

5-Phase Stepping Motor

Ordering information

●Application model : Shaft type, Hollow shaft type, Shaft type+Brake built-in type

A	K	S	5	4	4								
Item	Motor type	Max. holding torque	Rated current	Motor phase	Motor frame size(mm)	Motor length(mm)	Motor shaft	Wire connection	Brake built-in	Blank	Standard type		
										B	Brake built-in type		
										Blank	Pentagon wiring		
										S	Standard wiring (Option)		
										Blank	Single shaft		
										W	Dual shaft		
										2	24mm (24mm × 24mm)	3	30.5mm
												5	46.5mm
										4	42mm (42mm × 42mm)	3	33mm
												4	39mm
												5	47mm
										6	60mm (60mm × 60mm)	4	48.5mm
												6	59.5mm
												9	89mm
										9	85mm (85mm × 85mm)	6	68mm
		9	98mm										
		13	128mm										
		5	5 phase										
		S	0.75A / Phase										
		M	1.4 A/ Phase										
		G	2.8 A/ Phase										
		Square	kgf • cm (Refer to motor specification)										
		Blank	Shaft type										
		H	Hollow shaft type										
		Series											

*Brake built-in type provides single shaft type only.

●Application model : Geared built-in type, Geared+Brake built-in type, Rotary actuator, Rotary actuator+Brake built-in type

A	K	S	5	4	5		G	5		
Item	Max. holding torque	Rated current	Motor phase	Motor frame size	Motor length(mm)	Motor shaft	Features	Gear ratio	5	1 : 5
									7.2	1 : 7.2
									10	1 : 10
									G	Geared built-in type
									GB	Geared-Brake built-in type
									R	Rotary actuator built-in type
									RB	Rotary actuator-Brake built-in type
									Blank	Single shaft
									W	Dual shaft
									5	47mm
									6	59.5mm
									9	98mm
									4	42mm
									6	60mm
									9	85mm
5	5 Phase									
S	0.75A/Phase									
M	1.4A/Phase									
G	2.8A/Phase									
10	10kgf • cm	50	50kgf • cm							
15	15kgf • cm	140	140kgf • cm							
35	35kgf • cm	200	200kgf • cm							
40	40kgf • cm									
		Series								

- (A) Photo electric sensor
- (B) Fiber optic sensor
- (C) Door/Area sensor
- (D) Proximity sensor
- (E) Pressure sensor
- (F) Rotary encoder
- (G) Connector/Socket
- (H) Temp. controller
- (I) SSR/Power controller
- (J) Counter
- (K) Timer
- (L) Panel meter
- (M) Tacho/Speed/Pulse meter
- (N) Display unit
- (O) Sensor controller
- (P) Switching power supply
- (Q) Stepping motor & Driver & Controller**
- (R) Graphic/Logic panel
- (S) Field network device
- (T) Production stoppage models & replacement

5-Phase Stepping Motor

Specifications

Type	Model	A/phase (A)	Max. holding torque (kgf · cm)	Max. allowable torque (kgf · cm)	Moment of rotor inertia (g · cm ²)	Winding resistance(Ω)	Motor length (mm)		
24 Square	Shaft type	02K-S523(W)	0.75	0.18	—	4.2	1.1	30.5	
		04K-S525(W)	0.75	0.28	—	8.2	1.7	46.5	
42 Square	Shaft type	A1K-S543(W)	0.75	1.3	—	35	1.7	33	
		A2K-S544(W)	0.75	1.8	—	54	2.2	39	
		A2K-M544(W)	1.4	1.8	—	54	2.2	39	
		A3K-S545(W)	0.75	2.4	—	68	2.2	47	
		AH1K-S543	0.75	1.3	—	35	1.7	33	
	Hollow shaft type	AH2K-S544	0.75	1.8	—	54	2.2	39	
		AH3K-S545	0.75	2.4	—	68	2.2	47	
		A10K-S545(W)-G5	0.75	—	10	68	1.7	74.5	
	Geared built-in type	A15K-S545(W)-G7.2	0.75	—	15	68	2.2	74.5	
		A15K-S545(W)-G10	0.75	—	15	68	2.2	74.5	
60 Square	Shaft type / Shaft + Brake built-in type	A4K-S564(W)-B	0.75	4.2	—	175	2.6	48.5	
		A4K-M564(W)-B	1.4	4.2	—	175	0.8	48.5	
		A8K-S566(W)-B	0.75	8.3	—	280	4.0	59.5	
		A8K-M566(W)-B	1.4	8.3	—	280	1.1	59.5	
		A16K-M569(W)-B	1.4	16.6	—	560	1.8	89	
		A16K-G569(W)-B	2.8	16.6	—	560	0.56	89	
	Hollow shaft type	AH4K-S564(W)	0.75	4.2	—	175	2.6	48.5	
		AH4K-M564(W)	1.4	4.2	—	175	0.8	48.5	
		AH8K-S566(W)	0.75	8.3	—	280	4.0	59.5	
		AH8K-M566(W)	1.4	8.3	—	280	1.1	59.5	
		AH16K-M569(W)	1.4	16.6	—	560	1.8	89	
		AH16K-G569(W)	2.8	16.6	—	560	0.56	89	
	Geared built-in type	A35K-M566(W)-G5	1.4	—	35	280	1.1	94.5	
		A40K-M566(W)-G7.2	1.4	—	40	280	1.1	94.5	
		A50K-M566(W)-G10	1.4	—	50	280	1.1	94.5	
	Geared + Brake built-in type	A35K-M566-GB5	1.4	—	35	280	1.1	136	
		A40K-M566-GB7.2	1.4	—	40	280	1.1	136	
		A50K-M566-GB10	1.4	—	50	280	1.1	136	
	Rotary actuator type	A35K-M566(W)-R5	1.4	—	35	280	1.1	93.5	
		A40K-M566(W)-R7.2	1.4	—	40	280	1.1	93.5	
		A50K-M566(W)-R10	1.4	—	50	280	1.1	93.5	
	Rotary actuator + Brake built-in type	A35K-M566-RB5	1.4	—	35	280	1.1	136	
		A40K-M566-RB7.2	1.4	—	40	280	1.1	136	
		A50K-M566-RB10	1.4	—	50	280	1.1	136	
	85 Square	Shaft type / Shaft + Brake built-in type	A21K-M596(W)-B	1.4	21	—	1400	1.76	68
			A21K-G596(W)-B	2.8	21	—	1400	0.4	68
			A41K-M599(W)-B	1.4	41	—	2700	2.6	98
			A41K-G599(W)-B	2.8	41	—	2700	0.58	98
			A63K-M5913(W)-B	1.4	63	—	4000	3.92	128
			A63K-G5913(W)-B	2.8	63	—	4000	0.86	128
Hollow shaft type		AH21K-M596(W)	1.4	21	—	1400	1.76	68	
		AH21K-G596(W)	2.8	21	—	1400	0.4	68	
		AH41K-M599(W)	1.4	41	—	2700	2.6	98	
		AH41K-G599(W)	2.8	41	—	2700	0.58	98	
		AH63K-M5913(W)	1.4	63	—	4000	3.92	128	
		AH63K-G5913(W)	2.8	63	—	4000	0.86	128	
Geared built-in type		A140K-M599(W)-G5	1.4	—	140	2700	2.6	145	
		A140K-G599(W)-G5	2.8	—	140	2700	0.58	145	
		A200K-M599(W)-G7.2	1.4	—	200	2700	2.6	145	
		A200K-G599(W)-G7.2	2.8	—	200	2700	0.58	145	
		A200K-M599(W)-G10	1.4	—	200	2700	2.6	145	
		A200K-G599(W)-G10	2.8	—	200	2700	0.58	145	
Geared + Brake built-in type		A140K-M599-GB5	1.4	—	140	2700	2.6	182	
		A140K-G599-GB5	2.8	—	140	2700	0.58	182	
		A200K-M599-GB7.2	1.4	—	200	2700	2.6	182	
		A200K-G599-GB7.2	2.8	—	200	2700	0.58	182	
		A200K-M599-GB10	1.4	—	200	2700	2.6	182	
		A200K-G599-GB10	2.8	—	200	2700	0.58	182	

※(W) stands for dual shaft of motor. The brake built-in type provides single shaft type only.

※Motor length was measured without shaft.

※Hollow shaft type with standard wiring is customizable. (Except for 24mm)

5-Phase Stepping Motor

■ Specifications

●24 square

Model	02K-S523(W)	04K-S525(W)
Max. holding torque	0.18 kgf · cm (0.018N · m)	0.28kgf · cm (0.028 N · m)
Moment of rotor inertia	4.2 g · cm ² (4.2×10 ⁻⁷ kg · m ²)	8.2 g · cm ² (8.2×10 ⁻⁷ kgf · m ²)
Rated current	0.75A/Phase	
Basic step angle	0.72° / 0.36° (Full step/Half step)	
Insulation class	CLASS B type(130℃)	
Insulation resistance	Min. 100MΩ (at 500VDC megger) between motor coil-case	
Dielectric strength	1Min. at 0.5kVAC 50/60Hz between motor coil-case	
Ambient temperature	-10 to 50℃ (Storage condition : -25 to 85℃)	
Ambient humidity	35 to 85%RH(at non-freezing status)	
Protection	IP30(IEC34-5 standard)	
Unit weight	Approx. 0.07kg	Approx. 0.12kg
Reference	Q-23 to 31	

●42 square

Model	Shaft type	A1K-S543(W)	A2K-S544(W)	A2K-M544(W)	A3K-S545(W)	—	—	—
	Hollow shaft type	AH1K-S543	AH2K-S544	—	AH3K-S545	—	—	—
	Shaft type+ Geared buit-in type	—	—	—	—	A10K-S545(W)-G5	A15K-S545(W)-G7.2	A15K-S545(W)-G10
Max. allowable torque	—	—	—	—	—	10kgf · cm (1.0 N · m)	15kgf · cm (1.5 N · m)	15kgf · cm (1.5 N · m)
Max. holding torque	1.3kgf · cm (0.13 N·m)	1.8kgf · cm (0.18 N · m)		2.4kgf · cm (0.24 N · m)	—	—	—	—
Moment of rotor inertia	35g · cm ² (35×10 ⁻⁷ kg·m ²)	54g · cm ² (54×10 ⁻⁷ kg·m ²)		68g · cm ² (68×10 ⁻⁷ kg·m ²)	68g · cm ² (68×10 ⁻⁷ kg·m ²)			—
Rated current	0.75A/Phase		1.4A/Phase		0.75A/Phase			—
Basic step angle	0.72° / 0.36(Full / Half step)					0.144° / 0.072° (Full/Half step)	0.1° / 0.05° (Full/Half step)	0.072° / 0.036° (Full/Half step)
Gear ratio	—					1 : 5	1 : 7.2	1 : 10
Allowable speed range	—					0 to 360rpm	0 to 250rpm	0 to 180rpm
Backlash[min]	—					±35' (0.58°)		
Insulation class	CLASS B type(130℃)							
Insulation resistance	Min. 100MΩ (at 500VDC megger) between motor coil-case							
Dielectric strength	1Min. at 1kVAC(0.5kVAC for 0.75A/Phase) 50/60Hz between Motor coil-case							
Ambient temperature	-10 to 50℃ (Storage condition : -25 to 85℃)							
Ambient humidity	35 to 85%RH(at non-freezing status)							
Protection	IP30(IEC34-5 standard)							
Unit weight	Approx. 0.25kg	Approx. 0.3kg		Approx. 0.4kg	Approx. 0.58kg			—
Reference	Q-23 to 31							

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/Socket

(H) Temp. controller

(I) SSR/Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/Speed/Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/Logic panel

(S) Field network device

(T) Production stoppage models & replacement

5-Phase Stepping Motor

■ Specifications

●60 square

Model	Shaft type	A4K-S564(W)	A4K-M564(W)	A8K-S566(W)	A8K-M566(W)	A16K-M569(W)	A16K-G569(W)
	Hollow shaft type	AH4K-S564(W)	AH4K-M564(W)	AH8K-S566(W)	AH8K-M566(W)	AH16K-M569(W)	AH16K-G569(W)
	Shaft type+ Brake built-in type	A4K-S564-B	A4K-M564-B	A8K-S566-B	A8K-M566-B	A16K-M569-B	A16K-G569-B
Max. holding torque		4.2kgf • cm (0.42N • m)		8.3kgf • cm (0.83N • m)		16.6kgf • cm (1.66N • m)	
Moment of rotor inertia		175g • cm ² (175 × 10 ⁻⁷ kg • m ²)		280g • cm ² (280 × 10 ⁻⁷ kg • m ²)		560g • cm ² (560 × 10 ⁻⁷ kg • m ²)	
Rated current		0.75A/Phase	1.4A/Phase	0.75A/Phase	1.4A/Phase	1.4A/Phase	2.8A/Phase
Basic step angle		0.72° / 0.36 (Full/Half step)					
Electro magnetic brake	Rated excitation voltage	24VDC (non-polarity)					
	Rated excitation current	0.33A					
	Static friction torque	4kgf • cm					
	Rotation part inertia	2.5 × 10 ⁻⁶ kgf • cm ²					
	Operating time	Max. 22ms					
	Releasing time	Max. 37ms					
Insulation class		CLASS B type (130°C)					
Insulation resistance		Min. 100MΩ (at 500VDC megger) between motor coil-case					
Dielectric strength		1Min. at 1kVAC (0.5kVAC for 0.75A/Phase) 50/60Hz between motor coil-case					
Ambient temperature		-10 to 50°C (Storage condition : -25 to 85°C)					
Ambient humidity		35 to 85%RH (at non-freezing status)					
Protection		IP30 (IEC34-5 standard)					
Unit weight		Standard type : 0.6kg, Brake built-in type : 0.9kg		Standard type : 0.8kg, Brake built-in type : 1.1kg		Standard type : 1.3kg, Brake built-in type : 1.6kg	
Reference		Q-23 to 28					

●60 square

Model	Shaft type+ Geared built-in type	A35K-M566(W)-G5	A40K-M566(W)-G7.2	A50K-M566(W)-G10	
	Geared type+ Brake built-in type	A35K-M566-GB5	A40K-M566-GB7.2	A50K-M566-GB10	
	Rotary actuator type	A35K-M566(W)-R5	A40K-M566(W)-R7.2	A50K-M566(W)-R10	
	Rotary actuator type+ Brake built-in type	A35K-M566-RB5	A40K-M566-RB7.2	A50K-M566-RB10	
Max. holding torque		35kgf • cm (3.5N • m)		40kgf • cm (4.0 N • m)	50kgf • cm (5.0 N • m)
Moment of rotor inertia		280 g • cm ² (280 × 10 ⁻⁷ kg • m ²)			
Rated current		1.4A/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)
Gear ratio		1 : 5		1 : 7.2	1 : 10
Allowable speed range		0 to 360rpm		0 to 250rpm	0 to 180rpm
Backlash [min]		±20' (0.33°)			
Electro magnetic brake	Rated excitation voltage	24VDC (non-polarity)			
	Rated excitation current	0.33A			
	Static friction torque	4kgf • cm			
	Rotation part inertia	2.5 × 10 ⁻⁶ kgf • cm ²			
	Operating time	Max. 22ms			
	Releasing time	Max. 37ms			
Absolute position error (★1)		±20 minute (0.33°)			
Lost motion (★1)		±20 minute (0.33°)			
Insulation class		CLASS B type (130°C)			
Insulation resistance		Min. 100MΩ (at 500VDC megger) between motor coil-case			
Dielectric strength		1Min. at 1kVAC 50/60Hz between motor coil-case			
Ambient temperature		-10 to 50°C (Storage condition : -25 to 85°C)			
Ambient humidity		35 to 85%RH (at non-freezing status)			
Protection		IP30 (IEC34-5 standard)			
Unit weight		Geared type:1.3kg, Geared+Brake type:1.4kg, Rotary actuator type:1.5kg, Rotary actuator+Brake type:1.8kg			
Reference		Q-29 to 31			

※ (★1) It is only available for rotary actuator type.

5-Phase Stepping Motor

■ Specifications

●85 square

Model	Shaft type	A21K-M596(W)	A21K-G596(W)	A41K-M599(W)	A41K-G599(W)	A63K-M5913(W)	A63K-G5913(W)
	Hollow shaft type	AH21K-M596(W)	AH21K-G596(W)	AH41K-M599(W)	AH41K-G599(W)	AH63K-M5913(W)	AH63K-G5913(W)
	Shaft type+ Brake built-in type	A21K-M596-B	A21K-G596-B	A41K-M599-B	A41K-G599-B	A63K-M5913-B	A63K-G5913-B
Max. holding torque		21kgf·cm (2.1 N·m)		41kgf·cm (4.1 N·m)		63kgf·cm (6.3 N·m)	
Moment of rotor inertia		1400 g·cm ² (1400×10 ⁻⁷ kg·m ²)		2700 g·cm ² (2700×10 ⁻⁷ kg·m ²)		4000 g·cm ² (4000×10 ⁻⁷ kg·m ²)	
Rated current		1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase
Basic step angle		0.72° / 0.36° (Full/Half step)					
Electro magnetic brake	Rated excitation voltage	24VDC (non-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia	42.5×10 ⁻⁶ kgf·cm ²					
	Operating time	Max. 80ms					
	Releasing time	Max. 70ms					
Insulation class		CLASS B type (130℃)					
Insulation resistance		Min. 100MΩ (at 500VDC megger) between motor coil-case					
Dielectric strength		1Min. at 1kVAC 50/60Hz between motor coil-case					
Ambient temperature		-10 to 50℃ (Storage condition : -25 to 85℃)					
Ambient humidity		35 to 85%RH (at non-freezing status)					
Protection		IP30 (IEC34-5 standard)					
Unit weight		Standard type : 1.7kg, Brake built-in type : 2.9kg		Standard type : 2.8kg, Brake built-in type : 4.0kg		Standard type : 3.8kg, Brake built-in type : 5.0kg	
Reference		Q-23 to 28					

●85 square

Model	Shaft type+ Geared built-in type	A140K-M599(W)-G5	A140K-G599(W)-G5	A200K-M599(W)-G7.2	A200K-G599(W)-G7.2	A200K-M599(W)-G10	A200K-G599(W)-G10
	Geared type+ Brake built-in type	A140K-M599-GB5	A140K-G599-GB5	A200K-M599-GB7.2	A200K-G599-GB7.2	A200K-M599-GB10	A200K-G599-GB10
Max. holding torque		140kgf·cm (14 N·m)		200kgf·cm (20 N·m)		200kgf·cm (20 N·m)	
Moment of rotor inertia		2700 g·cm ² (270×10 ⁻⁷ kg·m ²)					
Rated current		1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/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)	
Gear ratio		1 : 5		1 : 7.2		1 : 10	
Allowable speed range		0 to 360rpm		0 to 250rpm		0 to 180rpm	
Backlash [min]		±15' (0.25°)					
Electro magnetic brake	Rated excitation voltage	24VDC (non-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia	42.5×10 ⁻⁶ kgf·cm ²					
	Operating time	Max. 80ms					
	Releasing time	Max. 70ms					
Insulation class		CLASS B type (130℃)					
Insulation resistance		Min. 100MΩ (at 500VDC megger) between motor coil-case					
Dielectric strength		1Min. at 1kVAC 50/60Hz between motor coil-case					
Ambient temperature		-10 to 50℃ (Storage condition : -25 to 85℃)					
Ambient humidity		35 to 85%RH (at non-freezing status)					
Protection		IP30 (IEC34-5 standard)					
Unit weight		Geared type : 4.4kg, Geared+Brake type : 5.6kg					
Reference		Q-29 to 31					

(A)	Photo electric sensor
(B)	Fiber optic sensor
(C)	Door/Area sensor
(D)	Proximity sensor
(E)	Pressure sensor
(F)	Rotary encoder
(G)	Connector/Socket
(H)	Temp. controller
(I)	SSR/Power controller
(J)	Counter
(K)	Timer
(L)	Panel meter
(M)	Tacho/Speed/Pulse meter
(N)	Display unit
(O)	Sensor controller
(P)	Switching power supply
(Q)	Stepping motor & Driver & Controller
(R)	Graphic/Logic panel
(S)	Field network device
(T)	Production stoppage models & replacement