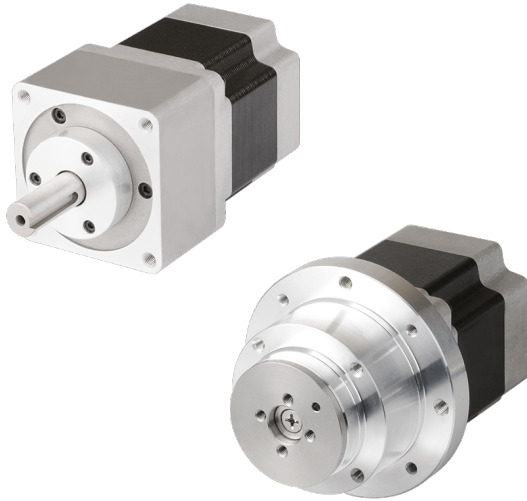


Built-in Gear / Rotary Actuator Type 5-phase Stepper Motor

(□ 42 mm, □ 60 mm, □ 85 mm)



AK-G / AK-R Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Ideal for building compact sized system
- Low price for improved cost efficiency
- Backlash □42mm : ±35'(0.58), □60mm : ±20'(0.33), □85mm : ±15'(0.25)
- Brake releases when 24 VDC is applied on brake wire (AK-GB Series, AK-RB Series)
- Basic step angle 1:5 → 0.144, 1:7.2 → 0.1, 1:10 → 0.072
- Allowable speed 1:5 → 0 to 360 rpm, 1:7.2 → 0 to 250 rpm, 1:10 → 0 to 180 rpm

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

A ① K - ② 5 ③ ④ ⑤ - ⑥ ⑦

① Max. Allowable torque

Number: Max. allowable torque (unit: kgf cm)

② Rated current

S: 0.75 A / Phase

M: 1.4 A / Phase

G: 2.8 A / Phase

③ Frame size

4: □ 42 mm

6: □ 60 mm

9: □ 85 mm

④ Axial length

Number: Refer to 'Dimensions'

⑤ Shaft type

No mark: Single shaft

W: Dual shaft

⑥ Motor type

G: Built-in gear type

GB: Built-in gear + brake type

R: Built-in rotary actuator type

RB: Built-in rotary actuator + brake type

⑦ Reduction ratio

5: 1:5

7.2: 1:7.2

10: 1:10

Product Components

Motor type	AK-G	AK-GB	AK-R	AK-RB
Product components	Product, instruction manual			
Parallel key	× 1 (□ 60 mm / □ 85 mm)		-	

Specifications

Model	A10K-S545□-□5	A15K-S545□-□7.2	A15K-S545□-□10
Max. allowable torque	10 kgf cm (1.0 N m)	15 kgf cm (1.5 N m)	
Rotor inertia moment ⁽⁰¹⁾	68×10 ⁻⁷ kg · m ²		
Rated current	0.75 A / Phase		
Basic step angle	0.144° / 0.072° (Full / Half step)	0.1° / 0.05° (Full / Half step)	0.072° / 0.036° (Full / Half step)
Allowable speed range	0 to 360 rpm		
Backlash	± 35' (0.58°)		
Unit weight (packaged) ⁽⁰²⁾	≈ 0.58 kg (≈ 0.68 kg) ≈ 0.72 kg (≈ 0.78 kg)		

Model	A35K-M566□-□5	A40K-M566□-□7.2	A50K-M566□-□10
Max. allowable torque	35 kgf cm (3.5 N m)	40 kgf cm (4.0 N m)	50 kgf cm (5.0 N m)
Rotor inertia moment ⁽⁰¹⁾	280×10 ⁻⁷ kg · m ²		
Rated current	1.4 A / Phase		
Basic step angle	0.144° / 0.072° (Full / Half step)	0.1° / 0.05° (Full / Half step)	0.072° / 0.036° (Full / Half step)
Allowable speed range	0 to 360 rpm		
Backlash	± 20' (0.33°)		
Unit weight (packaged) ⁽⁰²⁾	Built-in gear type: ≈ 1.30 kg (≈ 1.57 kg) Built-in rotary actuator type: ≈ 1.30 kg (≈ 1.40 kg) Built-in gear type: ≈ 0.95 kg (≈ 1.03 kg) Built-in rotary actuator type: ≈ 1.60 kg (≈ 1.70 kg)		

Model	A140K-□599□-□5	A200K-□599□-□7.2	A200K-□599□-□10
Max. allowable torque	140 kgf cm (14.0 N m)	200 kgf cm (20.0 N m)	
Rotor inertia moment ⁽⁰¹⁾	2,700×10 ⁻⁷ kg · m ²		
Rated current	M: 1.4 A / Phase G: 2.8 A / Phase		
Basic step angle	0.144° / 0.072° (Full / Half step)	0.1° / 0.05° (Full / Half step)	0.072° / 0.036° (Full / Half step)
Allowable speed range	0 to 360 rpm		
Backlash	± 15' (0.25°)		
Unit weight (packaged) ⁽⁰¹⁾	≈ 4.40 kg (≈ 4.88 kg) ≈ 2.64 kg (≈ 2.74 kg)		

(01) Listed in order of $\frac{\text{Standard type}}{\text{Built-in brake type}}$

Motor phase	5-phase
Insulation class	B type (130°C)
Insulation resistance	Between motor coil and case: ≥ 100 MΩ (500 VDC = megger)
Dielectric strength ⁽⁰¹⁾	Between motor coil and case: 1,000 VAC ~ 50 / 60 Hz for 1 minute
Temperature rise ⁽⁰²⁾	≤ 80°C (5-phase excitation for rated current, while stop)
Ambient temp.	-10 to 50°C, storage: -25 to 85°C (no freezing or condensation)
Ambient humi.	35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection rating	IP30 (IEC34-5 standard)
Approval	CE ENEC
Stop angle error ⁽⁰²⁾	± 3' (± 0.05°) (Full step, no load)
Absolut position error ⁽⁰³⁾	± 20' (± 0.33°)
Lost motion ⁽⁰³⁾	± 20' (± 0.33°)
Shaft vibration	0.05 mm T.I.R.
Radial movement ⁽⁰⁴⁾	≤ 0.025 mm T.I.R.
Axial movement ⁽⁰⁵⁾	≤ 0.075 mm T.I.R.
Shaft concentricity	0.075 mm T.I.R.
Shaft perpendicularity	0.075 mm T.I.R.

(01) In case of rated current: 0.75 A / Phase, Between motor coil and case: 500 VAC ~ 50 / 60 Hz for 1 minute

(02) The corresponding value is only available in built-in gear type.

(03) The corresponding value is only available in built-in rotary actuator type.

(04) Amount of radial shaft displacement when applying radial load (5 N) to the end of the shaft.

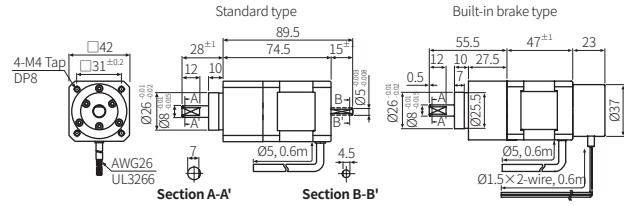
(05) Amount of axial shaft displacement when applying axial load (10 N) to the shaft.

Built-in brake type	□ 42 mm	□ 60 mm	□ 85 mm
Frame size			
Rated excitation voltage	24 VDC = ± 10%		
Rated excitation current	0.2 A	0.33 A	0.62 A
Static friction torque	≥ 0.18 N m	≥ 0.8 N m	≥ 4.0 N m
Rotation part inertia moment	3×10 ⁻⁷ kg · m ²	29×10 ⁻⁷ kg · m ²	153×10 ⁻⁷ kg · m ²
Insulation class	B type (130°C)		
B type brake	Brake is released when power ON, brake is locked when power OFF		
Operating time	≤ 25 ms	≤ 25 ms	≤ 60 ms
Releasing time	≤ 15 ms	≤ 20 ms	≤ 15 ms

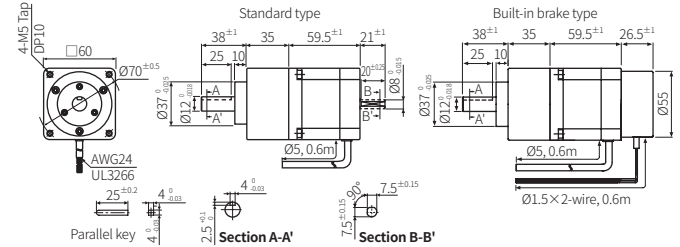
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- The dotted lines are included in dual shaft type.

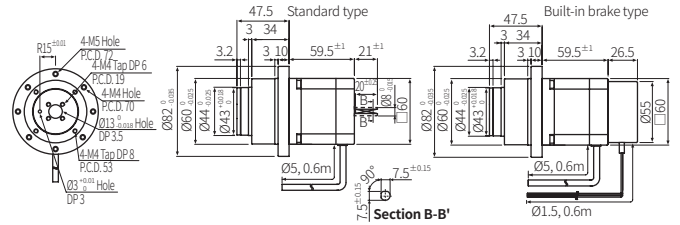
□ 42 mm Built-in gear type



□ 60 mm Built-in gear type



□ 60 mm Built-in rotary actuator type



□ 85 mm Built-in gear type

