

# 5-Phase Stepper Motor

## Ordering Information

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

<b>A</b>		<b>8K</b>	-	<b>M</b>	<b>5</b>	<b>6</b>	<b>6</b>		-		<b>B</b>
Motor type				Max. Holding torque	Rated current	Motor phase	Motor frame size (width×height)	Motor length	Shaft type	Wire connection	Brake built-in type
							2 24mm×24mm 4 42mm×42mm 6 60mm×60mm 9 85mm×85mm		No-mark W	No-mark S <sup>※2</sup>	No-mark B <sup>※1</sup>
											Standard type Brake built-in type
											Pentagon Standard
											Single shaft Dual shaft
											3 30.5mm 5 46.5mm
											3 33mm 4 39mm 5 47mm
											4 48.5mm 6 59.5mm 9 89mm
											6 68mm 9 98mm 13 128mm
											5 5 phase
											S 0.75 A/Phase M 1.4 A/Phase G 2.8 A/Phase
											Square kgf·cm (Refer to motor specifications)
											No-mark Shaft type H Hollow shaft type
											Autonics motor

※1: Brake built-in type provides single shaft type only.

※2: Standard wiring is optional. (except frame size 24mm motor, A4K-G564(W), A8K-G566(W))

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

<b>A</b>		-	<b>M</b>	<b>5</b>					-		
Motor type			Max. Holding torque	Rated current	Motor phase	Motor frame size (width×height)	Motor length	Shaft type	Motor type	Gear ratio	
									G GB <sup>※1</sup> R RB <sup>※1</sup>	5 1:5 7.2 1:7.2 10 1:10	
									No-mark <sup>※1</sup> W	Geared built-in type Geared+Brake built-in type Rotary actuator type Rotary actuator+Brake built-in type	
										Single shaft Dual shaft	
										5 47mm 6 59.5mm 9 98mm	
										4 42mm×42mm 6 60mm×60mm 9 85mm×85mm	
										5 5 Phase	
										S 0.75 A/Phase M 1.4 A/Phase G 2.8 A/Phase	
										10 10kgf·cm 50 50kgf·cm 15 15kgf·cm 140 140kgf·cm 35 35kgf·cm 200 200kgf·cm 40 40kgf·cm	
										Autonics motor	

※1: Brake built-in type provides single shaft type only.

- (A) Photoelectric Sensors
- (B) Fiber Optic Sensors
- (C) Door/Area Sensors
- (D) Proximity Sensors
- (E) Pressure Sensors
- (F) Rotary Encoders
- (G) Connectors/ Sockets
- (H) Temperature Controllers
- (I) SSRs / Power Controllers
- (J) Counters
- (K) Timers
- (L) Panel Meters
- (M) Tacho / Speed / Pulse Meters
- (N) Display Units
- (O) Sensor Controllers
- (P) Switching Mode Power Supplies
- (Q) Stepper Motors & Drivers & Controllers
- (R) Graphic/ Logic Panels
- (S) Field Network Devices
- (T) Software

# 5-Phase Stepper Motor

## ■ Specifications

Motor		Model	Rated current (A/Phase)	Max. holding torque (kgf-cm)	Max. allowable torque (kgf-cm)	Moment of rotor inertia (g-cm <sup>2</sup> )	Winding resistance (Ω)	Motor length (mm)
Frame size	Type							
24mm	Standard shaft type	A02K-S523(W)	0.75	0.18	—	4.2	1.1	30.5
		A04K-S525(W)	0.75	0.28	—	8.2	1.7	46.5
42mm	Standard shaft type / Shaft + Brake built-in type	A11K-S543(W)-B	0.75	1.3	—	35	1.7	33/56
		A22K-S544(W)-B	0.75	1.8	—	54	2.2	39/62
		A2K-M544(W)	1.4	1.8	—	54	2.2	39
		A33K-S545(W)-B	0.75	2.4	—	68	2.2	47/70
		AH1K-S543	0.75	1.3	—	35	1.7	33
		AH2K-S544	0.75	1.8	—	54	2.2	39
	Hollow shaft type	AH3K-S545	0.75	2.4	—	68	2.2	47
		A10K-S545(W)-G5	0.75	—	10	68	2.2	74.5
		A15K-S545(W)-G7.2	0.75	—	15	68	2.2	74.5
	Geared built-in type	A15K-S545(W)-G10	0.75	—	15	68	2.2	74.5
		A10K-S545-GB5	0.75	—	10	68	2.2	97.5
		A15K-S545-GB7.2	0.75	—	15	68	2.2	97.5
	Geared + Brake built-in type	A15K-S545-GB10	0.75	—	15	68	2.2	97.5
		A44K-S564(W)-B	0.75	4.2	—	175	2.6	48.5/75
A4K-M564(W)-B		1.4	4.2	—	175	0.8	48.5/75	
60mm	Standard shaft type / Shaft + Brake built-in type	A4K-G564(W)	2.8	4.2	—	175	0.26	48.5
		A8K-S566(W)-B	0.75	8.3	—	280	4.0	59.5/86
		A8K-M566(W)-B	1.4	8.3	—	280	1.1	59.5/86
		A8K-G566(W)	2.8	8.3	—	280	0.35	59.5
		A16K-M569(W)-B	1.4	16.6	—	560	1.8	89/115.5
		A16K-G569(W)-B	2.8	16.6	—	560	0.56	89/115.5
		AH4K-S564(W)	0.75	4.2	—	175	2.6	48.5
		AH4K-M564(W)	1.4	4.2	—	175	0.8	48.5
	Hollow shaft type	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
		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
	Geared built-in type	A50K-M566(W)-G10	1.4	—	50	280	1.1	94.5
		A35K-M566-GB5	1.4	—	35	280	1.1	121
		A40K-M566-GB7.2	1.4	—	40	280	1.1	121
	Geared + Brake built-in type	A50K-M566-GB10	1.4	—	50	280	1.1	121
		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
	Rotary actuator type	A50K-M566(W)-R10	1.4	—	50	280	1.1	93.5
		A35K-M566-RB5	1.4	—	35	280	1.1	120
		A40K-M566-RB7.2	1.4	—	40	280	1.1	120
	Rotary actuator + Brake built-in type	A50K-M566-RB10	1.4	—	50	280	1.1	120
A21K-M596(W)-B		1.4	21	—	1400	1.76	68/103	
A21K-G596(W)-B		2.8	21	—	1400	0.4	68/103	
85mm	Standard shaft type / Shaft + Brake built-in type	A41K-M599(W)-B	1.4	41	—	2700	2.6	98/133
		A41K-G599(W)-B	2.8	41	—	2700	0.58	98/133
		A63K-M5913(W)-B	1.4	63	—	4000	3.92	128/163
		A63K-G5913(W)-B	2.8	63	—	4000	0.86	128/163
		AH21K-M596(W)	1.4	21	—	1400	1.76	68
		AH21K-G596(W)	2.8	21	—	1400	0.4	68
	Hollow shaft type	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
		A140K-M599(W)-G5	1.4	—	140	2700	2.6	145
		A140K-G599(W)-G5	2.8	—	140	2700	0.58	145
	Geared built-in type	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
		A140K-M599-GB5	1.4	—	140	2700	2.6	180
		A140K-G599-GB5	2.8	—	140	2700	0.58	180
	Geared + Brake built-in type	A200K-M599-GB7.2	1.4	—	200	2700	2.6	180
		A200K-G599-GB7.2	2.8	—	200	2700	0.58	180
		A200K-M599-GB10	1.4	—	200	2700	2.6	180
		A200K-G599-GB10	2.8	—	200	2700	0.58	180

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

※Motor length is measured without shaft.

※Hollow shaft type with standard wiring is Optional. (except frame size 24mm motor)

# 5-Phase Stepper Motor

## ■ Specifications

### ● Frame size 24mm

Model	02K-S523(W)	04K-S525(W)
Max. Holding torque	0.18kgf·cm (0.018N·m)	0.28kgf·cm (0.027N·m)
Rotor moment of inertia	4.2g·cm <sup>2</sup> (4.2×10 <sup>-7</sup> kg·m <sup>2</sup> )	8.2g·cm <sup>2</sup> (8.2×10 <sup>-7</sup> kg·m <sup>2</sup> )
Rated current	0.75A/Phase	
Standard step angle	0.72°/ 0.36° (Full/Half step)	
Insulation class	B type (130°C)	
Insulation resistance	Over. 100MΩ (at 500VDC megger) between motor coil-case	
Dielectric strength	0.5kVAC 50/60Hz for 1 minute between motor coil-case	
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Protection structure	IP30 (IEC34-5 standard)	
Weight <sup>※1</sup>	Approx. 0.10kg (approx. 0.08kg)	Approx. 0.16kg (approx. 0.12kg)
Reference	Q-44 to 47	

※1: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

### ● Frame size 42mm

Model	Standard 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 + Brake built-in type	A1K-S543-B	A2K-S544-B	—	A3K-S545-B	—	—	—
	Shaft type+ Geared built-in type	—	—	—	—	A10K-S545(W)-G5	A15K-S545(W)-G7.2	A15K-S545(W)-G10
	Geared + Brake built-in type	—	—	—	—	A10K-S545-GB5	A15K-S545-GB7.2	A15K-S545-GB10
	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)	—	—	—	
Rotor moment of inertia	35g·cm <sup>2</sup> (35×10 <sup>-7</sup> kg·m <sup>2</sup> )	54g·cm <sup>2</sup> (54×10 <sup>-7</sup> kg·m <sup>2</sup> )	—	68g·cm <sup>2</sup> (68×10 <sup>-7</sup> kg·m <sup>2</sup> )	68g·cm <sup>2</sup> (68×10 <sup>-7</sup> kg·m <sup>2</sup> )	—	—	
Rated current	0.75A/Phase		1.4A/Phase	0.75A/Phase		—	—	
Standard 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°)			
Electromagnetic brake	Rated excitation voltage	24VDC ±10% (non-polarity)						
	Rated excitation current	0.2A						
	Static friction torque	1.8kgf·cm						
	Rotation part inertia moment	3.0×10 <sup>-7</sup> kg·cm <sup>2</sup>						
	Operating time	Max. 25ms						
	Releasing time	Max. 15ms						
Insulation class	B type (130°C)							
Insulation resistance	Over. 100MΩ (at 500VDC megger) between motor coil-case							
Dielectric strength	1kVAC (at 0.75 A/Phase is 0.5kVAC) 50/60Hz for 1 minute between motor coil-case							
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C						
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH						
Protection structure	IP30 (IEC34-5 standard)							
Weight <sup>※1</sup>	Standard shaft type: Approx. 0.34kg (approx. 0.25kg), Hollow shaft type: Approx. 0.35kg (approx. 0.25kg), Brake built-in type: Approx. 0.44kg (approx. 0.39kg)	Standard shaft type: Approx. 0.39kg (approx. 0.3kg), Hollow shaft type: Approx. 0.4kg (approx. 0.3kg), Brake built-in type: Approx. 0.49kg (approx. 0.44kg)	—	Standard shaft type: Approx. 0.49kg (approx. 0.4kg) Hollow shaft type: Approx. 0.5kg (approx. 0.4kg), Brake built-in type: Approx. 0.59kg (approx. 0.54kg)	Geared built-in type: Approx. 0.68kg (approx. 0.58kg), Geared +Brake built-in type: Approx. 0.78kg (approx. 0.72kg)			—
	Reference	Q-44 to 54						

※1: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software

# 5-Phase Stepper Motor

## ■ Specifications

### ● Frame size 60mm

Model	Standard shaft type	A4K-S564(W)	A4K-M564(W)	A4K-G564(W)	A8K-S566(W)	A8K-M566(W)	A8K-G566(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 (0.41N·m)			8.3kgf·cm (0.81N·m)			16.6kgf·cm (1.63N·m)		
	Rotor moment of inertia	175g·cm <sup>2</sup> (175×10 <sup>-7</sup> kg·m <sup>2</sup> )			280g·cm <sup>2</sup> (280×10 <sup>-7</sup> kg·m <sup>2</sup> )			560g·cm <sup>2</sup> (560×10 <sup>-7</sup> kg·m <sup>2</sup> )		
	Rated current	0.75A/Phase	1.4A/Phase	2.8A/Phase	0.75A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	
	Standard step angle	0.72°/0.36° (Full/Half step)								
Electromagnetic brake	Rated excitation voltage	24VDC ±10% (non-polarity)								
	Rated excitation current	0.33A								
	Static friction torque	8kgf·cm								
	Rotation part inertia moment	29×10 <sup>-7</sup> kg·cm <sup>2</sup>								
	Operating time	Max. 25ms								
	Releasing time	Max. 20ms								
	Insulation class	B type (130°C)								
	Insulation resistance	Over. 100MΩ (at 500VDC megger) between motor coil-case								
	Dielectric strength	1kVAC (at 0.75 A/Phase is 0.5kVAC) 50/60Hz for 1 minute between motor coil-case								
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C								
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH								
	Protection structure	IP30 (IEC34-5 standard)								
Weight <sup>※1</sup>		Standard type: Approx. 0.85kg (approx. 0.6kg), Hollow shaft type: Approx. 0.87kg (approx. 0.6kg), Brake built-in type: Approx. 1.03kg (approx. 0.95kg)			Standard type: Approx. 1.05kg (approx. 0.8kg), Hollow shaft type: Approx. 1.07kg (approx. 0.8kg), Brake built-in type: Approx. 1.33kg (approx. 1.25kg)			Standard type: Approx. 1.55kg (approx. 1.3kg), Hollow shaft type: Approx. 1.57kg (approx. 1.3kg), Brake built-in type: Approx. 1.73kg (approx. 1.65kg)		
		Reference								
		Q-44 to 50								

※1: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

### ● Frame size 60mm

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+ Brake built-in type	A35K-M566-RB5	A40K-M566-RB7.2	A50K-M566-RB10
	Max. Holding torque	35kgf·cm (3.4N·m)	40kgf·cm (3.9N·m)	50kgf·cm (4.9N·m)
	Rotor moment of inertia	280g·cm <sup>2</sup> (280×10 <sup>-7</sup> kg·m <sup>2</sup> )		
	Rated current	1.4A/Phase		
	Standard 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°)		
Electromagnetic brake	Rated excitation voltage	24VDC ±10% (non-polarity)		
	Rated excitation current	0.33A		
	Static friction torque	Min. 8kgf·cm		
	Rotation part inertia moment	2.9×10 <sup>-6</sup> kgf·cm <sup>2</sup>		
	Operating time	Max. 20ms		
	Releasing time	Max. 25ms		
	Absolute position error <sup>※1</sup>	±20 minute (0.33°)		
	Lost motion <sup>※1</sup>	±20 minute (0.33°)		
	Insulation class	B type (130°C)		
	Insulation resistance	Over. 100MΩ (at 500VDC megger) between motor coil-case		
	Dielectric strength	1kVAC 50/60Hz for 1 minute between motor coil-case		
Environment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C		
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
	Protection structure	IP30 (IEC34-5 standard)		
	Weight <sup>※2</sup>	Geared built-in type: Approx. 1.57kg (approx. 1.3kg), Geared+Brake built-in type: Approx. 1.65kg (approx. 1.57kg), Rotary actuator type: Approx. 1.4kg (approx. 1.3kg), Rotary actuator+Brake built-in type: Approx. 1.7kg (approx.1.6kg)		
	Reference	Q-51 to 54		

※1: It is only available for rotary actuator type.

※2: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

# 5-Phase Stepper Motor

## ■ Specifications

### ● Frame size 85mm

Model	Standard 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 (2.1N·m)		41kgf·cm (4.0N·m)		63kgf·cm (6.2N·m)	
Rotor moment of inertia		1400g·cm <sup>2</sup> (1400×10 <sup>-7</sup> kg·m <sup>2</sup> )		2700g·cm <sup>2</sup> (2700×10 <sup>-7</sup> kg·m <sup>2</sup> )		4000g·cm <sup>2</sup> (4000×10 <sup>-7</sup> kg·m <sup>2</sup> )	
Rated current		1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase
Standard step angle		0.72°/ 0.36° (Full/Half step)					
Electromagnetic brake	Rated excitation voltage	24VDC ±10% (non-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia moment	153×10 <sup>-7</sup> kg·cm <sup>2</sup>					
	Operating time	Max. 60ms					
	Releasing time	Max. 15ms					
Insulation class		B type (130°C)					
Insulation resistance		Over. 100MΩ (at 500VDC megger) between motor coil-case					
Dielectric strength		1kVAC 50/60Hz for 1 minute between motor coil-case					
Environ- ment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C					
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH					
Protection structure		IP30 (IEC34-5 standard)					
Weight <sup>※1</sup>		Standard shaft type: Approx. 2.15kg (approx. 1.7kg), Hollow shaft type: Approx. 2.18kg (approx. 1.7kg), Brake built-in type: Approx. 2.74kg (approx. 2.64kg)		Standard shaft type: Approx. 3.25kg (approx. 2.8kg), Hollow shaft type: Approx. 3.28kg (approx. 2.8kg), Brake built-in type: Approx. 3.84kg (approx. 3.74kg)		Standard shaft type: Approx. 4.25kg (approx. 3.8kg), Hollow shaft type: Approx. 4.28kg (approx. 3.8kg), Brake built-in type: Approx. 4.84kg (approx. 4.74kg)	
Reference		<b>Q-44 to 50</b>					

※1: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

### ● Frame size 85mm

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+ 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 (13.7N·m)		200kgf·cm (19.6N·m)		200kgf·cm (19.6N·m)	
Rotor moment of inertia		2700g·cm <sup>2</sup> (270×10 <sup>-7</sup> kg·m <sup>2</sup> )					
Rated current		1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase	1.4A/Phase	2.8A/Phase
Standard 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°)					
Electromagnetic brake	Rated excitation voltage	24VDC ±10% (non-polarity)					
	Rated excitation current	0.62A					
	Static friction torque	40kgf·cm					
	Rotation part inertia moment	15.3×10 <sup>-6</sup> kgf·cm <sup>2</sup>					
	Operating time	Max. 15ms					
	Releasing time	Max. 60ms					
Insulation class		B type (130°C)					
Insulation resistance		Over. 100MΩ (at 500VDC megger) between motor coil-case					
Dielectric strength		1kVAC 50/60Hz for 1 minute between motor coil-case					
Environ- ment	Ambient temperature	-10 to 50°C, storage: -25 to 85°C					
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH					
Protection structure		IP30 (IEC34-5 standard)					
Weight <sup>※1</sup>		Geared built-in type: Approx. 4.88kg (approx. 4.4kg), Geared+Brake built-in type: Approx. 5.5kg (approx. 5.2kg)					
Reference		<b>Q-51 to 54</b>					

※1: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors &amp; Drivers &amp; Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software