

# HarmonicDrive®

## Flat hollow-shaft AC servo actuator **FHA-C Series**

Speed reduction ratios of 1/80 and 1/120 have been added.



Speed reduction ratios of 1/80 and 1/120 have been added to the AC servo actuator FHA-C series that has a flat hollow-shaft structure, and the product lineup has been enhanced.

Please select the optimum speed reduction ratio and inertia moment ratio for the machine device designs.

# Specification

\* Input power supply voltage 200V

Type		FHA-17C-□□-E250					FHA-25C-□□-E250				
		50	80	100	120	160	50	80	100	120	160
Item											
Maximum torque <sup>*1</sup>	Nm	39	51	57	60	64	150	213	230	247	260
Continuous torque <sup>*1,2</sup>	Nm	15	20	24	24	24	35	53	75	85	85
Maximum speed <sup>*1</sup>	r/min	96	60	48	40	30	90	56	45	37	28
Maximum current <sup>*1</sup>	A	2.1	1.7	1.6	1.4	1.1	7.3	6.4	5.6	5.0	4.0
Continuous current <sup>*1,2</sup>	A	0.93	0.82	0.74	0.63	0.51	2.1	2.1	2.1	2.0	1.6
Moment of inertia (GD <sup>2</sup> /4) <sup>3</sup>	kgm <sup>2</sup>	0.17	0.43	0.67	0.97	1.7	0.81	2.1	3.2	4.7	8.3
Reduction ratio		01:50	1:80	1:100	1:120	1:160	01:50	1:80	1:100	1:120	1:160
Allowable moment load	Nm	188					370				
Moment stiffness	Nm/rad	220 x 10 <sup>3</sup>					490 x 10 <sup>3</sup>				
Unidirectional positioning accuracy	Second	60	40	40	40	40	40	30	30	30	30
Output shaft resolution (multiplied by 4) <sup>4</sup>	Pulse/Revolution	500,000	800,000	1,000,000	1,200,000	1,600,000	500,000	800,000	1,000,000	1,200,000	1,600,000
Weight <sup>*3</sup>	kg	2.5					4.0				
Mounting direction		Can be installed in any direction.									
Combined driver		HA-800*-3C-200									

Type		FHA-32C-□□-E250					FHA-40C-□□-E250				
		50	80	100	120	160	50	80	100	120	160
Item											
Maximum torque <sup>*1</sup>	Nm	281	364	398	432	453	500	659	690	756	820
Continuous torque <sup>*1,2</sup>	Nm	60	95	130	155	200	85	145	190	225	300
Maximum speed <sup>*1</sup>	r/min	80	50	40	33	25	70	43	35	29	22
Maximum current <sup>*1</sup>	A	11.4	9.2	8.0	7.4	5.9	17.3	14.0	11.8	10.9	9.0
Continuous current <sup>*1,2</sup>	A	3.1	3.1	3.1	3.1	3.0	4.0	4.0	4.0	3.9	3.8
Moment of inertia (GD <sup>2</sup> /4) <sup>3</sup>	kgm <sup>2</sup>	1.8	4.5	7.1	10.2	18.1	4.9	12.5	19.5	28.1	50
Reduction ratio		01:50	1:80	1:100	1:120	1:160	01:50	1:80	1:100	1:120	1:160
Allowable moment load	Nm	530					690				
Moment stiffness	Nm/rad	790 x 10 <sup>3</sup>					1400 x 10 <sup>3</sup>				
Unidirectional positioning accuracy	Second	40	30	30	30	30	40	30	30	30	30
Output shaft resolution (multiplied by 4) <sup>4</sup>	Pulse/Revolution	500,000	800,000	1,000,000	1,200,000	1,600,000	500,000	800,000	1,000,000	1,200,000	1,600,000
Weight <sup>*3</sup>	kg	6.5					12				
Mounting direction		Can be installed in any direction.									
Combined driver		HA-800*-6C-200									

The values in the table above show typical values for the output shaft.

\*1: They are typical characteristics in the case of combinations with our driver (driven with the ideal sine wave). (Ambient temperature: 25°C)

\*2: The values for saturated temperature were obtained when installed on an aluminum heatsink (17C: □300 x 15t, 25C: □350 x 18t, 32C: □400 x 20t, 40C: □500 x 25t [mm])

\*3: The values of the moment of inertia and weight were obtained while the product is not equipped with a brake.

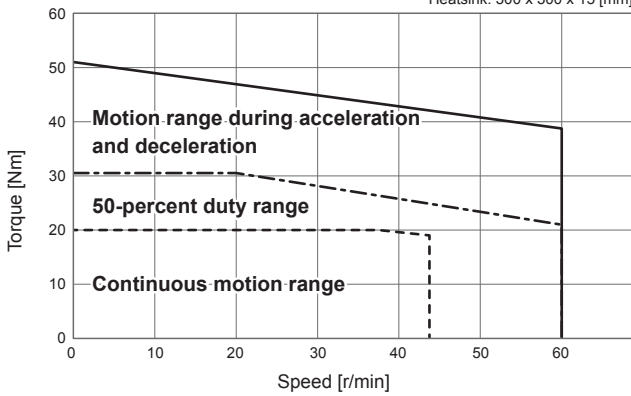
\*4: The output axis resolution is obtained by (Motor shaft encoder resolution multiplied by four) x (Reduction ratio).

# Operable range

\* Input power supply voltage 200V

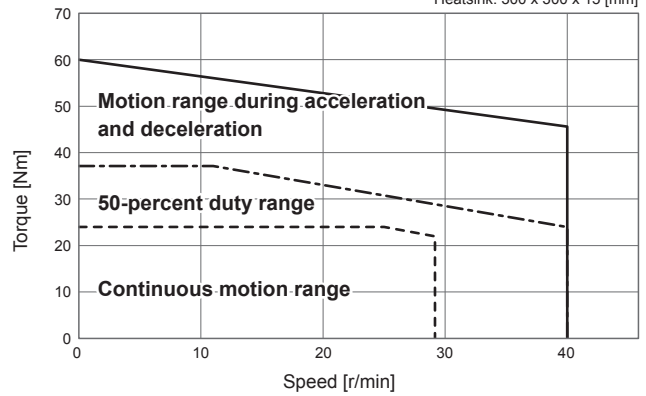
**FHA-17C-80**

Heatsink: 300 x 300 x 15 [mm]



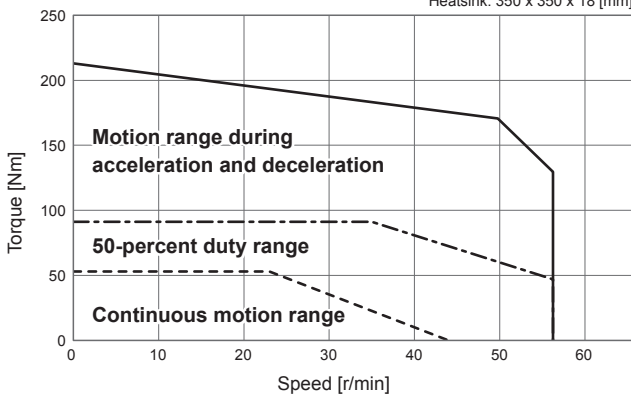
**FHA-17C-120**

Heatsink: 300 x 300 x 15 [mm]



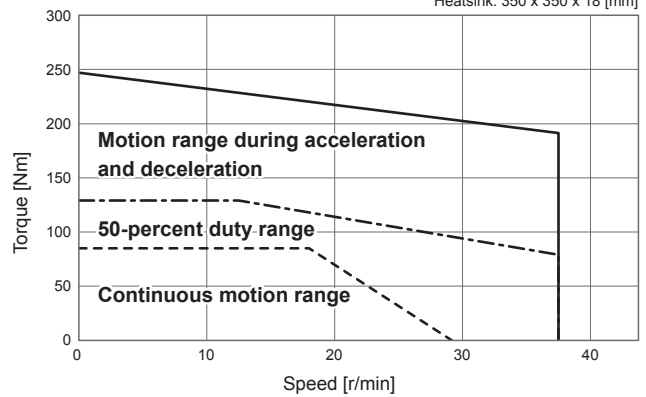
**FHA-25C-80**

Heatsink: 350 x 350 x 18 [mm]



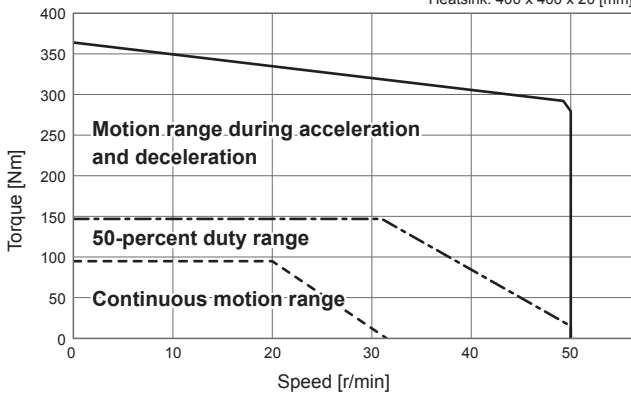
**FHA-25C-120**

Heatsink: 350 x 350 x 18 [mm]



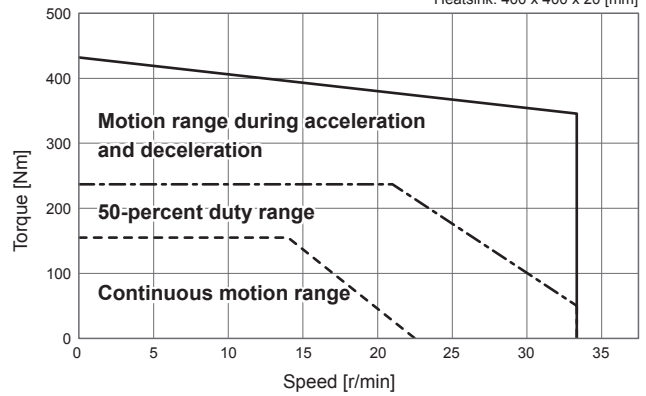
**FHA-32C-80**

Heatsink: 400 x 400 x 20 [mm]



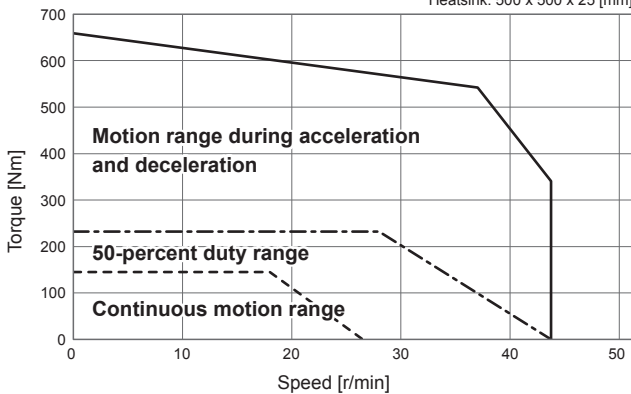
**FHA-32C-120**

Heatsink: 400 x 400 x 20 [mm]



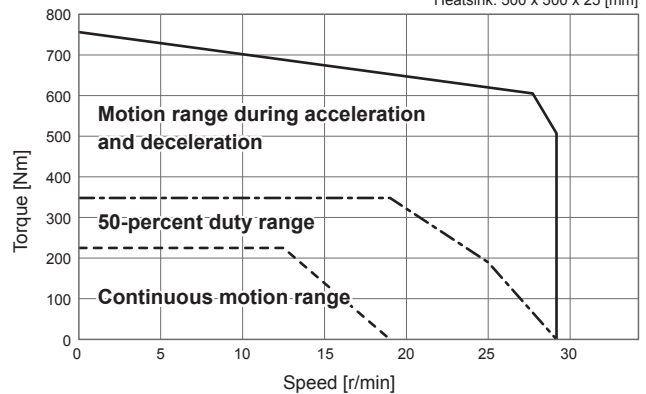
**FHA-40C-80**

Heatsink: 500 x 500 x 25 [mm]

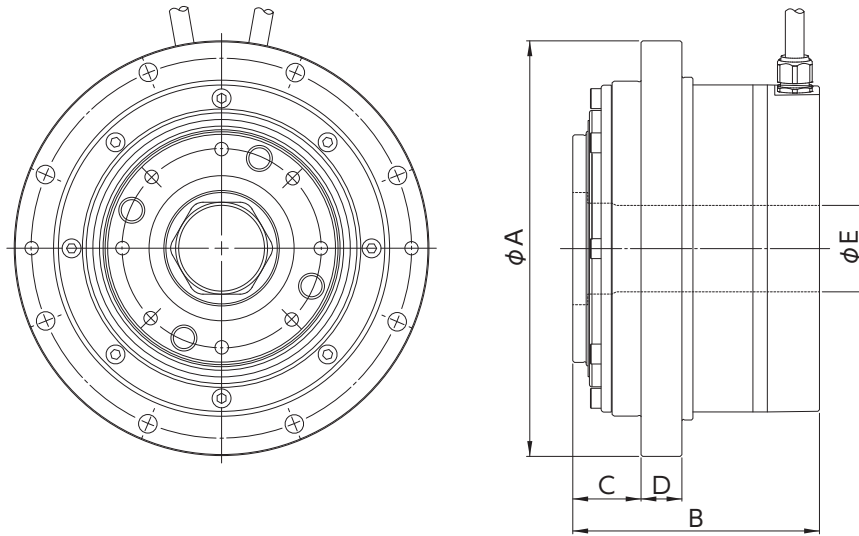


**FHA-40C-120**

Heatsink: 500 x 500 x 25 [mm]



# External dimensions



Dimension	FHA-17C	FHA-25C	FHA-32C	FHA-40C
φA	128	155	175	230
B	78 (93.5)	90.5 (110)	111.5 (132)	127 (148)
C	21	25	22	30
D	12	15	18	22
φE (hollow diameter)	18	32	35	45

\* The dimensional value enclosed in parentheses indicates the option equipped with a brake.  
 \* Regarding the PR specifications, note that the B and C dimensions are different, and refer to technical materials.  
 \* For other options, please contact our sales department.

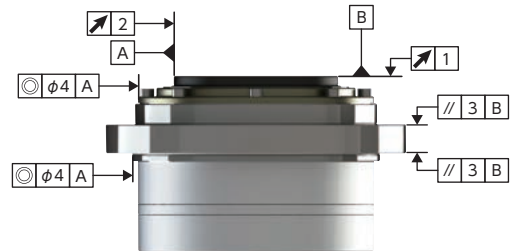
# Mechanical accuracy

The FHA-C series actuator output shaft and mechanical accuracy of the mounting flange are shown below:

(Unit: mm)

Accuracy Item	FHA-17C	FHA-25C	FHA-32C	FHA-40C
1. Output shaft surface runout	0.010	0.012	0.012	0.014
2. Output shaft radial runout	0.010	0.012	0.012	0.014
3. Parallelism between output shaft and mounted surface	0.040	0.050	0.050	0.060
4. Concentricity between output shaft and fitting part	0.040	0.050	0.050	0.060

Note) For the measurement method, refer to the technical materials.  
 Note) Values are based on the Total Indicator Reading (T.I.R.).



# Option

Specifications of options	Details of options	Symbol
Power supply voltage: 100V	Applicable to FHA-170-25C-32C	A
Motor shaft brake	To be retained	B
With connector	For the motor (IP-20), for the encoder (IP-40)	C
Extended cable	The length of the wire between the motor and encoder has been changed to 5 m.	F5

Specifications of options	Details of options	Symbol
Cable pulling direction	To be pulled out from the rear side	K
Revolution sensor	Origin and end limit sensor	L
High precision type	Standardized repetitive/reverse positioning accuracy	PR

■ Please contact our sales department with any questions.

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 The academic or generic term of our "HarmonicDrive" products is "strain wave gearing."

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