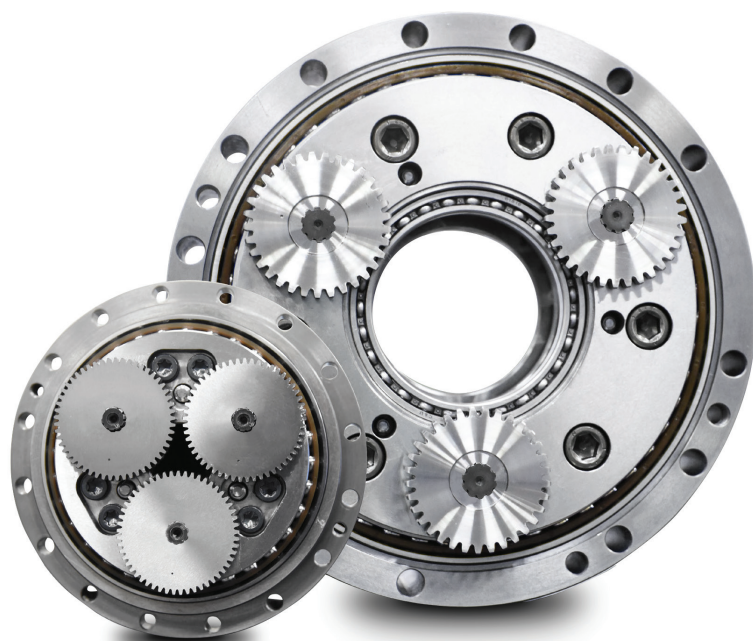


**Nidec**

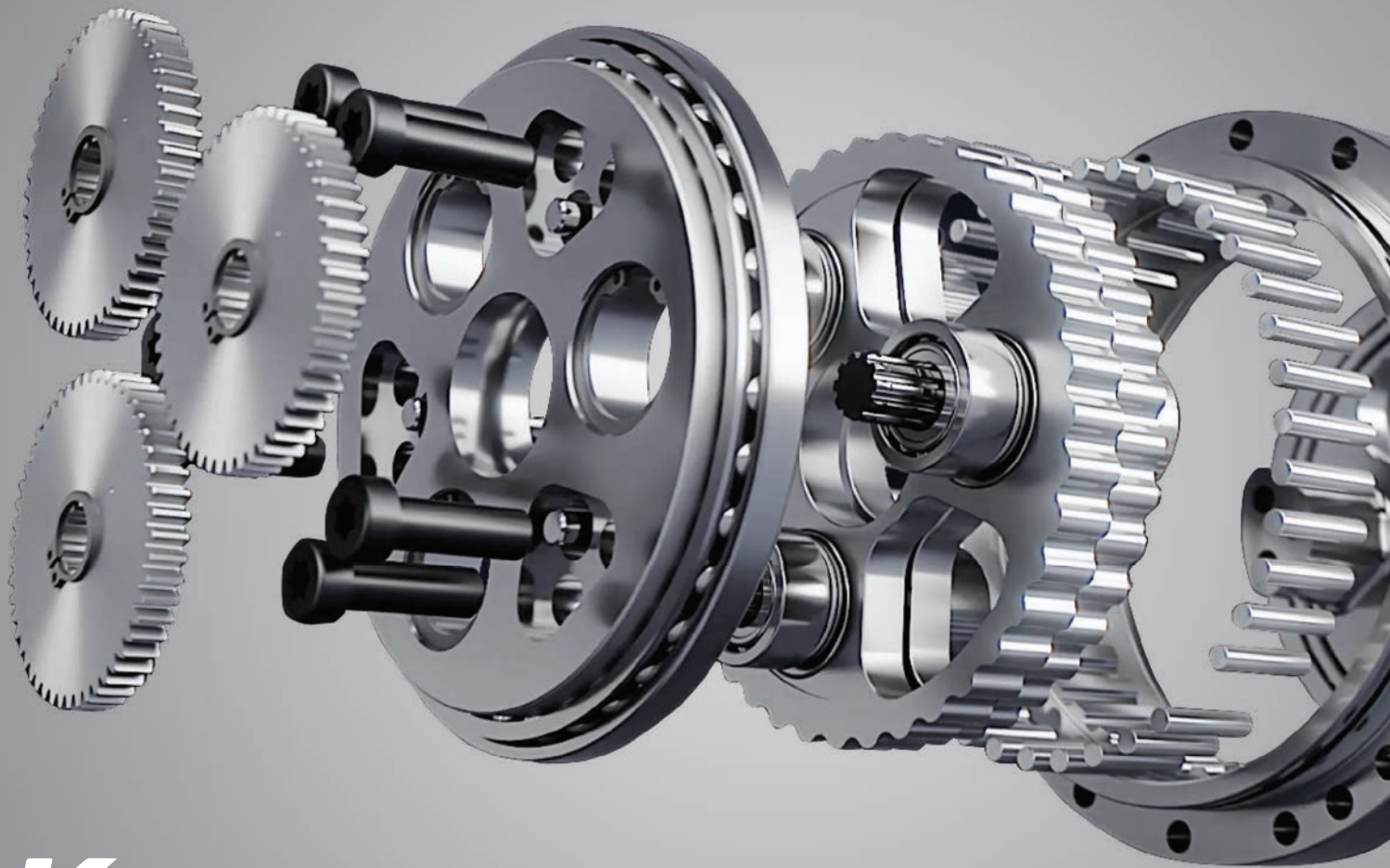
**KINEX**

*The Next Generation*



**EH Series**  
High Precision Cycloidal Reducers

**NIDEC DRIVE TECHNOLOGY CORPORATION**



# KINEX

*High Precision Cycloidal Reducer*

## Application Solutions

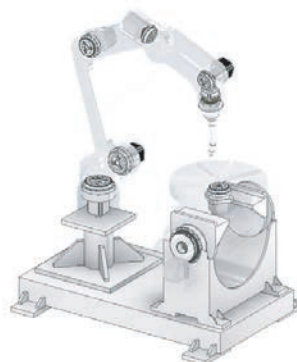
The *Next Generation* Nidec KINEX high precision cycloidal reducers are smooth and quiet providing exceptional movement for various applications, such as robots and machine tools.



**Articulated Robot**



**SCARA Robot**



**Positioner**



**Wafer-transfer Robot**



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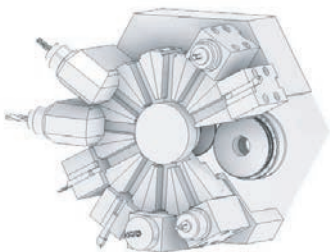
### ■ EH Series Type N

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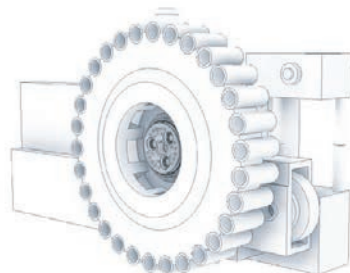
### ■ EH Series Type C

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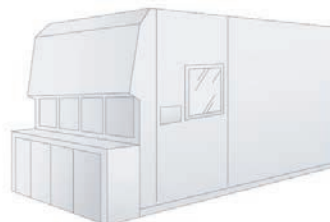
The *Next Generation* Nidec KINEX EH Series Type N is a solid shaft type cycloidal reducer that is lightweight and compact. The *Next Generation* Nidec KINEX EH Series Type C is a hollow shaft type large size reducer that provides a pass through for cable or hose application solutions.



**Lathe Turret Head**



**Automatic Tool Changer**



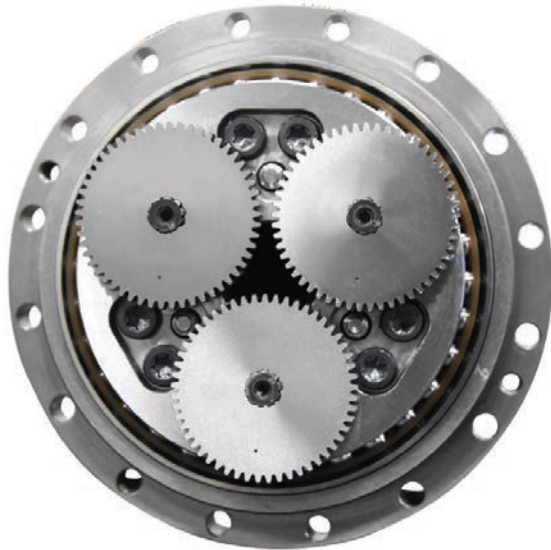
**Semiconductor  
Manufacturing Equipment**



**Index Table**



## EH Series Type N



**Solid shaft type**  
Lightweight and compact

## EH Series Type C

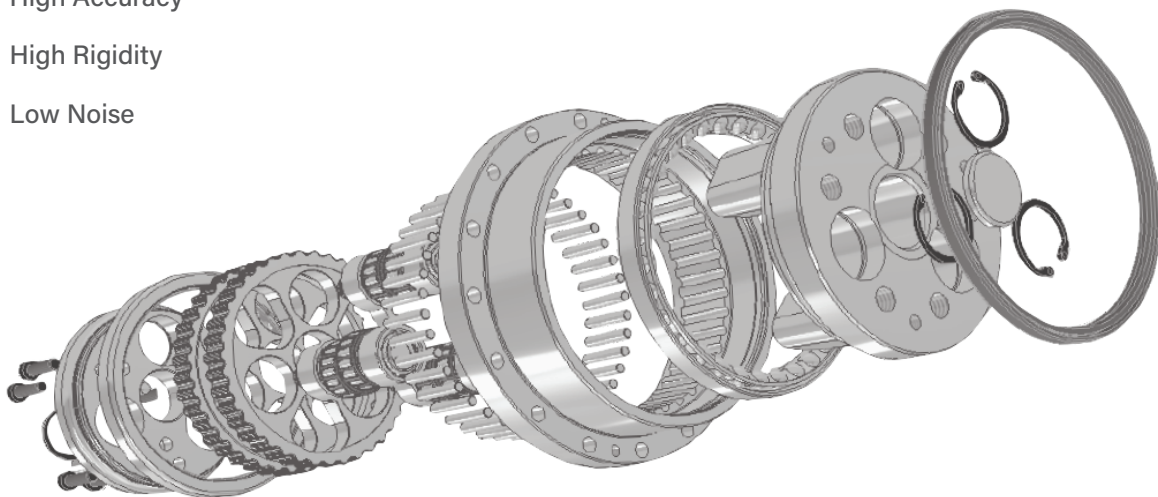


**Hollow shaft type**  
Cable or hose can be passed through

---

### Features

- High Accuracy
- High Rigidity
- Low Noise



# Principle of Speed Reduction

## 1st stage

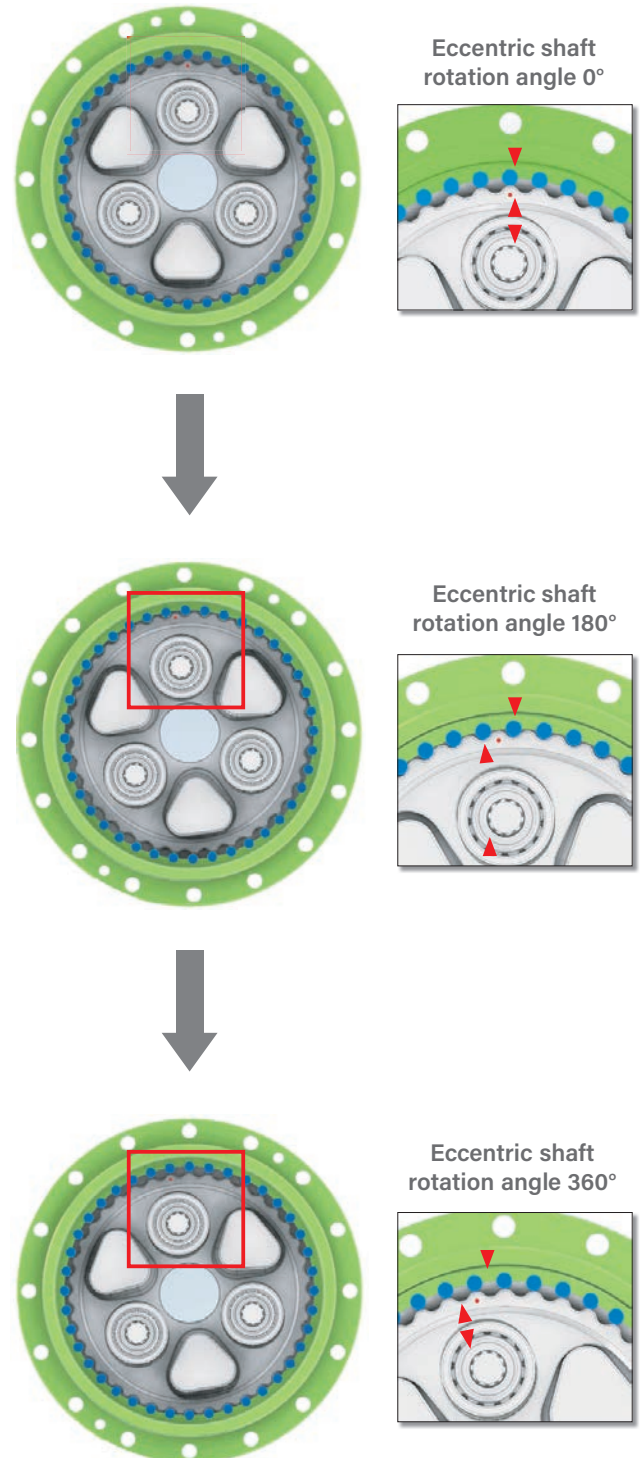
- Planetary gear reduction mechanism

With the KINEX fixed on the frame, when the input gear rotates the planetary gear, the eccentric shaft directly connected to the planetary gear also rotates.

## 2nd stage

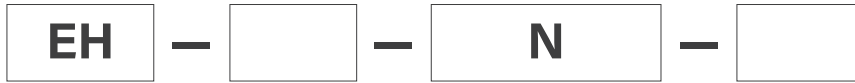
- Epicyclic gear reduction

Due to the rotation of the eccentric shaft, the wheel incorporated in the eccentric part moves eccentrically, and the wheel rotates while meshing with the pins. Since there is one more pin than the number of teeth on the wheel, the wheel rotates by one tooth with each rotation of the eccentric shaft, and the output flange that supports the eccentric shaft rotates synchronously with the wheel.



## Reducer Model Nomenclature

Solid shaft type N



Series Name                      Size                                      Type                                      Ratio

EH EH series	25 42 80 125	N: Solid shaft type	
-----------------	-----------------------	---------------------	--

### Specifications

Model	Ratio		Rated Torque *1 (Nm)	Rated Output Speed (rpm)	Rated Service Life (h)	Allowable Acceleration/ Deceleration Torque (Nm)	Momentary Maximum Allowable Torque (Nm)	Backlash / Lost Motion (arc min)	Transmission Angular Accuracy (arc sec)	Allowable Moment *2 (Nm)	Momentary Allowable Moment (Max.) (Nm)	Mass (kg)
	Output Flange Rotation	Frame Rotation										
EH-25N	41	40	245	15	6,000	612	1,225	1.0/1.0	70	784	1,568	3.8
	81	80										
	107.67	106.67										
	126	125										
	137	136										
	164.07	163.07										
EH-42N	41	40	412	15	6,000	1,029	2,058	1.0/1.0	60	1,660	3,320	6.3
	81	80										
	105	104										
	126	125										
	141	140										
	164.08	163.08										
EH-80N	41	40	784	15	6,000	1,960	3,920	1.0/1.0	50	2,150	4,300	9.8
	81	80										
	101	100										
	129	128										
	141	140										
	171	170										
EH-125N	41	40	1225	15	6,000	3,062	6,125	1.0/1.0	50	3,430	6,860	15
	81	80										
	102.18	101.18										
	121	120										
	145.62	144.62										
	161	160										

- No-load running torque will increase when the reducer is used at low temperature. Please be careful when selecting a motor.
- If you require a reduction ratio other than the above, or if you have any questions regarding motor selection, please contact our sales representative.
- The above specifications are based on our evaluation method. The customer is requested to use the product only after confirming that there are no problems under the operating conditions of the actual equipment to be installed.

\*1 The rated torque is the torque value that corresponds to the rated lifetime when operating at the rated output rotation speed and does not indicate the upper limit of the load.

\*2 The allowable moment changes depending on the axial load.

### Reduction ratio

The reduction ratio  $i$ , which is the sum of the 1st and 2nd reduction parts, differs between output flange rotation and frame rotation.

#### For output flange rotation

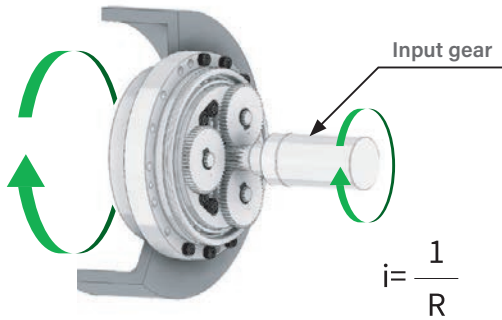
$$R = 1 + \frac{Z_2}{Z_1} \cdot Z_4$$

$$i = \frac{1}{R}$$

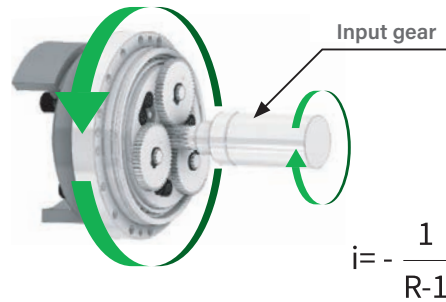
**R:** Speed ratio  
**Z1:** Number of teeth on input gear  
**Z2:** Number of teeth on planetary gear  
**Z3:** Number of teeth on wheel  
**Z4:** Number of pins  
**i:** Reduction ratio

## Direction of Rotation and Reduction Ratio

Direction of rotation and reduction ratio example



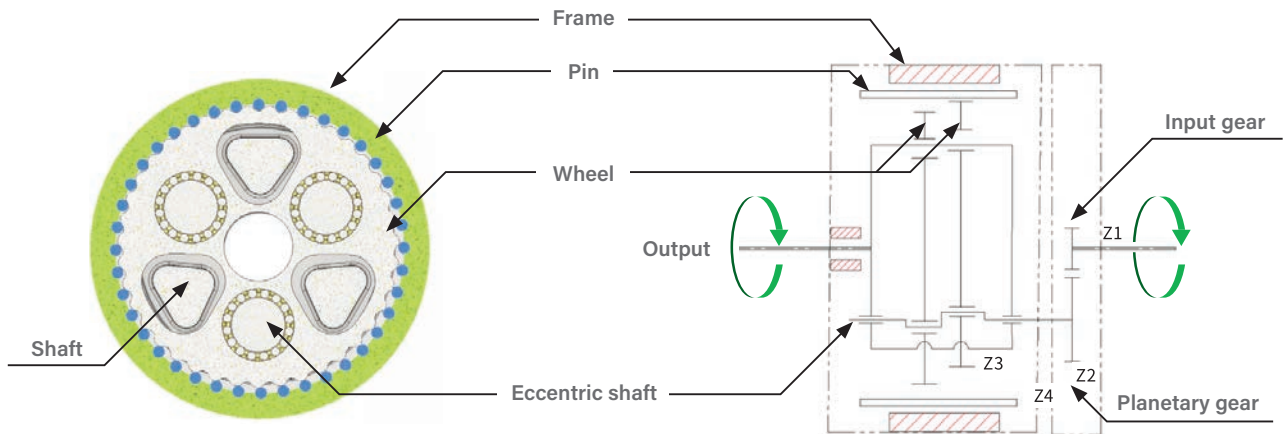
Output flange rotation



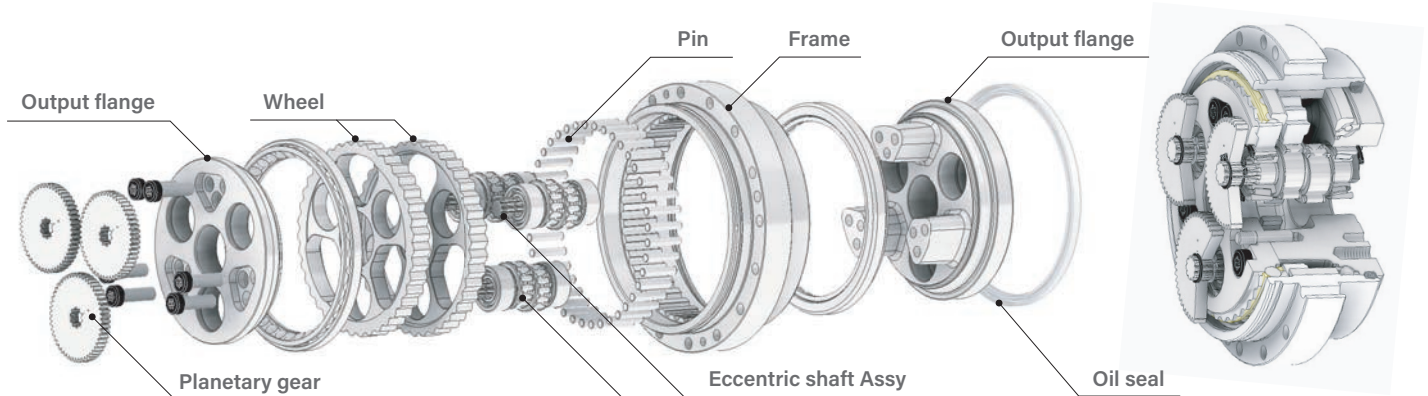
Frame rotation

\* Input gear should be prepared on the customer side.

## Mechanism diagram

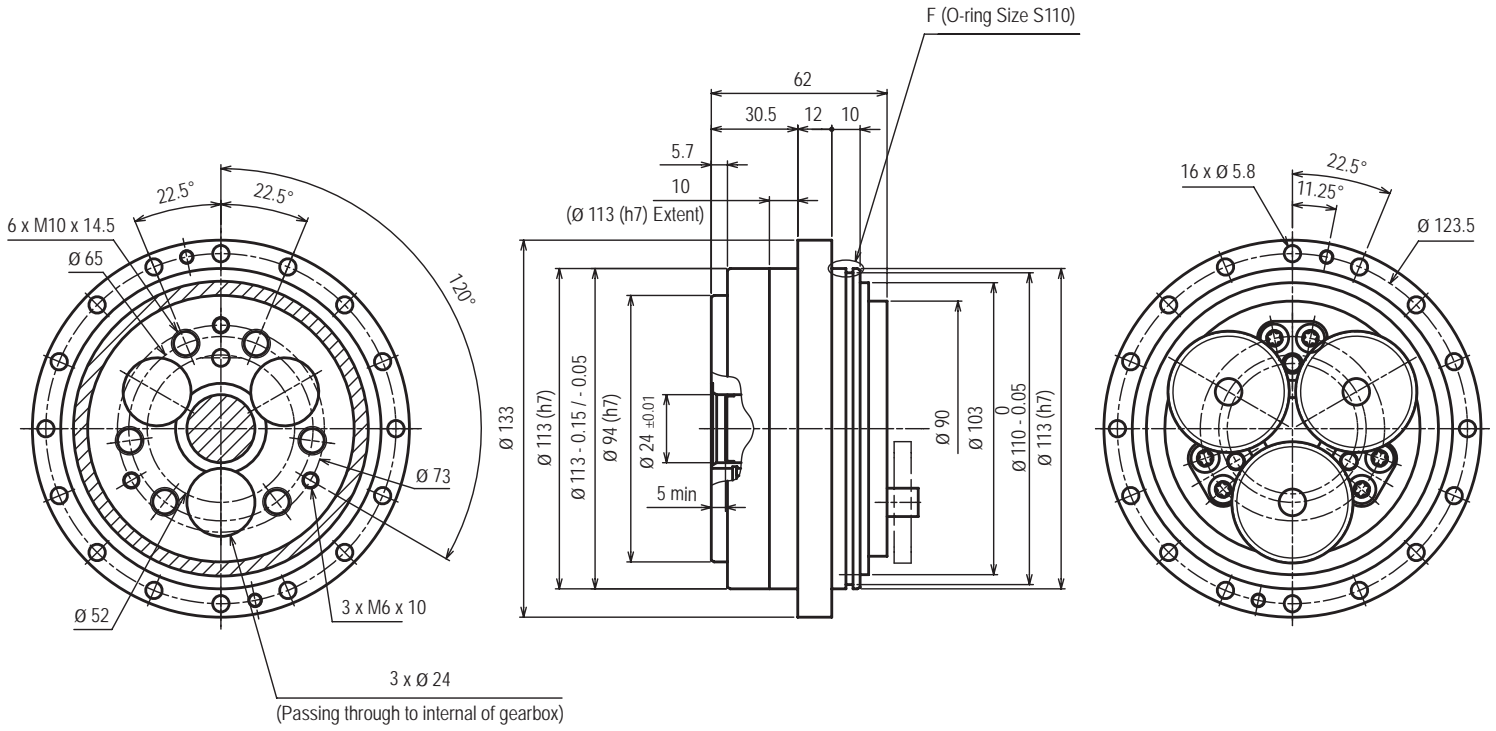


## Component structure



## Dimensions

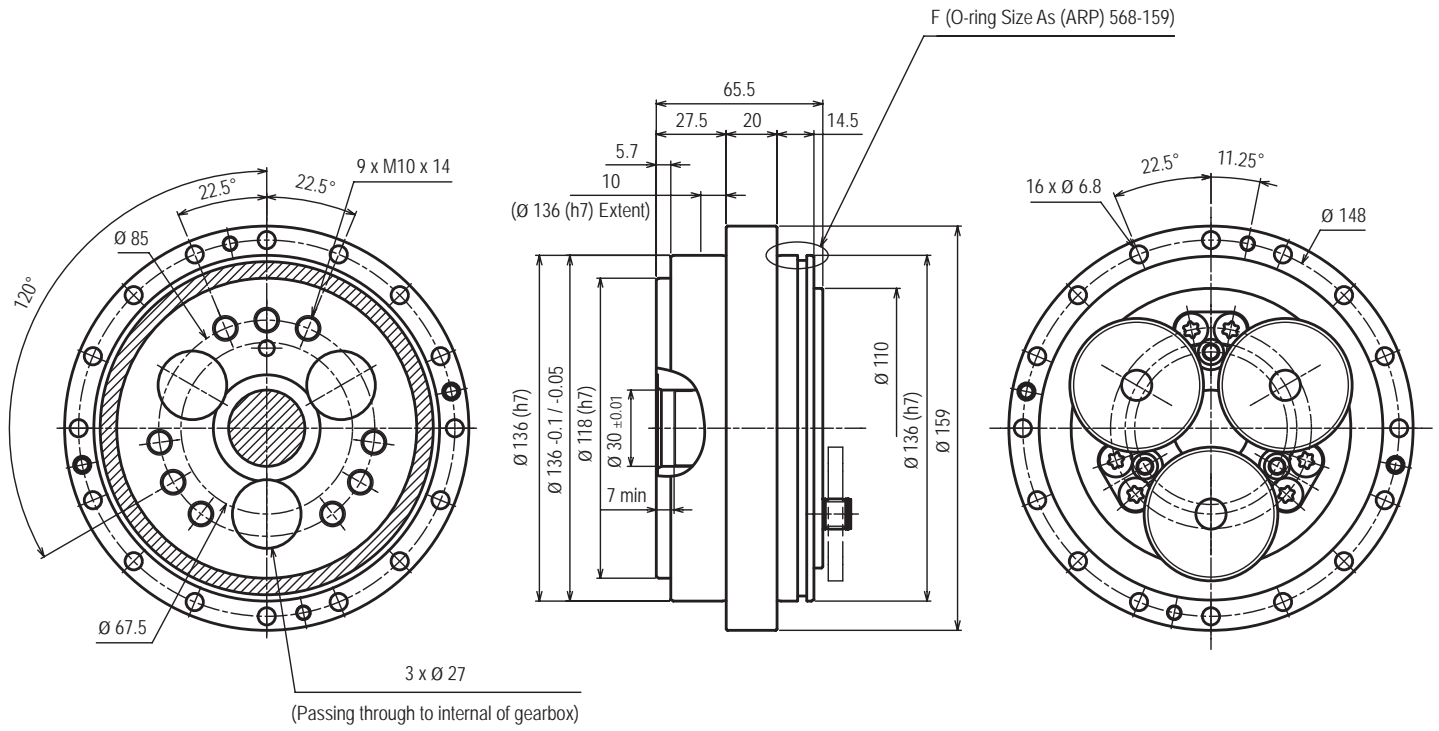
EH-25N





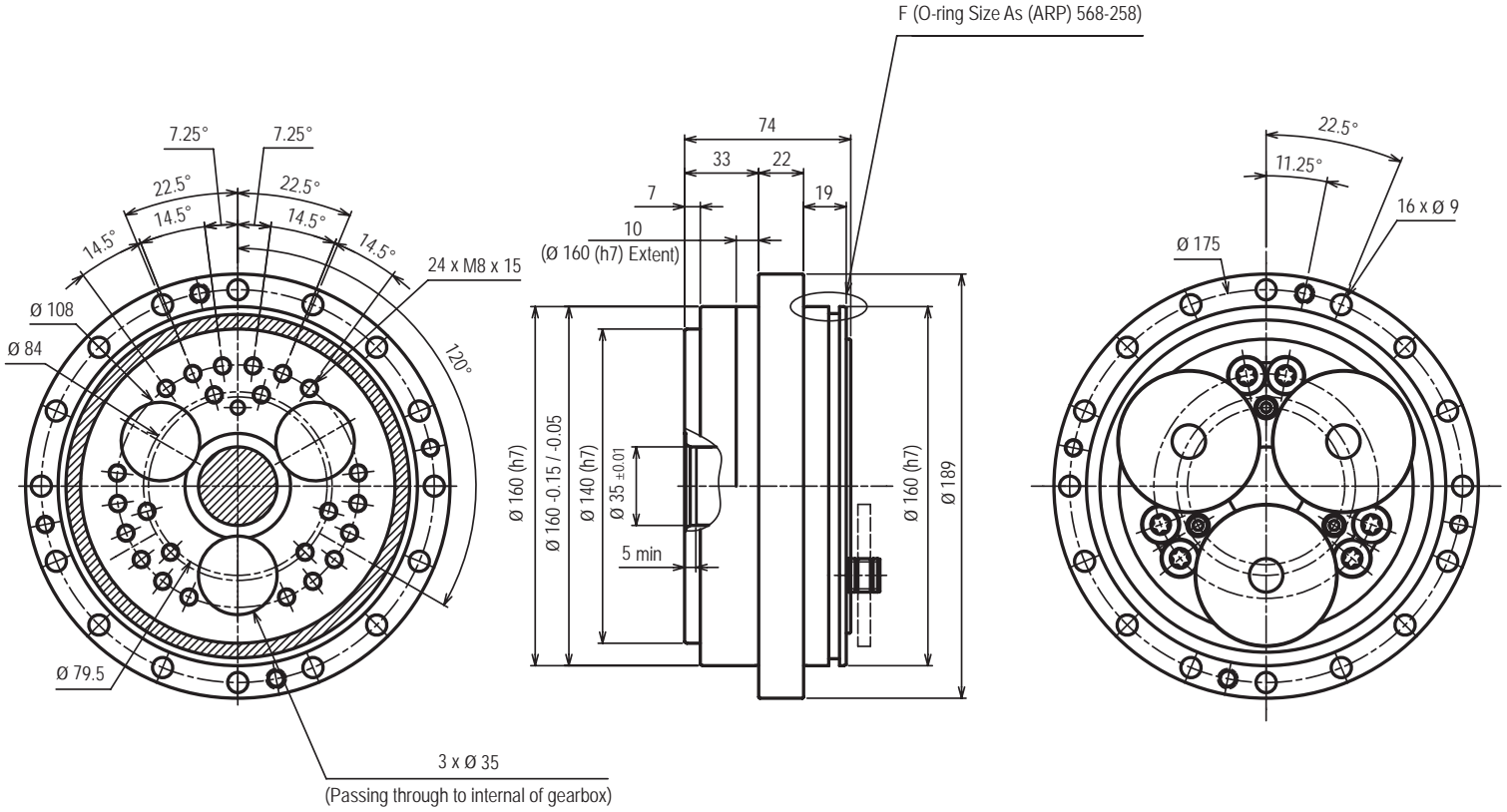
## Dimensions

### EH-42N



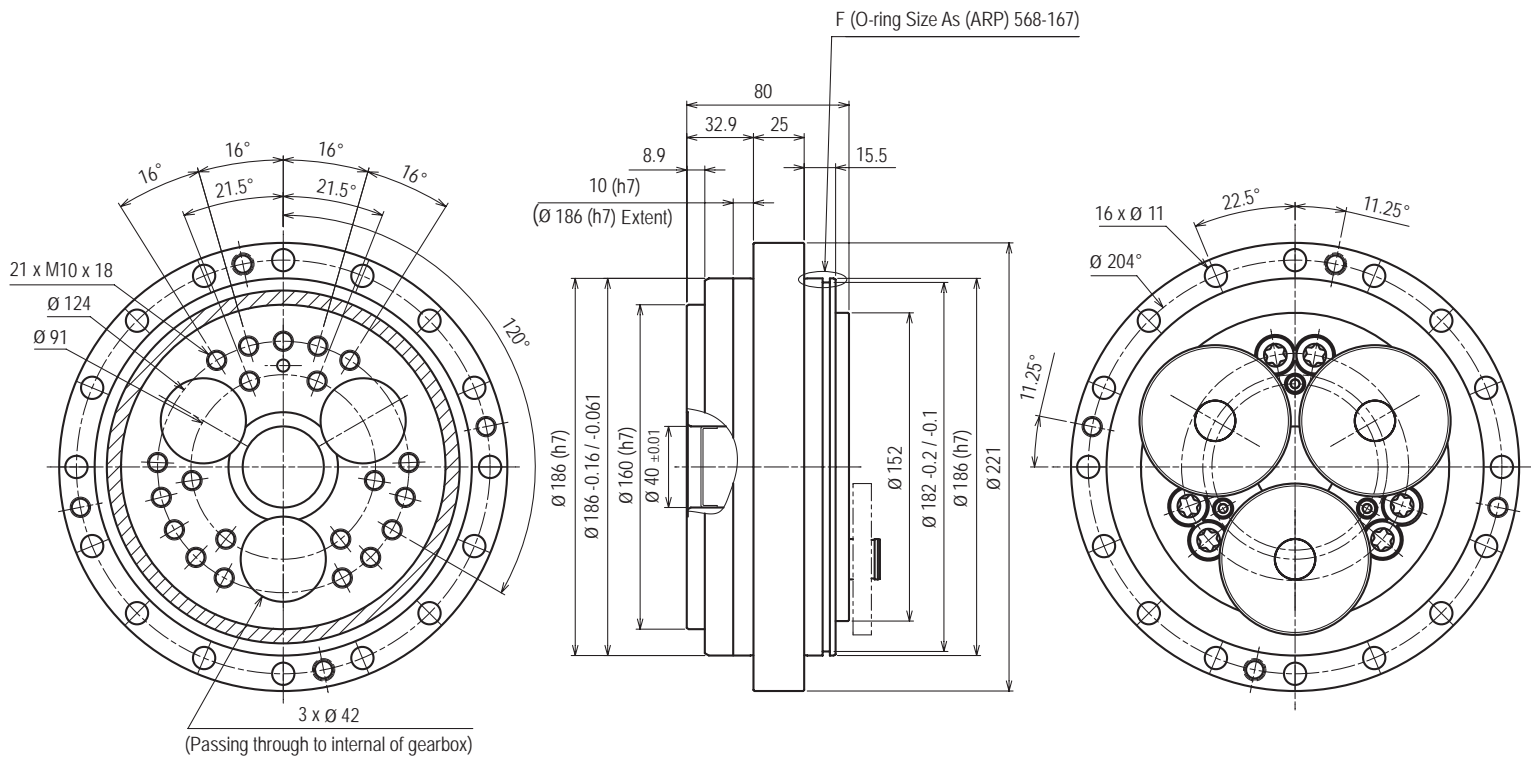
## Dimensions

EH-80N



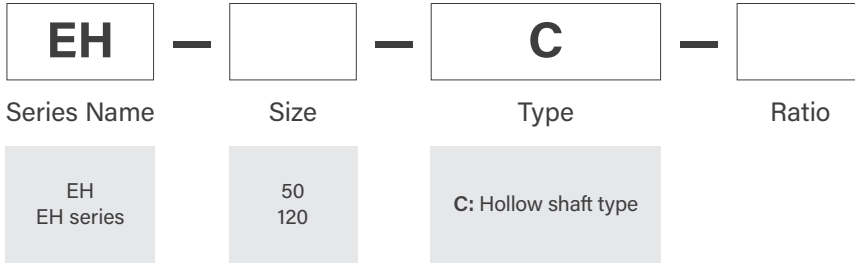
## Dimensions

### EH-125N



## Reducer Model Nomenclature

Hollow shaft type C



## Specifications

Model	Ratio		Rated Torque *1 (Nm)	Rated Output Speed (rpm)	Rated Service Life (h)	Allowable Acceleration/ Deceleration Torque (Nm)	Momentary Maximum Allowable Torque (Nm)	Backlash/ Lost Motion (arc min)	Transmission Angular Accuracy (arc sec)	Allowable Moment *1 (Nm)	Momentary Allowable Moment (Max.) (Nm)	Mass (kg)
	Output Flange Rotation	Frame Rotation										
EH-50C	32.54	31.54	490	15	6000	1225	(Bolt) 2,450	1.0/1.0	60	1764	3528	16.4
EH-120C	36.75	35.75	1177	15	6000	2940	5880	1.0/1.0	50	3920	7350	21.2

- No-load running torque will increase when the reducer is used at low temperature. Please be careful when selecting a motor.
- If you require a reduction ratio other than the above, or if you have any questions regarding motor selection, please contact our sales representative.
- The above specifications are based on our evaluation method. The customer is requested to use the product only after confirming that there are no problems under the operating conditions of the actual equipment to be installed.

\*1 The rated torque is the torque value that corresponds to the rated lifetime when operating at the rated output rotation speed, and does not indicate the upper limit of the load.

\*2 The allowable moment changes depending on the axial load.

## Reduction ratio

The reduction ratio  $i$ , which is the sum of the 1st and 2nd reduction parts, differs between output flange rotation and frame rotation.

## For output flange rotation

$$R = R_1 \times \frac{Z_2}{Z_1}$$

$$i = - \frac{1}{R}$$

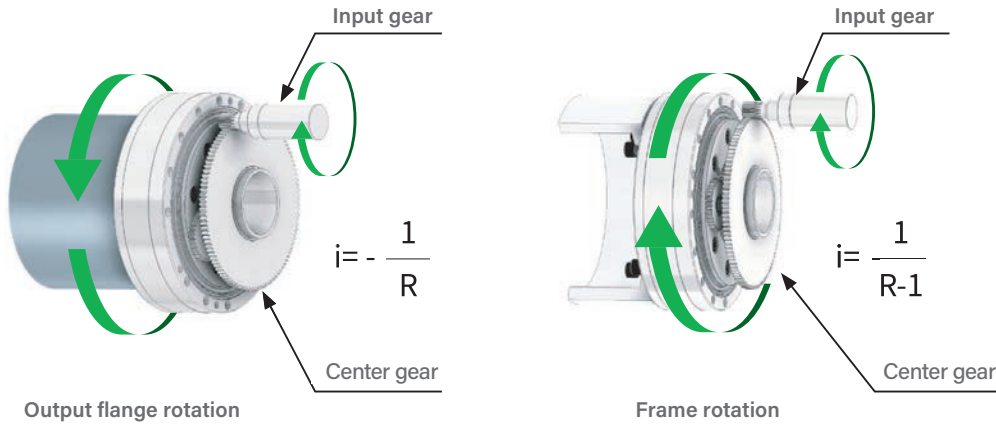
$$(R_1 = 1 + \frac{Z_4}{Z_3} \cdot Z_6)$$

- R: Overall speed ratio
- R<sub>1</sub>: Speed ratio of a discrete reduction gear
- Z<sub>1</sub>: Number of teeth on input gear
- Z<sub>2</sub>: Number of teeth on large center gear
- Z<sub>3</sub>: Number of teeth on small center gear
- Z<sub>4</sub>: Number of teeth on planetary gear
- Z<sub>5</sub>: Number of teeth on wheel
- Z<sub>6</sub>: Number of pins
- i: Reduction ratio



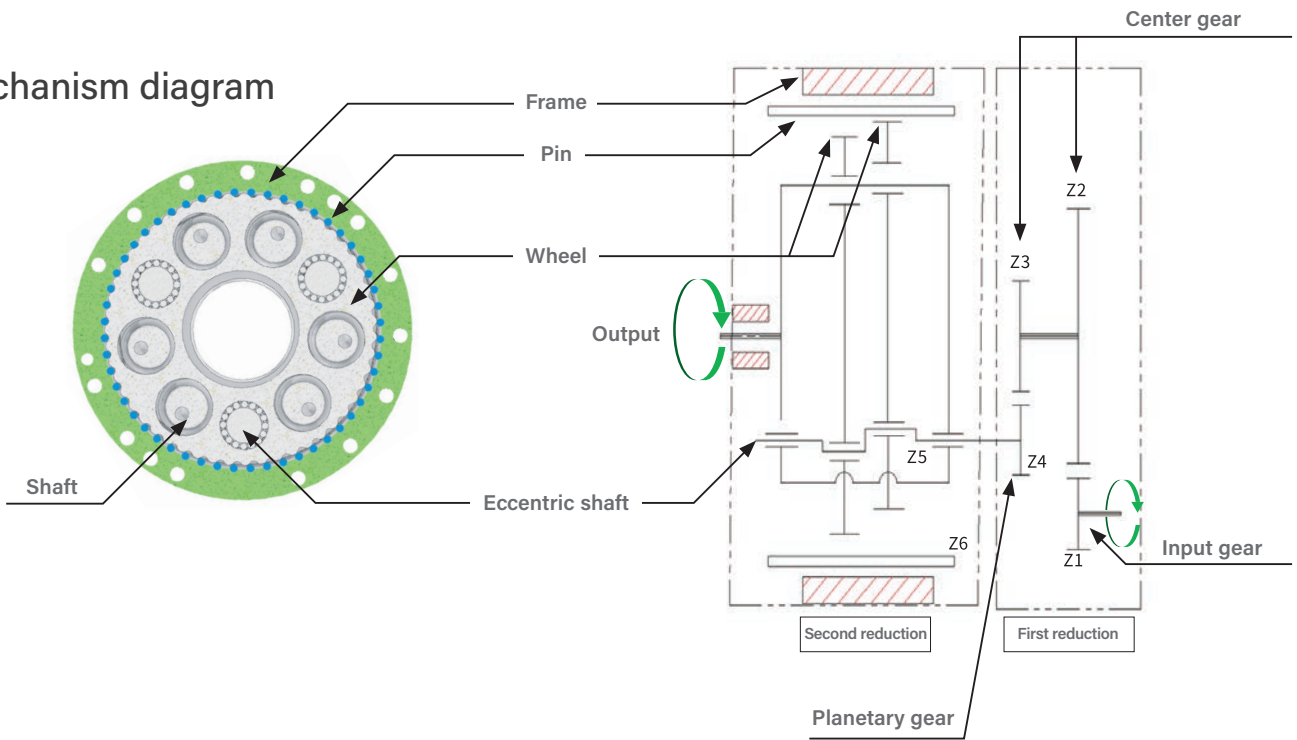
## Direction of Rotation and Reduction Ratio

Direction of rotation and reduction ratio example

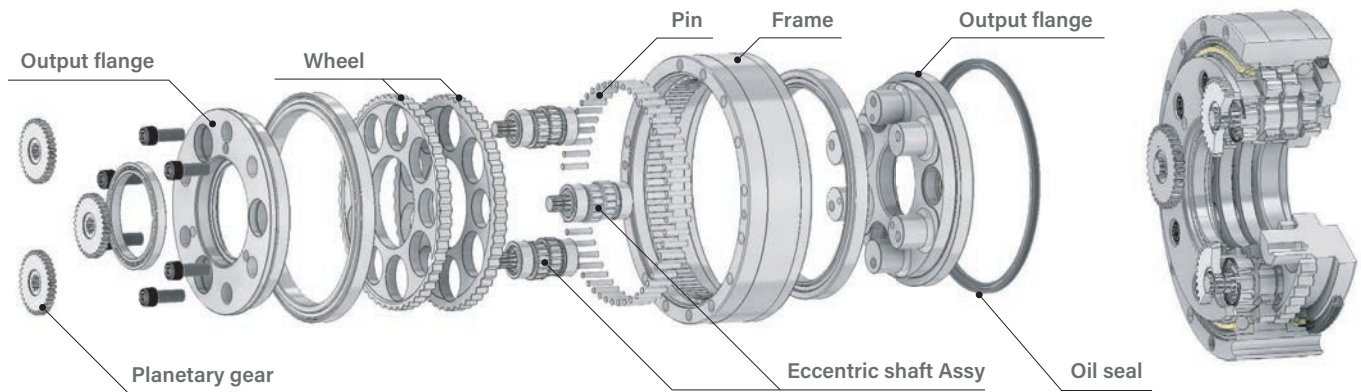


\* Input gear and center gear should be prepared on the customer side.

### Mechanism diagram

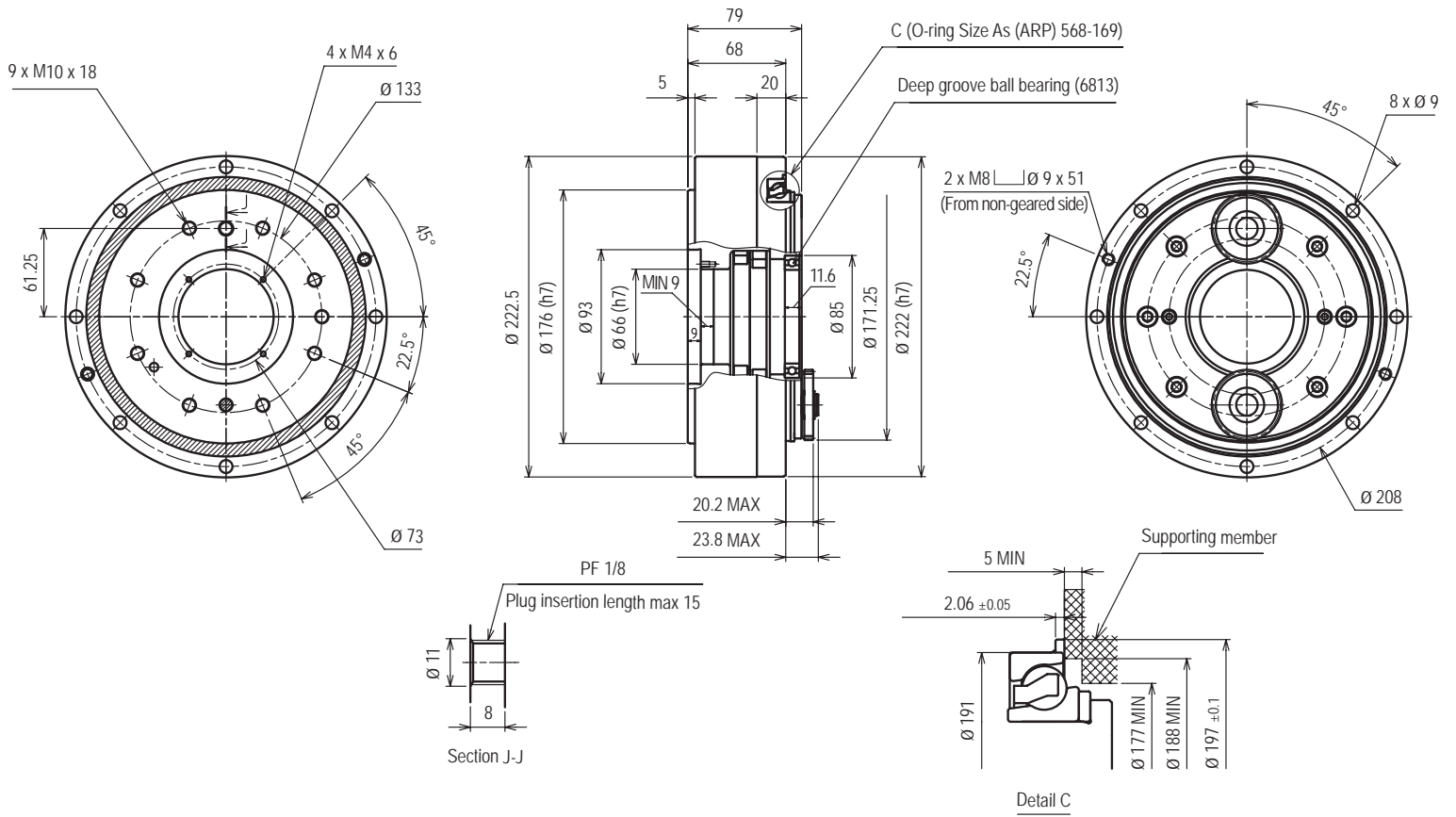


### Component structure



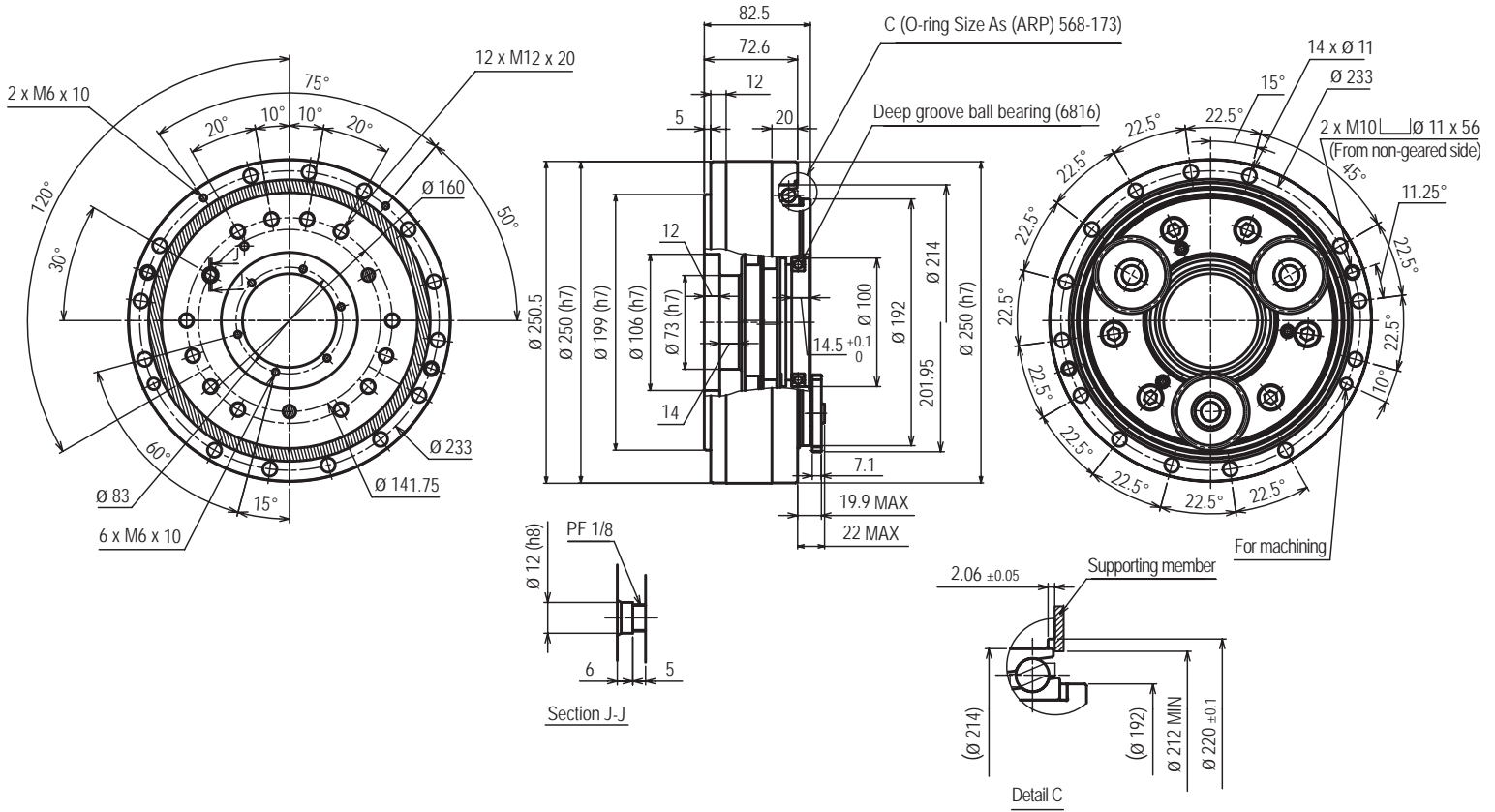
## Dimensions

EH-50C



## Dimensions

### EH-120C



# Customer Service and Support

## Distinction in Service and Support

Nidec Drive Technology Corporation has invested heavily in building a global customer service and application support network that will meet the evolving needs of our customers. By leveraging our global infrastructure, our OEM customers maintain their competitiveness and profitability at home while able to expand into emerging markets abroad without any drop-off of service and support.

Nidec DTC pledges that we will continue to expand our service and support network footprint globally, and continuously strive for perfection as a dependable partner to our customers. In this section you will learn about our service and support capabilities that we will leverage in order to provide you peace of mind.

## Online and Phone Support

**Resolve your technical issues quickly and accurately, without disrupting your business.** When you do business with Nidec Drive Technology, your company and your customers have immediate access to our global network of support centers and resources. Whether you need help designing, installing, and maintaining equipment or diagnosing an operating issue, Nidec DTC will deliver the tools and information that you need in order to insure that your equipment is running to perfection.

Contact your local sales office for immediate support either over the phone or in the field. All customer accounts in North America have a dedicated Technical Support Engineer, knowledgeable about your business, on-standby ready to support you and your customers. If you do not know who to contact, please call our 1-800 number in order to get properly directed to the right person for help.

For online support, please visit our website in order to download any drawings, instruction manuals, or technical performance specifications that you require. All catalogs and brochures are easily downloadable on the website. If you prefer to inquire about an issue or for more information, please do not hesitate to submit your request online or email us at the address listed below.

## Training Services

**Investing our time in you, so together we build better, more competitive product for your customer.** As the industrial world becomes increasingly competitive, new technologies are introduced every year requiring manufacturers to constantly rationalize and update existing designs. As a result, successful manufacturers realize the absolute need for product training.

Nidec DTC has a network of engineers that are factory trained and authorized to provide your workforce solid training on our products and basic power transmission concepts. The main objective of our standard program and materials is to better empower your workforce to size and select gearboxes for any motion control applications. We provide this service at no cost to our customers, because we see the value in building a more knowledgeable customer and helping them more quickly react to equipment design revisions when needed.

Other manufacturers are not as forthcoming with sharing information with their customers, an attempt to hide their higher manufacturing costs or to use unreleased performance data as a "product differentiator." Nidec DTC views their customers as long term partners and trains and shares information freely based on that vision.

Training classes can be conducted online, at any of our sales branches or offices, or at key distributor branches when requested. Nidec DTC can also bring the training session to your facility in order to make better use of your time and costs. A thorough hands-on training seminar can be provided at our North American headquarters in Glendale Heights, where customers can get the opportunity to completely assemble and test our products.

The Nidec DTC training program options provide support for any budget. Our training programs improve your employees' skill and knowledge competencies in the areas of power transmission and motion control while addressing any location, time, travel and productivity constraints. Contact your local sales office today in order to get a product refresher on your calendar.



### Nidec Drive Technology Hotline:

Toll-free: (800) 842-1479

Email: [info@nidec-dtc.com](mailto:info@nidec-dtc.com)



## Selection Tool Configurator

Nidec Drive Technology's Online Product Configurator makes it easier than ever for engineers to incorporate our products into their drive system design. Our configurator allows our customers to select from wide range of servo motor manufacturer models to ensure flawless fitment with our products. With over 75 motor manufacturers included, there is a good possibility we have a solution ready to go.

In addition to motor sizing, our configurator also allows our customers to select gearheads based on application. These applications include rotary tables, belt conveyors, rack and pinion drives, lifting and lowering devices, ball screws, drive gears, drive carriages and robot joints. After selecting the application template, customers can then input the application load parameters and motion profile. The proper frame size and reduction ratio are then determined, with motor selection as the final last step.

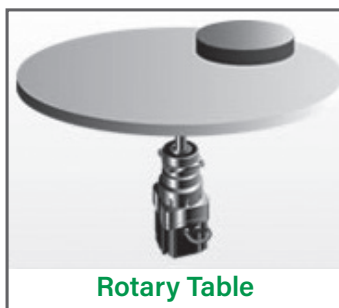
Once sizing is complete, our configurator will then display the full part number, along with gearbox and motor technical specifications. This part number includes the motor mounting adapter, which can be sent directly to our sales support team for pricing & delivery.



Drawings and models are also available in PDF, DXF, IGS and STEP formats, making it simple for machine designers to quickly drop them into machine schematics to check for proper fitment. We have seasoned application engineers standing by to assist with any sizing or selection questions.

<https://www.nidec-drivetechnology.co.jp/selection/all/>

## Application Selection



Rotary Table



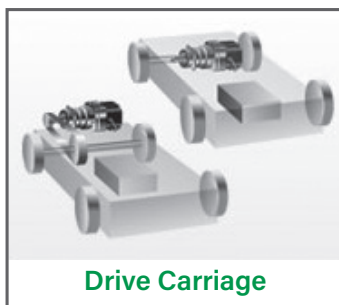
Belt Conveyor



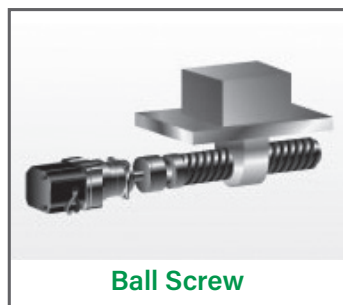
Rack and Pinion



Lifting & Lowering Device



Drive Carriage



Ball Screw



Drive Gears



Robot Joints

[www.nidec-dtc.com](http://www.nidec-dtc.com)

***Nidec***

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