

# **/BONSYSTEMS**

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Leading  
the Future of the Robotics Industry  
through Technological Innovation





## Pioneer in Robotic Solutions for a Sustainable Future

Bon Systems Co., Ltd. is a specialized company that offers tailored robot design and hardware development solutions based on cycloidal smart actuator technology.

We provide optimized robotic solutions for diverse industrial needs, including logistics, manufacturing, defense, and construction.

### Bon Systems General Overview

CEO	Chang-Hyun Kim
Founded	June 2, 2015
Head Office Address	5-15, Gamgye-ro 156beon-gil, Buk-myeon, Uichang-gu, Changwon-si, Gyeongsangnam-do, South Korea
Email	bsr@bonsystems.kr
Main Contact Number	+82-55-552-1562

### Certifications and Accreditations





## Bon Systems Company History

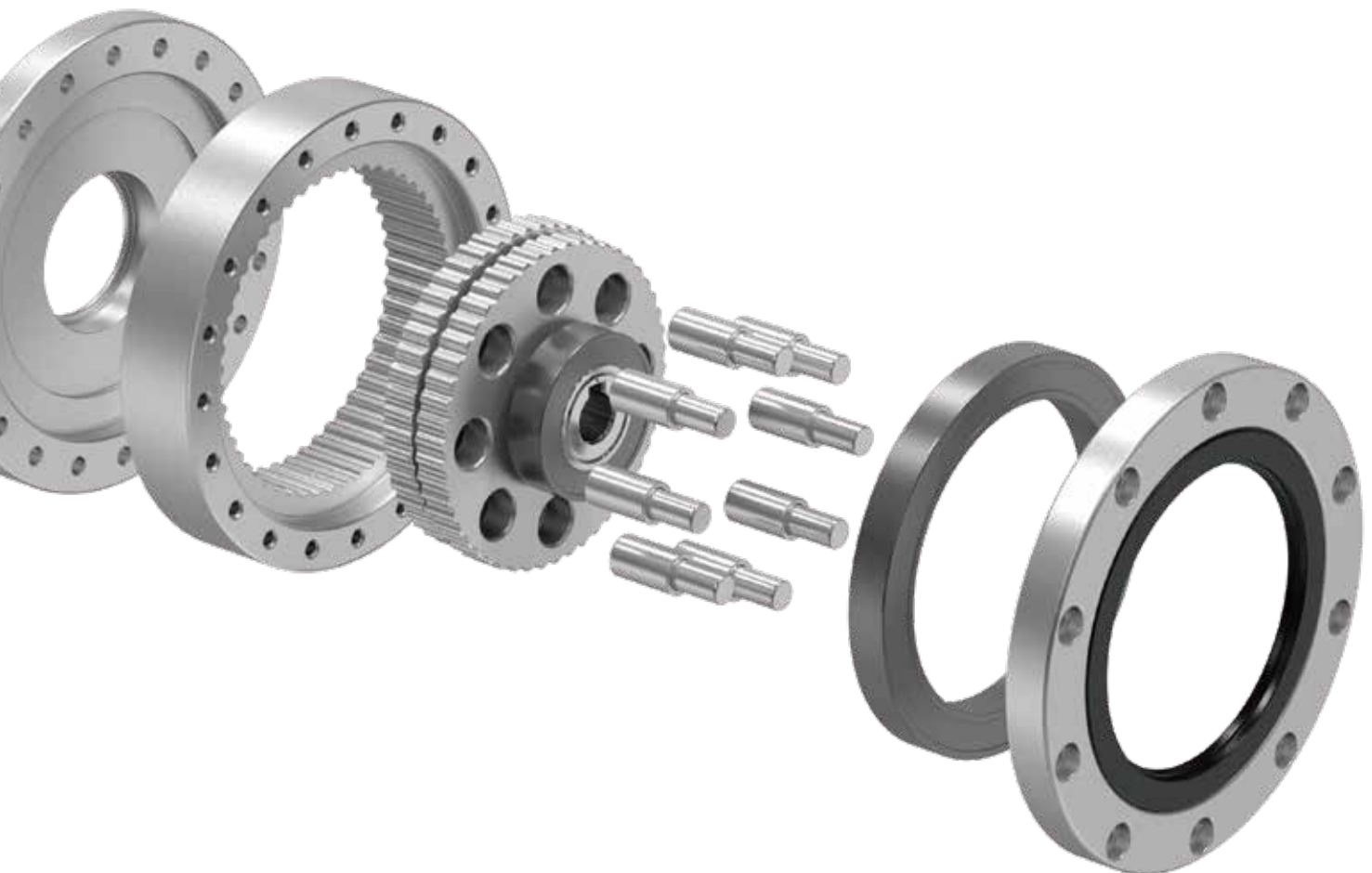
- |      |  |      |   |
|------|--|------|---|
| 2023 | 06 Acquired certification as a specialized research business entity  | 2019 | 11 Established a Company Building and New Factory<br>06 Acquired Excellent Technology Certification (T-3 Level)<br>05 Selected as a Changwon Small Hidden Champion            |
| 2022 | 12 Received Knowledge Property Contributor Award (Governor of Gyeongsangnam-do)<br>11 Honorable Mention at the IP Management Competition (Korea Invention Promotion Association President's Award)   |      | 03 Signed ICT-SW Convergence Business Agreement with Gyeongnam University<br>03 Signed of an Industry-Academic Cooperation Agreement with Changwon National University        |
| 2021 | 12 Won Gold Prize at Korea Invention Promotion Association Excellent Technology Competition<br>12 Designated as an Intellectual Property Management Certified Company<br>12 Received Changwon City Best Research Team Award<br>12 Awarded Export Citation of Merit (No. 1350)<br>10 Awarded a Ministerial Commendation from the Ministry of SMEs and Startups, Gyeongnam Small and Medium Enterprise Award | 2018 | 12 Recognized as an R&D Institute Affiliated Enterprise<br>10 Achieved ISO 9001:2015 Certification<br>02 Designated as a Distinguished Family Company by Dongmyung University |
| 2020 | 12 Certified as a specialized company in materials, parts, and equipment<br>11 Acquired Key Component Technology Certificate in materials, parts, and equipment from the Ministry of Industry<br>02 Certified as INNOBIZ and MAINBIZ Company   | 2017 | 01 Selected as an Distinguished Family Company by Gyeongnam University<br>01 Registered Factory   |
|      |  | 2016 | 08 Signed Family Company Agreement with Dongmyung University<br>01 Certified as a Venture Company   |
|      |  | 2015 | 11 Established Second R&D Lab (Gyeongnam University)<br>10 Authorized as an Industrial R&D Center<br>06 Company Established   |

# BSR REDUCER

## 01 Independent Gear Design Technology

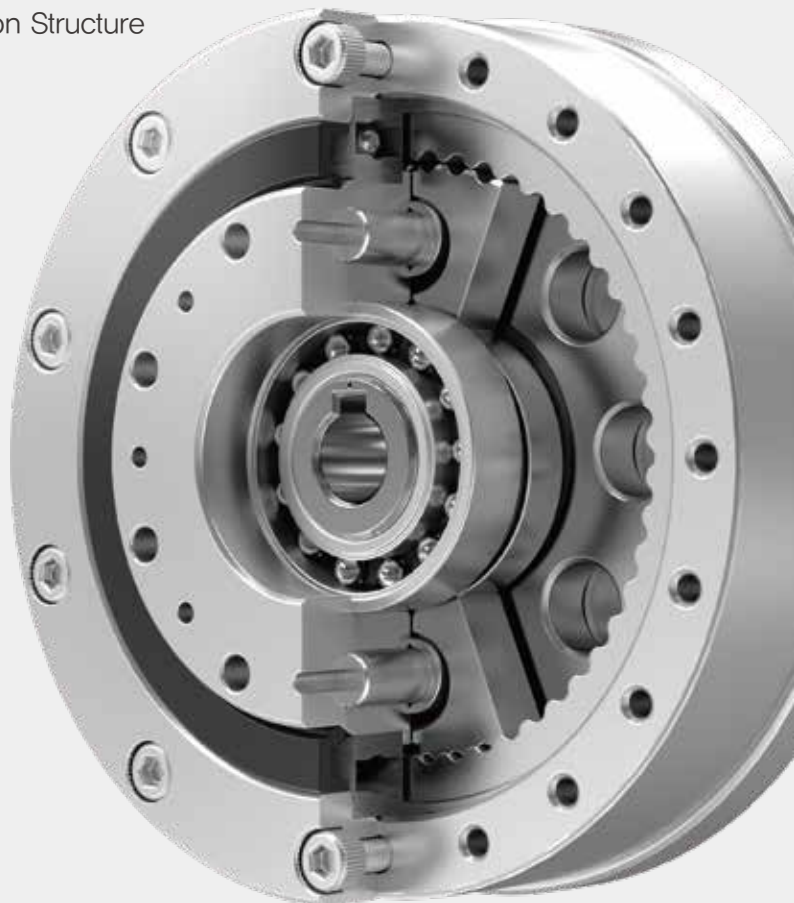
The cycloidal gear reducer, developed with Bon Systems' proprietary technology, offers superior durability and high torque compared to traditional involute gears.

- Allows diverse gear ratios within the same specifications without changing size or components
- Provides compact and high-performance solutions tailored to client needs
- Demonstrates exceptional durability and high torque despite its compact size



## 02 BSR Reducer Patents

- Cycloidal Reducer with Coolant Valve Drive
- Cycloidal Reducer with Anti-Drift External Gear
- BLDC Motor with Cooling Unit
- Dual Conjugate Cycloidal Reducer with Helix Angle
- Eccentric Shaft and Cycloidal Reducer Using it
- Roller Bearing and Cycloidal Reducer Incorporating It
- Thin Cycloidal Reducer and Manufacturing Method
- Cycloidal Reducer with Heat Dissipation Structure
- Cycloidal Reducer Assembly
- Thin Cycloidal Reducer
- Cycloidal Reducer
- Eccentric Crankshaft
- Roller Track Gear System





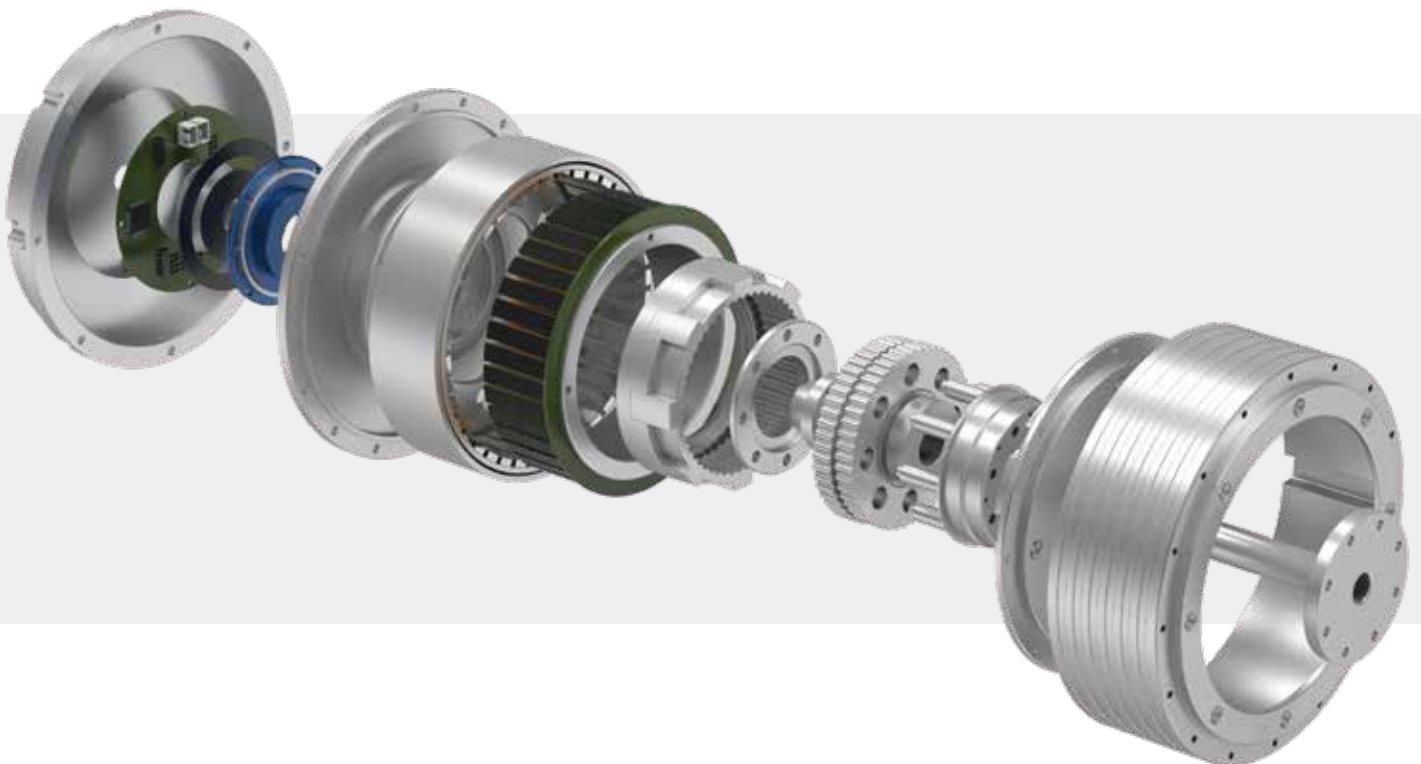
# BCSA ACTUATOR

## 01

### Integrated Driving Solutions with Motor, Reducer, and Controller

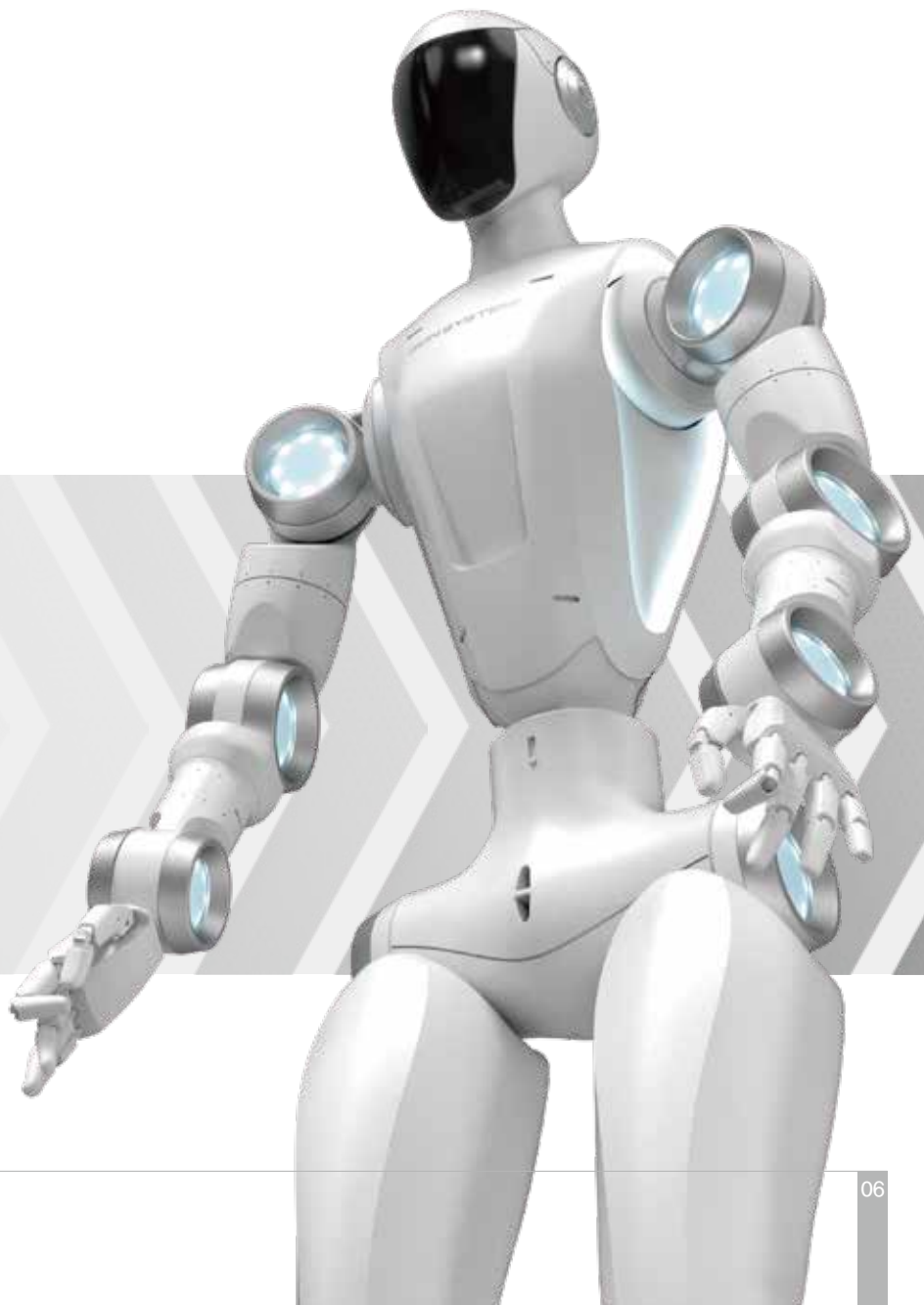
The BCSA (Bonsystems Cycloid Smart Actuator) is a revolutionary smart actuator offering high torque in a slim design.

- Minimizes torque load(moment) with its slim profile
- Improves design flexibility through compactness
- Supports mass production with highly efficient processes
- Provides 15 optimized models for diverse robotics needs
- Offers customized development services to meet client requirements



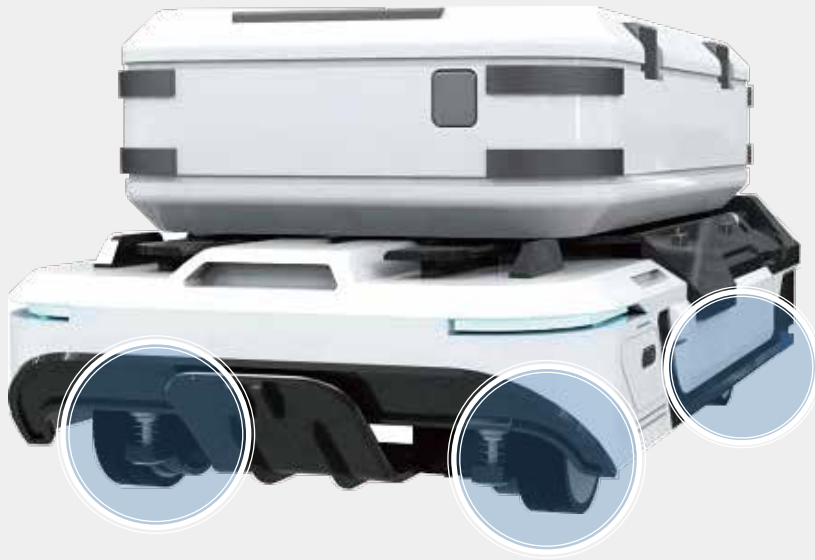
## 02 Key Role in Autonomous AI Development

- Improved energy density with a bipolar design delivers precise and powerful torque
- Modularized and precise integration for diverse applications
- Accurate positioning control with input–output encoders
- Built-in brake ensures stability during emergencies



## Case Study : Application of BSR and BCSA Technology in Robot Development Service Solutions

### AGV/UGV Logistics Robots



### BSR Reducer Product Specifications

	Outer Diameter (mm)	Thickness (mm)	Maximum Instantaneous Torque (Nm)	Recommended Motor Specification (W)	Allowable Radial Load (N)	Weight (kg)
BSR 050-049	54	28	21	50	300	0.3
BSR 050-059	54	28	21	50	320	0.3
BSR 070-049	73	34.5	105	100, 200	970	0.7
BSR 080-050	82	36.5	120	100, 200	970	0.9
BSR 080-099	82	36.5	120	100, 200	1,220	0.9
BSR 090-019	92	40.5	135	200	960	1.2
BSR 090-029	92	40.5	135	200	1,110	1.2
BSR 110-019	112	44.5	195	400	1,390	2.1
BSR 110-029	112	44.5	195	400	1,600	2.1
BSR 135-019	135	58	315	750	2,140	3.8
BSR 135-029	135	58	315	750	2,460	3.8
BSR 135-049	135	58	315	750	2,930	3.8



## Effects of Applying BSR Reducer in Logistics Robots



### Enhances load capacity per device

Achieves stable and balanced operation, even with heavy loads, through the high-torque reducer and precise actuator control.



### Provides additional space for battery capacity expansion

- Miniaturized actuators free up internal space in the robot
- Allowing for the installation of additional batteries to increase work efficiency.



### Reduces component size by 70%, ensuring optimal design flexibility

- 70% smaller size compared to existing components, achieving the same performance
- Overcomes limitations in overall robot size and maximizes robot flexibility

# Robot Development Service

A specialized solution for ODM robot development through the integration of actuator technology and hardware development support that meets customer requirements.

Supports the entire process of robot development from prototype production to mass production, reducing lead time. Providing differentiated services to enhance market competitiveness by applying smart actuator technology.

## 01 Robot Development Scenarios



### BCSA (Smart Actuator) Technology Integration

- Application of Cycloidal Reducer Technology in Smart Actuators
- Offers outstanding wear resistance for long-term stable operation
- Precise Actuator Control for Detailed and Accurate Movement
- Enhanced design flexibility for internal equipment layout thanks to thinner, high-performance actuators.

### Industry-Customized Design

- Development of robots optimized for various environments, including humanoid robots, logistics robots, defense robots, construction machinery, and heavy equipment, through analysis of specific requirements.

### Continuous Support for Maintenance

- Ongoing maintenance and technical support services provided.

## 02 Robot Development Process Overview

Bon Systems Co., Ltd.'s solutions are based on advanced control technology and precise hardware, offering customer-tailored services.

Experience the innovative automation system development process using technologies for proprietary reducer.



### Requirement Analysis and Product Planning

Analyze industrial requirements to identify the robot's intended use and functions and set the development direction and solution planning.



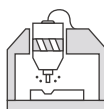
### Actuator Specification Selection

Analyze the required torque based on the robot's tasks and select optimal component specifications.



### Product Design and Development

Design the basic framework and structure considering the robot's size, weight, and load.



### Prototype Production

Assemble the components according to the design and verify the performance of key parts to ensure they meet expectations.



### Performance Testing and Adjustment

Evaluate performance based on simulation results, adjusting the design if necessary to optimize speed, range, and output.



**Bon Systems Co., Ltd** [www.bon-systems.com](http://www.bon-systems.com)

5-15, Gamgye-ro 156beon-gil, Buk-myeon, Uichang-gu, Changwon-si,  
Gyeongsangnam-do, South Korea

**Head Office**

Tel. 055-552-1562

Fax. 055-551-1561

E-mail. [bsr@bonsystems.kr](mailto:bsr@bonsystems.kr)

**Research Institute**

Tel. 055-296-9307

Fax. 055-551-1561

E-mail. [bonsystems@bonsystems.kr](mailto:bonsystems@bonsystems.kr)