



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
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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-II Commands	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)

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)

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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**

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

Outline Dimensions

SHA20A-CG

Motor • Brake Connector

Housing	:1-1903130-4 [AMP]
Tab Contact	:1903111-2 [AMP]

Encoder Connector

Housing	:350715-1 [AMP]
Pin Contact (Motor U • V • W)	:350690-1 [AMP]
Pin Contact (Brake)	:350690-1 [AMP]
Pin Contact (Motor PE)	:350669-1 [AMP]

Motor • Brake Cable
AWG20-4C+AWG24-2C
Cable dia. $\phi 5.6$

Encoder Cable
AWG28-3P+Shield
Cable dia. $\phi 6$

Dimensions:

- Front View: $\phi 4 H7^{+0.012}_{-0} \times 7$, C0.5, 2-M5 (Removal Tap), 15°, 30°, $\phi 30$, $\phi 19.2$, 12-M4 $\times$ 7, 6- $\phi 5.5 \sim 6$.
- Side View: Output Rotational Part, R0.4 MAX, R0.4 MAX, 15 MAX, 0.33, $\phi 35 H7^{+0.008}_{-0}$, $\phi 30$, $\phi 39 H7^{+0.008}_{-0}$, $\phi 43 H7^{+0.008}_{-0}$, C0.5, C0.5, $\phi 17^{+0.010}_{-0}$, Hollow Shaft Diameter $\phi 17^{+0.010}_{-0}$, 4, 4, 17.5, 14, 19.5, (63.5), 123.1, 125.5.
- Rear View: 15°, 20°, $\phi 23$, UL N.P., OE N.P.

(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

Encoder Connector
Housing :1-1903130-4 [AMP]
Tab Contact :1903117-2 [AMP]

Motor • Brake Connector
Housing :350715-1 [AMP]
Pin Contact (Motor U • V • W) :350690-1 [AMP]
Pin Contact (Brake) :350690-1 [AMP]
Pin Contact (Motor PE) :350669-1 [AMP]

⌀0.05 ⌀0.5 H7 -0.012 X 8 C1
2-M6 (Removal Tap)
22.5° 15°
⌀1.31
⌀7.2
8-⌀6.5 ~ 7 12-M5×8

Output Rotational Part R0.4 MAX
R0.4 MAX
15 MAX
Hollow Shaft Diameter ⌀27.0±0.1 (33.3)
N.P.
(4) 4 19 16.5 (65.5)
28.5 17 127.5 ±1

Motor • Brake Cable
AWG20-4C+AWG24-2C
Cable dia. ⌀5.6

Encoder Cable
AWG24-3P+Shield
Cable dia. ⌀7.7

UL_N/P CE_N/P

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SHA32A-CG

Encoder Connector

Motor • Brake Connector

Housing : 380715-1 [AMP]
Pin Contact (Motor U • V • W) : 330547-1 [AMP]
Pin Contact (Brake) : 350690-1 [AMP]
Pin Contact (Motor PE) : 350669-1 [AMP]

Housing : 1903130-4 [AMP]
Tab Contact : 1903117-2 [AMP]

④00.05 06 H7 $\frac{0.015}{0}$ X.8

12-M6x10 15° 0.06 0162 12-06.5~7 45° 2-M6 (Removal Tap)

Output Rotational Part R0.4 MAX R0.4 MAX 15 MAX 0.35 $\frac{0.05}{0}$ 0121 0148 h7 $\frac{0.06}{0}$ 0142 0110 h7 $\frac{0.036}{0}$ 075 h7 $\frac{0.030}{0}$ 0.5 0.5 5 23.5 34 20 19.5 (70.5) (90) 144.1

Motor • Brake Cable AWG18-4C+AWG24-2C Cable dia. Ø7.7

Encoder Cable AWG24-3P+Shield Cable dia. Ø7.7

15° 15° R0.3 UL N.P. CE N.P.

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SHA40A-CG

Encoder Connector
Housing : 1-1903130-4 [AMP]
Tab Contact : 1903117-2 [AMP]

Motor * Brake Connector
Housing : 350715-1 [AMP]
Pin Contact (Motor U-V-W) : 350690-1 [AMP]
Pin Contact (Brake) : 350690-1 [AMP]
Pin Contact (Motor PE) : 350669-1 [AMP]

① 00.05 06 H7 $\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$ X 10
C1
12-M8x12
15°
Ø116
2-M10
(Removal Tap)
8-Ø11 ~ 11.5
22.5°

Output Rotational Part R0.4 MAX
R0.4 MAX
15 MAX
Hollow Shaft Diameter Ø175 $\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$
Ø180 h7 $\begin{smallmatrix} 0 \\ +0.05 \end{smallmatrix}$
Ø180 h7 $\begin{smallmatrix} 0 \\ +0.05 \end{smallmatrix}$
Ø170 $\begin{smallmatrix} 0 \\ +0.05 \end{smallmatrix}$
Ø132 h7 $\begin{smallmatrix} 0 \\ +0.05 \end{smallmatrix}$
Ø90 H7 $\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$
3.5
C0.5
C0.5
5
26.5
40
22
5.4
28
(80)
170 $\begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$
(108)
Ø143 $\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$
Hollow Shaft Diameter Ø175 $\begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$

Motor * Brake Cable
AWG16-4C+AWG24-2C
Cable dia. Ø5.6
15° 15°
Encoder Cable
AWG24-3P+Shield
Cable dia. Ø7.7
15° 15°
ULN.P
ULN.P

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