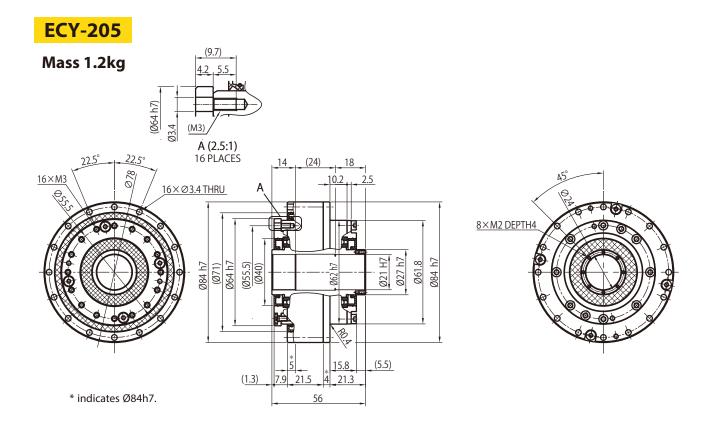
Outline Drawing

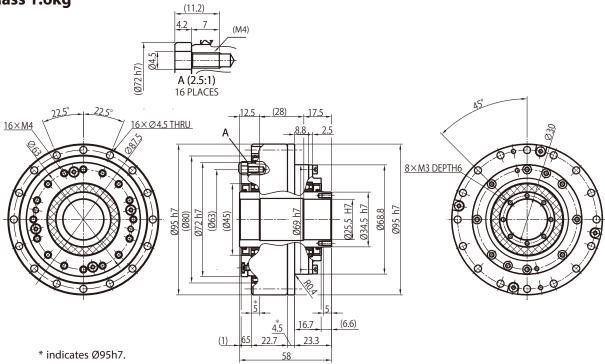
ECY-203 (10.2) Mass 0.9kg (Ø54 h7) (M3)**A** (2.5:1) 16 PLACES 10 <u>16×M3</u> 16ר3.4 THRU 6×M2 DEPTH4 Ø54 h7 (Ø62)(Ø48) (Ø35) (4.6) 7.7 _18.5 20.9 (1.4)* indicates Ø74h7. 52.5



Outline Drawing

ECY-107

Mass 1.6kg



Worldwide Locations

North America / South America

Sumitomo Machinery Corporation of America

4200 Holland Blvd. Chesapeake, VA 23323, U.S.A. TEL (1)757-485-3355 FAX (1)757-485-7490

SM Cyclo of Canada, Ltd. (SMC)

1453 Cornwall Road, Oakville, Canada ON L6J 7T5 TEL (1)905-469-1050 FAX (1)905-469-1055

Sumitomo (SHI) Cyclo Drive Germany GmbH

Cyclostraße 92, 85229 Markt Indersdorf, Germany TEL (49)8136-66-0 FAX (49)8136-5771

India

Sumi-Cyclo Drive India Private Limited (SDI) Gat No. 186, Raisoni Industrial Park, Alandi Markal Road, Fulgaon-Pune, Maharashtra, India

TEL (91)96-0774-5353

Southeast Asia / Oceania

Sumitomo (SHI) Cyclo Drive Asia Pacific Pte. Ltd. (SCA)

15 Kwong Min Road, Singapore 628718 TEL (65)6591-7800 FAX (65)6863-4238

Sumitomo (SHI) Cyclo Drive Shanghai, Ltd. (SCS)

11F, SMEG Plaza, No. 1386 Hongqiao Road, Changning District, Shanghai, China 200336 TEL (86)21-3462-7877 FAX (86)21-3462-7922

Taiwan

Tatung SM-Cyclo Co., Ltd. (TSC)

22 Chungshan N. Road 3rd., Sec. Taipei, Taiwan 104, R.O.C.

TEL (886)2-2595-7275 FAX (886)2-2595-5594

Korea

Sumitomo (SHI) Cyclo Drive Korea, Ltd. (SCK)

Room #913, Royal Bldg, Saemunan-ro 5 gil 19, Jongro-gu, Seoul, Korea 03173 TEL (82)2-730-0151 FAX (82)2-730-0156

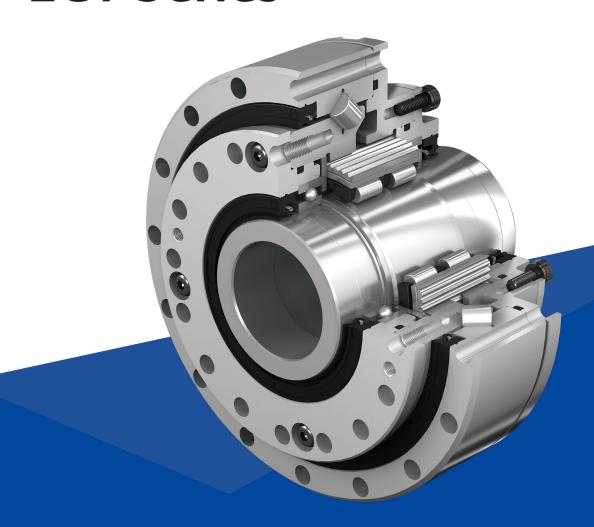
Sumitomo Heavy Industries, Ltd. (SHI)

ThinkPark Tower, 1-1 Osaki 2-chome, Shinagawa-ku, Tokyo 141-6025, Japan TEL (81)3-6737-2511 FAX (81)3-6866-5160

Specifications, dimensions, and other items are subject to change without prior notice.



E CYCLO® **High Precision Gearboxes ECY Series**



Strain Wave Gear System × CYCLO Drive Gear Compact Size, High Torque, and High Rigidity

Sumitomo's compact High Precision Gearboxes

E CYCLO® High Precision Gearboxes

ECY Series



CYCLO® Drives were created and developed by Sumitomo.

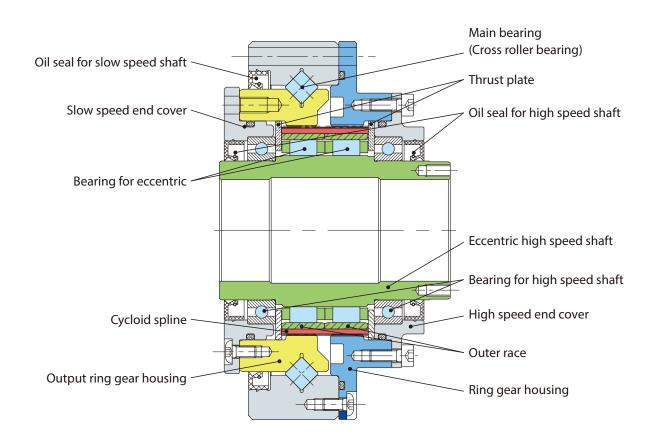
This unique reducer structure without teeth (trochoid tooth profile*) is being

used in industrial robots and transfer devices all over the world.

The ECY Series, which was developed as a compact non-backlash reducer, integrates the strain wave gear with the engagement theory of the CYCLO Drives, thus realizing unprecedented high rigidity and a compact structure.

* Epitrochoid parallel curves

Structure



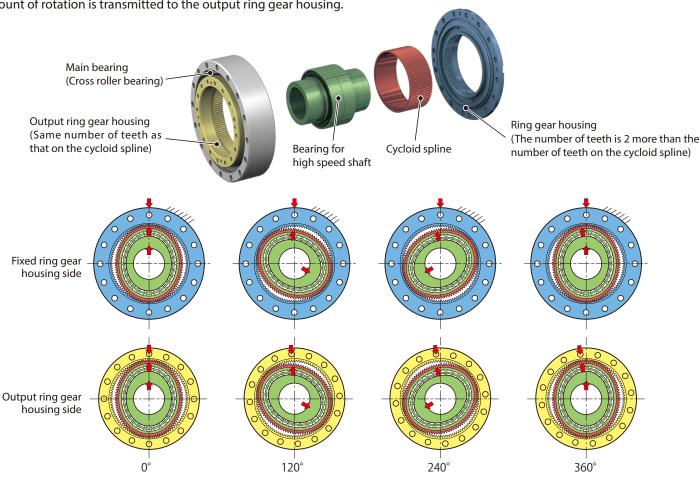


Operating Principle

As a principle rule, the ECY Series consists of 4 parts.

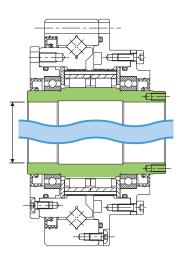
- The bearing for eccentric deforms the cycloid spline into an elliptical shape.
- The major axis of the cycloid spline that was deformed into an elliptical shape engages the fixed ring gear housing and the output ring gear housing.
- When the fixed ring gear housing is fixed and the bearing used for the eccentric body is turned 1 rotation in the clockwise direction, the cycloid spline rotates in the counterclockwise direction by an amount corresponding exactly to the difference in the number of teeth, while it is elastically deforming.

• This amount of rotation is transmitted to the output ring gear housing.



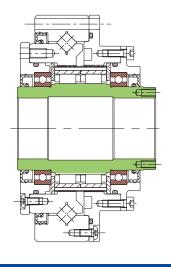
Features

Large diameter of high speed hollow shaft



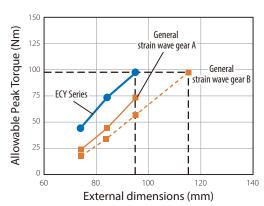
The diameter of high speed hollow shaft is large, which enables effective use of its space; for passing the cable, as the space for the shaft, etc.

Reduction of customer's assembly steps



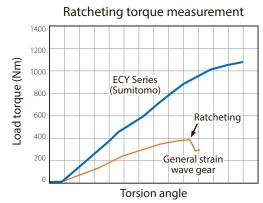
Because the high speed shaft is supported by the reducer and the grease is packed in a sealed structure, it is easy to mount the shaft on the device or on the motor.

Compact and high torque



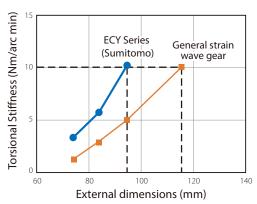
It has high torque compared to that of a general wave gear (equivalent size), contributing to make the device more compact.

Ratcheting resistence (safety under overload)



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

High rigidity



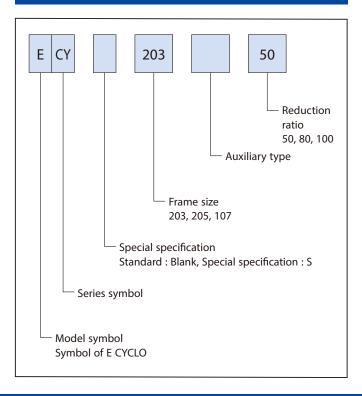
The torsional stiffness is larger than that of a general strain wave gear (equivalent size). Thus it can increase the device's strength and reduce vibration, etc.

Reasons for exceptional strength

	Examples of general strain wave gears	ECY Series	
External gear profile	Cup type/Hat type	Cylindrical type	
Tooth contact in the tooth trace direction	Partly gear meshing (30-50%)	Fully gear meshing (≒100%)	
Elliptical bearing structure	Ball bearing	Roller bearing	

The structure differs from a general strain wave gear, realizing high strength.

Nomenclature



Rating

Frame size	Reduction ratio	Note 1 Rated output torque		Note 2 Allowable peak torque at acceleration and decelaration		Note 3 Lost motion
		Nm	kgf∙m	Nm	kgf∙m	arc min
203	50	21	2.1	44	4.5	
	80	29	3.0	56	5.7	1
	100	31	3.2	70	7.1	
205	50	33	3.4	73	7.4	
	80	44	4.5	96	9.8	1
	100	52	5.3	107	10.9	
107	50	39	4.0	98	10.0	
	80	63	6.4	137	14.0	1
	100	67	6.8	157	16.0	

- Note: 1. The rated torque indicates the allowable output torque at the output flange at an input speed of 2000 r/min.
 - This is the peak torque allowed during normal acceleration and deceleration.
 - 3. This is torsion angle (representative value) under the load of the rated torque $\times\,\pm3\%.$
 - 4. Please inquire us for specifications other than the above.