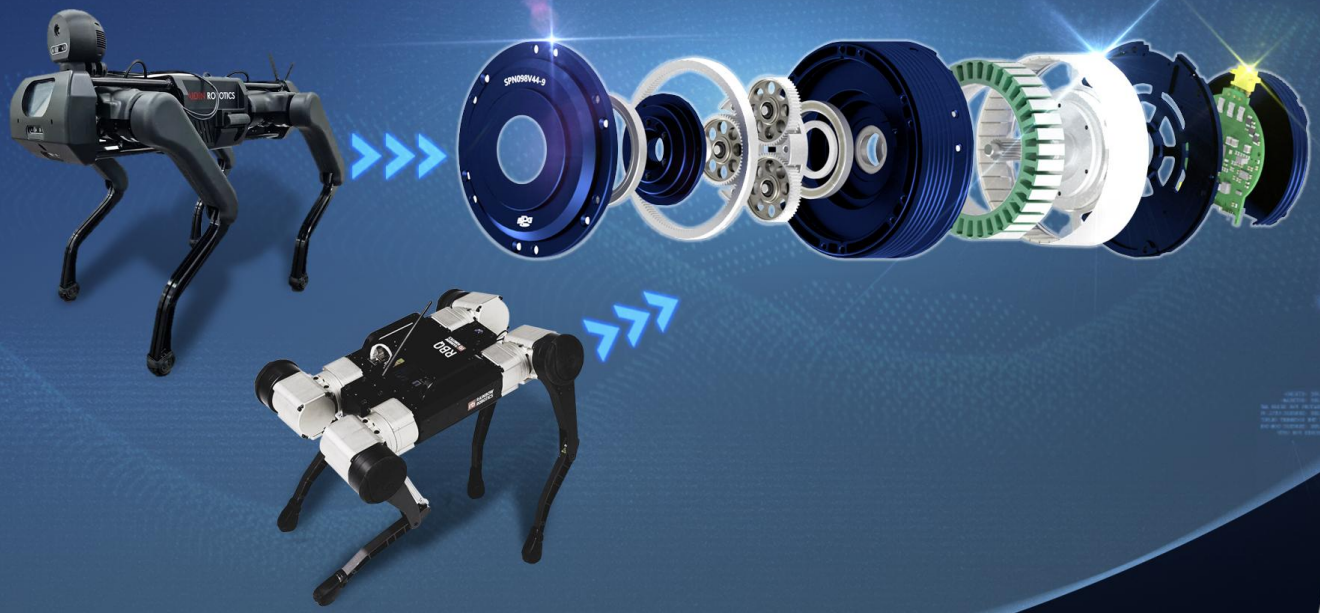
(주)에스피지

THE NEW

SPG 2026

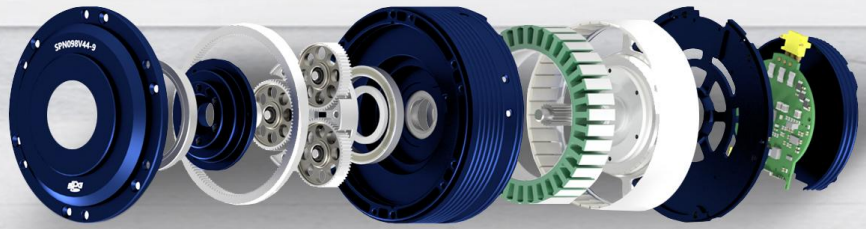




Disclaimer

This material has been prepared for company introduction, IR activities, and for the convenience of investors.

This material may contain information regarding the company’s future activities, financial performance, or other forward-looking statements. The company hereby clarifies that such information is only a projection and may differ from actual activities or results. Therefore, investment decisions should not be made solely in reliance on the forecasts, information, or forward-looking statements contained herein. All investment responsibility rests entirely with the investor





(주)에스피지

Company History and Status

(주)에스피지

1970s

1973. 05. 21
Founded as Sungshin Co., Ltd.

1978. 01. 11
Completed the construction of the production facility for small-sized, high precision AC motors and commenced the production.

1988. 11. 30
10 Million-Dollar Exportation Tower award for the Trade Day (Presidential Award)

1990s

1991. 03. 21
Founded as SPG Co., Ltd.
(Inauguration of the CEO, Jun ho Lee)

1991. 05. 01
Commenced the production of geared motors

1993. 02. 25
Named as a Technology-Intensive SME
(Ministry of Science and Technology)

1993. 12. 30
Relocated the HQ from Bucheon to the factory at Namdong.

1994. 01. 01
Commenced the production of standard geared motors.

1996. 10. 15
UL mark certification
(SPG)

1997. 01. 22
CE mark certification
(SPG)

1998. 07. 20
Recognized as a venture company.
(Ministry of SMEs and Startups, Incheon Branch)

2000s

2000. 01. 19
ISO 9001 certification
(SPG)

2000. 05. 12
TUV mark certification
(SPG)

2001. 11. 30
5-million-dollar Export Tower Award, the 38th Trade Day (Awarded by the Minister of Industry, Trade, and Resources, KITA)

2002. 07. 23
Enlisted with Korea Securities Industry Association
Enlisted in KOSDAQ market

2002. 11. 01
Presidential Award for New Technology Contribution

2002. 12. 04
Small-sized geared motors, recognized as the 'top class product of the world) by the Ministry of Industry, Trade, and Resources

2003. 12. 30
US incorporation established
(SPG USA, Inc)

2004. 03. 04
Chinese local incorporation establish
(SPG Motor (Suzhou) LLC)

2008. 05. 20
Established the Vietnamese local incorporation.
(SPG VINA CO.,LTD)

2009. 11. 06
Named as a KOSDAQ HIDDEN CHAMPION
(Korea Stock Exchange)

2010s

2014. 04. 09
Expanded business to CCTV security motion industry.

2014. 06. 13
Named as a World Class 300 company for 2014
(Ministry of SMEs and Startups)

2016. 11. 30
Acquired and merged Sungshin Co., Ltd.

2017. 01. 31
SPG Research Center opened
(Songdo, Incheon)

2018. 12. 14
50-million-dollar Export Tower Award
(KITA)

2022. 03. 04
Named as one of the model companies with good disclosure practices for 2021
(Korea Stock Exchange)

SPG Group

(주)에스피지








	Namdong (Korea)	Songdo (Korea)	QingDao (China)	Suzhou (China)	Hochiminh (Vietnam)	Yangsan (Korea)
Established	1991.03	2017.02	2002.05	2004.07	2006.06	1973.05
Capability (pcs)	3,000K	150K	16,700K	14,000K	12,700K	2,500K
Area	B/D : 150,717 ft^2 LAND : 91,476 ft^2	B/D : 177,915 ft^2 LAND : 81,841 ft^2	B/D : 185,130 ft^2 LAND : 270,072 ft^2	B/D : 107,726 ft^2 LAND : 142,279 ft^2	B/D : 106,286 ft^2 LAND : 177,725 ft^2	B/D : 109,780 ft^2 LAND : 106,722 ft^2
Employee	260	180	468	317	518	30
Products	• Standard G/Motor • Planetary G/H • Horse Power G/Motor • SH, SR REDUCER		• AC FAN Motor	• BLDC Motor • DC MOTOR	• AC FAN Motor • SHADED POLE G/MOTOR • BLDC Fan Motor	• Food Handler

TOTAL Capability (pcs): **49,050K** / Area: **B/D : 837,554 ft^2, LAND : 870,115 ft^2** / Employee: **1,753**

The New SPG

CONTENTS



01 **SDD**(SPG Direct Drive)

02 **OHT**(Overhead Hoist Transport equipment)

03 **Defense Industry**

04 **AMR**

05 **Others**

(주)에스피지

1 The Evolution of Robots

(주)에스피지

	Cartesian coordinates	SCARA	Articulated	High-speed Articulated	Co-Bot	Dual Arm	Humanoid
Shape							
Reducer/ DoF	Planetary 3-axis	Harmonic 3–4 Axis	RV, Harmonic 6+ Axes	Harmonic 6+ Axes	Harmonic 6+ Axes	Planetary, Harmonic 22+ Axes	Planetary, Harmonic Direct Drive (integrated) 25-34 Axes
Manufacturers	Robostar Hyulim Robot	Robostar Hyulim Robot EPSON	Hyundai Robotics Yuil Robotics Nau Robotic FANUC KUKA YASKAWA	Hyundai Robotics NACHI Mitsubishi	Rainbow Robotics Doosan Robotics Hanwha Robotics Neuromeka Universal Robot Techman Robot	Rainbow Robotics Robotis CORAS Robotics ABB	Rainbow Robotics (Samsung) Boston Dynamics (Hyundai) Korea Institute of Machinery & Materials, Blue Robin Holiday Robotics Unitree Robotics Agility Robotics

*** SPG Precision Reducer (Planetary Reducer, SH, SR Reducer) Sales Revenue**

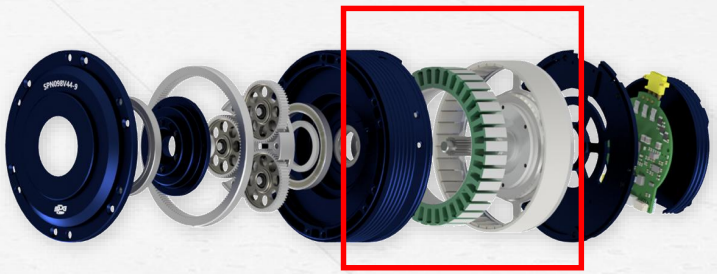
- KRW 7.6 billion in 2023, KRW 10.2 billion in 2024, KRW 14.0 billion (estimated) in 2025

1 SDD (SPG Direct Drive) - Competitive Advantages

(주)에스피지

01 Motor

Category	Competitor	SDD	Remark
Efficiency (%)	70.4	80.7	Maximum Load Condition (Efficiency Improvement)
Torque Ripple (%)	4.4	1.5	Maximum Load Condition (Vibration & Noise Reduction, Lifetime Improvement)
Cogging Torque (mNm)	0.16	0.11	Rated and Maximum Load Conditions (Vibration & Noise Reduction, Lifetime Improvement)
Motor Temperature (℃)	93	67	Competitor Driver Protection Circuit Activation Point (Heat Reduction, Robot Lifetime Extension)



The Evolution of Robots

1 SDD (SPG Direct Drive) - Competitive Advantages

(주)에스피지

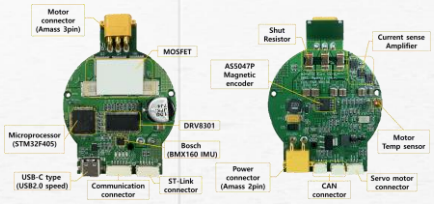
02 Reducer

Category	Competitor	SDD	Remark
Lightweighting	-	90% to competitor	Gear & Housing Lightweighting for Improved System Efficiency and Higher Torque Output
Safety Factor	Service factor 1.0	+20% to competitor	High-Strength Gears for Increased Torque and Enhanced Durability
Backlash (arcmin)	20	9	Reduced Gear Backlash for High Precision and High Responsiveness



03 AI Controller

Category	Competitor	SDD	Remark
Voltage	24~48v	**24~150v**	Reduction of peak current and possibility of adopting low-cost components (improved heat dissipation, reduced cost)
Interface	CAN, USB	**Ether CAT**	Compatible with various communication protocols
Protection	Temperature, overcurrent	**AI-based fault diagnosis**	Ensuring high reliability of the actuator





1 SDD dedicated R&D members

(주)에스피지



Motor/Actuator

Heo Jin
Ph.D

IEEE Fellow

Korea Electronics Technology Institute

Ph.D Hanyang Univ



Precision Reducer

Kim Jung-yeob
Ph.D

ADD

KAIST Hubo Lab

KAIST Ph.D. in Mechanical Engineering



Controller

Choi Dong-il
Ph.D

KARI

NAVER LABS

Carnegie Mellon University

KAIST Hubo Lab

KAIST Ph.D. in Mechanical Engineering

(주)에스피지

Integrated Joint Module

SDD(SPG Direct Drive)

"DD(Direct Drive) Fast Response + Integrated reducer"

5,000 + Planned Mass Production in CY2026



Planetary Gear | Motor | Controller

SDD VS Normal Actuator

	Normal Actuator	SDD Actuator
Reduction Ratio	Mid-High	Low (easy control)
Dynamic Performance	Relatively Low	High
Back Driving	X	O
Torque Density	Low	High

(주)에스피지

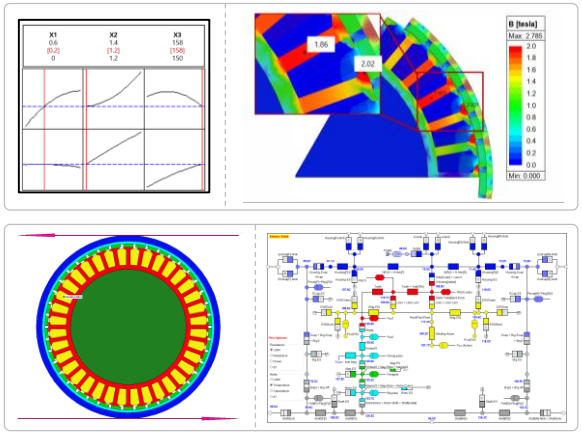
Actuator for Humanoid Robot Hip Joint

Human-body inspired design aims at minimizing vibration and noise while maximizing efficiency

Capability in multi-physics optimization analysis

multi-physics analysis

- RSM-based optimization design
- Analysis of copper, iron, and mechanical losses
- Motor thermal rating calculation



27 billion KRW invested in precision gear facilities

High-precision manufacturing

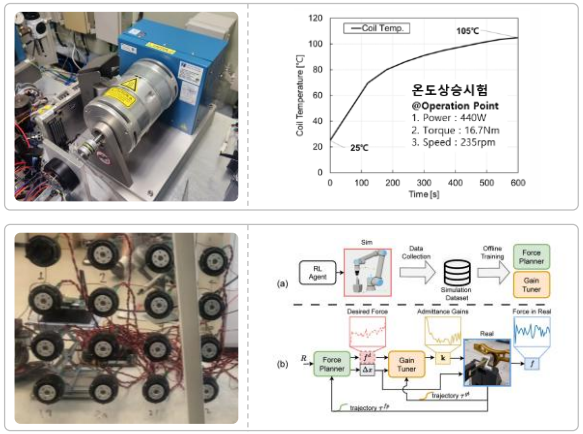
- Consistent Quality
- Efficient Production
- Cost Saving



UL TCP LAB

Performance evaluation and analysis

- Review of up-to-date evaluation criteria
- Performance evaluation process development
- Reliability and environmental evaluation

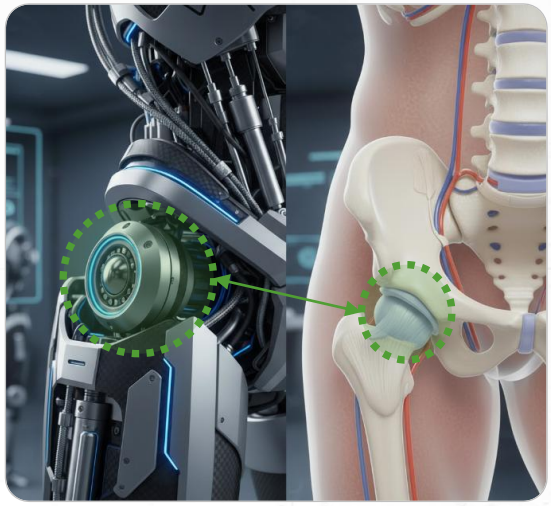


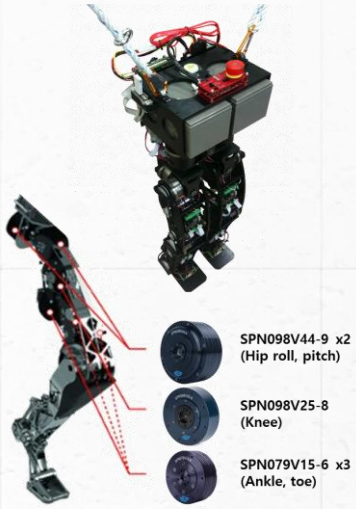
1 SDD: Definition and Concept

(주)에스피지

> “The key for humanoid – realize human-like dynamic motions”

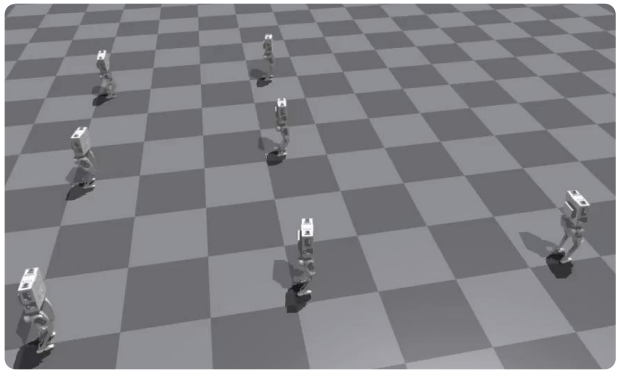
withstand high loads and strong impacts, like the hip joint.





“10-DOF biped robot STOB V3”
SEOULTECH HRR Lab

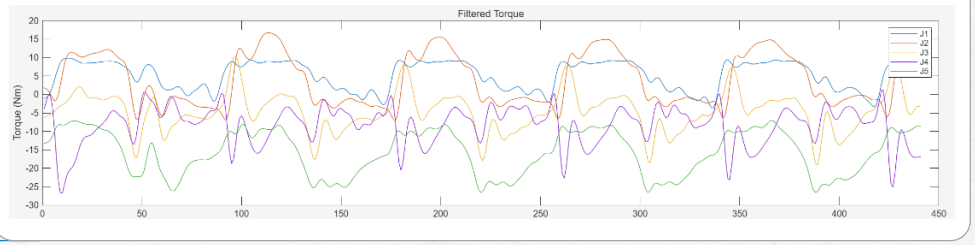




SDD actuator design optimized for dynamic gait profile

For robots, the ability to handle peak torque and impact at foot contact is crucial

Dynamic Locomotion Profile

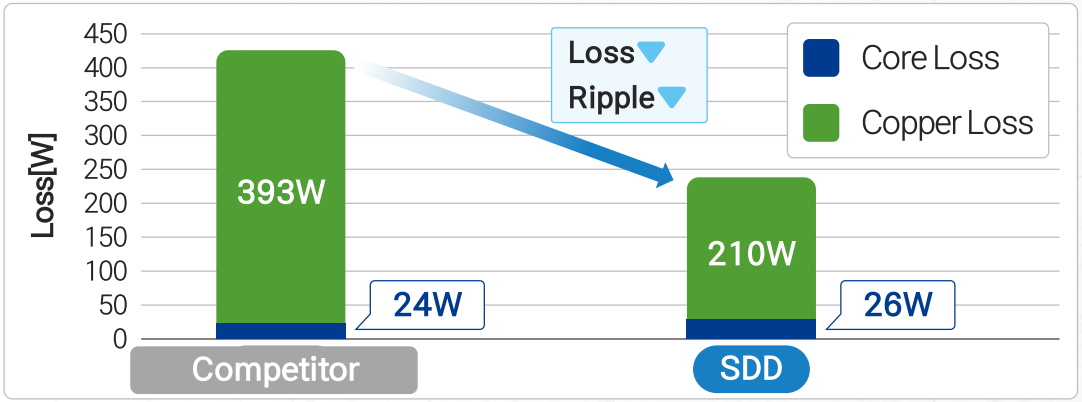


1 SDD Model Feature- (Motor)

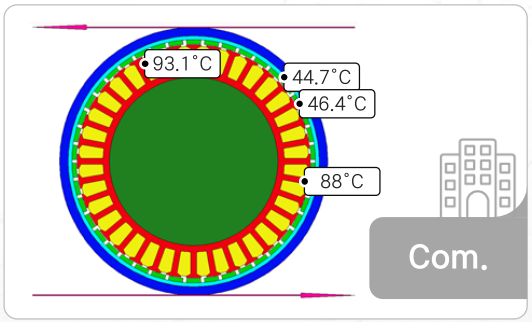
(주)에스피지

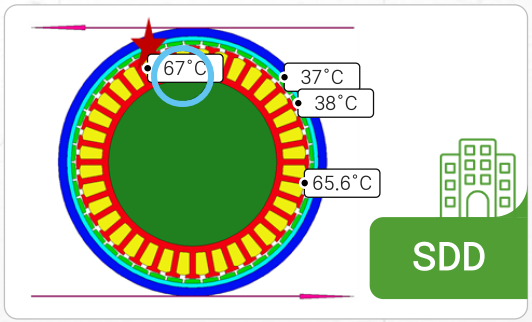
Comparison Under Maximum Load

	Competitor	SDD	
Cocking torque [Nm_{Pk-Pk}]	0.16	0.11	31.25 % ↓
Torque ripple[%]	4.4	1.5	2.9 % ↓
Eff. [%]	70.4	80.7	10.3 % ↑

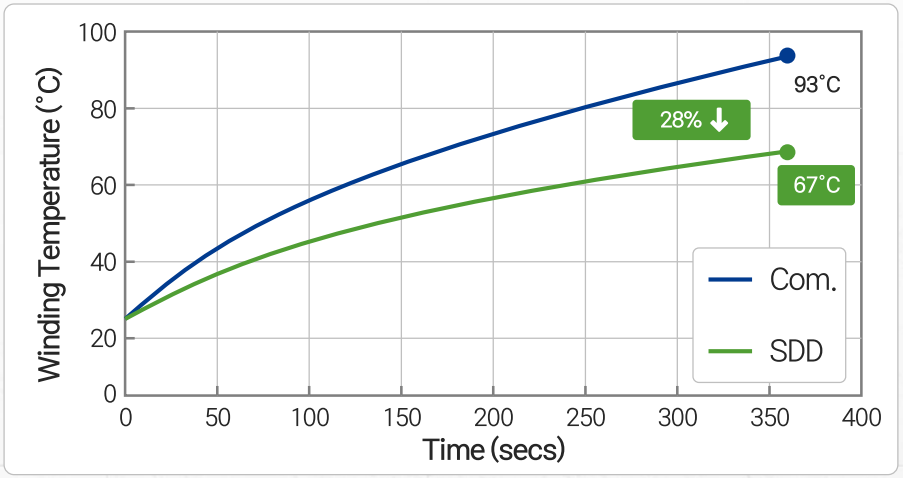


Simulation-Based Thermal Analysis Results

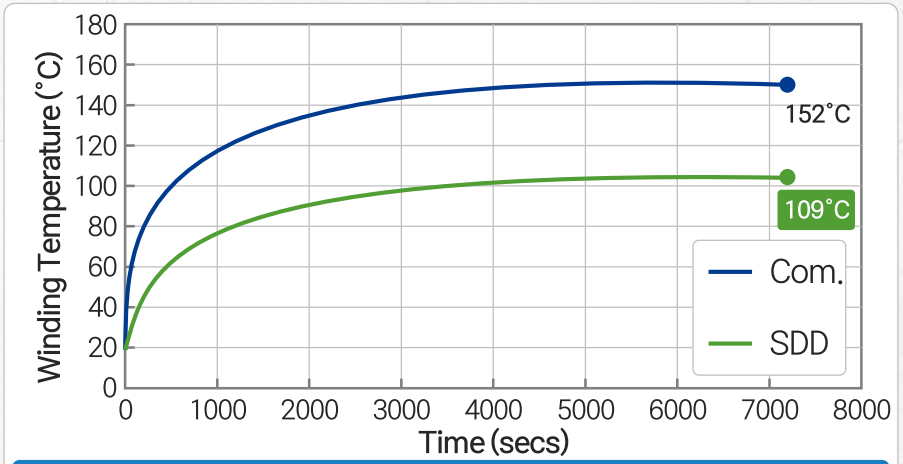




Actuator Thermal Performance Enhancement Results at Rated Load



Actuator Heat Profile Evaluation Without Thermal Damage Consideration

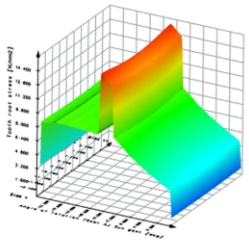


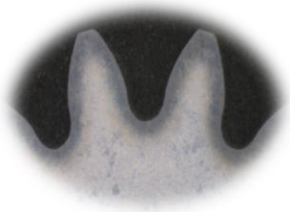
SDD can operate continuously without any issues

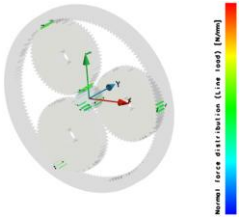
1 SDD Model Feature - Reducer

(주)에스피지

High-Strength Gear



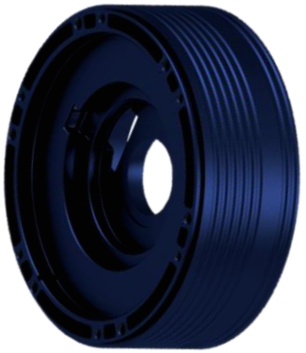


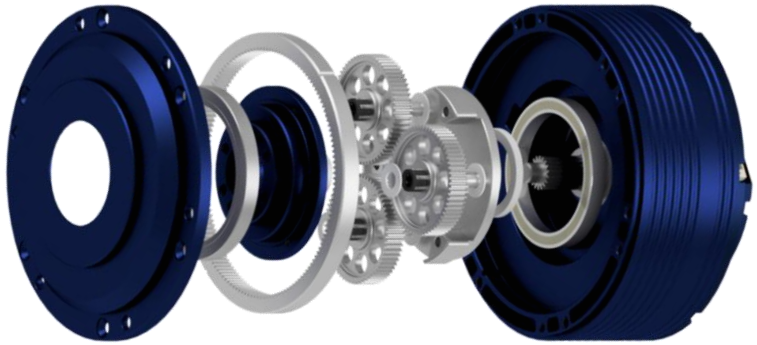


- 20% Increase in Safety Margin Compared to Competitors

Weight Reduction (Gear & Housing)

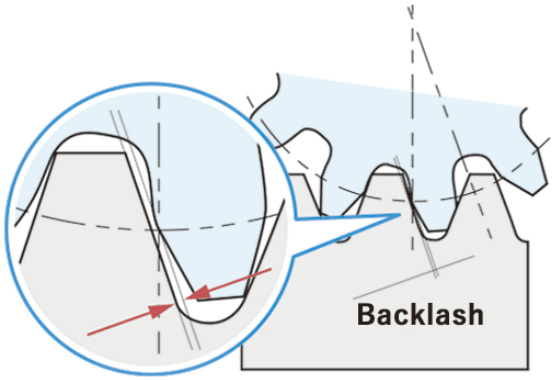






- 10% Reduction Compared to Competitors

High Precision / Low Noise

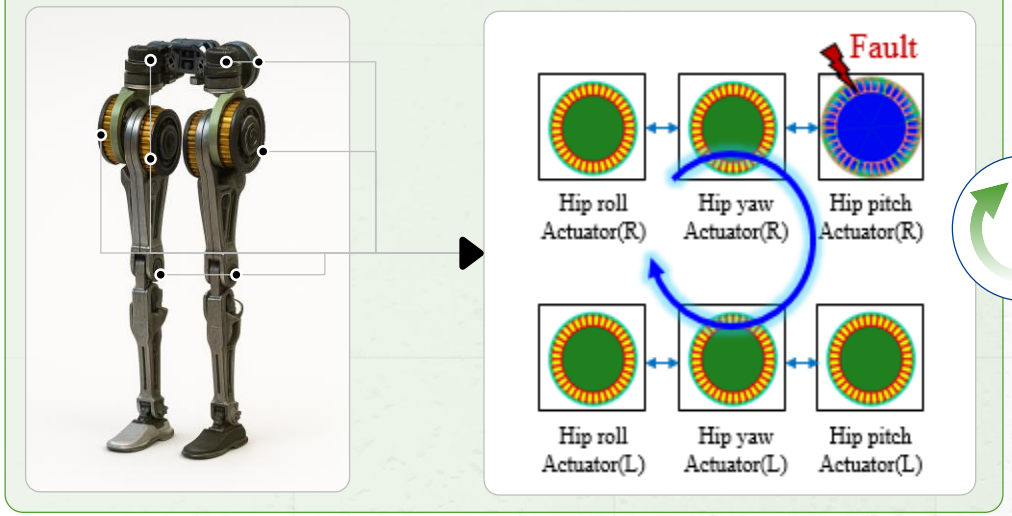


- Low Backlash
- (≤ 9arcmin)
- Precision Gear Machining

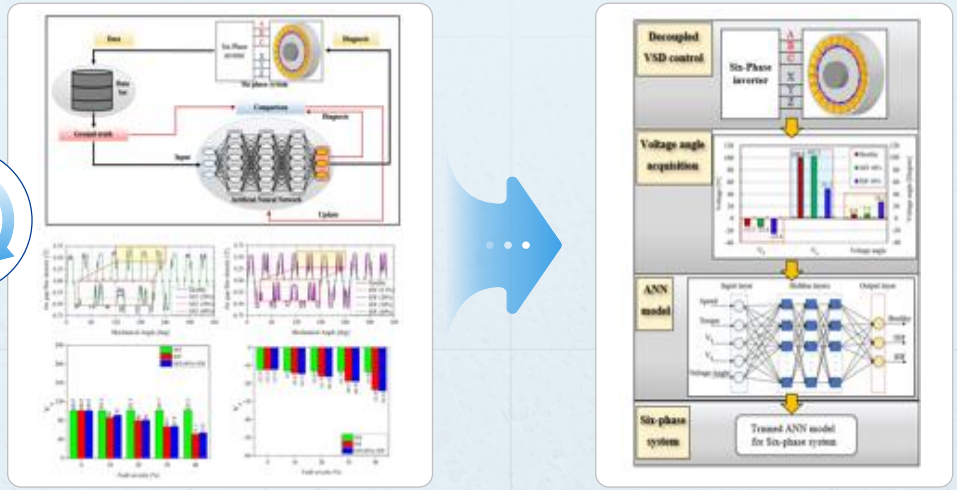
(주)에스피지

Integration of AI-Based Fault Diagnosis Function for Actuator to Ensure High Reliability

Integrated Actuator System



AI-based fault diagnosis



AI-Driven Modular Distributed Control Architecture

Actuator Embedded with AI-Powered Predictive and Corrective Algorithms

- Real-Time Module-Level Cooperation Enabled by High-Performance Networks (EtherCAT)
- Adjacent modules seamlessly execute proxy control in case of module malfunction

- RAINBOW ROBOTICS
- KIMM 한국기계연구원 KOREA INSTITUTE OF MACHINERY & MATERIALS
- Coca-Cola
- ROBOT
- Holiday Robotics
- KORAS ROBOTICS
- ROBROS
- blue robin
- LG Sciencepark

LG Sciencepark MOU (2025.11.18)



KIMM 한국기계연구원 KOREA INSTITUTE OF MACHINERY & MATERIALS MOU (2025.10.13)



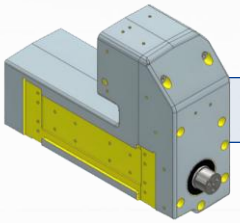
Targeting U.S. humanoid robotics market by participating exhibitions in 2026.

2 OHT Demonstration video



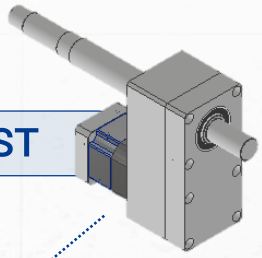
출처: YouTube(https://www.youtube.com/watch?v=TDI7TMpQRIU)

(주)에스피지



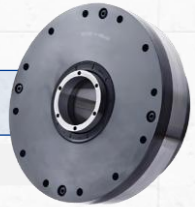
DRIVING

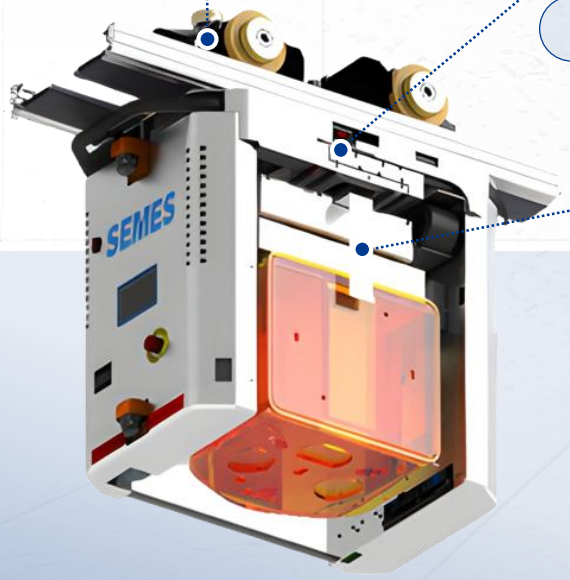
HOIST



OHT TRAY

FOUP
Rotating

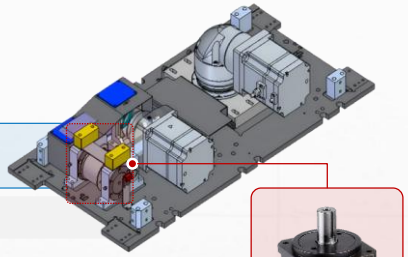




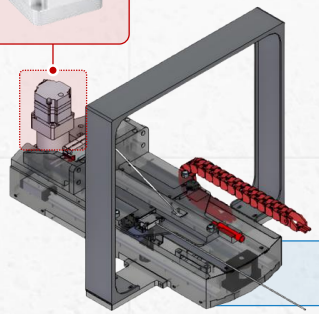
OHT

Crane

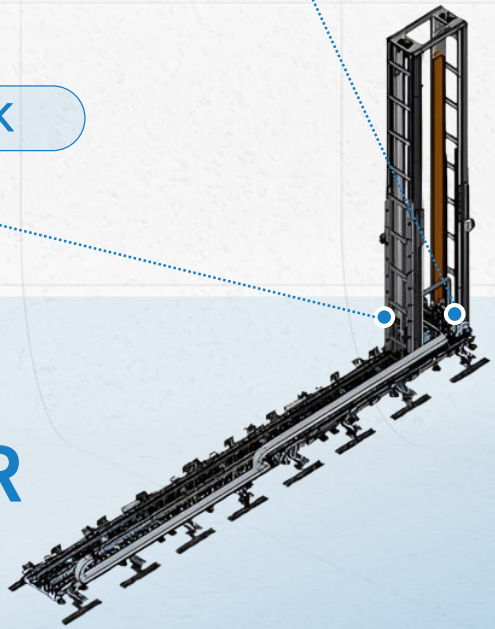
For
elevation







FORK



STOCKER

3 Defense Industry(2025 ADEX)



(주)에스피지

Planetary Gear / SR TYPE





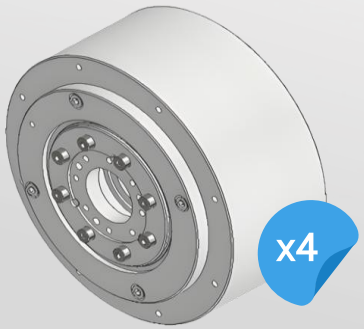


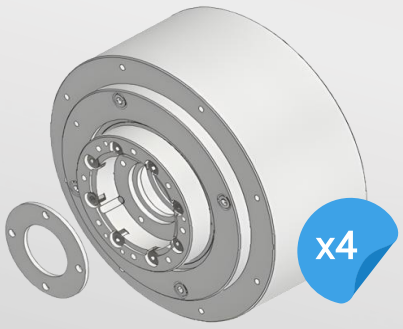
RCWS SH 3-Axes Applied

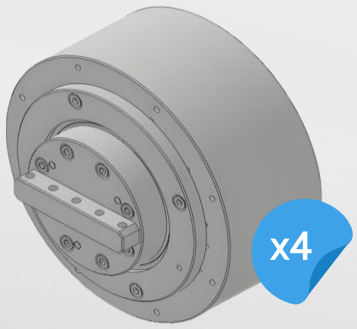


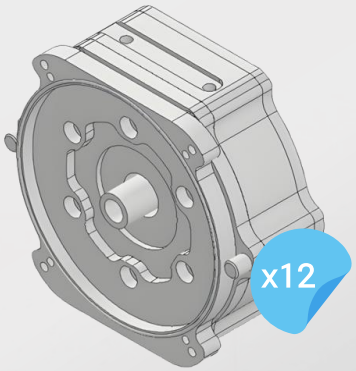
Precision Reducer for Automated Defense System

Estimated Turn over : 10 billion KRW at 2028











AIDIN ROBOTICS



Planetary Gear Reducer

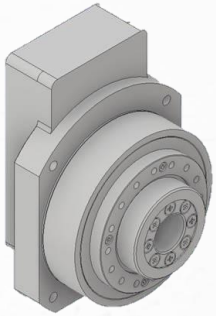


RAINBOW ROBOTICS

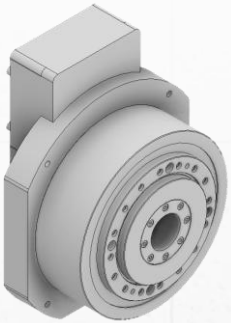
Quadruped Robot Reducer

(주)에스피지

[SH TYPE]



KSF-25-080-UH

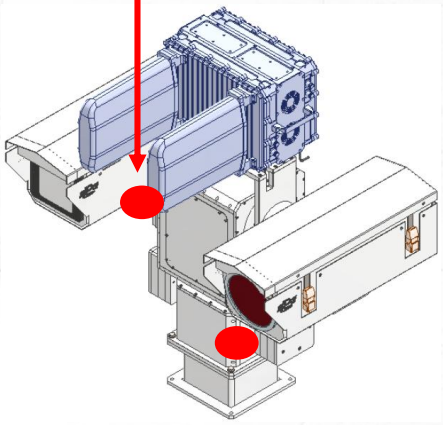


KSF-32-120-UH

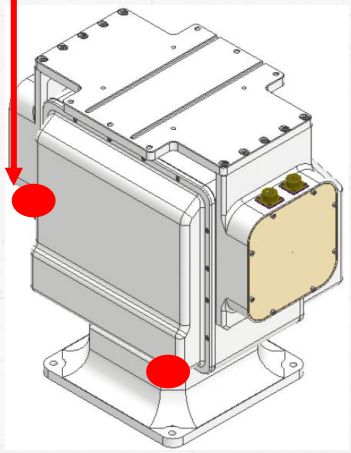
PAN
TILT



PAN
TILT



SNS-90000

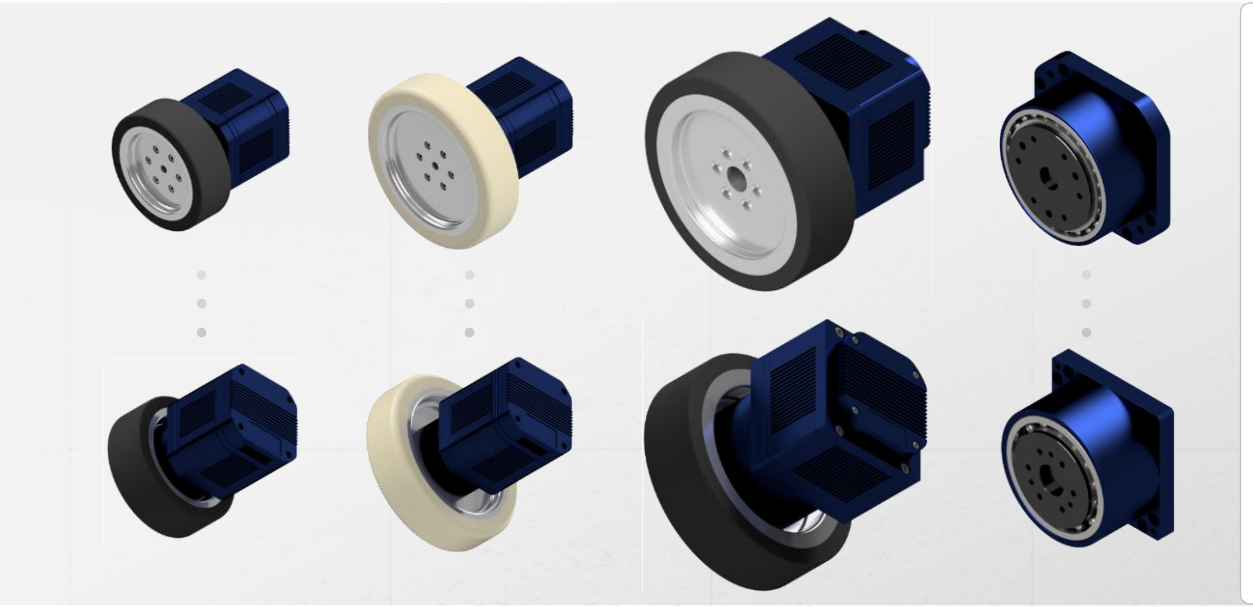


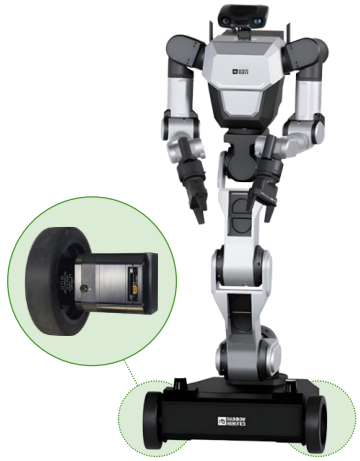
SNS-50000

SPG Positioning Camera

(주)에스피지

Wheel + Reducer + Motor + Controller Integrated Module





Robot



Mobile Robot

COMPACT/High torque,precision

- Low Backlash Precision Positioning & Motion Control (≤10 arcmin)
- High-efficiency design with planetary gear application, extended battery operating time
- Customizable output, gear ratios, and development of various wheels available
- Partners: Rainbow Robotics, Samsung Display, Yujin Robotics, LG CNS, Brills, T-Robotics

Medical

Smart Factory Needs

SPG

SPG Co., Ltd.



Up and down drive

AC Geared Motor

14,000EA

ICG-94470 TYPE

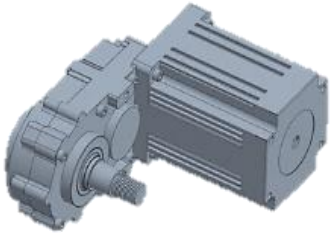


Up and down drive

DC Geared Motor

26,000EA

DGO-9028 TYPE



Bed wheel drive

BLDC Geared Motor

3,800EA

XPH10500F TYPE



Wheel auto lock

DC Geared Motor

13,000EA

DGO-5236 TYPE



Bed angle adjustment

AC Geared Motor

7,400EA

ICG-94440 TYPE



Medical bed

$3million annually

Smart Factory Needs

SPG

SPG Co., Ltd.



IV Pole Motor

DC Geared Motor

6,800EA

RS46BXLB TYPE



Vacuum Regulator Motor

DC Geared Motor

14,500EA

RS45AYLC TYPE



Inner Tank Drain Valve Motor

DC Geared Motor

5,800EA

RS44AYLF TYPE



Surgical waste

$2million annually

Auto Door

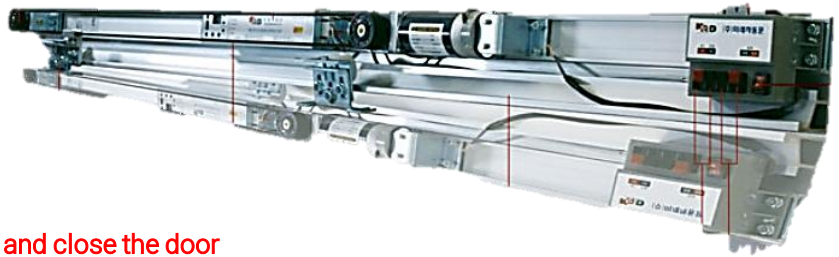
Smart Factory Needs

SPG

SPG Co., Ltd.

Sliding Auto Door

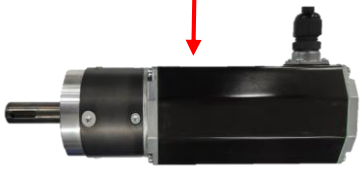




Open and close the door



DC Geared Motor
45,000EA
DGO-6024 TYPE



BLDC Geared Motor
Not In Mass Production
DGO-6324 TYPE

Screen Auto Door





BLDC Motor
6,000EA
DGO-6024 TYPE



BLDC Geared Motor
Not In Mass Production
DGO-6324 TYPE

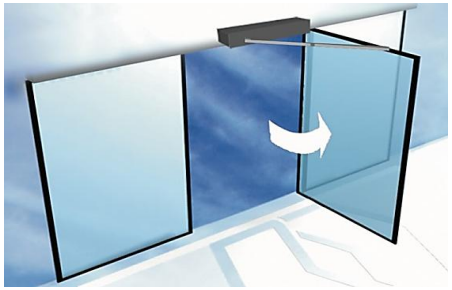
Auto door in the house

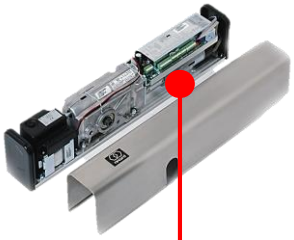




DC Geared Motor
5,500EA
DGO-4224 TYPE

Swing Auto Door







Open and close the door



DC Geared Motor
50,000EA
DGO-6348 TYPE

GEARED MOTOR LAYOUT FOR AUTO DOOR

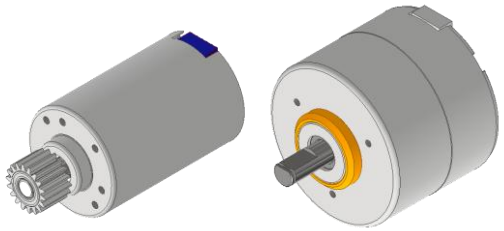
$2.8million annually

ATM Machine

Smart Factory Needs

SPG

SPG Co., Ltd.

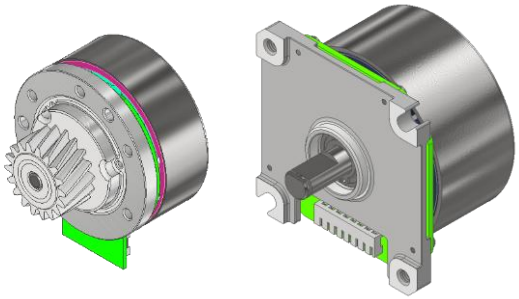


Drive

BLDC Motor

BL- TYPE

27,500EA



Drive

BLDC Motor

BLO- TYPE



ATM Machine

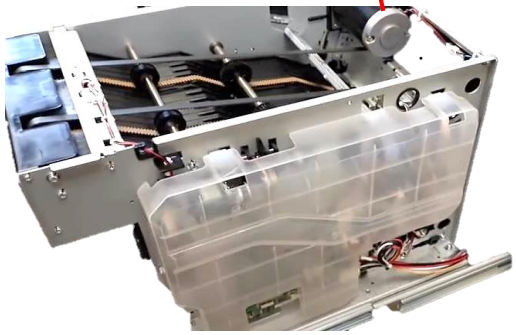
CDU

DC Motor

12,000EA

S6D70-24D TYPE





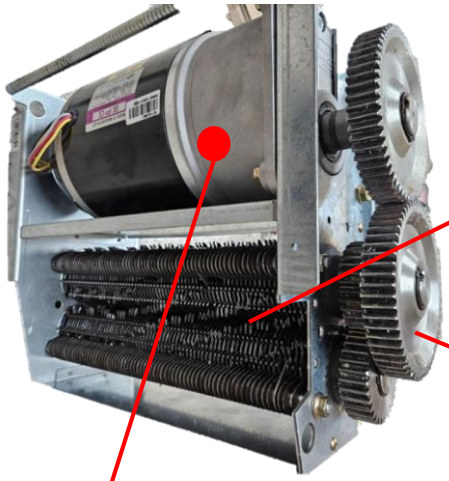
$2million annually

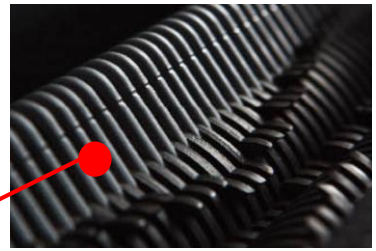
Shredder

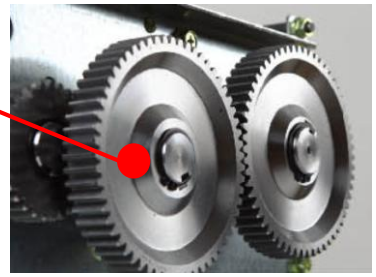
Smart Factory Needs

SPG

SPG Co., Ltd











Shredder Drive

AC GEARED MOTOR

14,000EA

PM(MEGA) TYPE

1Ph. 0.2 / 0.4 / 0.75 / 1.5kW

3Ph. 0.75 / 1.5 / 2.2 / 3.7 / 7.5 kW

$1.5million annually



Shredder for **Office / Industrial Use**

Valve

Smart Factory Needs

SPG

SPG Co., Ltd.





Valve opening and closing

DC Geared Motor
DGO-4005 TYPE
(Gear box short)

43,000EA

Valve opening and closing

DC Geared Motor
DGO-4005 TYPE
(Gear box long)



$1million annually

Water meter Valve

Smart Factory Needs

SPG

SPG Co., Ltd



Valve Opening & Closing

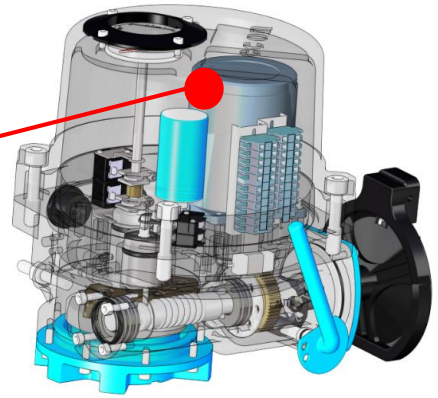
AC MOTOR

S6/S7/S8/S9/S10 TYPE

1Ph. 10W ~ 300W

3Ph. 15W ~ 400W

DC 6W ~ 40W



120,000EA



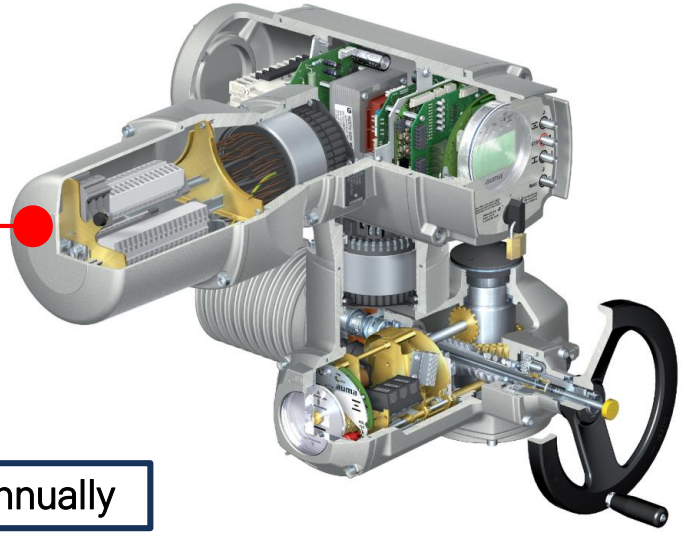
Valve Opening & Closing

AC MOTOR

P TYPE

1Ph. 0.2kW ~ 1.2kW

3Ph. 0.2kW ~ 5.5kW



$3million annually

ACTUATOR

Parking Gate

Smart Factory Needs

SPG

SPG Co., Ltd.



Bar opening and closing

BLDC Geared Motor

15,000EA

XFH9100-100K(A191)



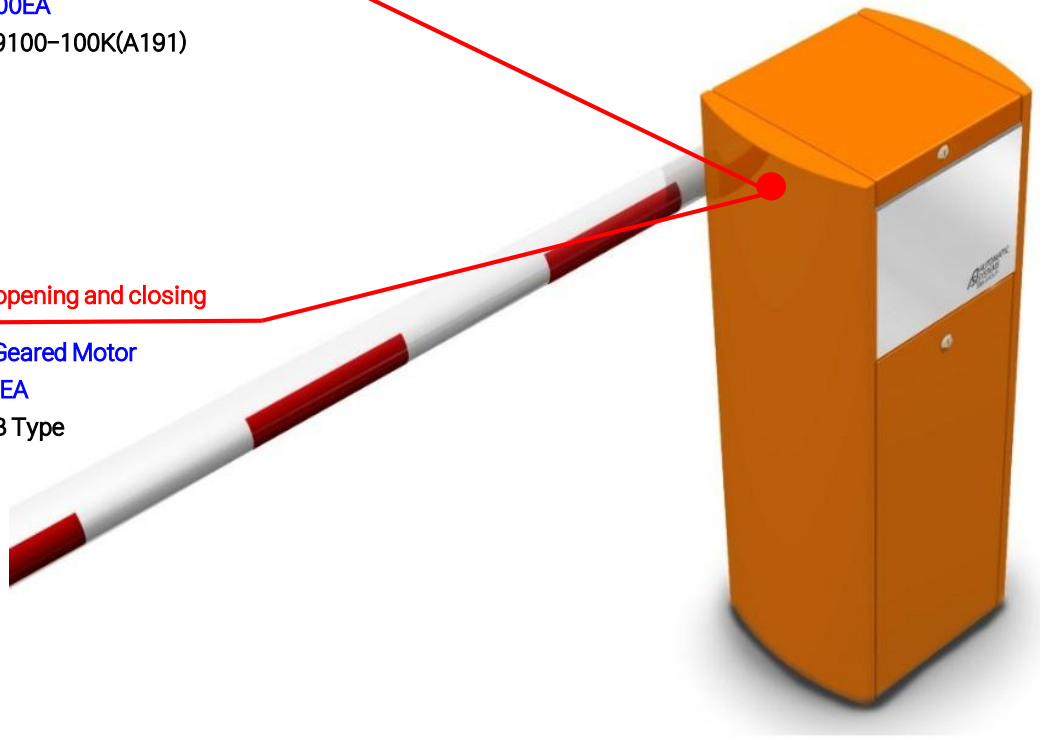


Bar opening and closing

AC Geared Motor

1,600EA

FA/FB Type



$800,000 annually

Parking Lot – Parking Gate

Pellet Heating System

Smart Factory Needs

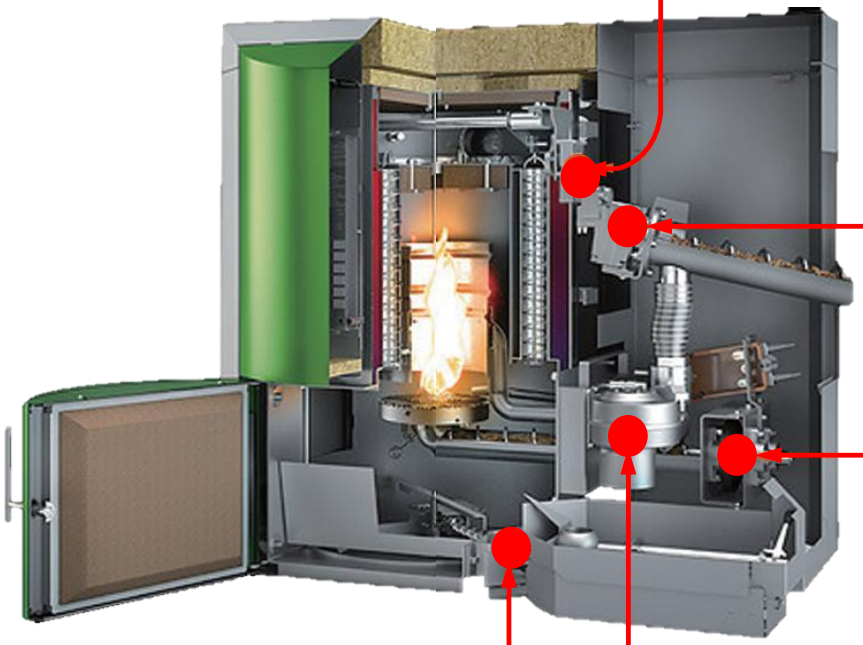
SPG

SPG Co., Ltd.



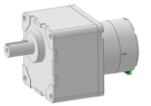
AC Geared Motor
ISG-3 TYPE

Ash Cleaner





AC Geared Motor
Standard TYPE



BLDC Geared Motor
NEW TYPE



AC Geared Motor
FA TYPE



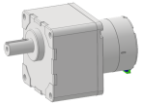
AC Geared Motor
FB TYPE

Pellet & Wood Chip Feeder

Pellet & Wood Chip Feeder



AC Geared Motor
Standard TYPE



BLDC Geared Motor
NEW TYPE



BLDC Geared Motor
ISG TYPE



AC Geared Motor
ISG TYPE

Ash Feeder

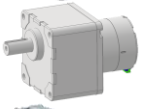
Blower & Exhaust Fan



AC / BLDC Radial Fan Motor



AC Geared Motor
Standard TYPE



BLDC Geared Motor
NEW TYPE



BLDC Geared Motor
ISG TYPE



AC Geared Motor
ISG TYPE

Pellet Heating System

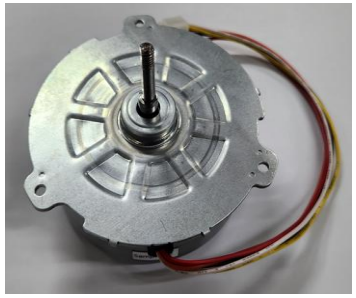
Gas Boiler

Smart Factory Needs

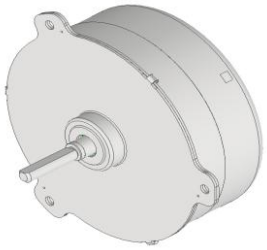
SPG

SPG Co., Ltd.

Gas Boiler



DL89806 Type

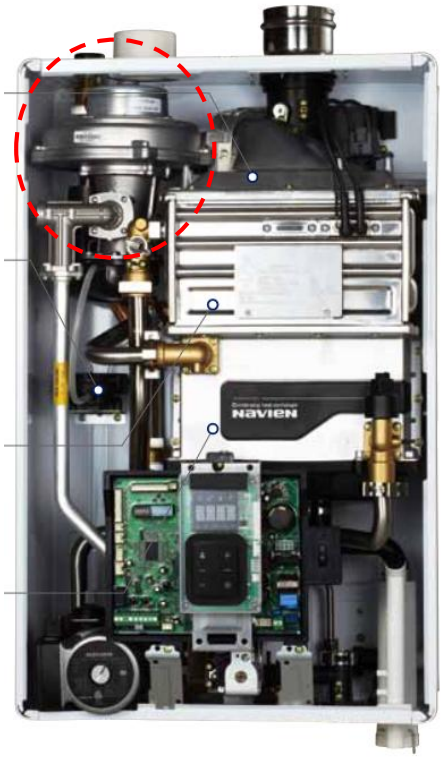


DL89812 Type

BLDC Motor



Blower





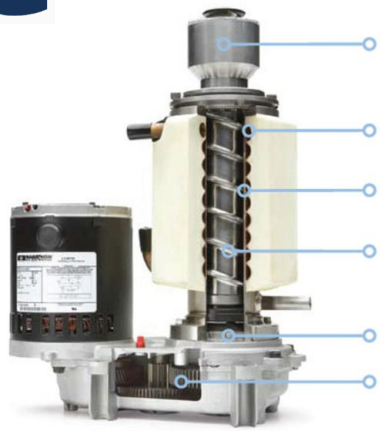
Condensing Gas Boiler

Food & Beverage

Smart Factory Needs

SPG

SPG Co., Ltd.



- Top bearing is located outside of the ice-making zone for corrosion resistance
- Single D-shaped copper coil for more efficient heat transfer and balanced load
- Rugged, heavy-duty stainless steel evaporator to ensure reliability and longer life
- Stainless steel one-piece construction dual-flight auger for unparalleled strength and performance
- Robust in-line direct drive train for improved efficiency and cooler running
- Heavy-duty gearbox for years of trouble-free service





Auger Ice Making

AC GEARED MOTOR

18,000EA

ICG TYPE

1Ph. 80W/200W





Ice Maker

$2.4million annually

Smart Factory Needs

SPG

SPG Co., Ltd.



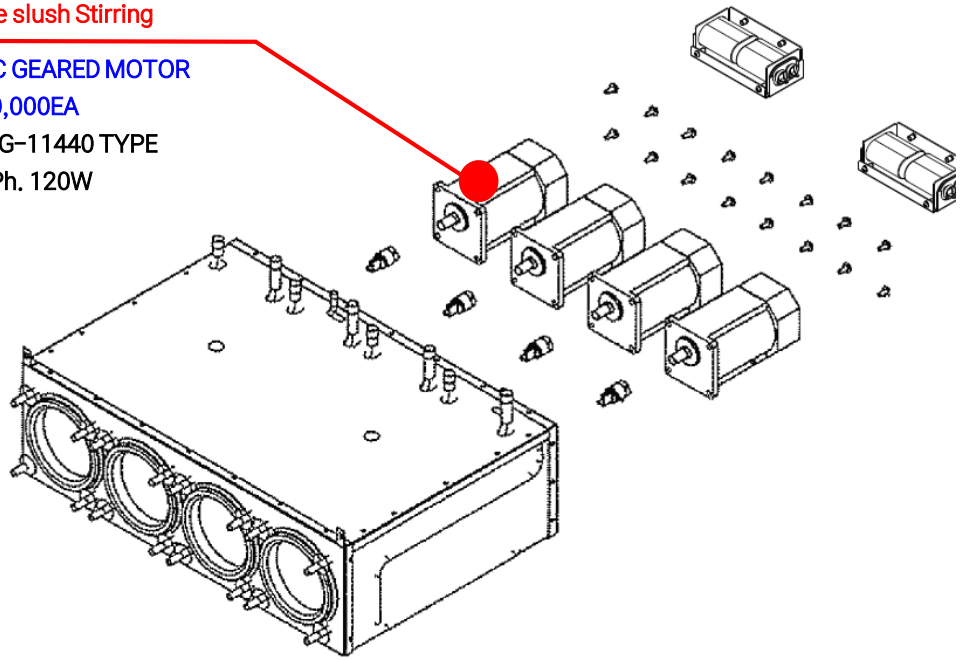
Ice slush Stirring

AC GEARED MOTOR

70,000EA

ICG-11440 TYPE

1Ph. 120W





Frozen Beverage Dispenser

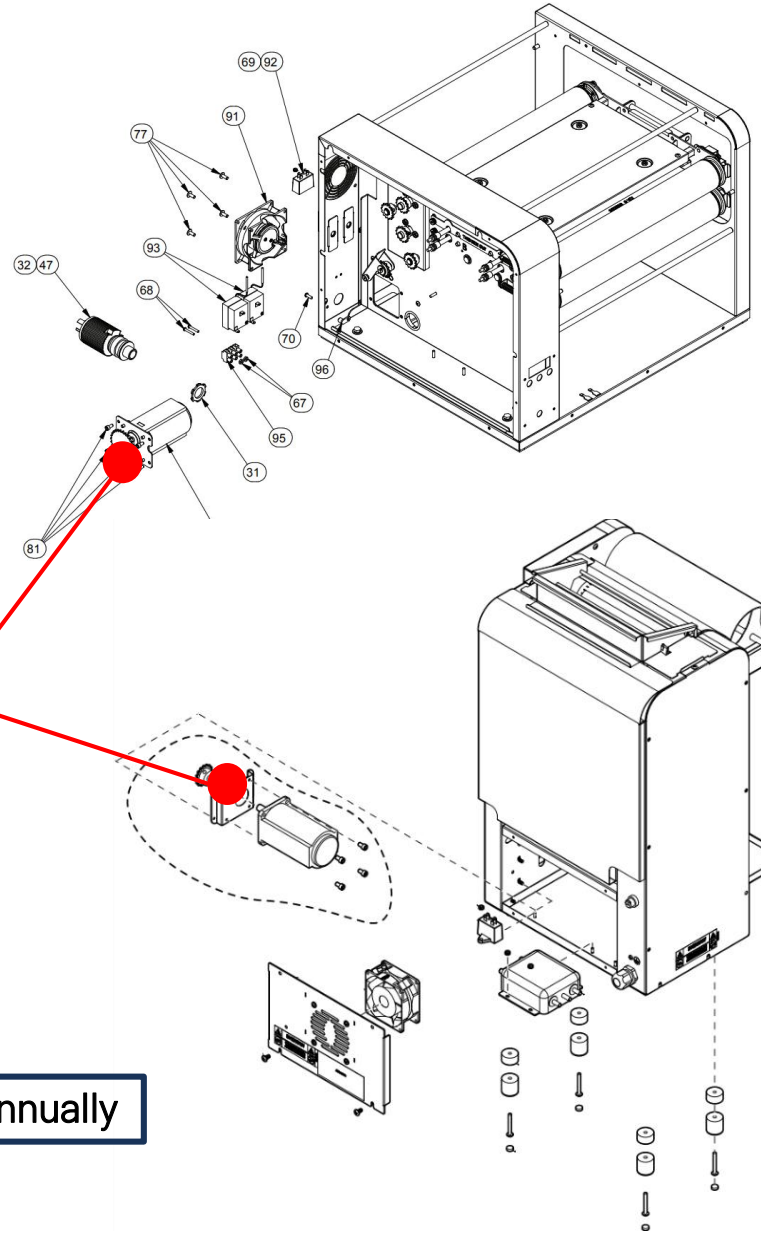
$4.6million annually

Smart Factory Needs

SPG

SPG Co., Ltd









Conveyor Drive

AC GEARED MOTOR

15,000EA

ICG-70425 TYPE

1Ph. 10W

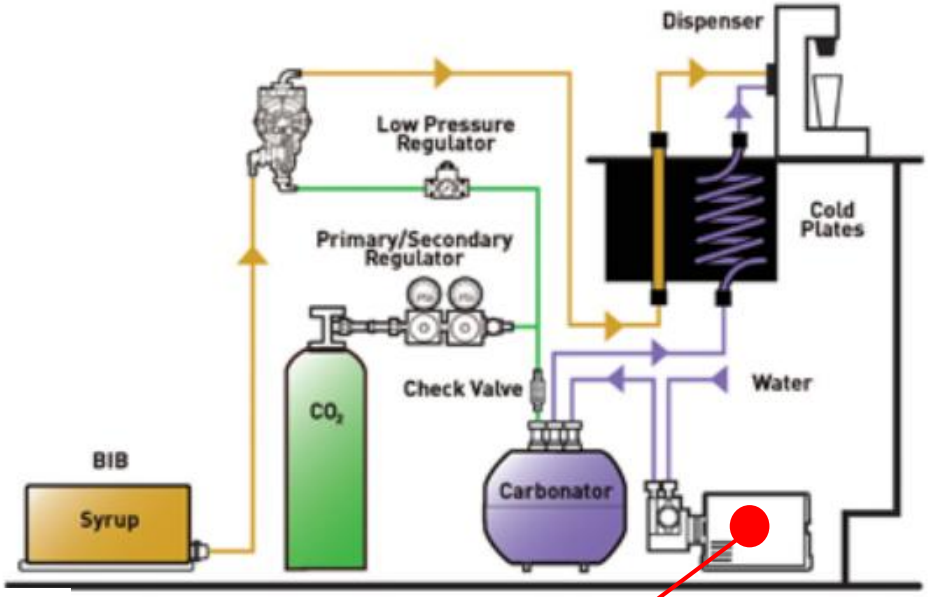
Toasters

$520,000 annually

Smart Factory Needs

SPG

SPG Co., Ltd.







Carbonator Pump Drive

AC MOTOR

20,000EA(1st Step), 2nd Step : 70,000EA, 3rd Step : 500,000EA

SP-1M TYPE

1Ph. 250W

Switch



Convert



* Mechanical Switch
Life Cycle : 100,000

* Electronic Switch
Life Cycle : 1,000,000

$40million annually

Beverage Dispenser

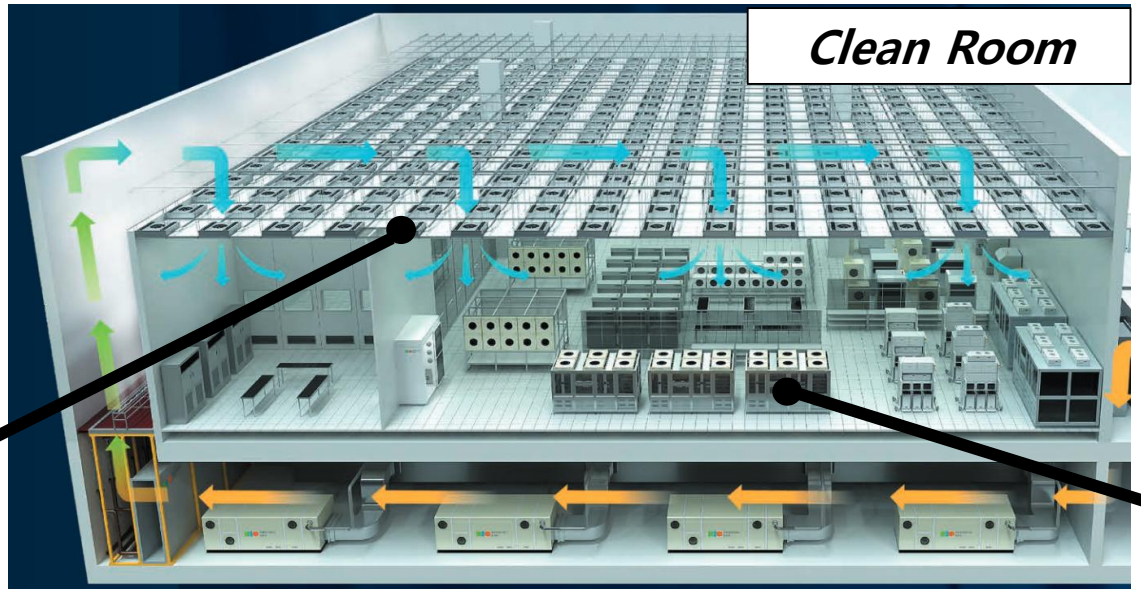
EFU & FFU

Smart Factory Needs

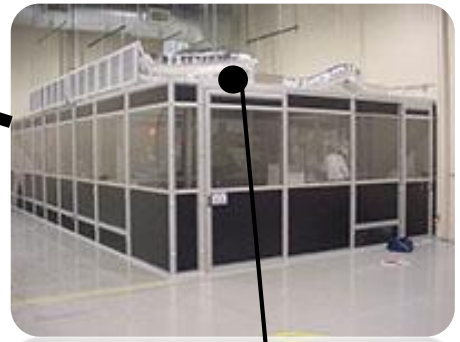
SPG

SPG Co., Ltd.

■ EC Blower MOTOR for EFU & FFU







BLDC Motor & Controller





FFU Fan Filter Unit



EFU Equipment Fan Filter Unit

Smart Factory Needs

SPG

SPG Co., Ltd.

■ EC Blower MOTOR for EFU & FFU

Motor
200W : 10,000EA
300W : 5,000EA
400W : 10,000EA
650W : 5,000EA

$1.2million annually



SM1200 Type

- DL-11070SS120
- ~1200W
- Controller external



SM650 Type

- DL-11040SS65
- ~650W
- Controller external / built-in



SM400/300/200Type

- DL-86055SS40/30/20
- ~200W/300W/400W
- Controller external
- Sensored / Sensorless



EC400 Type

- EC-86055SS40
- ~400W
- Controller built-in



Ø470*H45
SM200,SM300 Series



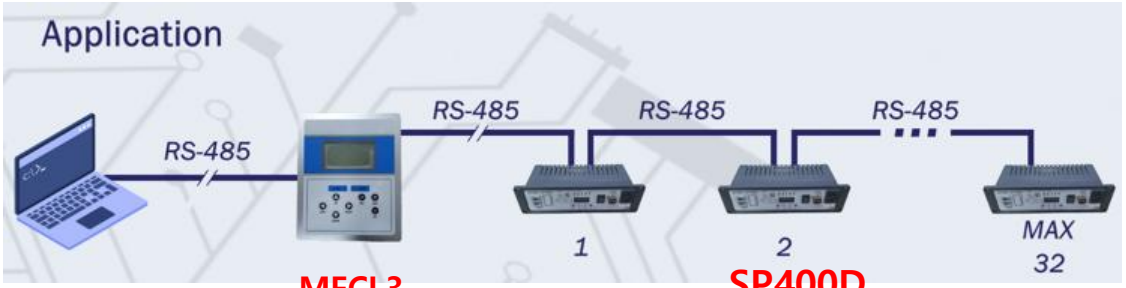
Ø470*H85mm
SM400 Series



Ø470*H110
SM650 Series



Ø530*H110
SMP650 Series



MFCL32

SP400D



Multi Fan Controller

- Control and Monitor up to 32 Drivers
- RS-485 communication for group & individual control
- 144mm*178mm*31mm



BLDC Motor Driver

- 1:1 installation with EFU/FFU
- 7,000EA, 350,000 dollars annually
- Remote/Local operation, Variable speed & Monitoring
- RS-485 communication for remote wired control
- 238mm*69mm*68mm

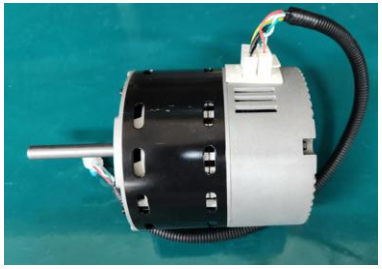
Air Handler Unit

Smart Factory Needs

SPG

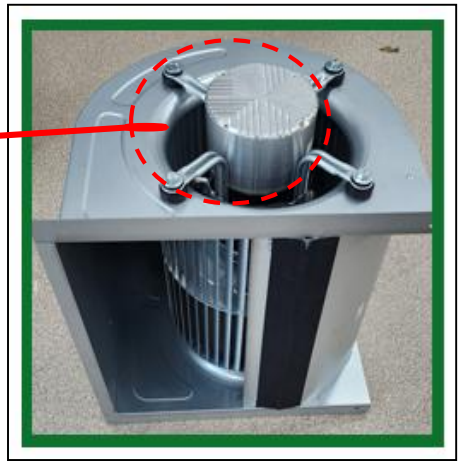
SPG Co., Ltd.

Air-Handler Unit



EC13825 Type
EC13850 Type







BLDC Motor

Blower

Air-Handler Unit

Conveyor

Smart Factory Needs

SPG

SPG Co., Ltd.



Conveyor drive



AC Geared Motor
100,000EA
Standard TYPE









AC Geared Motor
15,000EA
Industrial TYPE



Conveyor drive

DC Geared Motor
42,000EA
DGO-90180 TYPE



Conveyor Drive & Control

BLDC Geared Motor
Built-in controller



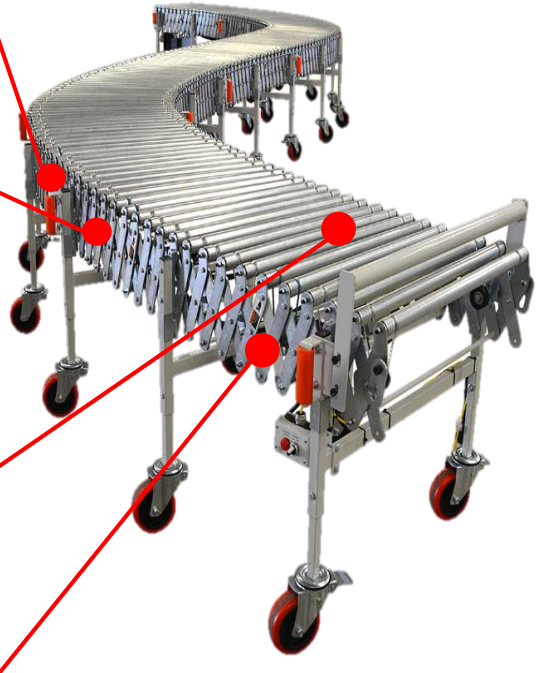
Conveyor Drive & Control

BLDC Geared Motor
Roller & Controller



Conveyor Drive

DD Motor



80,000EA for FMH, $6.5million annually ➡ $9million annually (Add BLDC Motor)

Conveyor

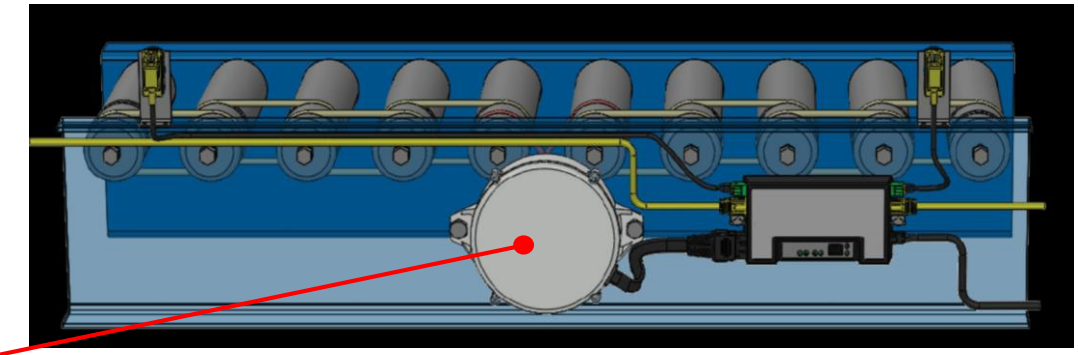
Smart Factory Needs

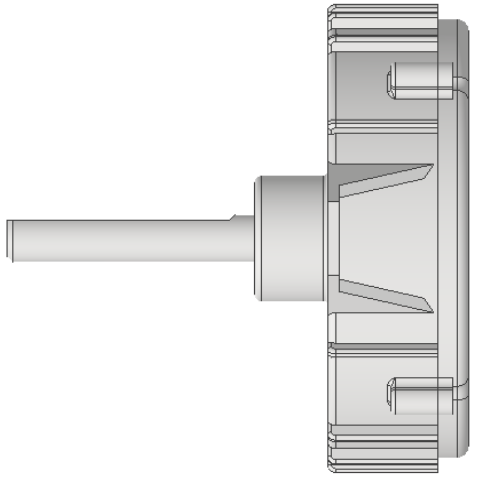
SPG

SPG Co., Ltd.

New Development – DD Motor







Item	2024	2025				2026
	4Q	1Q	2Q	3Q	4Q	1Q
Motor Design						
Driver Development						
Tooling						
Sample Verification						
Mass Production						

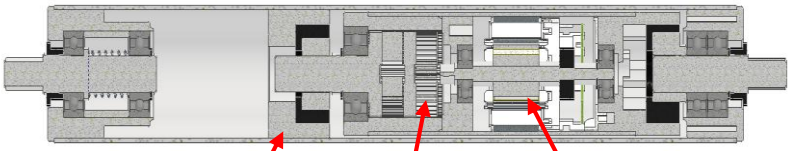
	Unidrive	SPG
Product Name	UD100	TBD
Diameter	118.1Φ	118.1Φ
Stack Length	36.6Φ	36.6Φ
Rated Voltage	24V	24V

Smart Factory Needs

SPG

SPG Co., Ltd.

New Development - Power Roller Motor



Drive Wheel

Planetary Gear Box

Motor



AMR

BLDC Geared Motor

Roller & Controller

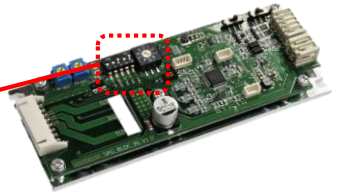


Item	2024		2025		
	3Q	4Q	1Q	2Q	3Q~
Motor Design & Driver Development					
Tooling					
Sample Verification					
Mass Production					

Item	Itoh Denki	SPG
Product Name	PM500FE	TBD
Roller Diameter	50Φ	50Φ
Roller Length	590mm	590mm
Rated Voltage	24V	24V
Gear Ratio	1:12.64	1:63
Speed Range	62~395RPM	62~395RPM

No.	Function	ON	OFF
SW1-1	Thermister/Under Voltage Reset	Manual	Automatic
SW1-2	Speed Variation	External	Internal
SW1-3	Turning Direction	CW	CCW
SW1-4	Error Signal	Discharges in normal status	Discharges when error arises
SW1-5	Speed Range	High Range	Low Range





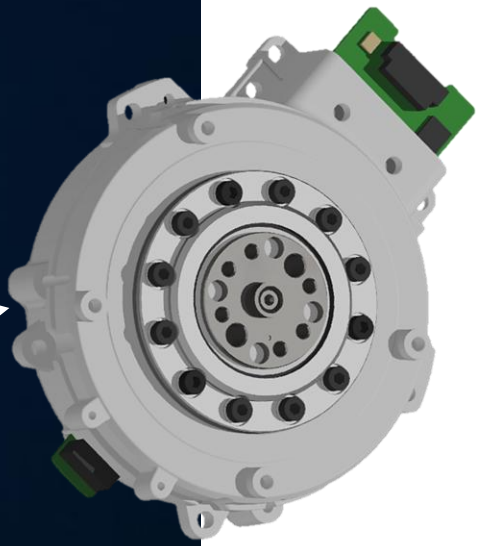
Wearable Robot

Smart Factory Needs

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SPG Co., Ltd.









Wearable robots

BLDC GEARED MOTOR LAYOUT

Humanoid Robot

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REDUCER





x6

6 Shoulder Roll

6 Shoulder Pitch

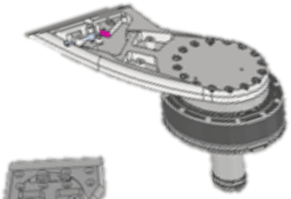
6 Shoulder Yaw



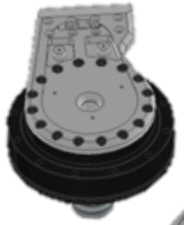
x2

5 Hip Yaw

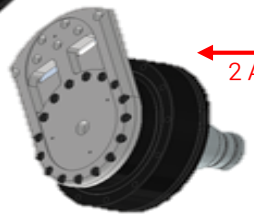
5 Hip Roll



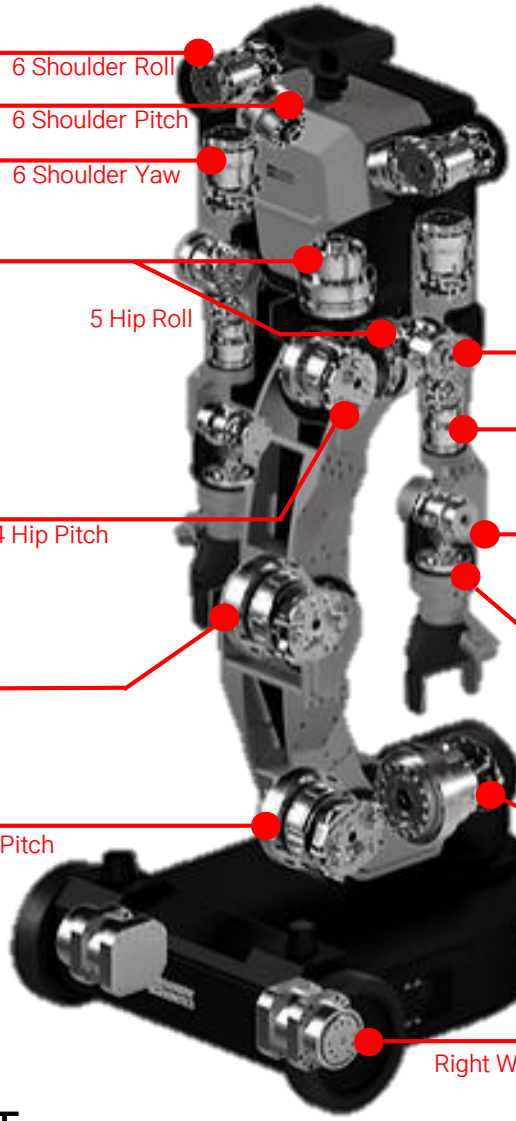
4 Hip Pitch

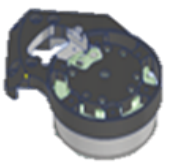


3 Knee

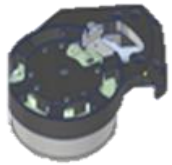


2 Ankle Pitch





8 Left Elbow



7 Right Elbow

9 Wrist Yaw1

x2



Product under
development

10 Wrist Yaw2

x2



11 Wrist Pitch

x2



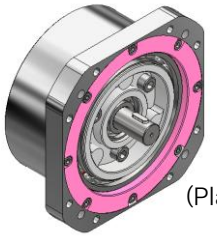
Product under
development

1 Ankle Roll



Right Wheel / Left Wheel

x2



AMR
(Planertary Gear Reducer)

RB-Y1 PRECISION REDUCER LAYOUT

Co-bot

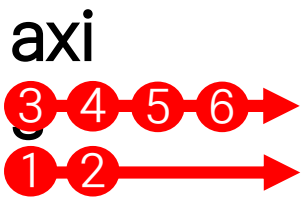
RB1

RB3

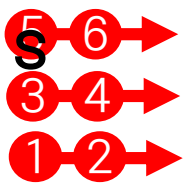
RB5

RB10

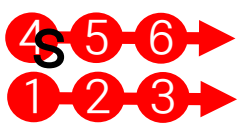
RB20

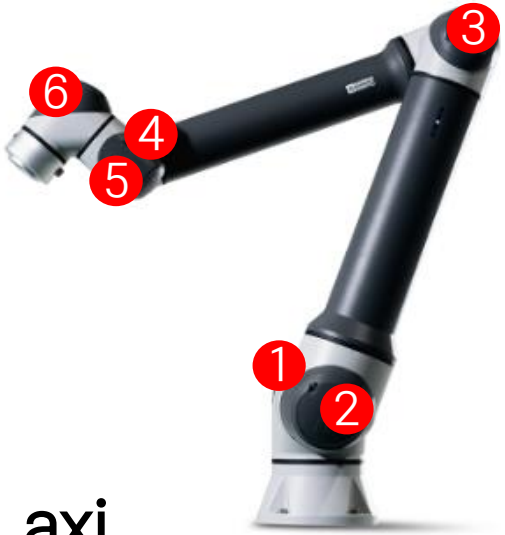


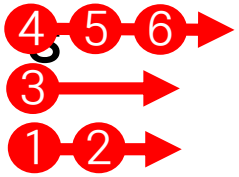


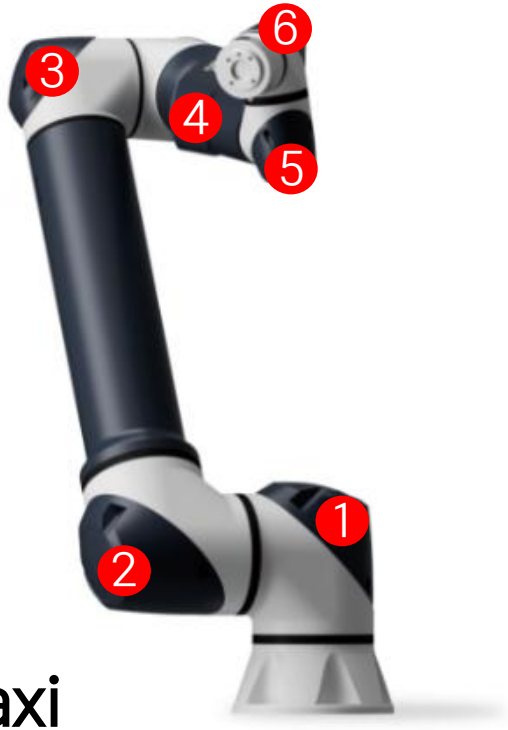


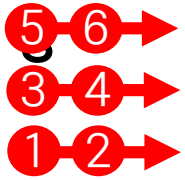












Cobot PRECISION REDUCER LAYOUT

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REDUCER

LINKOBOT

SR PRECISION REDUCER LAYOUT

YMX-5200

대형 - I

가반하중(Payload) : 50kg
최대리치(Max. Reach) : 2,248mm

주요용도 Main uses	스팟용접 Spot welding	아크용접 Arc welding	핸들링 Handling	조립 Assembly	검사 Inspection
	●		●	●	●

설치방법 Installation method	고정 Fixing		
	바닥고정 on the floor	천정고정 on the ceiling	벽면고정 on the wall
	●		

제품명 Model name	YMX-5200
본체 무게 weight	610 kg
가반 하중 Payload	50 kg
자유도 Degrees of freedom	6 Axis
최대 Reach Max. Reach	2,248 mm
구동방식 Driving	AC SERVO Motor
정격용량 Rated capacity	26.7 kw

