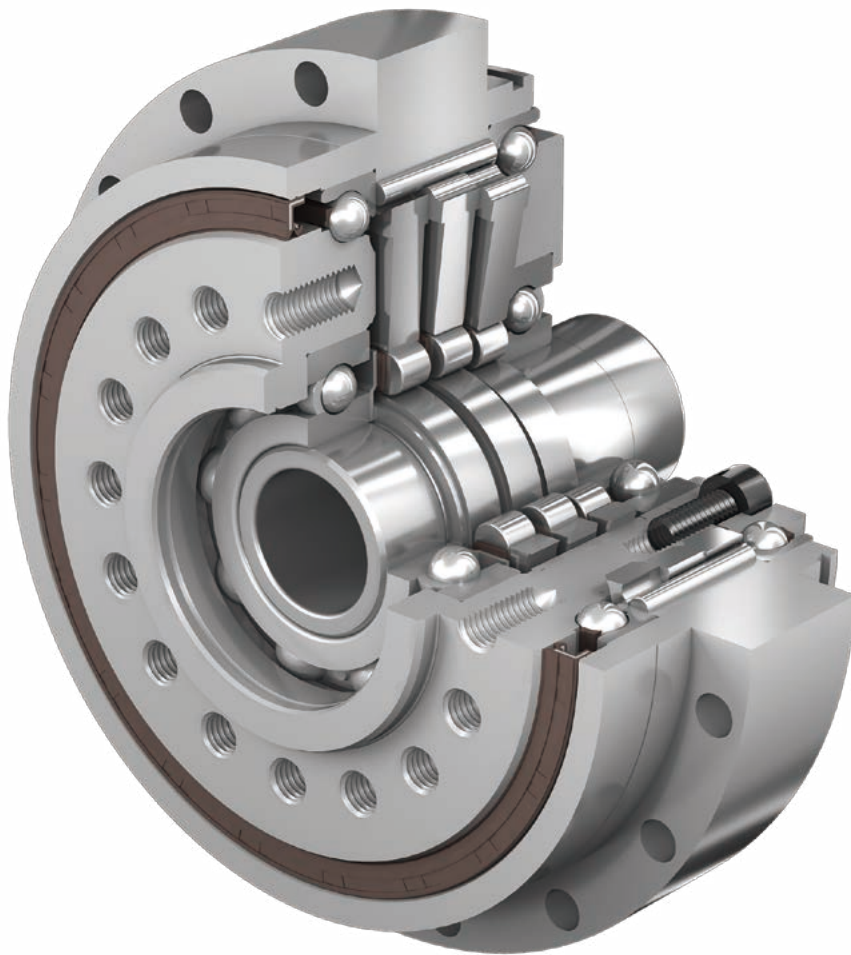


# Motion Control Drives

## Sumitomo Gear Reducers for Servo Motors

# Product Guide



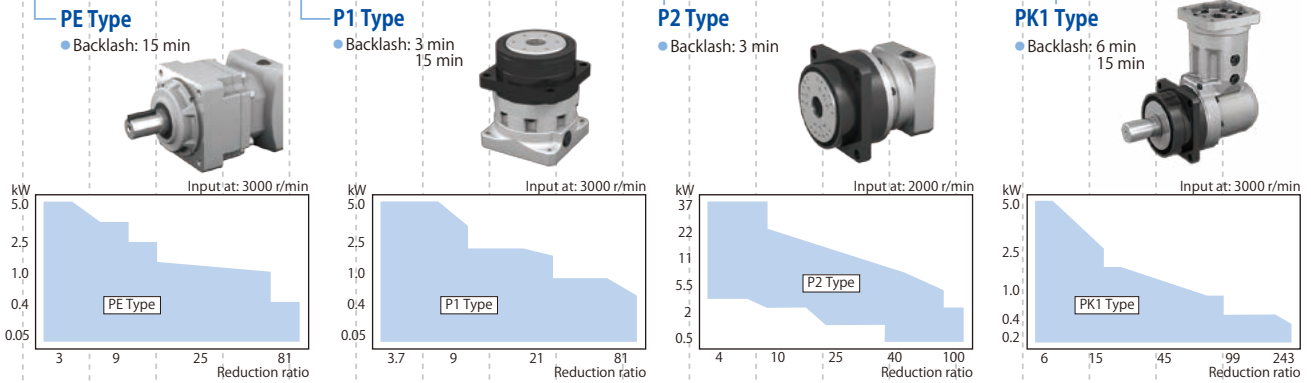
# Product Lineup

## Motion Control Drives (MCD)

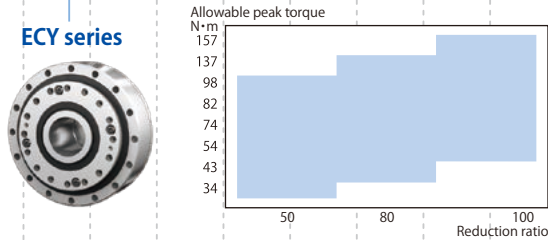
7.2N·m 29.7N·m 35N·m 44N·m 157N·m 270N·m 336N·m 380N·m 540N·m 613N·m 625N·m 630N·m 650N·m 1370N·m 3000N·m 4000N·m 6278N·m 7613N·m 12500N·m

(Allowable peak torque)

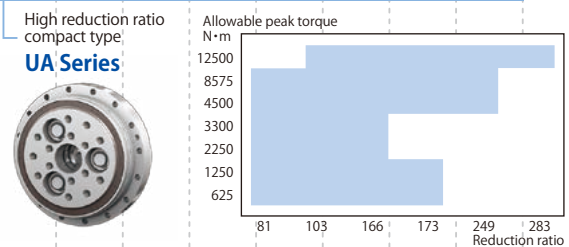
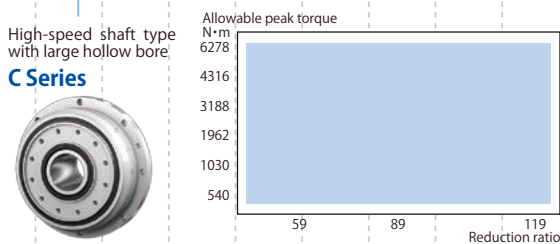
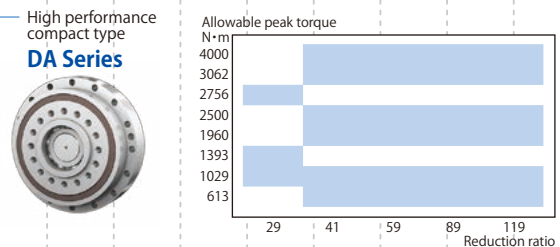
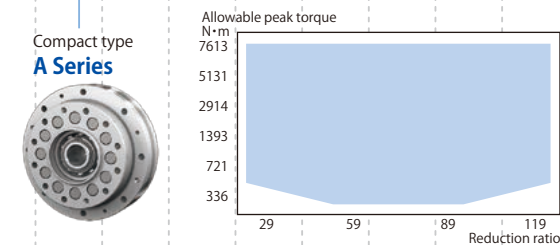
- IB Series** Planetary gear reducer for servo motors. Designed for low backlash with optimum positioning. Compatible with major servo motors produced by servo motor manufacturers.



- E CYCLO® High Precision Gearboxes** The zero backlash compact precision control gear reducer that integrates the strain wave gear system with the Cyclo Drive gear.



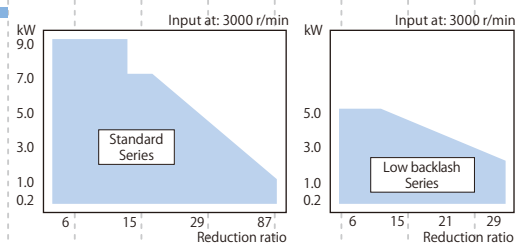
- FINE CYCLO® High Precision Gearboxes** Characterized in zero backlash, compact size, low vibration, high rigidity, high efficiency, and long life.



- CYCLO® Drive for servo motors** CYCLO® Drive with a flange for servo motors.

- Standard Series**
- Low Backlash Series**

- Backlash: 6 min

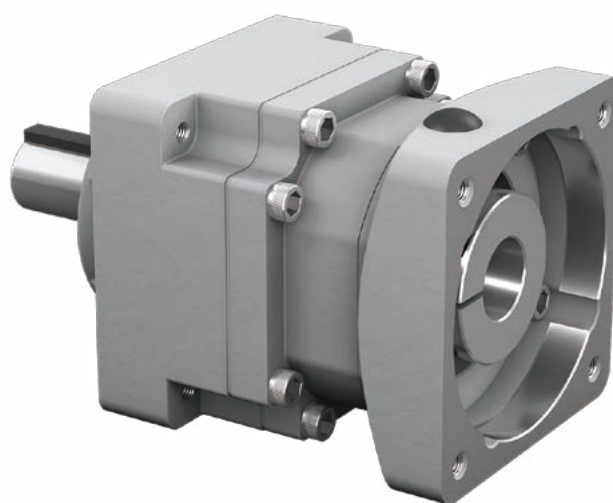
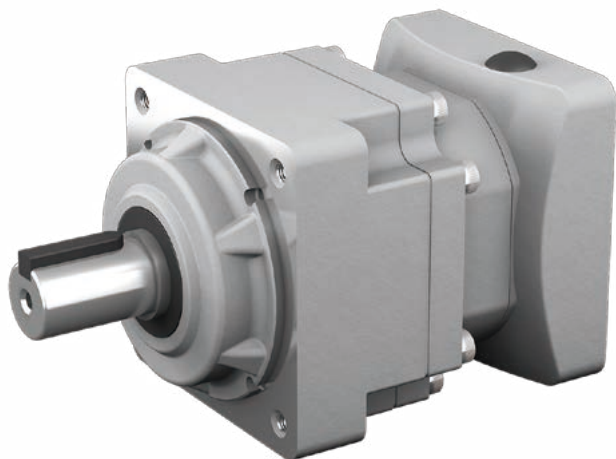


7.2N·m 29.7N·m 35N·m 44N·m 157N·m 270N·m 336N·m 380N·m 540N·m 613N·m 625N·m 630N·m 650N·m 1370N·m 3000N·m 4000N·m 6278N·m 7613N·m 12500N·m

(Allowable peak torque)

# Planetary Gear Reducers for Servo Motors IB Series PE Type

Planetary gear reducers for servo motors with excellent cost performance.



Low price, short delivery

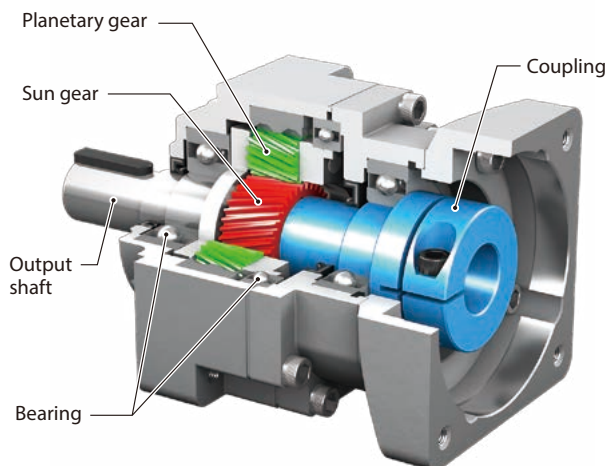
PE Type

## Economical type

Economical type with excellent cost performance (compared with our conventional products).

## Expansion of reduction ratio range.

Reduction ratio 3 is added (compared with our conventional products).



## Short delivery

Shipped in 3 days after receiving order at the shortest, meeting customer's request for short delivery.

## High speed input

Input speed of 6000 r/min is available.

## Compatible with various servo motors

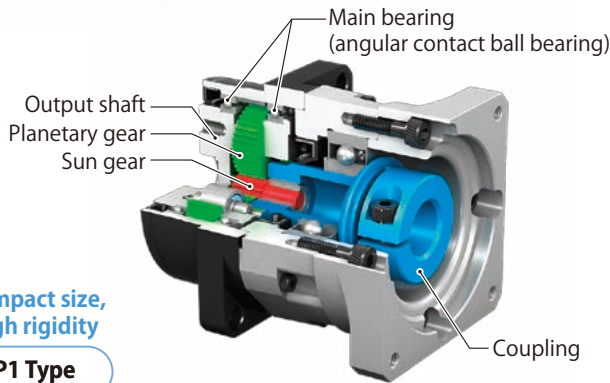
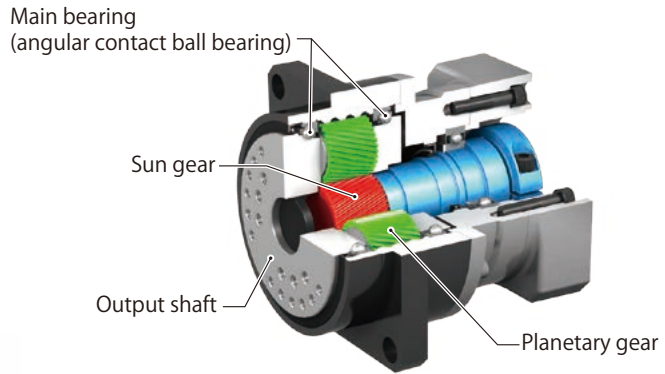
Motor adapter can accommodate the major motors produced by servo motor manufacturers.

- ◆ Backlash: 15 min
- ◆ Allowable peak torque: 7.2 to 270N·m
- ◆ Motor capacity: 50W to 5.0kW
- ◆ Reduction ratio: 3 to 81

# Planetary Gear Reducers for Servo Motors **IB Series**

## P1 Type, P2 Type, PK1 Type

Compact / high rigidity / low backlash

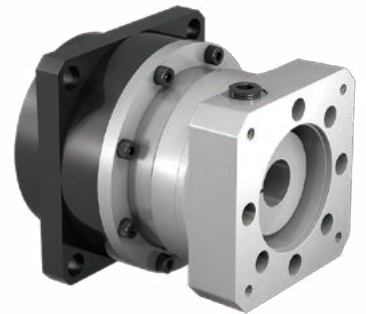


Compact size,  
high rigidity

**P1 Type**

Large capacity  
helical gear

**P2 Type**



### Industry-leading compact size

Compact size and high rigidity due to case with internal gear. The right angle shaft PK1 type uses a spiral bevel gear on the input side, and it shortens dimension in the output shaft direction.

### Compatible

Motor adapters are compatible

### High accuracy and high rigidity

As high precision angular contract baring with large diameter is adopted for supporting the output shaft, these products can support large radial load with compact casing.

### Simple

After direct coupling the servo shaft is fixed by tightening the immediately.

### Selectable shaft type

P1 and P2 types of concentric shaft and PK1 type of right angle shaft are available. Both types accommodate the solid shaft (keyless and with key) and flange shaft.



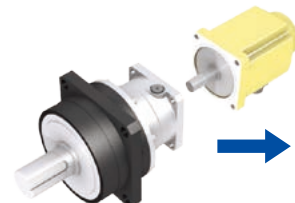
Solid shaft  
(keyless)



Solid shaft  
(With key)

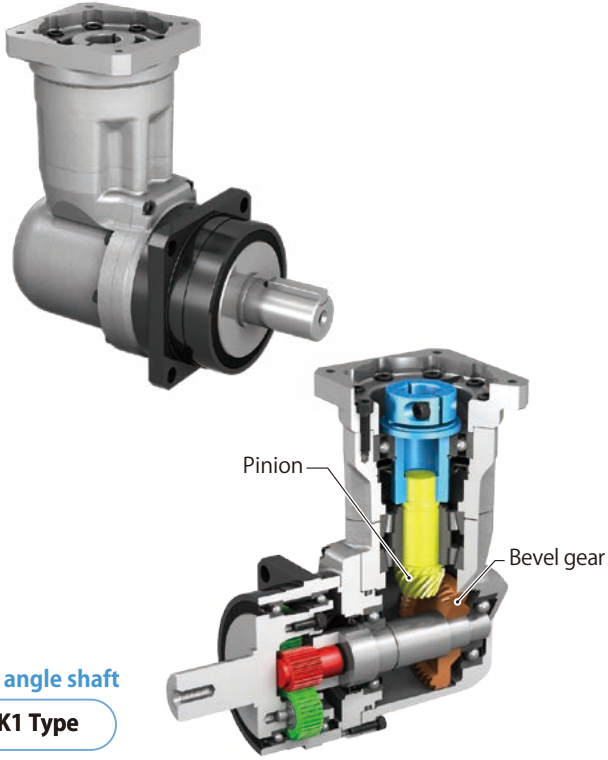


Flange shaft



- ◆ Backlash
- ◆ Allowable peak torque
- ◆ Motor capacity
- ◆ Reduction ratio

with optimum positioning



with various servo motors

with major motors produced by servo motor manufacturers.

motor mounting

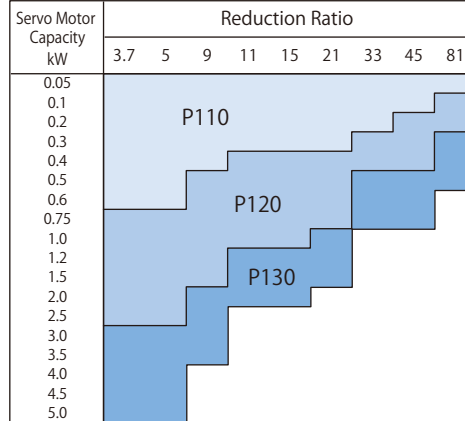
motor and reducer with a bolt (prepared by customer), the input built-in clamp bolt with a torque wrench, so it can be used



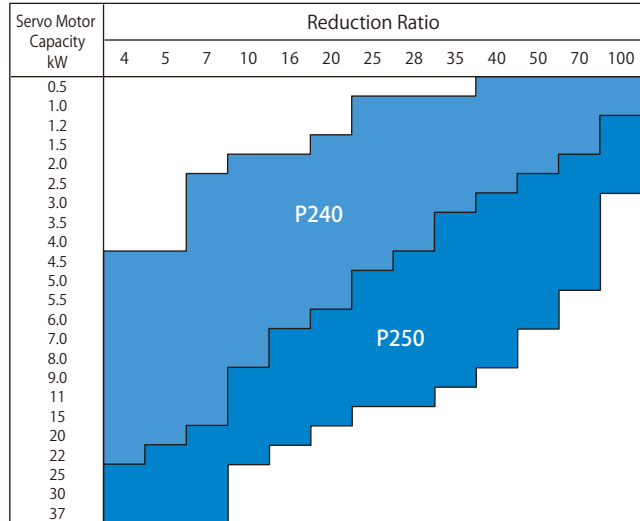
P1 Type	P2 Type	PK1 Type
3 min/15 min	3 min	6 min/15 min
35 to 380 N·m	650 to 3000 N·m	35 to 380 N·m
50 W to 5.0 kW	0.5 to 37 kW	0.2 to 5.0 kW
3.7 to 81	4 to 100	6 to 243

■ Production range

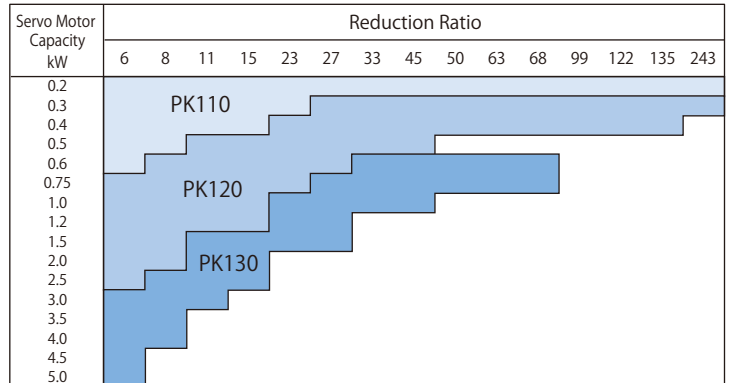
● P1 Type At motor rated speed of 3000 r/min



● P2 Type At motor rated speed of 2000 r/min



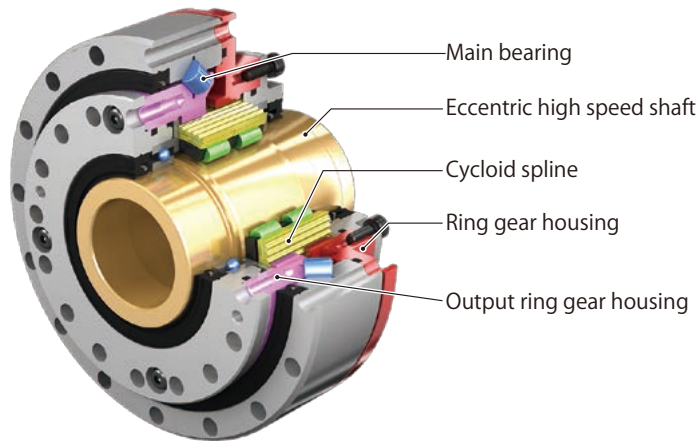
● PK1 Type At motor rated speed of 3000 r/min



The range of applicable motor capacity differs depending on the motor rated speed. When selecting the product, check the catalog for peak torque at startup and stoppage, rated torque, and no load running torque as well as applicable motor capacity.

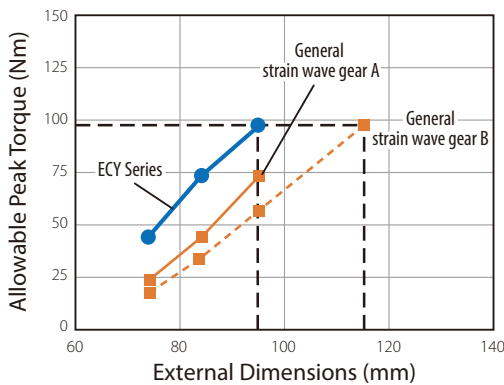
# E CYCLO<sup>®</sup> High Precision Gearboxes ECY Series

Compact and high precision gearboxes, integrating strain wave gear system with Cyclo Drive gear.



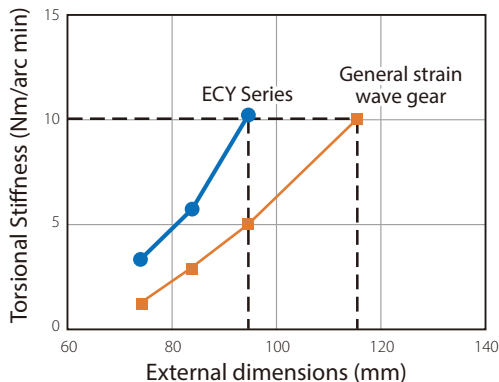
## Compact and high torque

It has high torque compared to that of a general wave gear (equivalent size), contributing to make the device more compact.



## High rigidity

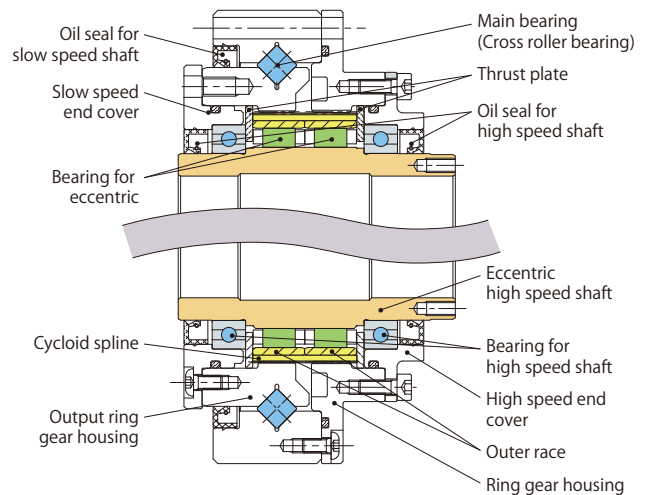
The torsional stiffness is larger than that of a general strain wave gear (equivalent size). Thus it can increase the device's strength and reduce vibration, etc.



## Large diameter of high speed hollow shaft, enabling simple mounting

Because the high speed shaft is supported by the reducer and the grease is packed in the sealed structure, it is easy to mount on the device or the motor.

The diameter of high speed hollow shaft is large, so it enables effective use of its space; for passing the cable, as the space for the shaft, etc.



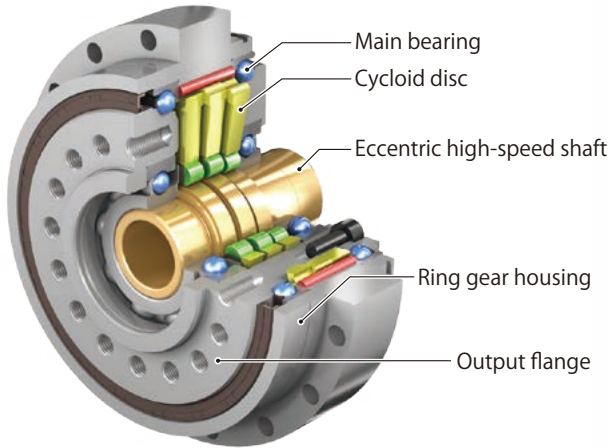
## Ratcheting hardly occurs

The structure suppressing ratcheting (situation where teeth do not engage smoothly) realizes high safety under overload.

◆ Main bearing:	Cross roller bearing
◆ Lost motion:	1.0arc min
◆ Allowable peak torque:	34 to 157N·m
◆ Reduction ratio:	50 to 100

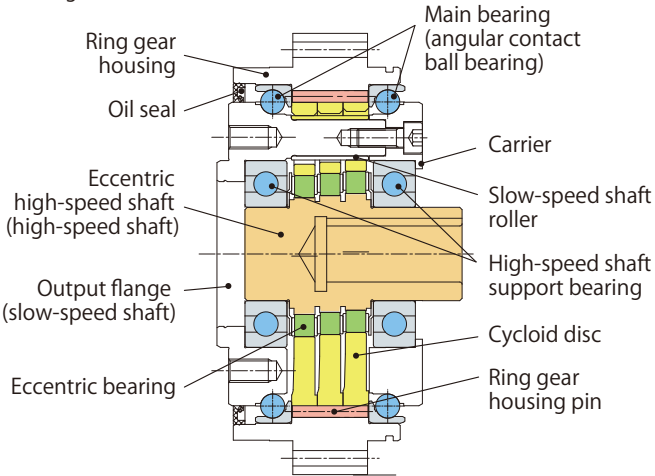
# FINE CYCLO<sup>®</sup> High Precision Gearboxes DA Series

Basic type with low noise, simple structure, and easy-to-use.



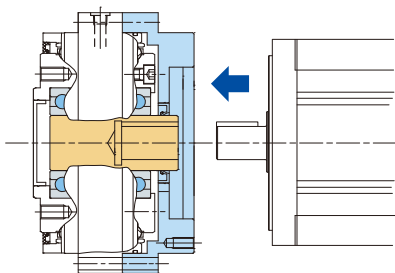
## Simple mounting

Mounting is simple as the high-speed shaft is supported with bearings.



## Compact in axial direction

Shorter total length as the motor shaft is integrated inside the reducer.

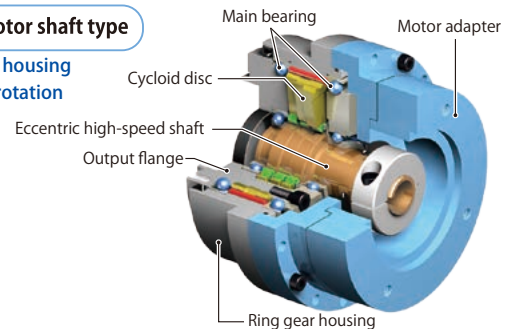


## Lineup with servo motor adapter

The product with adapter compatible with major motors produced by servo motor manufacturers is available. The product with motor adapter is oil-sealed structure in both input and output sides. Shipped with lubrication oil enclosed.

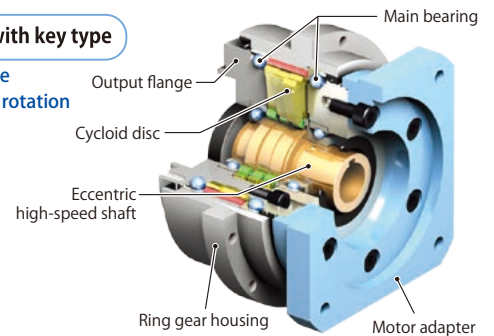
### For keyless motor shaft type

Fixed ring gear housing  
Output flange rotation type



### For motor shaft with key type

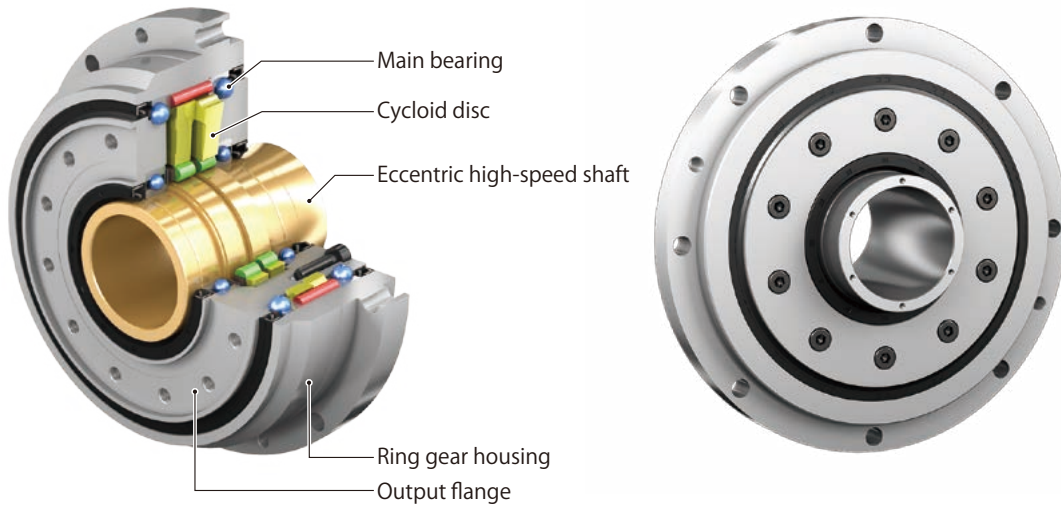
Fixed output flange  
Ring gear housing rotation type



◆ Main bearing:	Angular contact ball bearing
◆ Lost motion:	1.0 arc min
◆ Allowable peak torque:	613 to 4000 N·m
◆ Reduction ratio:	29 to 119

# FINE CYCLO® High Precision Gearboxes C Series

Large hollow shaft type allowing cables to pass through, realizing smart mounting



## Large hollow high-speed shaft

A large hole diameter allows cables and shafts to be passed through.

## Simple mounting

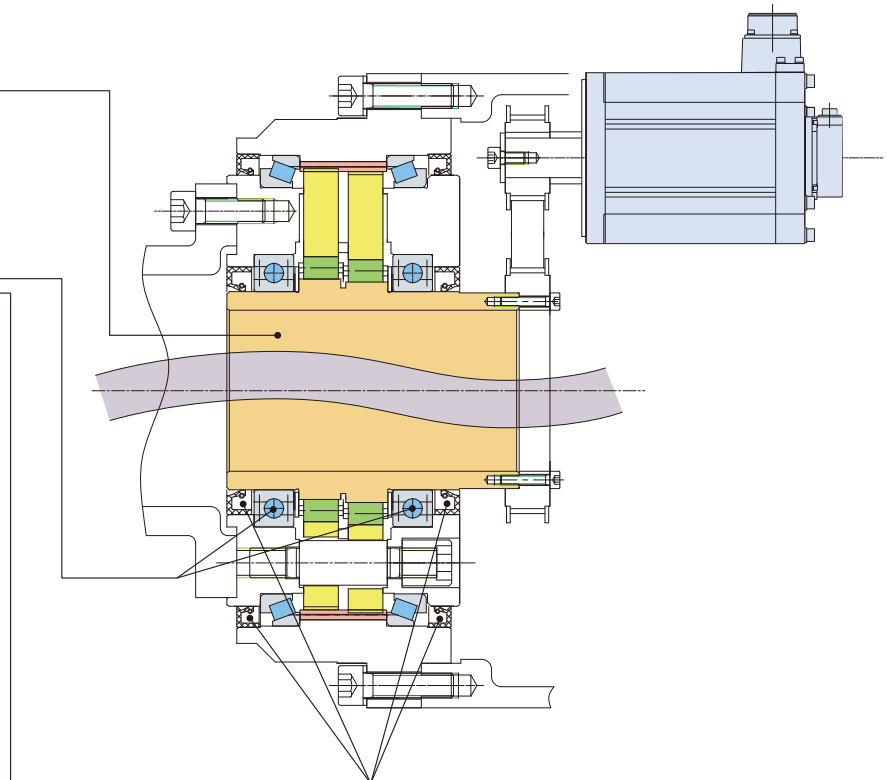
This product is easy to mount as high-speed shaft is supported with bearings, in addition to oil seal structure in the input and output sides.

## Filled with lubricating grease

The product is shipped with lubricating oil enclosed, so the customer doesn't need prepare oil by himself.

## Simple

Simple and easy-to-use structure with sealed single reduction mechanism.

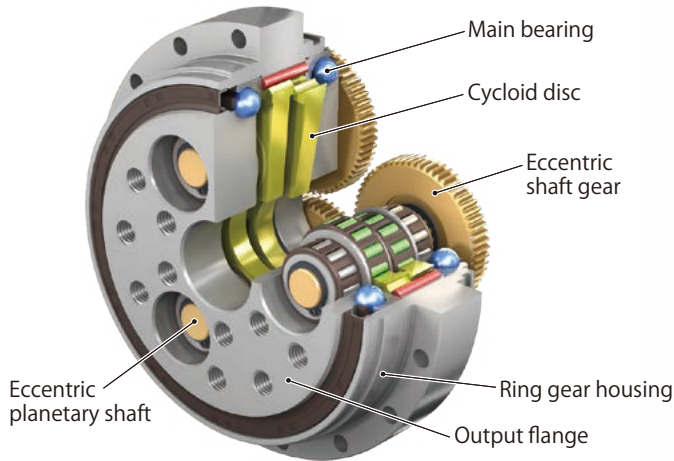


◆ Main bearing	F4C-C: Angular contact ball bearing F2C-C: Tapered roller bearing
◆ Lost motion:	1.0 arc min
◆ Allowable peak torque:	540 to 6278 N·m
◆ Reduction ratio:	59 to 119



# FINE CYCLO® High Precision Gearboxes UA Series

## High performance type with superb rotational accuracy



### High accuracy and high performance

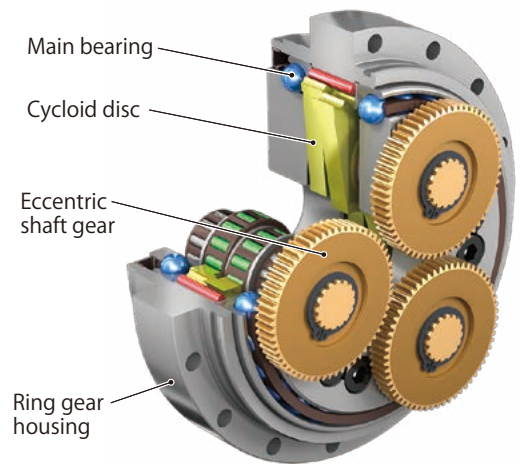
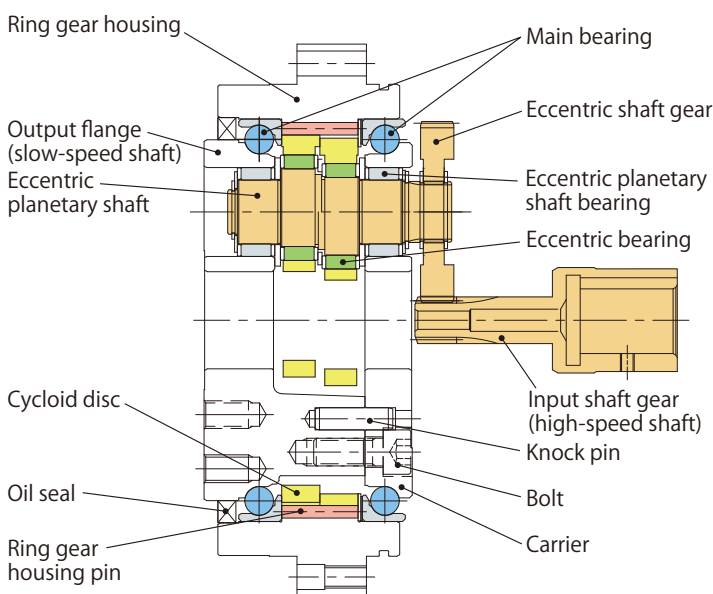
Because of our unique new two-teeth form, this product is superior in rigidity, vibration level, and efficiency when low speed rotating. Ideal for applications requiring trajectory accuracy.

### Minimal lost motion

Achieves an industry-leading lost motion of 0.5 arc min.

## Lightweight, compact size, and high reduction ratio

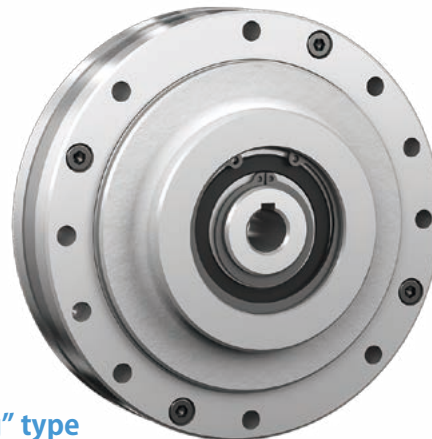
The double reduction mechanism achieves both a compact size and high reduction ratio.



◆ Main bearing	F4C-UA: Angular contact ball bearing
	F2C-UA: Tapered roller bearing
◆ Lost motion:	0.5 arc min (UA25 to UA80)
	0.75 arc min (UA15)
◆ Allowable peak torque:	625 to 12500 N·m
◆ Reduction ratio:	81 to 283

# FINE CYCLO® High Precision Gearboxes A Series

“No-main bearing” component type that can be directly mounted on the driving parts of the machine

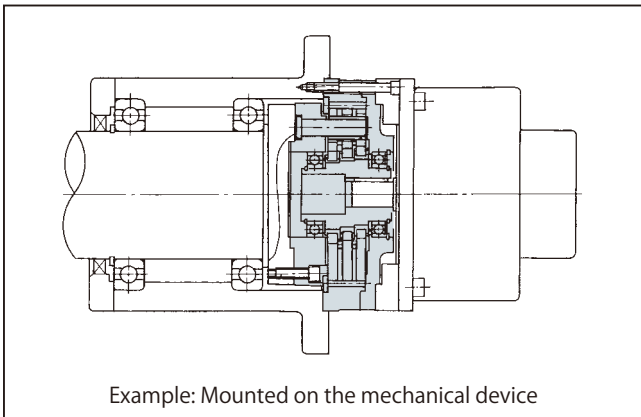
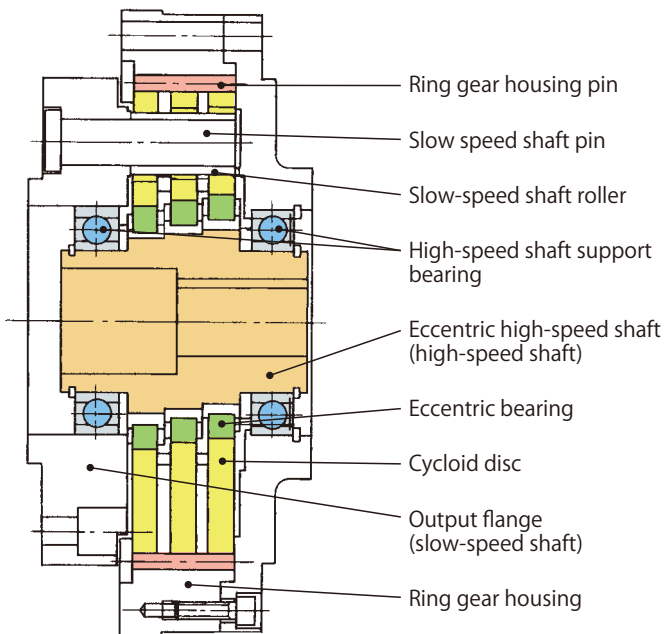


“No-main bearing” type

FC type

## Compact and simple mounting

FC type without main bearing is compact and can be directly mounted on the driving parts of the unit. Mounting is simple as the high-speed shaft is supported with bearings. In addition, the motor shaft is integrated inside the reducer to shorten the total length.



## Filled with lubricating grease.

The product is shipped with lubricating oil enclosed, so the customer doesn't need prepare oil by himself.

◆ Main bearing	No use
◆ Lost motion:	1.0arc min
◆ Allowable peak torque:	336 to 7613N·m
◆ Reduction ratio:	29 to 119

# CYCLO® Drive for Servo Motors

Servo motor gear head type of Cyclo® Drive which have been sold more than 80 years.



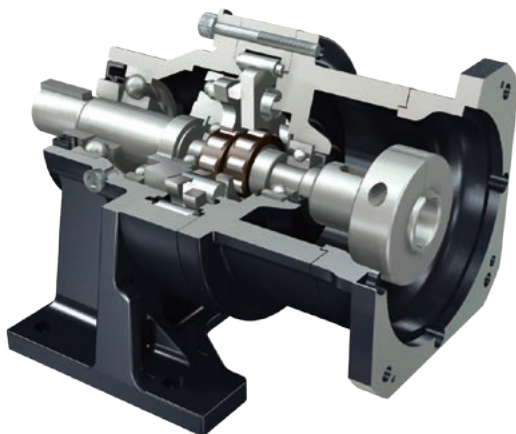
For motor shaft with key type



For keyless motor shaft type

## High rigidity and long life

Tough and long life Cyclo Drive® can be mounted on major servo motors produced by servo motor manufacturers. This product can accommodate keyless motor shaft and motor shaft with key.



## Selectable mount type

Foot mount, V-flange mount, and flange mount are available.



Foot Mount

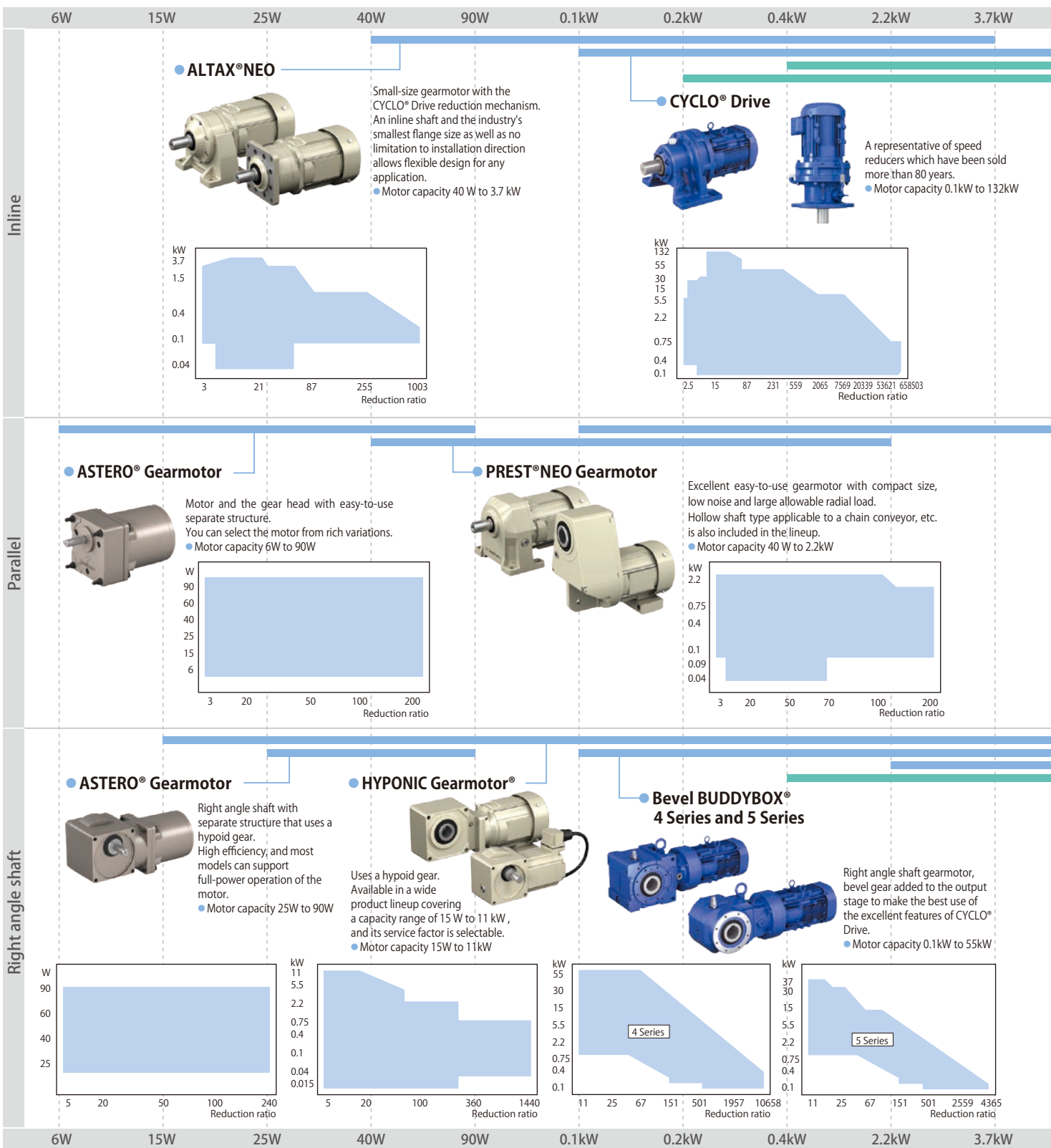


V-Flange Mount

	Low backlash series	Standard series
◆Backlash	6 min (Reduction ratio 6: 12 min)	
◆Allowable peak torque	29.7 to 630N·m	29.7 to 1370N·m
◆Motor capacity range	0.2 to 5.0kW	0.2 to 9.0kW
◆Reduction ratio	6 to 29	6 to 87

# Product Lineup

## Gearmotors and Speed Reducers



## Reducer for Special Applications

- High-speed gear increaser and reducer
- Reducer for industrial machinery



Generator and compressor



Cement mill



Sugar mill



River pump



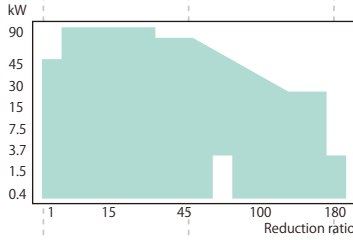
Kneading machine

5.5kW 11kW 30kW 55kW 90kW 132kW 430kW 1200kW 3200kW 3400kW

● **SKK Gearmotor AF and SF Series**



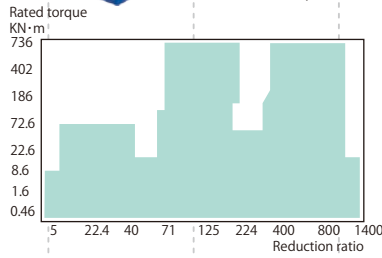
High strength and high functionality with standard specifications. Also covers low reduction ratio and special reduction ratio. (Some models have parallel shaft.)  
● Motor capacity: 0.4kW to 90kW



● **COMPOWER® Planetary Gear Drive**



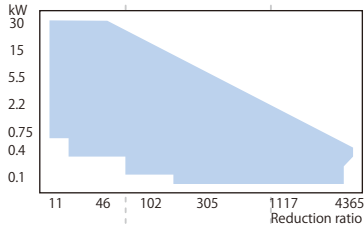
High torque and also compact in the radial direction. Significantly shorter total length achieved with creative ideas and mechanisms.  
● Rated torque 0.46 to 736 kN·m



● **Helical BUDDYBOX®**



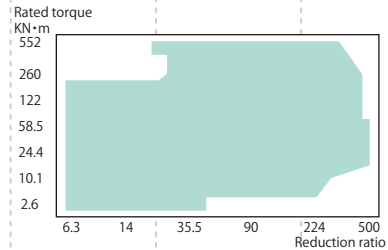
Parallel shaft gearmotor consisting of a combination of a CYCLO® Drive and a hollow shaft helical gearbox.  
● Motor capacity: 0.1kW to 30kW



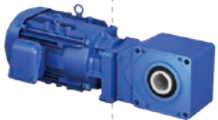
● **PARAMAX® 9000 Series**



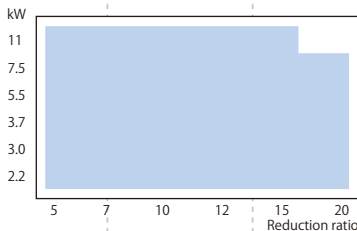
Compact size with the use of high strength gear. High-functionality and high performance parallel shaft reducer.  
● Rated torque 2.6 to 552 kN·m



● **Bevel BUDDYBOX® H Series**



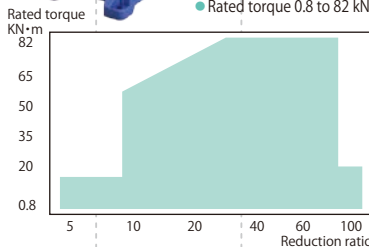
Compact right angle shaft gearmotor with low reduction ratio and hollow shaft.  
● Motor capacity 2.2kW to 11kW



● **HEDCON® Worm Reducer**



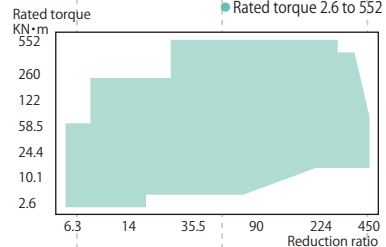
High performance worm reducer for high efficiency and high strength by the use of the unique double contact theory.  
● Rated torque 0.8 to 82 kN·m



● **PARAMAX® 9000 Series**



High-strength gear for compact size and motor direct coupling structure. High-functionality and high performance right angle shaft reducer.  
● Rated torque 2.6 to 552 kN·m



5.5kW 11kW 30kW 55kW 90kW 132kW 430kW 1200kW 3200kW 3400kW

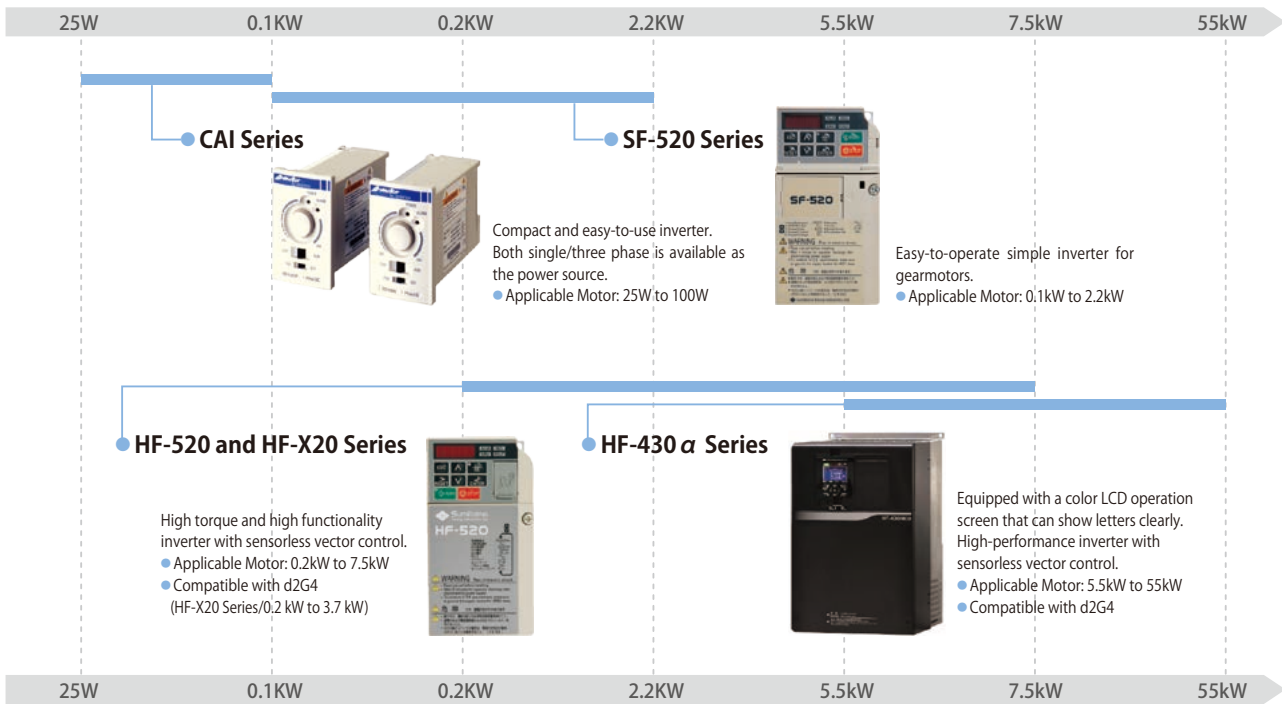
**Drive Solution for AGV/AMR**

● **smartris®**



Combination of three smart components. A compact, integrated, and intelligent solution of : Gear + Servo Motor + Drive.  
● Specification Payload: up to approximately 3000kg  
Max AGV speed 2.0m/s  
Max AGV acceleration 1.0m/s<sup>2</sup>

## Inverters



## Mechanical Speed Variators

- BEIER® Variator
- BEIER-CYCLO Variator®



Large capacity and long life mechanical non-step speed variator with tradition and reliable performance over 50 years.  
 • Motor capacity 0.2kW to 150kW

## Couplings

- SEISA GC Coupling



Gear coupling  
 • Reference torque: 421 to 6,460,000N·m

- DC coupling



Disc coupling  
 • Reference torque: 35.3 to 255,950N·m

- SF coupling



Tapered grid coupling  
 • Reference torque: 52.0 to 932,100N·m

## Condition Monitoring System (CMS)

- S-CMS



Easy-to-install continuous monitoring system with limited functions.  
 • Continuous monitoring

- TYPE-P



Portable model, easily detecting abnormality in the selected area  
 • On time measurement

- TYPE-I



High performance model, identifying abnormal parts and detect damage conditions  
 • Continuous monitoring

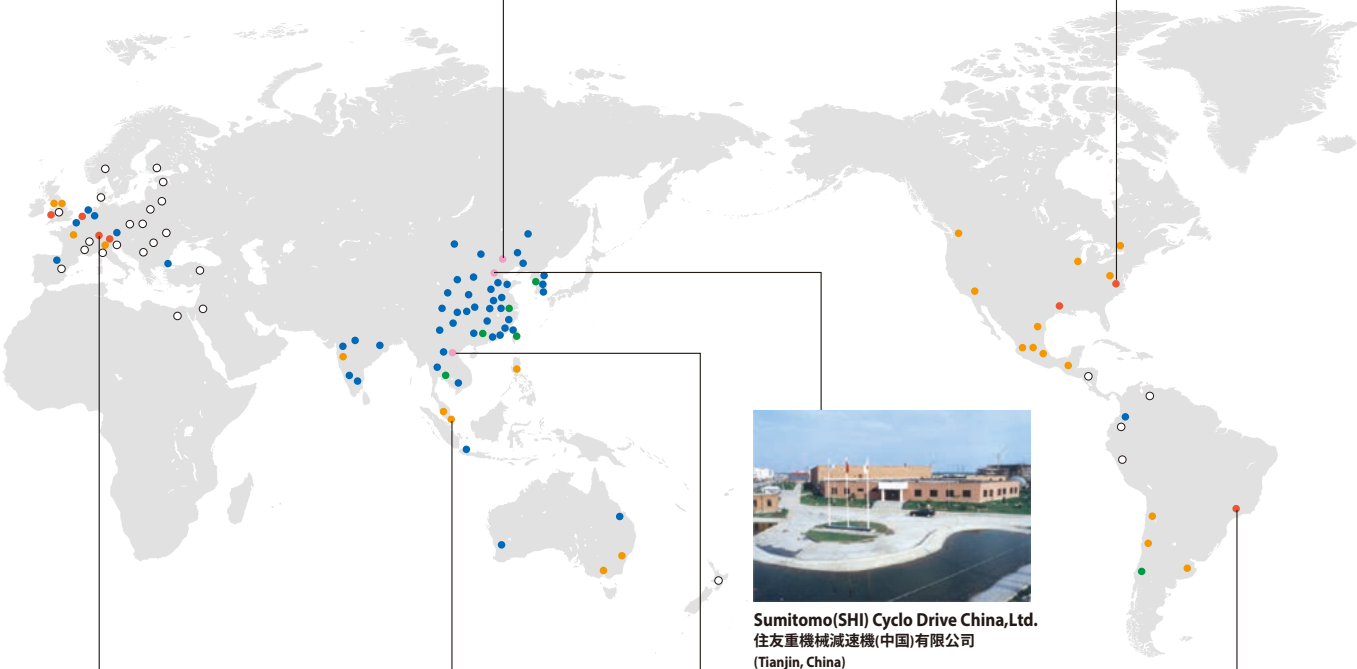
# Global Network



**Sumitomo Heavy Industries(Tangshan), Ltd.**  
住友重機械(唐山)有限公司  
(Tangshan, China)



**Sumitomo Machinery Corporation of America**  
(Chesapeake, Virginia, U.S.A)



**Sumitomo(SHI) Cyclo Drive China,Ltd.**  
住友重機械減速機(中国)有限公司  
(Tianjin, China)



**Sumitomo(SHI) Cyclo Drive Germany GmbH**  
(Munich, Germany)



**Sumitomo Indústrias Pesadas do Brasil Ltda.**  
(São Paulo,Brasil)



**Sumitomo(SHI) Cyclo Drive Asia Pacific Pte.ltd**  
(Singapore)



**Sumitomo Heavy Industries(Vietnam) Co.,Ltd.**  
(Hanoi, Vietnam)

- Sales/Manufacturing
- Sales/Assembly
- Sales Office
- Assembly Plant
- Manufacturing Plant
- Distributor

# Worldwide Locations

<b>U.S.A</b> <b>Sumitomo Machinery Corporation of America (SMA)</b> 1453 Cornwall Blvd. Chesapeake, VA 23323, U.S.A. TEL (1)757-485-3355 FAX (1)757-485-7490	<b>Austria</b> <b>Sumitomo (SHI) Cyclo Drive Germany GmbH (SCG)</b> <b>SCG Branch Austria Office</b> Grüntalerstraße 30A, 4020 Linz, Austria TEL (43)732-330958 FAX (43)732-331978	<b>Korea</b> <b>Sumitomo (SHI) Cyclo Drive Korea, Ltd. (SCK)</b> Room #913, Royal Bldg, Saemun-ro 5 gil 19, Jongro-gu, Seoul, Korea 03173 TEL (82)2-730-0151 FAX (82)2-730-0156
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Specifications, dimensions, and other items are subject to change without prior notice.



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