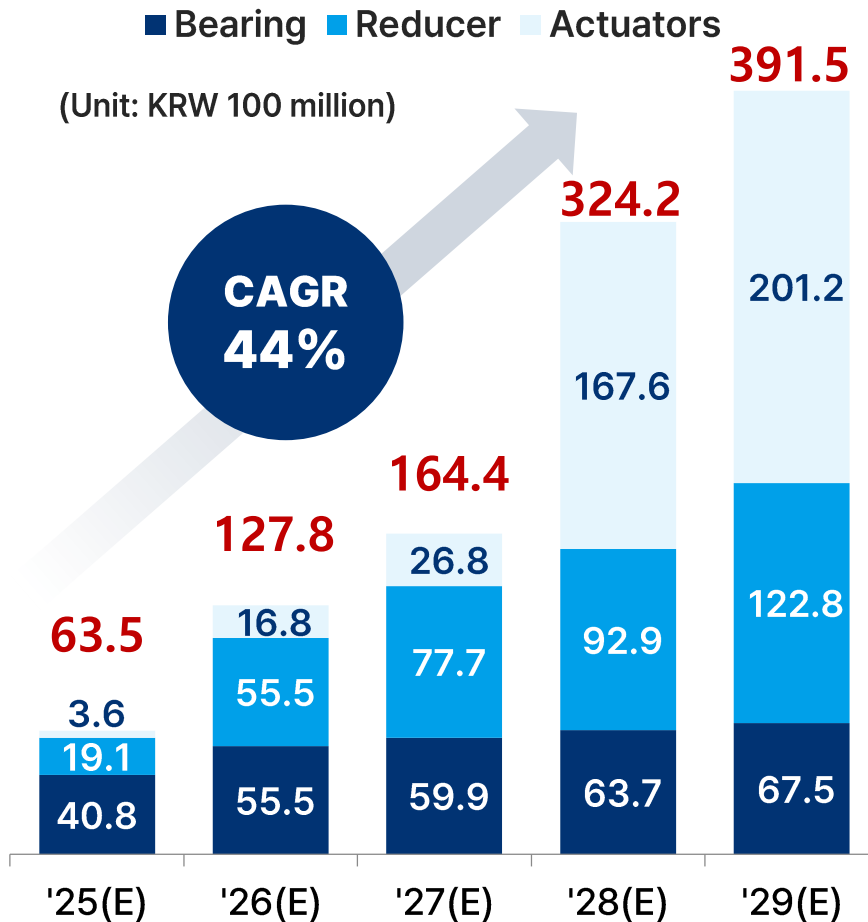
- Balanced flexibility and rigidity
- Application of ultra-thin ball bearing technology
- Elliptical shape

#### Development Direction

- Integrated inner ring and cam
- Combination of dissimilar materials
- Optimization of material and heat treatment processes



## Growth Driven by Expanded Product Portfolio



### Actuators

- DNL Module Sales for Mobility (2026–2029)  
New project expected to enter mass production in 2026

### Reducers

- New orders from collaborative robot makers
- Expanded product lineup (planetary gear)
- New defense RCWS project → revenue from 2026
- New business for Chinese SCARA robots

### Bearings

- Semiconductor market recovery (Samsung, SK Hynix)
- Increased volume for TSMC overseas
- New defense bearing contracts

# Thank you

SBB TECH Co., Ltd.

22, Gimpo-daero 2918beon-gil, Gimpo-si, Gyeonggi-do, Republic of Korea

TEL +82-31-988-4085

FAX +82-31-988-4083

