

HarmonicDrive®

High Precision SHA-CG Actuators

Compact, Hollow Shaft Design

Direct Drive Motor Performance

~ 80-90% less weight

~ 50% more compact

High torque for fast acceleration and positioning

The SHA-CG delivers high precision with improved positioning accuracy and surface runout. Ideal for high precision rotary applications such as indexing tables.



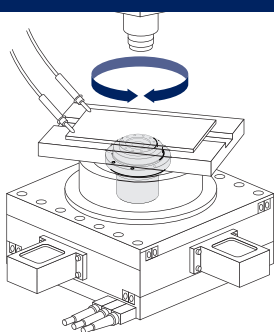
Application Examples

Measurement, Analytical
and Test Systems

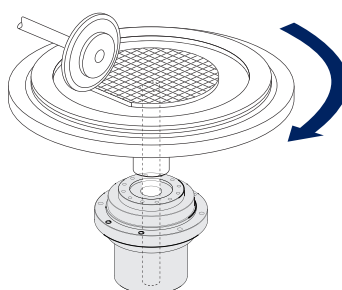
Optical Equipment

Machine Tools

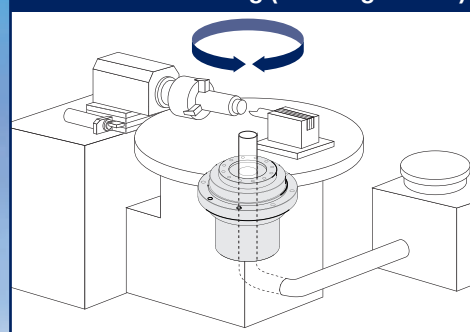
Theta Axis



Wafer Dicing



Precision Machining (Indexing Device)



Product Features

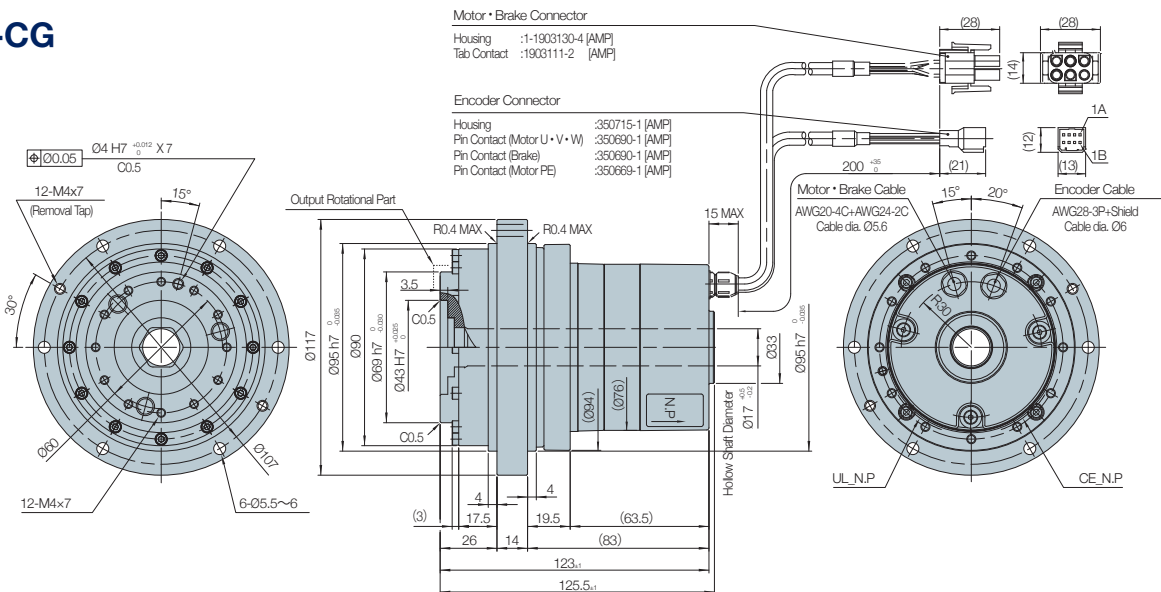
- **Improved output shaft runout accuracy (radial runout & axial runout: less than 0.010mm)**
Improved structure for high precision surface and shaft runout.
- **Output shaft resolution is evenly divisible**
Indexing at 0.01 ° / 0.001 ° / 0.0001 °
- **Optional mounting stand available**

Size	Gear Ratio	Maximum Torque [Nm]	Maximum Current	Continuous Torque [Nm]	Allowable Continuous Current	Maximum Speed [rpm]	Output Resolution Pulse / Rev	Hollow Shaft Dia.	One-way Positioning Accuracy (arc-sec)	Motor Voltage	Mass* kg
20A	50:1	73	6.1	21	2.1	120	6,553,600	17	60	200V	2.6 (2.7)
	80:1	96	5.0	35	2.1	75	10,485,760	17	50		
	100:1	107	4.6	43	2.1	60	13,107,200	17	50		
	120:1	113	4.1	48	2.0	50	15,728,640	17	50		
	160:1	120	3.4	48	1.7	37.5	20,971,520	17	50		
25A	50:1	127	15.1	34	4.7	96	6,553,600	27	50	100V	3.95 (4.1)
	80:1	178	13.2	57	4.7	60	10,485,760	27	40		
	100:1	204	12.2	72	4.7	48	13,107,200	27	40		
	120:1	217	11.0	81	4.5	40	15,728,640	27	40		
	160:1	229	9.0	81	3.7	30	20,971,520	27	40		
25A	50:1	127	8.7	40	3.0	112	6,553,600	27	50	200V	3.95 (4.1)
	80:1	178	7.6	66	3.0	70	10,485,760	27	40		
	100:1	204	7.0	81	3.0	56	13,107,200	27	40		
	120:1	217	6.3	81	2.6	46.7	15,728,640	27	40		
	160:1	229	5.2	81	2.1	35	20,971,520	27	40		
32A	50:1	281	17.7	90	6.0	96	6,553,600	35	40	200V	7.7 (8.0)
	80:1	395	15.4	151	6.0	60	10,485,760	35	30		
	100:1	433	13.7	178	5.7	48	13,107,200	35	30		
	120:1	459	12.2	178	5.0	40	15,728,640	35	30		
	160:1	484	10.0	178	4.1	30	20,971,520	35	30		
40A	50:1	523	27.2	157	9.0	80	6,553,600	45	40	200V	13 (13.80)
	80:1	675	22.0	260	9.0	50	10,485,760	45	30		
	100:1	738	19.6	327	9.0	40	13,107,200	45	30		
	120:1	802	18.0	382	8.8	33.3	15,728,640	45	30		
	160:1	841	14.7	382	7.2	25	20,971,520	45	30		

* Value in parenthesis is with brake.
Output Encoder Resolution = Encoder Resolution x Reduction Ratio.

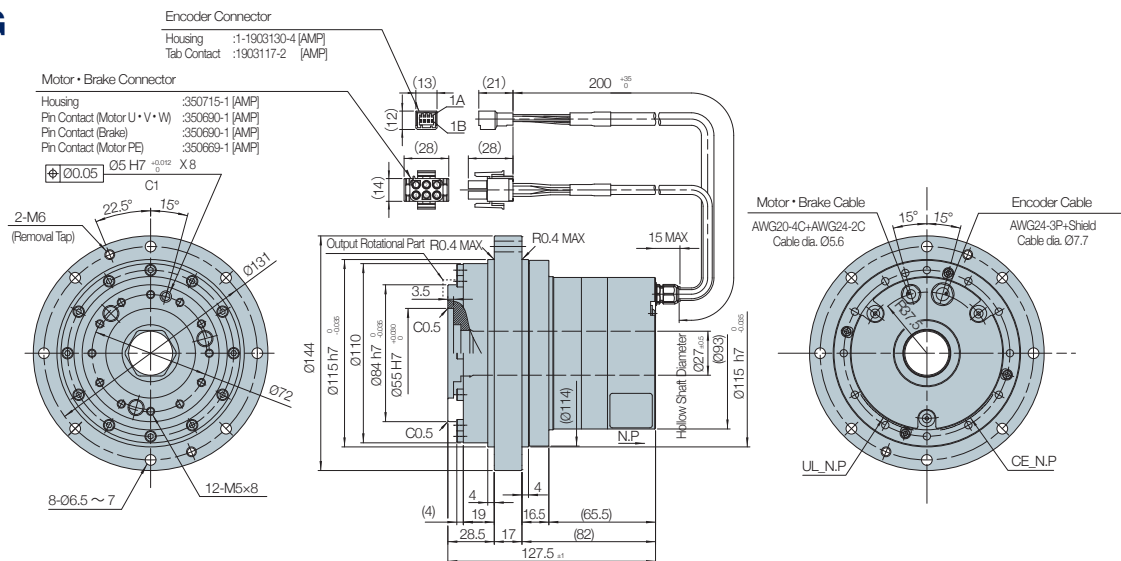
Outline Dimensions

SHA20A-CG



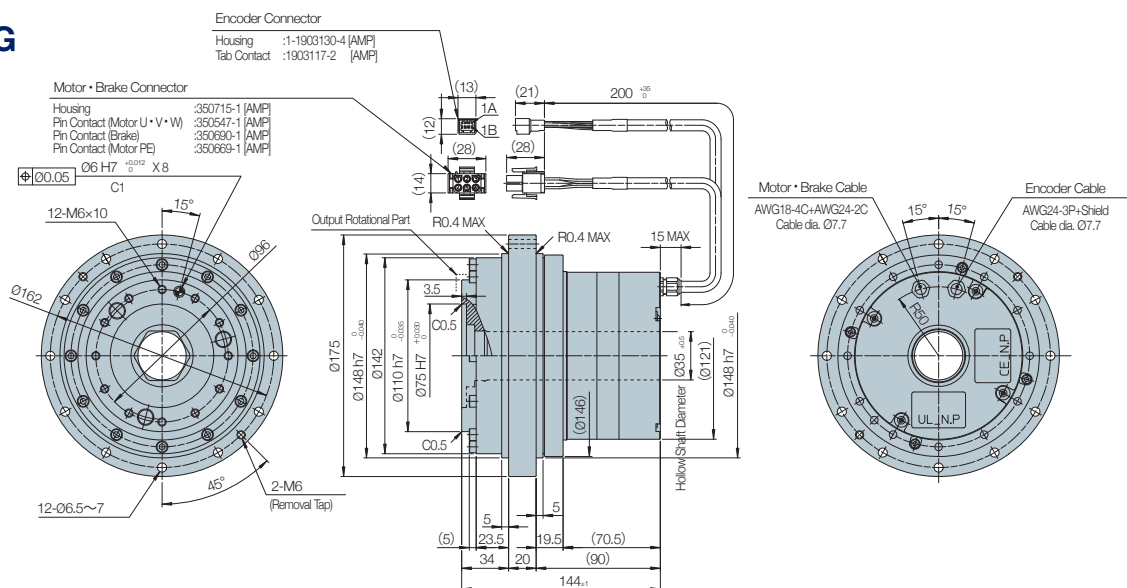
(Note) The dimension tolerances that are not specified vary depending on the manufacturing method. Please check the confirmation drawing or contact us for dimension tolerances not shown.

SHA25A-CG



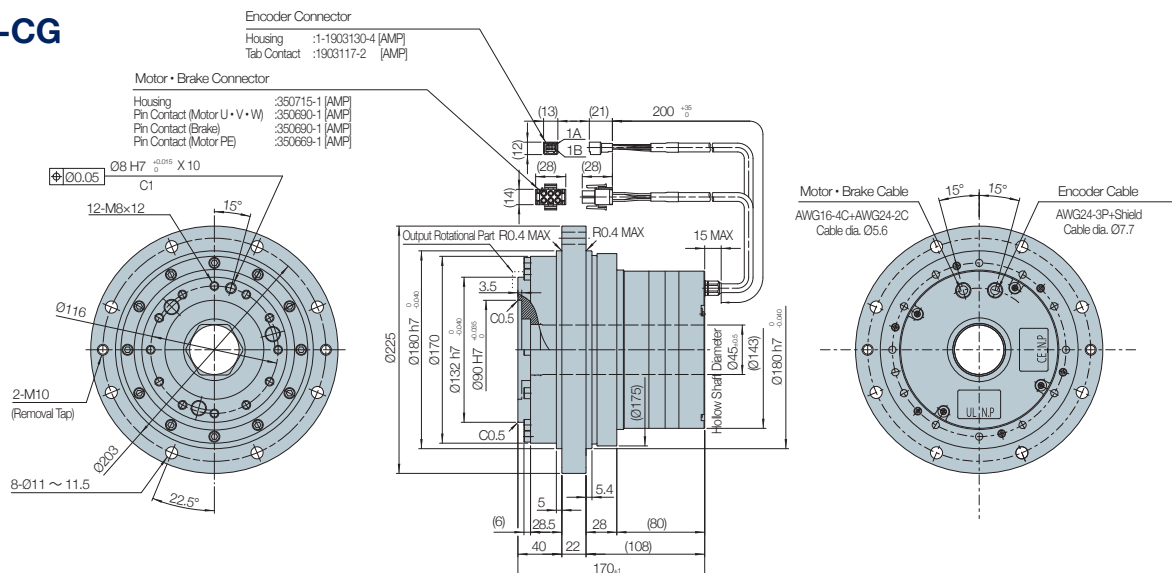
(Note) The dimension tolerances that are not specified vary depending on the manufacturing method. Please check the confirmation drawing or contact us for dimension tolerances not shown.

SHA32A-CG



(Note) The dimension tolerances that are not specified vary depending on the manufacturing method. Please check the confirmation drawing or contact us for dimension tolerances not shown.

SHA40A-CG



(Note) The dimension tolerances that are not specified vary depending on the manufacturing method. Please check the confirmation drawing or contact us for dimension tolerances not shown.

The SHA-CG Series actuators is compact, delivers high torque and features a hollow shaft that allows design versatility in demanding applications.

SHA-CG Series

Model Options

■ Gearhead

Standard	Harmonic Drive® Gear - CSG Series 50:1 ~ 160:1
----------	--

■ Cable Orientation

Standard	Rear exit
Option	Side exit

■ Encoder

Standard	Magnetic Absolute Encoder (17 bit) Multi-Turn (16 bit) (Nikon -A Format)
Option	Absolute Encoder: Panasonic format, Mitsubishi format, BiSS C format Incremental Encoder

■ Brake

Standard	No Brake
Option	Motor Brake (Integrated without dimension change)

■ Servomotor

Standard	200V AC
Option	100V AC 72V DC, 48V DC

■ Environmental

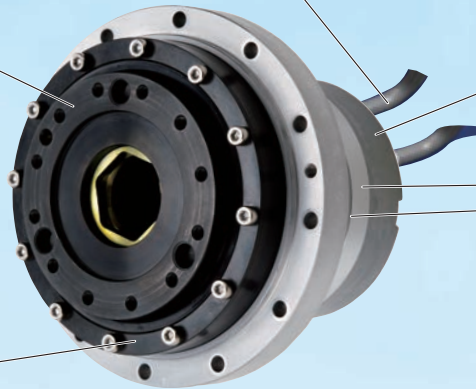
Standard	IP 54 Temperature Range 0°C - 40°C UL, CE marking, RoHS
Option	IP 65

■ Output Bearing

Standard	Cross Roller Bearing
Option	Larger size bearing for higher load capacities

■ Option

Origin & End Limit Sensor
Mounting Stand



Recommended Drivers

	Size 20	Size 25	Size 32	Size 40
General Purpose I/O Commands Control Modes (Position/Velocity/Current) / EtherCAT	REL-230-18	REL-230-18 REL-230-36	REL-230-18 REL-230-36	REL-230-36 REL-230-40
MECHATROLINK MECHATROLINK-IICommands	HA-800B-3D/E-200	HA-800B-6D/E-100 HA-800B-3D/E-200	HA-800B-6D/E-200	HA-800B-6D/E-200 (HA-800B-24D/E-200)
CC-Link CC-Link Commands	HA-800C-3D/E-200	HA-800C-6D/E-100 HA-800C-3D/E-200	HA-800C-6D/E-200	HA-800C-6D/E-200 (HA-800C-24D/E-200)

Harmonic Drive LLC
Boston US Headquarters
247 Lynnfield Street
Peabody, MA 01960

New York Sales Office
100 Motor Parkway
Suite 116
Hauppauge, NY 11788

San Jose Sales Office
333 W. San Carlos Street
Suite 1070
San Jose, CA 95110

Chicago Sales Office
137 N. Oak Park Avenue
Suite 410
Oak Park, IL 6030

T: 800.921.3332
T: 978.532.1800
F: 978.532.9406
www.HarmonicDrive.net

Group Companies
Harmonic Drive Systems, Inc.
6-25-3 Minami-Ohi, Shinagawa-ku
Tokyo 141-0013, Japan

Harmonic Drive AG
Hoenbergstrasse, 14, D-6555
Limburg/Lahn Germany

