Autonics

5 PHASE STEPPING MOTOR

M A N U A L

CE

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

▣ Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

⚠ Warning Serious injury may result if instructions are not followed.

⚠ Caution Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠ caution: Injury or danger may occur under special conditions.

⚠ Warning

1. **In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required.**
   It may result in serious damage, fire or human injury.

⚠ Caution

1. **Do not put flammable object around this product.**
   It may cause a fire or a burn.
2. **Do not put obstacle object for well ventilation around this product.**
   It may cause damage to this product or malfunction of peripheral equipment by motor heating.
3. **Temperature in surface of motor can be over 70℃ in normal operating state. Please put caution mark in order to avoid this.**
   It may cause a burn.
4. **Do not move cable for rotating part of this unit.**
   It may cause human injury.
5. **Please cover the rotation part of this unit.**
   It may cause human injury.
6. **Do not disassemble or modify this unit.**
   It may cause damage to this product or quality down.
7. **Please separate as industrial scrapped material when disuse this unit.**

▣ Ordering informaion

A 1K – S 5 4 4 □ – □

Wire connection		Pentagon
	S	Standard
Shaft type		Single shaft
	W	Dual shaft
Motor length			
Flange width	2	□24	3 30.5
			5 46.5
	4	□42	3 33
			4 39
			5 47
	6	□60	4 48.5
			6 59.5
			9 89
	9	□85	6 68
			9 98
			13 128
Motor phase			
Rated current[A]/Phase	S	0.75	
	M	1.4	
	G	2.8	
Maximum Holding Torque		kgf • cm	
		Series	

※**The above specification are changeable without notice anytime.**

▣ Specifications

●□24

Model	A02K–S523□	A04K–S525□
Maximum Holding torque	0.18kgf • cm	0.28kgf • cm
	0.018N • m	0.028N • m
Rotor inertia	4.2g • cm²	8.2g • cm²
	4.2×10⁻⁷ kg • m²	8.2×10⁻⁷ kgf • m²
Rated current	0.75A/Phase	
Step angle	0.72° / 0.36° (Full/Half)	
Insulation class	CLASS B(130℃)	
Insulation resistance	Min. 100MΩ(at 500VDC), between Motor coil and case	
Dielectric strength	500VAC 50/60Hz for 1 minute, between Motor coil and case	
Ambient temperature	−10℃ to +50℃, Storage/Transport : −25℃ to +85℃	
Storage temperature	35 to 85%RH	
Protection	IP30(IEC34–5)	
Weight	0.07kg	0.12kg

●□42

Model	A1K–S543□–□	A2K–S544□–□	A3K–S545□–□
Maximum Holding torque	1.3kgf • cm	1.8kgf • cm	2.4kgf • cm
	0.13N • m	0.18N • m	0.24N • m
Rotor inertia	35g • cm²	54g • cm²	68g • cm²
	35×10⁻⁷ kg • m²	54×10⁻⁷ kg • m²	68×10⁻⁷ kg • m²
Rated current	0.75A/Phase		
Step angle	0.72° / 0.36° (Full/Half)		
Insulation class	CLASS B(130℃)		
Insulation resistance	Min. 100MΩ(at 500VDC), between Motor coil and case		
Dielectric strength	500VAC 50/60Hz for 1 minute, between Motor coil and case		
Ambient temperature	−10℃ to +50℃, Storage/Transport : −25℃ to +85℃		
Storage temperature	35 to 85%RH		
Protection	IP30(IEC34–5)		
Weight	0.25kg	0.3kg	0.4kg

●□60

Model	A4K–S564□–□	A4K–M564□–□	A8K–S566□–□	A8K–M566□–□	A16K–M569□–□	A16K–G569□–□
Maximum Holding torque	4.2kgf • cm		8.3kgf • cm		16.6kgf • cm	
	0.42N • m		0.83N • m		1.66N • m	
Rotor inertia	175g • cm²		280g • cm²		560g • cm²	
	175×10⁻⁷ kg • m²		280×10⁻⁷ kg • m²		560×10⁻⁷ kg • m²	
Rated current	0.75A/Phase	1.4A/Phase	0.75A/Phase	1.4A/Phase	1.4A/Phase	2.8A/Phase
Step angle	0.72° / 0.36° (Full/Half)					
Insulation class	CLASS B(130℃)					
Insulation resistance	Min. 100MΩ(at 500VDC), between Motor coil and case					
Dielectric strength	500VAC 50/60Hz for 1 minute, between Motor coil and case					
Ambient temperature	−10℃ to +50℃, Storage/Transport : −25℃ to +85℃					
Storage temperature	35 to 85%RH					
Protection	IP30(IEC34–5)					
Weight	0.6kg		0.8kg		1.3kg	

●□85

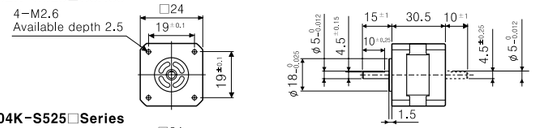
Model	A21K–M596□–□	A21K–G596□–□	A41K–M599□–□	A41K–G599□–□	A63K–M5913□–□	A63K–G5913□–□
Maximum Holding torque	21kgf • cm		41kgf • cm		63kgf • cm	
	2.1N • m		4.1N • m		6.3N • m	
Rotor inertia	1400g • cm²		2700g • cm²		4000g • cm²	
	1400×10⁻⁷ kg • m²		2700×10⁻⁷ kg • m²		4000×10⁻⁷ kg • m²	
Rated current	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase
Step angle	0.72° / 0.36° (Full/Half)					
Insulation class	CLASS B(130℃)					
Insulation resistance	Min. 100MΩ(at 500VDC), between Motor coil and case					
Dielectric strength	500VAC 50/60Hz for 1 minute, between Motor coil and case					
Ambient temperature	−10℃ to +50℃, Storage/Transport : −25℃ to +85℃					
Storage temperature	35 to 85%RH					
Protection	IP30(IEC34–5)					
Weight	1.7kg		2.8kg		3.8kg	

▣ Dimensions

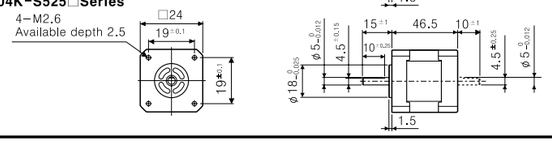
※This dimension is for dual shaft type. There is no shaft at (·····) part in single shaft type.

◎ **□24**

●A02K-S523□Series

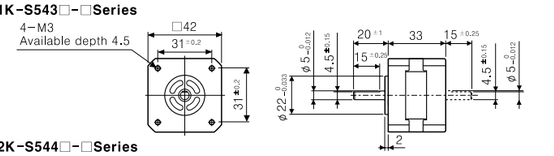


●A04K-S525□Series

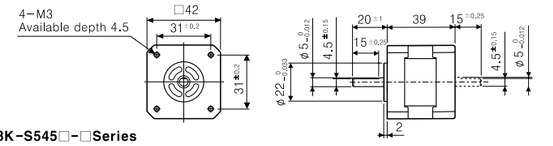


◎ **□42**

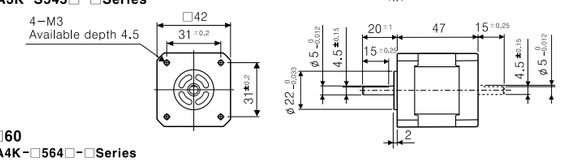
●A1K-S543□-□Series



●A2K-S544□-□Series

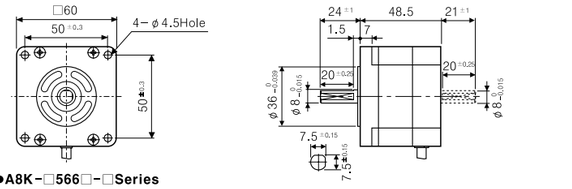


●A3K-S545□-□Series

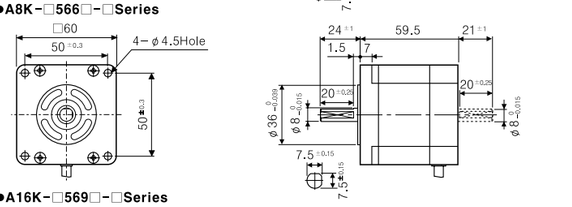


◎ **□60**

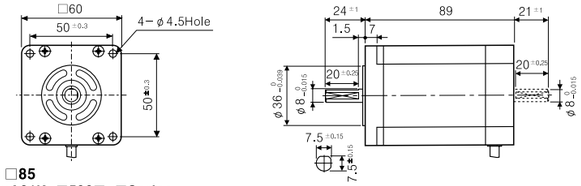
●A4K-□564□-□Series



●A8K-□566□-□Series

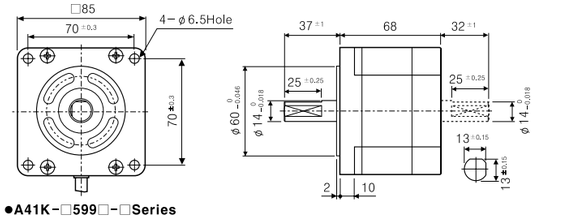


●A16K-□569□-□Series

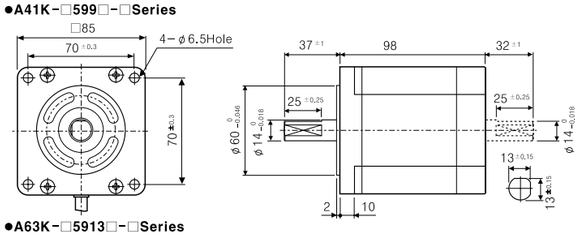


◎ **□85**

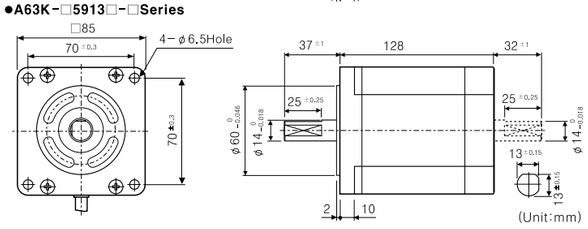
●A21K-□596□-□Series



●A41K-□599□-□Series



●A63K-□5913□-□Series

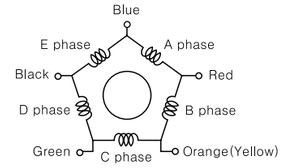


(Unit:mm)

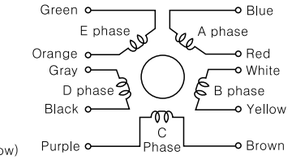
▣ Connection diagram

Please see the every phase and color of lead wire of stepping motor below.
Connection of Pentagon and Standard are wired by inner connection of this products.

●A□K-□5□□□



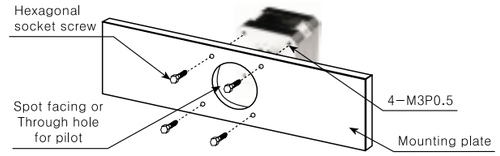
●A□K-□5□□□-S



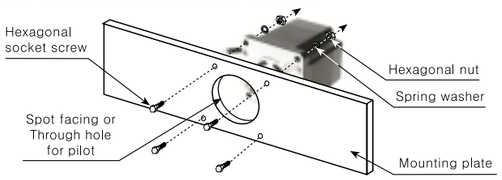
▣ Installation

1. Mounting
   ①Mount the motor tightly on a metal surface with good thermal conductivity.
   ②Please fix the motor with using hexagonal socket screw, nut, etc.
   ③Please see the thickness of mounting plate and screws in below chart.

●A□K-□52□□-□, A□K-□54□□-□ Series

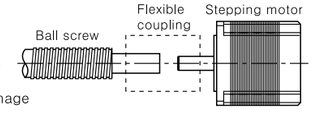


●A□K-□56□□-□, A□K-□59□□-□ Series



Motor model	Minimum thickness of the mounting plate	Screw
A□K–□52 □□–□ Series	3[mm]	M2.6
A□K–□54 □□–□ Series		M3
A□K–□56 □□–□ Series	4[mm]	M4
A□K–□59 □□–□ Series	5[mm]	M6

2. Alignment of the load
   ①When connect the load to shaft of motor directly(Ball screw etc), please use flexible coupling. If the center of shaft and mate are not aligned each other, it might cause shorten the life cycle or damage to motor shaft.
   ②When process shaft of motor or connect pully, Be sure not to load Thrust or impact on the shaft.



▣ Caution for using

1. Do not drop this product or put impact. Do not pull the cable with excessive strength.
2. Please avoid below place to use this product.
   ①Place where can effect vibration or impact on motor.
   ②Place where lots of dust etc.
   ③Place where lots of water or oil etc.
   ④Place where flammable gas or corrosive gas.
   ⑤Ambient temperature is beyond of −10℃ to +50℃.
   ⑥Altitude max. 1000m(Storage/Transport : Altitude max. 3000m)
3. Rising temperature
   Please make temperature of motor surface under 100℃.
   When drive the motor by constant current drive, the surface temperature of motor can be significantly increased. This case please consider cooling method such as fan etc.

※**It may cause malfunction if above instructions are not followed.**

▣ Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHOMETER/ LINE SPEED METER/ PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER

Autonics Corporation
http://www.autonics.net

- HEAD QUARTER :
  41–5, Yongdang–ri, Ungsang–eup, Yangsan–si, Gyeongnam, Korea 626–847
- INTERNATIONAL SALES :
  512 Ansung B/D, 410–13, Shindorim–dong, Guro–gu, Seoul, Korea 152–070
  TEL:82–2–2679–6585 / FAX:82–2–2679–6556
- E–mail : sales@autonics.net

NO20030225–EP–KE–10–0001C